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CONTEMPORARY MONETARY THEORY

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CONTEMPORARY MONETARY THEORY

Studies of Some Recent Theories of Money, Prices, and Production

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TO

MY MOTHER AND FATHER

PREFACE

THE main purpose of this study is to summarize and to examine the theories of four of the outstanding recent writers on monetary and business cycle problems: R. G. Hawtrey, D. H. Robertson, F. A. von Hayek, and J. M. Keynes. The emphasis throughout is on the concepts and analytical procedures which are involved in the different theoretical systems. Because it is no longer possible to distinguish clearly between monetary theory and business cycle theory, the problems relevant to both of these branches of economic study are dealt with as one. It is likewise impossible to criticize the concepts of theory without taking account of the proposals for stabilizing economic activity which the various writers have advanced. For this reason each of the writers concerned is studied not only with respect to the analytical procedures which he utilizes but also with respect to his end conclusions as to appropriate monetary policy.

Because there are considerable differences between the systems of ideas that are brought under examination, it is not possible to develop each of the four sections of this work on the same general scheme. There are, however, certain common elements in the four main divisions of this volume. In each of the separate studies we have dealt with (a) the general nature of the theoretical approach, (b) the important terminology of the theory, (c) the main concepts and analytical devices which are used, (d) the theory of price movements, (e) the explanation of the "cycle" which is advanced and (f) the relation between the particular analytical method and the control program which is sponsored.

The materials that have been used are the published books and journal articles of the four writers and also those of other writers who have directly or indirectly developed criticisms of the theories with which we are concerned. It has not been necessary to cover the whole literature in order to satisfy the

aims of this work. Only the more important ideas and lines of reasoning have been examined. A selected bibliography of the material in this field is found in Appendix A.

The order in which the different theoretical systems are discussed was suggested mainly by the chronological development of ideas in this field. R. G. Hawtrey is discussed first because his *Currency and Credit* is, in a certain sense, the first of the "modern" books on the theory of money. It is true, of course, that what we know about the history of monetary theory indicates that theories now current have rather long histories. Nevertheless, the treatment of money from the credit point of view and the consideration of the theory of credit expansion and contraction, which is the major concern of present-day monetary theory, owes much to Hawtrey's early work. The order in which the other writers are discussed raises, I believe, no special questions. That Robertson's *Banking Policy and the Price Level*, which carries on into the field of monetary theory the intellectual apparatus developed by Alfred Marshall, claims a place of high distinction in the history of monetary and business cycle theory is a proposition not, it seems to me, open to debate. His analysis of the operation of non-monetary and monetary forces and their influence on the process of capital formation constitute what appear to me to be his greatest contributions and in these matters his priority seems unquestionable. That body of theory developed by F. A. von Hayek, which is, as he indicates, a further development of Böhm-Bawerk's capital theory, is concerned with the same general problem of capital formation and the relation between money and the operation of the whole economic system. J. M. Keynes is discussed last because we concern ourselves mainly with the *General Theory of Employment, Interest and Money*. A different order of treatment, on a chronological basis, would be required were we to discuss his earlier *Treatise on Money*. As I have tried to show in discussing Keynes's theory, his main interest is in effecting the reformulation of general economic theory which he believes to be neces-

sary in order to enable one to discuss adequately the relation of money to the economic system. This is the aspect of Keynes's work to which I have given most attention and the one which seems to me to be the most important.

The difficulties of making a study of this kind are quite apparent. Ideas in this branch of economics are many and diverse, and the important ones seem to be regularly the most difficult to comprehend. Furthermore, not only does the exposition of the ideas leave much to be desired but also the principal writers are currently producing new ideas or variations upon older concepts. The former situation might, perhaps, have been avoided, but the latter is inescapable in a field of study that is in process of development.

Because of these major difficulties I do not feel at all sure that the interpretations which I have made are correct in all instances or that the comments which I have made on the various ideas are in all cases valid. But if such errors have been committed they are inadvertent.

This task of tracing some of the more important developments in contemporary monetary theory was undertaken at the suggestion of Professor James W. Angell of Columbia University and was carried out under his guidance. The acknowledgment I owe and gratefully make to Professor Angell is due both for his constant critical appraisal of ideas and for his kind and generous personal attitude. To my early teachers, Professor Harry M. Fife of Middlebury College and Professor Lloyd L. Shaulis of Tufts College, I owe great intellectual debts. Among my former teachers and present colleagues at Columbia University there are many to whom I wish to express special thanks. Professors W. C. Mitchell, J. M. Clark, B. H. Beckhart and A. D. Gayer and Dr. Harold Barger have read the typescript in whole or in part and have given me the benefit of their criticisms. I want especially to express my gratitude to Prof. B. H. Beckhart for his indispensable aid in connection with the work of publication. To my friend and colleague Professor Horace Taylor I owe a profound debt for assistance

with many of the points of interpretation and appraisal that have been raised in the course of this study and for his constant personal encouragement. Without the aid and sympathetic support of these and many others this work could not have been completed. However, for the interpretations and criticisms advanced in this volume I am solely responsible.

The following firms have very kindly permitted me to make quotations from books published by them: Jonathan Cape, Ltd., Harcourt, Brace and Co., P. S. King and Son, Ltd., Longmans, Green and Co., Macmillan Co., McGraw-Hill Book Co., National Bureau of Economic Research, Inc., Oxford University Press (Royal Institute of International Affairs) and George Routledge and Sons, Ltd.

CONTENTS

PART I

R. G. HAWTREY

CHAPTER I

INTRODUCTION 19

CHAPTER II

HAWTREY'S MONETARY APPROACH TO BUSINESS CYCLE THEORY . . 21
(1) The power of monetary control devices 21
(2) The monetary theory of the period of the cycle 22
(3) The importance of monetary equilibrium 23
(4) Monetary factors and the explanation of the cycle 25
(5) Summary 27

CHAPTER III

THEORY OF PRICE MOVEMENTS 28
(1) Consumers' income and outlay 28
(2) The influence of credit changes on consumers' incomes and outlays 29
(3) Traders' receipts and expenditures 30
(4) Releases and absorptions of cash 32
(5) Hawtrey's criticism of the quantity theory of money 37
(6) Hawtrey's theory of price changes 39
(7) Summary of price theory 42
(8) Comments 43

CHAPTER IV

ELEMENTS IN HAWTREY'S EQUILIBRIUM ANALYSIS 49
(1) Primary condition of monetary equilibrium 50
(2) Cash balances 52
(3) Consumers' income and outlay 53
(4) General demand 55
(5) Savings and investment 57
(6) The rate of interest 59
(7) Wages, prices, and productive activity 63
(8) Summary 66

CHAPTER V

THEORY OF THE BUSINESS CYCLE AND OF ECONOMIC DEPRESSION.
(1) Contraction phase of the cycle 68
(2) Expansion phase of the cycle 71

PAGE

(3) Limits upon expansion and contraction set by drains and returns of cash 74
(4) Financial crises 77
(5) The credit deadlock 78
(6) Summary and comments 81

CHAPTER VI

Control Program 87
(1) Price policy 87
(2) Stabilization of consumers' income and outlay 89
(3) Inflationary measures 92
(4) Interest rate control 95
(5) Public works 98
(6) Summary 100

CHAPTER VII

Summary of Comments on Hawtrey's Theory 102

PART II

D. H. Robertson

CHAPTER I

Introduction 111

CHAPTER II

General Character of the Theory 112
(1) Interrelation of "real," "psychological," and "institutional" factors 112
(2) The general relation between economic stability and real changes 113

CHAPTER III

Factors Making for Change in the Rate of Economic Activity and their Relation to Standards of Economic Policy 115
(1) First assumptions 115
(2) Changes in real cost 116
(3) Changes in real demand 117
(4) Changes in real demand prices 119
(5) Institutional factors and the responses to real change . 122
(6) Factors making for "inappropriate" responses to real changes 126
(7) Standards of economic policy 128
(8) Summary and criticism 130

PAGE

CHAPTER IV

BANKING POLICY AND CAPITAL FORMATION 134
(1) Definitions 134
(2) Illustrative cases 146
(3) Summary and criticisms 162

CHAPTER V

THE BUSINESS CYCLE AND ITS CONTROL 173
(1) Phase of expansion 173
(2) Phase of contraction 178
(3) Corrective measures for expansion and contraction 180
(4) Summary 189

CHAPTER VI

PRICE LEVEL POLICY 190
(1) General summary 190
(2) Tests of price level policy 191
(3) Rising prices 192
(4) Stable price level 194
(5) Price level varying inversely with productivity 195
(6) Individual money balances and banking policy 197
(7) Summary 200

CHAPTER VII

CONCLUSIONS 202
(1) General problems discussed 202
(2) General comments on the theory 204

PART III

F. A. VON HAYEK

CHAPTER I

INTRODUCTION 213

CHAPTER II

THE GENERAL NATURE OF HAYEK'S THEORY 216
(1) Criticism of certain elements in monetary explanations of the cycle 216
(2) Criticisms of non-monetary theories of the cycle 217
(3) Comments on Hayek's criticisms of monetary and non-monetary theories of the cycle 222
(4) Central thesis of Hayek's theory of the cycle 224

PAGE

CHAPTER III

THE CONCEPT OF THE STRUCTURE OF PRODUCTION 228
(1) Main concepts and definitions 228
(2) Changes in the structure of production 232
(3) The effect of changes in voluntary savings on the structure of production 234
(4) The effect of changes in the effective money supply on the structure of production 236

CHAPTER IV

VARIATIONS IN PRICE MARGINS AND CHANGES IN THE STRUCTURE OF PRODUCTION 239
(1) Price margins, the rate of interest, and changes in the structure of production 239
(2) Changes in price margins and in the use of resources caused by the creation of additional money 242
(3) Changes in the relative demand for consumers' and producers' goods and the consumption of capital 244
(4) Changes in the structure of production and unemployment of resources 250
(5) Comments 251

CHAPTER V

THE PERIOD OF PRODUCTION CONSIDERED AS AN INVESTMENT PERIOD: CRITICISMS BY PROFESSOR F. H. KNIGHT 261
(1) The "investment period" 261
(2) Knight's criticism of Hayek's capital theory 265
(3) Replies to Knight 271
(4) Summary 274

CHAPTER VI

THE POLICY OF "NEUTRAL MONEY" 276
(1) Meaning of neutral money policy: some conditions in which the supply of money should be altered 276
(2) Criticism of the policy of constant money volume by Durbin, Meade, Harrod, Ellis, and Angell 278
(3) Hayek's interpretation of "neutral money" as an analytical tool rather than as a statement of practical policy 288
(4) Durbin's criticism of the neutral money policy: the importance of assumptions concerning the utilization of resources and price responses 290
(5) Summary 293

PAGE

CHAPTER VII

General Summary 296

PART IV

J. M. Keynes

CHAPTER I

Introduction 303
(1) Keynes' criticisms of "classical economics": comments on his views 304
(2) Preliminary summary of Keynes' theory of employment . . . 308

CHAPTER II

Basic Terminology of the General Theory 311

CHAPTER III

The Propensity to Consume and the Multiplier 326
(1) Propensity to consume: explanation and criticism of the concept 326
(2) The marginal propensity to consume and the multiplier: comments on Keynes' methodology 331

CHAPTER IV

The Marginal Efficiency of Capital and the Rate of Interest 337
(1) The marginal efficiency of capital: explanation and criticism of the concept 337
(2) The theory of the rate of interest 342
(3) Comments on Keynes' interest theory 347

CHAPTER V

The Theory of Price Movements 354
(1) Summary of the theory of prices 354
(2) Comments on the theory of prices 356

CHAPTER VI

The Business Cycle and Plans for the Stabilization of Activity 360
(1) Explanation of the business cycle 360
(2) Comments on the theory of the cycle 360
(3) Summary of Keynes' control program 363

CHAPTER VII

Summary 372

PAGE

PART V

CONCLUDING REMARKS

(1) The relations between monetary theory and general economic theory 377
(2) The distinction between monetary and non-monetary forces. 383
(3) The treatment of the time problem in monetary theory . . 385
(4) Some problems in the theory of monetary policy 388

APPENDIX

BIBLIOGRAPHICAL NOTE

A Selected Bibliography of Books and Articles on the Theory of Money and the Business Cycle 393

INDEX 417

PART I

R. G. HAWTREY

CHAPTER I

INTRODUCTION

It is the purpose of this essay to discuss those writings of Mr. R. G. Hawtrey which relate to the theory of money and prices and to the explanation of the business cycle. As in the other sections of this work, we shall discuss only the principal features of the theoretical system. Our principal interest is in the analytical tools which are utilized and in their applications to various economic problems.

Hawtrey is often referred to as a "monetary" theorist so far as concerns his explanation of the business cycle. In the next chapter of this essay we shall state his position on this matter and attempt to show what, in his view, is meant by a "monetary" approach to business cycle problems. In Chapter III we shall summarize the theoretical apparatus which Hawtrey utilizes to systematize his analysis of the phenomena which he considers influential in determining changes in the value of money. This includes a statement of his version of the quantity theory of money. Because an interesting equilibirum approach is clearly discernible in Hawtrey's work, and because this theoretical concept is an essential element in his theory of money, prices, and production, a separate section, Chapter IV, is devoted to this topic. The various aspects of his equilibrium concept are presented and it is shown how the idea is utilized in explaining the various problems with which he is concerned. In Chapter V we discuss his theory of the business cycle. Here, as in the corresponding section in the essay on D. H. Robertson, only those elements in Hawtrey's work which are directly related to the monetary theory will be considered, although this results in a rather summary statement of his position. Chapter VI is a discussion of his views as to control policy, with particular reference to the kind of price level policy which should be pursued if stability in the

economic system is to be maintained. In this section we shall also consider the other practical proposals which he makes in connection with his analysis of economic control measures. An effort is made to show how these proposals take their special character from the economic theory from which they are derived. In the concluding division, Chapter VII, the preceding sections are summarized and some general comments are made on the work as a whole.

CHAPTER II

HAWTREY'S MONETARY APPROACH TO BUSINESS CYCLE THEORY

HAWTREY once wrote that he believed the business cycle to be a "*purely* monetary phenomenon",[1] and this statement has often served to distinguish his writings for those who seek to classify doctrinal systems. It is necessary to make a careful examination of his writings, however, in order to form a judgment as to the meaning of this proposition. While it is obvious that Hawtrey may be classified as a "monetary" theorist so far as concerns his explanation of the business cycle, he presents a special version of the monetary approach. In this chapter we shall examine the various elements in his general approach to monetary and business cycle problems.

(1) *The power of monetary control devices.*

In the first place, it cannot be said that Hawtrey denies the possibility of using theories of over-confidence or over-production to explain certain aspects of the business cycle. One version of these ideas plays an important part in his own theory. He has argued that even though one might admit the causal significance of such factors it can be shown that states of over- or under-confidence and of increasing or decreasing rates of investment can be *controlled* by monetary devices. He writes as follows: ". . . it is money income that determines expenditure, expenditure that determines demand, demand that determines prices. Therefore the problem of regulating prices is reduced to the problem of regulating trade borrowing." Again,

1 *Monetary Reconstruction*, Second Edition (Longmans Green, London, 1926), p. 132. Later he writes: "The trade cycle is a monetary phenomenon because general demand is itself a monetary phenomenon." *Capital and Employment* (Longmans Green, London, 1937, p. 124). Here general demand means total money expenditures on finished goods.

" the volume of trade is amenable to human control " through the agency of the Central Banks, by varying the cost of loans.[2]

The possibility of monetary control is based, according to Hawtrey, on the theory that any force making for fluctuations in the rate of activity must work through credit developments if it is to realize its full effect. If the credit facilities do not exist the fluctuation is not accomplished.[3] So the control of the fluctuation is based on the control of the credit development. This view that fluctuations in business can be controlled by credit measures is characteristic of Hawtrey. There is this much evidence, then, that his monetary approach to the cycle may be taken to mean that substantial control power is imputed to monetary devices.

(2) *The monetary theory of the period of the cycle.*

But Hawtrey has written further in explanation of his position. He points out, " It is the *periodical* character of the fluctuations forming the trade cycle that I believe to be wholly due to monetary causes." [4] This view is developed to show that it is the rate of progress of credit developments that determines the extent and duration of the cycle; thus, " when credit movements are accelerated, the period of the cycle is shortened." [5] There are two significant aspects of this position. First, the emphasis is on the fluctuations which form the trade cycle, to the exclusion of other kinds of industrial changes. Presumably this rules out seasonal, secular, or random variations in the rate of economic activity. Second, it is the period-

2 *Monetary Reconstruction*, pp. 130, 132 and 134.

3 This is close, in a sense, to that element of Professor J. M. Clark's theory of the cycle that treats credit as an " enabling device." While Clark does take the position that credit may initiate disturbances he generally seeks the stimulus in other, non-monetary, factors. *Strategic Factors in Business Cycles* (National Bureau of Economic Research, New York, 1934), pp. 72-3. Hawtrey gives credit a far more prominent place in his scheme of things.

4 *Trade and Credit* (Longmans Green, London, 1928), p. 175. His italics.

5 *Ibid.*, p. 175.

ical character of these fluctuations which he feels can be explained only on monetary grounds.[6] Period means here the time over which the entire cycle is spread. These limitations are important to bear in mind in interpreting Hawtrey's theory. It is the periodical character of the *cycle* and not the *initiating* cause that is the core of his problem; in fact, this last may be any one of a "great variety of causes."[7] But these causes can only lead to a cycle if they are facilitated, or "enabled" as shown above, by appropriate credit developments. Likewise, the rate of progress of the cycle may be influenced by non-monetary causes, but these factors operate indirectly and through the medium of the credit movement. For example, a non-monetary factor such as optimism in a particular industry can affect activity directly, but it cannot exert a general influence on industry unless the optimism is allowed to reflect itself through monetary changes.[8] There are these two strands, then, in the theory that the cycle is a purely monetary phenomenon.

(3) *The importance of monetary equilibrium.*

We shall be concerned below with a detailed study of Hawtrey's equilibrium analysis, but at this point, for the purpose of further explaining his monetary approach, we can indicate that monetary equilibrium is conceived of as being fundamental to general economic stability. He has argued that if its conditions are maintained ". . . the stability of every other part of the machine follows."[9] Furthermore, if there is a deviation from monetary equilibrium, that is, if a credit contraction or expansion begins, this deviation tends to grow with cumu-

6 *Capital and Employment*, pp. 7-8.

7 *Trade and Credit*. p. 175. See *Capital and Employment*, p. 100, where different factors stimulating a release of cash to pay for increased capital outlay are listed. In *Trade and Credit* the "starting point" was found in "the endless fortuitious variations in the credit position and in traders' expectations, which are always occurring" (p. 98).

8 *Ibid.*, p. 176. Explicitly, through increased borrowing.

9 *Currency and Credit*, Third Edition (Longmans Green, London, 1927), p. 11. All references are to this edition.

lative effect. In some of his earlier works the check to this disturbance of equilibrium was found to be a purely monetary factor, namely, the external and internal drains (returns) of cash out of (into) the banking system. These developments were held to govern the period of the credit movement and thus the period of the general cycle of activity. But in his latest book, *Capital and Employment*, this theory of cash drains and returns is held to be relevant only to the cycles of the 150 year period ending in 1914.[10]

It is interesting to note that the theory of monetary disequilibrium is used in explaining cycles to the exclusion of such theories as the over-development of producers' goods in general or the over-development of specific industries. Hawtrey claims that there has never been a general glut of capital goods and, further, that there is no present indication that this sort of situation could ever act to cause a depression. He argues that still unexploited opportunities for investment are sufficient to take up all the capital resources of the market provided the interest rate is appropriately adjusted. A "glut" of capital is at present a practical impossibility.[11] Hawtrey would admit that a *temporary* glut may occur during a depression but he insists that this is an effect of a contraction of demand and not a cause.[12]

Finally, Hawtrey takes the position that while a single industry may be developed beyond the demand for its particular product, this is merely a normal case of economic adjustment.[13] No depression is caused as long as there is no shrinkage of general demand. The difficulties of making the adjustment are usually exaggerated, he argues, by the fact that a shrinkage of general demand does occur. But if this were not the

10 *Capital and Employment*, pp. 122-123. This point will be examined in some detail in a later section.

11 *Ibid.*, pp. 101-106; *Trade Depression and the Way Out*, second edition (Longmans Green, London, 1933), chapters vi, vii.

12 *Capital and Employment*, pp. 78-80, 102.

13 *Ibid.*, pp. 106-108.

case, the adjustment could be effected without any substantial trouble.[14] This view that neither a general nor a partial overdevelopment of investment is sufficient to cause a business depression is expressed in an extreme form when he argues that the American crisis of 1929 was not caused by any fundamental economic dislocation. It was the behavior of the banking system which determined the course of events.[15]

(4) *Monetary factors and the explanation of the cycle.*

Hawtrey has pointed out that one of the principal theses of the monetary theory of the business cycle is that "certain monetary or credit movements are *necessary* and *sufficient* conditions of the . . . trade cycle."[16] This is perhaps the most clear-cut statement of the position. It has been accepted by Professor Hayek as an entirely correct definition (in conjunction with the periodicity thesis) of the monetary theory of the business cycle.[17] According to this view, the disturbing monetary forces manifest themselves in expansions or contractions of general money demand.[18] The importance which Hawtrey attributes to such changes can be illustrated clearly by the following quotation concerning the state of business inactivity in 1932: ". . . the underlying cause of the trouble has been *monetary instability*. The industrial depression and unemploy-

14 *Trade Depression and the Way Out*, second edition, pp. 95-96. Unless noted, all references are to the second edition, hereafter referred to as *Trade Depression*.

15 *Ibid.*, pp. 85-96. Also, *The Art of Central Banking* (Longmans Green, London, 1932), p. 80 especially, and pp. 41-83 *passim*.

16 "The Monetary Theory of the Trade Cycle and the Statistical Test," *Quarterly Journal of Economics*, vol. xli, May, 1927, p. 474. The second thesis concerns periodicity: "the periodicity . . . can be explained by purely monetary tendencies, which cause the movements to take place in succession and to be spread over a considerable period of years." *Ibid.*, p. 472.

17 *Monetary Theory and the Trade Cycle* (Jonathan Cape, London, 1933), p. 141 n.

18 Where demand is taken to mean "the number of monetary units offered out of income for goods." (*Trade Depression*, p. 101; see also, *ibid.*, p. 101 n.) The term has no relation, in a strict sense, to the demand function.

ment, the insolvencies, bank failures, budget deficits and defaults, are all natural outcomes of a falling price level." [19] The business depression is "essentially a deficiency of general demand." [20]

In such an analysis the banking system is necessarily given a highly strategic rôle in governing the course of events. For example: "When production is increased, the producers obtain from the banks the means of paying the increased incomes. The increase of production is therefore conditional on the action of the banks. When the banks lend, they *generate incomes*." [21] The further implications of the banks' action, as they are set forth in Hawtrey's writings, will be considered below; suffice it to say at this point that it is the power of the banks to create the means of payment [22] that gives to the banker the degree of control over economic activity which Hawtrey is so intent upon recognizing. To take the position that the business cycle is a purely monetary phenomenon may well subject one to the charge of holding a too limited view of the causes of the business cycle. Specifically, it might be argued that Hawtrey believes that all economic disorders can be corrected by monetary means. Indeed, the usually very direct manner of Hawtrey's writing does tend to invite this opinion. He has recently, however, discouraged this interpretation. In defense of the monetary theory, he writes: "Advocates of the monetary theory of trade depressions are often accused of recommending a panacea which is too simple for a situation complicated by many and various economic ills. But this is a misunderstanding. The monetary theory offers an explanation of *one* important class of economic disorders, and indicates the remedy for them. It does not pretend that a community

19 *The Art of Central Banking*, p. 228. His italics. This volume is hereafter referred to as *A. C. B.*

20 *Capital and Employment*, p. 109.

21 *Trade Depression*, p. 4. His italics.

22 *Trade and Credit*, p. 1. See also, *Capital and Employment*, p. 101.

perfectly free from monetary fluctuations would have no economic disorders at all." [23] For further evidence of his willingness to admit the significance of non-monetary factors one can refer to the many historical studies that constitute the bulk of his writings. In these he allows for many non-monetary factors which act upon the complicated course of events.[24]

(5) *Summary*

Thus, Hawtrey may be termed a "monetary" theorist as concerns his explanation of the business cycle on the grounds that he believes (a) that monetary control devices are sufficient to regulate non-monetary causes, (b) that the periodical character of cyclical fluctuations can be explained only on monetary grounds, (c) that monetary equilibrium is the fundamental condition of economic stability, and (d) that monetary instability is the fundamental cause of depression.

In order to evaluate this approach to the business cycle it is necessary to consider each of the foregoing propositions. This task cannot be undertaken at this point, but in subsequent sections, where these matters are dealt with in detail, we will refer back to this question of the adequacy of the monetary explanation. It has been the purpose of this section merely to summarize Hawtrey's general position or approach to the subject.

In the next chapter we will deal with Hawtrey's theory of the value of money—his explanation of changes in the level of prices. In this connection it is necessary to make a detailed examination of the analytical apparatus which he utilizes.

23 *Trade Depression*, pp. v-vi.

24 See, for example, *Currency and Credit*, part ii.

CHAPTER III

THEORY OF PRICE MOVEMENTS

IN the preceding chapter we discussed the grounds on which Hawtrey can be said to hold a monetary theory of the business cycle. No account was taken, however, of his explanation of changes in the value of money, since the issue was the explanation of general cycles of business and not of price movements alone. But his theory of prices is fundamental to his business cycle analysis, for the reason that price disturbances are among the predominant features of monetary instability. This section is devoted to his theory of changes in the value of money. Specifically we will discuss (a) the concepts of consumers' income and outlay, (b) the influence of credit movements on the incomes and expenditures of consumers, (c) the incomes and expenditures of traders, (d) the relation between his concepts of releases and absorptions of cash and the maintenance of cash balances by individuals, (e) Hawtrey's criticism of the quantity theory of money, and (f) his explanation of changes in the level of prices. The chapter is concluded with a summary of Hawtrey's views and some comments on his general procedure and conclusions.

(1) *Consumers' income and outlay.*

Hawtrey's analysis of changes in the value of money turns upon his use of the concepts of consumers' income and consumers' outlay. He writes: "consumers' income and outlay are the essential factors in the process by which the monetary system is regulated. All that is said, in the course of monetary theory, about the quantity of money or of bank credit, about the volume and value of transactions, about velocity of circulation, or about the price level, is simply one method or another of approaching these fundamental factors, and recording their fluctuations inferentially." [25]

25 *The Art of Central Banking*, p. 279.

Consumers' income is defined as the "total of incomes expressed in money";[26] consumers' outlay is defined as the total of money payments made out of income. The outlay may be on consumers' goods, on capital assets, or on the rights to capital assets. Investment in securities, for example, is a part of consumers' outlay when the payment is made out of income. Some money receipts, however, are not counted as income and therefore not as outlay if expended. Gifts, bequests, inheritances, gambling gains, the proceeds from sale of capital assets or securities, and all borrowings other than those made from banks are included in this category and are termed "extraneous receipts." Extraneous receipts are treated as negative outlay so that ". . . the consumers' outlay over any period of time in which there have been extraneous receipts . . . [is] . . . a net amount arrived at by deducting a sum equal to the extraneous receipts from the total outlay."[27] If a consumer sells a capital asset to another consumer, this involves negative outlay (extraneous receipts) to the seller and positive outlay (investment) to the buyer and ". . . the net result is no outlay at all, till the seller comes to spend the proceeds of sale."[28]

(2) *The influence of credit changes on consumers' incomes and outlays.*

The influence of credit changes on the amount of the consumers' outlay and income requires special attention. Hawtrey has argued that when a consumer borrows from another consumer, if we term the proceeds of the loan extraneous receipts and thus deduct them from total outlay for the period in question, and if we view the creditor as an investor making a positive outlay, we avoid the possibility of the double counting

26 A more detailed statement of the definitions is found in a recent article on "Monetary Analysis and the Investment Market," *Economic Journal*, vol. xliv, December, 1934, pp. 631-649. This was revised and published as ch. vi of *Capital and Employment*.

27 *A. C. B.*, p. 86. The sum deducted is termed "extraneous outlay."

28 *Ibid.*, p. 86.

involved in considering both the use of the loan and the making of the investment as outlay. When the loan is repaid the repayment is consumers' outlay to the debtor and extraneous receipts to the lender, in the sense that the latter is now "disposing of an investment." [29]

However, when a consumer borrows from a bank the loan is considered as an "anticipation of income," that is, as a part of the consumers' income and not, as in the previous case, as an extraneous receipt. This difference in the treatment of bank lending is justified on the ground that ". . . the bank, unlike the consumer, does not have to draw on a definite cash holding to make the loan, but *creates* the cash in the form of its obligation." [30] Credit from a business man is considered, not as an anticipation of income, but as an extraneous receipt. The granting of credit to consumers by the methods of installment selling ". . . enables consumers to supplement the consumers' outlay with these extraneous receipts, so that the demand for goods exceeds the consumers' outlay. Later on, when the installments are paid, the demand for goods falls short of the consumers' outlay." [31]

(3) *Traders' receipts and expenditures.*

Hawtrey usually proceeds by dividing the community into two economic groups, the traders and the consumers.[32] A trad-

29 *Ibid.*, p. 86.

30 *Ibid.*, p. 88. His italics. He has also written: "When a bank lends, it creates money out of nothing." (*Trade Depression*, p. 4.) While Robertson would agree that, in some instances, this accurately describes the bank's actions, he is more interested in the non-monetary effect of credit creation, that is, the effect on the allocation of resources. The same is true of Hayek.

31 *A. C. B.*, p. 94.

32 A trader is "... anyone, whether a producer or a dealer in commodities or in securities, etc., who makes his income in the form of profit." (*A. C.B.*, p. 89.) Again, "a trader is anyone who incurs costs in the course of his business." (*Economic Journal*, vol. xliv, December, 1934, p. 632.) In *Capital and Employment* it is pointed out that the trader may be "a partnership or joint-stock company which earns profit for its members" (p. 64). In this

er's income is his "net receipts" or profit, that is, the difference between costs and selling price. Obviously, the difficulty of defining (or computing) costs makes this a necessarily vague and uncertain concept. Profits may arise from increases in the value of stocks of goods, but in this matter there are difficult quantitative questions, and Hawtrey has taken the view that such increases are not to be counted as income except when actually realized. The business receipts and disbursements of the trader are called "trader's turnover" and are to be distinguished from the consumers' income and outlay. The trader gets his "true income" out of the profits of business; this much of the trader's receipts counts as part of the consumers' income. But if this return accrues as a dividend not currently earned but paid out of a corporate reserve, it is an extraneous receipt.[33] Hawtrey admits the difficulty of computing profits and also that the trader may take either more or less than his true income. If he takes less he is making an automatic investment which is part of the consumers' outlay. If he takes more it is an extraneous receipt and must be deducted from total outlay to get his positive outlay. All of this goes to show that the consumers' income and outlay at any point in time are impossible of precise statement. Their theoretical statement depends on a far more rigid formulation of profit theory than Hawtrey advances. Furthermore, if there is a true income for the trader there must be true incomes for all factors; if the trader takes more than his true income it is implied that some other factor gets less than its true income. If traders take less than their true income others may get more and the "investment" is not automatically accomplished. This point illustrates how necessary it is to have a distribution analysis worked out as an integral part of business cycle theory.

case the stockholders are the consumers who expend the income of the trading concern. This revision was essential to take the corporation into account directly.

33 *A. C. B.*, p. 91.

We receive no real assistance from the text as to what is meant by true income; it seems to refer to what Robertson calls "the value of one's current economic output" and is clearly subject to the same objections.

(4) *Releases and absorptions of cash.*

This terminology is used by Hawtrey in his "cash-balances" approach to the theory of the value of money. He writes, "any difference between the income and outlay of an individual consumer over an interval of time is reflected in his cash balance." [34] In this concept cash is taken to mean currency, plus credit in the form of holdings of current and/or time deposits. When an individual has withheld income in order to build up a cash balance he is in a position to spend more than current income in following periods. This cash balance is, in a sense, the net resultant of past financial transactions; it is, in fact, "the excess of his income over his outlay up-to-date. It is strengthened by extraneous receipts in just the same way as by additional income, but the extraneous receipts are offset by the equivalent extraneous outlay." [35] The traders' cash balances comprise the remaining currency and bank credit outstanding.

In his latest book, *Capital and Employment*, Hawtrey introduces a new concept, namely, net cash resources. These equal the excess (either positive or negative) of cash balances over short-term bank indebtedness.[36] If an individual decreases his net cash resources this means that he is paying away bank advances and releasing cash. If net cash resources increase he is absorbing cash. The act of gaining a bank advance does not itself alter net cash resources, since both cash and indebtedness increase equally. The net cash resources change as a result of

34 *Ibid.*, p. 87.

35 Factors affecting the size of the cash balance are discussed in *Currency and Credit*, pp. 42-43. See *Economic Journal*, vol. xlv, pp. 512-513 on the importance of the cash-balances principle.

36 *Capital and Employment*, pp. 65 and 141, n.

changes in the income and disbursements of individuals. There cannot be a net absorption or release of cash in the sense of a change in the net cash resources of the community because all short-term indebtedness is represented by cash. The reduction of an individual's net cash resources must be equal to someone else's increase in net cash resources. A net release or absorption of cash for the community as a whole can only be effected by the banking system.[37] When the banks buy (sell) securities they add to (subtract from) cash without adding to (subtracting from) bank indebtedness. The result is an increase (decrease) in net cash resources, that is, a net release (absorption) of cash.[38]

But even though consumers and traders cannot, in their own spheres, alter either the total amount of cash balances or the community's net cash resources, they can initiate important monetary movements by disbursing more (less) than their receipts, that is, by varying the relation of consumers' outlay to the total monetary supply. There may be a change in the rate of turnover of cash balances without any change in the community's net cash resources.

We can now relate the concept of the balance to the circulation of money through the economy to show how releases or absorptions of cash are accomplished. First, Hawtrey pictures consumers' outlay as a money stream ". . . flowing to the traders at each successive stage, from the retailers to the producers of raw materials. Each trader's cash balance is a reservoir from which the stream flows along income channels to those who contribute through their services or their property to the processes of production and distribution. The trader from his reservoir of cash (supplemented if need be by borrowing) can *release* cash to provide an outflow of incomes (including his own receipts on account of profits) in excess

37 On the assumption, of course, that this is the only cash-creating and -destroying body.

38 *A. C. B.*, p. 99.

of his sales. Or alternatively, if the outflow of incomes falls short of sales, he absorbs cash and can repay advances." [39] We can proceed from this to what Hawtrey calls the "more comprehensive principle" that the difference, in any interval of time, between incomes received out of economic activity and sales of products to consumers ". . . is provided for by an equal release or absorption of cash, accompanied presumably by such a decrease or increase in bank advances as may be required to keep cash balances at their normal level." [40] Thus the trader is in a position to bring about a difference between consumers' income and consumers' outlay. The traders determine ". . . whether their disbursements in the form of incomes (including their own profits) shall keep pace with their sales, or whether they shall exceed them or fall short of them. It is for them on the one hand to *increase productive activity* and *release cash*, or on the other to *contract productive activity and absorb cash*. In the one case they will probably increase their indebtedness to the banks, and in the other, reduce it." [41] It is Hawtrey's point of view that while demand equals consumers' outlay in the long run, ". . . the release or absorption of cash by the traders in any interval of time *adds to this demand or subtracts from it*." [42]

Also, releases or absorptions of cash may be effected through the capital market. This is done directly and involves either an increase or decrease in the community's net cash resources when the banks buy or sell securities on their own account. Also, traders in the investment market and traders in the actual capital goods market may release or absorb cash. In the case of the former a release (absorption) is accomplished if the "capital raised" (that is, the value of new and existing securities sold in the investment market plus re-invested profits less securities purchased or redeemed by traders) is greater

39 *Ibid.*, p. 95. My italics.

40 *Ibid.*, pp. 95-96.

41 *Ibid.*, p. 96. My italics. See also, *Capital and Employment*, p. 66.

42 *A. C. B.*, p. 97. My italics.

(less) than the "amount of investment" (that is, the difference between consumers' outlay and consumers' expenditures on consumption). Traders receiving funds from the investment market may release (absorb) cash if the "capital installed" (that is, capital goods purchased less depreciation) exceeds (is less than) "capital raised."

If either set of traders release cash in this way they must do so either by spending balances without increasing their indebtedness or by increasing their indebtedness and spending cash. In the first case their net cash resources are reduced; in the second case there is no change in their net cash resources. Since their cash balances are commonly very small, the release of cash will probably involve increased bank advances. This release of cash, financed by bank advances, is "a particular case of the principle . . . that traders can, by releasing or absorbing cash, add to or subtract from the demand for goods represented by the consumers' outlay." [43]

Finally, consumers may release or absorb cash, depending on whether their outlay exceeds or is less than their income. Although a release of cash might originate with consumers, Hawtrey thinks this unlikely. The consumers would either have to reduce their net cash resources or increase their bank indebtedness. It is more likely that releases or absorptions would originate with traders because of their more ready use of bank credit.[44]

But consumers with incomes augmented as a result of releases of cash by traders may increase their net cash resources and absorb cash or increase their outlay and restore the net cash balances of the traders. Thus, traders and consumers are in the position of each "unloading cash on the other." [45]

Hawtrey defines savings as the excess of consumers' income over consumption. This excess may be used to (a) increase

43 *Ibid.*, p. 99.

44 *Ibid.*, p. 99.

45 *Ibid.*, p. 99.

cash balances, (b) purchase an investment, (c) purchase instruments of consumption, that is, durable consumers' goods.[46] So consumers may release (absorb) cash if their savings are less (greater) than their purchases of investments and instruments of consumption. To the consumer (and to the community, unless counteracted elsewhere) this amounts to a disequilibrium between savings and capital outlay.

We may refer back to the two previous cases where it was shown that both traders in the investment market and traders being financed by the investment market can absorb or release cash. We now see that the same can be accomplished by the consumers. There are, then, three cases in which releases of cash may be accomplished in the saving and investment process. First, consumers may save less than the amount spent on investments and instruments of consumption; second, investment market traders may bring it about that capital raised exceeds the amount of investment; third, traders in industry may cause capital installed to exceed capital raised. The opposite relations would involve an absorption of cash. If there is no lack of equality at any stage then capital outlay is equal to savings.[47] There is disequilibrium in the investment market when capital outlay is not equal to savings, that is, when the equality breaks down in any one of the three connections discussed, and an absorption or release of cash is effected. This is Hawtrey's formulation of the so-called saving-investment relationship.

The releases or absorptions of cash which have been discussed have a very special significance in Hawtrey's theory of prices and the business cycle. Regardless of the special character of the release or absorption, it is very likely that they will set in motion forces tending to accelerate the movement with cumulative effect. As long as no counteracting movement is induced, the release or absorption spreads through the whole system. Such a situation is called a " transitional period " and

46 *Capital and Employment*, pp. 62-64, 159.

47 *Ibid.*, pp. 65-66.

involves a rupture of monetary equilibrium. If a release of cash sets in, equilibrium is restored only when the increase in consumers' income, consumers' outlay, and the rate of turnover of money create circumstances making people desirous of absorbing cash.[48] The restoration of equilibrium may be retarded by the fact that the movement acts cumulatively to raise prices, increase the volume of transactions, create prospects for increased prices and profits, and increase both the volume and turnover of bank balances. This is, according to Hawtrey, "one of the causes of the inherent instability of credit." [49] The disturbance and restoration of equilibrium act in a similar, but reverse, manner in the case of an absorption of cash.[50]

As indicated above, the release or absorption of cash adds to or subtracts from the consumers' outlay when effected by traders. This change in demand ". . . means an increased acquisition of goods by traders, and so increased productive activity." [51] Conversely, decreased productive activity follows from the decreased acquisition of goods resulting from an absorption of cash.

(5) *Hawtrey's criticism of the quantity theory of money.*

Before presenting Hawtrey's version of the quantity theory of money, we may state his general objections to that doctrine. He writes, ". . . given all the economic conditions, the prices of commodities are directly proportional to the number of units of value contained in the unspent margin of purchasing power. The wealth value of the unit is therefore *inversely* proportional to the unspent margin. Here we have in its simplest form what is called the Quantity Theory of money." [52] In

48 *A. C. B.*, p. 100.

49 *Ibid.*, p. 100.

50 The possibilities of an international release or absorption of cash are treated in substantially the same manner. See *A.C.B.*, pp. 104-105.

51 *Capital and Employment*, p. 66.

52 *Currency and Credit*, p. 34. His italics. The "unspent margin" is the total money supply.

common with most writers, the criticism which Hawtrey advances is that the theory, as thus stated, is "necessarily sterile" as long as the given conditions are not explained. In fact, we may view much of what Hawtrey has to say as an explanation of, or a method of analyzing, the assumed conditions of this formulation.[53]

Hawtrey's version of the quantity theory of money may be summarized in the following propositions.

(a) The price level is proportional to the quantity of money in circulation only when the system is in equilibrium. The criteria of this equilibrium seem to be that the volume of currency and bank deposits is neither expanding nor contracting and that consumers and traders have adjusted their balances to the existing price structure and are maintaining them at a constant level.

(b) In the transitional interval between equilibrium positions, the price level will depend as much upon the rapidity of circulation of money as upon the size of the unspent margin. The rapidity of circulation will be affected by the rate at which credit is being expanded as compared to the rate at which it is being extinguished.

(c) Price changes will occur in response to monetary changes only after stocks of commodities have been depleted and cannot be replenished except at higher costs.

53 Marshall's statement of the quantity theory is different. He formulated it as follows: "The value of a unit of a currency varies, other things being equal, inversely with the number of the units *and their average rapidity of circulation.*" (*Money, Credit and Commerce*, Macmillan, London, 1923, p. 48.) My italics.) He objected to the theory, however, on the ground that it did not explain rapidity of circulation. Marshall wrote: "The other things, which must remain equal for the purpose of this statement, include (a) the population; (b) the amount of business transacted per head of the population; (c) the percentage of that business which is effected directly by money; and (d) the efficiency (or average rapidity of circulation) of money. Only if these conditions are reckoned in, can the doctrine come under investigation: and if they are reckoned in the doctrine is almost a truism." (*Ibid.*, p. 48.) There is a certain looseness in this statement. Marshall makes average

(d) Rising or falling prices tend to encourage people to pay away or to build up cash balances, respectively, thus initiating a cumulative movement. This cumulative process forces prices to higher levels.

It should be clear from the above propositions that Hawtrey stresses the influence of the "velocity of circulation" of money. He also adds some reservations with respect to the cushioning or strengthening influences of stocks of commodities as regards the movement of prices. The important matter is not so much the size of the unspent margin as the rate at which it is expanding or contracting. This rate is determined by the willingness of the banks to lend and of borrowers to borrow. The willingness of individuals to hold or to pay away cash balances determines the rate at which the unspent margin is used. Although, as Hawtrey points out, the size of the unspent margin may be statistically determined and is the subject of many banking regulations, we see here that it is related to the movement of the price level only through consumers' income and outlay. He considers the important factor to be the relation of consumers' outlay to the unspent margin. He writes: ". . . It is not the unspent margin but the consumers' outlay which is the proximate cause in the determination of prices. Demand *is* the consumers' outlay." [54]

(6) *Hawtrey's theory of price changes.*

Using Hawtrey's terminology, his statement of the relationships between the quantity of money, its velocity, and the price level may be expressed as follows. The familiar M of the equation of exchange is called the "unspent margin"; it is equal to the cash and bank credit balances of traders and consumers.[55] The unspent margin constitutes the community's

rapidity of circulation one of the explicit determinants of the value of money and *also* includes it as one of the given conditions.

54 *Currency and Credit*, p. 59. His italics.

55 *Trade and Credit*, p. 109; *A. C. B.*, p. 106.

demand for money, that is, its reserves of purchasing power. Its amount is determined by the action of the banks in creating credit and by the "legal and administrative arrangements for regulating the coinage and the issue of legal tender paper." [56]

By pointing out that the velocity of circulation of money may be defined as the ratio of consumers' outlay to the unspent margin, Hawtrey advances the proposition that the price level will vary inversely as the volume of transactions and directly as the consumers' outlay. Thus if M equals the unspent margin and V represents the ratio of consumers' outlay (O) to the unspent margin (M), substituting into the simplest form of the equation of exchange (that is, PT equals MV) we have P equals O/T. It is clear from this formulation that both P and T must refer to the transactions financed by the direct expenditure of consumers' outlays and that O/M represents circular or income velocity. By definition, then, the price level (P) relevant to this equation is a straight consumers' goods price level.

There are several noteworthy features of Hawtrey's formulation of the quantity theory. First, it directs attention to the concept of consumers' outlay and indicates the relevance of the concept to the price level. This is particularly necessary in Hawtrey's theory because of the importance which he desires to attach to consumers' outlay and to its corollary, "money demand." Second, the concept of net cash resources, which was introduced in *Capital and Employment*, focuses attention on bank indebtedness more effectively, according to Hawtrey, than the quantity theory which is concerned with cash balances. This would make little difference, he points out, to the

56 *Currency and Credit*, p. 43. See also, pp. 43-46 (*ibid.*) where he argues that changes in the amount of the unspent margin can be produced only by the banks through what he refers to regularly as "an acceleration or retardation of the creation of credit" (*ibid.*, p. 45). It is of course perfectly true that an act by the bank is necessary in order to bring about a change in the unspent margin. But the really important matter is the nature of the economic conditions, relevant to a given transaction, which are the primary requisites of expansion or contraction.

analysis of consumer expenditures because they do not normally have a bank indebtedness, but traders have no cash balances, or at least small ones, and therefore are responsive to credit changes. When net cash resources are considered too large (small), individuals release (absorb) cash and cause disbursements to exceed (be less than) receipts. This causes consumers' incomes to increase (decrease). Abstracting from depreciation allowances, this means that the product of production times prices is increasing (decreasing). So the change in net cash resources is related to the changes in prices and production.[57] Third, as has been indicated, the formulation points to the price level of goods bought out of consumers' outlay. In defense of this aspect of the theory, Hawtrey argues that there is a special significance in the price level of "finished products (including finished *capital* goods)," [58] since the demand for all other "intermediate goods" is derived from them; this particular demand alone constitutes demand from the point of view of the community. This notion is, in fact, so attractive to Hawtrey that he goes on to say that "the fundamental condition of equilibrium is that the price level must be such that the stream of money buys the stream of goods. *This condition is independent of the intermediate transactions.* The intermediate transactions merely conduct the streams by more or less devious channels." [59]

57 See *Capital and Employment*, pp. 156-157.

58 *A. C. B.*, p. 107. His italics.

59 *Ibid.*, p. 107. My italics. It would be quite wrong to place a too literal interpretation on these words. We may recall that Hawtrey has emphasized the dependence of consumers' outlay on consumers' income. However, the statements quoted so clearly imply independence that it seems desirable to point out that the whole system of intermediate prices, which are costs and as such are sources of income, are clearly related to the incomes of consumers and thus to expenditures. Professor J. M. Clark insists on the *mutual dependence* of the two spheres. He writes: "Consumers' buying power depends on the rate of production; this is an ever-present and dominant factor from which there is no escape" (*Strategic Factors in Business Cycles*, p. 49). Surely Hawtrey is not arguing that the rate of productive activity is inde-

(7) *Summary of price theory.*

Hawtrey sums up his position on the quantity theory as follows: "The price level is proportional to the consumers' outlay and inversely proportional to the quantity of good (including capital goods) bought by consumers per unit of time. Consumers' outlay is proportional jointly to the unspent margin and the circuit velocity of money. Consequently, the price level varies *directly* as the unspent margin and the circuit velocity, and *inversely* as the quantity of goods bought by the consumers." [60]

Changes in demand, or in consumers' outlay are traced to releases or absorptions of cash. These changes, which constitute differences between receipts and disbursements,[61] can be brought about only through changes in the rate of credit creation, changes in velocity, or in some combination of the two.[62] The releases and absorptions are usually effected by traders. In this way we can summarize the causal factors, which Hawtrey believes determines the price level of goods purchased by consumers. If we add to this statement his observation that while such processes are going on there will be changes in output [63] and in stocks of commodities,[64] as well as a lag between changes in consumers' income and consumers' outlay,[65] we have a reasonable statement of his position. Note that these changes all take place in the so-called transitional interval and that it is only when equilibrium is established that ". . . output will be normal and the consumers' income and outlay will be equal to one another and proportional to the price level." [66]

pendent of costs. As we shall see later, his theory indicates that that rate is influenced by the relations between costs and receipts.

60 *Currency and Credit*, pp. 59-60. His italics.

61 *A. C. B.*, p. 111.

62 *Ibid.*, p. 108.

63 *Ibid.*, p. 110.

64 *Ibid.*

65 *Ibid.*, p. 109.

66 *Ibid.*, p. 110.

(8) *Comments.*

Although the material presented in some of the later sections will supplement this theory of prices and supply details to parts of the argument which are merely summarized in this section, there are some general comments which can be made at this point.

(a) The concepts of consumers' income and consumers' outlay are used by Hawtrey in order to allow for a direct treatment of changes in money demand. This procedure is adopted because he believes money demand is the most important factor in business cycle theory. Hawtrey argues that the principal feature of the business cycle is monetary instability and that this instability may be expressed in terms of changes in money demand. But while the amount of money which is being expended by consumers in any period of time is a significant quantity, at any rate when taken in relation to the cost of producing the relevant output, it is also important to know how the money expenditures are being allocated by consumers. What proportion is spent on final consumers' goods and what proportion in other ways? How are consumers' goods expenditures distributed between different kinds of goods? To say that economic stability is maintained as long as the total demand remains constant, despite possible changes in the distribution of demand, assumes that the system *succeeds* in adjusting itself to such changes. We will return to this question when we consider Hawtrey's criteria of economic equilibrium. At this point it is only necessary to indicate the *general* character of the concepts of consumers' income and outlay, and to suggest that reliance on them may veil important economic changes.

(b) In any theoretical system only certain factors in a total situation are selected for attention. Criticism may justifiably take the form of questioning the significance of the selected factors.[67] In Hawtrey's theory we have seen that attention is

67 See J. M. Clark, *Preface to Social Economics* (Farrar and Rinehart, New York, 1936), p. 396.

directed to credit creation and to the monetary effects of that action. In the following essay we find Robertson dealing with the same sort of question, but his interest is centered on the effects of a creation of money, the use which is made of the real resources of the community, the formation of capital, and the kinds of saving processes involved. The theoretical devices which Robertson develops were framed specifically for taking these factors into account. It can be seen, then, that Hawtrey's procedure or method is really a direct emphasis on a different set of factors. Both writers are interested, fundamentally, in explaining cycles of business activity. When we come to Hawtrey's business cycle discussion we will consider the adequacy of his procedure as compared to others.

(c) Without any detailed statistical proof of the proposition, Hawtrey has stated that if traders release cash they increase productive activity, and that an absorption of cash serves to decrease productive activity. This suggests a causal relation between the spending behavior of traders and consumers and the volume of productive activity.[68] We have seen that releases or absorptions of cash are accomplished by increases in the unspent margin which results from new borrowings, by increases in the rate of turnover of the existing supply of circulating media, or by some combination of the two. This is a particularly significant part of Hawtrey's theory, because, as we shall see, he argues for monetary control on the hypothesis that a release of cash causes increased productive activity.

Professor J. W. Angell's studies in his recent volume on *The Behavior of Money* contain data roughly adequate to test this hypothesis, but they indicate that this causal relation is not verified.[69] The study of currency and deposits indicates that "outside currency" changes are associated with indices

68 See *Capital and Employment*, p. 66.

69 But note Professor Angell's repeated cautioning (*op. cit.*, pp. 41, 46, 116) on the validity of generalizations based on his data.

of individual income and retail expenditures, but not with the volume of production or with wholesale or financial activity. The data on circulating deposits, when presented so as to show cyclical-accidental fluctuations, indicate that at the principal turning points in the series deposits lag behind indices of industrial production, car loadings, construction contracts awarded, and payrolls, and that there is no close relation with fluctuations of wholesale prices. It might be argued, of course, that in the early stages of the different phases of the cycle the releases or absorptions of cash would reflect themselves principally in a higher rate of turnover of the existing money supply. However, the data on exchange velocity (which exclude New York City) show that from 1921 to 1929 velocity moved in general with, and sometimes after, the production and wholesaling indices. In 1928-29 velocity was associated closely with security trading, while the relations of the 1930-34 period were similar to those observed in the years 1921-29.

These data seem to provide no support for the thesis that the release of cash precedes the increase in productive activity. Professor Angell concludes that ". . . both the quantity and the exchange velocity of circulating deposits for the country as a whole move *with or after*—not before—the rough aggregate of the general measures of volume of production and wholesale activity, but not with any one of these measures taken separately, or with commodity prices." [70] He also writes that the data ". . . do not lead one to have great confidence that deliberately induced *changes* in the quantity of bank deposits or of currency will produce desirable and reasonably prompt effects upon the general volume of economic activity." [71] This does not lead him to the view that money plays a passive rôle. His position is that the initiating force in any change in movement is perhaps an increase in business activity itself, and that this is followed by the expansion of deposits,

70 Angell, *op. cit.*, p. 158.

71 *Ibid.*, p. 159. His italics.

both factors acting upon one another in the subsequent period.[72]

These conclusions seriously challenge the monetary view which Hawtrey is expounding. It is perfectly evident that one must explain why the release or absorption of cash occurs. Angell's studies indicate that the explanation is to be found not in the monetary changes alone but in the interaction of monetary and non-monetary factors. Furthermore, Hawtrey's tendency to emphasize the rôle of the monetary factor in his theory of the inherent instability of the system minimizes the importance of the non-monetary factors in the "rising spiral of mutually aggravating actions and reactions."

(d) Hawtrey's statement that consumers' outlay is the "proximate" cause in the determination of prices [73] is another example of his monetary approach. In many instances it can probably be shown very clearly that the immediate cause of a given change in the price level is a fluctuation in money demand. But even Hawtrey's formulation of the quantity theory of money does not preclude changes in output from acting as the cause. The general level of prices is determined by the interaction of the stream of money demand and the stream of goods to be purchased. While the former may be active in some cases, the latter may be active in others. This may be true not only for long periods of time, but also for the shorter periods of the cyclical phases. Thus, emphasis on the stream of money demand leads one to the "monetary" explanation; but a consideration of the stream of goods, for example, by using the device of the period of production as in Robertson, involves a study of the technical character of the productive process. Hawtrey constantly emphasizes the monetary factor, although he also recognizes the fact that conditions affecting the supply of goods influence the course of prices.[74]

72 *Ibid.*, p. 60.

73 *Currency and Credit*, p. 59.

74 See *Capital and Employment*, pp. 68, 74, 117, 253.

(e) An increase in consumers' outlay and income in any period may be traced to the injection of new money into the system or to a higher rate of turnover of the existing supply of money or to some combination of the two. When the change is traceable to an injection of new money, Hawtrey usually states that this is due to the borrowing activities of traders. He usually speaks of "loans" being made to traders. In connection with the concept of net cash resources, the emphasis is solely on short-term loans. But it is now well established that the loan is of decreasing significance as a means of providing funds for business expansion.[75] There is a growing tendency, in the United States at least, to finance expansions of industry out of the proceeds of the sales of stocks and bonds and a tendency for banks to invest an increasing proportion of their resources in long-dated securities. In the more recent period (from 1930) the decrease in new security flotations shifted the banks' investment activities to the field of government obligations and the changes in consumers' outlay were, consequently, principally influenced by this sort of borrowing. There is no error here to vitiate the price analysis; this simply indicates that releases and absorptions of cash are accomplished by the security investments of banks. The real significance of this point is in connection with the control program which Hawtrey suggests. This program is based largely on the regulation of short-term trade borrowing.

We may summarize the above comments as follows: (1) Hawtrey emphasizes general demand and the total of consumers' outlay almost to the exclusion of the demand for specific kinds or groups of goods, thus failing to take account of disturbances which may grow out of changes in the distribution of demand; (2) the monetary effects of injections of money are emphasized, while no attention is given to the changes in the distribution of real resources which this may

75 See L. Currie, "The Decline of the Commercial Loan," *Quarterly Journal of Economics*, vol. xlv, August, 1931, pp. 698-709.

cause; (3) the statistical evidence indicates that the causal relation which Hawtrey suggests as existing between changes in net cash resources, money demand, and productive activity cannot be verified; (4) the tendency to under-estimate the importance of the flow of goods in the price-level theory is another example of Hawtrey's inclination to emphasize monetary factors and to neglect equally significant non-monetary considerations; (5) Hawtrey over-emphasizes the rôle of the short-term commercial loan in his analysis of the borrowing process.

CHAPTER IV

ELEMENTS IN HAWTREY'S EQUILIBRIUM ANALYSIS

BEFORE we discuss Hawtrey's description of the business cycle it is necessary to state in some detail his theory of economic equilibrium. This is essential because the business cycle is analyzed in terms of a departure from equilibrium. The events of this departure take place in what he calls the "transitional period." Although the term transition suggests that the period is one which intervenes between two points of established equilibrium, there is no evidence that Hawtrey thinks these conditions of stability are ever achieved. Rather, he writes that disequilibrium is, to some degree, always present. In this chapter we shall present the "conditions" of equilibrium as they are developed in Hawtrey's work. It will be shown in the next chapter, which presents Hawtrey's description of the business cycle, how this "razor's edge" balance[76] can be destroyed by even a slight disturbance.[77] The disturbance stimulates a movement away from equilibrium which proceeds with cumulative force in what Hawtrey calls a "vicious circle" of inflation or deflation.

Aside from the significance of his concept of equilibrium to the theoretical analysis of the business cycle, the idea is also important to his control program. We shall see in the concluding chapter that monetary policy is stated in terms of the maintenance of the conditions of equilibrium. In this chapter we shall attempt only to state the "conditions" of an equilibrium position.

76 *A. C. B.*, p. 168.

77 "Even if a state of perfect credit equilibrium could be established it would give way at the first small disturbance..." (*Trade and Credit*, p. 98).

(1) *Primary condition of monetary equilibrium.*

The happenings of the transitional interval are traced almost wholly to credit movements which reflect themselves in changes in consumers' income and outlay. Consumers' outlay was defined above as the total of expenditures out of income. In his earlier books Hawtrey referred to this quantity as money demand; in his latest book, *Capital and Employment*, the term "general" demand is used. General demand is defined as "the amount of money offered for products of all kinds by final purchasers"; it excludes all intermediate demand for products to be resold or used as "ingredients" in the production of goods for sale.[78] It is composed, then, of the demand for consumers' goods and the demand for instruments of production and instruments of consumption (durable consumers' goods). Another way of expressing this is to say that general demand is equal to consumption plus capital outlay. It is sufficiently accurate to say that general demand is consumers' outlay and that it differs from the consumers' income of the given period only if consumers release or absorb cash.[79] Changes in consumers' income are related, of course, to releases or absorptions of cash by the income-distributing agencies.

The importance of indicating the nature of general demand lies in the fact that Hawtrey suggests, as was indicated above, that a close connection exists between general demand and productive activity. Changes in output during the transitional interval are traced to changes in demand, and changes in demand to releases or absorptions of cash. Since these movements are the chief features of the transitional interval, it seems to follow that the primary condition of monetary stability is that there should be neither releases nor absorptions of cash. The two conditions which are necessary in order that this situation should prevail are (a) an equality between the

78 *Capital and Employment*, pp. 66-67.

79 *Ibid.*, pp. 67-68.

creation and canceling of money in any period of time,[80] and (b) constancy in the rate of turnover of money, that is, in the relation between consumers' outlay and the unspent margin.[81] If these conditions prevail it can be said that the primary condition of monetary equilibrium is satisfied. A divergence away from this situation constitutes a departure from equilibrium.

Some of Hawtrey's statements carry the implication that there is an immediate tendency to establish a new equilibrium position when it has once been disturbed. For example, he writes, "The first impact of any monetary movement is felt in a change in consumers' income and outlay. Changes of price level follow with a time lag, and in the interval there are changes of output, of commodity stocks and of the balance of payments. Eventually, when all transitional effects have subsided and equilibrium is re-established, output will be normal and the consumers' income and outlay will be equal to one another and proportional to the price level." [82] But this faith in the eventual re-establishment of equilibrium, it appears, must not be interpreted rigidly. He says, in *Currency and Credit:* "In practice it seldom, perhaps never, happens that a state of equilibrium is actually reached. A period of expanding or contracting credit, when it comes to an end, leaves behind it a legacy of adjustments, and before these are half completed a new movement has probably already set in." [83]

80 *A. C. B.*, p. 108. Compare this with Robertson's view that for purposes of monetary control the authorities must be able to control not only the creation and extinction of credit, but also its "canalization," that is, its distribution between purchases of producers' and consumers' goods.

81 This must be on the assumption of no change in the quantity of the factors of production. If not, it is, as we shall see, inconsistent with Hawtrey's ideal banking policy.

82 *A. C. B.*, p. 110.

83 *Currency and Credit*, p. 58.

(2) *Cash balances.*

As Hawtrey describes the transitional period, it is unstable in the sense that maladjustments tend to grow cumulatively.[84] This point can be illustrated by reference to his cash balances theory. In so far as this latter theory is related to the rate of turnover of money, it is also related to the conditions of monetary equilibrium stated above. This part of his equilibrium theory may be stated as follows: when credit is expanding, consumers' income and outlay are expanding and the release of cash spreads throughout the economy, tending to cause prices to rise and economic activity to increase. This process tends finally to increase the desire of individuals to hold cash or to absorb cash [85] and "eventually equilibrium is restored." On the other hand, a tendency for individuals to hold larger balances—an absorption of cash—will spread through the system but will come to an end when a ". . . reduction in consumers' income and outlay and in turnover makes people willing to release cash, and equilibrium is restored." [86] Briefly, this important condition of equilibrium means that there should be no attraction for a person to alter the size of his cash balance. Hawtrey refers to this as the "static principle" for determining the "actual value of the monetary unit" as well as changes in its value.[87] It is, of course, the "cash-balances" principle as stated by Marshall.[88] Hawtrey frames it as follows: ". . . the wealth-value or purchasing power of the individual's cash balance . . . is determined by his economic needs, and . . . *equilibrium* will be found at that price level at which

84 Thus "equilibrium once disturbed, the departure tends to grow wider and wider" (*Trade Depression*, p. 8).

85 *A. C. B.*, p. 100.

86 *Ibid.*, p. 100. See *Capital and Employment*, p. 156.

87 *Economic Journal*, September, 1935, pp. 512-513.

88 *Official Papers by Alfred Marshall* (Macmillan, London, 1926); *Oral Evidence before the Royal Commission on the Values of Gold and Silver*, 1887, 1888, no. 9629, pp. 34-35; also, *Evidence before Committee on Indian Currency*, 1898, nos. 11759-11762, pp. 267-269.

the aggregate wealth-value of the cash balances required by all the people is equal to the aggregate wealth-value of the stock of money." [89] In the following chapter we shall discuss Hawtrey's theory of cash balances in connection with his theory of drains of cash out of the reserves and of the effect of this on the periodical character of the cycle.

(3) *Consumers' income and outlay.*

We already have shown how Hawtrey has devised the terms consumers' income and outlay, in order to study the forces of market demand directly. We have also seen that his formulation of the quantity theory of money runs in terms of the ratio of consumers' outlay (money demand) to the unspent margin. It is found to be true, time and again, that what is called alternately a "shrinkage of demand," [90] a "shrinkage of the flow of money," [91] a "contraction of purchasing power," [92] and other variations of these general terms, is presented as being fundamentally related, usually in a causal sense, with the general collapse of activity that we term depression in trade.[93] In view of this it is entirely reasonable that we should find at the very heart of his equilibrium analysis the concept of "normal demand" and "monetary equilibrium."

89 *Economic Journal*, vol. xlv, September, 1935, p. 512. We have noticed the importance which Hawtrey attaches to the velocity of money and credit in his version of the quantity theory of money. This is, obviously, closely related to the movements of balances (see, for example, *Currency and Credit*, p. 257). The relationship between the demand for money and the velocity of its circulation is very clearly stated by Professor A. C. Pigou, *Essays in Applied Economics*, P. S. King, London, 1923, pp. 175-177 especially. He writes, "When, *ceteris paribus*, people decide to keep half as much of their resources as before in the form of titles to legal tender, this means that the velocity of circulation is doubled" (*ibid.*, p. 177).

90 *Trade Depression*, 1st Ed., p. 1.

91 *Trade Depression*, 2nd Ed., p. 100.

92 *Ibid.*, p. 102.

93 In *Capital and Employment*, the depression is defined as a deficiency of general demand relative to wages (p. 109).

If the collapse of demand is a departure from monetary equilibrium, then what is the meaning of equilibrium as applied to this central idea? He writes that ". . . the true condition of monetary equilibrium is stability of the national income." [94] This implies that the supply of money should be ". . . so regulated as to keep pace with the growth of population and of capital. It should keep pace with the factors of production, but not with their actual output." [95] The fall in prices that this would involve in the face of increasing productivity would ". . . cause no disturbance of equilibrium at all." [96] He also says that "depression is essentially a shortage of demand" and that "demand should indeed expand, as the community progresses; and if the monetary system failed to allow an expansion of incomes in terms of money to keep pace with growing wealth and numbers, a curtailment of activity would result." [97] This same position is held in the *Art of Central Banking* where he concluded that ". . . the most desirable kind of monetary stabilization is stabilization of consumers' income and outlay—not absolute fixity, but the adjustment of the consumers' income and outlay to the growth of the factors of production, both on account of increased man-power and on account of accretions of capital." [98]

94 *Trade Depression*, p. 100.

95 *Ibid.*

96 *Ibid.*, p. 101.

97 *Ibid.*, p. 71.

98 *A. C. B.*, p. 325; see also, p. 331. The same position is taken in *Capital and Employment* (pp. 264-265). Robertson is not nearly as certain that the maintenance of equilibrium requires increases in aggregate income in proportion to increases in capital. This case is analyzed, as are the cases of increases in real income due either to technical improvements or increases in population, in the light of the behavior of the new owners of capital concerning the size of the Real Hoard over which they want to have command. Robertson has not committed himself on the appropriateness of credit expansion in this case. He has suggested a debate between Hawtrey and Pigou, who believe expansion justified, and Meade and Hicks, who do not think so. (*Economica*, new series, vol. i, November, 1934, pp. 474-475.) See A. C. Pigou, *The Theory of Unemployment*, p. 206; J. E. Meade, *The Rate*

(4) *General demand.*

On the assumption that consumers do not release or absorb cash, the stabilization of consumers' income means the stabilization of consumers' outlay, that is, general demand. One of the most interesting aspects of Hawtrey's theory is that which concerns the question of maintaining economic stability by maintaining general demand. Hawtrey uses the concept of general demand to show that gluts of capital goods or of consumers' goods or over-expansions of specific industries cannot develop if consumers' outlay is stabilized. He has taken the view that if a technological change should give rise to a situation in which there is a general desire for shorter hours in place of increasing real income, it would manifest visible symptoms, "*provided* that the economic system is functioning normally at the time." [99] It appears that a normally functioning system would be one in which labor is fully employed, where capacity is utilized up to the extent of the available labor supply, and where industry is making normal profits. If such circumstances prevailed it would be possible to "arrive at a measure of normal demand in any industry" [100] and, thus, to say whether or not a "fundamental dislocation" exists.[101]

From the doctrinal point of view the most significant feature of this argument is that the stability of the whole economic body follows from the establishment of monetary equilibrium. This fact was noted above in our discussion of his monetary approach. He argues, for example, that "so long as the consumers' outlay remains undiminished, any decline of demand

of Interest in a Progressive State, p. 11; J. R. Hicks, *The Theory of Wages*, pp. 134-135. These references are noted by Robertson, *op. cit.*, p. 474.

99 *Trade Depression*, p. 92. His italics.

100 *Ibid.*, p. 94.

101 This possible "glut of capital" would bring the interest rate to zero (*ibid.*, p. 86) and might create a situation in which monetary savings could not be spent. This "fundamental dislocation" (*ibid.*, p. 95) involving the holding up of purchasing power, is itself termed a "failure of equilibrium" (*ibid.*, pp. 85-6; 87 *et seq.*)

in one direction will always be offset by increased demand in others." [102] But this can be expressed as follows: If total outlay is constant, any decrease in outlay in one or more directions must be exactly counteracted by an increase of outlay in still other directions. This is self-evident. Hawtrey uses the idea, however, to discard the suggestion that over-development of any one industry can create disequilibrium. For example, in his criticism of the view that there had been an over-production of automobiles in the United States prior to 1929,[103] Hawtrey insists that while an industry may be carried too far, "it is not at all clear that this concentration of the extension of capacity upon the more profitable industries tends on the whole to disturb equilibrium." [104] "Unless there is a shrinkage of demand as a whole," [105] all that happens is that the excessively expanded industry becomes relatively unprofitable and other industries become relatively profitable; readjustment is made with some friction and loss but not necessarily at the cost of general disequilibrium. Hawtrey writes of "the natural process by which inequality of development remedies itself" [106] with the implication that it automatically comes about that the adjustment is made with a minimum of disturbance if no monetary disequilibrium is allowed to develop. This means simply that if monetary equilibrium is maintained, in the sense of an undiminished flow of consumers' outlay, the equilibrium of the rest of the system follows as a *natural process*.[107]

Against this position it can be urged that Hawtrey is, in effect, begging the entire question. He is saying that localized depression would be corrected naturally if there were no falling off of total demand for goods. The real question is whether

102 *A. C. B.*, p. 324.

103 As argued by Professor O. M. W. Sprague in the *Journal of the Royal Statistical Society*, 1931, p. 545.

104 *Trade Depression*, p. 72.

105 *Ibid.*, p. 72.

106 *Ibid.*, p. 96.

107 See also, *ibid.*, pp. 69-70.

or not the adjustment can be made. If we define "depression" as a failure of total demand, then it is perfectly true that a local disturbance cannot cause "depression" if it is assumed not to cause a failure of total demand. But it does not seem inconceivable that an important local disturbance may so affect business prospects that all efforts to maintain total demand are unavailing and the decrease of total demand (and depression) follows. Hawtrey believes that adjustments are only difficult when they must be made in the face of a flagging demand. Surely there can be no dispute on this point, aside from an insistence that he may be too optimistic concerning the possibilities of the necessary shifts taking place.[108]

(5) *Savings and investment.*

The foregoing section concerning the maintenance of general demand, and thus equilibrium, is not to be taken to mean that Hawtrey does not admit the possibility of there being a disequilibrium between savings and investment. We have already shown, in our discussion of absorptions and releases of cash, that disequilibria in the investment market may arise and may act to cause a contraction or expansion of general demand. This matter is significant because the disequilibria suggested play an important part in Hawtrey's equilibrium theory.

Hawtrey defines aggregate savings as the difference between consumers' income and consumption. An excess of the former over the latter may be represented by (a) purchases of instruments of consumption or stocks of goods in the hands of consumers, (b) investment, or (c) changes in cash holdings. The "net amount of investment" we have already defined as the total of securities sold less securities bought by the investment market dealers. Equilibrium, in one sense, means an equality in any period of time between the net amount of investment

108 *Ibid.*, p. 76; also p. 71, where farm products are discussed in the same general manner.

and the capital raised. If the former is in excess of the latter, then security prices rise, the long-term rate of interest falls, and *vice versa*. But savings may exceed the "resources seeking investment." In this case the excess must be taken up in purchases of instruments of consumption or in cash balances. The resources seeking investment may exceed the savings of consumers in any period if consumers are dishoarding from cash balances or if investors get loans from banks in order to purchase securities. If there is an excess of saving over the resources seeking investment there is an absorption of cash, and if there is a deficiency of savings as compared with the resources seeking investment, there is a release of cash. In the former case a contraction of general demand occurs, and the vicious circle of contraction may begin. In the latter case there is an expansion of general demand and an expansion of activity.[109]

This, it should be noted, is substantially the same sort of view of the saving-investment relation as we find in Robertson's theory. There are, however, two important differences. The differences are particularly interesting for our purposes because they illustrate differences in analytical treatment. In the first place, Hawtrey does not define the precise period of time over which he compares savings and capital outlay. He refers to an "interval of time" of given length.[110] Robertson uses the concept of the "day" for the specific reason of conceiving of a period of time during which he can exclude the income of the particular period. Robertson's method allows one to compare the expenditure or use of disposable income with investment in the period of a "day" without the comparison being affected by income received during the "day" in question. Hawtrey's method, while it may be applied to an

109 See *Capital and Employment*, ch. v especially; also see, *Trade Depression*, pp. 37-45, for a treatment of the savings-investment relation in somewhat different terms.

110 *Capital and Employment*, p. 138 *et seq.*

infinitely short period, does not permit of this treatment. In the second place, Hawtrey uses the concept of the cash balance constantly without showing clearly enough that in his theory changes in cash balances are to be measured by changes in the circular velocity of money. In Robertson's theory the tendency of consumers to hoard or to dishoard, and thus to effect a deficiency or an excess of savings over investment, is measured directly in terms of the change in the ratio of the cash balance to the disposable income of any "day." In Robertson's treatment, also, the action of consumers in causing disequilibria in the investment market is reflected directly in the cash balance.

(6) *The rate of interest.*

Hawtrey's interest-rate theory is another important part of this equilibrium analysis. He emphasizes the rate of interest on various types of loans very strongly, both in his explanation of expansions and contractions of economic activity and in his suggestions for the stabilization of activity. One of the basic ideas in his interest-rate theory is the relation of the rate of interest and the rate of profit. Equilibrium is expressed in terms of this relation. It should be noted that the comparison is not between a normal or natural rate of interest and the market rate of interest. Hawtrey's own version of the relevant relation is very well stated in one of his earlier books, and I think it is quite correct to say that his views on this particular matter have not changed over what they were as stated in that place."[111] He wrote: ". . . it is important to observe that whenever the prevailing rate of profit deviates from the rate of interest charged on loans the discrepancy between them at once tends to be enlarged. If trade is for the moment stable and the market rate of interest is equal to the profit rate, and if we suppose that by any cause the profit rate is slightly in-

111 *Good and Bad Trade* (Constable and Co., London, 1913), p. 76. My italics.

creased, there will be an increased demand for loans at the existing market rate. But this increased demand for loans leads to an increase in the aggregate amount of purchasing power, which in turn still further increases the profit rate. This process will increase with ever accelerated force until the bankers intervene to save their reserves by raising the rate of interest up to and above the now enhanced profit rate. A parallel phenomenon occurs when the profit rate, through some chance cause, drops below the market rate. . . . It appears, therefore, that the *equilibrium* which the bankers have to maintain in fixing the rate of interest is essentially 'unstable' in the sense that if the rate of interest deviates from its *proper value* by any amount, however small, the deviation will tend to grow greater and greater until steps are taken to correct it. This in itself shows that the money market must be subject to fluctuations."

We can also present the equilibrium theory as it applies to interest rates by considering Hawtrey's explanation of the forces which encourage capital outlay in working capital and in fixed capital. In his earliest treatment, it was emphasized by Hawtrey that changes in the rate of interest affect dealers holding stocks of goods and influence producers of goods very little.[112] He argued that, for dealers, the cost of tying up capital in stocks of goods is largely an interest cost, and that as they vary their stocks in response to changes in the rate of interest they will pass back to producers either larger or smaller orders, and thus stimulate or retard the activity of producers.[113] In his latest book the same general idea is presented. He argues that credit regulation depends chiefly on the effect of changes in the short-term rate of interest on the practices of dealers in holding larger or smaller stocks of goods.[114] The theory is expressed, in this book, in terms of the relation between the

112 See Keynes, *Treatise on Money*, vol. i, pp. 193-196.

113 *Good and Bad Trade*, p. 62.

114 *Capital and Employment*, pp. 118-122, 249.

marginal yield of working capital and the rate of interest. The yield of working capital is designated simply as the convenience of buying in larger quantities. The cost of the convenience is the rate of interest which must be paid on short-term loans.[115] Although traders are held to adjust their stocks in response to changes in interest costs, Hawtrey points out that in a "credit deadlock" traders may have achieved their maximum buying convenience, or they may be taking such a pessimistic attitude toward actual demand that they do not increase stocks to take advantage of buying economies. In this event the rate of interest is ineffective as a control device.[116] This deadlock represents a failure of control by the rate of interest to effect equilibrium between the resources available for investment in working capital and capital raised for this purpose. Because traders in agricultural commodities have to deal with price-determining factors making for a very speculative market, Hawtrey argues that the rate of interest that must be paid to hold stocks of goods will be relatively unimportant in determining the size of their stocks. But the theory is clearly applied to dealers or traders in manufactured goods.[117]

The long-term rate of interest is held to be relatively ineffective as a control device because of its tardy effect on investment.[118] Nonetheless, the long-term rate of interest is of significance in connection with the installation of instruments. When the use of more capital involves no change in the ratio of capital used to output, Hawtrey says that a "widening" of capital has occurred. When there is a change (increase) in the proportion of capital used to output, there has been a "deepening" of capital.[119] The widening of capital, that is, the extension of old or establishment of new (like) enterprises, is

115 See *Capital and Employment*, pp. 52-58.

116 *Ibid.*, p. 86.

117 *Ibid.*, pp. 3, 112, 249.

118 *Ibid.*, p. 68.

119 *Ibid.*, p. 68.

motivated by the prospect of increased profit from an *increase of sales.*[120] The deepening of capital takes place when the installation of instruments involving a higher proportion, of capital used to output produced, creates economies by reducing labor costs. The calculation which is necessary to determine the profitability of such changes involves a comparison of the first cost, life, and cost of maintenance of the instrument and the wage cost of the output which can be attributed to the machine. It is the comparison of the interest rate on the first cost of the instrument, on the one hand, with the excess of estimated labor cost of a comparable output over the maintenance and depreciation charges of the instrument, on the other, which determines the advisability of deepening the capital structure. This may be expressed briefly as a comparison of the rate of interest and the cost-saving capacity of an instrument.[121]

All of this may be related to the equilibrium analysis by pointing out that Hawtrey holds that "so long as the marginal cost-saving capacity of the instruments employed is not equal to the rate of interest, *equilibrium has not been attained.*[122]

While Hawtrey's treatment of this important subject of capital seems to me to be rather badly disordered, and hence difficult to interpret, I think it is correct to say that the basic idea is that there is a tendency for capitalization to be adjusted to the point at which marginal yield (i. e., pecuniary productivity?), or cost-saving capacity, equals the rate of interest. For working capital this means the point at which the economies of large purchases are just offset by the interest cost on capital tied up in unsold stocks of goods. In the case of the deepening of the capital structure, equilibrium means equality between the rate of interest and the cost-saving capacity of instruments. By definition, the widening of capital cannot

120 *Ibid.*, pp. 38-39.

121 *Ibid.*, pp. 28, 41.

122 *Ibid.*, p. 50.

account for any change in the rate of interest. Widening must proceed without altering the ratio of yield to capital used.[123] But Hawtrey argues that the demands for the widening of capital may be insufficient to use up the available savings, in which case the rate of interest will tend to fall to allow for a *deepening* of the capital structure.[124] As we have indicated above, the motive to widening is the prospect of profit from increased sales. Thus the theory seems to be that the rate of interest influences the utilization of capital by allowing for, or restricting, the deepening of capital and that the important equilibrium relation is between the cost-saving capacity of a new type of instrument and the rate of interest. Apparently equilibrium is not achieved through the effect of the rate of interest in encouraging or restricting the widening of capital.

At this point our purpose is merely to state the character of the equilibrium analysis used by Hawtrey. In a later chapter we shall return to this particular subject of capital, and shall consider the adequacy of the theory. We shall discuss, in particular, the question of whether the expansion of capacity to expand sales affects the marginal yield or productivity of capital and whether this expansion process is subject to regulation by the rate of interest.

(7) *Wages, prices, and productive activity.*

Another criterion of equilibrium is the relation between wages and prices.[125] Hawtrey has written: "Of all the dis-

123 *Ibid.*, p. 36.

124 *Ibid.*, p. 41.

125 The importance which Hawtrey attaches to this relation appears very clearly in his criticism of Professor von Mises' denial that a fall in the purchasing power of money can stimulate an increase in production. Hawtrey's criticism is to the effect that, since von Mises concerns himself with the effect of such changes on the distribution of wealth as between rich and poor, he "... does not bring out the special importance of a lag in the adjustment of wages ... (and) ... *it is that lag which is the cause of unemployment* ..." (*Economic Journal*, vol. xlv, September, 1935, p. 514. Italics mine). Hawtrey's own point of view is suggested by his statement

parities that arise out of a collapse of demand, perhaps *the most fundamental is that between wages and prices.*" [126] He continues, considering the period of deflation: "If wages were reduced in proportion to the previous reduction of prices, and the disparity between wages and prices wholly eliminated, profits would become normal and industry could be fully employed again." [127] The shrinkage of demand which has been advanced by Hawtrey as the basic characteristic of the depression period is a shrinkage *relative to a certain wage level.* Demand decreases to a point at which labor cannot be fully employed except at lower wage levels.[128] Although this sort of disparity is represented as the "real" cause of many other maladjustments, its importance is qualified by his statement that ". . . it would be an exaggeration to attribute the whole of the distress characteristic of the depression to the intractability of wages. For, even if wages were perfectly pliable, the increase in the burden of debts in terms of wealth would still be a source of trouble." [129]

This particular aspect of Hawtrey's cycle theory will be considered further when we discuss his views on inflation and economic policy. At this place we can point out that, in his

that if Professor von Mises "had ever envisaged a disparity of costs and prices arising from a monetary contraction which depresses prices relatively to wages he might have been less skeptical of the possibility of a monetary expansion increasing production" (*ibid.*, p. 154).

126 *Trade Depression*, p. 45. Italics mine.

127 *Ibid.*, pp. 45-46; also, see *Capital and Employment*, p. 73.

128 *Trade Depression*, p. 119; also, see *Capital and Employment*, pp. 68-69.

129 *Trade Depression*, p. 46. See also (*ibid.*), pp. 119-125, where the alternative attractions of a wage-cutting and a price-raising policy are considered as remedial measures. It will be shown later how Hawtrey decides in favor of the latter. There is a remarkable statement in this section which, however, deserves special note. He writes: "It is often assumed that a reduction of wages necessarily means a reduction of incomes, and therefore of demand. But that is not so. In the first instance, what wages lose profits gain. The income from profits furnishes demand just as much as the income from wages" (*ibid.*, p. 119, n.). But see (*ibid.*), p. 168, where Hawtrey takes full account of the obvious implications as concerns the demand for producers' as against consumers' goods.

view, wages tend to lag behind prices during the deflation, and therefore he contends that if we can by monetary measures force prices to rise (an easier task than cutting wages [130]), we can move towards a greater measure of economic stability.

This whole problem of the level of wages consistent with economic stability is suggestive of the "real unsolved problem" to which Professor J. M. Clark calls attention in his recent book, *Strategic Factors in Business Cycles*. The problem is ". . . whether there is an incompatibility between the rates of wages which are necessary to make it profitable for employers to give labor full employment, and the high wages which are being commonly advocated as a means of maintaining purchasing power." [131]

It follows from Hawtrey's position that during the period of contraction the expedient of raising wages or preventing their decline is destined to be ineffective as a remedial measure unless it is accompanied by a price-raising policy which forces prices up. Hawtrey has considered the implications of such policies in his discussion of "The American Situation." [132] It seems to be his view that the establishment of minimum wage levels may serve to reduce profits and lead to further depression in the producers' goods industries. The latter follows because he conceives of the demand for producers' goods as coming principally out of profits. If such a wage policy is followed, inflation has to go further in order to achieve equilibrium.[133] The last proposition follows from his theory of the necessary relation between wages and prices.

130 "Those who contend that wages should be adjusted to prices rather than prices to wages are like Grock moving the piano up to the music stool instead of the music stool to the piano" (*Trade Depression*, 1st ed., pp. 47-48). The policy of cutting wages has the additional disadvantage of freezing an intolerable debt burden (*Trade Depression*, pp. 127, 171; also *A. C. B.*, p. 272).

131 *Op. cit.*, p. 141.

132 *Trade Depression*, pp. 167-171. He refers to 1933.

133 *Ibid.*, p. 168.

(8) *Summary*

In this section we have presented Hawtrey's theory of the main conditions of equilibrium. This is an important part of our task of analyzing Hawtrey's method of explaining variations in productive activity, because, according to him, the business cycle is essentially a departure from monetary equilibrium.

At the outset we reviewed his statement of the conditions necessary for the establishment of monetary equilibrium. These conditions are an equality between the creation and cancellation of money in any period of time and stability in the rate of turnover of money. Then it was indicated that, according to Hawtrey, the transitional interval during which disequilibrium prevails is a period in which there is a tendency, because of the nature of the credit system, for disequilibria to grow cumulatively. This important feature of his work (involving the concept of the vicious circles of expansion and contraction) is illustrated by the cases of releases and absorptions of cash by consumers. This process takes place when consumers or traders find that their cash balances are not at an appropriate level. In the chapter to follow, which deals specifically with the events of the cycle, this element in his theory will be considered in more detail.

All the way through his various writings, Hawtrey is found to be describing the events of the cycle in terms of changes in money demand. We have shown how the condition of money demand is a basic element in his equilibrium theory, and also how he expresses his control schemes in terms of the maintenance of stability in this quantity. We have also shown how Hawtrey argues that the maintenance of money demand renders it impossible for the expansion of any one industry to create a disequilibrium in industry. This point of view was criticized on the ground that the argument is question-begging.

But although Hawtrey argues that over-development of specific industries is impossible if there is no failure of demand,

he does not deny the possibility of a failure of savings to equal investment. The various conditions of equilibrium in terms of the saving and investment processes were presented in terms of releases and absorptions of cash. Another significant part of the equilibrium analysis which is related to this general question of capital formation is Hawtrey's interest-rate theory. We have shown that Hawtrey analyzes the investment process and changes in the activity of industry in terms of the relation between the rate of interest and the marginal yield on capital. In connection with working capital, equilibrium means the achievement by traders of maximum buying convenience. In connection with fixed capital it means an equality between the rate of interest and the cost-saving capacity of instruments. Finally, we have shown that another important condition of equilibrium is the relation between wages (as money costs) and prices. Upon this relation depends the profit margin of industry and thus the rate of productive activity.

CHAPTER V

THEORY OF THE BUSINESS CYCLE AND OF ECONOMIC DEPRESSION

THE manner in which he has described the course of the business cycle has been recognized by one critic as Hawtrey's "most substantial achievement." [134] As we have seen above, his theory has been developed with the aid of a very rigid definition of terms, but at the same time it is the description of events [135] and the advocacy of some special policy that hold his main interest. In a certain sense we can best understand Hawtrey's wider views as to the relation between credit and prices by following through his description of a typical cycle and then presenting his views as to economic policy. This chapter will deal with the former question. The latter is discussed in the following chapter.

(1) *Contraction phase of the cycle.*

Central prominence is given, in his analysis of the course of events, to the wholesale dealers who, situated between the retailing and producing sections of the economic body, are in a position to reflect market changes most readily. The wholesalers are held to be able to take a general view of trade conditions as compared to the relatively limited views of the retailers. They are also held to be more sensitive to changes in credit conditions than any other group because their costs are largely the costs of holding stocks of goods. To the extent that this is true, credit policy, by acting upon them, can best

134 Professor A. A. Young, *Quarterly Journal of Economics*, vol. xxxiv, 1920, pp. 520-527.

135 Keynes, writing in 1920, commented on the fact that "so pure a theorist as Mr. Hawtrey should be so much interested in economic history" (*Economic Journal*, vol. xxx, p. 364). We are now quite accustomed to expect a large part of Hawtrey's writings to concern this field. He provides an outstanding example of how systematic thinking can illumine the more remote questions of financial history.

achieve its aim of regulating business activity.[136] If increased interest charges appear to be making too serious inroads on their expected margin and wholesalers cease to order as much as previously, they bring pressure to bear on the producers, who are the main source of the community's income, to reduce the scale of their operations and thus also the amount of their borrowings.[137]

As producers produce less, employment declines, consumers' income falls off, and, barring changes in consumers' balances, consumers' outlay does likewise. Furthermore, traders' incomes will diminish with falling net profits and this also tends to reduce consumers' outlay. But the reduction in wholesale orders does not necessarily stimulate an immediate falling off of productive activity. If, when the falling off of orders begins, the producers have a large amount of unfilled orders on hand they will continue to operate as before, borrowing just as heavily, until these orders have been "worked off."[138] As the orders are filled, however, the producers begin to feel the slackening of demand from the wholesalers, and will adjust the scale of their activity and the volume of their borrowing to meet the new situation. The state of business is, therefore, an important factor influencing the rapidity with which the rising interest rate (or declining consumer demand), by inducing wholesalers to reduce orders to producers, reacts through pro-

136 See *Trade Depression*, p. 5 and especially pp. 130-133, where he expounds the view that borrowing to finance circulating capital requirements is more easily and promptly stimulated than long-term investment borrowing. For similar views, see *Monetary Reconstruction*, pp. 27 and 131; *Currency and Credit*, pp. 24-26 and 454-455; *A. C. B.*, pp. 155-161 and 366-371; *Trade and Credit*, pp. 98-103; *Capital and Employment*, pp. 111-122.

137 It is not at all clear that Hawtrey would insist on always tracing the initial contraction of money demand and the subsequent general contraction and deflation to the falling off of consumers' outlay. His view is that a credit economy is "inherently unstable" and may be started up or down by any one of many different causes. In a later work he lists "a decline in sales to the consumer or final purchaser" as the first *symptom* of contracting demand. (*Trade Depression*, p. 37.)

138 *Currency and Credit*, p. 28; *Trade and Credit*, pp. 96-97; *A. C. B.*, pp. 391 and 393.

duction on consumers' income and eventually on the money demand for commodities.[139] In this way there arises the "shrinkage of demand" which Hawtrey believes is the chief characteristic of depression. As merchants accept further diminished orders their credit requirements will be further reduced and a greater contraction of loans will set in. As we have shown above, this means an increase in net cash resources or an absorption of cash. Credit requirements for construction already in process will continue, but contractions will soon be felt in this field too.

The immediate result of reduced consumers' outlay is a reduction in sales by retailers at the old price level. When retailers have been convinced that this reduction in demand is not temporary, they will reduce prices. Some prices will move very slowly, if at all. As stocks of goods on hand begin to grow the retailers pass back smaller orders, and this stimulates a further reduction in productive activity, in consumers' income, in consumers' outlay, and in the demand for their own retail goods. This is the "vicious circle of deflation." It is the failure of effective demand, reflected in reduced outlay by consumers and an increased holding of balances, that Hawtrey is especially intent on stressing. Furthermore, he traces these changes to banking conditions. As he has put it in one place, "variations in effective demand, which are the real substance of the trade cycle, must be traced to changes in bank credit." [140]

Although there may be some tendency for individuals' cash resources to return to the banks as wage payments decline,[141] the chief characteristic of the situation, in this connection, is more likely to be a tendency for individuals to hold larger balances. A violent reaction may cause balances, especially those of traders, to stagnate to such an extent that there will be an actual increase in the amount of the unspent margin.[142]

139 *Capital and Employment*, p. 85.

140 *Trade and Credit*, p. 94.

141 *Ibid.*, p. 97.

142 *Currency and Credit*, pp. 58-59.

This is in agreement with the theory advanced in *The Art of Central Banking* (Chapter iii) that while traders' balances are dependent on the volume of their transactions, there is no "simple relation" between balances and volume of business; in fact, there may be an inverse relation between the two. As prices fall, it becomes more advantageous for traders (especially those large producers who "make their independence of bankers' loans a source of pride"[143]) and for consumers to hold larger cash reserves on balance rather than to spend money on goods or services. Thus there is a tendency for the ratio of consumers' outlay to unspent margin to decline, that is, a tendency for the circular velocity of money to fall

If traders' receipts are used to discharge outstanding obligations in the form of loans, and if the state of expectations is such that traders hesitate before making increased commitments, it will develop that credit is extinguished more rapidly than it is created. This reduces the volume of outstanding bank credit and the unspent margin. As an increase of traders' net cash resources, it constitutes an absorption of cash.

(2) *Expansion phase of the cycle.*

This vicious circle of contraction and deflation gives way finally to a circle of expansion. The explanation of the change is an important part of Hawtrey's cycle theory. In describing the course of the cycle as it has occurred in systems having a credit organization based on cash reserves, he has stated that as this contraction of credit continues, the cash requirements of the community decrease, and the return of cash to the banks acts gradually to replenish bank reserves. According to this view, while the process of return of cash is slow, it eventually ". . . provides the opportunity for a renewed credit expansion."[144] The progress of this response determines the period of time over which the cycle is spread.

143 *Ibid.*, p. 57, n.

144 *Ibid.*, p. 154.

Also, a fall in the interest rate makes transactions profitable which might not otherwise have appeared attractive. When merchants are encouraged to submit larger orders to the producers, the demand for credit to finance the production of larger quantities of goods increases. This means an expansion of credit, a release of cash, an increase in employment, and an increase in the money demand for final goods. If the renewal of activity begins with consumers' cash balances at a very low point, the first response may be for consumers to absorb cash. But Hawtrey argues that their behavior cannot be determined on "a priori" grounds:[145] consumers may spend immediately. The fact that wages tend to lag behind profits tends, however, to allow the increased activity to continue for some period of time, determined by the lag itself, before the absorption of cash by consumers can begin to be serious.

This relation between the rate of wages, consumers' cash balances, and consumers' outlay has always played an important part in Hawtrey's theory of the trade cycle. In his latest book, *Capital and Employment*, the drain of cash on account of the absorptions during the latter stages of the period of expansion is suggested as an explanation of the variations in productive activity which occurred in the nineteenth century.[146] It appears to be his view now that this element of his cycle theory applies only to the fluctuations in activity characterizing the 150-year period ending in 1914. Consequently, Hawtrey wants to distinguish between theories of the trade cycle and the theory of depression.[147] The former depend largely on the cash drain and return analysis while the latter is developed in other terms. His own explanation of the latter seems largely in terms of monetary policies and their effect. Nonetheless, Hawtrey did explain the process of expansion and the factors limiting it in terms of cash absorptions as late as 1927. He wrote:

145 *Trade and Credit*, p. 97.

146 *Capital and Employment*, p. 122.

147 *Ibid.*, pp. 108-109.

"The rise of wages lags some way behind the rise of prices and profits. In the course of the revival after a depression, when the stage is reached at which industry is working approximately up to capacity, and prices are perhaps not far from normal, wages are still below normal, the cash holdings of the working classes have still not been brought up to their normal proportion to wages. There ensues a period when these cash holdings continue to increase. By the time they have increased not merely up to normal but so far beyond it as to make a shortage in the cash reserves of the banks, considerable further progress will have been made with the credit expansion, and wages themselves will be well above normal. At that stage the banks will begin to restrict credit." Thus: "*What ultimately limits the expansion of credit is the absorption of money into circulation* . . . mainly by the wage-earning classes." [148]

Hawtrey's treatment of the movement of prices during the expansion period of the business cycle is an especially important aspect of his theory. If there is a considerable margin of unemployment, an increase in demand will be reflected chiefly in increased productive activity. But even in the most inactive times, he argues, some industries will be employed near to capacity, and they can only extend production at increased prices.[149] He states that "in general the first effect of an increase in the consumers' outlay is increased sales from stock, next comes an increase in production, and lastly a rise in prices. But each stage overlaps the one before, so some increase in production and *some* rise in prices may appear almost at the outset." [150] If industry is employed near capacity (which may be set by the limits of available labor [151]), the increased demand may be met by an almost immediate rise of prices. Such a move may be interpreted as a means of protecting

148 *Trade and Credit*, p. 96. My italics.

149 *Currency and Credit*, pp. 49-50; *Trade and Credit*, p. 92; see also, *Capital and Employment*, pp 68, 74, 117, and 253.

150 *Currency and Credit*, p. 60. His italics.

151 *Trade and Credit*, p. 92, n.

existing stocks of commodities.[152] This tendency for prices to rise causes a further credit expansion by increasing the credit requirements of business.[153] As this process proceeds, it becomes less advantageous for traders or consumers to hold balances, and hence these reserves of cash tend to be paid away if they are in excess of the normal requirements. The increase in the average rapidity of circulation of the total money supply which this release of cash entails exaggerates the effect of the increase in the unspent margin on the price structure. A violent rise in prices may so stimulate demand that ". . . money is spent from balances faster than it is borrowed, and the unspent margin actually diminishes. But this only occurs when either traders' balances are, at the outset, somewhat above normal or there is acute distrust of the currency, leading people to cut down balances below the convenient level." [154] On the other hand, consumers may still be building up balances throughout the credit expansion, and even after the contraction has set in.[155] Thus the rate of acceleration of the credit movement affects cash balances, the rapidity of circulation of money, general demand and prices.

(3) *Limits upon expansion and contraction set by drains and returns of cash.*

As was pointed out above, Hawtrey has explained the shift from expansion to contraction and from contraction to expansion by reference to internal and external drains or returns of cash out of and into the cash reserves of the banking system.

152 "... As the dealers experience more and more difficulty in placing orders and in securing early delivery on those placed, they will tend to defend their stocks against depletion by raising prices against the consumer. Here we have that rise of prices which the quantity theory tells us ought to occur. It comes only because people spend the money they receive but only in so far as their expenditure cannot be met by increased production." (*Trade and Credit*, p. 92.)

153 *Currency and Credit*, p. 49.

154 *Ibid.*, p. 59.

155 *Trade and Credit*, pp. 96-97.

The monetary system to which he has reference in this theory is the international gold standard. It should be remembered that he now holds that this particular element in his theory is relevant to the cycles of business as they have occurred in the one hundred and fifty years previous to 1914. In his earlier book, *Currency and Credit*, Hawtrey explained this process as follows. The coin of the community is divided between the banks and the public. As the manufacturers and dealers borrow from the banks they tend to withdraw cash, principally in order to meet wage payments. Part of the cash may be used immediately by the wage-earner in the payment of debts, and thus returns immediately to the banks, but a part may be withheld in order to build up an appropriate balance before being used for investment, for large purchases, or for savings account purposes. Hawtrey argues that, ' consequently, when employment is good and wages high, a certain amount of the money paid out each week to the workmen fails to come back to the banks the following week, and there is in fact what is called a withdrawal of money for ' internal circulation.' The fact that this drain of coin occurs is of great importance to the theory of currency. The stock of coin in the hands of the bankers is limited. Once it is exhausted they will fail to discharge their obligation to provide money on demand, however solvent they may be. If they are to avoid this calamity they must take steps to check the drain of coin." [156] The drain of coin may be late in manifesting itself as a check to the expansion of credit because prices and wages, according to this view, are adjusted tardily as the expansion continues. ". . . It is only very gradually that the bankers can become aware that the growth of credits is threatening their reserves of coin. By the time the drain of coin becomes perceptible, credits will already have been increased to such a point that there would be a heavy additional drain of coin even if there were no further expansion of credits." [157]

156 *Currency and Credit*, p. 22.

157 *Ibid.*, p. 23.

Eventually credit policy is reversed. But even though credit contraction begins, large unfilled orders may be outstanding and some capital developments may be partially finished. Both of these conditions require additional credit, even in the face of general contraction. For reasons of this sort (in addition to delayed adjustments of wages and prices [158]) the drain may continue for a further period. This point in the whole process he has described as the "uncomfortable interval while producers remain busy, but the shadow of credit contraction is already upon trade." [159]

Although the check is retarded by the slow adjustment of outlay to income and by the necessity of working through orders even in the face of a higher interest rate, the drains of cash eventually act to limit the expansion and thus determine the period of the cycle, through their effect on bank reserves and thus upon bank credit policy.[160] Hawtrey argues that the turning points and duration of the cycles are not dependent on "anything essential in economic theory but upon the practice and policy of the central bank." [161] The argument in this connection turns on the combined effect of monetary and non-monetary factors on the cash or gold reserves.[162] He writes, ". . . the monetary theory of the trade cycle traces the period to the rate of progress of credit movements in their effect on the gold reserves;" non-monetary forces act through their influence on the credit situation.[163] Finally, "when credit movements are accelerated, the period of the cycle is shortened, so much shortened that we no longer recognize it as a cycle at all. Conceivably they might be so accelerated that industrial activity could not respond to them and all traces of periodicity would then be lost." [164]

158 *Ibid.*, pp. 153-154.
159 *Trade and Credit*, pp. 96-97.
160 *A. C. B.*, pp. 393-394.
161 *Ibid.*, p. 392.
162 *Trade and Credit*, p. 97.
163 *Ibid.*, p. 176.
164 *Trade and Credit*, pp. 175-176.

Since this point is a significant one in Hawtrey's theory of the business cycle, one more quotation may be justified. He writes, concerning the "active" phase of the business cycle: "The governing condition, on which everything else depends, is the enlargement of the consumers' income and outlay. What stops that enlargement is the shortage of gold reserves. *This is the only obstacle in the way of indefinite expansion.* As consumers' income and outlay expand, bigger consumers' balances are required . . . composed partly of bank credit and partly of currency. The bank credit requires appropriate reserves of currency . . . Eventually the central banks were bound to put on the brakes. They would start contracting credit, and there would follow a compression of the consumers' income and outlay, a slackening of production, and a fall of prices." [165]

(4) *Financial Crises.*

The process, which Hawtrey describes as "slow and painful," of turning the tide of money back into the reserves of the banks may involve a financial crisis. The general crisis involves widespread bankruptcies, as falling prices reduce traders' receipts and the value of their assets, leaving their liabilities unchanged. These failures embarrass banks and may precipitate bank failures, which add further to the general unsettlement. Traders are forced to liquidate assets, and consequent increases in sales tend to cause a further fall of values; "panic supervenes when the depreciation of values is intensified by these forced sales." [166] The extent of the crisis will be further influenced by the forced sales of securities, which will cause their values to fall.[167] As consumers' incomes and ex-

165 *A. C. B.*, pp. 205-206. My italics.

166 *Currency and Credit*, p. 160. Specific commodities will be affected differently depending on their elasticity of demand (*ibid.*, p. 165).

167 When this point is added to all that Hawtrey has said concerning the "vicious circle" of contraction, it is difficult to allow any claim of precedence to Professor Irving Fisher's "Debt-Deflation Theory of Great Depressions," *Econometrica*, vol. i, no. 4, pp. 337-357. Although he mentions

traneous receipts are the sources of investible funds, the demand for securities will fall off considerably in a sharp credit contraction. With the strengthening of the credit position this will be overcome, but in the immediate situation the rising costs of holding securities will add further to the fall of values.

The period of contraction following upon the financial crisis is represented as a cumulative movement, traceable to credit difficulties involving a contraction of bank loans. In this way traders' expenditures are decreased, and the outlays of consumers which constitute the final money demand for goods tend to fall sharply. Prices fall with a lag, depending on the extent to which dealers are willing to allow their stocks of goods to accumulate and the rate at which consumers' outlays lag behind consumers' incomes. Although unfilled orders of producers may require the continuance of activity in some lines even in the face of falling demand, output, employment, profits, payrolls and eventually wages are cut down in the course of the general contraction.

(5) *The credit deadlock.*

In this chapter we have dealt with Hawtrey's theory of the business cycle. We have described the phases of contraction and expansion, the factors governing the period of the cycle and financial crises as elements in his general explanation of cyclical variations in economic activity. But there is still another important aspect of Hawtrey's work. It concerns what he terms "depression". He describes the sort of situation which develops when resources available for investment are in excess of capital raised as a "credit deadlock."

This credit deadlock is supposed by Hawtrey to originate in a contraction of general demand.[168] The widening of capital

Hawtrey's writings (*ibid.*, p. 350, n.) as being the "next nearest," after Veblen's, to his theory, he proceeds to point out that "the word 'debt' is missing in the indexes of the treatises on the subject." There are 52 references to "Debts" in the index to *Currency and Credit* (1927, 3rd edition).

168 *Capital and Employment*, pp. 78-79. But the contraction of general

is, as we have shown, dependent on the fluctuations of consumption demand.[169] The motive is the prospect of increased sales.[170] Thus a contraction of general demand causes dealers to initiate no extensions of capacity, that is, causes them to cease " widening " the capital structure. In the case of capital instruments this means that new plants using the same quantity of capital to produce a given output are not built and, in the case of working capital, that stocks of goods in the hands of dealers are reduced.[171] The difference between the sales and purchases of dealers goes to swell balances, and they absorb cash.[172] If consumers, in the face of contracting income, spend as before, they release cash which the traders absorb.[173] But the traders may use part of their idle balances to buy securities, thus adding to the resources of the investment market and lowering the long-term rate of interest.[174] The banks also, finding no outlet for their funds in loans to firms for widening the capital structure, may enter the market as purchasers of securities, further depressing the long-term rate of interest. But the less optimistic views as to future demand, partial utilization of existing capacity, and the stoppage of the widening process may create a situation in which no reduction of the long-term rate will suffice to encourage the production of plant using an increased amount of capital to produce a given

demand is an effect of fluctuations in productive activity. Hawtrey indicates no unique originating causes of disturbances.

169 *Ibid.*, p. 69.

170 *Ibid.*, p. 38.

171 *Ibid.*, pp. 75-76.

172 *Ibid.*, p. 76. Of course, revenues may fall off so rapidly that there cannot be a large absorption. Much depends here on the price policy adopted by the firms.

173 *Ibid.*, p. 77.

174 *Ibid.*, pp. 77-78. If traders' revenues have fallen off very rapidly and if their operating costs are relatively unchanging, the resources available may be slight. Also, they may feel that it is appropriate to maintain their balances idle. Hawtrey lacks Keynes' Liquidity Preference concept. Some such analytical tool is useful in handling a problem of this kind.

output.[175] Since the deepening process comes to a temporary end, the investment market may also absorb cash, thus adding to the deflation and general contraction.[176]

On the other hand, if general demand is assumed to be expanding, substantially the reverse of this credit deadlock occurs. In this case an excess of capital outlay over savings is financed by bank advances.[177]

The credit deadlock is a situation, then, which occurs when a contraction of consumption demand stops the widening of capital and diverts resources to the investment market which are not taken up on account of a coincident temporary stoppage of the deepening process. According to Hawtrey, what is needed to remedy this situation is a *sudden reduction* in the short-term rate of interest. The reduction must be considerable enough to stimulate dealers to hold larger stocks of goods, to increase their orders to producers, and thus to initiate an expansion of consumers' incomes and outlays.[178]

Although Hawtrey emphasizes the necessity of interest rate control in the credit deadlock situation, he holds that new inventions and the eventual necessity of replacing existing capital give rise to opportunities for the deepening of capital,[179] and to the natural solution of the problem.

As we indicated at the beginning of this sub-section, the credit deadlock is assumed to be the result of a contraction of general demand. It is important to stress this point because Hawtrey insists that the contraction of general demand cannot be a *result* of an excessive capital outlay in general, or of an excessive expansion of a specific industry. He argues, as we have indicated in the chapter dealing with his equilibrium analysis, that no credit deadlock can occur as long as general

175 *Ibid.*, pp. 78-80.

176 *Ibid.*, p. 78.

177 *Ibid.*, pp. 80-82.

178 *Ibid.*, pp. 84, 121, and 122.

179 *Ibid.*, pp. 36, 80.

demand is maintained. Therefore, one cannot find the originating cause of deflation in the investment process itself.[180]

(6) *Summary and comments.*

In this chapter we have summarized the principal elements in Hawtrey's theory of the business cycle. We began by showing how, in his view, the behavior of traders or dealers in reducing the size of their stocks of goods causes producers to generate less income, and how the vicious circle of contraction sets in and deflation proceeds cumulatively. We have seen that Hawtrey stresses the monetary aspects of this contraction. The general features of the period of expansion were then described. Here again it was seen that Hawtrey's main effort is to show how the system produces expansions which proceed cumulatively in a vicious circle. We also discussed Hawtrey's theory of drains and returns of cash. We saw that he explains the period of the cycles of activity in the 150-year period ending in 1914 in terms of the effect of internal and external cash flows on bank reserves and credit policy. This is the factor which limited the expansions and contractions of the cycles. According to Hawtrey, the process might otherwise continue indefinitely.

Finally, we presented Hawtrey's theory of depression. Apparently this is relevant to those occasions in the post-war period when the investment market has failed to make complete use of the community's savings and has thus produced severe deflations. In this period the cash drains argument is less relevant because of changes in banking practices. This depression situation was presented as a deadlock in the credit market which is created when a contraction of general demand causes entrepreneurs to liquidate their working capital. The proceeds of this liquidation, and an added amount of resources coming from the banks, are used to buy securities. The low rate of interest caused by this use of funds is insufficient to

180 *Ibid.*, pp. 98-108.

stimulate the deepening of capital, and the credit deadlock, an investment-savings disequilibrium, develops into a severe deflation.

Before we proceed to a discussion of Hawtrey's control program it may be useful to make a few general comments on his cycle and credit deadlock analysis.

1. Hawtrey's description of the processes of expansion and contraction concerns the responses of the system to stimulating and retarding influences. The notion of the cumulative character of the movements, once they are started, is well stated in his writings. It is noteworthy, however, that he has not attempted to make any careful statistical analysis of the rate at which the various elements in the system respond. Such studies of objective facts are essential if these processes are to be described faithfully. The sort of analysis that is found in the works of Professors W. C. Mitchell and J. M. Clark illustrates the nature of the treatment which must be followed if these processes are to be described accurately.[181] Also, this kind of statistical analysis serves to throw considerable light on the changing relationship between the various elements in the system during the different phases of the cycle. Although no causal importance can be imputed on statistical grounds to any particular relation or set of relations, the analysis of causes is greatly aided by the factual basis which the studies provide. Hawtrey's work lacks this carefully constructed background of objective data.

2. One of the most striking features of Hawtrey's theory is his explanation of the period of the cycle. Essentially, this means his explanation of the turning points of the expansion and the contraction.[182]

181 W. C. Mitchell, *Business Cycles, the Problem and Its Setting*, and J. M. Clark, *Strategic Factors in Business Cycles, passim.*

182 See the interesting and able discussion by Haberler in his *Prosperity and Depression* (Geneva, 1937), part ii, ch. 10, on the various factors which may be utilized to explain the turning points of crisis and revival.

In that part of his work which has to do with monetary processes operating under such conditions as are imposed by the international gold standard, he argues that the process of expansion might continue indefinitely if it were not for the drains of cash which cause a change in the credit policy. This implicitly denies that any non-monetary disturbances can develop which are able to bring the expansion to an end or promote a revival from contraction. Here we may note an important difference between Robertson and Hawtrey. The former, as we shall see, has indicated several real changes, that is, changes in the conditions of real cost and real demand, which may both bring an expansion to an end and promote a revival. Hawtrey does not, to my knowledge, attempt any refutation of this view. I believe the reason for this is that he believes that as long as credit policy is not altered so as to cause a contraction of consumers' income and outlay, any maladjustments in the system will be automatically compensated for in some other part of the system. But as we have pointed out in our discussion of the conditions of monetary equilibrium, this is a question-begging procedure. Hawtrey merely assumes that the adjustments are made. The point of the whole matter is: can they be made?

However, in a community having a banking system not affected by drains of cash, or limited as to reserves, the conditions are quite different. In this situation an expansion could proceed indefinitely. Of course the inelasticity of supply, that is, the tendency of real costs to rise as resources are more and more fully utilized, would set a limit to the output of goods. From that point on, an expansion would have to manifest itself mainly in a rise of prices and incomes. Thus the "indefinite expansion" could not, except in the face of a continuous industrial revolution and a high, and sustained, saving propensity, mean a continuously expanding output of goods at any very rapid rate.

There is no doubt but that credit conditions have served in the past to promote cycles, but the changes in credit policy

have themselves been caused by some factor or set of factors. Hawtrey's dependence on the effect of drains of cash on the reserves of the banking system provides a far less convincing explanation than does the more eclectic theory stated by Professor W. C. Mitchell.[183] Also, Hawtrey's hypothesis that the expansion could proceed indefinitely if it were not for the contraction of consumers' income and outlay caused by the tightened credit position cannot be reconciled with Professor J. M. Clark's conclusion that ". . . the general curtailment of employment and production which *originates* the decline of consumers' incomes includes a falling-off in physical production of consumers' goods *prior to* any similar definite falling-off in consumers' purchases." [184] Professor Clark indicates several factors, almost all non-monetary in nature, which may act, singly or in concert, to determine the turning points of the cycle and thus its period.[185]

3. Hawtrey argues that the credit deadlock originates in a contraction of general demand. He does not attribute this change to drains of cash. In fact, his theory of the deadlock merely assumes a contraction of demand to take place. This position is defended by his argument that the situation could not take place if no contraction of demand occurred.

This view is also subject to the criticism implied in our quotation from Professor J. M. Clark immediately above. How can this theory be reconciled with the fact that a contraction in the output of producers' goods begins before the contraction in consumers' goods? We merely state this problem here, since it is not our purpose to deal with Professor Clark's explanation. The interesting aspect of this problem is that, in Clark's analysis, the credit deadlock is traced not to a credit situation, but to a maladjustment between the rates of output of different kinds of goods and the growth of consumer demand. This maladjustment causes the credit disturbance.

183 See *Business Cycles*, pp. 455-464.

184 See *Strategic Factors in Business Cycles*, p. 168. My italics.

185 *Ibid.*, pp. 167-183.

4. It can be said that Hawtrey's theory of the credit deadlock means that the prospective marginal pecuniary productivity of capital is so low that entrepreneurs are unwilling to make new commitments in the fields of either working capital or fixed capital. Presumably, Hawtrey's concept of marginal yield and his comments on "confidence" are meant to supply the same analytical tools as Keynes's concept of the marginal efficiency of capital.[186]

But Hawtrey's statement is not nearly as satisfactory because he does not adequately explain the factors which govern marginal yield. The marginal yield of working capital is certainly influenced, as he indicates, by the convenience in buying which may be achieved if large inventories can be maintained. But is this the only source of yield? Working capital is significant to a business man because it is one of the elements necessary to allow him to operate a certain kind of total process. It is significant to him as a producer in many different ways, and his estimate of the worthwhileness or profitability of an adequate supply of working capital will depend, not solely on the discounts which he receives if he buys in large quantities, but also on his estimate of the importance of its many uses.

Also, the cost-saving capacity of a fixed instrument is a significant element in determining whether or not it ought to be installed. But an entrepreneur must consider not only costs but revenues, and his final estimate will depend on the relation between prospective costs and revenues. The installation of the new machine depends on the cost-saving element alone only on the assumption that all other things remain the same. Thus it is necessary to take revenue aspects into account in order to determine the marginal yield on durable instruments. Hawtrey, it seems to me, does not do this adequately.

Furthermore, his analysis of the situation which he describes as part of the credit deadlock, when individuals having

186 *General Theory of Employment, Interest and Money*, p. 141.

resources to invest decide in favor of maintaining a liquid position, lacks the systematic character which the concept of liquidity preference gives to Keynes's treatment of the same problem.

5. Finally, Hawtrey's distinction between the widening and deepening of capital leads him to the conclusion that ". . . the widening process will not account for any change in the rate of interest." [187] This point is of significance here because he argues that the credit deadlock develops when the widening of capital cannot be stimulated by a reduction of interest and the deepening of capital cannot absorb the available capital resources. But this seems to follow merely from his distinction between widening and deepening. He defines the former as involving no change in the amount of capital employed for each unit of output. The latter involves a change in this ratio. If, in this ratio, capital goods and real output are compared and if the ratio calculated is set equal to the equilibrium rate of interest, then, since by definition no change in real yield can occur because of widening, no change in interest rate can be traced to the widening process. But suppose the ratio is expressed in pecuniary terms. Then a progressive widening of the capital structure might lead, because of the expansion of supply, to a declining marginal productivity of capital in this use. The ratio would not remain constant and the distinction between widening and deepening of capital could not be supported.

The different degrees of pecuniary productivity in different levels of trade and in different firms in the same trade suggest that a decrease in the rate of interest might stimulate a widening of the capital structure by making expansions of plant profitable even in the face of a prospective decline in earnings (pecuniary yield). If this is a real possibility, then Hawtrey's theory of the credit deadlock needs to be revised to take it into account.

187 *Capital and Employment*, p. 36.

CHAPTER VI

CONTROL PROGRAM

(1) *Price Policy.*

As we have seen, a large part of Hawtrey's work deals with the results of contractions and expansions of bank credit. The avoidance of contraction and expansion means the maintenance of monetary stability. We may therefore next examine Hawtrey's views as to the meaning of monetary stability, in terms of price level behavior. Hawtrey has recently addressed himself with considerable thoroughness to this question.[188] His discussion begins with an enumeration of the chief disorders arising out of monetary instability. The disorders mentioned are: (1) shifts of advantage between debtor and creditor; (2) disparities between wages, profits, and prices; (3) declines in industrial activity, and unemployment. Hawtrey then examines two types of monetary stabilization. One is the stabilization of the price level, the other the stabilization of consumers' income and outlay.[189] Each is tested with respect to its ability to avoid or correct the listed disorders of monetary instability.

First, with reference to the first disorder, he concludes that "*. . . . on the whole the balance of argument is on the side of stabilizing incomes or the remuneration of effort rather than*

188 *Art of Central Banking*, pp. 303-332 on "Money and Index Numbers."

189 See Hawtrey's review of Bellerby (J. R.), *Monetary Stability*, in the *Economic Journal*, vol. xxxvi, 1926, pp. 97-98. He suggests here that the "right solution" of Bellerby's problem, namely whether prices should be stabilized at a "prescribed normal price level, measured by a selected index-number" or that a less rigidly defined policy of "correcting from time to time any inflationary or deflationary tendency which may make itself felt and may threaten a disturbance of the equable course of trade" should be adopted, would be to take the policy of price stability as a general norm but to allow deviations from this, at the discretion of the Central Bank, when non-monetary factors are acting to cause changes in prices.

commodity prices." [190] If prices are stabilized when diminishing returns prevail, the recipients of fixed income gain while the wage-earners tend to get a smaller relative share of the national product. Since "the intentions of the man who saved to provide the fixed income would be adequately carried out if the currency were so regulated as to maintain incomes unchanged and to allow a rise of commodity prices . . . there is nothing in the idea of a fixed income to require that the possessor should be safeguarded against the effects of a scarcity of natural products from which his neighbors with earned incomes suffer." [191] Furthermore, if prices are stabilized when increasing returns prevail, the recipient of fixed income "suffers in relativity with the neighbors' earned incomes." [192]

Second, the same conclusion is reached in his discussion of the disparities between wages, profits, and prices that arise out of changes in the value of money. The argument is based on the proposition that "prices are more easily adjusted than wages." He concludes that if real costs rise, prices will rise "naturally and promptly", provided consumers' incomes and outlays are stabilized. If price stabilization is the aim of monetary policy it can only be achieved, in this case, by means of a reduction of consumers' incomes and outlays. But this course is likely to be at the cost of considerable economic dislocation. In the second place, if real costs are falling the policy of price stabilization calls for increases in wages and profits to reward the more efficient factors of production, which increases may "lag" considerably and become a source of dangerous industrial dispute and social resistance. In this case, if consumers' incomes and outlays are stabilized the rewards of greater efficiency are passed on to the wage earners not in the form of grudgingly proffered wage increases but through lower prices of the things they buy. In this as in the former instance,

190 *A. C. B.*, p. 318. My italics.

191 *Ibid.*, p. 317.

192 *Ibid.*

changes in real costs would be reflected in price adjustments, presumably without friction or social conflict.

Third, the same arguments are applied in his discussion of the industrial activity and unemployment arising from changes in the value of money. Here he shows that depression may be caused if, in the face of rising real costs, consumers' incomes and outlays are decreased in the interests of price stabilization. This conclusion rests on his proposition that "whatever the circumstances, the stabilization of the commodity price level in face of scarcity will always tend to cause depression." [193] On the other hand, if real costs fall, the stabilization of consumers' incomes and outlays will necessitate a lower price level, but this low price level will not act to dampen down industrial enterprise when it is merely a reflection of increasing industrial efficiency, since it is not a "prospective" loss and once taken does not affect future production.[194]

In all instances, then, the disparities arising from monetary instability are more easily and effectively avoided by stabilizing consumers' incomes than by stabilizing the price level. None the less, Hawtrey would agree that a policy of stabilizing the price level has the advantage of offering a definite test of its accomplishment and would not, if successfully pursued, allow either inflation or deflation to proceed to dangerous extremes.[195]

(2) *Stabilization of consumers' income and outlay.*

The plan of maintaining monetary stability by stabilizing consumers' incomes has already been touched upon in our discussion of Hawtrey's theory of the conditions of monetary equilibrium. There we showed that he takes the position that stability of the national income is the true condition of monetary equilibrium. More specifically, this means that the total

193 *Ibid.*, p. 323.

194 *Ibid.*, pp. 324-325.

195 *Capital and Employment*, p. 256.

consumers' income should be adjusted in accordance with changes in the volume of the factors of production. In *Capital and Employment* Hawtrey writes on this topic as follows: "The ideal policy would be to stabilize the consumers' income, not keeping it absolutely fixed but adjusting it to the growth of the factors of production in such a way that equilibrium requires the level of wages to remain unchanged. The consumers' income must then expand (or contract) in conformity with any change in the number of wage-earners, in the proportion of wages and salaries above the normal wage level, in interest, in rent and in profits."[196] The difficulty of testing the success of the program is held by Hawtrey to be slight, since any failure to stabilize consumers' income will give rise to a movement towards inflation or deflation and can then be corrected. Since this policy requires that money wage rates be held constant, changes in the output attributable to changes in producitvity will reflect themselves in lower prices.

Hawtrey has stated this policy several times but never as clearly as in the quotation above. In an earlier work he said that adjustments in consumers' income and outlay should be made to take account of change in "man-power and accretions of capital."[197] In still another place he states that the money supply should be adjusted to changes in population and capital.[198] Clearly, neither of these two statements means very much unless one can say definitely what is meant by capital and unless its changes can be measured.

But in the first statement of the "ideal policy" the matter is considerably clearer. It is apparent that the real aim is to stabilize the level of wages. If the consumers' income were held rigidly constant, money wages would have to fall if the total of interest and rent payments were to increase because of increases in the rate of interest and the rent of land and/or

196 *Ibid.*, pp. 264-265.

197 *A. C. B.*, p. 325.

198 *Trade Depression*, p. 100.

because of increases in the quantity of these factors of production. If wage rates tend to be rigid, considerable difficulty may arise out of these forced reductions. There are, however, some problems raised by this statement of policy which we may well discuss at this time.

First, the policy does not permit special workers to be given higher wages as a reward of greater productivity except at the expense of other workers. The reward is taken care of when the improvement in productivity is general and proportional throughout the economy, but this does not take care of the case of a special industry, the workers of which are purchasing chiefly other than their own products. Nor does the policy allow for the stimulus of higher money wages to facilitate the making of the " leaps " in economic development which, as we shall see, Robertson emphasizes.

Second, it is necessary to construct some measure of capital if consumers' outlay is to be adjusted with respect to changes in the quantity of the factors of production. Hawtrey does not present any direct method of measurement. Although he says that it is easy to test the success of the control program by observing the stability of the system, this merely begs the question by assuming that the only factor that can cause instability is the failure to apply this ideal policy effectively.

Third, if we assume population, capital, and land constant and if we suppose the total of interest payments to rise because of an increase in the interest rate, then consumers' incomes must increase unless the total of incomes available for workers is to be reduced. But this increase in consumers' income and outlay may bring about conditions in which a further expansion policy is necessary in order to maintain wages constant in the face of increased interest and rent payments. In other words, the policy may lead not to stabilization but to fluctuations of general demand.

Furthermore, there are difficulties involved in the practical application of the policy. The expansion policy necessary to

allow interest and rent payments to increase without causing less to be left for wage payments must be started before the income payments which justify the increase begin. This must be true if expansion of the effective money supply is made through loans and investments to producers, and if there is any interval between this process and the disbursement of the total as rewards to the various factors of production.

Finally, if wages are held constant during an inflation, the rise in capital and land values consequent upon greater returns to receivers of interest and rents justifies the expansion of credit on the ground of a rise both in the rates of return and in the quantity of the factors of production computed in pecuniary terms. This appears to require an ever-increasing expansion of the effective money supply.

(3) *Inflationary measures.*

The discussions of price policy and the stabilization of consumers' income and outlay in (1) and (2) above have dealt with the maintenance of monetary stability. Another question with which Hawtrey is concerned is the means of re-establishing stability when the system has been forced into disequilibrium by inflationary or deflationary developments. The remaining parts of this chapter will therefore deal with his proposals for treating economic disequilibrium. This means for the most part methods of relieving economic depression.

We have quoted above a statement from Hawtrey which illustrates how he traces many of the features of industrial depression to the falling price level.[199] It is a natural implication of this position that the first aim of monetary policy during a deflation should be to reverse the course of the falling price level.[200] No revival can begin until prices begin to move

199 *Supra*, p. 145.

200 This follows from the effect of falling prices on enterprise. *Monetary Reconstruction*, pp. 156-157; *Currency and Credit*, ch. v; *Trade Depression*, pp. 42-45.

upward under the impetus of the renewed borrowings, which will encourage traders to increase their stocks of commodities and to deplete their balances of currency and bank credit. It is this process which leads to increased industrial activity, augmented incomes and outlays, an increase in the demand for goods and a renewal of the widening and deepening of capital. In short, deflation must be broken if revival is to be started. But inflation is also a vicious cycle. He does not propose to solve all economic dilemmas by a resort to inflation; his is a far more tenable position. He supports inflation only as a means of combating deflation when that process has begun its downward spiral, carrying with it at various rates all other economic quantities and giving rise to additional economic disparities rather than solving the existing ones. In concluding his comments on the trade depression of 1931 he says, "inflation is rightly condemned, because it means an arbitrary change in the value of money in terms of wealth. But deflation equally means an arbitrary change in the value of money. The reason why inflation is more condemned and feared is that it is apt to appear convenient and attractive to financiers in difficulties. The consequences of deflation are so disastrous and the difficulties of carrying it out so great that no one thinks it necessary to attach any stigma to it. And since from time to time deflation has to be applied as a corrective of inflation, it is given the status of an austere and painful virtue.

"But it is not essentially a virtue at all, and when it is wantonly imposed on the world, not as a corrective of inflation but as a departure from a pre-existing state of equilibrium, it ought to be regarded as a crime against humanity.

"Just as deflation may be needed as a corrective to an inflation to which the economic system has not adjusted itself, so at the present time inflation is needed as a corrective to deflation. If the monetary affairs of the world were wisely governed, both inflation and deflation would be avoided, or at any rate quickly corrected in their initial stages. Perhaps the ideal of monetary stability will be achieved in the future. But

to start by stereotyping conditions in which prices are utterly out of equilibrium with wages and debts, and with one another, would be to start the new policy under impossible conditions." [201]

This defence of inflation is made by Hawtrey because he sees the great deflations of the past as movements that have tended to force economic factors *out of* rather than *into* proper relationship with one another. He sponsors an expansion of credit because he feels that unless the course of falling prices is reversed, the necessity of arbitrarily correcting the created disparities will be continuous.[202]

It has been observed with regularity, by those who caution against inflationary tendencies, that once an inflation has been started it can be controlled only with difficulty. In an early essay on "Inflationism" [203] Hawtrey attempted to distinguish between inflation and "sound finance." In this essay he writes, "the policy of always avoiding a fall of prices involves a progressive depreciation of currency, unless it is accompanied by the policy of always preventing a rise of prices. Here is the true dividing line between inflationism and sound currency." [204] Again, "any proposal for the relaxation of the actual standard for the time being (whether it be gold or any other) is inflationary, *unless* it includes some stabilizing principle of its own. Even if it does ostensibly include a stabilizing principle, we shall be justified in calling it inflationary, if the new principle is really put forward only as a pretext for the depreciation of the currency." [205] In *The Art of Central Banking* he points out that, "a simple criterion can be applied to determine whether any proposal for expanding credit is or is not legitimate. So long as it does no more than bring the price level

201 *Trade Depression*, 1st edition, pp. 76-77.

202 *Trade Depression*, pp. 47-48; *Monetary Reconstruction*, p. 31.

203 *Trade and Credit*, ch. iv.

204 *Ibid.*, p. 79.

205 *Ibid.*, p. 80.

into equilibrium with the existing wage level, it is beneficial. The inflation is desirable. Indeed, people who regard the word inflation as necessarily having a bad sense would call this degrees of expansion 'reflation.' But *the moment credit expansion goes so far as to require an increase in wages to put prices and wages in equilibrium, then there is an illegitimate inflation. The symptom of such an inflation is excessive profits. What is desirable is a price level which just makes industry remunerative and fully employed. Any further rise of the price level is a departure from equilibrium.*" [206]

There can be no doubt about the desirability of having some means for testing the appropriateness of any given credit movement. But it is not at all clear that the stabilizing principle of inflation which Hawtrey suggests does really supply this need. I take it that the two tests (a) that wages and prices should be in equilibrium and (b) that industry should be fully employed on remunerative terms, are really equivalents. But suppose that there are differences in the flexibility of wages and prices in the various parts of the system. Is it necessary to continue expansion until even the most tardily adjusted relations have reached their equilibrium position? If this is the case, then some of the more flexible parts of the system may be making excessive profits while other parts are still operating at a loss. Hawtrey's stabilization principle assumes that, on the whole, the different parts of the system react synchronously in terms of price, wage, and profit changes. In view of the actual differences in the flexibility of wages and prices in different trades, this assumption is unwarranted. The principle itself is hence of questionable worth.

(4) *Interest rate control.*

The method which Hawtrey has consistently supported as a means of regulating economic activity and of achieving his end of stabilization of consumers' income and outlay is the

206 *A. C. B.*, p. 271. My italics.

control of working capital through interest rate changes.[207] As we indicated in the previous discussion of the widening and deepening of capital, this means the regulation of stocks or inventories of goods. Hawtrey's position is that working capital is more sensitive to control than the fixed capital of the community. He argues that the speculative element in security purchasing[208] on borrowed funds is too great to allow interest charges to have much effect, and that the period of financial and technical preparation necessary before capital installation is begun makes interest ineffective as a controlling device over long term capital.[209] The short term rate of interest has a controlling influence, however, over the size of stocks of goods that will be held by traders. Hawtrey has argued that in the case of "wholesalers," the percent of sales represented by profit is small relative to the percent of sales represented by interest, and that wholesalers therefore are sensitive to interest rate changes in determining the amount of their inventories.[210] In *Capital and Employment* the argument is shifted somewhat. The references are not to "wholesalers" but to any dealers or traders in manufactured goods, whether producers, wholesalers, or retailers.[211] And the emphasis is placed, as shown above, on the convenience which comes from buying large amounts of goods and the consequent carrying of a larger inventory.

Hawtrey now insists that the device of interest rate control is not effective unless used just as soon as the undesired change in consumers' outlay appears. If a contraction of demand is allowed to proceed until a credit deadlock develops, both the widening and the deepening of capital may become insensitive to regulation.

207 He also mentions but does not emphasize the selective granting of credits. See *Capital and Employment*, p. 118.

208 *Ibid.*, p. 112.

209 *Ibid.*, p. 112.

210 *A. C. B.*, pp. 365-371; see also, pp. 394-399.

211 *Capital and Employment*, p. 54.

It is clear that the chief characteristic of this point of view is the emphasis which is placed on regulation of working capital and the minimization of the possibilities of regulating long term capital. It all indicates a control program worked out through the short term rate of interest rather than the long term rate.

The comparison of profits and interest as percentages of sales for wholesalers does indicate that, other things being equal, a small change in the interest rate would wipe out business profits. The same is true, however, and to a greater extent, of wages as a cost. While wages are not apt to be important in the storing of goods, Hawtrey's figures are relevant not to storage but to the entire operation of, for example, a wholesale grocery business.[212] Furthermore, in the case of a decision to expand inventories, prospective profit will be compared with interest charges to be borne. Hence all the factors influencing the former have to be taken into account. The current situation may be so depressing to business men that interest rate reductions may be of little significance to them.

Hawtrey's present tendency to discuss traders in general rather than "wholesalers" in particular is a satisfactory change over his earlier work. It takes account of an important change in distributive methods. The large corporations that retail their own product, and thus tend to displace "wholesalers," hold inventories of both finished and unfinished goods but they are not correctly described as wholesalers. This change in distributive methods parallels the growth of the large corporation itself. The most interesting aspect of the question is that there seems to be a tendency for the large corporations to finance their working capital out of their permanent capitalization and not to depend on short-term bank loans.[213] To the extent that this is true, the short term rate of interest loses its importance

212 *A. C. B.*, pp. 366-371.

213 L. Currie, "The Decline of the Commercial Loan," *Quarterly Journal of Economics*, vol. xlv, August, 1931, pp. 698-709.

as a regulating device. Controls have to be exercised through the investment market. This is perhaps the most important point that can be made against Hawtrey's control program. Unless it can be shown that the long-term rate of interest is readily and substantially influenced by the short-term rate,[214] it seems unlikely that the larger traders will be much affected by the control over the short-term loan market.

If the control over short-term rates is ineffective, the authorities are forced to adopt more direct action. Hawtrey suggests (a) allowing or refusing loans to speculators, (b) buying or selling securities.[215] Of course, (a) involves a complete failure of "rate" control. However, (b) has some interesting aspects relating to interest-rate theory. This device of buying or selling securities raises the same sort of question which Keynes deals with under the heading of Liquidity Preference. Keynes has shown that this action can also be ineffective if the public has a high and increasing preference for cash over non-liquid assets.

(5) *Public works.*

The final element in Hawtrey's control scheme is public works expenditures. He now argues that since long-term capital outlay is not likely to be readily or substantially affected by changes in the long-term rate of interest, it may be necessary to use this more direct method to stimulate investment in capital instruments.[216] He holds that if a credit deadlock develops, direct government expenditures may be the only effective way to keep consumers' outlay from decreasing further. Even though he feels that the expenditures made to finance public works may be slow and thus relatively ineffective in checking the decline in consumers' income and outlay, some benefit is

214 Hawtrey does not think this influence is very effective. *Capital and Employment*, p. 125.

215 *Ibid.*, pp. 124-125.

216 *Ibid.*

expected. The government may also borrow to finance deficits created by unemployment relief expenditures.[217]

Although the government deficit may be small as compared to the shrinkage in national income, Hawtrey expects that the program may be effective in stimulating recovery by offsetting the absorption of cash which occurs during deflation and by stimulating a release of cash and, thus, an increase in general demand.

This is a much more sympathetic attitude towards a public works program than has characterized some of Hawtrey's earlier writings. For example, in *Trade and Credit* he took the position that public works expenditures were unnecessary because the banking system was able to cope with any depression, however severe.[218] In that book the idea of the credit deadlock is not utilized. The fact that he has now become rather acutely conscious of the possibility of there being a temporary glut of capital accounts for this change in his attitude towards public works.

It is notable, however, that the discussion of public works in *Capital and Employment* makes no mention of any other effect of the program than that on consumers' income and outlay. Hawtrey does not discuss the effects of the program on prices nor upon the wage level. It is merely stated that some release of cash, perhaps sufficient to start recovery, may develop out of the spending. But the effect of government spending will depend on how the program, and all the other factors operating at the time, influence the cost-price structure. If the influence of the public projects is to keep costs up while revenues fall, the final effect is to destroy profit margins and discourage private industry. If this occurs the result will be a compression of the consumers' income, not an expansion. It is not possible to say what effect a particular program will have. Much depends on the administration of the scheme. But it is

217 *Ibid.*, p. 125.

218 P. 113.

necessary to take account, in speculating about the probable effects of the plan, of both the revenue and the cost aspects.

(6) *Summary*

In this chapter we have summarized the main elements in Hawtrey's control scheme. We have shown that, so far as concerns the maintenance of stability in the system, he supports the plan of keeping consumers' income and outlay stable and allowing changes in real costs to reflect themselves in higher or lower prices. In the part devoted to the ideal banking policy, we showed that such a program means allowing consumers' income to increase if interest and rents increase, in order that the wage rate may be kept constant. In the criticism of this policy it has been suggested that the scheme would be difficult to apply in practice and would not necessarily maintain stability. It may also be pointed out that the scheme does not allow for credit expansions to facilitate the rapid accelerations of economic growth which Robertson holds are the natural characteristics of technical progress.

In the remaining parts of the chapter we showed how Hawtrey defends inflation as a means of reversing a deflationary tendency. In this connection we indicated that the principle that prices should be raised only so far as to bring them into equilibrium with wages, and thus establish full remunerative employment in industry, is defective in that it does not take account of the varying behavior of different prices and different wages. In practice there might always be some prices resisting the upward movement, or some wages tending to rise, and thus always a theoretical justification, for further expansion.

As to the means by which the expansion is to be brought about, Hawtrey is very definite. He argues that credit control should be exercised through the effect of changes in the short-term interest rate on traders' working capital. We have suggested that the tendency of large corporations to take over

distributing functions, and to finance nearly all of their capital needs by long-term borrowings or by the sale of equities, tends to remove these important agencies from the short-term market. This tendency is manifested in the change in the character of bank assets. To the extent that this is true, the control of borrowing activities must operate through the long-term rather than the short-term market.

Finally, we noted that the emphasis which Hawtrey now places on what he calls the credit deadlock has caused him to take a more sympathetic attitude than formerly towards the plan of bringing about a release of cash through government borrowings to finance public works.

CHAPTER VII

SUMMARY OF COMMENTS ON HAWTREY'S THEORY

In the second chapter of this section on Hawtrey we stated the different grounds on which it might be said that that author adopts a "monetary" approach to business cycle studies. No comments were made at that time on his argument. We are now, however, in a position to criticize Hawtrey's views. One of the principal elements in Hawtrey's monetary approach is his insistence on the power of monetary control devices over industrial fluctuations. But in his most recent volume Hawtrey himself has provided a criticism of the theory that economic fluctuations can be controlled by monetary devices. If a credit deadlock develops, it is not possible for the processes of capital utilization to be stimulated by a fall in the rate of interest. This was shown in our discussion of the credit deadlock in Chapter V. But even aside from this, we have indicated that the monetary control device which Hawtrey proposes, namely the variation of the short-term rate of interest, is an inadequate weapon if the tendency toward an increase in the size of business firms and toward a change in financing methods leads to a decreasing dependence on the short-term money market. Furthermore, his concepts of the widening and deepening of capital and his version of how the rate of interest affects these processes is not a satisfactory exposition of the *modus operandi* of interest control in a credit deadlock. They assume, what seems most unlikely, that the introduction of new technological processes involving the use of a greater amount of capital per unit of output can be stimulated by reductions in the rate of interest, but that expansions of plant involving no such technological change are not affected by interest rate reductions.

Hawtrey's theory that the business cycle has had a period determined by drains and returns of cash out of and into bank cash reserves is another important element in his "monetary" approach. We have explained this theory in Chapter V and have shown that it is applicable, according to Hawtrey, to the explanation of the turning points of the business cycle and not to the credit deadlock. Although we have not debated the question of the validity of distinguishing the credit deadlock from the depression phase of the cycle, some interesting light might be thrown by such a discussion on the problem of interpretation. We have, however, shown that to Professors W. C. Mitchell and J. M. Clark the period of the cycle is not regulated by purely monetary conditions. They study the whole system of business responses; credit developments are necessary parts of the explanation, but so also are many non-monetary factors. Surprisingly enough, Hawtrey has no statistical data in his works to show that these cash movements have played the rôle which he assigns to them.

It is interesting to note that Hawtrey now argues that the deepening of capital, which must be renewed in order to end the credit deadlock, cannot be stimulated by interest rate control but must wait on the development of certain non-monetary factors. Specifically, inventions and the eventual necessity of replacing equipment serve to encourage capital utilization. If one denies the validity of the distinction between the credit deadlock and the depression phase of the cycle, then support can be found in Hawtrey's own words for a non-monetary theory of turning points.

The last element in the monetary approach which we shall discuss here is his proposition that no maladjustment in the system can develop if monetary equilibrium is maintained. We have shown in Chapter IV that this proposition cannot provide substantial support for the monetary approach because it is essentially a question-begging argument. If one supposes that a failure of demand in one direction is compensated by an increased demand in another direction, then no crisis need

develop if there is enough flexibility in the system to allow the adjustment of real resources to follow the adjustment of money demand. All of this Hawtrey assumes. But the problem is thereby solved by assumption. The really important questions are whether the demand changes *will* compensate one another, and whether there is enough flexibility to permit the adjustment of real resources rapidly enough to avoid deflation.

We can conclude, then, that there is insufficient support for the purely monetary approach which Hawtrey has adopted.

In Chapter III of this essay we discussed Hawtrey's theory of price movements. A good deal of this comprised a summary statement of the theoretical devices which he uses in explaining changes in the value of money. In this connection we noted that the emphasis placed on monetary changes had led Hawtrey to give much less attention than, for example, Robertson does to changes in the allocation of real resources consequent upon credit developments. This is an important difference between the two theorists because, as we shall see, Robertson finds causal factors in the situations which Hawtrey tends to overlook.

Then we called attention to the causal connection which Hawtrey alleges between changes in money demand and changes in productive activity. We showed that statistical studies indicate no substantial grounds upon which this theory can be defended.

The releases and absorptions of cash which play such a large part in Hawtrey's theory of demand and price movements are related to changes in net cash resources. Since net cash resources are found by taking the difference between cash and short-term bank indebtedness, the implication is that the release or absorption is affected by changes in short-term loans. It is perfectly possible that under some circumstances this might be an entirely valid statement. But since the commercial loan is becoming less and less important, it seems necessary to take account of other means of changing net cash resources

for the system as a whole. This is a question of business practice, not of economic theory; what is really needed is a careful study of the practices of firms, large and small, in such matters.

Finally, the theory of price movements as Hawtrey states it gives insufficient attention to output changes. This results from Hawtrey's tendency to concentrate on changes in money demand in explaining price movements. General value analysis suggests clearly enough that changes in costs, which may be influenced by real as well as by monetary factors, are equally important in determining price movements. There is no formal method for taking account of supply conditions, such as the period of production (D) concept of Robertson's analysis.

In Chapter IV we discussed the conditions of equilibrium. First of all we stated the primary condition: stability of general demand. Assuming no change in the quantity of the factors of production, Hawtrey argues that general economic balance is preserved if the governing element, general demand, is held unchanged. It is noteworthy that it is general demand—i.e., demand for both producers' and consumers' goods—that is the important element in Hawtrey's theory. Robertson insists that the banks must also have power to govern the "canalization" of demand, that is, the distribution between purchases of consumers' and producers' goods. When total income is constant the shifts of this kind are neither sudden nor great. But if a sudden shift should occur, then it would be difficult to maintain stability of total demand in the next period of time unless resources and costs are flexible enough to allow the necessary rapid adjustments. The maintenance of constant general demand assumes, implicitly, a very high degree of flexibility.

We have also pointed out that maintenance of constant general demand means no change in the money supply and no net releases or absorptions of cash. The general principle is that stability is maintained in a growing system if consumers' incomes and outlays are adjusted to the quantity of the factors of production. In the text below we point out the differences

between this statement and Robertson's views. The latter argues that M should be adjusted to take account of changes in balances held, that is, in V. But he does not, as does Hawtrey, propose that the money supply be augmented to take account of changes in the quantity of capital. We will return to this question when we summarize Hawtrey's views on control policy.

Hawtrey argues, further, that if stability of general demand is maintained, disequilibrium cannot develop on account of excessive investment in general or of the over-development of a special industry. As we have shown above in reviewing his "monetary" approach, this cannot be taken as a refutation of the "investment" theories of the cycle, since it merely says that if these disturbances do not manifest themselves in changes in general demand they can do no harm. No one would dispute this self-evident proposition. But there is considerable doubt that the economic system is flexible enough to adjust itself to disturbing factors of this kind.

We have reviewed Hawtrey's theory of saving-investment disequilibrium and have noted that while he uses, contrary to Keynes, a theory which includes a concept of inequality between these quantities, he does not state the theory as clearly as does Robertson. Specifically, he does not indicate the time period over which the disequilibrium is to take place. Robertson's "day," a concept which will be discussed below, is used for the sole purpose of denoting a period during which equilibrium can take place. As long as Hawtrey uses the concepts of releases and absorptions of cash as analytical devices, and thinks in terms of an inequality between saving and investment, it is incumbent on him to define a period during which such situations can develop.

Another element in his equilibrium analysis, and the last which we shall review here, is his interest rate theory. Hawtrey's latest book, *Capital and Employment*, presents a new definition of types of capital formation and a theory of how they are affected by the interest rate. In the chapter devoted

to a review of his control program, we have shown that Hawtrey has not satisfactorily distinguished between the widening and the deepening of capital, and has not satisfactorily shown the effect of the interest rate on the processes with which he is dealing.

Hawtrey's description of the business cycle was criticized for the lack of a background of carefully organized objective data. He deals with many changes which are statistically measurable but seems to underestimate, in practice, the merits of this kind of treatment.

We have seriously questioned his theory of the period of the cycle, pointing out that he does not provide adequate proof of his own position nor give adequate attention to the non-monetary factors which may limit the expansion of activity.

The theory of the credit deadlock has been criticized on the grounds that (a) the deadlock itself must be explained by some factor other than changing consumer demand, (b) the factors governing the marginal yield of capital are not given a satisfactory theoretical formulation, (c) working capital yield is really dependent on factors other than the "convenience of buying," (d) revenue as well as cost factors must be considered in stating the conditions under which it is appropriate to install a new machine.

Finally, the various parts of Hawtrey's control program were reviewed and criticized. We stated his general policy as being the maintenance of stability in consumers' income and outlay, with adjustments to take account of increases in interest and rent. This means, as we showed, stability of the wage level but not stability of general demand. During an expansion it is likely that such a policy would contribute to, rather than aid in correcting, an upward movement of inflation. It appears that the practical operation of Hawtrey's program might very well lead to alternative periods of profit inflation and deflation.

In discussing his plans for relieving economic depression, we have suggested that he does not succeed in framing a stabilization principle for inflation. We have also shown that his

theory of interest rate control is defective in that it depends mainly on business men's borrowing to finance inventories on short term — a method becoming more and more obsolete in American corporate enterprise.

His present sympathetic attitude toward public works expenditures was traced to the importance which he now attaches to the credit deadlock.

Thus we conclude our discussion of Hawtrey. If any one general criticism of his work can be made it is that his preoccupation with the strictly monetary factors has led him to underestimate, and in some instances to neglect, the nonmonetary factors which may cause changes, and which always interact with the monetary factors to motivate economic fluctuations.

PART II

D. H. ROBERTSON

CHAPTER I

INTRODUCTION

THIS essay deals with the writings of Dr. Dennis Holme Robertson, Reader in Economics at the University of Cambridge. In large part it is a summary of his theory of money and the business cycle. Chapter II deals with the general character of his theory and shows the relation between his conception of the nature of economic progress and his views as to economic policy. In Chapter III we discuss the factors which he presents as making for changes in the rate of economic activity, and his classification of industrial fluctuations into categories of appropriate and inappropriate changes. Chapter IV concerns the theory of capital formation which he has developed, the theoretical concepts involved, and the relation of banking policy to the processes of capital accumulation. The next part, Chapter V, shows how the concepts of the capital theory are applied to explain certain significant features of the business cycle and to suggest remedial measures. Chapter VI deals with the general problem of price-level policy, and with Robertson's views as to the different proposals for effecting economic stability through this type of control. In Chapter VII, the concluding part, the problems discussed in the preceding sections are summarized and some general comments are made on the work as a whole. More detailed criticisms of the method used and the results obtained are suggested in the various sections.

CHAPTER II

GENERAL CHARACTER OF THE THEORY

(1) *Interrelation of "real," "psychological," and "institutional" factors.*

Robertson has suggested that differences of emphasis and analysis distinguish his theory of the business cycle from other current theories.[1] It is clear, however, that if his theory is to be generally characterized it might be termed a "real" explanation; "real" in the sense that fluctuations in economic activity are traced to changes in the amount of effort and sacrifice necessary to produce a given amount of goods, and to changes in the buyers' estimates of satisfactions to be gained from the expenditure, or non-expenditure, of effort.[2] But it must be recognized that "real" factors are not represented as the sole determinants of the system; there are influences from the side of money which Robertson considers at great length and to which he attributes considerable force. There are also psychological factors which serve to govern, in large part, the responses of individuals to any given economic situation. We will show, also, that certain institutional factors are recognized—the current capital-labor relations, for example—which act to influence the way the system will respond to any given stimulus. All of these factors play a part in his explanation of the business cycle; the details of their various rôles

1 *Banking Policy and the Price Level*, revised edition (P. S. King, London, 1932), p. 3. Hereafter referred to as *B. P. P. L.*

2 The term "real" being used in the same sense as in Marshall's "real costs of production"; see his *Principles of Economics*, 8th edition (London, 1920), pp. 338-339. Robertson's dependence on the Marshallian analysis is clearly discernible throughout his writings; he has stated that much of the difficulties of cycle theory is traceable, in his opinion, to the fact that "... full and systematic use has never hitherto been made of the weapons supplied by this particular intellectual armoury." (*A Study of Industrial Fluctuations*, P. S. King, London, 1915, p. 11. Hereafter referred to as *S. I. F.*)

will be made clear as we develop his argument. It is just because his theory has these various aspects that it is correct in only a limited sense to call it a "real" explanation. But, considering the relative emphasis placed on the different strands of the theory, this seems to be the most appropriate term.

(2) *The general relation between economic stability and real changes.*

This matter of labeling the theory is, however, of little significance. The important point to make clear at the outset is that Robertson argues that certain changes in "real costs" and "real demand" make for an inevitable instability in the output of the system, and that this instability is inherent in the technical and legal fabric of the economy.[3] The significance of this point of view lies in the fact that it leads to a denial of the advisability of seeking for a "general economic stabilization" for the reason that stability (except in a very limited sense) is antithetical to the natural tendencies of the system. According to Robertson the economy proceeds, typically, by "discontinuous leaps";[4] these leaps being responses to changed underlying conditions of costs and demands. This point of view accounts for what might be called his "heresies" with respect to important matters of policy. It is also on the basis of this argument that he arrives at his conclusion that the processes of capital formation implied in economic progress require an instability in the general level of prices. The notion is determinative, also, of his views concerning economic control. He distinguishes between "appropriate" fluctuations of

3 *B. P. P. L.*, p. 4.

4 In reviewing the *Memorials of Alfred Marshall* (edited by A. C. Pigou, Macmillan, London, 1925), he writes, "There is a touch of irony in the fact that, already before his death, severe blows had been dealt to his favorite motto of continuity, *Natura Non Facit Saltum*, in those fields both of biology and physics from which he drew his illuminating analogies. Perhaps in the sphere of economics as well there is more room for leaps than he supposed" (*Economic Fragments*, P. S. King, London, 1931, pp. 166-167).

economic activity—that is, responses which are adjustments to changes in the underlying real demand and real cost conditions—and "inappropriate" fluctuations, which are excessive extensions of these responses. The basic control principle is that "appropriate" fluctuations should be facilitated and that "inappropriate" fluctuations should be resisted.

In order to develop Robertson's theory of prices and production it is necessary, therefore, to discuss in some detail his conception of the nature of economic progress and of the factors which make for variations (appropriate and inappropriate) in the rate of the system's activity. At the same time it will be shown how "monetary," "psychological," and "institutional" factors act to determine, in large part, how the system responds to a "real" change.

CHAPTER III

FACTORS MAKING FOR CHANGE IN THE RATE OF ECONOMIC ACTIVITY AND THEIR RELATION TO STANDARDS OF ECONOMIC POLICY

(1) *First assumptions.*

Robertson's theory of economic progress presents two aspects. The first concerns the conditions of growth in what we might call an expanding economic universe; the second, the question of whether any given rate of growth is "appropriate." Robertson's method of approaching these problems has been to set up a working conception of a simplified economic system, and to consider the influences that might cause the "decision makers" of this assumed system to alter their ideas as to the appropriate scale of output.

The hypothetical society which Robertson assumes is, first of all, one of small productive units: it is a highly competitive system. The industrial units are assumed to be owned and controlled by a "group" of equal co-partners. The trade between groups is assumed, in the first stages of the argument, to be carried on without the use of a money medium; costs of production and returns must, then, be calculated in terms of the efforts and sacrifices necessary to production and of the satisfactions gained from consumption or use of goods received in trade. There is the further implicit assumption that the individuals are capable of judging the real costs and real returns relevant to specific goods. Finally, he restricts this phase of his study to changes taking place over short periods of time.

It is quite clear that this is an extremely unreal situation; but Robertson departs from these assumptions in many important respects in the course of his argument. The assump-

tions are utilized to develop only the very first propositions of his theory.[5]

(2) *Changes in real cost.*

Under these circumstances three factors are enumerated which might offer *rational* incentives to an alteration in the scale of industrial output. First of all, "a lowering of its real operating costs will increase the output which it is worth the while of the group to produce, and a raising of real costs will have the opposite effect," [6] although such changes "may or may not increase the aggregate of effort which it is worth its [the group's] while to expend." [7] If we remain within the group-barter assumption we may agree that a lowering of real cost provides a possibility for expansion. Whether it is worth the group's while to expend more effort, the same as before, or less, then depends on the demand of other groups for its product and on its own preferences for increased real income as against increased leisure. But Robertson's use of this principle to explain the slowing down of activity in a boom and the speeding up after depression suggests that real costs must be cast into money terms if the concept is to be applied to a money system where the worth-whileness of varying expenditures of effort depends, first of all, on pecuniary considerations. He applies the principle to show that during a boom there is a tendency for a ". . . progressive recourse to inferior instruments of production, a progressive utilization of overtired labor, wasteful methods of management, and inferior business leadership." [8] Analogously, during the later stage of

5 These assumptions are set forth in ch. ii, section ii, of *B. P. P. L.* It is necessary to follow the line of reasoning developed in this concise book with great care.

6 *B. P. P. L.*, p. 9. Such alterations might be localized, in an economic sense, or might be quite general. No attempt to define the concept of "real cost" is made by the author except to point out that it is "a complicated and elusive one."

7 *Ibid.*, p. 9, n. See Marshall, *op. cit.*, pp. 338-9.

8 *B. P. P. L.*, p. 9. Briefly, a tendency towards inelasticity of output.

a depression ". . . a progressive advance in the effectiveness of labor, a progressive overhauling of methods of technique and organization, a progressive writing-off of inflated capital charges " [9] will set the stage for a general increase in the rate of industrial output.[10]

(3) *Changes in real demand.*

The second inducement to expansion is listed as " alterations in the intensity of desire of any group for the products which it purchases. . . ." [11] By this Robertson means not changes in the preference for one good as against another but changes in the desire for whole groups of goods in general, e. g., for durable *versus* non-durable goods.[12] Three general

9 *Ibid.*, p. 9.

10 See also, Robertson's earlier work, *S. I. F.*, p. 129. The importance of this change has been pointed out by Professor W. C. Mitchell in his first volume on *Business Cycles* (Berkeley, 1913), pp. 476-482. The view is also stated by W. A. Berridge in his essay on " What the Present Statistics Show," in *Business Cycles and Unemployment* (New York, 1923), p. 61, and by L. D. Edie in *The Stabilization of Business* (New York, 1923), pp. 216-219. However, a great deal of these data, such as those presented by Professor Leo Wolman in the chapter on Labor in *Recent Economic Changes* (New York, 1929), vol. ii, pp. 430-462, can, it seems to me, be used only very tentatively to prove changes in " real costs." We may show changes in the per capita output of labor, but it is a problem in itself to show that such changes are manifestations of changes in the " efforts and sacrifices," as Marshall put it, involved in the production of a given commodity. This is not to deny the usefulness of the growing interest in the relationships between the money costs of labor and capital and changes in marginal efficiencies as studied, for example, by Professor A. C. Pigou in his *Theory of Unemployment* (London, 1932), by J. M. Keynes in his *General Theory of Interest, Employment and Money* (New York, 1936), or by J. R. Hicks in *The Theory of Wages* (London, 1932) and more recently, in a changed manner, in his " Wages and Interest: The Dynamic Problem," *Economic Journal*, vol. xlv, September, 1935, pp. 456-468; our purpose is merely to note the difficulty involved in measuring changes in subjective elements. Compare Veblen, *Theory of Business Enterprise* (New York, 1903), p. 200.

11 *B. P. P. L.*, p. 10.

12 These are changes in the intensity of desire " so general, and at the same time so intermittent, that they may plausibly be supposed to have some bearing on the course of the trade cycle " (*ibid.*, p. 10).

propositions are advanced in this connection. First, it is held that a small increase in the demand for a finished consumable good, when it necessitates readjustment in plant, will occasion a much larger alteration in the scale of operations of those instrument-producing industries supplying the equipment. Like many of the propositions of *Banking Policy and the Price Level*, this is merely stated and not argued. It is not, however, an unfamiliar thesis; Professor J. M. Clark has used it recently to provide a partial explanation of the business cycle in the sense that fluctuations are traced to this inherent characteristic of machine production.[13]

Similarly, ". . . the application over a wide field of territory or of industry of an invention such as the railway, electric power, or the Diesel engine, will raise for a more or less prolonged period the intensity of the desire for the constructional implements and materials involved, only to lower it again when the field in question has reached a condition of temporary saturation." [14] Accordingly, many boom periods are to be traced to various machine developments. This involves a particularly vital point in business-cycle analysis in so far as it suggests an originating cause of the cycle. While one can easily conceive of such changes as stimulating increased expenditures of effort in a barter economy or as causing an increased willingness to borrow (or to reduce balances) in a money economy, it is quite open to question whether causes of this sort are of

13 *Strategic Factors in Business Cycles* (New York, 1934), pp. 33-44 esp. Clark developed the theory much earlier; see his *Economics of Overhead Costs* (Chicago, 1923), pp. 389-394, also his "Business Acceleration and the Law of Demand," *Journal of Political Economy*, vol. xxv, March, 1917, pp. 317-325. The theory is elaborated upon in the J. M. Clark-Ragnar Frisch debate on "Consumer Taking and Capital Production," *ibid.*, October, December, 1931, and April, 1932. See also, Simon Kuznets, "Relation between Capital Goods, and Finished Products in the Business Cycle," in *Economic Essays in Honor of Wesley Clair Mitchell* (New York, 1935), pp. 209-267. Clark's reply to Kuznets is in his *Preface to Social Economics*, pp. 349-354.

14 *B. P. P. L.*, p. 11; see also, *S. I. F.*, part i, ch. iii, sec 3, and part ii, ch. i, sec. 5.

such a rhythmical character as to justify such an interpretation.[15] But that they might operate as rational motives to expansion, which is all that Robertson appears to want to suggest, seems quite inescapable. There is, also, the possibility that the introduction of new methods may take on a rhythmical swing in so far as entrepreneurs may be reluctant to make alterations during a boom. The changes would appear, then, when business has slowed down.[16]

Furthermore, since the intensity of the desire for instruments will depend, according to Robertson, upon the expected cost of operating them, a lowering of the real operating costs of industry may serve to stimulate the instrument-making trades. When this is combined with the introduction of new machines which are themselves also expected to reduce costs, the effect is more pronounced. A rise in real operating costs is treated here as having an opposite effect.[17] The extent to which such factors affect the non-instrument-making trades depends on the proportion of their total income which they spend for instruments and the nature of their demand for other goods.[18]

(4) *Changes in real demand prices.*

Finally, as a third cause, he lists several conditions which lead to an increase in the real demand price for the products of any one group. The contention that such changes offer rational incentives to expand or contract output is based on the proposition that if the demand of any group for the goods which it purchases is elastic, then a rise (fall) in the real demand price for its product, which is equivalent to a fall (rise) in the real price of the goods which it purchases, will

15 Certainly, the changes do not spend themselves on one short (forty-month) cycle.

16 This view is expressed by Mitchell, *op. cit.*, p. 483, and by S. H. Slichter, *Modern Economic Society* (New York, 1931), p. 463.

17 *B. P. P. L.*, p. 17.

18 *Ibid.*, pp. 12-13.

encourage the group to expand (contract) its output. When the group's demand is inelastic a rise (fall) in the real demand price for its product will call for a contraction (expansion) of its output.[19] There is, for example, the case of ". . . an alteration in the volume of agricultural production, due to a variation in the bounty of nature." [20] According to Robertson, "the evidence seems to show that normally a decline in the real price of agricultural produce [that is, an increase in the real price of industrial products or a relative rise in the prices of industrial products as compared to agricultural products] will stimulate industrial output, and an advance [that is, a fall in the real demand price of industrial products or a relative rise in the prices of agricultural as compared with industrial commodities] will check it; but that a sudden or violent swing in either direction may encounter an inelastic demand, and exercise therefore precisely the opposite effect." [21] This seems to be a not very widely appreciated factor in business cycle analysis. An excellent study and corroboration of the theory is found in a recent essay by V. P. Timoshenko.[22] He states that "a comparison of the changes in the ratio of agricultural to industrial prices with business annals shows that, practically without exception, a low ratio precedes or coincides with business revivals and a high ratio very often precedes business

19 *Ibid.*, p. 13.

20 *Ibid.*, p. 14.

21 *Ibid.*, p. 14. The method which Robertson uses in the demonstration of this proposition is similar to that used by Professor Bowley in his Memorandum on "The Prices of Imports and Exports of the United Kingdom and Germany," *Economic Journal*, vol. xiii, 1903, pp. 628-632. The same conclusion and method as the above is found in *S. I. F.*, p. 137 and pp. 165-170.

22 *University of Michigan Business Studies*, vol. ii, no. 9, Ann Arbor, June, 1930. Also see, his "World Agriculture and the Depression," *ibid.*, vol. v, June, 1933. Timoshenko concludes that the coefficient of elasticity of demand for agricultural goods is less than unity; a result which lends significance to Robertson's suggestion. On this last see Robertson in the *Economic Journal*, vol. xxxii, 1924, pp. 286-291.

recessions." [23] Dr. L. H. Bean, writing in 1927 [24] on what he called an "hitherto unobserved relationship," points out that ". . . there has been a tendency for business to recover in periods of relatively low agricultural prices and to decline in periods of relatively high agricultural prices." [25] Dr. Bean used data from 1875-1925. It is not unlikely that some such situation was active in the manner supposed in the period 1922-1929. Using Professor F. C. Mills' indices of prices of raw materials and manufactured goods, we find that the ratio of the former to the latter rises from a base of 100 in 1922 to 109.3 in 1928. It is not surprising that such changes should have considerable effect on business when one considers the influence of raw material costs, in which agricultural prices are a considerable factor,[26] on the profits of industry.

Robertson has also pointed out that " . . . an altered real demand price for the products of an industrial group " may be caused by " . . . an alteration, in the opposite direction, in the operating costs of some other industrial group." [27] If we assume that the demand of each group for the products of the other groups is normally elastic, then the fall in real operating costs during a depression will, even if it is confined to only a few industries, act as a means of increasing the real demand price for the products of other industries and will thus stimulate a general increase in output (and *vice versa*).

Furthermore, if real costs are falling and real demand prices thus rising, and if these lower costs are confined to industries for the product of which there is an inelastic demand, we may approach a situation in which " a further increase of output and reduction of real price by these industries is likely . . . not

23 Timoshenko, *op. cit.*, p. 23.

24 *Journal of Farm Economics*, vol. ix, no. 3, July, 1927, pp. 340-345.

25 *Ibid.*, pp. 341-342.

26 Professor Mitchell estimated, *op. cit.*, p. 482, n., that in 1900 three-quarters of the raw material of industry came from the farm.

27 *B. P. P. L.*, p. 16.

to stimulate but to check an expansion of output on the part of other industries." [28]

Before we pass to the next stage of Robertson's argument we may summarize the foregoing propositions by saying that, in the hypothetical community which he has assumed, changes in output are induced by variations in real cost and real demand and that these changes in output are entirely " justifiable " and " appropriate." [29]

(5) *Institutional factors and the responses to real change.*

It is obvious that the above argument implies a sort of decision-making that is exceedingly unreal, but in a community such as Robertson chooses to postulate there would be no other criteria of worth-whileness than real costs and real rewards. Robertson, however, has altered these assumptions to cover a system subject to the same changes in real costs and real rewards, but which uses money as a medium of exchange, and which operates under what we may call a Wage System. Industry is organized on the basis of individual ownership and there is " . . . a relatively rich employing class, who hire the services of relatively poor wage-earners. . . ." [30] The introduction of these assumptions allows him to show how certain institutional factors affect the system's responses to " real " changes.

(a) *The Wage System.*

The problem which Robertson sets himself with respect to labor organization is this: If decisions concerning the scale of economic output are to be made only after a calculation of real costs and rewards, will different individuals, representative of the employee or employer groups or of the group members of the first example, interpret conditions so differently as to arrive at different decisions? Robertson has attempted to generalize concerning the probable responses.

28 *Ibid.*, pp. 17-18.
29 *Ibid.*, p. 19.
30 *Ibid.*

He concludes that the employer is apt to alter the scale of output, in response to changes in real costs and demand, more drastically than the worker and that the hypothetical "group-member" is most likely to dictate a level of output intermediate between that of employer and worker. This conclusion rests on three propositions: (a) " . . . the demand, in terms of effort, of the typical employer for income in general is likely to be more elastic than that of the workman . . ."; (b) " . . . it is to the employer alone that alterations in the cost and in the technical efficiency of productive instruments are of direct importance, and the consequent changes in the output of the trades making consumable goods are likely therefore to be greater than the immediate self-interest of the workman in these trades would dictate"; (c) the tendencies of real wages to fall during the early stages of expansion and to rise during the early stages of contraction act, on the employer, as if they were changes in real costs. In short, the assumed capital-labor relationship is such that responses to real changes will be quantitatively greater than they would be if decisions were made with reference to the self-interest of the worker. Thus, the variations in the rate of output are traced in part at least, to an "institutional factor."

Before going on with Robertson's theory it might be well to consider this element more thoroughly. Several points should be noted. First, Robertson does not adequately define the nature of the capital-labor relationship. His assumption that a relatively rich employer hires a relatively poor worker says little about the important question of the bargaining power of the two parties. The kind of response which the worker favors may vary considerably with his competitive strength. The growth of labor organizations to a point where they participate effectively in the councils of industry might require a substantial alteration of the general conclusion. This much is speculation; at the moment we can only say that the institutional organization which he assumes is inadequately described and, if we may infer that he means individual bargaining, out of

touch with reality in some significant sections of present-day industry.

Second, the fact that this sort of analysis depends on a personal calculation (by employer and worker) of efforts to be expended and satisfactions to be gained (both subjective) means that the theory is incapable of quantitative expression. While this alone is not, by any means, a totally damaging feature of the theory, it does make its formulation in precise terms an impossibility. Furthermore, there is an implication that the satisfactions accrue solely from the consumption of income. Although it does not weaken Robertson's argument in the least, it should be noted that some satisfaction may accrue out of the expenditure of effort. Finally, on this point, the difficulties of calculation in terms of efforts and sacrifices are multiplied by the fact that the decision concerns prospective efforts and prospective satisfactions. Because this is the case it seems necessary to introduce the element of "outlook" or "expectation" into the theory. This renders the conclusions even more indefinite.

Third, Robertson's assumed organization of the decision-making process is out of keeping with reality in some significant respects. In the modern corporation, at least, the decisions concerning the scale of output are made, in the main, by the board of directors acting, possibly, on the advice of the salaried managers; the owners are, for the most part, quite distantly removed from any participation in this process. There is, of course, a complicated overlapping, in many instances, of salaried managers, directors, and owners. The case is very complex because there is an initial difficulty in identifying the "decision makers." This problem has to be solved before one can discuss the kind of question which Robertson raises.

Fourth, Robertson is concerned with the efforts and satisfactions incidental to the production of goods and services. His conclusions need to be qualified to take account of economic expansions undertaken for the sake of the promotional and not the operational profits involved. The early history of

railroad expansion in this country affords examples of activity of this sort. The expectations for gain, for those who direct, are based on a financial deal and not on the production of railroad services. This involves activity (very intense in the case mentioned), but it is a variation in the rate of output of the economy which does not necessarily make any very substantial contribution to total real income.

Robertson's views may be summarized as follows: given a wage system of the kind assumed, it is likely that changes in real cost and demand conditions will call for considerable changes in output. Defining a justifiable or appropriate change as one " which would commend itself to the enlightened self-interest of the employing class," [31] it can then be said that such variations are " appropriate " and " justifiable " because of the nature of the system.[32]

(b) *The Money System.*

Although we will discuss at a later point the influence of expansions and contractions of credit on prices and production, our attention at this point may be directed to Robertson's opinion concerning the kind of monetary policy which is best calculated to facilitate adaptations of productive activity to real changes. Robertson's argument on this point is very brief, and hence difficult to criticize fairly. The essence of it seems to be as follows.[33] Because both employers and employees are more sensitive to rising money receipts than to increased real incomes following from lower prices, a wage system will respond most readily to changes in real cost and real demand under the stimulus of rising prices. This policy is rated by Robertson as more effective than one of price stability; it is also favored, for the reason given, over a policy of stability in the money supply and consequent falling prices.

31 *Ibid.*, p. 22.

32 *Ibid.*

33 *Ibid.*, pp. 22-23.

Before one could criticize this conclusion it would be necessary to know whether the increased money demand contemplated originates in an increment to the existing supply of money, as seems to be suggested,[34] in a transference of money from some other use, or in some combination of the two.[35] In the first case, one might reasonably inquire as to the other effects, aside from a stimulation of production, which might follow from such an expansion of the circulating media. In the second and third cases, equally compelling questions are involved.[36] It may very well be that rising prices provide the only effective incentives to the industrial community, regardless of the fact that falling costs should allow for the same increases of profits. But a policy which provides them can only be labeled "desirable" if we can show that it fulfills this purpose without imposing eventual crisis upon the system.

It is significant that the policy of maintaining constancy in the money supply is rated as the least effective of all the alternatives considered as a means of realizing the "appropriate" level of output. This is directly contradictory to the general conclusion of the Austrian School. We shall have much more to say concerning Robertson's "ideal" monetary policy: here we have given the first case of his advocating the use of money as a stimulant.

(6) *Factors making for "inappropriate" responses to real changes.*

The variations in activity indicated above have been called "appropriate" and "justifiable" in the sense that they are responses to changed "underlying conditions of utility and cost"[37] which, "relatively to the existing organization of

34 *Ibid.*, p. 24.

35 *Ibid.*, pp. 27-28.

36 There is also the objection, urged by Hawtrey, that such action on the part of the monetary authorities requires a sagacity concerning the elasticities of demand in terms of effort that he would deny even to those who actually expend the effort.

37 *Ibid.*, p. 35.

society, and to its existing powers of control over the forces of technical progress," are as accurate as can be expected.[38] Robertson has argued, however, that there are other features of our economic institutions which tend to cause the system's responses to real changes to be carried to " inappropriate " lengths. This new set of complications is traced to the inherent characteristics of large-scale production, which he generally assumes to operate under competitive conditions. One might be tempted to label variations which are traceable to the typical operation of a certain system, " appropriate " to that system in the sense that they are inevitable in the nature of things. This is not, however, the sense in which Robertson uses the term.

The characteristics of the existing system out of which the inappropriate fluctuations grow are all fairly obvious. First, there is the tendency for investment to be made in a discontinuous manner. Robertson's example in this instance is that of a single firm having to decide whether to increase its capacity by 100 per cent or not at all. Technical conditions may make intermediate changes impossible.[39] Clearly, this leads to a discontinuous demand for capital goods on the part of the single firm, but it is not at all clear that the system as a whole would necessarily—that is, because of the technical character of industry—respond discontinuously. Conceivably the whole trade or industry might proceed with its expansion at a continuous rate, if only the various firms would expand in turn. However, we know that this is contrary to apparent fact and that all firms are more likely, for competitive reasons, to want and need to expand at about the same time. In the face of this situation, expansion of capacity would tend to proceed discontinuously.

Second, Robertson points out that the burden of overhead costs may dictate a rate of output other than the " best " that might be conceived.[40] The paradoxical situations which arise

38 *Ibid.*, pp. 22-23.

39 *Ibid.*, p. 35; see also, *S. I. F.*, pp. 30-31.

40 *Ibid.*, pp. 35-36.

as a result of overhead costs are well enough known; one might add that fluctuations traceable to this glaring fact of modern industry are "appropriate" to that sort of economic pattern. Whether or not such variations suggest themselves favorably to the employing class is a somewhat more obscure question; suffice it to say that in the face of the cost conditions assumed, these responses constitute correct business procedure from the individualist point of view. It is noteworthy that in discussing this matter Professor J. M. Clark points out that these forces are traceable to the " . . . internal laws of the business mechanism itself." [41]

Third, the ease with which adjustments can be made to changed conditions of cost and utility is reduced when instruments are "intractable"; the costs of non-operation may cause them to be operated at a rate which is " . . . greater than the rate of output which would be best if no such costs existed." [42]

Fourth, the responses of industry to rational incentives to expand will be exaggerated because of the tendency of entrepreneurs to overestimate what can, in the face of the industry's capacity, be their share of an admittedly expanding market, and because of the tendency of changes in what might be called the prevalent "state of mind" to spread infectiously throughout the system.[43] All of this is influenced by the fact that the period of production may be long. The final market testing of the business rightness of a given expansion may thus be postponed until costs have been fully incurred.[44]

(7) *Standards of economic policy.*

The next stage of the argument concerns the aims of economic policy. Robertson asserts that the authorities ought to allow the "appropriate" fluctuations to manifest themselves,

41 *Economics of Overhead Costs*, ch. xix, p. 388; see also, p. 386.

42 *B. P. P. L.*, p. 37; see also, *S. I. F.*, pp. 32-36.

43 *B. P. P. L.*, pp. 37-38.

44 *S. I. F.*, pp. 13-14. Robertson points out that this involves an extension of Marshall's concept of quasi-rent.

but that they should suppress "inappropriate" fluctuations. Assuming for the moment what is very unlikely—namely, that the authorities could distinguish between the two types of variation (as it seems they must)—[45] we must conclude that this sort of program would require a change in the "existing organization of society." This must be true if inappropriate variations are importantly related, in a causal sense, to inherent features of the existing system. It is difficult to state Robertson's position on this matter fairly. We are told that the aim of monetary policy should be to " . . . repress those [fluctuations] which tend to carry the alterations in output beyond the appropriate point," [46] but there are other passages in his writing in which, because of the great difficulty of exercising such control, less pretentious programs are suggested.

It has been pointed out above [47] that fluctuations are "inappropriate" when they would not commend themselves to the enlightened self-interest of the employing class. This is, of course, a very vague criterion. One's conception of self-interest is entirely relative and may obviously vary over a substantial range. Furthermore, adaptations which might not commend themselves in retrospect may have seemed quite appropriate, in this sense, as they occurred for the reason that in the former case the degree of enlightenment has the substantial benefits of hindsight. Looked at in this light, it is difficult to see how variations traceable to the spread of a certain state of mind,[48] or to a failure to recognize the implications of a given monetary policy,[49] can rightly be labeled "inappropriate." This is of some interest as concerns the control rationale, since it indicates that the authorities would have to act to repress variations which would very likely commend

45 *B. P. P. L.*, p. 39.

46 *Ibid.*, p. 39.

47 p. 125.

48 *B. P. P. L.*, p. 38.

49 *Ibid.*, p. 39.

themselves to the great majority of individuals. The problems of economic control in a system of private enterprise would be greatly diminished if individuals, on the basis of that degree of enlightenment which they actually possess, would always agree with the control authorities on such matters!

We find, then, that (a) there are two types of adaptations, which would actually be difficult to distinguish in practice, (b) both types are inherent in the institutional pattern, (c) the exigencies of the situation would very likely bring it about that both types of change, as they appeared, would commend themselves to the interests concerned, and (d) the dictum that the monetary authorities should "repress" all "inappropriate" fluctuations would require extensive powers outside of the purely monetary field.

(8) *Summary and criticism.*

It is extremely difficult to criticize the foregoing argument, for the reason that Robertson has stated much of his theory so briefly. There are, however, a few additional notes which seem relevant at this point. In the first place, the "real" factors which Robertson emphasizes manifest themselves *via* the price system—that is, *via* costs and receipts. Hence the theory is not complete until it has been stated in these terms. There is, however, the complicating fact to be noticed that the price manifestations will represent the combined force of monetary as well as "real" factors. For this reason it is very difficult to recognize real factors *per se* and, to that extent, difficult to frame a proper policy.

Second, the sort of response that can be expected in a given situation is determined by the degree of competition as well as by the technical character of industry. Robertson emphasizes the latter, but does not seem to deal adequately with the former. He has pointed out that it is an application of Marshall's concept of quasi-rent to say that entrepreneurs may over-expand because of the length of the period of time necessary to build

instruments.[50] It seems equally clear that this question cannot be adequately discussed except in terms of the number and size of firms, and of the degree of concert between firms. It is certainly a defect of Robertson's argument that most of it is developed on the assumption of small-scale, competitive industry.[51] In so far as he treats of the complications which grow out of overhead costs, it would seem to follow that he should state the theory in terms of the more imperfectly competitive system which is their almost inevitable corollary. Had the argument been developed on these assumptions it might have led to a different view of "enlightened self-interest" and thus of the whole question of the appropriateness of any given scale of output. Aside from the growing strength of labor organization, which has been mentioned above, the character and extent of state action is an increasingly important factor in determining the nature of a system's responses to "real" factors.

Third, with respect to Robertson's treatment of the Wage System, it is again necessary to state the theory in terms of the existing institutions. The important decision-making processes in modern society are corporate processes. Understanding of economic change can be only slightly advanced by an attempt to theorize in this field from the "efforts and sacrifices" of individuals. It would be better to state the argument, after Veblen, in terms of "business" and "industry." Furthermore, Robertson discusses a "group-member" whose actions are entirely hypothetical, and introduces a further degree of unreality by speculating as to how workers would interpret a real stimulus without discussing the sort of institutional setting within which workers might make such decisions.

Fourth, as a general consideration, the theory that economic activity is necessarily unstable because of the inherent character of the economic system is only partially developed when

50 *S. I. F.*, pp. 13-14.

51 Robertson recognizes this as a defect of chapter 5 of *B. P. P. L.* See his "Note to the 1932 Impression," *ibid.*, p. 5.

one has taken account of technical factors. There are general institutional factors of equally compelling force. For example, J. M. Clark has pointed out [52] that profits act as a disturbing rather than as a stabilizing factor, in the sense that when output is increasing profits encourage a further increase, although in the long-run interests of the community it would be better to proceed at a more moderate rate. Likewise, when output and prices are low, profits tend to discourage the production which community interests obviously require. Thus the profit system, aided by the monetary mechanism, acts as an aggravating and not as a self-correcting device. But one could never maintain that Robertson underestimates the importance of such matters. He has written extensively on the tendency of the money system to exaggerate fluctuations,[53] of the wage system to do the same,[54] and on the basic "explosive" forces promoting expansion which characterize this civilization, and of their necessary costs in terms of instability.[55] There are also references of varying extent, to the strength of political and psychological factors,[56] the human tendency to feed on "illusion," [57] the importance of confidence,[58] the force of tradition,[59] the pressure of business opinion,[60] the popular attachment to gold,[61] the basic evils of an inequitable distribution of wealth,[62] and the implications for price level policy of the fact that much of the

52 *Strategic Factors in Business Cycles*, pp. 91-95.

53 *S. I. F.*, pp. 215-216.

54 *Ibid.*, pp. 206-211; *B. P. P. L.*, pp. 19-23.

55 *S. I. F.*, pp. 253-254; *B. P. P. L.*, p. 94; *Money*, revised edition (Harcourt Brace, New York, 1929), p. 189.

56 *Money*, p. 143.

57 *Ibid.*, p. 150.

58 *Economic Essays and Addresses* (P. S. King, London, 1931), p. 212.

59 *Money*, p. 193.

60 *Ibid.*, pp. 108-113.

61 *Ibid.*, p. 160.

62 *Ibid.*, p. 194.

control of economic life is concentrated in the hands of a relatively small group.[63]

Finally, in discussing Robertson's treatment of price level instability it has been indicated that he does not, in that connection, concern himself with the permanence of the scale of output achieved through additions to the money supply. This is a basic question of monetary theory and price policy. It may be that output will be more rapidly increased under the stimulation of rising prices and incomes. It is by no means a settled conclusion of monetary and capital theory that such a policy does not involve a subsequent crisis. Robertson has shown that the discontinuous change can be accomplished most easily under conditions of monetary expansion. But there is no clear demonstration that the change will not be followed by a general business disturbance.

63 *Ibid.*, p. 150.

CHAPTER IV

BANKING POLICY AND CAPITAL FORMATION

(1) *Definitions.*

THE preceding discussion has shown (a) how variations in economic activity are stimulated by real factors and are further influenced by certain institutional forces, and (b) how the principles which lead Robertson to question the desirability of economic stabilization in general and price stabilization in particular follow from his conception of the nature of economic progress. We may now pass to that part of Robertson's work in which he analyzes the relationships between the disposal of income, the formation of capital, and the movement of prices. Before we can review the general conclusions of the theory it is necessary to set forth the analytical devices which are utilized. We are, in these essays, interested very largely in comparative analytical method. It is vitally necessary to bear in mind that theoretical devices are to be tested with respect to their effectiveness in helping to solve certain problems. In this instance the purpose of the various concepts, distinctions, and definitions is to discover the effects of various monetary policies. The same devices are used, as we shall see, in the larger analysis of the business cycle. Therefore, any conclusions we may reach as to the analytical value of the devices will be based on their usefulness in elucidating such questions.

(a) There is, first of all, the fundamental distinction between capital (in its different forms) and the *process* by which it is provided or created. Various terms hitherto applied to this process of providing capital are rejected in favor of a term of his own, namely, Lacking. As a definition, we are told that " a man is lacking if during a given period he consumes less than the value of his current economic output," and that " the things

in the provision of which Lacking eventuates . . . [are to be called] . . . Capital." [64]

(b) Robertson deals with two types of capital, Circulating and Fixed. As to Circulating Capital, we find a decided difference between Robertson's conception of it and those of earlier economic thought. Circulating capital is not defined as a stock of commodities available for the maintenance of workers or as materials having a relatively short existence as aids to production, or even as materials used up in a single process of production. It is defined as the sum of all goods "in process." [65] Thus: "The real circulating capital of a country at any moment of time consists in the whole mass of goods . . . which at that moment are at some point on their journey through the process of production." [66] Robertson's refusal to make circulating

64 *B. P. P. L.*, p. 41. This definition serves to rivet attention on the two important aspects of the problem, namely, the process by which capital is formed and that in which the process eventuates. The concept "current economic output" is not defined: the implications of this omission will be discussed below.

65 "... Circulating Capital does consist of real goods—not, however, of finished goods only, but of a shifting congeries of goods ... such as coal used in industry—which never reach the consumer's hands at all, and some —such as the crop for which the ground has been prepared but which has not yet been sown—which it takes the eyes of faith to see" (*ibid.*, p. 42).

66 *Economic Essays and Addresses*, p. 102. The term "process of production" will be discussed below. J. S. Mill characterized circulating capital as that part of capital engaged in production which "after being once used exists no longer as capital" including materials and "the portion of capital which is paid as the wages, or consumed as the subsistence, of labourers" (*op. cit.*, vol. i, p. 127). This view, which conceives of circulating capital as made up largely of a subsistence fund, is characteristic of both Smith and Ricardo. On Smith see *Wealth of Nations*, Cannan Edition (London, 1904), book ii, chapter i; on Ricardo see *Principles of Political Economy and Taxation*, chapter i, section iv. Also see the discussion by Senior in his *Political Economy*, sixth edition, 1872, pp. 57-76, for a statement of earlier definitions of circulating capital. W. S. Jevons, who departed from the classical tradition in this as in other matters, has written: "Capital, as I regard it, consists *merely* in the aggregate of those commodities which are required for sustaining labourers of any kind or class engaged in work." *Theory of Political Economy*, second edition (London, 1879), p. 242. [My italics.]

capital identical with the materials of subsistence should not be allowed to divert our attention from the important rôle which the flow of consumers' goods plays in his analysis of capital formation. Circulating capital is provided by Short Lacking, and he has written that " . . . the essence of short lacking is seen to lie in some person *going without consumable goods* in such wise that other persons, who are engaged in a lengthy productive process, consume them." [67] The process of short lacking is defined more directly as an activity " . . . enabling society to carry on production—including the production of durable instruments—by methods which are technically efficient but slow and indirect." [68] Thus we see two important aspects of the problem of capital formation. First, the provision of capital requires the use of part of the productive facilities of the economy for the maintenance of those whose employments do not yield immediate returns in consumables. Second, this allocation of productive facilities is made possible by virtue of the fact that some individuals go without consuming all that their current income would allow them to command.

(c) Fixed capital " . . . consists of factories, railways, machinery, and so forth," [69] and it is provided by an essentially similar process—Long Lacking. Long lacking is defined as the activity involved in " . . . providing society with the use—of necessity slow and gradual—of the fixed and durable instruments of production." [70]

(d) While this distinction between short and long lacking is a significant one, it does not suggest a consideration which is of great importance in Robertson's theory. That is the way in which, and the reasons why, the "going without" is per-

67 *B. P. P. L.*, p. 43. My italics.

68 *Ibid.*, pp. 41-42.

69 *Ibid.*, p. 42.

70 *Ibid.*, p. 41. Robertson mentions another concept, Unproductive Lacking. It is meant to designate such activities as war financing, evidently, but plays no important rôle in his theory. See *ibid.*, pp. 44-45.

formed. In attacking this problem Robertson distinguishes between "voluntary" and "forced" or "imposed" lacking. But here we must proceed very carefully. An individual may decide to go without consuming part of his current economic output. If his decision turns solely on changed views as to the advantage of future as against present consumption, it appears that he may be said to be performing Spontaneous Lacking. Robertson writes that this activity " . . . corresponds pretty well to what is ordinarily thought of as Saving. . . ." [71] In contradistinction to spontaneous lacking there is a type of going-without or lacking which is *imposed* upon an individual by the current market situation. If prices of consumables rise, because of credit inflation or the discontinuous dis-hoarding of others, and if a man finds that his usual money expenditures on consumption yield him a diminished real income, he can be said to be performing Automatic Stinting. The individual is "stinting" because he is not getting his full current economic output and, further, his going without is "automatic" because it has been imposed upon him through the operation of the pricing system. Furthermore, when an individual's consumption is reduced both below what he had intended and below the value of his current economic output, he is said to perform Automatic Lacking.[72] By definition he cannot be said to be lacking if he has no current economic output; and unless his consumption is reduced below the proportion which he had spontaneously decided to consume, he cannot be said to be lacking automatically.[73]

71 *Ibid.*, p. 47. Understanding of the theory is facilitated if one will bear in mind the alternative term for the lacking process—i. e., going-without. It was rejected because Robertson thought it too unwieldy.

72 *Ibid.*, p. 48.

73 A man may have a money income without having current economic output, e. g., the newly employed worker. This terminology clearly requires that we give a definite meaning to the concept of current economic output. Furthermore, it is necessary to survey all the means by which a worker can be paid less than the value of his current economic output. The monetary mechanicism which Robertson discusses is only one of the methods.

Another form of imposed lacking which Robertson distinguishes is termed Induced Lacking.[74] This occurs when " the same process that imposes Automatic Lacking on certain people having also reduced the real value of their money stocks, these people hold money off the market, and refrain from consuming the full value of their current output, in order to bring the real value of their money stocks up again to what they regard as an appropriate level." [75] That is, individuals increase their cash balances.

Both automatic and induced lacking are considered to be types of " forced " saving. The significant point to bear in mind is that they are analytical devices for representing the distribution of the stream of current economic output. While there are no direct grounds for so saying, it seems correct to say that this means the stream of real final output. For example, Robertson calls forced savings " . . . the resources diverted . . . from the general consumer to the nominees of the banks." [76]

It might be added at this point that the concept of automatic stinting implies a change in the stream of money without a coincident change in the stream of goods—at any rate such a relationship between the two streams as will divert a part of the latter to those " from whom the additional stream of money flows." [77] The simplest form in which to state these conditions is to say that the average period of circulation of money (K) is equal to the average period of production (D). We will define and discuss these important concepts at a later point. At this time it may be indicated that if V equals the income

74 Robertson gives credit to Professor J. M. Keynes for this notion (*B. P. P. L.*, p. 49). See also the more general acknowledgment of p. 5.

75 *Ibid.*, p. 49.

76 *Economic Essays and Addresses*, p. 100. These processes of saving, like all others referred to in the lacking theory, do not include, directly, the diversion of resources through corporate saving and state taxing activities. It is not difficult, however, to extend the theory to these cases.

77 *B. P. P. L.*, p. 48.

velocity of money per year, then $\frac{1}{V}$ equals that portion of a year which is the period of circulation of money and which equals "the number of days in which, on the average, each piece of money comes on to the market in exchange for real income." [78] D equals the number of days which, on the average, it takes to get goods ready for the consumer.[79] If K equals D, then there would be no change in output nor any change in the amount of money flowing onto the market for real income until a period K (or D) after the first change in the stream of money. To the extent that income and product changes are not harmoniously related in this fashion, the results vary and become more indeterminate. There may be (a) changes in the stock of goods on hand without price changes, (b) changes in income all around after a relatively brief interval of time, or (c) changes in the flow of goods in a period which is less than the period K. It seems clear that these changes may occur in a most complicated fashion; it is impossible to do more than generalize about theoretical limits unless one can assign definite and fairly specific values to the period of circulation of money (K) and the period of production (D). In particular does it seem necessary to study the latter not as an average concept but as a measure of the responsiveness of particular sections of the productive apparatus. But to this matter we will return later.

(e) This approach to the capital-forming process allows Robertson to draw further distinctions between various ways in which lacking may be applied to its task of diverting resources to the provision of fixed and/or circulating capital. By definition, a man is applying his lacking *directly* "if he uses his money-claim in the purchase of an instrument, or in making advances to productive workers." [80] The lacking is applied *indirectly* if he allows his funds to be expended in the capital

78 *Ibid.*, p. 47.

79 See *Money*, ch. v; also, *Economic Essays and Addresses*, part ii, ch. i.

80 *B. P. P. L.*, p. 45.

market by someone to whom he transfers the money-claim. Hoarding, on the other hand, is defined in *Banking Policy and the Price Level* as both "going-without" and adding to the saver's money balance.[81] This process of hoarding will be referred to as Abortive Lacking, while the above is termed Applied Lacking. The importance of these definitions lies in the fact that they relate the activities of lacking to the processes of capital formation and, what is of most interest to monetary theory, that they provide a close connection between the disposition of money claims and the movement of prices.[82]

In the light of these definitions it is easier to see what Robertson means when he says that "it is one of the paradoxes of economics that saving is the one thing that cannot be saved. . . ." [83] Saving is considered as a process which, if not applied to the provision of capital, dissipates itself in lower prices for consumer's goods. Such a dissipation of saving may result if hoarding is either localized or general. Obviously this paradox implies a current equilibrium between the production and the sale of finished goods; if this were not so, the hoarding might manifest itself in accumulated stocks of goods. It is, of course, only an hypothesis (and a very unreal one, indeed) that the price responses that will clear the market will appear immediately. Robertson does not, however, overlook the possibility of changes in stocks of commodities; in his theoretical propositions a sensitive response is asumed merely to facilitate the argument. A complete analysis would have to show the effect of discontinuous hoarding on the state of commodity stocks

81 *Ibid.*, p. 46.

82 It was one of John Stuart Mill's "fundamental propositions" that capital was the result of saving; nevertheless, he did not seem to be fully aware of the implications of hoarding. By saving he must always have meant, as he put it in one place "Saving (for productive investment) . . ."; this parenthetical condition rarely became explicit but was doubtless always implicitly assumed. It is precisely such matters that Robertson wants especially to state explicitly. See Mill, *Principles of Political Economy*, fifth edition (London, 1882), vol. i, book i, ch. v, sec. v, p. 104.

83 *Economic Essays and Addresses*, p. 123.

as well as upon the capital structure and thus upon future output and consumption.

(f) Before we turn to the discussion of Robertson's analysis of what he has termed the "internal mechanics" [84] of certain economic situations, we must take note of several additional concepts. First, there is the notion of a "stock of money"—the M of the algebraic equations. In these expressions, M designates a money supply which consists "entirely of the inconvertible issues of a single giant bank" where money is made up of " . . . check-breeding deposits rather than notes. . . ." [85] This abstraction is, of course, made for the purpose of simplifying the first steps of the analysis.[86] The general disfavor into which the so-called "quantity theory" has fallen has developed coincidentally with an emphasis on the "flow" of money, i. e., upon spending processes. We shall see how Robertson's method reveals the relationship between the stock and flow of money. No apology is needed, certainly, for the use of the quantitative concept of a stock of money since the concept of a velocity of money turnover is incomprehensible without it.

(g) The second concept is that of the velocity of circulation of money. Modern monetary theory places great emphasis on this now familiar notion, although we find that its treatment and definition differ substantially from that given it by earlier writers who were primarily interested in the "transactional velocity of money." The concept which Robertson uses most often may be called the Income Velocity of money. It is epitomized by K in his equations. K represents the period of circulation of money and is defined as "the number of days in which, on the average, each piece of money comes on to the

84 *B. P. P. L.*, p. 49, n.

85 *B. P. P. L.*, p. 52.

86 More realistic features of monetary systems are discussed in *Money*. To my knowledge, Robertson has not entered the recent debate over the meaning of the term "supply" of money.

market in exchange for real income." [87] The value of K, that is, the period of circulation of money, would, of course, be greater than the value that might be assigned to the period intervening between various transactions into which a given piece of money enters. This latter period is the one directly relevant to the transactional velocity of the quantity theory equation. The difference between the two periods will depend on the degree to which the productive processes are differentiated.[88] As in the case of earlier English writers, the theory of the velocity of money is related to the size of the Real Balance or Real Hoard; that is, to " . . . the value, in terms of goods, of the money of all kinds in circulation." [89] It is governed by all those factors which act upon an individual in determining how much in the way of demand over goods he wants to keep available, and bears " . . . some fairly definite though not unchangeable relation to his real capital wealth or his real annual income or a combination of the two." [90] The rapidity

87 *Ibid.*, p. 47. It is defined elsewhere (*Money*, p. 36) as "the average number of times . . . (each piece of money) . . . is spent in purchase of the goods and services which enter into ordinary consumption, during the week or other period of time in question." This is similar to the Foster and Catchings "circuit velocity of money"; see their *Money* (Boston, 1923), pp. 311-312. Keynes uses the term somewhat differently in the *General Theory of Employment, Interest and Money*. He defines it (p. 201) as the ratio of income to that portion of the total supply of money which is used in all except what he terms "speculative" transactions. Definitions similar to Robertson's are formed by Professor J. W. Angell, *Quarterly Journal of Economics*, vol. xlviii, November, 1933, p. 42 (see also his *Behavior of Money*, New York, 1936, ch. v), and by L. Currie, *The Supply and Control of Money in the United States* (Cambridge, 1934), p. 6, although they also make allowances for speculative transactions. Differences between theorists on the details of this concept center around questions concerning (a) the stock of money and (b) the concept of income. Angell uses the term "circular velocity of money" rather than "income velocity." See his *Behavior of Money*, p. 131, n.

88 *B. P. P. L.*, p. 36. Income velocity is the reciprocal of the period of circulation. Thus if money changes hands against final income every half year the income velocity equals two times per year.

89 *Ibid.*, p. 46.

90 *Ibid.*

with which individuals wish to dispose of money income will be inversely proportional to the change in the fraction of their daily real income over which they wish to hold command in the form of money balances.[91] Many factors, of course, influence an individual in these matters. One interesting point is that the individual's decisions may be altered on account of the behavior of others. A general movement to hoard which raises the real value of a cash balance (as dishoarding will lower it) will not, in all likelihood, be met passively by an individual. It is not a simple matter, however, to forecast the response. He may dis-hoard if his real balance increases beyond what he feels is its appropriate level. On the other hand, the dis-hoarding of others and a fall in prices may encourage him to alter his view as to the appropriate size of his balance and cause him to participate in the non-spending movement.[92]

As has been pointed out above, Robertson attempts to generalize certain characteristic economic processes; this inevitably involves a problem concerning time. In order to handle this aspect of a process Robertson uses a special technique. His procedure involves the division of longer periods of time into shorter periods which are called "days." This is done for the purpose of dealing in terms of internally homogeneous units of time. An example of this method is found in his treatment of the period of circulation of money, which is a period of time of such length that the amount of money flowing onto

91 "The proportion of their annual real income over which people wish to keep command in the form of money is the income-velocity of money per annum turned upside down." (*Money*, p. 40.) It seems clear that this is true only on the assumption that there are no changes in the size of non-consumer balances.

92 There is need to emphasize the fact that the individual has no more than a "fairly definite" balance in mind and that this general aim is subject to revision. The degree to which the individual reacts to monetary changes by changing the size of his real balance, or by attempting to do so, will depend on the extent to which the monetary changes are evidenced in the price structure. Changes in income and/or prices of final consumers' goods are the necessary stimuli; they may be relatively slow in manifesting themselves.

the market in exchange for real income is equal to the total stock of money. The length of this period varies inversely with the income velocity of money. The relationship between the "day" and this period lies in the fact that the latter is conceived of as being made up of "days" which are described as "finite but indivisible atoms of time." [93] Although the point is not made clear in *Banking Policy and the Price Level*, Robertson has since indicated that money which becomes income for the individual during a "day" cannot be disposed of during the same "day." Consumers' outlay must be provided for out of the income of some previous "day" or "days." This involves what Robertson has called a "microscopic" or "step-by-step method of analysis." It is defended by him over the more general or "macroscopic" approach of, e. g., Keynes on the ground that it permits of the study of economic processes during periods of time which are "internally homogeneous." [94] This device, the utilization of which we will discuss more fully, is one of Robertson's most important analytical devices. It is his theoretical tool for dealing with certain aspects of the problem of time, which is certainly, as Marshall put it, "the source of many of the greatest difficulties in economics." [95]

(h) Finally, there is the concept of the period of production (D). Just as the period of circulation of money represents the velocity with which money makes its way (on the average) through the system (from the market for final consumers' goods through the productive stages and back onto the market

93 *B. P. P. L.*, p. 59.

94 See his article "Saving and Hoarding," *Economic Journal*, vol. xliii, 1933, pp. 399-413. See also his answer (*ibid.*, p. 413) to Hawtrey's criticism that the method is unrealistic to the point of being quite useless. Robertson points out that Hawtrey becomes involved, himself, in similar problems when he allows consumers' outlay to exceed consumers' income during certain periods of time. Hawtrey's criticism is found in the *Economic Journal*, vol. xxxvi, 1926, p. 429.

95 *Principles*, p. 109.

for final income) so the average period of production of goods is that period of time which, on the average, intervenes between the beginning of the production of a commodity and the final appearance of the commodity on the market for consumers' goods.[96] The concept is used by Robertson in problems which involve the speed with which the economic system will respond, in terms of a changed output of consumers' goods, to effective stimuli. We shall see that its most important use is made where the relations of the average period of circulation of money (K) and the average period of production (D) enter into the theory of price level changes and forced saving.[97] There is also an important relation between the period of production and the value of the circulating capital of the system. If value is added regularly to goods as they pass through the "process," then the "value" existing at any point in time can be represented by the area of a right-angle triangle where we let (a) the base equal the value of final output of consumers' goods, (b) the slope of the hypotenuse represent the rate at which value is added to goods in process, and (c) the third side equal the length of the average period of production. Then the value of goods in process at any one point in time is equal to one-half the value of the goods which would be produced in a *whole* production period.[98]

96 The period is defined in *B. P. P. L.*, p. 43, as "the length of time which elapses between the date at which their production is taken in hand and the date at which they reach the hands of consumers." See *Money*, ch. v, p. 112, especially, and also *Economic Essays and Addresses*, part ii, ch. i, pp. 102-103. There is no reference to the time necessary to make the machines that make the consumers' goods! In his earlier book, *S. I. F.*, Robertson referred often to the "period of gestation," but here he had reference to producers' as well as consumers' goods. See *S. I. F.*, pp. 13-25.

97 Robertson's D is so similar to the "period of production" concept used by Hayek that a special discussion of it at this place seems inappropriate. Hayek's use of it is described at length in the essay on that theoretical system. I think it can be said that Robertson's concept is subject to the same general criticisms.

98 That is, C equals one-half DR where C equals circulating capital, D equals period of production, R equals annual real income. We will use this equation later in some very significant connections.

(2) *Illustrative cases.*

These definitions are constructed, as has been indicated above, in order better to analyze the processes of capital formation and to clarify certain questions as to banking policy. In using the terms for these purposes Robertson has set up several examples of economic situations in which certain kinds of saving or lacking processes are assumed to occur. These examples have been expressed in *Banking Policy and the Price Level* in algebraic terms.[99] By following the examples through in some detail we may get a clearer conception of (a) the kinds of economic situations in which the various kinds of lacking are presumed to occur, (b) the banking policies which are appropriate in the various situations, and (c) the method which Robertson uses in analyzing the problems in this field.

(a) The first case which we shall consider illustrates the nature and operation of several of the types of saving processes defined above. The government is assumed to inject a sum of new money X into the system at the rate of $\frac{X}{K}$ units per "day." Then on the first day we have $M_1 = M + \frac{X}{K}$; $S_1 = \frac{M+X}{K}$; $P_1 = \frac{M+X}{T}$.[100] The money injection has thus served to raise the price level (of consumables) to a new high level. This price change can now be related to the process of automatic

99 See the Mathematical Appendix to ch. v of *B. P. P. L.* The essential propositions of these cases are stated verbally in sections vi-ix, inclusive, of ch. v of that book. See also ch. v of *Money*.

100 In all examples,
M equals the stock of money,
S equals the stream of money expenditure,
X equals the increment to money supply,
K equals the number of days in the period of circulation of money,
X/K equals the money increment per "day" over period K,
T equals the output of consumers' goods during period K, and
T/K equals the "daily" output.
Subscripts are used to denote the "day" in question. Thus M_1 denotes the money supply of "day" 1.

stinting and lacking. Robertson has shown [101] that an increased flow of money onto the market in exchange for final goods will cause part of the flow of final goods to be diverted to the source of the new demand and that other bidders, whose money incomes in the period in question are assumed to remain the same, are forced to accept fewer goods than previously in exchange for the same money expenditures. This is called automatic stinting. It might reduce the public's consumption only by that amount which it would have been reduced in the interests of voluntary lacking. But if the competition of the new funds is great enough to reduce their consumption "both below what they intended and below the value of their current economic output," [102] automatic lacking is also produced. A similar situation might be brought about by the discontinuous dis-hoarding of other members of the community.[103] Here we have a case of the shift of part of the current economic output to the "nominees" of the government, which Robertson calls a "forced" saving process.

On day 1 the output of final goods, which is assumed to remain constant through the example, is divided between those who would have consumed it all, if no changes had taken place, and those who are given a lien on part of the flow of goods by virtue of the fact that they possess some of the new money. The consumption of the latter group, which is automatically gone without by the former, equals $\frac{TX}{K(M+X)} = L'_1$. This is the measure of the automatic lacking.

Another important step in Robertson's treatment of the effects of monetary injections in his analysis of the changes in the Real Balance or Real Hoard. The real hoard (H) is related, as shown above, to the period of circulation of money (K) and to output (T). Robertson shows that the monetary

101 *B. P. P. L.*, pp. 47-49.

102 *Ibid.*, p. 48.

103 *Ibid.*, pp. 47-48.

expansion of day 1 reduces the real value of the real hoard to something less than T.[104] If it can be said that the spending habits of the community are conditioned by the desire to maintain an equality between H and T, then we might look for some response to the change in the value of the real balance which has been caused by the money injection. The method open to the community for raising the value of H is to hold money off the market. If we assume, as Robertson does, that on the second and following days the public withholds a sum equal to X/K units of money per day, and that the hoarding is extended over (K-1) days, then on day 2, $S_2 = \frac{M + X}{K} = S_1$ and $P_2 = P_1 = \frac{M + X}{T}$. In this case the lacking of the public which is induced by the money expansion is equal to $\frac{XT}{K} \cdot \frac{1}{M + X} = L$. This is a measure of the lacking which is imposed or forced on the public as a result of the government's action. Robertson then shows that if this action continues for a period of K days, i. e., for one period of circulation, the value of H will be restored to T at the end of the period.[105] The perfect realization of this end requires that the public cease hoarding at the end of period K lest H become too large. If on day K + 1 the government inflation is continued, there will be still another reduction in H, which may call for another period of induced lacking with another point of equality between H and T at the end of the second period of circulation. The process might be carried on indefinitely on these assumptions.

If at the end of a period of inflation the real hoard equals the desired size, "equilibrium is restored and the price level,

104 If we assume T/K to remain constant over K days—i. e., if K equals the period of production D—then the real value of all the money in the aggregate has not been altered, but only the real value of each unit. To this extent the real hoards of individuals have been reducd on the average.

105 *Ibid.*, pp. 59-61.

$P\left(\frac{M+\frac{QX}{K}}{M}\right)$ —i. e., a price level raised in proportion to the total increase in the stock of money—is a stable one." [106]

In developing this point Robertson has made some interesting comments concerning the use of the concepts of "stock" and "flow" of money in the analysis of the price-raising effects of monetary injections. He points out that if, in determining the amount of the "real levy" extracted by the government from the public in making the injection, we take as a measure of that levy the fraction derived from the proportion of the injection to the annual money income of the community plus the injection, then the argument implies that the price level is raised in proportion to the increase in the annual flow of money onto the market rather than in proportion to the increase in the stock of money. Unless the amount of money becoming income during the year equals the stock of money, we get different results on the two procedures. This problem is resolved in Robertson's example by assuming that the flow of money becoming income in period K is equal to the stock of money. Thus if both new and old money flow onto the market constantly at the same rate, one can compute the price-raising effects of a given injection by computing the proportion either to the "stock" or to the "flow" of money, with similar results.[107]

(b) Other examples show how the lacking necessary for the provision of capital can be supplied. In attacking this problem

106 *Ibid.*, p. 62. Q equals the whole period of inflation.

107 See *ibid.*, p. 60, and also, for an able discussion and elaboration of these ideas, the article by Professor A. C. Pigou, "A Contribution to the Theory of Credit," *Economic Journal*, vol. xxxvi, 1926, pp. 215-217. From the point of view of the possibility of using such concepts in statistical analysis there seem to be two serious difficulties involved in this theoretical concept. First of all, the data are generally found only for periods which have no necessary relation to that period over which the flow of money is equal to the total stock of money. Second, when the monetary changes are continuous and proceed at a changing rate, it is impossible to set limits to the necessary periods.

Robertson has suggested a distinction between two types of banking. One, the "old-fashioned 'Cloak-Room' banking,"[108] is the sort that takes the saver's voluntary savings and lends them to industry, while the "modern" system involves the making of loans which may or may not involve the transfer of voluntary savings to borrowers. In Robertson's writings, the problem of discovering how and by whom the saving is done becomes a problem of discovering how and by whom the lacking, in whatever form, is supplied. The implication is that under the Cloak-Room system of banking saving is voluntary and banks are limited in their lending to the "amounts that are left with them." In the other or "modern" view this is not necessarily the case; additional savings may be somehow forced out of or imposed upon the public by virtue of the fact that there is no such limitation on the lending operations of the banks. Of course, this is a matter about which there is still considerable disagreement but none the less it is an idea that is being incorporated more and more, in some form, into the various expressions of monetary theory. Robertson has done much pioneer work on this subject, and the next section of his argument that we shall discuss is that which deals with the relations of lacking to capital formation. Robertson develops his argument by means of several hypothetical cases illustrating the different kinds of saving processes.

The first example we shall consider is one in which the public is assumed, on finding that its real hoard is too small, to perform spontaneous hoarding. It is further assumed that the new hoarding is performed equally by all members of the public, that the hoarding is spread evenly over a given period and that the public suffers no income changes in the process.[109] In Robertson's case the hoarding manifests itself in a decline in

108 See, e. g., W. A. Shaw, *The Theory and Principles of Central Banking* (London, 1933), pp. 161-167, for a statement of the impossibility of credit creation. For Robertson's view, see *B. P. P. L.*, p. 50.

109 All assumptions considered, this last is only possible in the case that the proposed banking action is successful.

the rate of turnover of bank deposits, since it is the flow and not the stock of money that is altered. The specific problem at hand is to show how this new hoarding can be prevented from being "abortive" in its capital-forming function.

This situation is expressed by Robertson [110] as a desire on the part of the public to raise the value of its real hoard from T to T $\left(\frac{M+X}{M}\right)$, that is, by an amount proportional to the amount of money withheld. If the process is spread over the period of circulation of K days with $\frac{X}{K}$ units withheld each day then the consumers' outlay on the first day, i. e., S_1, becomes $\frac{M-X}{K}$ and the price level will fall from $\frac{M}{T}$ to $\frac{M-X}{T}$ (since output is assumed to remain constant). The amount of spontaneous new hoarding which the public desires to accomplish is the amount which would provide, at the current price level, the desired increase in the real hoard; it may be expressed as $\frac{X}{K} \cdot \frac{1}{P}$ or $\frac{XT}{KM}$ (since $P = \frac{M}{T}$).

It seems clear that if this decrease in the flow of money coming onto the market has an immediate and equal effect on all commodity prices, it may have either one of two further effects, depending upon whether the hoarding is performed by all or merely by a part of the public. In the latter case the action will result in an increased consumption for some members of the society equal to the decrease in consumption by the hoarding members. In the first case the only result is that all members of the community are able to maintain the same level of consumption as previously. If only part of the public hoards, the situation is described as one in which the Intended Spontaneous Lacking of the hoarding section is equal to the Automatic Splashing of the non-hoarding section. On the other hand, a general hoarding movement leads to "an unexpectedly main-

110 *B. P. P. L.*, pp. 63-4.

tained consumption"[111] for the whole community. In both cases the hoarding, which is considered as a variety of saving process, is "abortive" in so far as its capital-forming functions are concerned.[112] This is because the final output is consumed by those having claims on it despite the fact that they meant to "go without." For capital to be formed it is necessary for consumers' goods to be directed to those who are engaged in processes not yet yielding final output.

The "internal mechanics" of this process are shown as follows: the stream of money expenditures, S, falls on day 1 to $\frac{M-X}{K}$ and the price level to $\frac{M-X}{T}$. Thus the intended spontaneous lacking is equal to $\frac{XT}{KM}$ i. e., it is equal to the automatic splashing (represented as $\frac{S_1}{P_1} - \frac{S_1}{P}$) which is the difference in consumption enjoyed under the price level of day 1 and the consumption which the same expenditure of money would have commanded under the original price level.

As a result of these conditions the value of the real hoard is raised from $\frac{M}{P}$ to $\frac{M}{P_1}$ or to $T \cdot \frac{M}{M-X}$, an amount greater than the "desired" size, i. e., $T \cdot \frac{M+X}{M}$. The problem of banking theory which Robertson raises in connection with this example is as follows: How can this spontaneous new hoarding be prevented from dissipating itself into automatic splashing and how can it be converted into applied lacking by means of appropriate bank action?

Robertson argues that this transformation may be accomplished by the injection into the system of an amount of new

111 *Ibid.*, p. 53.

112 This also involves the assumption that K equal D, i. e., that there is no change in the rate of output until the end of the first period of circulation of money. There is also no change in the stocks of commodities, on the assumption that the market is "cleared."

money just equal to the amount which is being hoarded by the public. Thus the bank must daily inject an amount of money equal to $\frac{X}{K}$ and must extend its action over K days in order that an amount X will be added to the stock of money in period K. Thus on day 1, $S_1 = \frac{M}{K}$ and $P_1 = \frac{S_1}{T} = \frac{M}{T} = P$. The bank's action imposes automatic stinting [113] on the general public to the amount of $\frac{X}{K} \cdot \frac{I}{P}$ or $\frac{XT}{KM}$, which is equal to the intended spontaneous lacking. In this case the real hoard is equal to the desired size on day 1 and subsequently.[114]

The first of the two cases developed above should be viewed as a device for illustrating the different types of forced saving. In that example the government's action in making an injection of new money into the system raised prices. The second case illustrates the conditions under which the banks may make monetary injections without raising prices. In that case the conversion of spontaneous savings into applied lacking is engineered by the monetary expansion. This last case is of special importance because it is one in which an expansion of the money supply is seen to be the correct banking policy. Fundamentally, it is the familiar case of a fall in the velocity of circulation of money.

(c) But there are two other general situations which raise other questions of banking policy. They are (1) changes in population and (2) changes in per-capita productivity. In the case of (1) Robertson has indicated that correct banking action calls for proportionate increases in the money supply. Otherwise the tendency of the added population to build up balances

113 Because the public's consumption is not reduced below what they had intended to consume but only below the value of their current economic output, no automatic lacking is involved.

114 Although we drop this case at this point it is carried on by Robertson through more complications in Appendix 2B of *B.P.P.L.* However, no new concepts or methods are illustrated.

will have the same effect as a hoarding movement. This principle is clearly stated in the earlier book *Money* (except for the qualification that " reserve " laws may not make it possible for the correct policy to be adopted),[115] but its difficulties are emphasized in the later *Economic Essays and Addresses*.[116] In his most recent statement on this aspect of the theory, Robertson suggests that " . . . the maintenance of equilibrium under these conditions depends on the rate of growth of population, on the speed with which balances are built up, and on the preferences of the bank with regard to the character of its assets." [117] The treatment of the same case in *Banking Policy and the Price Level* illustrates this same principle in a more detailed form.[118] Here the bank action depends on (a) the rate at which the population grows, (b) the rate at which it builds up balances, and (c) the increased productivity which results from the absorption of the additional population into employment. Concerning matters of technique, the principle illustrates the following concepts: (a) the real balance, (b) the period of circulation, (c) the period of production, and (d) the distribution of saving and spending processes over time.

The second case, (b), of an increase in the rate of output due to increasing per-capita productivity, is used to derive another important criterion of bank policy. In analyzing it the same concepts and methods are employed. The conclusions stated in *Banking Policy and the Price Level* are as follows: (1) increasing productivity will be reflected in lower prices and an increased value of real balances, if there is no change in the supply or velocity of money; (2) if the banking system desires to use this situation to divert an increased proportion of the community's resources to the production of circulating capital, it can do so by adding to the money supply at a rate

115 *Money*, pp. 105-106.

116 *Economic Essays and Addresses*, p. 104.

117 *Economica*, new series, vol. i, November, 1934, p. 474.

118 See chapter v, sec. viii and sec. iv of the Appendix to the same.

proportionate to the increase in productivity; (3) the action indicated in (2) will serve to impose forced saving on the community which can be applied to the creation of additonal circulating capital by the borrowers of the new money; (4) since the change in the flow of money is proportionate to the change in the flow of output, this extraction of forced saving is quite consistent with stable prices.[119]

There seems to be no reason for believing that Robertson is suggesting this last set of conclusions as a statement of banking policy which is "correct" for the given situation. If this were so it would be clearly a price-stabilizing position: this is obviously a faulty interpretation. When we come directly to his discussion of price-level policy we shall see that there are some very important qualifications to be made in this connection. At the moment, we point out merely that the significance of the case is that it shows (1) how his method is applied to the case of increasing per-capita productivity, (2) how the banks may act to impose forced savings on the public, and (3) the effect of such action on the processes of capital formation.

(d) In a later article Robertson has also developed definitions of saving, hoarding, and lacking which constitute an important part of his theoretical system.[120] In this instance he again utilizes the concept of the "day" which he defines as a period of time "finite but nevertheless so short that the income which a man receives on a given day cannot be allocated during its course to any particular use."[121] Therefore, it is the income of the previous day about which the individual must make decisions as to expenditure. This is termed the "disposable income." Thus a man is saving if on any day he spends less than his disposable income on consumption. The uses to which disposable income may be put are (1) expenditures or (2) addi-

119 *B. P. P. L.*, ch. v, sec. vii, and Appendix 2 to same.

120 "Saving and Hoarding," *Economic Journal*, vol. xliii, 1933, pp. 399-413. See also the "Symposium on Saving and Hoarding," by Robertson, Keynes, and Hawtrey, *ibid.*, pp. 699-712.

121 *Ibid.*, p. 399.

tions to money balances.[122] To restate this in the terminology of *Banking Policy and the Price Level,* a man is lacking if "his consumption on any day falls short of the value, at the time of its receipt, of the income which he has at his disposal on that day."[123] Hoarding is performed if "he takes steps to raise the proportion which he finds existing at the beginning of any day between his money stock and his disposable income."[124] It should be clear from the argument of *Banking Policy and the Price Level* that a man may (1) both save and lack, (2) lack without saving, and (3) save without lacking. On this definition of hoarding[125] if one spends for a "tool or security" he is saving without hoarding, while if he holds part of his disposable income unspent—that is, raises the proportion of his money stock to his disposable income—he both saves and hoards. Lastly, if a tool or security is sold for cash he is hoarding but not saving. With this terminology Robertson shows that "distress sales" of securities by entrepreneurs, made in order to keep up an income which is being diminished by smaller consumer expenditures, constitute hoarding activities. This result follows by not allowing the receipts of security sales during any day to count as part of the disposable income of that day. Because this sort of action keeps the expenditures of consumers off the market for industrial goods, the fall in the price level of consumers' goods is not accompanied by a rise in the prices of investment goods. This result is traceable to the hoarding of the entrepreneurs.[126]

122 *Ibid.*, p. 399.

123 *Ibid.*, p. 711.

124 *Ibid.*, p. 400.

125 Also defined as a change in the "velocity of circulation of money against output." *Ibid.*, p. 401. Note that this definition permits one to speak of hoarding as taking place without any change in the supply of money.

126 Further argument is advanced to show that such an event is easily counteracted by bank action and that it is not correct to represent it as a major cause of disturbances.

Robertson has also used the case of consumer hoarding to show how differences may arise between saving and investment. The use of part of the stream of disposable income to build up money balances leads to a fall in prices and no formation of capital, because the savings are wasted in a level of consumption that is higher than that intended. The avoidance of this wastage and the diversion of the released resources to the production of an increment of circulating capital has been discussed above. The importance of the case at this point is that one may say either that the fall in prices and wastage of savings are due to an excess of saving over investment, or, alternatively, that they are due to hoarding which is manifested in a fall in the velocity of circulation of money against output.

Some further light may be thrown on Robertson's approach to the saving-investment problem by showing how he differed with Mr. R. F. Kahn on the identity of these two quantities. This is particularly interesting because of the recent adoption by Keynes (*General Theory*) of definitions which entail such an identity. Mr. Kahn had insisted, in defending Keynes's *Treatise* argument,[127] that it was only on a "simple-minded" definition of the two quantities that they are necessarily equal. The "simple-minded" definitions are that saving (S) equals the excess of total income (I) over expenditures on consumers' goods (CE) and that investment (V) equals the excess of total income (I) over income received from the sales of consumers' goods (CS). Since CE must equal CS, therefore S must equal V.[128] In reviewing this argument Robertson has shown that Kahn's result follows only on the assumption that today's income is equal to yesterday's income, while the fact of the matter is that these two may differ from one another due

127 *Economic Journal*, vol. xlii, 1932, p. 492.

128 My symbols. In the equation $S = I - CE$, I and CE refer to today's income and consumers' expenditures respectively. In the equation $V = I - CS$, I and CS refer to yesterday's income and receipts from sales of consumers' goods respectively. Thus, $S = V$ only on the assumption that today's and yesterday's incomes are equal.

to (1) the creation or extinction of money by the banking authorities and/or (2) changes in balances. Because his definitions are expressly formed to take account of these acts, Robertson concluded that "*on my definition, Saving and Investment are not necessarily equal and it is on the difference between them that the movement of the price level . . . depends.*" [129]

Finally, Keynes has recently attempted to show the relationship between his own definitions of the *General Theory* and Robertson's as follows: Let TI, TC, TV, and TS represent today's income, consumption, investment, and saving respectively, and let YI, YC, YV, and YE represent yesterday's income, consumption, investment, and total expenditure respectively. Then Keynes points out that, according to Robertson, $TI = YC + YV$ and $TS = YE - TC$; therefore, $TS = YV + (YC - TC)$. Thus saving can exceed investment by the excess of yesterday's consumption over today's consumption. Keynes says, on the basis of this interpretation of Robertson, that this means " . . . literally the same thing as I mean when I say that income is falling, and the excess of saving in his sense is exactly equal to the decline of income in my sense." [130] But there seems to be a substantial difficulty in this analogy: Keynes's comparison is between today's saving (TS) and yesterday's investment (YV), while the distinction which Robertson has been laboring to make clear is that between today's saving and today's investment!

Keynes argues further that today's effective demand must always equal yesterday's total income, if current expectations are always determined by yesterday's realized results. This seems to mean simply that $TS + TC$ would equal $YC + YV$; this follows, at any rate, from the foregoing. It is not certain, however, that this makes the connection between today's effec-

129 *Economic Journal*, vol. xliii, 1933, p. 411. My italics.

130 *General Theory of Employment, Interest and Money*, p. 78. See the discussion on pp. 78-79. The symbols used here are mine.

tive demand and yesterday's income which Mr. Keynes believes that it makes. TS + TC is not Keynes's effective demand, for the S may be used to purchase something other than consumers' goods. It may, in Robertson's theory, be used to build up a money balance. TS + TC may equal YC + YV, and in fact it must by definition, but this does not disclose how TS will be used. This is the crucial point. I think it is this point which Robertson had in mind when he called attention, in reviewing Keynes's *General Theory,* to the fact that he is trying to discover the *cause* of a fall in income and not to construct a measure of any given degree of fall.[131] In Robertson's theory the decline in prices and income is, in this instance, due to a decline in the rate of turnover of money balances.

(e) We may now turn to another set of conclusions which are found in Robertson's writing. They concern the rate at which new circulating capital can be provided through bank action without entailing a rise in the price level. This point is made in connection with his discussion of what he calls the "needs of trade" argument. The extreme version of this argument is that traders should be provided by the banks with the money necessary to meet their entire circulating capital requirements.[132] The latest and most complete discussion of this argument is found in the essay on "Theories of Banking Policy" in the volume of *Economic Essays and Addresses.* It will repay us to follow the reasoning closely. Circulating capital is defined, as was shown above, as "goods in process" and, assuming a regular accretion of value during the process, the value of the circulating capital in existence at any point in time is equal to one half the value of the community's output in one average period of production of goods. Alternatively, the value of the community's circulating capital is equal to that proportion of the real annual income which the average period of production bears to a year. If the circulating capital was procured entirely

131 See *Quarterly Journal of Economics,* vol. li, November, 1936, p. 171.

132 *Money,* pp. 108 and pp. 113-115.

by means of bank loans and if all of the savings of depositors had been invested by the banks in circulating capital, then the real value of total deposits would equal the real value of circulating capital.[133] Under these conditions the traders might, without any rupture of equilibrium, expect to provide themselves continuously from the banks with their *full* requirements for circulating capital.[134] But the case is quite different if only part of the public's savings have been applied to circulating capital financing and if traders have, therefore, been depending on their own resources for part of their circulating capital needs. Robertson states that under such conditions, meeting the demand that traders be provided with their entire circulating capital needs would impose forced saving on the public.[135] The further implications of this sort of bank action may be presented more clearly by means of certain symbols, used by Robertson, as follows: R is the community's annual real income, K is the proportion of R which the public holds as a real balance, KR is the real value of the total of bank deposits, C is circulating capital, D is the proportion of a year covered by the average period of production, a is the proportion of the public's savings which have been put into circulating capital, and b is the proportion of the circulating capital which has been built up with the aid of the banks. D is set equal to 1 and a, b and K each equal to $\frac{1}{2}$. From what has been said above, we may express the relation between the value of the public's real balances and the value of circulating capital as $aKR = bC$. Also, as indicated previously, $C = \frac{1}{2} DR$. From these two equations it follows that $aK = \frac{1}{2} bD$ and, thus, that $\frac{a}{b} = \frac{1}{2} \frac{D}{K}$.[136] From these relations Robertson draws certain important conclusions as to banking policy and the rate of

133 *Ibid.*, pp. 113-114.

134 *Ibid.*, pp. 114-115.

135 *Ibid.*, p. 115.

136 The notation is taken from *Economic Essays and Addresses*, pp. 103-4.

capital formation. (1) "Provided there is no change in the relative magnitudes of the proportions a and b, or in those of the proportions K and D, a uniform rate of growth of population and output can be sustained without rupture of equilibrium." [137] In order to effectuate this growth, the financing of which is made possible without any increase in the price level by virtue of the hoarding of the new population, the banking system must add to the money supply at the same rate as population and output grows.[138] This is one of the cases in which it is the duty of the banking system to add to the money supply. (2) If, as under normal conditions, the proportions a and b are less than one, forced savings may be imposed upon the public if the traders demand that the banks provide them with all of their circulating capital.[139] This will tend to raise the value of a/b and upset the equality of the equilibrium situation ($a/b = 1/2D/K$). The additional loans which would be made under such conditions would have effects upon prices, and thus cause forced savings, depending on the magnitude of the proportions D and K. With a given velocity of circulation of money, the price rise will be greater the greater is the length of the average period of production of goods.[140] Given the period of production, the price disturbance will be greater the smaller the magnitude of K (that is, the greater the velocity of circulation of money).[141] (3) This effort on the part of the

137 *Ibid.*, p. 104. This is the same conclusion as that stated in *Money*, pp. 114-115.

138 The increase in output is due to added workers; productivity is assumed constant.

139 Robertson notes that the tendency for b to increase is especially characteristic of a period of business recovery, *Economic Essays and Addresses*, p. 105.

140 If there is a considerable margin of unemployment of capital and labor, and especially if there are substantial stocks of commodities on hand, the rise in prices, and thus the forced savings, would be minimized. This amounts to saying that D declines in magnitude. This is probably a significant element in the recovery history.

141 *Money*, p. 116.

business men to raise all their circulating capital requirements through the banks may, because it entails a price rise, set in motion factors making for a "condition of strain . . . known as a trade-boom." Thus Robertson indicates that such a meeting of the demands of the "needs-of-trade" group will provide the stimulus for an inflationary rise of prices. This is the "exceptionally rapid rate of industrial growth . . . (which throws) . . . the relation between the banking system and the public on the one hand, and the race of industrial borrowers on the other, out of equilibrium" and leads to the imposition of forced saving.[142]

(3) *Summary and criticisms.*

Before we go on to show how the lacking concepts can be used in an analysis of the business cycle, it seems desirable to summarize the results of the foregoing and to discuss the adequacy of the theory. The different cases which have been discussed above under headings (a), (b), and (c) illustrate the results, in certain hypothetical economic situations, of different banking policies. In (a) it was shown how the injection of new money into the system affects the price level of consumers' goods and, through this medium, forces onto the public a certain amount of involuntary lacking. In our discussion of this example we were especially concerned with showing how Robertson gives expression to the various kinds of saving processes which were mentioned in the preceding section. But Robertson's purpose here is to show how monetary injections (in this instance, by a "government") affect prices and impose involuntary lacking on the public. In (b) we were con-

142 *Economic Essays and Addresses*, p. 106. See also, *Money*, p. 116. An interesting note on the methodological questions and possibilities involved in this manipulation of simple relationships is found in R. W. Souter's "Equilibrium Economics and Business Cycle Theory: A Commentary," *Quarterly Journal of Economics*, vol. xlv, November, 1930, pp. 86-93. Souter suggests that the analyst might set up various economic categories in proper relationship to one another and then attempt, by the use of appropriate time series, to describe the variation of these relationships through time.

cerned with the following question: What sort of bank action is necessary to make effective use of all the savings which the public desires to make, when the increased propensity to save is manifested by an attempt on the part of the public to build up their real hoards by a less rapid use of their bank deposits? In this case we found that the banking system can add to the money supply and can thereby convert the public's savings into a new increment of circulating capital without causing any change in the price level. It should be indicated here that in one place Robertson refers to this action as the "positive duty" of the banking system.[143] In (c) we considered separately the cases of increasing population and increasing per-capita productivity. It was concluded that the tendency of the new population to build up money balances involves, generally, a lacking process and that if the banks take no action this saving will be wasted in lower prices. Here again it was held that the duty of the banking system (of course on the assumption that the duty of the system is to make effective use of the community's entire savings) is to make additional loans at a rate which will balance the hoarding propensities of the new workers.[144] In the case of increasing per-capita productivity we saw that it is Robertson's view that the increase in the value of real balances contingent upon this change is due not to any increase in thrift, but is merely a reflection of the greater individual productivity and that a banking system which maintains a stable price level under these circumstances is extracting "forced" savings from the public.[145]

Finally, we have seen that the banking system may cause prices to rise and may force savings on the public, if it acts to meet an unusually heavy demand for circulating capital

143 *Economic Essays and Addresses*, pp. 104-105. See also *Money*, pp. 101-105, where the duty of the banks in this situation is clearly stated.

144 This statement of policy was stated in *Money*, pp. 105-106, and later in *Economic Essays and Addresses*, pp. 104-105 and 106.

145 See also, *ibid.*, pp. 101-102, and *Money*, pp. 106-8.

loans. The change in the price level will depend on the proportion of the public's savings which the banks have crystallized in bank loans (Robertson sometimes refers to this as the banks' preference for different kinds of assets), the proportion of their capital needs which the traders normally provide for themselves, the income velocity of money, and the length of the average period of production of goods. We have seen that a trade boom may develop out of bank action aimed at an exceptional rate of capital formation. These general conclusions concerning banking policy will be examined again in the following section. At this point we need consider only the adequacy of the analytical devices which have been utilized in the theory of capital formation. The following points seem especially significant.

(1) All of the lacking concepts, formed to provide means of analyzing various kinds of saving and the formation of capital, entail another concept, namely, "current economic output." The fact that this term has not been directly defined is especially unfortunate, since it plays an important rôle in the theory, and it certainly is not unambiguous. The following questions might be asked. (a) Does current economic output mean the "output" of any kind of finished good or service, or does it signify the output of "consumable" goods or services? (b) Does it mean output of actual physical goods or services, or does it refer to the production of pecuniary market values? (c) Does it refer to the technical efficiency of any given person in serving the productive process, or does it have reference to the legal claims which various persons hold against the current output of consumables, whether by right of services rendered or by right of property ownership? The answers to these questions are supplied, I think, by the text. (a) It would seem that since the additional going-without of part of current economic output is to divert *consumables* into the hands of those engaged in *new* capital extensions, the term must apply to current output of final consumers' goods. However, if this were the case one would be unable on direct grounds to account

for the output of those in the non-consumption goods trades. It must therefore mean the output of *finished goods* of all kinds.[146] (b) The definition of lacking is that a man consumes less than the *value* of his current economic output. Although, in a barter economy, this might be done by simply setting aside a certain part of one's real income, Robertson discusses a monetary economy in which lacking is done either by going without real income through non-expenditure of money income, or by suffering a reduction in the goods value of money income because of rising prices of the objects of its expenditure. The money income may be received, as in the case of new workers during their first production period, without there being a parallel current economic output. Thus it seems that the current economic output refers to the value placed by the market on the actual finished goods produced. This value is reflected in the money incomes of the community. (c) If the reference were only to incomes derived through the actual expenditure of effort in producing goods, savings would be impossible in the case, for example, of landowners. This is clearly not correct. The landowner is conceived of as receiving the monetary value of the land's contribution to the current output of consumables.[147]

We may say, then, that the "value of current economic output" for the community as a whole is the money value of the output of finished goods at any given time and that claims upon the output of the total of consumers' goods are held both by right of work done and by right of property owned.[148]

146 See, e. g., *B. P. P. L.*, p. 56 on the output of new workers.

147 Robertson refers to one's *legal* claims on consumption output. *Economic Essays and Addresses*, p. 99.

148 There is no implication that the work done, to which produced values are imputed, leads to an increase in the flow of any given kind of good. What Veblen called "conscious sabotage," that is, an interruption of the flow of goods, may be an effective way to increase one's income. The same applies to the use of instruments by their owners. This point is not explored by Robertson, but I think it could be shown that it has considerable significance for the formation of capital goods.

But all of this refers to the output of the economy as a whole, whereas Robertson refers to an individual's current economic output. This means that we must be able to impute, to every individual having a legal claim on the current flow of consumables, that part of the flow of finished goods which appears by virtue of his labor or the services of his instruments. We cannot say that a man is lacking unless we know (a) his consumption and (b) his current economic output. If we merely accept his money income as a true measure of his current economic output, then there is no difficulty except for the case of new workers. But there is considerable difficulty if we try to think of output in technical terms. Then we have to determine whether or not the money income received (for whatever reason) is really an accurate measure of the value results of the productive services supplied. In Marxian theory the production of values is imputed entirely to "workers"; capital accumulation comes from a saving of part of the income of the non-worker, non-productive classes. In Professor J. B. Clark's distribution theory, incomes are earned in keeping with the marginal *productivity* of the different factors of production, and the system shows a tendency to reward all with respect to the value of their productive activities at the margin of utilization. But there is surely no need to review the difficulties of determining the share of any given man or instrument in the current output of consumables. Still less is there any good reason for believing that there is any more than a rough tendency for actual money incomes to approach this conceptual "marginal productivity." Considerable importance attaches to this point.

If we can conceive of the value of a man's current economic output and if it can be shown that money incomes, for various institutional reasons, do not equal this quantity, then it follows that a man may "lack," in the real sense, because the distribution system does not even give him a "claim" on his current economic output. And one does not have to defend this view by insisting that "workers" are the sole source of value. It is merely necessary to show, for example, that a given man re-

ceives a money wage which does not coincide with the value of the consumable goods which flow onto the market as a direct result of his efforts.

(2) Robertson's theory does not meet the problems raised by Austrian theory concerning the effects of changes in the supply of money on the permanence of any given structure of production. No new problems are involved in the cases where the expansion of M is undertaken to counteract the tendency of individuals to build up larger balances; this seems to be a clear case of a fall in the effective circulation due to a change in V.[149] But Robertson's analysis of the bank action intended to create new money, in order to finance, by forced savings, an increase in output stimulated by changed underlying conditions of "real" demand or "real" cost, does not take account of the distortion which Hayek claims is the necessary result of such a policy. Furthermore, although Robertson indicates in Chapter V of *Banking Policy and the Price Level* that a policy aimed at maintaining prices constant in the face of increasing per capita productivity will, if successful, impose forced saving on the community, he does not specifically indicate that this action will lead to crisis. In another place he has argued that it creates an unstable situation.[150] But the point of difficulty is that there is no direct consideration of the "forced" versus "voluntary" saving issue with respect to the permanence of the resulting capital.

(3) The simplified M of the quantity equations used by Robertson does not take account of the various elements of the money supply. If the behavior of various parts of the money supply is not uniform, as seems to be the case, this is a major abstraction and, if not rightly qualified, an inadequacy.

149 Hayek would evidently deny the advisability, which Robertson affirms, of increasing the supply of money to counteract the building up of balances by a "new population" of workers. See *Prices and Production*, second edition, p. 107.

150 *International Gold Problem*, Royal Institute of International Affairs, London, 1931, p. 45.

(4) The price level (P) of final goods is subject, of course, to all the objections urged against the concept of a general level of prices. Most important, its use tends to obscure the differing behavior of different sections of the price system.[151] Furthermore, it cannot take account of the other-than-price conditions of sale.[152] There is an obvious need here not only for a more detailed study of the actual market but also for the reformulation of theoretical techniques in the interests of a more faithful representation, and a more adequate handling, of realities.

(5) Changes in *M* and *P* may be assumed, as Robertson does, to operate in a simplified "community," but since price and banking policies must be applied to an infinitely more complex system of relationships, the trend of theory should be towards the adoption of a more realistic conception of the "community" in which the central phenomena are to be studied and to which the policies are to be applied. This point has already been urged with respect to the theory of "real" causes of fluctuations in economic activity. The need for adopting more realistic assumptions is equally clear in connection with the "lacking" argument.

(6) While it is perfectly permissible, as a first step, to move directly from changes in *M* to changes in the stream of money demand for final goods, it is ultimately necessary to take account of:

(a) the different ways of increasing *M*,

(b) the conditions under which and the place at which the injection of new money is to be made,

(c) the effect that changes in *M* may have on the expectations of those who make decisions as to the scale of

151 See Gardiner Means, "Notes on Inflexible Prices," *American Economic Review*, Supplement, vol. xxvi, 1936, pp. 23-35. See also, by the same author, "Industrial Prices and their Relative Inflexibility," Senate Document No. 13, 74th Congress, 1st Session.

152 See Willard Thorp, "Price Theories and Market Realties," *American Economic Review*, Supplement, vol. xxvi, 1936, pp. 15-22.

output (it is quite conceivable that certain increases in M may have the effect of causing a net decrease in the stream of final money demand).

(7) There is a great need for careful statistical studies of the relationship between the period of circulation of money (K) and the period of production (D). Robertson arrives at his conclusions concerning forced saving on the assumption that the period of circulation of money is equal to the average period of production of goods. If, for consumers' goods, the latter is actually less than the former then new capital might be formed in response to a credit expansion without the rise in consumers' goods prices or the forced savings which Robertson's assumptions necessarily entail. In discussing the Austrian theory we shall see that the concept of the period of production is subject, on conceptual grounds, to considerable qualification. The example which Robertson uses repeatedly—that of the sausage machine[153]—does not really clarify the idea. It is necessary to identify the point, in the life history of any given good, at which it began its journey through the machine. There is no special difficulty in most instances in identifying the "end" of the process. But part of the life history of any given good is the production of the machine which produces it. And part of the life history of the latter is the production, very likely, of other machines, and so on. Even if we merely trace back the material out of which the goods are made, we could never arrive at any point at which we could say that production is first taken in hand, unless it be a point at which a first application of labor is made to the material. This would be, for many goods, a period of such length as to bear no possible relation to cyclical change.

The use by Robertson and others of the notion of an average period of production of goods may also serve to obscure the very important fact that different sections of the economic system will respond differently to different conditions of final

153 *Economic Essays and Addresses*, pp. 102-103; *Money*, p. 112.

demand; these varying degrees of sensitivity being traceable to differences in organization and technical characteristics. This fact seems to be of paramount significance in business cycle theory.[154]

Furthermore it appears that it is in connection with this concept that information concerning the extent of "stocks" of commodities and the extent of unused capacity can be most readily utilized. This sort of information is needed if one is to discuss the rapidity with which the output of any good can vary in response to changes in conditions of money demand, which really means, in connection with *consumers'* goods, that these data are necessary in order to examine the theory of forced saving.

(8) There is need also for a more careful study of the period of circulation of money and of the institutional factors which influence its value.[155] The concept seems to be too exclusively related in Robertson's assumed conditions to the behavior of consumers. Changes in the willingness of traders to hold cash balances may, under appropriate circumstances, be of equal if not greater importance. It is noteworthy that the cases of hoarding which are discussed in *Banking Policy and the Price Level* are concerned with consumers. Equally impelling questions of banking policy are raised by the tendency of traders to hold larger or smaller balances. This action needs to be analyzed and the appropriate bank action indicated.

(9) The most interesting technical device of all is the "day." Its purpose, as shown above, is to allow for the analysis of economic processes during "internally homogeneous" periods of time. But while one might agree to the use of the static assumptions which it implies for "indivisible atoms of time," it is certainly clear that during the period K (conceived of as a certain number of days) changes are likely to take place which

154 See, for example, *B. P. P. L.*, p. 38.

155 See J. W. Angell, *The Behavior of Money*, chapter v; also his "Money, Prices and Production: Some Fundamental Concepts," *Quarterly Journal of Economics*, vol. xlviii, 1933, pp. 39-76.

are of a wholly dynamic nature. Aside from possible changes in population and technique, total income, for example, and its distribution between the different factors of production can change greatly during the period of K days. Output in the large, as well as the different categories of output, may also vary during the same period. But this last depends on the kind of changes considered in (8) above.

In order to deal with this complex at all it is necessary to make certain simplifying assumptions. Actually, however, we are faced with the necessity of studying processes taking place over periods of time during which output, prices, incomes, the quantity and efficiency of factors, and the size and use of the money supply are all changing in a complicated succession of connected events. Robertson's "day" and the concept K are but the first steps in what would be a reasonably adequate analysis of this dynamic process.

(10) Finally, in his "Note to the 1932 Impression,"[156] Robertson writes (after pointing out that criticism of the first, 1926, printing and the abundance of monetary theory developed between the two dates really call for a thorough revision, which he was not ready to undertake), that "the definitions and analyses of Chapter V [The Kinds of Saving] were worked out for a society of small entrepreneurs—i. e., one in which all incomes are rapidly responsive to movements of prices. Reflection and discussion have shown me that they will not stand for a society in which the incomes of most of the factors of production are assumed fixed (or comparatively so), those of entrepreneurs alone being completely mobile."[157] This is obviously a very considerable qualification and one for which the implications should be thoroughly worked out. The principal changes required would seem to consist in showing how an increase in the money supply would distribute itself throughout the economy, in the light of the relevant income-paying

156 *B. P. P. L.*, p. v.

157 *Ibid.*, p. v.

arrangements. Clearly the change might lead to an increase in profits and a less intense pressure on the price level of consumers' goods. This would provide for the application of greater quantities of resources to the production of non-consumables or non-final goods in general than might be possible if wages, instead of profits, tended to rise, and if it were necessary to depend on the spontaneous saving of the wage-earning public for the necessary lacking. I think it is clear that this failure to take account of realities tends to obscure an important part of Robertson's capital formation theory.

CHAPTER V

THE BUSINESS CYCLE AND ITS CONTROL

ALTHOUGH he has never attempted to describe the course of the business cycle in detail, we are able to form, from Robertson's writings, a general account of how the foregoing "lacking" concepts are used to analyze its most important aspects. We will show how Robertson interprets expansion and contraction in terms of lacking activities. The section will be concluded with a discussion of his boom and depression strategy.[158] Obviously we will not be able to discuss every aspect of these questions; the section will be definitely limited to that part of his ideas which bears directly on the lacking concepts discussed above.[159]

(1) *Phase of expansion.*

For purposes of exposition we may break into his version of the business cycle in the phase of trade expansion. Any one

158 See *Money*, ch. viii especially. His work should not be viewed, however, as a system which is principally intended to lead up to some rather definite "cure." Robertson's contributions are mainly in his development of conceptual devices and of ways of attacking the problems in this field. An examination of what he has written for the various journals will indicate how often he has labored to correct what he believed to be a wrong method.

159 Robertson was a member of the Study Groups of The Royal Institute of International Affairs and participated in the preparation of the reports entitled *Monetary Policy and the Depression* (London, 1933) and *The Future of Monetary Policy* (London, 1935). Both of these volumes, especially the latter, deal with questions relevant to this section of our work. See also Robertson's address on "The State and Industrial Fluctuations," delivered at the Harvard Tercentenary Celebration and published in the Tercentenary Publication, *Authority and the Individual* (Cambridge, 1937). In this brief statement Robertson suggests that it is necessary to distinguish between cyclical and structural changes for purposes both of analyzing fluctuations and of devising corrective measures. The structural changes which he mentions are (a) increasing technological unemployment and (b) a growth in the size of firms.

of the "real" factors examined above may supply the motivating force which starts this movement; but what is more important than the precise nature of the initial stimulus is the manner in which the system responds. As we have seen above, an appropriate expansion may grow into an inappropriate expansion if the response more than meets the demands of the initial stimulus. It is this development which we are to trace.

The expansion in the rate of industrial activity involves, first of all, an increase in circulating capital. This may require (depending on the extent of the expansion) that the banks stand ready to supply credit in response to the augmented "needs of trade." If the banks accede to this demand that they supply an increasing proportion of the circulating capital needs of the community, they will pass the pressure for the required lacking back onto the public in the form of forced saving. This case has been discussed above.

It is not necessary that such action should produce rising prices, but if a rise appears (as seems likely), forces are set in motion which will tend to prolong the upward price movement. For example, Robertson suggests that, for a while at least, the velocity of circulation of money will increase as consumers, deciding to dishoard, "hurry on with purchases," and as manufacturers do likewise in ordering more materials and equipment. Orders for equipment tend to pile up, calling for a more than proportionate increase in this field of activity. This may also be strengthened by the tendency to duplicate orders between different producers in order to assure the needed supply.[160]

Because of the falling value of money, there is a tendency for retailers and others to hold larger quantities of goods. This

160 On this point see the article by T. W. Mitchell in *Quarterly Journal of Economics*, vol. xxxviii, August, 1923, pp. 631-652. The cumulative character of the derived demand for durable goods has been discussed above. See also the interesting statistical analysis by Simon Kuznets, *Cyclical Fluctuations* (New York, 1926), chapter iv, especially on the tendency for orders to be increased as they are passed back from retailer to wholesaler.

factor, which involves a lengthening of the process of production as defined by Robertson,[161] along with the increased money volume of transactions and the increased production of fixed instruments, create increasing demands for circulating capital—that is, for short lacking. Rising costs of production and recourse to more round-about methods of production (as labor costs rise) also act to increase the demands for lacking. If business fails to meet these requirements out of increasing business incomes, it must have recourse to the banks, and they, after some participation in the expansion, may find their legal reserve position impaired.

A great deal of the force may be taken out of this tendency for prices to rise if the public, instead of hastening on with purchases, decides that the value of its real hoard is too small and proceeds to build it up by holding larger balances.[162] Both of these responses, dishoarding and induced lacking respectively, have been discussed by Robertson in some detail, although he makes no attempt to define the precise conditions in which they would appear. The kind of action which is taken by the public is of the utmost importance to the further development of the expansion. Yet it is extremely difficult to forecast the response that will appear. It seems to depend principally on the consumer's expectations concerning the future course of prices and his own income.

The growing scarcity of short lacking may also be increased by the obvious complementary relationship between the requirements for fixed and for circulating capital. The production of durable instruments requires short lacking and so also does their later maintenance and operation. Thus a burst of activity in the durable instruments industries may try severely, after a

161 This assumes, implicitly, that the rate of turnover of stocks of goods —that is, inventory—declines. The opposite may be true, and the period of production thus shortened.

162 One could not possibly say just what the public's reaction to such a situation would be—increased rapidity of expenditure of increased incomes or slower rate of expenditure in the interest of larger balances.

time, the system's ability to provide voluntary lacking in sufficient quantities. If corporations begin spending balances to carry machines after their production, an increase in prices following this change in velocity may mean that " . . . the burden of the provision even of long lacking is partially placed on the shoulders of the consuming public. . . ." [163] Robertson points out that the encroachment of wages on profits during the latter stages of the boom may also act to reduce the voluntary long lacking which can be performed by the recipients of profit incomes.

If the rate of development in the production of durable goods is very rapid, there may be a tendency for the price of consumers' goods to rise sharply. This is an important manifestation of a shortage of circulating capital.[164] Consequently the theory of capital formation, in terms of lacking, suggests that there is a very important relation between the prices and output of consumers' and producers' goods.

If the demands for long lacking are such that recourse must be had to the banking system, then we have a theoretical explanation of an " entanglement " of the banking system in the financing of long-term as compared to short-term investments.[165] Because of the possibility of such a contingency, the collapse of a constructional boom may be caused by what Robertson calls " the general state of strain upon the banking system rather than by the stage which has been reached in the true constructional cycle." [166]

163 *B. P. P. L.*, p. 58.

164 "... The relapse in constructional industry is seen to be due to the existence or imminence of an overproduction of instrumental as compared to consumable goods"—i. e., to "a failure to secure the best conceivable distribution through time of the community's consumption of consumable goods." (*S. I. F.*, p. 187.)

165 *B. P. P. L.*, p. 90.

166 *Ibid.*, p. 90. In his *S. I. F.* Robertson emphasized the influence of "internal drains" on the banking situation. He regarded this as Hawtrey's principal contribution to cycle analysis. See *S. I. F.*, pp. 217-218.

It is interesting and illuminating to note the similarity, on the surface at least, between this theory and another that interprets the crisis in banks as due to a "frozen" asset condition which has developed throughout the period of expansion and which requires depression correctives for its necessary "thawing out." This sort of position traces back, I believe, to the notion, clearly enunciated by Adam Smith,[167] that commercial banks should confine themselves to the circulating capital loan and that they should avoid fixed capital financing.[168] While Robertson offers a theoretical explanation of this entanglement and an apparatus for its analysis, he does not argue that this is the only sort of situation that may lead to a "frozen" position. On the contrary, he shows that inflation may come about if the banking system is called upon to supply circulating capital requirements in increasing amounts and that this also may lead to great losses on outstanding loans. Furthermore, there is nothing basically wrong with some degree of entanglement, if it does develop. According to his view, it may in fact be the positive duty of the banks to supply these capital funds if, in the face of an appropriate expansion, the public is unable or unwilling to supply the needed amounts of short and long lacking.[169]

167 *Wealth of Nations* (Cannan Edition), chapter i, book ii, pp. 290-291.

168 Smith's reasoning appears to be always based on the "period" of the loans and the relative regularity and rapidity with which they are met. One recent version, Berle and Pederson's *Liquid Claims and National Wealth* (New York, 1934), attempts to present this same thesis as turning upon a difference in the "liquidity" of circulating as against fixed capital. Liquidity (or the lack of it) is traced to the presence (or absence) of some "human desire" for the goods in question. Besides showing a constant tendency to shift the argument from the capital goods involved to the claims upon them, the authors also impute a greater stability of value to consumers' goods than either fact or theory warrants.

169 See especially *B. P. P. L.*, pp. 87-89, and *Economic Essays and Addresses*, pp. 209-215.

(2) *Phase of contraction.*

Robertson mentions only very briefly a number of circumstances which may precipitate a reaction from this state of affairs.[170] The reaction may, for example, be caused by a refusal on the part of the banks to go on with extensions of credit at the previous rate. On the other hand, it may be traceable to the failure of some one of the "rational" incentives to expansion which provided the original stimulus to activity. But his most significant suggestion is that the turning point may be caused by "a temporary saturation with some important kind of instrument,"[171] or, as he often argues, to the ". . . temporary gluttability of large groups of particular human wants."[172] This suggestion recalls again the importance of Robertson's conception of economic progress. We have already shown how he traces the discontinuity of economic growth to certain institutional and real features of economic life; we have

170 It should be kept in mind that the basic cause is the discrepancy between the supply of and demand for lacking of the two varieties.

171 *Money*, p. 189. In *The Future of Monetary Policy* expansion and contraction are pictured as situations in which there is an excess and deficiency, respectively, of investment relatively to saving. And the excess (deficiency) of savings as compared to investment is held to be reflected in a decrease (or increase) in the rate of turnover of deposits. This view is consistent with Robertson's theory of saving and investment, discussed above, which presents an excess of saving over investment as an attempt to hoard, i. e., to raise the proportion of cash balance to disposable income. Robertson's interpretation of the crisis as being due to a saturation with goods or gluttability of wants is not very convincing. Recent investigations of the capacity of Americans to consume goods have indicated that we never, even at boom heights, approach a saturation point. (See the recent *Income and Economic Progress*, Washington, 1935, by H. G. Moulton, part i especially.) The difficulty in such matters is to distinguish between the "pecuniary" and "real" aspects. It is his failure to deal adequately with this matter that renders Robertson's thesis unconvincing. Some such notion seems also to be at the base of Keynes's theory that the crisis is caused by a sudden collapse of the marginal efficiency of capital. In an article which antedates the *General Theory* of Keynes, Robertson has used the concept of "marginal productivity of new lendings in industrial uses" to indicate very similar situations. (See *Economic Journal*, vol. xliv, December, 1934, p. 651.)

172 *Economic Essays and Addresses*, p. 122; see also p. 210.

now to note how this discontinuity may lead, through rapid expansions of the instrumental trades and of the production of durable consumers' goods, to a point beyond which expansion cannot be safely carried.[173] In other words, "undigested plenty" may be the root cause of crises.[174] In one place,[175] if I interpret him correctly, Robertson is suggesting that the following factors tend to aggravate this situation: (a) a slackening in the rate of growth of population, (b) a slower expansion of the "area of effective economic intercourse," (c) a slaking of "the thirst of the soil for the co-operation of fresh capital" traceable to advances in agricultural methods, and (d) "an admirable but inconvenient durability" in many consumers' as well as instrumental goods.[176]

It is interesting to note that these considerations lead Robertson to question the basic features of capitalist enterprise. He has raised the question of "preventing these temporary but devastating bewilderments" by a "drastic redistribution of income," but is apparently unable thoroughly to reconcile such action with the maintenance of private enterprise.[177] But whatever the immediate cause, adjustments grow difficult and the symptoms of industrial depression set in. They are as follows: (a) industry desires less from the banks as it attempts to provide more of its own circulating capital, (b) the period of circulation of money is reduced, tending to reduce the requirements for circulating capital, (c) eventually the public begins to hold larger balances, (d) price levels tend to fall, and (e) secondary forces are set in motion which tend to exaggerate the decline in values and activity. The depression state of

173 *Festschrift für Arthur Spiethoff*, p. 240.

174 *Ibid.*, p. 241.

175 *Ibid.*, pp. 240-241.

176 See also, *S. I. F.*, pp. 201-203, and the more general statements of *B. P. P. L.*, pp. 90-91, and *Economic Journal*, vol. xliv, December, 1934, pp. 653-655.

177 See Spiethoff Festschrift, p. 241, and also the earlier misgivings of *S. I. F.*, p. 238.

affairs continues until the incentives to expand find a banking situation favorable to their realization.

(3) *Corrective measures for expansion and contraction.*

There are interesting aspects of Robertson's boom and depression strategy that require rather detailed treatment, especially since they involve some of the theoretical aspects of his work.[178]

(a) *Open-market operations.*

First of all, there is the use of what he has called the "double-headed axe" of open-market operations and changes in the interest rate.[179] The latter he expects to cut down or expand "checkeries," i. e., reserves, at the central bank, although he admits that a rise in the interest rate may attract gold from abroad and thus defeat the purpose. There is the further difficulty that, due to the expansibility of bank credit, interest rate control may be insufficiently effective. There is no satisfactory treatment of open-market operations in Robertson's work. For our purposes, however, it is essential to note that he argues[180] to the effect that when the public is found unwilling to provide the necessary amounts of short lacking, they may be willing to "take over a certain quantity of the unproductive lacking embodied in the bank's holdings of government debt." This may involve only a change in the form of

178 This must be a brief and very limited statement. There is no intention to convey the impression that the strategy is of the ready-made variety; clearly, Robertson would vary his proposals in the light of the special characteristics of any given situation.

Furthermore, there seems to be no need to argue the merits of control *per se*; Robertson is one who believes, as Keynes would put it, in "devices" and, even to an extent, in monetary devices. He has written concerning the inappropriate variations that "our monetary system should be so organized as to restrain and not to promote them." However, he minimizes the efficacy of the "monetary" cure.

179 *Money*, p. 171.

180 *B. P. P. L.*, p. 77.

the lacking already being performed, but it may also involve the provision of quantities of new lacking. He seems to be quite confident, in his earlier book, of the possibilities of these weapons. He writes: " . . . by the use of their double weapon, central banks can up to a point check the expansion of the money supply; . . . while we cannot be sure that their power to do so is in all circumstances complete, there is good reason to believe that if it were used earlier and more resolutely than it has sometimes been in the past, many of the evil excrescences of the trade boom could be lopped away." [181]

(b) *Interest rate changes.*

Another method of encouraging the increased lacking activity, which may serve to finance a trade boom without further rises of prices, is to raise the interest rate.[182] Interest rate changes are calculated to have the following effects: (a) to act upon the lacking processes of the public by reducing the temptations of the depositors to dishoard, (b) to stimulate business men to provide their own lacking, and (c) to reduce the demand for lacking by discouraging the expansion of circulating capital.[183]

The rising interest costs may also serve to curb speculation and investment in long-term capital instruments—a hope which is founded on the theory that the long-term rate of interest will follow variations in the short-term rate. But of this he is not too hopeful. He has said in one place that " when once the speculative spirit is abroad it is not so easily exorcised . . . [for] . . . future yields of constructional enterprises are at best difficult to forecast accurately or to bring into comparison with present costs; and those who have made up their minds that what the world really requires is . . . a plant for harnessing the tides will not easily be persuaded otherwise." [184]

181 *Money*, p. 175.

182 *Ibid.*, pp. 175-179.

183 *B. P. P. L.*, p. 77.

184 *Money*, p. 185.

The other aspect of the rise in interest rates is its important influence on the capitalization of durable goods. He writes, " a rise in the general rate of interest lowers this price [of fixed durable instruments] and thus discourages the production of such instruments for sale. Thus by one route and by another [by excluding marginal borrowers] a rise in the rate of interest will have some effect in diverting the community's ready resources into avenues where they replace themselves more quickly, and will tend to restrain society from investing for a distant return more than it can really at the moment afford." [185]

It follows from Robertson's comments on the essentially discontinuous character of the process of capital formation that he holds out little hope for the achievement of stability in economic activity; instability is too deeply rooted in the technical complex. He does, however, suggest that a closer approach might be made to a stable rate of growth than what we now experience. It is in this connection that he makes one of his most direct proposals for " reflation " as a part of the depression strategy. He suggests that reflation at low interest rates would have the great advantage of " restoring ' rentability ' " to existing capital equipment and, furthermore, he holds little fear that this will tend to " warp " the productive structure. In this respect his views differ fundamentally from those of Hayek and his school. His position with respect to the working of the productive structure is based on a belief that a " speedy restoration of full activity in the instrumental trades " is not to be expected.[186]

But the importance which Robertson assigns to the interest rate can best be shown by a brief summary of his theory of

185 *Ibid.*, p. 184. On the function of the interest rate in accomplishing this end, see Henderson, *Supply and Demand*, ch. viii. The welfare implications in his argument are quite unconvincing. It is correct enough to argue that, on the whole, available funds will be granted to the highest bidders, but it is quite another matter to argue that, in a society with an unequal distribution of wealth and income, such an allocation will yield the maximum benefit to society.

186 *Festschrift für Arthur Spiethoff*, pp. 241-242.

its relation to industrial fluctuations.[187] The argument of this article is very similar to the views developed at a later date (or at any rate published later) by Keynes in his *General Theory of Employment, Interest and Money.*

The principal concepts which are used in the theory are (a) an inelastic curve of "declining marginal productivity of new lendings in industrial uses," [188] (b) an elastic supply curve representing the "rate of new industrial savings per atom of time," [189] (c) an equilibrium situation in which "wages and profits are at a 'normal' level," where "capital is growing," and where employment is at a level midway between that of boom and depression, and (d) "natural," "quasi-natural," and "actual" rates of interest.[190] These concepts are used to show how changes in the relative positions of the curves will influence the rates of new lending and saving (and, by implication, the volume of employment). The savings curve is shown to be dependent on the incomes being earned during the period in question as well as on the distribution of total income between the various earning groups. The demand curve for new lendings seems to be influenced principally by the relative scarcity or abundance of capital equipment.

The theory runs as follows: starting from the equilibrium position, in which the "actual" rate of interest equals the "natural" rate, the beginning of the boom involves an upward shift of the demand curve, so that a creation of new bank money will be necessary to fill up the gap between the rates of lending and saving unless the actual rate of interest is raised. But the absolute increase and the larger relative share of the income going to the profit-earning class will cause the saving curve to rise to a new point of intersection, indicating a "quasi-

187 "Industrial Fluctuations and the Natural Rate of Interest," *Economic Journal*, vol. xliv, December, 1934, pp. 650-656.

188 *Ibid.*, p. 651.

189 *Ibid.*

190 *Ibid.*

natural" rate of interest which, if equalled by the actual rate, will establish a quasi-natural position of equilibrium. This position is unstable and tends to lead to crisis or a changed rate of lending for the following two reasons. First, there may be an encroachment of wages on profits, leading to a fall in the savings curve. Second, the demand curve for new lendings may fall to a lower position "owing to saturation with existing instruments." [191] These two factors may vary in importance in different actual cases, and may also operate, in some instances, to strengthen one another.

The new intersection of the demand and supply curves determines a new quasi-equilibrium. If the actual rate of interest does not fall as low as this level, there is an " . . . excess in the rate of available savings per atom of time over the rate of industrial borrowings, showing itself in a progressive extinction of bank loans and a progressive immobilization of savings in the form of bank deposits." [192] While his remarks are very brief, he appears, on the whole, to believe that a reduction of the interest rate would be the correct policy in the event that both demand and supply curves have fallen to positions which are too low relative to this equilibrium.

(c) *Qualitative control of bank loans.*

The third measure which Robertson treats involves a highly controversial field. It concerns the qualitative as against the quantitative control of bank loans. His qualitative standards are not, however, those that are commonly advanced by theorists who favor this approach to bank loan policy. We have seen above, in our discussion of the requirements of the community for short lacking and of the conditions which must obtain in order that circulating capital may grow without involving a rising price level, that strong quantitative measures are pro-

191 *Ibid.*, p. 653.

192 *Ibid.*, p. 653. Compare this with Keynes's theory, which emphasizes the purchase of "debts" and the holding of cash as being the alternatives to industrial lending.

posed by Robertson. He has also developed an aspect of the qualitative theory, however, which grows directly out of the lacking theory, and which is therefore of special interest in this study. The policy which he advances might be termed the "selective rationing" of bank loans.[193] An arbitrary restriction of bank loans (by rationing or other means)[194] acts directly upon the problem of lacking by reducing (in this case, failing to accede to) the demand for it; but it is only when the lacking appears to be required to finance (in real terms) an inappropriate expansion of activity that outright refusal should be resorted to. If these demands cannot or are not restricted, it may eventuate that the supply of short lacking forthcoming will be insufficient to carry existing productive capacity. This possible deficiency of lacking is called by Robertson a shortage of "the activity essential to the production and storage of goods which we have described as lacking."[195] In this sense his theory differs from others which interpret the crisis as being due to a deficiency of capital funds. Robertson further suggests that such an inappropriate expansion, and its unusual demands for lacking, should be vigorously resisted by bank action. The proper action seems to be to " . . . enforce a drastic reduction in the demand for short lacking through the liquidation of stocks of commodities and the curtailment of swollen productive capacities."[196] If the banks do not take such action they may drift into a "frozen" position in the sense that they are acting "to maintain an unduly distended demand for short lacking."[197]

193 He writes at one point that the English banks "might fairly and profitably be asked to co-operate more actively in the policy of damping down the trade boom by having careful regard to the *quality* as well as the *quantity* of their lending operations." (*Money*, p. 179.) His italics.

194 *B. P. P. L.*, pp. 77-78.

195 *Ibid.*, p. 80, n.

196 *Ibid.*, p. 80.

197 *Ibid.*

(d) *Stimulation of investment.*

The necessity of some sort of action based upon similar principles is also insisted upon in his discussion of the more difficult task of stimulating business from a depression level. Here again,[198] along with the suggestions for lowering interest rates, open-market operations and the extension of consumer credits, he strongly urges a government policy aimed at the direct stimulation of investment. He suggests that the government might "organize a collective demand"[199] and thus stimulate investment in certain "selective" industries.[200] But while this direct encouragement plays an important part in his depression policy it seems to be overshadowed, at least in theoretical interest, by his comments on the stimulation of private investment. It is in this connection that the most interesting aspect of his qualitative position is presented.

Both the production and the maintenance of fixed instruments require quantities of short lacking in the form of a flow of consumables available as real wages.[201] It may happen that during a boom there has been an expansion of durable instruments beyond the point where short lacking requirements can be met without resorting to such bank action as will raise prices. Robertson argues that if, during the expansion, the banks are faced with a decreasing public willingness and ability to perform lacking, then it should be the duty of the banking system "... to make the best use of such supplies of short lacking as it is still willing and able to procure from the public, *rationing those supplies intelligently as between those trades which*

198 *Money*, chapter viii.

199 *Ibid.*, p. 193.

200 There are several qualifications, however, to the usual public works policy. See especially his remarks on the limitations of housing expansions, *ibid.*, chap. ix, pp. 129-130. See *The Future of Monetary Policy* for a more extended treatment of the economics of public works and also for a discussion of the relation between budget and taxing policy and the control of industrial fluctuations.

201 *B. P. P. L.*, p. 94.

both use and make instruments and those which use instruments to make consumable goods, and giving a decided preference to the latter." [202] In no case, it appears, should the banks encourage the production of more instruments during this period. It is here that we can see the relation of lacking theory to the tactics of trade depression policies. He writes: "there is a limit to the extent to which it is wise to promote artificial revival in the constructional trades" and, again, "a policy of developing the trades making for immediate consumption would often be theoretically preferable to the practically simple problem of stimulating the constructional trades; for it would ensure that if the other conditions became generally favorable to a constructional revival, its progress is not delayed or prematurely cut short by lack of response on the part of the trades making the constituents of real wages." [203] This expedient of encouraging the production of consumables is proposed in order to correct a lack of balance between the two categories of output. The lack of balance, if it means a relative scarcity of consumables, will diminish the incentives to new investment by raising the costs of both the production and maintenance of durable instruments. In this way the banking system is to act as a preserver of balance in the sense that it attempts to minimize the fluctuations in the desirability of obtaining and holding fixed instruments. Furthermore, Robertson has argued that it might be well for the government to store large quantities of consumables which might be released during the later phases of the contraction so as to "provide stability in the estimates formed by the business world of the advantages of acquiring instruments, and therefore in the stream of long lacking becoming available for embodiment therein." [204]

202 *Ibid.*, p. 92. My italics.

203 *Ibid.*, pp. 95-96. I have difficulty, however, in reconciling this position with the suggestion made in *Economic Essays and Addresses* (p. 142) that the government should purchase instruments when the business demand seems saturated.

204 He has written that the important matter is not the absolute volume

(e) *Inadequacy of monetary measures.*

There are other aspects, of course, to his general suggestions for the control of the business cycle, but we have emphasized the above because they illustrate more clearly than others the relation of lacking theory to the general questions of policy. While all of this suggests a sort of economic control which centers around monetary management, it should not be concluded that Robertson has anything but a very slight hope in the efficacy of monetary corrective measures. Indeed it is not monetary factors that the above has been concerned with. The basic consideration in all the lacking theory is the diversion of real resources to the formation of capital, and the ways and means of regulating this diversion. A rather extended quotation from *Money* may serve to express the extent of Robertson's faith in the monetary cure. He wrote, " the real economic evils of society—inadequate production and inequitable distribution—lie too deep for any purely monetary ointment to cure. An unwise monetary policy can wreak unwarranted hardship and engender unnecessary confusion and waste; not even a wise one can turn a world which is unjust and poor into a world which is rich and just. The mending of the road over which the produce passes to market is no substitute for the digging and dunging of the fields themselves. No tinkering with counters will take us very far towards the discovery of an industrial system which shall supply both adequate incentive to those who venture and plan and peace of mind to those who sweat and endure." [205]

of stocks but " their magnitude in relation to the short lacking demanded by merchants and speculators, and made available through the banking system and otherwise for carrying them." (*B. P. P. L.*, pp. 82-83.) Robertson is fully aware of the difficulties that a program of storing consumables would involve. See, on this point, *ibid.*, pp. 98-99.

205 *Money*, p. 194. See also the Harvard Tercentenary publication, *Authority and the Individual*, pp. 46-47, for a similar view of Robertson's, expressed thirteen years later than the one quoted.

(4) *Summary.*

This section has dealt with Robertson's use of the various lacking concepts in explaining some of the main features of the expansion and contraction phases of the business cycle. We have seen how Robertson develops a basis for a corrective program which includes open-market operations, changes in the interest rate, a qualitative as well as a quantitative control over bank loans, and both direct and indirect stimuli to public and private investment. As was pointed out at the outset, however, our intention has been to show how the lacking concepts are used to analyze the business cycle and not to give a detailed account of Robertson's theory of the cycle.

CHAPTER VI

PRICE LEVEL POLICY

(1) *General summary.*

THE preceding chapters of this essay have dealt with certain general features of Robertson's theoretical work. It was shown first, in Chapter II, that Robertson's theoretical approach combined emphasis on real, psychological, and institutional factors and that his view of economic development is that progress proceeds by discontinuous leaps stimulated by changes in certain underlying conditions of demands and costs. We indicated at that point that this conception of discontinuity in development leads him to question the desirability of price level stability.

Chapter III dealt in more detail with the character of the real changes which act to stimulate variations in output and with the ways in which the institutions of a money system and a wage system influence the way the economic system responds to these stimuli. It was shown that a wage system which renders wages relatively stable and profits relatively variable will operate to carry the response further than might otherwise be the case. It was also shown that the money system must be managed to allow for an upward variation in the price level if, under the current profit system, the discontinuous changes in output are to be made most easily. This section also included a discussion of the factors which tend to carry the responses of the system beyond that point which might be called an "appropriate" degree of adjustment to the changed "real" cost or demand conditions. It was stated that economic policies, in general, should aim at the most ready realization of appropriate adjustments and at the minimization of inappropriate changes.

Chapter IV was concerned with the general question of banking policy and capital formation. We presented, first, the

various concepts which Robertson has used in dealing with capital theory and then showed how the distribution of resources which is necessary in order to provide capital can be realized by both the voluntary and the involuntary acts of the members of the community. Certain general norms of bank action were indicated in connection with the cases dealing with hoarding, increases in population, and increases in factor productivity. It was also shown that if the rate of accumulation of circulating capital is to go ahead rapidly, this will almost certainly require rising prices and the imposition of forced savings upon the community.

Finally, in the immediately preceding chapter, we have discussed Robertson's application of the concepts of lacking and his theory of capital formation to the problem of the business cycle. We have shown how the demands for capital change during the course of the cycle and how bank action and individual responses may serve, in attempting to meet the changed conditions, to carry the upward or downward changes in output to great and probably to excessive lengths. Although no attempt was made to present Robertson's full views as to the control of industrial fluctuations (there is no very adequate statement extant), we did show how certain corrective measures are suggested by the general theory of capital formation which he has developed.

In this chapter we shall discuss Robertson's views on the general problems of price level policy. Here again we will not attempt to present a complete and detailed study, but rather a general statement which will emphasize the relation of his general theory to the practical question of policy.

(2) *Tests of price level policy.*

Robertson's decision as to the desirability of any given price level policy, or of any device for the attainment of such, is always made to turn on very basic matters. The considerations which are most often raised are (a) that the policy should

allow for the most facile realization of appropriate fluctuations, (b) that the policy should make effective use of the public's voluntary savings, and (c) that forced saving should not be extracted from the public beyond that amount which is necessary to finance a discontinuous appropriate increase in production which would not be financed readily by voluntary savings.[206] Various price level policies—(a) a constant price level, (b) a rising price level, and (c) a price level varying inversely with individual productivity—are examined in the light of these requirements. We proceed to discuss Robertson's position with respect to these various proposals; and we shall also attempt to state his general position on the question of monetary policies.

(3) *Rising prices.*

We have shown above, in Chapter II, that in a profit system organized on an employer-employee basis, responses to changed underlying conditions of demand and costs will be most readily realized if stimuli are presented in the form of rising prices

206 In *The Future of Monetary Policy*, the idea of continuity of values provides the organizing principle for the discussion. But the meaning is not altogether clear. The committee sums up the aims of monetary policy as (a) preserving domestic economic balance, (b) building stable international relationships, and (c) developing machinery for facilitating international monetary control. For the domestic problem this seems to mean preventing the extremes of expansion and contraction; but the reference of all this to a "healthy norm" (p. 12) does not substantially advance the theoretical argument. It is, as they say (p. 12), a pragmatic sort of day-to-day management aimed at minimizing present discontinuities.

It is interesting to note that the emphasis is placed not on a price level but on cost-price relationships. This provides the best definition of "continuity of values." It is "a stable relationship between prices and costs—that is, a stability of the profit margin" (p. 60; see also, *Monetary Policy and the Depression*, pp. 35 and 80). As to price *level* policy, it is stated that price movements should not exceed changes in the general level of costs which result from technical changes (p. 11). We will discuss this norm below in connection with Robertson's views as to the policy of aiming at the achievement of a price level which varies inversely with changes in individual productivity.

and increasing money receipts. Although changed cost conditions might allow entrepreneurs to reduce prices and still maintain a satisfactory profit margin, Robertson states that, under the existing system, a greater stimulus is found in a rising price level. This situation provides both the means (through the doctoring of past contracts in favor of debtors) and the stimulus (through the anticipation of continually increasing money returns) for an expansion of activity.[207] This sort of stimulus is held by him to be particularly effective because it acts on the minds of those who have control over output.[208] And employees also are held to be more effectively stimulated to increase their expenditures of effort by an offer of higher money wages than by a reduction in the cost of living.[209]

Although Robertson has shown [210] that a policy of injecting new money into the system which causes the price level to rise tends to impose lacking on the community, he does not deny the social desirability of forced saving in some circumstances. All of this follows from his theory of economic progress. If a new invention is introduced which calls for a considerable increase in the capital of the system, it may be that the community will have to be forced to perform the requisite savings if the opportunity for expansion is to be readily taken advantage of.[211] Robertson admits that this is an imposition of

207 *Money*, p. 150. This idea that entrepreneurs will operate most enthusiastically if prices are rising is a well-known proposition. Marshall argued in favor of a "gently rising" price level because of its effect on "enterprise." Veblen (Theory of Business Enterprise, pp. 237-243 especially) was mainly interested in the effect of price level increases on capital values and thus upon enterprise. See also, Keynes's *Treatise on Money* (New York, 1930), vol. i, pp. 293-298 and vol. ii, ch. xxx.

208 *B. P. P. L.*, p. 32.

209 *Ibid.*, p. 27. Note the similarity between the view expressed here of the willingness of workers to enter employment and that expressed much later by Keynes (*General Theory*, pp. 7-13) that employees are influenced more by changes in money wages than by changes in real wages.

210 *B. P. P. L.*, pp. 59-63.

211 *Economic Essays and Addresses*, pp. 113 and 115.

savings but seems to feel that the long-run advantages to society (now in possession of a greater supply of durable instruments) will adequately compensate for the temporary high cost of living.[212] But if Robertson does see some special advantages in a rising price level he also sees in it a possible source of inappropriate expansion. Under conditions of rising prices it is very likely that capital extensions will be made which will eventually prove unprofitable. Thus this course, if carried too far, will lead through boom to crisis and contraction.[213] And the likelihood seems to be enhanced if the period of production in some important lines of trade—for example, in durable instrument manufacturing—is long.[214]

So Robertson would, on balance, be in favor of moderate price advances when such are required to facilitate the sudden expansions of capital necessary to take advantage of discontinuous changes in techniques. With the qualification mentioned above in mind, it may be pointed out that the advantages of rising prices in stimulating output are equally weighty, to Robertson's mind, when the expansion is to take up the slack developed during a trade depression.[215] In this respect he definitely urges a policy of raising prices, with the qualifications that the policy should not be instituted too early and that it should improve, not further dislocate, cost-price relationships.

(4) *Stable price level.*

Of the two main criticisms which Robertson urges against the policy of price stabilization, one has already been mentioned. That is the notion that the typical sudden spurts of activity, by which the system responds to changed technical conditions, cannot be adequately realized except at the expense of rising

212 *Money*, p. 189.

213 *B. P. P. L.*, p. 39.

214 *Ibid.*, p. 38.

215 *Money*, p. 151.

prices and forced savings.[216] But as yet no special attention has been given to the second consideration. Robertson holds that if technical advance is tending to reduce costs the "natural" tendency of the price level is for it to decline.[217] And a policy of price stabilization means, in this instance, that the banking system is preventing the community from enjoying the increase in the labor value of the monetary unit and extracting forced saving by the money injections made to keep up the level of prices. Furthermore, he has suggested that such a policy may lead to crisis when no further opportunities for the expansion of capital can be found which will not produce goods already abundant in relation to the demands of the community.[218]

(5) *Price level varying inversely with productivity.*

This last consideration concerning the undesirability of a policy of stable prices is, of course, a plea for a price level varying inversely with changes in productivity. It is this policy which Robertson seems to favor most of all. It might, alternatively, be called a policy of stabilizing the labor value of the monetary unit. Robertson argues that if productivity is assumed to remain constant, we should seek to stabilize the price level, that is, the price level of those things on which final income is spent. This policy is defended on the grounds that it (a) protects debtor-creditor relationships from monetary disturbance, (b) prevents injustice to those with "sticky" in-

216 It may be desirable to note again that the extent of the price rise, and therefore of the forced saving, will depend on the extent to which the resources of the system are utilized and the extent of available stocks of commodities.

217 *Economic Essays and Addresses*, p. 112.

218 See *Economic Essays and Addresses*, pp. 112-15, and *The Future of Monetary Policy*, p. 61. The discussion of price stabilization in *The Future of Monetary Policy* is concerned principally with the choice of a price index by which to guide policy. It is suggested, also, that those in charge of policy should look beyond the index to see if proportion or balance is being maintained in the system. See p. 57 especially.

comes, (c) allows investment to be balanced by voluntary lacking without the imposition of involuntary lacking or the wastage of savings, and (d) avoids the undesirable effects of a falling price level, which under the circumstances of unchanged productivity would be both inequitable and discouraging.[219]

On the other hand, if productivity is increasing, the policy of a price level varying inversely with productive efficiency is defended on the ground that it implies a "preservation of equilibrium between voluntary savings and investment."[220] As has been indicated above, if an attempt is made to stabilize the price level under these conditions, that is, to destabilize the labor level of the monetary unit, it leads to forced savings and possibly a crisis in business. Thus he viewed the "American stabilization" of 1922-1929 as a ". . . vast attempt to destabilize the value of money in terms of human effort by means of a colossal program of investment in buildings, motor-car plants, etc., which succeeded for a surprisingly long period but which no human ingenuity could have managed to direct indefinitely on sound and balanced lines."[221] He has written further on the same subject that "it becomes plainer . . . that the disastrous slump in the prices of many foodstuffs and raw materials has been in part, at least, a nemesis for ill-considered efforts (greedy in the case of low-cost producers, pathetic and futile in the case of high-cost ones) to hold up prices in the face of falling costs. If the business man's psychology jibs at swallowing the moderate price falls dictated by increasing productivity, he renders himself more and not less liable to suffer the catastrophic price falls due to industrial dislocation and crisis—that is my case."[222]

219 *The International Gold Problem*, p. 20. He argues also that there seems to be no reason to believe that business men require a rising price level under these circumstances; furthermore, that a price level policy of this sort, if carried out, would not fail to provide the appropriate amounts of lacking. See also, *Money*, chapter vii, sec. ii.

220 *The International Gold Problem*, p. 21.

221 *Ibid.*, p. 45.

222 *Ibid.*

The difficulties in the way of effecting this policy, however, are not inconsiderable. One must first choose an index of stability. As Robertson has shown,[223] it would not be altogether satisfactory to take wage levels for this purpose, since they tend to move slowly. If the authorities waited for a signal from this direction, the damage (expansion to non-maintainable lengths) may be done before they begin to act. As an alternative Robertson suggests that "you can take either the wholesale or the retail number, and not stabilize it but let it fall by some percentage arrived at by correcting an index of production by an index of population. This seems to be the best." [224]

But when we widen our problem to comprehend the price level movements of different national economies and the relationships between these price levels, and recognize that productivity may be advancing at different rates in the different economies, we face even more substantial difficulties. This problem seems capable of no definitive solution. The inherent dilemmas of maintaining membership (on workable terms) in an international system, and at the same time meeting every problem of the internal economy with appropriate action, are obvious.

(6) *Individual money balances and banking policy.*

In discussing the various kinds of lacking or saving and the banking action which is necessary in order to make the most effective use of available resources, we have shown how Robertson analyzes the actions of individuals in holding money balances unspent. It is clear that with no change in the supply of money, a tendency for individuals to build up the proportion existing between their money balances and their money incomes will be reflected in a change in the rate of turnover, and not in the quantity of money. The latter is increased only by bank action. But changes in the propensity of individuals to hold

223 *Ibid.*, p. 22.

224 *Ibid.*, p. 23.

balances unspent constitute one of the central problems of banking policy. Such changes are related to price level policy because this individual action may affect the price level, and banking authorities are then faced with the problem of whether or not to take steps to counteract the action. Robertson has recently dealt with certain aspects of this problem.[225] He has held, repeatedly, that an increased tendency to hold money balances unspent should be balanced by a credit expansion if the banking system is to make effective use of the community's thrift.[226] But there are different conditions under which balances may tend to increase (either in real—that is, "goods," —value or in proportion to money incomes) and Robertson has distinguished between the policies appropriate for the various cases. First, the bank action necessary when, other things equal, the community desires to save more and does so by increasing the proportion of its money balances to its income, is clearly to increase loans. Thus effective use is made of the savings of the community, which otherwise would be wasted in lower prices.[227] This is the case of the conversion of spontaneous saving into applied lacking. Second, if productivity increases, the value of money balances in terms of goods will increase automatically if no monetary change occurs.[228] Therefore, there is no necessity for individuals to increase their

225 "Mr. Harrod and the Expansion of Credit," *Economica*, new series, vol. i, November, 1934, pp. 473-475.

226 *Economic Essays and Addresses*, pp. 101-102, 186-187; *Money*, pp. 101-105; *B. P. P. L.*, pp. 53-54.

227 *Money*, pp. 101-105. The wastage of savings refers not to the money accumulated in idle balances—this obviously can be utilized at some later date —but to the economic resources, in the form of a flow of consumable goods, which might have been diverted to the support of added capital-building activities. The drop in the prices of consumables is the system's way of disposing of the goods to the general public without any change in capital formation. Similarly, the process which is referred to as "forced saving" is probably better designated as a "forced redistribution of resources."

228 It is also necessary to assume that prices are flexible. If this condition does not pertain the result may be a piling up of unsold goods.

money balances unless they want to hold, on balance, command over more goods than the new situation provides for. If the productivity change is the only change, then the bank should not alter the money supply. An increase in loans in this instance means, as shown in (e) above, that saving is forced on the community even though prices are merely held constant over the period. Third, if a change in the population [229] occurs the tendency of the new workers to build up a money hoard constitutes new saving and will cause a fall in prices greater than that which might be caused (when their product comes on to the market) by the change in the system's productivity. In this case an increase in loans is necessary to make effective use of the community's savings and to forestall the decline in prices which might be detrimental to enterprise. But here the bank action should depend on the rate at which the new population saves. Fourth, if capital grows more rapidly than population, an expansion of loans is necessary only if the capital owners decide, on account of their increased wealth, to hold larger money balances.[230]

It is clear, then, that Robertson would determine the nature of appropriate bank action in the light of the circumstances of the particular case. The final determination would be complicated, of course, because population, productivity, and

229 This must mean the *income-receiving* population.

230 Robertson's discussion of this case, *Economica*, new series, vol. iii, November, 1936, pp. 473-75, does not make the meaning of an "increase in capital" sufficiently clear. It must mean an increase in real capital goods. There seems to be no reason for a loan expansion to counteract the building up of balances that might parallel an increase in the money values of capital goods. Even if this action did occur, which seems unlikely and certainly not calculated to achieve considerable proportions, it would merely be a partial counteraction of the loan expansion which was causing the inflation of capital values. There are only two other possible explanations of the rise of capital values: (a) a reduction in the proportion of money balances to income (this is ruled out by the assumptions of the case) and (b) a reduction in the volume of capital goods, the effective money supply remaining constant (this is the case of contraction, not expansion).

balance changes might all be taking place at the same time and at different rates.

(7) *Summary.*

We have shown that any given policy or system for effecting policy is judged by Robertson with respect to its ability to make effective use of the community's savings and to realize appropriate variations in the rate of output. A policy of rising prices was seen to be effective as a stimulant to enterprise but dangerous as a source of undesirable boom. It also acts to impose savings on the community in excess of the voluntary thrift of the people. The maintenance of stable prices, while it is infinitely more desirable than allowing wide variations in the price level, involves the extraction of forced saving if productivity is increasing, and may lead to crisis if the new capital developments do not proceed along maintainable lines. The price level policy which allows prices to vary inversely with productivity was found to be most effective in the utilization of voluntary savings and, all things considered, the most likely to ensure stability. The appropriate bank action was indicated for the various conditions under which individuals might build up the proportion of their money balances to their money incomes.

While this is not a complete statement of Robertson's views as to price policy, it seems sufficient to indicate how he utilizes his conception of the nature and requirements of economic progress and his theory of saving to determine certain basic principles of policy. It should be emphasized again that the details of the program for any given situation are framed in the light of the special circumstances of that situation. It might be well to conclude this brief survey with Robertson's own summary of his views on the matter. He wrote: " . . . the ideal banking policy might be one which was founded on the principle of price-stabilization as a norm, but which was ready to see the fruits of a prolonged and general increase in individual productivity shared in the form of lower prices, and perhaps to acquiesce in moderate price-rises in order that advan-

tage might be taken of discontinuous leaps in industrial technique. And it would be a policy that did not claim omnipotence, or feel competent of its ability to cure the evils of uncertainty except in alliance with a much more comprehensive attempt to control the desires and activities of the community than most monetary reformers—even, I think, most thorough-going Socialists—have yet visualized." [231]

231 *Economic Essays and Addresses*, p. 115.

CHAPTER VII

CONCLUSIONS

In this essay it has been our purpose to state the main features of Robertson's approach to the problems of money and the business cycle. We have summarized the theoretical aspects of his work. Special attention has been given to the analytical devices which he utilizes in explaining changes in the value of money, the processes of capital formation, and variations in the rate of economic activity. In the course of this discussion we have suggested certain qualifications and objections which might be urged against the theory. The whole treatment has been summary in character, but an attempt has been made to place emphasis on the significant aspects of Robertson's theory. In this chapter we shall both summarize the general problems which have been discussed above, and suggest some general criticisms of the method and results of Robertson's work.

(1) *General problems discussed.*

The interrelation of real, institutional, and psychological factors in Robertson's theory was indicated at the outset. Robertson's view of economic progress as being a development through successive discontinuous spurts of activity made in response to changes in technical conditions was emphasized as being fundamental to his theory both of capital formation and of the business cycle. We proceeded to explain the factors which Robertson presents as being instrumental in stimulating these discontinuous changes in activity. It was seen that some of the factors are " real ", in the sense that they refer to changes in the effort required to produce goods and to the effort which will be expended in order to command goods in exchange. Further, these responses to real changes were shown to be likely to grow to excessive lengths, that is, to become inappropriate responses, because of the operation of certain current technical, legal, and psychological factors. The influence of the wage system in tend-

ing to carry responses further than might otherwise be the case was dealt with briefly. Finally, and this is of considerable importance to the understanding of Robertson's whole theory, we stated his view that it is desirable to have rising prices in order to realize discontinuous changes in activity. From (a) his conception of the nature of economic progress, (b) his opinion that the long-run interests of society are probably best served by allowing these appropriate variations to be readily realized, and (c) his views concerning how best to realize these discontinuous leaps in activity, it then follows that instability in the price level is at times both a necessary and a desirable situation.

Starting with a definition of circulating capital as the sum of goods in process of production, Robertson has developed a theory of capital formation in terms of lacking which takes account of the diversion of resources to the production of capital through both voluntary and involuntary action. This is a particularly essential aspect of his theory because the discontinuous spurts of activity referred to above and the inappropriate lengths to which they may be carried are, from his point of view, phenomena which induce the rapid accumulation or formation of capital. Robertson has been especially interested in explaining the means by which this formation is actually accomplished. In this connection it was shown how the banking system might be operated to force savings from, that is, to force a redistribution of resources upon, the community. The bank action necessary in several special circumstances, in order to make the most effective use of the community's savings, was indicated. As Robertson has pointed out,[232] the main feature of the recovery phase of the business cycle is a sudden and considerable increase in the demand for the resources necessary to satisfy the needs of a rapid formation of circulating capital. Hence the business cycle was discussed almost exclusively from the point of view of the saving processes taking

232 *B. P. P. L.*, p. 71.

place in periods of expansion and contraction. The very brief statement of Robertson's views as to corrective measures for both expansion and contraction emphasized the relation of the theory of lacking to his specific proposals. Finally, we discussed various alternative price level policies as they have been presented and examined by Robertson. Here also we attempted to show how Robertson tests the various policies with respect to their efficiency in promoting the most effective use of the community's savings.

The principal ideas and concepts examined were: (a) the discontinuous nature of economic activity, (b) the theory of capital formation in terms of lacking, (c) the role of the banking system in promoting capital formation, and (d) the determination of the appropriateness of banking policy in the light of the saving processes involved.

(2) *General comments on the theory.*

(a) Robertson's theory of economic control centers around the concepts of appropriate and inappropriate fluctuations of economic activity. Any given fluctuation is a response to some change in basic economic conditions, either from the cost or demand side. The response may be carried to inappropriate lengths because of the operation of (1) the employment and distributive features of capitalism, (2) the money system, or (3) the tendency for errors to be made in forecasting either costs or revenues. The principle of the control program is that the system should respond to these changes only to an appropriate degree. If the response goes beyond these limits, control mechanisms should be used to limit further expansion.

In developing this theory Robertson makes use of certain static assumptions. He allows for only one change at a time, in order to indicate the results of any given stimulus on the rate of economic activity. Furthermore, in connection with the "real" changes, barter conditions are assumed for the major part of the analysis. All of this, of course, is perfectly sound as a theoretical procedure, but there are certain questions which

can be raised concerning the results derived by this method. Although it may be possible to distinguish the result of any one change in the simplified system which Robertson assumes, is it at all certain that in the actual market, with many diverse factors changing concurrently, it would be possible to distinguish the results of any one change or, even, the result of the joint operation of merely a limited set of factors? If this question is answered in the negative, then it follows that it is impossible to plan a control program on the basis of Robertson's distinction between appropriate and inappropriate changes.[233]

Robertson utilizes these static assumptions in order to make his problems manageable. Without their use it would be impossible to arrive at the tentative but very useful explanation which he presents. Our purpose is not to deny the usefulness of the method; it is merely to indicate that the control program which follows from the preliminary analysis is indefinite for the reason indicated.

And it may be added that the analysis itself suffers from the same difficulty. Here the principal problem is to discover the causes of fluctuations. By holding all factors but one constant, one may attribute any change to the single variable. But when many factors are changing at the same time, it becomes impossible to assess the role of any single factor in the determination of the composite of events. The technical changes work their effect through men's minds, and operate in a business system every aspect of which may add its own positive influence to the initiating force. How, then, is it possible to ascertain what share in the determination of the net result is to be attributed to the technical change and what shares to the psychological element, the monetary system, the institutions of the labor market, or to other significant elements in the whole complex? Both the definition of a control program and the formation of an analytical explanation of the causes of fluctu-

233 Robertson's humility about such matters is most attractive. See *B. P. P.L.*, p. 103.

tions, while simplified by the adoption of such working assumptions, as are used, are infinitely complicated in the actual market where various factors operate concurrently.

(b) Although at various places in his writings Robertson does take account of some of the special features of the money and wage system, the first steps of the analytical treatment, from which he draws his main conclusions concerning the causes of industrial fluctuations, are carried out on the basis of very highly simplified assumptions concerning the nature of these institutions. In stating the probable nature of the responses to any given technical change it is essential that one should take account of the operation of the money system, the system of employee-employer relations, and the organization of business firms in as nearly realistic a form as possible. With respect to the last two, especially, this means taking account of the degree of competition in the labor market, the distributive arrangements of the system, the competition between different firms, and between firms and customers for final goods. Unless this picture is traced out in fairly accurate fashion it is not possible to give any more than a very tentative version of the way the system will respond to any given stimulus. But here again the choice is between making a set of workable but limited conclusions on the basis of some relatively unreal assumptions, and constructing more accurate conclusions after taking into account the many special features of the institutions involved. It is usually the case that the latter will lack much of the definiteness of the former, for the reason that the complexity of real affairs will require that many severe qualifications be appended to any given proposition. Robertson's conclusions are interesting and useful as they stand. A comprehensive study leading to more accurate conclusions would require a more painstaking institutional study.

(c) One of the most interesting aspects of Robertson's work is his theory of forced saving—the redistribution of resources and accumulation of capital imposed upon the community through the operation of the money and pricing system. The

converse of this process—the wastage of savings—is equally significant and subject to the same general objections. It has already been suggested that it may be possible, if men do not receive the full value of their economic output because of the operation of the distributive system, that lacking or capital formation may proceed involuntarily for other than monetary reasons.[234] But this condition is not part of Robertson's theory. At this point it is desired to call attention to certain aspects of the theory of forced saving as found in *Banking Policy and the Price Level* and elsewhere in Robertson's writings. This theory involves a very highly simplified view of (1) the flexibility of prices when influenced by changes in the stream of money demand and/or the stream of output, (2) the regularity with which old and new money are utilized over any given period of time, (3) the time required to effect changes in the stream of goods produced, that is, the period of production, and (4) the changes in incomes which will occur in any period.

The view which Robertson takes of these various phenomena is, as was indicated, a highly simplified one and is adopted because it would be impossible to arrive at anything but the most tentative sort of conclusion if one attempted to take into account all of the facts of variability in the system. In order to arrive at any very accurate statement of the possibility of savings being forced upon the community, with reservations as to the section of the community which would be most heavily burdened, one would have to make all the necessary qualifications about the behavior of various prices, the speed with which the system will respond in terms of increased output, the kinds of output that will be increased, the speed with which the newly created money will circulate through the system after it leaves the hands of the original borrowers, and the speed with which various individuals in the system will enjoy or suffer income changes as a result of the changed economic conditions. There

234 *Supra*, pp. 166-167.

is no certainty that these conditions, if they could be stated for any given period or for any given system, would be constant over any considerable period of time or would apply in altered conditions. Thus one can only determine the likelihood of savings being forced from the community, or of accomplished savings being wasted, after a close examination of the facts of the special situation. What Robertson has done is to assume a few simplified situations in which the processes do take place. He has in effect systematized the discussion of the essential "conditions" of forced and wasted savings. His analysis provides only the starting point for the case study which would be necessary in order to reach conclusions about any given set of circumstances.

(d) The concept of Induced Lacking concerns the behavior of individuals in maintaining money balances or command over real goods. There is no systematic attempt, however, to explain the kinds of factors which influence an individual in determining upon the appropriate size of the balance. The whole discussion assumes that the individual has a certain balance in mind and will save to build up his money balance if a rise in prices reduces its real value. But the rise in prices may alter his notions as to what constitutes the appropriate balance. Some such considerations as these are certainly necessary in order to explain the cumulative process of business expansion and contraction. But Robertson takes the theory of real balances for granted (depending evidently on Marshall and Pigou) and simply tries to show how, assuming a certain view towards balances, the money system can influence people's behavior and how the banking system should be managed under these circumstances. In this instance, also, it is necessary to make a very careful study of human behavior in order to state how, and in what degree, various factors will influence people in these matters. It seems certain, furthermore, that no very definite statement could ever be made on this particular point. Behavior may depend in any given instance on the special cir-

cumstances of the moment, which often serve to influence individuals in ways which it would be difficult to forecast.

(e) The material dealing with the various proposals for control of the price level, in so far as it is based upon the theory of lacking and forced saving, is subject to all the qualifications that have been urged above concerning these concepts. Furthermore, Robertson's conclusions with respect to the banking and price level policy appropriate to any given situation, for example, a change in population, need qualification in the light of the fact that other significant changes may be taking place at the same time. Furthermore, it seems certain that no definite conclusions can be reached as to the appropriateness of any given policy until one has taken reasonably full account of the significant trends of the period and of the changes in market institutions. This may be expressed as the necessity to take structural change into account. There is considerable force in this point if structural change is made to mean significant changes in ways of doing things, such as changes in the conditions of the labor bargain, changes in the size and control of firms, changes in the price policies of firms, or changes in the technical groundwork of the system. It is certainly true that such variations are highly important data and must not be overlooked in determining upon the adequacy of any economic policy.

Robertson's theoretical concepts having to do with technical change, price responses, changes in output, variations in the rate of turnover of money, the rate of interest, and the fluctuations of incomes are indispensable as general theoretical devices. But significant practical use can be made of these devices only on the condition that careful studies are made of the real behavior of the phenomena which they are designed to represent. Robertson's most significant contributions are his development of theoretical tools of analysis, with which he derives significant general principles of banking policy, and the suggestions for detailed factual study which follow from his systematizing efforts.

PART III

F. A. von HAYEK

CHAPTER I

INTRODUCTION

THIS part of our work has to do with the writings of Friedrich A. von Hayek of the London School of Economics. The two preceding parts have dealt with the theories of R. G. Hawtrey and D. H. Robertson. In examining the views of Hawtrey we noted that, with some qualifications, the emphasis is placed almost entirely on monetary factors. In a reasonably accurate sense Hawtrey can be said to use a monetary approach to business cycle problems. In the second part we saw that Robertson's main interest lay in developing analytical devices with which to study the processes of economic fluctuations. We noted that, to a large extent, the causes of fluctuations were indicated as being changes in the underlying conditions of real cost and real demand. The largely secondary part assigned to money in these situations was analyzed along with many non-monetary factors.

Because it is our primary purpose to describe and comment upon the methods used by various current writers and not to classify theoretical systems into a few categories, little attention has been given to the problem of classification as such. Yet the above general characterizations may be made for the purpose of emphasizing the outstanding features of two quite different theoretical systems. The real dangers inherent in the construction of a simple system of classification of theories are obvious when one considers the various types of monetary theories extant. However, it is reasonably accurate to classify both Hayek and Hawtrey as having a monetary theory of the business cycle in that they both agree that the primary cause of the cycle is found in the monetary factor and that elasticity of money volume " forms the necessary and sufficient conditions for the emergence of the Trade Cycle." [1] But we will see

1 F. A. Hayek, *Monetary Theory and the Trade Cycle* (Jonathan Cape, London, 1933), pp. 140-141. Hereafter referred to as *Monetary Theory.*

on examination that the similarity between the two theories comes close to stopping at this point. In almost all other respects the theories differ radically from one another.

Much of the wide divergence between these two theorists can be traced to methodological matters. Hayek has criticized Hawtrey for holding a too-simplified theory of capital and Hawtrey in turn, while recognizing many commendable features in Hayek's analysis, takes the position that the argument is vitiated by an impractical capital theory.[2] There could hardly be a more fundamental disagreement.

Before proceeding to a detailed examination of the method used by Hayek we shall devote one section, Chapter II, to a discussion of the general character of his theoretical approach.

Chapter III is concerned with the most important of Hayek's theoretical concepts, the "structure of production." This discussion in carried further in Chapter IV, where we deal with the processes of capital formation and the consequent changes in the structure of production, as they operate under conditions of voluntary and forced savings.

In Chapter V we discuss Hayek's theory of the operation of the pricing system. Special attention is paid here to the question of price changes which take place as adjustments to changes in voluntary savings and to changes in the volume of credit money.

As in preceding essays on Hawtrey and Robertson we find here that the theory of the effect of money on prices and pro-

2 Hawtrey writes, "Dr. Hayek has spoiled an original piece of work which might have been an important contribution to monetary theory by entangling his argument with the intolerably cumbersome capital theory derived from Jevons and Bohm-Bawerk. This theory, when it was enunciated, was a noteworthy new departure in the metaphysics of political economy. But it is singularly ill-adapted for use in monetary theory, or indeed in any practical treatment of the capital market." (*Economica*, new series, vol. iii, February, 1936, p. 125.) Hayek has written, in a short review of Hawtrey's *Trade Depression and the Way Out* (second edition), that the treatment is handicapped by "the author's tendency to oversimplify." (*Economica*, vol. xii, 1932, p. 126.)

duction assumes the character of a theory of cyclical fluctuations. Hence, Chapter VI carries the argument of the preceding sections on to the problem of economic crises and their explanation in terms of monetary factors.

In Chapter VII the concept of the investment schedule is discussed and related to the foregoing.

Finally, Chapter VIII presents various comments on, and criticisms of, Hayek's whole theoretical system and the proposals for economic policy which are based on it.

CHAPTER II

THE GENERAL NATURE OF HAYEK'S THEORY

THE general character of Hayek's theory will be developed in this chapter by showing, first, why he objects to certain monetary and non-monetary theories of the cycle and, second, how he traces fluctuations to the operation of the credit system.

(1) *Criticism of certain elements in monetary explanations of the cycle.*

The objections that Hayek has to various monetary theories of the cycle can be stated, in their simplest form, quite briefly. In particular, he warns against those "naive" types of theory that by attributing the business cycle to changes in the value of money, attempt to establish the proposition that "if only the value of money does not change it ceases to exert a direct and independent influence on the economic system."[3] In other words, he rejects the position of the price stabilization school.

In general, he denies the desirability of an elastic credit system and argues that (within limits which we will attempt to elucidate later) constancy in the supply of effective money is the necessary prerequisite to economic stability.[4] His policy

3 *Monetary Theory*, p. 107.

4 Effective money supply means, in Hayek's terminology, money supply times exchange velocity. An important question, both for the statement of the theory of cyclical fluctuations and for the formulation of a norm of monetary policy, is whether exchange velocity means the rate of turnover of the entire money supply or only that part used outside the financial markets. To my knowledge Hayek is not explicit on this important point. However, the virtual exclusion of the problems of the financial circulation from the theory found in *Prices and Production* (George Routledge, London, 1935, second edition) suggests that the latter may be the correct version of Hayek's concept. See *Prices and Production*, p. 27, n., and pp. 122-124. The practical importance of this obscurity is commented on below (p. 288). Unless otherwise noted all references to *Prices and Production*

requires that the price level should fall as productivity increases; and he further believes that a policy which aims at price stability in a situation of increasing productivity is merely "an inflation of a subtler kind" than that which openly demands rising prices. It is this last point, especially, that is involved in the criticism of Wicksell.[5]

Finally, he argues that in any event it is not the price level, considered as an average or general level, which constitutes the real problem for either theory or policy; it is in the *relations between* the different prices or special groups of prices that the real problem is to be found. Economic stability is to be sought, not in a stable level of general indexes, but in a proper relationship between different price levels.

(2) *Criticisms of non-monetary theories of the cycle.*

His criticism of non-monetary theories of the business cycle raises certain interesting problems. In his book, *Monetary Theory and the Trade Cycle,* Hayek develops his defense of the monetary approach by means of what seems to be a faulty classification of extant theories. This is a significant matter because it is largely on this argument that the case for the monetary theory is made to depend. Some theories, it appears, are "monetary" and others are "non-monetary"; the distinguishing feature of the non-monetary type of theory is that it attempts to explain the cycle without consideration of the use and effects of credit. These theories are classified in sub-groups, with reference to the special nature of their explanation of the cycle, as follows: (a) those which base their explanation on the technical nature of the present industrial structure; (b) those which depend on discrepancies between saving and investment; (c) those which point to certain psy-

are to the second edition. This is a substantially enlarged and revised edition of the original which was published in 1931.

5 *Monetary Theory,* pp. 112-116.

chological factors as being determinative.[6] I think I interpret Hayek correctly when I say that his chief criticism of all such theories is that they attempt to explain the business cycle through the use of an equilibrium or "static" theory, and that this involves them in the dilemma that it is necessary to explain a disequilibrium between the supply and demand for productive factors by the use of a theory which indicates that there is a tendency for all such disequilibria to be readily corrected.[7] Hayek argues that " . . . the only possible way out of this dilemma is to explain the difference between the course of events described by static theory (which only permits movements towards an equilibrium, and which is deduced by directly contrasting the supply of and demand for goods) and the actual course of events, by the fact that, with the introduction of money (or strictly speaking with the introduction of indirect exchange), a new determining cause is introduced . . . Its introduction does away with the rigid interdependence and self-sufficiency of the 'closed' system of equilibrium, and makes

6 Note also the brief reference in Hayek's *Prices and Production*, p. 32, to the "real" theory of the business cycle, that is, "the view that the main causes of variations of industrial output are to be found in changes of the willingness of individuals to expand effort." The real theory is characterized as "highly artificial" although no direct refutation is made in this volume. But our own discussions of Robertson's work have shown the extent to which this particular variation of the real theory involves monetary as well as real factors.

7 See *Monetary Theory*, pp. 41-46. The argument of *Prices and Production* presents this same point of view. Hayek writes, "if we are to proceed systematically, therefore, we must start with a situation which is already sufficiently explained by the general body of economic theory. And the only situation which satisfies this criterion is the situation in which all available resources are employed. The existence of unused resources must be one of the main objects of our explanation." (*Prices and Production*, pp. 34-35.)

This raises a very fundamental theoretical question. As I understand his position, Dr. R. W. Souter, in his *Prolegomena to Relativity Economics* (New York, 1933), suggests that the above is an incorrect view of the meaning of a stationary state. He writes that one might conceive of "a stationary state with 'cyclical' unemployment of labor and resources" (*op. cit.*, p. 12). I shall return later to the consideration of the meaning of "complete utilization of resources."

possible movements which would be excluded from the latter." The various non-monetary explanations listed above are examined by Hayek as examples of this sort of equilibrium reasoning.

Specifically, theories that trace the cycle to the technical structure of business organization are found wanting because they entertain a wrong view of the operation of the price system. These theories emphasize the long period of time which intervenes between the beginning of a given expansion of equipment and the point at which the new equipment begins to influence the output of consumers' goods. They argue that this may lead to an undue expansion of equipment because entrepreneurs may act without due regard for, or knowledge of, the plans of their competitors and will thus be rewarded only with lower prices, incomes, and capitalized values when the expanded output flows onto the market and upsets their expectations.[9] Hayek mentions in the same category with the above those theories which emphasize the cumulative character of the effect of an increase in the demand for consumers' goods on the demand for producers' goods,[10] and finally the principle, expounded by Robertson, of the essentially discontinuous nature of additions to large aggregations of fixed or durable equipment. Hayek holds that these theorists misunderstand the functioning of the price mechanism in assuming that it begins to operate as a controlling device only when the goods begin to come onto the market. He states that it begins to function from the very inception of the advance, and in so doing serves to warn the producer against excessive expansion. In his view, the entrepreneur's decisions are guided, not by changes in total demand but by expectations of the profitableness of the enterprise, and that this calculation of profitableness will serve, in the absence of monetary disturbances, to equilibrate supply and

8 *Monetary Theory*, pp. 44-45.

9 See, e. g., Slichter, *Modern Economic Society*, pp. 694-697. Also see, Robertson, *Banking Policy and the Price Level*, pp. 37-38.

10 See J. M. Clark, *Strategic Factors in Business Cycles*, pp. 27-44.

demand. As long as no monetary factors are operating to cause disturbances it is correct to assume, he states, that "the price which entrepreneurs expect to result from a change in demand or from a change in the conditions of production will more or less coincide with the equilibrium price. For the entrepreneur, from his knowledge of the conditions of production and the market, will generally be in a position to estimate the price which will rule after the changes have taken place. . . ." [11]

The theory of the cumulative effect of an increase in the demand for consumers' goods on the demand for producers' goods is disposed of on the ground that "every attempt to extend the productive apparatus must necessarily bring about, besides a rise in factor prices, a further checking force—viz. a rise in the rate of interest. This greatly strengthens the effect of the rise in factor prices. It makes a greater margin between factor prices and product prices necessary just when this margin threatens to diminish. The maintenance of equilibrium is thus further secured." [12] He concludes that unless some reason is given to the contrary it must be assumed that in the absence of monetary disturbances, the dictates of static theory require that the interest rate act to keep "the supply of capital goods in equilibrium with that of consumption goods." [13]

I think that Professor Hayek's position may be fairly summarized as follows: In the case of the actual capital market the pricing system, in determining the cost of capital, acts with reference to monetary factors. Thus, due to the elasticity of the money supply (which amounts to an elasticity in the amount of money capital), it is possible for disequilibrium between the demand and supply of real capital to appear and for movements away from the equilibrium position to take place.

This same sort of argument as to the automatically self-regulating character of the economic system, when undisturbed

11 *Monetary Theory*, p. 69.

12 *Ibid.*, p. 75.

13 *Ibid.*, p. 76.

by monetary factors, is used to show that both (b) and (c) above are untenable theories. The dictates of static theory require that there be a tendency for the demand for real capital to equal the supply of savings, and that the interest rate function to effect this equilibrium. Static theory is therefore inadequate to explain situations in which the disequilibrium does appear. What is necessary is to explain why the interest rate does not act to effect the required balance.

In connection with (c), the psychological explanations, he argues that they do not show *why* the pricing system does not operate to retard the spread of these emotional waves and, furthermore, that they " . . . overlook the fact that, in an exchange economy, production is governed by prices, independently of any knowledge of the whole process on the part of the individual producers, so that it is only when the pricing process is itself disturbed that a misdirection of production can occur." [14]

Having thus disposed of the " non-monetary " or " real " explanations of the cycle, Hayek indicates that his criticisms are valid only if the theories in question are made to apply to the operation of economic forces in a system of pure barter. If the theories are successful at all in explaining the course of the business cycle, it must be because they assume (what they cannot assume and remain purely " real " explanations) " . . . the existence of credit which, within reasonable limits, is always at the entrepreneur's disposal at an unchanged price." [15] If they do assume this they can explain a margin of indeterminateness in economic events, and can show how the pricing process, especially the price of money capital, fails to perform its balancing function and allows for non-maintainable expansions to set in. Thus it is the conditioning factor of credit elasticity which allows for an adequate explanation of the business cycle.

14 *Ibid.*, pp. 84-5.

15 *Ibid.*, p. 87.

(3) *Comments on Hayek's criticisms of monetary and non-monetary theories of the cycle.*

We will not attempt to appraise Hayek's objections to the various elements of monetary theory discussed in (1) above. But at this point we may note that neither Robertson nor Hawtrey would argue that, as an end of policy, authorities should seek to stabilize a general level of prices in the face of increasing productivity. The dangers of price stabilization are now fairly well recognized; and the prevailing tendency is to think less in terms of a general level of prices and more in terms of a cost-price structure. As to the desirability of credit elasticity, the most important point to recognize is that both Hawtrey and Robertson defend the policy of increasing the money supply as a device for relieving the burdens of deflation. Only in the special cases discussed in the essays on these men would they argue for an expansion of the money supply. We shall see below how Hayek also sanctions increases in the money supply under certain special conditions, and shall then compare his views with those of Robertson and Hawtrey. Since detailed attention will be given to these matters in later chapters no more need be said at this time.

An interesting problem is raised by Hayek's comment on the so-called non-monetary explanations of the cycle. As was suggested above, Hayek's criticism of non-monetary theories is based on a faulty classification of extant theories. While it is certainly clear that many theorists argue on the basis of assumptions as to the barter arrangements of a hypothetical community, the conclusions drawn from such considerations are utilized, in the important cases, not as complete explanations of the business cycle but rather as strands of more extended arguments. Robertson, for example, begins his *Banking Policy and The Price Level* with barter assumptions, but who would hold that he does not consider the use and effects of credit? Chapters VI and VII of that book certainly contain no purely "real", i. e. non-monetary theory. Could one rea-

sonably assert that Keynes's theory of the disequilibrium between savings and investment as developed in his "Treatise on Money" (which Hayek mentions) is a purely non-monetary theory? Does not Professor Clark, who makes use of the sort of argument suggested in (a) above, consider the operation of this factor under conditions of credit elasticity?[16] In short, it is clearly impossible to identify any one of these theoretical structures with any one of Hayek's typical cases. What all of Hayek's criticism indicates is that real factors alone cannot explain the cycle. It has not been demonstrated that what is needed is a "monetary" explanation.

There is another aspect of this question which seems to me to be pertinent at this point. The implication that the only defect in a sound analysis of the relationships of economic activity in a barter economy, in so far as that analysis is to be used to explain misdirections of production, is that it neglects the use of money seems to me to blind one to the important implications of certain other differences between the credit economy and the typical fabrication of the barter theorist. Large aggregations of capital, more or less extensive deviations from "freedom" in the market, the prevalence of contractual relationships of a protracted character, and the revised status of the institution of ownership in the corporate system of business organization, are all important institutional facts. Modern economic society differs from the typical assumed barter economy in many more respects than in the use of money. It is necessary to make not one but many revisions in the barter assumptions if the real market is to be discussed.

It would be admitted by most economists that an adequate explanation of the business cycle must take account of elasticity in the credit supply. But unless I misunderstand Professor

16 See Clark, *op. cit.*, pp. 192, 193. While Clark argues that credit is for the most part an "enabling" factor, he specifically notes its ability to initiate disturbances, See *ibid.*, p. 189. Furthermore, Hayek's criticism of this type of explanation assumes flexible prices and full employment. Clark's theory involves no such assumption.

Hayek this is not what he wants to show. It seems that he is seeking to establish a single cause for disproportionalities and that he believes he has found it in the elasticity of the credit supply.[17] But on the basis of the discussion in *Monetary Theory and the Trade Cycle,* it cannot be said that he has disposed of the really important question as to whether or not the so-called "real" factors are to be used as strands of more eclectic explanations. It is certainly not correct to move, on the basis of his criticisms of the real theories, to a purely "monetary" explanation of the cycle.

(4) *Central thesis of Hayek's theory of the cycle.*

The central thesis of Hayek's theory is well expressed by the statement which follows. " : . . Changes in the *volume of money*[18] have, so to speak, a one-sided influence which elicits no reciprocal adjustment in the economic activity of different individuals. By deflecting a single factor [money], without simultaneously eliciting corresponding changes in other parts of the system, it dissolves its 'closedness', makes a breach in the rigid reaction mechanism of the system (which rests on the ultimate identity of demand and supply) and opens a way for tendencies leading away from the equilibrium position." [19] His theory attempts to indicate the source of changes in the volume of money and to show how these changes effect "individual price relations," output, and the formation of capital.

17 If this is true, it would certainly be a most unwarranted imputation of a "prime" causal significance. Thorstein Veblen's view that the two prime movers in "modern culture" are "business enterprise" and the "machine technique" seems to me to be a much more fundamental and defensible theory. See Veblen's *Thory of Businss Enterprise,* ch. viii, for a theory of the business cycle based on this proposition.

18 The volume of money is its quantity times its transactional velocity. This is sometimes referred to by Hayek as the "effective circulation." But see *supra,* p. 216, n. 4.

19 *Monetary Theory,* p. 108. My italics.

At the outset we may note Hayek's classification of possible disturbing factors into " endogenous " and " exogenous " types. The former are causes which are inherent within the credit system, and operate as necessary features of our credit economy. The latter are causes which are found not in " . . . the inter-connections of economic phenomena themselves but in *external* interferences." [20] The body of his argument is mainly confined to the former, since their inevitability in the modern credit economy gives them a " general validity." [21]

The principal endogenous factor is the tendency towards elasticity in the credit system. Hayek has presented a very simple theory of credit expansibility which indicates that a given cash deposit leads to an expansion of 9 times the original deposit if a 10 per cent reserve is held and a greater or smaller expansion if the reserve is smaller or greater.[22] But it is not only the cash position of the banks that affects the extent to which credit can be extended. Since the reserve ratio of the member bank is not necessarily constant, but may vary depending on the banker's view as to the position necessary to meet his particular norm of liquidity, another factor may also act to initiate expansion. That is to say, if there is an improvement in the outlook for some particular industry or for industry as a whole,[23] it is likely that a bank will expand its loans, even at

20 *Ibid.*, p. 143. My italics. Hayek's example of the exogenous change is interesting; he cites a " false step by bankers." (*Ibid.*, p. 145.)

21 *Ibid.*, p. 144. As R. W. Souter has shown, an endogenous factor may be made an exogenous factor, or *vice versa*, simply by altering the assumptions (see *Prolegomena to Relativity Economics*, p. 143). I think it will become clear that when Hayek comes to an explanation of the crisis as it actually appears he makes use of factors which might be termed exogenous. Strictly, this involves recourse to a *deus ex machina*.

22 The only factor assumed here to check the expansion of deposits is the drain into bank reserves. A more thoroughgoing theoretical analysis of this problem is developed in an article by Prof. J. W. Angell and Karel Ficek on " The Expansibility of Bank Credit," *Journal of Political Economy*, vol. xli, pp. 1-32 and 145-193.

23 The improvement in outlook may be traced to some exogenous factor; Hayek agrees with Hawtrey that the change may be due to " a great variety

the certain cost which, according to Hayek, must be met in replenishing the cash requirements which arise from loan expansion. Hayek argues that " in the upward phase of the cycle the risks of borrowing are less " and, if a bank refuses to join a general expansion, " it would risk losing its best customers to other banks." [24] So the banking system, without any injection of cash into its reserves, can begin an expansion of the circulating media, with all its effects on the " reaction mechanism " of prices. Once started, the movement, whatever its source, gains momentum as banks find their clearings balances improved as a result of the credit expansions of other members of the system, and even if they were not originally willing to partake in the expansion they must do so now or else allow their cash position to improve. According to Hayek this sort of movement necessarily leads to a crisis when the banks cease to expand their loans. The crisis comes more quickly if the banks begin to contract loans. The credit expansion has, in Hayek's theory, kept the market rate of interest below the natural rate. The natural rate is that which would prevail if the system were not being disturbed by monetary factors. When the credit restriction begins the money rate of interest will " . . . rise again to its natural level and thus render unprofitable (temporarily, at least) those investments which were created with the aid of additional credit." [25]

Thus, according to Hayek, it is the " elasticity of the volume of the circulating media " which is the cause of industrial fluctuations. This factor makes possible extensions of the economic system which could not be accomplished if it were necessary to provide the required money capital from the cur-

of causes " (see, e. g., p. 168). Hayek uses the term liquidity in the sense of the relation between cash reserves and deposit liabilities. See Lauchlin Currie's *The Supply and Control of Money in the United States*, for a more detailed discussion of the various circumstances which may lead to a change in reserve positions.

24 *Monetary Theory*, p. 173.

25 *Ibid.*, p. 176.

rent voluntary savings of the public. If the system were compelled to utilize only voluntary savings the rate of interest, being raised to the natural level so as to restrict borrowings, would be too high to permit the extensions.[26] The creation of these additional credits, as Hayek terms them, " . . . also necessarily determines the extent and duration of the cyclical fluctuation " [27] although he suggests that the actual cycles would not attain the extent and duration that they have if they were not " reinforced by other factors." [28]

In subsequent chapters we shall discuss the various elements in this theory in more detail. That discussion will enable us to appraise the usefulness of Hayek's monetary approach to the business cycle. In the chapter to follow we will be concerned with the principal concept of Hayek's analysis—the " structure of production " and associated ideas.

26 *Ibid.*, pp. 177-178.
27 *Ibid.*, p. 183.
28 *Ibid.*, p. 185.

CHAPTER III

THE CONCEPT OF THE STRUCTURE OF PRODUCTION

HAYEK'S theory of the operation of the economic system involves a very closely reasoned argument. I shall attempt here merely to summarize it as it is presented in *Prices and Production* and in several periodical articles.

(1) *Main Concepts and Definitions.*

The development of the mechanics of the theory may be prefaced by reviewing its main concepts and definitions.

The "original means of production" are land and labor; these, together with capital, constitute the "*factors of production.*" The incomes of these factors are, respectively, rent, wages, and interest. A now familiar categorization of output is utilized throughout the argument: the whole theory is developed in terms of the conditions of equilibrium between the production of *producers' goods* and of *consumers' goods.* The difficulty of distinguishing between these two categories of output is not allowed to retard the argument; producers' goods are defined as "all goods existing at any moment which are not consumers' goods" or "all goods which are directly or indirectly used in the production of consumers' goods, including . . . original means of production . . . instrumental goods and . . . unfinished goods." [29] *Intermediate goods* are "producers' goods which are not original means of production, but which come between the original means of production and consumers' goods." [30]

The basic concept of Hayek's theory is the *process of production.* The production of final goods in the very simplest economic system would be the result of what has been often

29 *Prices and Production,* p. 37.

30 *Ibid.*

termed " direct appropriation." As the society develops, the activity of producing final goods comes to involve other processes which, while involving the use of original means of production, are applications of means of production which are more remote in point of time from the processing of final consumers' goods.[31]

This arrangement of processes is referred to as the " structure of production." Changes in the structure are distinguished from other economic changes by being defined as changes from a method of production involving a certain duration of time, between the first application of original means of production and the appearance of final consumers' goods, to a method in which the duration is either longer or shorter. This duration of time is the " period of production." If the period becomes longer, then there is a " lengthening of the round-about process of production," a change to more " capitalistic methods "; if shorter, the change involves a use of less capitalistic methods and a " shortening of the round-about process of production." For purposes of analysis Hayek conceives of this structure of production as being composed of a number of " stages " which, while they are technically parts of a whole process of economic activity, are economically distinct, with goods passing from one stage to another through money exchanges. Stages furthest removed from the consumers' goods end of the process of production are the " higher " or " earlier " stages of production; those nearest the consumers' goods end are the " lower " or

31 The emphasis is usually upon the greater length of time which separates the first and final applications of original means to the production of final goods. The emphasis seems to me to be quite correct but should not veil the possibility that an increased complexity of operation in the technique involved may develop without any substantial increase in the time consumed. Considerable difficulty is involved here, however, if one attempts to conceive of the process of production as a whole, and of the process of producing a given commodity. This is a particularly important concept because many of the disagreements which have developed recently are traceable to a too liberal, but I think understandable, interpretation of the process or period of production as a " technical " phenomenon. To this matter we shall return later.

"later" stages of production. If all stages are conceived of as being equal fractions of the total period of production, with no increase in the duration of stages, a lengthening (shortening) of the process of production would involve an increase (decrease) in the number of stages.

This conception of the technical structure of the industrial system provides Hayek with the grounds for classifying producers' goods into "specific" and "non-specific" types. The former are those which are technologically relevant to only one stage; the latter can be shifted from one stage to another, in a technical sense, without impairment of operating efficiency.

Professor Hayek uses a special "schematic representation" to illustrate his theory. This diagram, triangular in form, bears similarity to figures used by Wicksell and Jevons, and also involves ideas similar to some used by Robertson in his analysis of the theory of circulating capital.[32] The diagrams represent the growth of values as goods proceed from higher to lower stages in a stationary state and are essentially cross sections of the structure of production and distribution of value throughout that structure at one point in time. If we picture the triangle with the hypotenuse running from the left at the top to the right at the bottom, then the slope of the hypotenuse represents the rate at which original means are applied to goods in the successive stages of production. The value of the goods in the various stages increases from the value of the application of original means in the earliest stage to an amount represented by the base of the triangle. The base represents the value of the output of consumers' goods, and the area of the triangle equals the value of the intermediate products in process at any one point in time.[33] The distance on the vertical scale from top

32 In the revised edition of *Prices and Production* (1935) Hayek refers to the works of Wicksell and Jevons where these figures have appeared. He suggests, after Marschak, that the diagrams may be appropriately termed the "Jevonian Investment Figures." See p. 38 n.

33 The similarity between this formulation and Robertson's theory of circulating capital becomes clear when we recall the latter's proposition

to bottom represents the time period of the productive process. The diagram pictures the flow of goods from earlier to later stages and the flow of money from later to earlier stages. The number of stages is important, of course, in determining the exchange velocity of money and the number of stages; and the period of the whole process is important in determining the income velocity of money. Since expenditures on consumers' goods are equal in every diagram to the incomes of the original means of production, it is implicitly assumed that these incomes are entirely spent on consumers' goods, and also that incomes are perfectly flexible both upward and downward. In Hayek's diagrams the returns to land and labor are the only incomes:[34] interest is disregarded in the first Lecture of *Prices and Production*. With respect to this omission it is stated that "we may assume that the intermediate products remain the property of the owners of the original means of production until they have matured into consumers' goods and are sold to consumers. Interest is then received by the owners of the original means of production together with wages and rent."[35]

Hayek conceives of a "structure of production," that is, a particular relationship between the total demand for producers' goods and the total demand for consumers' goods, as being in equilibrium when the distribution of money demand is such that the structure remains stable.[36] This concept of equilibrium

that in conditions of equilibrium the value of circulating capital is equal to one-half the value of the consumers' goods produced in one period of production. However, the values that can be represented by such diagrams are incorrect in that they represent applications of original means whose values are not compounded by application of an interest rate.

34 The neglect of interest has been a source of much disagreement. Clearly it is impossible to represent the growth of value in an operating economic system without reference to the rate of interest. For this reason the simple diagrams of *Prices and Production* cannot be viewed as accurate representations of the amount of value in a system at any point in time. The point has been dealt with by Hayek, very recently, in an article that will be considered below.

35 *Prices and Production*, pp. 42-43; see also, *ibid.*, pp. 72-73.

36 A corollary of this is that equilibrium may be expressed in terms of

enables Hayek to analyze the transitional process from one position of equilibrium to another in terms of changes in the proportion of the total demand for producers' goods to the total demand for consumers' goods.

(2) *Changes in the structure of production.*

No particular "structure" is conceived of as being necessarily permanent. As Hayek has put it, there is little reason to believe that a particular structure, a particular "capital equipment of society," will continue without change in value magnitude "independently of human decisions." [37] The first step in the explanation of changes in any given structure concerns the part played by prices and considerations of profitability. There are two general propositions on this point. First, entrepreneurs will reinvest in such a fashion as to maintain a given structure if the "prices paid" for the products of the various stages and the "prices paid" for original means and intermediate products purchased from preceding stages are such as to maintain profitability unchanged.[38] Second, " . . . it depends entirely upon him [the entrepreneur] whether he re-distributes his total money receipts in the same proportions as before. . . . The main factor influencing his decisions will be the magnitude of the profits he hopes to derive from the production of his particular intermediate product." [39]

Now, aside from the fact that the principle of overhead costs suggests that an entrepreneur may continue to produce even at a loss (and that this will be completely rational action), the most important aspects of this particular question seem to concern the prices which are significant as market realities, and the nature of the factors that influence "hopes." The prob-

the proportion between the value of consumers' goods and the value of intermediate products. This proportion, however, cannot be represented by the simple diagrams of *Prices and Production.*

37 *Ibid.*, p. 48.

38 *Ibid.*, pp. 48-49.

39 *Ibid.*, p. 49.

lem of what causes changes in the structure of production is not possible of ready solution if "hopes" and expectations are the data for the decision-making process. Many business-cycle theorists have felt it necessary to discuss the factors which may operate to influence a man's *expectations* for the immediate and remote future. Such studies usually assume that disturbing factors are operating. But it is necessary to bear in mind that a large part of Hayek's argument assumes that no monetary disturbances take place. The whole problem of uncertainty and the unreliability of future judgments is therefore greatly reduced in size. A recognition of this fact alone would have made needless much of the Hayek-Hardy controversy on this very question.[40] However, from the point of view of method it is necessary to distinguish, on the one hand, between the factors which might operate to influence expectations in a system in which there were no monetary disturbances nor any expectations of monetary disturbances, and where men have learned from "experience" the effects of changes in supply or in unit costs of production on prices and profitability, and on the other, the forces affecting expectations in a society which has learned not only to expect monetary disturbances but to court them. Hardy argued on the assumption of disturbances while Hayek attempts a refutation on the grounds that "disturbing monetary influences are not operating."[41] Of course, concerning the first of these situations we can say nothing except by hypothesis; in the second, it seems reasonable to indicate that attention to the effects of misgivings concerning monetary policy (and its possible implications) must be an important element in economic analysis. Certainly the influence of uncertainty on expectations and actions is a necessary part of any realistic study of economic change.

40 See *Monetary Theory*, pp. 65-71 and C. O. Hardy, *Risk and Risk Bearing*, revised edition, Chicago, 1931, p. 94.

41 *Monetary Theory*, p. 69.

This particular question should be borne in mind, for as we develop Hayek's argument it will be advisable to return to it at several important points. We turn now to the two general cases of stimuli leading to changes in the " structure," and to a consideration of how these stimuli manifest themselves in the price system. These changes are (a) an alteration in the rate of voluntary saving and (b) an alteration in the money supply. The first is calculated to invoke a change in the capital equipment of society which is " maintainable," the second a change which is " non-maintainable."

(3) *The effect of changes in voluntary savings on the structure of production.*

An increase in " voluntary savings " causes an alteration in the structure of production that is as permanent as the new spending habits. In order to illustrate this process Hayek devises the following case presented in Figure 2 of *Prices and Production:* [42] There being no change in the quantity or quality of natural agents or in the " costs " of production, assume that savings habits are altered in such a way as to alter the proportion of demand for consumers' goods to demand for producers' goods from 1 : 2 to 1 : 3, and at such a rate that the new savings are " . . . made continuously, exactly as they can be used for building up the new process of production." [43] Furthermore, there is assumed to be full utilization of resources both before, during, and after the change in saving. Hayek then proceeds to argue that " the additional amounts of money available for the purchase of intermediate products must now be so applied that the output of consumers' goods may be sold for the reduced sum . . . now available for that purpose." [44] This can only be

42 *Prices and Production*, p. 44.

43 *Ibid.*, p. 50. This assumption disposes neatly of the very considerable problems of the transition period. Mr. G. D. H. Cole makes much of this fact in denying that the new equilibrium will be established as readily as this conceptual device implies. See chapter viii, " Dr. Hayek's Triangle," in *Studies in World Economics*, London, 1934.

44 *Prices and Production*, p. 51.

accomplished, he points out, " . . . if the average length of the round-about processes of production and, therefore, in this instance, also the number of successive stages of production, is increased in the same proportion as the demand for intermediate products has increased relatively to the demand for consumers' goods, *i. e.*, from an average of two to an average of three (or from an actual number of four to an actual number of six) stages of production." [45]

The results of this change can be summarized in terms of Figures 2 and 3 of *Prices and Production:*

(a) the process of production is lengthened both in terms of time and in number of discrete stages:

(b) expenditures on consumers' goods have been reduced from 40 to 30;

(c) total money income of the factors of production (land and labor) has decreased in proportion to the decreased expenditure on consumers' goods, *i. e.*, neglecting the increase in capital implied in this case, the prices of the original means (wages and rents) fall;

(d) prices of consumers' goods fall more than factor prices because of the force of both reduced expenditures and increased supply (the last is a result of the greater productivity of the more capitalistic methods now in force);

(e) the change in the distribution of goods and resources between the various stages is the same as the change in the distribution of money demand.

This particular case of capital expansion is taken to be maintainable in spite of the reduced money demand for consumers' goods. Hayek's defense of this proposition is as follows: the total costs of the factors of production are still, in Figure 3 as in Figure 2, equal to the total expenditures on consumers' goods. This remains true in spite of an increased flow of goods being exchanged without any change in the effective money supply. On the basis of the equality of total

45 *Ibid.*, p. 51.

final receipts and total ultimate costs, and of the expectation of no change in this equality, the new structure is said to be "maintainable."

(4) *The effect of changes in the effective money supply on the structure of production.*

We now consider the case of a transition to more roundabout methods stimulated, not by an increase in voluntary savings, but by the granting of "additional" loans to producers. This case too assumes that there is full utilization of resources when the monetary change occurs. By altering the relations of Figure 2, it is shown that this leads to the same change in the proportion between the demand for consumers' goods and the demand for producers' goods as was indicated in Figure 3. In the new structure, represented by Figure 4 of *Prices and Production,* the ratio is still 1 : 3, although producers have been granted an additional 40 units of credits for expenditure on producers' goods. The vital difference between the two cases is that in this one the expenditure of increased sums on producers' goods involves no diminution in expenditures on consumers' goods. While this would seem to be the sort of tonic destined, in the eyes of most "purchasing power" theorists, to stimulate general economic activity in an entirely correct manner, it is Hayek's purpose to show that this situation leads *inevitably* to crisis.[46] As in Figure 3, " . . . the changes in the structure of production which will be necessary in order to find employment for the additional means which have become available will exactly correspond to the changes brought about by saving";[47] there are, then, six instead of four stages, and " . . . the output of each stage of production, including the final one, measured in physical units will accordingly be exactly as great as in . . . Figure 3."[48] Money values of the goods

46 Since he assumes full utilization, no "stimulation" is needed.

47 *Prices and Production,* p. 55.

48 *Ibid.*

of each stage are, however, one third larger in this than in the case of "voluntary" saving.

In the case of voluntary savings the new equilibrium distribution of resources was held to be "permanent" because it was brought about by voluntary decisions. Hence, Hayek argued that one would be " . . . justified in assuming that the changed distribution of demand between consumers' goods and producers' goods would remain permanent. . . ." [49] A further defense was offered on the ground that after the change had been effected the individuals who had saved "would get a greater proportion of the increased total real income [and thus] they would have no reason again to increase the proportion of their money receipts spent for consumption." [50] In the case of the credit expansion, however, the new position is not stable because the "real" saving necessary to finance the diversion of original means of production into more remote uses is "forced" upon the population by virtue of the fact that they can buy less of the output of current consumers' goods which sell at higher prices while incomes remain constant. The rise in prices of final goods is traceable here to the lowered output of consumers' goods consequent on the use of more of the original means than before on the production of intermediate products. In this case the " . . . sacrifice is not voluntary, and is not made by those who will reap the benefit from the new investments." [51] Hayek concludes that it is a fair assumption to say that " . . . if their money receipts should rise again, they would immediately attempt to expand consumption to the usual proportion." [52] Should they do this the changed proportion of expenditures will require a return to the original structure and a loss of capital invested in the earlier stages which will take the form of an economic crisis.

49 *Ibid.*, pp. 55-57.

50 *Ibid.*, p. 57.

51 *Ibid.*

52 *Ibid.*

The lack of maintainability in this new structure of production is traced by Hayek to the change in the expenditures of individuals which will eventually occur. That is, if wages and rents rise the recipients of these incomes (the argument is usually restricted to wage-earners) will, as assumed, spend all on consumption, and the demand for consumers' goods will rise to the same proportion with the demand for producers' goods as existed before the credit creation artificially raised the demand for the latter without immediately affecting the demand for the former. If this action does occur, then the new distribution of demand between the two types of goods will require, by definition, a return to the original structure of production. The change in the structure of production is essentially a change in the distribution of values through the economy and means, therefore, a relative loss of values in the earlier stages of production. This loss of value in invested capital will take the form of an economic crisis.

CHAPTER IV

VARIATIONS IN PRICE MARGINS AND CHANGES IN THE STRUCTURE OF PRODUCTION

(1) *Price margins, the rate of interest, and changes in the structure of production.*

THE explanation of how variations in the structure of production are brought about requires an analysis of Hayek's theory of price margins, the rate of interest and the shift of resources between stages.

We have already shown that the structure of production is comprised of successive stages of production, arranged from the one farthest from the consumer to the one in which the "finishing touches" are put on the consumers' goods. The former are referred to as the earlier stages; the latter as the later stages. The product produced in every stage is sold to the entrepreneur of the stage next nearer to the consumer. The price at which sale is made is the price of the product of the stage in question. Hayek refers to the difference between the price of the product of any stage (say the last) and the immediately preceding stage as the "price margin." He states that, in equilibrium, the price margins all through the structure of production are entirely absorbed by interest payments. When the system is out of equilibrium differentials which exist between the price margins and the amounts paid as interest account for the shifts of resources from one stage to another. Since the margin is equal to the difference between the prices of the products of adjoining stages, anything that changes the relation of these prices will change the price margin. For example, if consumers decide to save more there will be, on the assumption that costs do not change and that there are no monetary disturbances operating, a tendency for the prices of consumers' goods to fall. This will reflect itself backward with

diminishing force through the structure of production and onto the prices of products of preceding stages. In so far as this price-lowering force does diminish as it flows back from the last to the earlier stages, price margins in the later stages will tend to decline. Parallel with this action there will be a tendency for the prices of producers' goods to rise as the savings are expended. In Hayek's theory this causes the prices of the product of the very earliest stage to rise most of all, and affects the prices of the products of the later stages in successively diminishing amounts. This action will also cause the price margins in the earlier section of the structure of production to decline. These two contrary tendencies act, therefore, to cause price margins to decline throughout the whole structure of production.[53] It should be noted that the lowered price margins constitute a lowered interest payment throughout the structure of production, and that this lower interest payment is caused by a shift in the use of money demand between the various stages of production following from an increase in voluntary saving.

Differences in price margins between stages at any one moment of time constitute differences in profitability and thus tend to cause shifts in the uses of resources. Hence, in the case of an increase in savings the tendency is for funds to shift from later to earlier stages until the forces of money demand and the operation of diminishing returns bring about an equality of return in the various stages. When these factors have established a new equilibrium (equality of price margins) the structure will be more round-about than previously. The more capitalistic methods now in force are due to the starting of new and more remote stages and/or to the use of a greater proportion of total resources in the earlier stages than before the increase in savings.

A decrease in savings will have a substantially opposite effect so far as concerns the change in price margins, the profit-

53 *Prices and Production*, pp. 75-76.

ability of the different stages, and the distribution of resources with respect to remoteness from the consumers' goods end of the structure of production.

The shift of resources may be expressed also in terms of a shift of non-specific goods to the more profitable stages and a loss of value for those specific goods which are relevant to the stages which have lost profitability relatively to other stages. Also, new specific goods may be produced to meet the requirements of the stages most favorably affected.[54]

The above discussion of price margins shows how the rate of interest is changed. Let us now turn to the effect of a changed rate of interest on the distribution of resources through time.

In the second edition of *Prices and Production* Hayek has shown how this change in the rate of interest operates through the discounting process to effect the distribution of resources—that is, the round-aboutness of the economic system. In all except the very last stage it is necessary to make allowances, in computing the value of the product of any given factor of production, for the time which elapses before that future product becomes a present good. This allowance is made by discounting the future value of the good to a present value at the current rate of interest. In all stages there is a relationship between the amount of any factor used and the marginal physical productivity of that factor. Assuming technical and other conditions unchanged, the marginal physical productivity falls as the quantity of the factor increases. This curve of productivity will have to be adjusted by the rate of interest if present values are to be placed on the product of the factor, and if a demand curve for that factor is to be drawn for each of the stages. A fall in the rate of interest will cause a rise in the demand curves for the factor in the various stages. The greatest effect is on the most remote, the earliest stage, the product of

54 See *ibid.*, pp. 69-79 for Hayek's own statement of the price margin theory.

which must be discounted for the longest period of time. The rises in the demand curves decrease until in the last stage, the product of which is not discounted and thus not affected, there is no change in the curve.[55] Now if the amount of the factor in question which is available for use is limited—and this must be true if we assume that there is a full utilization of economic resources—larger amounts will be demanded in all the stages at the same price as prevailed before the change in interest. Since the supply is the same, it is necessary that the price of the factor should rise in order to apportion the supply between the various stages. Since the rise in the demand curves has been greatest at the earliest stages of the structure of production, there is a tendency for the factor to flow to those uses and to be attracted away from the stages near the consumer end, where there has been very little change in factor price. Thus the change in the rate of interest, by affecting the prices offered for factors in the various stages, will tend to bring about a more round-about structure of production.[56]

(2) *Changes in price margins and in the use of resources caused by the creation of additional money.*

The immediately preceding discussion of the operation of the pricing process has been based on the assumption of an increased demand for producers' goods growing out of a change in voluntary saving. The theory which applies to the case of credit expansion is essentially similar. In this case the new funds are disposed of to borrowers by keeping the interest rate below that point which would equilibrate the demand for capital and the supply of voluntary savings. In Hayek's terminology this means keeping the market rate of interest below the equilibrium rate. The borrowers use the funds to outbid other entrepreneurs for the use of producers' goods (assuming

55 The shape as well as the position of the curves will change as a result of the changed discount. See *ibid.*, pp. 79-83 and Fig. 7, p. 80.

56 See *ibid.*, pp. 79-83.

no unused resources). As indicated above, the decline in the rate of interest will tend to raise the demand curves for factors in the earlier stages. This means that there is a relative advantage for those firms which use relatively more capital than other firms.[57] Old concerns, argues Hayek, are now encouraged " . . . to spend a part of what they previously spent on original means of production on intermediate products. . . . In this way they will release some of the original means of production . . .," [58] that is, " . . . those original means of production and non-specific producers' goods which are required in the new stages of production are set free by the transition of the old concerns to more capitalistic methods which is caused by the increase in the price of these goods." [59]

The lengthening of the productive structure by artificial stimulation of the demand for producers' goods carries very different implications, however, from those of the lengthening which can be brought about by a change in voluntary saving. Other things remaining the same, the transition to more capitalistic methods always involves some form of either voluntary or forced " going without " of consumers' goods. In the case outlined above it is shown that, because of the changed distribution of resources, consumers will for a time get less for what they spend than they could get before the transition started. (This entails the assumption that they do not change their spending habits.) The resulting lower consumption follows from a diminished flow of consumers' goods meeting an undiminished flow of money demand. The lessened output and higher prices of consumers' goods are traceable to the shift

57 Much of Hayek's argument at this point runs in terms of " old " and " new " firms. There seem to be insufficient grounds for relying on such a terminology; the increasing size of firms is rendering more and more hazardous any argument of this character.

58 *Ibid.*, p. 86.

59 *Ibid.*, p. 87. A changed distribution of original means must be explained by some means being " set free," because Hayek assumes full employment.

of some resources to the production of producers' goods. The flow of consumers' goods tends later to be augmented as the results of the longer processes appear on the market as consumers' goods.

(3) *Changes in the relative demand for consumers' and producers' goods and the consumption of capital.*

The change to more capitalistic methods which is brought about by the creation of an addition to the money supply differs from the change brought about by a change in voluntary saving in that the former is not maintainable, whereas the latter is permanent. In other words, in the first case the relative prices of goods in the various stages of production will not remain at the new levels established by the impact of the new money demand. This means, in effect, that the values created as a result of the credit creation will eventually be lost. The change in values is the chief element in the economic crisis which, according to Hayek, must follow from a policy of loan expansion of the sort discussed. We must now follow through Hayek's explanation of why the change in values does occur.

This question is discussed in *Prices and Production,* but a more complete treatment is found in Hayek's reply to the adverse criticisms of Mr. Piero Sraffa.[60] The debate centered around the idea of "capital consumption" or "capital destruction," which is expressed in Hayek's statement that there is a "tendency for capital accumulated by 'forced savings' to be, at least partly, dissipated as soon as the cause of the forced savings disappears."[61] Mr. Sraffa agreed to the corollary that accumulation through voluntary saving would be permanent and that ". . . the position will be one of equilibrium (under Dr. Hayek's tacit assumption that the fall in the rate of interest

60 P. Sraffa, "Dr. Hayek on Money," *Economic Journal,* vol. xlii, 1932, pp. 42-54; Hayek, "Money and Capital: A Reply," *ibid.,* pp. 237-249; Sraffa, "A Rejoinder," *ibid.,* pp. 249-251. *See also, Prices and Production,* pp. 87-91.

61 *Economic Journal,* vol. xlii, 1932, p. 239.

is irrelevant to the equilibrium) . . ." but he went on to argue that in the case of accumulation by forced savings an "equally stable" position would be established.[62] Since these are diametrically opposed views and since Hayek has stated that " . . . it is upon the truth of this point that my theory stands or falls," [63] it is necessary to follow the matter in some detail.

The case from which Hayek argues in his own defense is one in which no new savings are being made but where " . . . persons who possess capital must consume only their net income from that capital and reinvest such parts of their gross receipts as are necessary to keep the capital intact." [64] Additional credits are then granted to producers and this alters the proportion between the demand for producers' goods and the demand for consumers' goods in favor of the former. As a result, the " . . . prices of producers' goods will rise and their production will increase relatively to that of consumers' goods." [65] Hayek states that an entrepreneur can increase his real capital[66] " . . . only by spending more on capital goods

62 Sraffa wrote: "One class has, for the time, robbed another class of a part of their incomes; and has saved the plunder. When the robbery comes to an end, it is clear that the victims cannot possibly consume the capital which is now well out of their reach. If they are wage earners, who have all the time consumed every penny of their income, they have no wherewithal to expand consumption. And if they are capitalists, who have not shared in the plunder, they may indeed be induced to consume now a part of their capital by the fall in the rate of interest; but not more so than if the rate had been lowered by the 'voluntary saving' of other people." *Ibid.*, p. 48.

63 *Ibid.*, p. 239.

64 *Ibid.*, pp. 241-242.

65 *Ibid.*, p. 242.

66 Real capital was defined in *Prices and Production* (first edition) as "the only short but probably misleading expression . . . for that part of the total money stream which is available for the purchase of producers' goods, and which is composed of the regular receipts of the turnover of the existing producers' goods (i.e. in the case of durable goods the reserves accumulated to make up for depreciation) plus new savings." (*Prices and Production*, first edition, p. 108 n.) Sraffa objected to this definition on the grounds that, contrary to general usage, Hayek was using money capital and

and less on labor used in current production (or, what amounts to the same thing, more on labor which is invested for a relatively long period) . . ." and that he can do this " . . . only so long as wages have not risen in proportion to the additional money which has become available for investment." [67] This additional demand for capital goods must, however, finally come to an end because " when all the new money has passed backwards through the successive stages of production until it is finally paid out to the factors," [68] incomes, i. e. " wages," will rise in proportion to the increase in the money available for investment. The increase in real capital can go on just so long as there is any lag between the upward movement of incomes and the increase in the money demand for producers' goods. This means, then, that as long as the money expansion

real capital as synonymous term. Hayek denied this (*Economic Journal*, vol. xlii, 1932, p. 248) and insisted that the clause showing what real capital is " made up of " should have indicated that this particular part of the money stream has a " special economic significance." But surely this does not justify attaching the word " real " to an essentially monetary concept; it does not seem to me that Sraffa was trying to demonstrate anyhing more than this. This particular footnote defining real capital is left out of the 2nd Edition of *Prices and Production* and in the text of that volume Hayek refers to " real supply capital " rather than " real capital." He does not define that term at all, to my knowledge. (See *Prices and Production*, second edition, p. 125).

There are other terminological difficulties in this debate. The term " capital goods " is introduced into the argument and is distinguished from the original means of production; capital goods must, therefore, be the same as the " intermediate products " of *Prices and Production*.

The term wages, as it is used here, means " the remuneration of *all* the original factors of production used." (*Economic Journal*, vol. xlii, 1932, p. 242 n. My italics.) I presume Hayek means the original means of production, which are land and labor in *Prices and Production*, and that " labor " here applies to the services of both the factors. There seems to be very little to be gained, however, by combining the returns to both land and labor under the general heading of wages. It might serve to blind one to the movements of relative changes in the incomes from these factors (and their many sub-divisions) just as efficiently as the concept of the general price level, which Hayek has criticised, can veil important relative price movements.

67 *Economic Journal*, vol. xlii, 1932, p. 242.

68 *Ibid.*

continues, and " for some time afterward because of this lag," the tendency for entrepreneurs to spend relatively more on producers' goods will persist. When the money expansion ceases, however, " a point must come when the proportion of his money receipts which is left to every individual entrepreneur to spend on capital goods is no greater than before " and he is forced, because of the higher incomes to be paid to the original factors of production, to alter the distribution of his money demand as between capital goods and labor. This involves a reverse movement, to less capitalistic methods of production. " . . . The proportion which they are able to spend on capital goods must fall. This means . . . not only that they must stop adding to the existing capital, but also that they will be unable to maintain and replace all the capital which is the product of the forced saving." Thus, if producers in some of the stages have made transitions to more capitalistic methods and find that when the expansion ceases they are unable to replace their machines—that is, are unable to continue to expend more on capital goods than on wages—the producers of these machines will find that their capital has been reduced in value. The shift to less capitalistic methods " . . . will cause the capital instruments which are devoted to the production of these machines to lose their value." No immediate movement to a less capitalistic structure in the sense of an alteration of physical quantities is called for; all that is required is a change in values.[69]

Sraffa's reply to Hayek's position is, in one respect, singularly unconvincing. He argues that " . . . the quantity of payments to be made increases in proportion to the quantity of money, and the whole of the additional money is absorbed in

69 This statement is taken from *Economic Journal*, vol. xlii, 1932, p. 243. Hayek continues, " That the physical quantity of these capital goods will, for some time, continue to exist unchanged does not mean that their owners have not lost the greater part, or all, of their capital.... Whether he likes it or not the actions of other people have *destroyed* his capital." (*Ibid.*, my italics.)

cash holdings for performing such payments." Therefore, " . . . incomes cannot rise at all, and there will be no occasion for any dissipation of capital." [70] But there is no real reason for believing that any additional balances which might have to be held would reach such proportions.[71] If Sraffa were right in this argument, then the change to more round-about methods would be impossible from the outset because it is only by bidding wages higher that the new distribution of resources can be accomplished.

The second aspect of Sraffa's reply brings us to an extremely interesting question. In closing his article,[72] Hayek attempted to impute to Sraffa agreement to a principle which I think it is reasonably clear the latter never endorsed. The principle in question is that if producers' and consumers' credits are increased in such a way that there is no change in the proportion of the demand for producers' goods to the demand for consumers' goods, there is no reason for expecting a change in the structure of production. Sraffa had merely said that the proposition seemed to be correct on the basis of Hayek's assumptions; but he differed violently with Hayek's assumptions. Sraffa merely used this principle to show that " what has happened is simply that, since money has been thoroughly 'neutralized' from the start, whether its quantity rises, falls, or is kept steady, makes not the slightest difference; at the same time an extraneous element, in the shape of the supposed power of the banks to settle the way in which money is spent, has crept into the argument and has done all the work." [73] This is,

70 *Ibid.*, p. 250.

71 It seems possible that three factors may operate to require greater balances. They are: (a) an increase in the number of stages, (b) an increased turnover of goods, and (c) higher individual incomes. But (a) may not be important because there need not be an increase in the number of stages (See *Prices and Production*, p. 77 n.); Sraffa could not depend on (c) because he argues that incomes do not change; (b) therefore is the only ground for expansion of balances.

72 *Ibid.*, pp. 244-245.

73 *Ibid.*, pp. 48-49.

according to Sraffa, the " irrelevant non-monetary consideration, which produces the difference, attributed to the properties of the system itself." [74]

Hayek deals with this question by holding that certain " other effects " of a progressive depreciation of the value of money would finally stop the upward movement. But it is necessary to show what the other effects are and how they operate. Hayek has not been very clear on this point. He wrote concerning the possibility of increasing the demand for both producers' and consumers' goods proportionately that " only if administered with extraordinary caution and superhuman ability could it, perhaps, be made to prevent crisis: if the artificial increase in the demand for consumption goods brought about by those credits were made exactly to cancel the increase in the demand for means of production brought about by the investment of the current flow of savings, thus preserving constant the proportion between the two, this might happen. *But such a policy would effectively prevent any increase in capital equipment and completely frustrate any saving whatever.*" [75]

This particular point was discussed again by Hayek in his answer to the criticisms of Hansen and Tout.[76] He wrote that in order to maintain the already existing capital it would be necessary for the credit creation to proceed at a constantly increasing rate in order to keep ahead of the increasing demand for consumers' goods. Without reference to the limitations that might be placed upon such a continuous expansion of credit by traditional banking policies and necessities, he argues " . . . such a policy would, sooner, or later, inevitably lead to a rapid and progressive rise in prices which, in addition to its other

74 *Ibid.*, p. 45.

75 *Economica*, vol. xi, 1931, pp. 167-168. His italics. See also, *Prices and Production*, p. 90.

76 Hayek, " Capital and Industrial Fluctuations," *Econometrica*, vol. ii, no. ii, April, 1934; A. Hansen and H. Tout, "Annual Survey of Business Cycle Theory: Investment and Saving in Business Cycle Theory," *ibid.*, vol. i, no. ii, April, 1933.

undesirable effects, would set up movements which would soon counteract, and finally more than offset, the ' forced saving '." [77] After a series of *assertions* that capital cannot be maintained under these conditions Hayek attempts to *demonstrate* the proposition by the argument that even if the entrepreneur, in the face of constantly increasing prices, acts to increase his paper profits, after a time the progressive rate of depreciation will render this action ineffective.[78] But this does not, it seems to me, prove that the rise in receipts will fail to counteract the rise in costs. As long as this does not happen there seems to be reason for believing that the process could be continued. We will comment further on this point in a later chapter.

(4) *Changes in the structure of production and unemployment of resources.*

The tendency of the structure of production to shorten if the demand for consumers' goods rises relatively to the demand for producers' goods differs, according to Hayek, from the case of a lengthening of the structure of production in that the former involves a crisis and unemployment of resources while the latter does not necessarily lead to that condition.[79] The unemployment appears in the first case for the following reason. When the demand for consumers' goods rises relatively to the demand for producers' goods there is a tendency for price margins in the later stages of the structure of production to widen and for non-specific goods to be shifted from the earlier to the later stages. According to Hayek the relative decline in the demand for the products of the earlier stages will cause an immediate stoppage of activity in the still more remote stages. But " . . . the shorter processes will have to be started at the very beginning and will only *gradually* absorb all the available producers' goods as the product passes towards consumption and as the necessary intermediate products come

77 *Prices and Production*, p. 150.

78 *Ibid.*, p. 152.

forward." [80] This lag in the development of activity in the new and shorter processes is the factor which accounts, in Hayek's theory, for the failure for all resources to be utilized.[81]

(5) *Comments.*

The theory of price margins, the rate of interest and changes in the structure of production which has been summarized above suggests the following general comments.

(a) We have noted that Hayek's theory assumes that changes in voluntary saving or in the creation of credit take place in an economy where resources are completely utilized. Apparently this assumption is made because Hayek believes that a community undisturbed by monetary factors would achieve full utilization of resources and that the economic processes are fully explained by the theory of equilibrium. But when the community is subject to monetary disturbances the adjustments towards an equilibrium do not take place. Hence it is necessary, according to Hayek, to utilize a monetary theory to show why the unemployment of resources occurs.[82]

Before considering some of the implications of the use of this assumption, let us examine the meaning of the concept of "complete utilization of resources."

For the most part Hayek treats changes to more roundabout methods of production as requiring a shifting of original means of production from one use to another. In discussing the case of an increase in voluntary saving, however, he writes that " . . . the additional stages of production which have been started as a consequence of this transition to more capitalistic methods of production will probably require new goods of a specific character. Some of these will be new products, some natural resources which *formerly it was not profitable to use*." [83] Presumably, in this case the transition was started from

80 *Ibid.*, p. 93. His italics.

81 See *ibid.*, pp. 91-99.

82 *Monetary Theory and the Trade Cycle*, pp. 95-98.

83 *Prices and Production*, p. 78. My italics.

an equilibrium position, but if the concept of an equilibrium situation is consistent with the existence of natural resources which it is "not profitable to use," then how can one deny that any possible degree of utilization of natural resources is other than an equilibrium situation? In a profit system it would appear that, at all times, all resources that seem to hold out prospects of profitable use will be used,[84] and thus resources are always completely utilized if complete utilization means the use of all seemingly profitable resources. This question is of very considerable importance in business cycle analysis because it seems quite reasonable to expect that the effect of a loan expansion on the structure of prices and profits will differ considerably, depending on whether that expansion is made in a partially employed or a fully employed productive system.

There is another real difficulty in trying to define complete utilization. The "supply of labor," for example, may be said to be the product of the working population, the hours of labor and the intensity of effort. Thus, what is complete utilization of the labor supply in one situation may become incomplete utilization in the face of changed views of the relative attractions of labor as against leisure.

There are other questions suggested by Hayek's assumption of complete utilization of resources. The only place in *Prices and Production* where the assumption is altered to one of partial utilization is in a short section towards the end of the study.[85] This is the section in which Hayek attempts to show that depression levels of activity cannot be raised by monetary expansion. The discussion of the effects of monetary changes, both when resources are completely utilized and when resources are partially utilized, requires that one consider the responses which would occur in the particular situation. Because of differences in the elasticity of supply in the two conditions, the

84 And also some resources which are not profitable. The concept of overhead costs suggests that resources may be used to minimize losses.

85 *Ibid.*, pp. 97-99.

price and output responses which will likely follow from changes in demand will differ. Thus Hayek's discussion of monetary stimulation, because it does not deal sufficiently with the special supply conditions when resources are only partially utilized, does not really dispose of the reflationist argument. The changes in costs which occur when firms having heavy overhead charges vary the degree to which they utilize their existing facilities are too important to disregard. Some consideration of cost changes of this sort is essential to a discussion of the responses of partly utilized plants to changes in demand conditions.

On these various grounds, Hayek's discussion of the utilization of resources and his assumptions under this head hence seem distinctly inadequate.

(b) Attention has already been called to Hayek's definition of specific and non-specific goods. Although any change in the structure of production which may occur is essentially a change in values, another significant feature is a changed distribution, through the various stages, of non-specific goods. According to his view, if there are changes in the relative attractiveness of the different stages of production there will be a tendency for those producers' goods which are non-specific in nature to shift to the stages where their prices are highest, until the relative attractions are equalized by the operation of the principle of diminishing returns.[86]

86 *Ibid.*, p. 72. That is, "temporary differences between the prices offered in the different stages of production" (*ibid.*, p. 72) act to stimulate the redistribution of intermediate goods. While some concession is made here to the notion of relative immobility in economic adjustments, further light might be thrown on this particular matter by a consideration of the proportion of goods which are really specific in nature, and of the extent of the price differential which would be required to cause a shift of this sort. I think it is reasonably clear that Hayek's argument must apply for the most part to the use of new supplies of non-specific goods. Certainly considerations of the importance of overhead costs indicate that non-specific goods in use would move, for the most part, only as a result of the reorganization of a given plant.

Durbin has introduced the concept of Factor Mobility in order to deal with

Hayek points out that the immediate cause of the alteration in the returns obtainable in the various stages must be a change in the price of the product of the stage of production in question.[87] There are two special points suggested by this statement. First, it may seem improbable, as Hayek recognizes, that there could be relative fluctuations in the prices relevant to various stages when all prices throughout the different stages are dependent upon the prices of the relevant final products.[88] If one takes the point of view that the value of the final product reflects itself backward onto the intermediate goods and factors of production, then one finds considerable difficulty in reconciling falling prices of consumers' goods with rising prices of producers' goods. But such a situation is, as we have seen, an important element in Hayek's theory.[89]

Keynes has raised an objection to this aspect of the theory. He points out that it is only by identifying the price margins (which have been lowered by the new saving which caused the falling prices of consumers' goods) with the rate of interest and the marginal efficiency of capital that Hayek could reach his conclusions. If the new saving activity lowers the schedule of the marginal efficiency of capital, then the total capital resources available may not be absorbed by industry. From Keynes's point of view, Hayek's assumption that the money saved is spent on producers' goods seems to be a begging of

this problem. Of course, the same objections can be urged against the notion of an "average period of factor mobility" as can be urged against an "average period of money turnover" and other like concepts. Despite this general fault, Durbin's concept seems to be an essential one in dealing with the dynamics of such situations. See his *Problem of Credit Policy*, chapter ii, *passim*.

87 *Prices and Production*, pp. 72-3.

88 *Ibid.*, p. 73.

89 I think it can be shown that the difficulties on this point root back to the adoption of different assumptions as to the cause of the falling prices of consumers' goods.

the really important question—the effect of the saving activity on the marginal efficiency of capital.[90]

Furthermore, it is probably more nearly correct to say that under actual market conditions current prices serve merely as a guide to the entrepreneur, and that he does in fact have to deal with a very large measure of uncertainty not only as regards revenues but as regards costs as well. That is, it is *expectation* of changes in returns in the various stages that influence the distribution of non-specific goods through the structure of production. But one has to recognize that Hayek's hypothetical state is not an actual market condition and that the disturbances which most writers indicate as acting to upset expectations are assumed inoperative. There are no monetary disturbances operating in the case of "voluntary" saving, nor is there any expectation of such. In this case it is perhaps permissible to say that there would be a minimum of uncertainty; it is certainly permissible to say that there would be less than in actual markets.[91] In this section of the argument Hayek explicitly states that he will not consider the influence of changes in technical knowledge in causing shifts of non-specific goods. It is interesting to note that the factor which Robertson has made one of the most important "real" causes leading to credit expansion is thus assumed out of the argument. Hayek has found it possible to conceive of a business system which would not necessarily respond to technical changes with a credit expansion. Robertson, on the other hand, was attempting to generalize concerning the operation of the existing system of business responses. The same can be said of J. M.

90 See Keynes's *General Theory of Employment, Interest and Money*, pp. 141-144.

91 To minimize uncertainty so drastically is to take a highly abstract view of the essentially irregular character of much of what the entrepreneur must deal with, even when we minimize the importance of monetary disturbances. See, e. g., J. M. Clark, *Strategic Factors in Business Cycles*, pp. 184-187. But Hayek's procedure can be defended on methodological grounds. The theory does not, however, become complete until the non-monetary as well as the monetary sources of uncertainty are taken into account.

Clark, whose misgivings on the possibilities of stability in the face of existing systems of business responses have been stated in his *Strategic Factors in Business Cycles.*

Finally, on this general point, it is interesting to note that the condition under which any additional savings find their way through the financial institutions and into the hands of those who expect (or "hope") to obtain the highest profit and are just limited to the extensions for which the funds will be sufficient, is that the entrepreneurs "entertain correct views" [92] as to the ultimate status of price relationships. It is by no means clear to me that even a voluntarily expanded demand for producers' goods will follow this fortunate course. The fact that the funds are taken to be definitely limited in quantity requires that a limit to their use be found somewhere. But are there any grounds for holding that entrepreneurs will entertain correct views as to the future of price relationships? In a competitive loan market the funds will go to the borrower who hopes to get the largest return (and can convince the banker that his hopes are well-founded), but if one takes a realistic view of the difficulty of framing correct views it seems reasonable to question the proposition that funds will flow into precisely the proper stages and that there will be a precisely appropriate distribution as between the many alternative uses in any given stage. It may be that the realized results of the immediate past will count very heavily in determining this distribution of savings. And in the case of corporate savings, the fact that there is apt to be a bias in favor of the corporation's own uses may not lead to the sort of distribution which Hayek assumes will result. Thus, under certain conditions extensions may be permitted that will lead neither to individual profit nor to social benefit. Of the last, of course, there can be no question even when entrepreneurs entertain "correct" views.

Furthermore, in an economy undisturbed by monetary

92 *Prices and Production*, p. 84.

changes some uncertainty would also rise out of changes in real costs. Hayek simplifies the whole situation and avoids the problem, by assuming a society in which real cost changes do not occur.

(c) We have seen that in Hayek's theory a great deal depends on the concept of the price margin. Under heading (1) of this chapter we attempted to present this idea as developed by Hayek. There is, however, one very important point which must be made at this place. Hayek states that, in equilibrium, the whole price margin is absorbed by interest. If this were true, then interest would be the only payment and the only income paid in any stage of production. But if there is any production to be done in any particular stage, then the difference between the price of the product of that stage and the price of the product of the preceding stage must cover wage and rent as well as interest costs. It is only on the condition that the price difference is due to time discount alone that interest could absorb the *entire* difference.[93] This does not mean, of course, that wage changes, if the same throughout the system, could alter the relative prices of commodities. The effect that this would have would depend on the ultimate effect of the wage change on interest and of the latter on the relative values of commodities of varying degrees of durability.[94]

(d) While Hayek has indicated his disapproval of the concept of the general level of prices, in the argument of *Prices and Production,* he does use the concept of a general level of consumers' goods prices. But there is no ground for believing that an increase of voluntary savings will affect all consumers' goods equally. In fact, there may be considerable value in indicating, in general, the type of goods most likely to be affected. Suppose that an increase in saving affects purchases of durable consumers' goods. Is it not possible that, on the basis of the

93 This point has also been recognized by Hawtrey (*Capital and Employment,* pp. 235-237).

94 Compare Ricardo, *Principles of Political Economy and Taxation,* ch. i, sec. v.

argument that is advanced by J. M. Clark, the effect of this change on the profitability of the relevant producers' goods will differ from changes that might be stimulated by a decreased consumption of, let us say, cigarettes? [95] This would involve a particularization in price analysis which is not sufficiently attended to by Hayek.

Furthermore, there is the question of the sensitivity of the price system to changes in money demand. Perhaps the first reaction will be, as Hawtrey argues, not a fall of prices but a slowing down of sales at old prices.[96] If no adjustment of costs takes place, this situation necessarily involves rising unit cots which, on the assumption of no technical change, leads to a reduction of profits. If the theory were stated in terms of costs and receipts (average and marginal) this kind of problem would be handled much more adequately. The later argument is entirely relevant to any stage. The prevalence of retail price-maintenance in the lower stages and of price stabilization efforts in the higher stages, both making for rigidity in prices, indicates that this may be a more fruitful direction for analysis to take. If the prices of consumers' goods are relatively rigid, and if consumers' goods prices are expected to play the rôle Hayek assigns to them in affecting price margins and thus determining the course of the shift in resources, the conclusions must be restated to make not prices but profits the category upon which attention must be centered, and around which the theory must

95 Clark's argument on the tendency to intensified fluctuations in derived demand for durable goods can also, it seems, be applied to show that the falling prices of specific goods in lower stages, following an increase in voluntary saving, will work to counteract the rising prices in higher stages. This general point is also noted by Hawtrey (*Capital and Employment*, pp. 237-238).

96 Hawtrey says that if unemployment exists the immediate response to additional borrowings is a change in output, and only later in prices. Because investment financed by the new loans would be largely in working capital, he states that no lengthening of the structure of production would be involved. But this is not strictly correct. Whether the structure changes depends on the stage in which the working capital is invested. See his review of Hayek's *Prices and Production* (*Economica*, vol. xii, 1932, pp. 119-125).

be developed. Surely it is in connection with just such questions that statistical investigations of price movements under varying conditions, and institutional studies of price-setting practices, can best provide us both with the material to test theoretical propositions and with clues to different approaches.

(e) The explanation of the reverse movement to shorter processes which follows, in Hayek's theory, from the forced expansion to longer processes requires some comment. The theory is that as wages are bid up the wage-earners will resist the reduction of their consumption by increased expenditures of money. One reservation that can legitimately be urged against this proposition is that the whole process of inflation, and the extension of the process of production, can go on much further if there is a lag in the adjustment of wage payments. This is very likely to be the case if resources are only partially utilized when the credit expansion begins. It is at this point that studies of the character of the labor market seem most needed. Two conditions in particular are important: the strength of trade unions and the extent to which there has been a departure from a system of many small employers to one of a few large employers. Hayek's assumption of a relatively rapid adjustment of wages seems correct enough for a highly competitive labor market, but the chances of slow adjustment may be greatly increased if a considerable degree of integration characterizes the industrial structure. The lag of wages during a recovery is a now well-known characteristic of our economic processes.[97] It is impossible to attempt any rigid formulation of the probable relationship between credit expansion and wage payments. All that one can do is to indicate that if wage costs lag, the profits of industry can be maintained over a longer period and at higher levels than they can if wages are rapidly adjusted. This allows periods of activity to attain greater heights than would otherwise be the case.

97 See J. M. Clark, *Strategic Factors in Business Cycles*, pp. 50-53.

Furthermore, one might assume that some part of the increased incomes which accrue to the factors of production as a result of the extension of producers' credits will be saved. Hayek has assumed, on the contrary, that all the increase is spent on consumption. If there is additional saving as a result of the process, and this seems likely if wage costs lag, then the expansion can proceed to greater lengths than would otherwise be the case.

(f) Finally, the effects of a change in the monetary supply on prices, output and profits during the transitional period should be discussed in greater detail than the necessarily brief lectures of *Prices and Production* allow. Several factors seem to be of special importance. They are: (a) the point at which the monetary injection is made; (b) the proportion of this injection which is passed backwards, with price-raising effects on previous stages, and the proportion which finds its way immediately into the income stream; (c) the distribution of unused capacity and of stocks of goods through the productive structure at the time of loan expansion; (d) possible changes in the income and transactional velocities of money, as a result of the expansion; (e) the speed with which the " real " productive structure adapts itself to a changed situation of prices and profits; and (f) the effect of monetary changes on the expectations of capital productivity as well as upon currently realized capital returns.

CHAPTER V

THE PERIOD OF PRODUCTION CONSIDERED AS AN INVESTMENT PERIOD: CRITICISMS BY PROFESSOR F. H. KNIGHT

SINCE the publication of Prices and Production a controversy has developed concerning some fundamental concepts of capital theory, and out of this have come a number of very significant criticisms of the theory of the "Austrian School." It is clearly unnecessary to follow this debate in detail, but it is equally clear that the issues must be stated as they are seen by both parties. I think it also possible to indicate, in general, some of the reasons why there has not been, to date, any appreciable meeting of minds.

Because the form of *Prices and Production* did not allow for a very adequate exposition of Hayek's views, and because the Austrian School has shifted its emphasis in many important respects, we must also consider the positive contributions to theory that have been initiated in this running debate.

(1) *The "Investment Period."*

The most significant work is Professor Hayek's article "On the Relationship between Investment and Output."[98] This is a further analysis of the time structure of production from the point of view of the "construction" and "utilization" periods. The first aspect concerns the period over which original factors are being applied to the production of capital goods; the latter, the period over which a durable good yields services. Again, the former concentrates attention on what is termed the "investment function" and the latter on the "output function." The task is to show the relationship between these functions,

98 *Economic Journal*, vol. xliv, June, 1934, pp. 207-231.

the rate of interest, the value of capital goods, the volume of free saving and the distribution of productive services through time.

In illustrating the meaning and significance of the investment function, Hayek discusses a hypothetical case in which a period of production or investment is assumed to begin without the use of any durable goods; the process is a " . . . series of activities which results in a product which is finished and consumed at one moment of time." [99] A curvilinear triangle is constructed which represents the " . . . distribution in time of the total quantity of labour that contributes to the output at a moment of time," and which, when turned around, shows " . . . the different periods for which, at any one moment, the different units of the total 'labor' supply . . . are invested. . . ." [100] Either figure, we learn, represents the " investment function " which is the only " adequate representation " of the period of production or investment. In order to represent the quantity of intermediate products in terms of value rather than in terms of amounts of applied labor, it is necessary to introduce another dimension. The simpler diagram shows how long one has to wait for the product of applied labor, but not " how long we have to wait for the different units of consumers' goods." [101] because labor invested at different points in the period of investment grows (accumulates) into different *outputs* as determined by the given rate of interest. Thus the diagram is an " investment " but not an " output " function.

The three-dimensional figure is constructed to take account of this complexity.[102] Assuming a rate of interest at which the accumulation is to take place (and assuming the quantity of free capital) Hayek derives an output function from the investment function. The output function " describes the rate of

99 *Ibid.*, p. 209. Both of these assumptions are implicit in the argument of *Prices and Production.*

100 *Ibid.*, p. 210; Figures 1a and 1b.

101 *Ibid.*, p. 212.

102 *Ibid.*, pp. 214-5, Figures 2 and 3.

flow of the output stream at any moment" [103] during the production period,[104] and the volume of the figure represents the value of the intermediate products at any point in time. The latter volume is derived from the investment function and the assumed rate of interest. This is obviously a more realistic procedure than the simpler formulation of *Prices and Production,* which indicated only the value of the intermediate products in terms of applied original means.

In the case of durable goods yielding services over a given period of time, the investment function describing the time over which investment is made in the good is derived from a given output function and the rate of interest. It is shown that the investment function corresponding to a given output function becomes " more convex as the rate of interest rises and vice versa." In any case, either the investment or the output function is taken as given and the other is derived from it on the basis of an assumed rate of interest. The derived function is in each case the dependent variable, the shape of which is determined by the rate of interest.

The purpose of these concepts is to use them to analyze the behavior of an entrepreneur in arriving at decisions concerning the distribution of factors through time. Hayek shows at some length that the accuracy with which such decisions can be made depends on whether it is possible to " . . . isolate the physical marginal product of every unit of factors or whether we can only speak of a marginal product in terms of value. This depends . . . upon whether the proportions in which the different factors can be used *in any single line of production* are variable, or whether only the quantities produced in the *different industries,* where different but fixed proportions prevail, can be changed." [105]

103 *Ibid.*, pp. 216-217.

104 It is defined mathematically as "... the first derivative of the investment function with respect to time, multiplied by the corresponding value of the interest function...." *Ibid.*, p. 216.

105 *Ibid.*, p. 222. My italics.

In the event that factors invested in different parts of a given line of production can be varied, that is, shifted from one stage to another, it is possible to express theoretically the marginal product of "labor" invested in different stages of production. In equilibrium the distribution is such, "not that the 'marginal product' will be the same for all the units of 'labor' employed in different stages, but that its value, discounted over the period for which the respective units of 'labor' are invested, will be the same." [106] If this can be done, then there will be a tendency for a fall (rise) in the rate of interest to cause more "labor" to be applied in the earlier (later) stages.[107]

Such a variation may, however, be impossible (for technical reasons); the case at the other extreme is that in which the choice open is not to alter the time distribution of labor in a single line of production (this can be done only by "altering the investment period for almost every single unit of 'labour'"),[108] but to alter the distribution of labor as between different industries or "lines" of production. In this case a fall (rise) in the interest rate will tend to increase production in the more (less) round-about industries as against the less (more) round-about.[109] In this manner there is accomplished a change in "the investment function for *industry in general* without changing it for any one industry." [110] Thus the importance of the investment function as a concept is that it allows one to describe that particular time distribution of "labor" which is consistent with a given rate of interest in the equilibrium position.[111] With the use of these concepts Hayek

106 *Ibid.*, p. 222.

107 *Ibid.*, p. 222. Compare *Prices and Production*, pp. 79-83.

108 *Economic Journal*, vol. xliv, June, 1934, p. 223.

109 This involves the usual assumption of full employment of factors.

110 *Ibid.*, p. 224. See *Prices and Production*, p. 77 n., where the same point is made. The first edition of *Prices and Production* did not suggest this possibility of changing the time structure of production.

111 *Economic Journal*, vol. xliv, June, 1934, p. 225. This theory illustrates

duplicates the argument of *Prices and Production,* to show that a change in the investment function which flows from a voluntarily expanded fund of free capital (and a consequent fall in interest rate) is permanent, while a change initiated by forcing the interest rate out of the equilibrium position will eventually be aborted by the voluntarily determined relationship between the demand for consumers' goods and the demand for producers' goods.[112]

In a concluding section Hayek discusses very briefly the effects of changes in the value of existing capital goods. He shows that changes in the relative value of capital goods invested in different stages of the productive process will act to "cause . . . changes in the direction of current investment. A rise of the value of those parts which will give their returns in the more distant future will lead to the investment of a greater part of the current labor for longer periods and vice versa. It is the emphasis that the period of production (investment function) places on the time structure of the stock of real capital . . . that constitutes its true usefulness." [113]

Clearly this shifts the whole emphasis of changes in the structure of production from the hypothetical "stages" of *Prices and Production* to investment periods. It is now clear that criticisms which have been urged against the "stage" concept as such as rendered irrelevant. There is no denying, however, that the exposition given in *Prices and Production,* even in the second edition, encourages such interpretations.

(2) *Knight's criticism of Hayek's capital theory.*

From the methodological point of view the most important criticisms of the Austrian theory have been those urged by Professor Knight, of the University of Chicago, against its

rather well the rôle which Hayek ascribes to the interest rate in his cycle theory. Also see Machlup, "Interest as Cost and Capitalization Factor," *American Economic Review,* vol. xxv, September, 1935, pp. 459-465.

112 *Economic Journal,* vol. xliv, June, 1934, pp. 225-226.

113 *Ibid.,* p. 231.

concept of capital. Knight writes that the " . . . basic issue is the old and familiar one of choice between two conceptions of capital. In one view, it consists of 'things' of limited life . . . in the other, it is a 'fund' which is maintained intact tho the things in which it is invested may come and go to any extent. In the second view . . . the one advocated here, [by Knight] the capital 'fund' may be thought of as either a value or a 'capacity' to produce a perpetual flow of value." [114] Professor Knight's views, elaborating this general proposition, have been expressed in a series of articles on the basic propositions of the Austrian theory of capital. While there are obvious difficulties involved in an attempt to summarize his argument, one can list a number of important points.

(a) The most fundamental issue raised by Knight is his insistence on the essential "planned-perpetuity" of the capital fund.[115] He argues that the "primary reality is income . . . and in a society which is not planning for the end of all things, all property income is perpetual." [116] In a stationary or progressive society—that is, one in which the fund of capital is at the least being maintained—capital is "inherently perpetual" even though any given individual may liquidate through sale or may consume the replacement fund.[117] Furthermore, the replacement of a given "thing" or capital good by any other of equivalent earning capacity is a "mere technical detail." [118]

But this perpetual capital fund and income flow are characteristic only of the stationary and progressive states. This excludes the case of retrograde societies where a net disinvestment takes place.[119] But what is more interesting from our

114 "The Theory of Investment Once More: Mr. Boulding and the Austrians," *Quarterly Journal of Economics*, vol. l, November, 1935, p. 57.

115 *Economic Journal*, vol. xlv, 1935, p. 83.

116 "Capital, Time, and the Interest Rate," *Economica*, New Series, vol. i, August, 1934, p. 268.

117 *Economic Journal*, vol. xlv, 1935, p. 90.

118 *Economica*, New Series, vol. i, 1934, p. 267.

119 *Economic Journal*, vol. xlv, 1935, pp. 77-94 *passim*.

point of view is that Knight also dismisses the case of monetary liquidation, as being the concern of monetary and not of capital theory.[120] Clearly, this failure to discuss the same issues widens the difference between the two parties to the dispute. The essential purpose of the capital theory of *Prices and Production* was to display the relations between monetary fluctuations and the processes of capital formation. On the other hand, Knight insists on dealing only with what he calls the "economic sequence." He indicates that, in the condition which this term implies, capital is perpetual.

As defined by Knight, the sequence excludes war and "the economic disorganization called 'crisis'"; [121] the "pecuniary liquidation" of the business cycle involves a set of conditions which are inconsistent with the conditions of the economic sequence.[122]

But most of what the Austrian theorists have been concerned with is, by definition, excluded from this "sequence"! For example, Knight writes: "when conditions change, capital simply appears or/and disappears, and is written up or written down without reference to 'production.' *Such an event is not a part of the economic sequence, which consists of acts correctly related to consequences, but represents a discontinuity.*" [123] In short Knight's capital theory is applicable only when capital is being at the least maintained. On the other hand, the Austrians are especially intent on discussing capital consumption. For this reason the two sides have never really met the same issues.

120 *Ibid.*, pp. 91 and 93.

121 *Economica*, New Series, vol. i, 1934, p. 285.

122 *Economic Journal*, vol. xlv, 1935, pp. 83-84.

123 *Economica*, New Series, vol. i, 1934, p. 277 (my italics). The assumption of perfect foresight which is implied in this statement considerably restricts the applicability of the concept. See Hayek, *Quarterly Journal of Economics*, vol. i, 1936, p. 225; compare with this the views of *Monetary Theory and the Trade Cycle* where the determinateness of economic processes seems constantly to be implied (e. g., pp. 71-85) and the emphasis on "uncertainty" found in Hayek's later articles (e. g., "The Maintenance of Capital," *Economica*, New Series, vol. ii, 1935).

(b) Knight rejects another large section of the Austrian theory when he insists that there is no valid distinction between "original" or "primary" factors and any other factor of production.[124] In one place he states that the "main fallacy" of the Austrian School is that they assume that one can trace "an individual capital good . . . to preexisting productive resources of other kinds, excluding capital goods"; he argues that on the contrary, "the various kinds of agencies entering into economic life continuously produce and reproduce each other in a kind of 'hen and egg' sequence."[125] In short, the assumption is not valid because the production of any given capital good presupposes the use of existing capital goods.[126]

(c) The significance of this second point can be clearly shown in connection with a third: Knight argues that no accurate statement can be given to the concept of the period of production or investment,[127] and defends this position on several grounds. First of all, he has defined production in such a manner that he is able to say that "in the only sense of timing in terms of which economic analysis is possible, production and consumption are simultaneous";[128] this follows from his concept of the economic sequence. Second, on the basis of his refusal to accept the distinction between primary factors and capital, and of his insistence on the essential con-

124 *Ibid.*, vol. i, pp. 279-280.

125 *Quarterly Journal of Economics*, vol. l, 1936, pp. 45-46.

126 See Knight's article on Interest in the *Encyclopedia of the Social Sciences*, vol. viii, pp. 135-6; *see also*, his *Risk, Uncertainty and Profit* (New York, 1921), pp. 123-7 and 158-170, for an earlier similar treatment. The same general idea has been expressed by R. Nurkse in his article on "The Schematic Representation of the Structure of Production," *Review of Economic Studies*, vol. ii, 1935, pp. 232-244 and by E. F. M. Durbin in his *Problem of Credit Policy* (New York, 1935), chapter i and appendix, note 1, especially. However, all such argument is rendered irrelevant, as critical material, when Hayek states that his period of production does not refer to "technical stages" of production.

127 See, e. g., the *Encyclopedia of the Social Sciences*, vol. viii, p. 135.

128 *Economica*, New Series, vol. i, 1934, p. 275; see also his contribution to the *Essays in Honor of Gustav Cassel* (London, 1933), on this point.

tinuity of the productive process, he argues that "there is no production process of *determinate* length, other than zero, or 'all history'." [129] Third, because some items of capital are perpetual, as technical items, and because many are never used up completely, it is impossible to "compute a real interval or curve of disinvestment." [130] Fourth, as a corollary of the thesis that all capital is perpetual, he denies the possibility of using the concept of a period of production because "all that is called production . . . axiomatically represents either replacement of capital goods or making a net addition to the total stock. In the one connection the period of production is zero; in the other it is 'infinity', ending only with the liquidation of society as a whole." [131] Lastly, the use of an average period of production as a concept, aside from the difficulties it entails where many capital items are involved, is impossible when the series includes some items of infinite life-period.[132]

(d) Another matter concerning which Knight has disagreed with the Austrian theorists pertains to the central position which the latter accord to "time" in their analysis of the economic processes. Knight denies and the Austrians consistently affirm that a lengthening (shortening) of the period of production necessarily requires an increase (decrease) in the amount of a community's capital.[133] Knight believes that time is but one of many factors involved in an elongation or shortening of the productive process and that in the case of any given investment the increased use of capital may or may not involve the use of longer processes. The making of "more durable" goods is, he argues, but one of an infinite number of

129 *Economic Journal*, vol. xlv, 1935, p. 78 (my italics). See also, *Economica*, New Series, vol. i, 1934, p. 275.

130 *Quarterly Journal of Economics*, vol. l, 1935, p. 50.

131 *Ibid.*, pp. 66-67.

132 *Ibid.*, pp. 49 and 50; see also, *Encyclopedia of the Social Sciences*, vol. xiii, p. 136.

133 *Economic Journal*, vol. xlv, 1935, p. 77; *Economica*, New Series, vol. i, 1934, pp. 267-70.

ways of increasing net return.[134] He writes that "time is . . . a vital factor in the *cost* of goods (construction period) and in their value (desirability), tho it is only one among innumerable factors in each case. Each of these two time factors enters into the calculations of the value of the capital good in one of the modes of calculation."[135] In reply to the argument that it is at the margin of investment that the time factor operates in full importance, Knight has insisted that "the main point is that capital quantity is a marginal concept; but a marginal time period or marginal increment of a period—of construction or service life or both together—has no meaning. *At the utmost a time margin is one among an indefinite number of margins affecting the capital quantity, and coördinate in significance.*"[136]

(e) All of this is not to deny, however, that the concept of time has special significance in the study of economic processes; the interesting point is the rôle which Knight assigns to time. In his view time is of signficance in connection with the mobility of capital. Thus the construction period conditions the speed with which capital can be moved into, and the utilization period the speed with which it can be moved out of, a given use.[137] The mobility of capital is itself influenced, however, by the mobility of complementary factors. The existence of lags and leads in economic adjustments and the part played here by the relative immobility of capital is advanced by Knight as the really important aspect of time with respect to, especially, business cycle theory.[138] For example, he states that since planning for an investment requires time, a sudden increase (decrease) in savings will cause a temporary "glut" (scarcity) and a fall

134 See *ibid.*, p. 270, especially, and also his quotation of a similar view expressed by Boulding (*Quarterly Journal of Economics*, vol. l, 1935, p. 35) and Knight's agreement (*ibid.*, p. 50). See, further, *Economic Journal*, vol. xlv, 1935, p. 79.

135 *Quarterly Journal of Economics*, vol. l, 1935, p. 62 (his italics).

136 *Ibid.*, p. 63 (my italics).

137 *Ibid.*, p. 66.

138 See *Economica*, New Series, vol. i, 1934, pp. 271, 276 and 279.

(rise) in the rate of interest; "such facts as these," he writes, "undoubtedly enter into Professor von Hayek's confusion regarding the relation between the length of the production process and the analysis of the business cycle." [139]

(3) *Replies to Knight.*

The various points raised by Knight have been discussed by members of the Austrian School. By presenting in general form the views of Hayek and others concerning these difficulties, it may be possible to throw additional light on some of the most important theoretical questions involved. With respect to the first point mentioned above, namely that in stationary and progressive societies capital is perpetual, it has been argued in reply that such conclusions are possible because the maintenance of capital intact is one of the assumptions of the stationary state.[140] It has been urged that the consistent refusal to discuss the "retrograde" state, and the underestimation of the importance of examining the conditions under which capital is maintained intact, diminish the importance of Knight's views on this point.[141] Furthermore, Hayek, in writing recently on the question of capital maintenance, has raised important problems as to the real meaning of the expression. Assuming it to mean the maintenance of a constant income stream, he shows that under changing conditions the maintenance of a constant income stream does not involve maintaining capital quantitatively constant.[142]

139 *Ibid.*, p. 286. On the same topic see *Economic Journal*, vol. xlv, 1935, p. 94, where Knight expresses views very similar to those discussed as part of Robertson's theory of the cycle.

140 F. Machlup, "Professor Knight and the Period of Production," *Journal of Political Economy*, vol. xliii, October, 1935, p. 579 especially. That the reproduction of capital "presents no economic problem" is, according to Hayek, Knight's basic error (*Quarterly Journal of Economics*, vol. li, 1936, p. 202).

141 Machlup, *Journal of Political Economy*, vol. xliii, 1935, pp. 578-580.

142 See "The Maintenance of Capital," *Economica*, New Series, vol. ii, 1935, p. 268 and *passim*. *See also*, "The Mythology of Capital," *Quarterly Journal of Economics*, vol. l, 1935, p. 216 especially.

It would be entirely unreasonable, of course, to argue that Knight does not recognize the problems of capital in other than stationary or progressive societies. But the sharp differences between that author and the members of the Austrian School are clearly very largely traceable to the fact that in his articles to date Knight has insisted on limiting capital theory to the so-called "economic sequence." This limitation excludes many of the problems which the others are most anxious to discuss under the heading of capital theory. Knight is only willing to discuss these under monetary theory, while the Austrians make a close connection between the contents of capital theory and of monetary theory. There is hence little wonder that there has been no real meeting of minds on the problems involved.

The reply to the second point introduced above, the alleged impossibility of distinguishing between capital goods and the so-called primary factors, has been less convincing, it seems to me. Hayek has stated definitely that "in no case is a distinction between 'primary' or 'original' and 'produced' means of production necessary in order to give the concept of the investment function a definite sense"; [143] none the less his 1934 article on "The Relation between Investment and Output" specifically assumes this to be a valid distinction. This seems to be the point most in need of elucidation if any agreement is to be reached. A denial of the validity of the distinction strikes at the heart of the whole argument of *Prices and Production.*

It has been stated by Machlup that the "finite absolute production period" is a "fiction," although a useful one in certain respects.[144] Furthermore, he argues that while it is clear that one must distinguish between existing capital goods and further applications of the "original" factors, the former enter into the concept of the "investment function" only to the extent that they determine the direction and character of the time distribution of "current investment." [145] He states that "the

143 *Ibid.*, p. 209.

144 Machlup, *Journal of Political Economy*, vol. xliii, 1935, p. 587.

145 *Ibid.*, pp. 597-599.

durability of existing equipment influences the current decisions about current investment and through it the investment period, but it does not enter as an item in the investment function." [146] The investment period or production period is defined by Machlup as the " . . . time interval between the input of services and the 'dependent' output of services. . . ." [147] I cannot see that this meets Knight's criticism. One must prove the possibility of determining a beginning and an end in order to use the concept of the " period " in any understandable sense. Knight insists that it must be " determinate," as we have shown above. Unless one assumes that the final production and consumption of services are simultaneous at one point in time, one has to handle the problem of dependent services being spread over time. Knight has referred to this as the problem of deriving a curve of disinvestment.

This debate concerning the distinction between original and produced means of production has also been treated as a confusion between an " historical " and a " future " or " forward " view of the meaning of the investment period. The Austrians seem to suggest that the former is Knight's typical view and to this they deny adherence. Hayek writes that " *only the future time intervals* between the moments when the factors are, or will be invested, and the moment when the product will mature are relevant and *never the past periods* which have elapsed since the investment of some 'original factors'. The theory looks forward, not back." [148]

Much has been written on other features and details of this

146 *Ibid.*, p. 589 n.

147 *Ibid.*, p. 582.

148 *Quarterly Journal of Economics*, vol. 1, 1935, p. 208 (his italics). Ragnar Nurkse (*op. cit.*) attempts to construct a diagram which includes the production of capital goods as part of the economic process; the existence of such goods is merely assumed in *Prices and Production*. Further writings by members of the Austrian School will certainly have to take more account of the production of capital goods themselves if they continue to construct simplified pictures of what Nurkse terms the " anatomy " of the technical system. *See also*, Durbin, *op. cit.*, p. 36.

controversy, but perhaps the most significant point made by the Austrian theorists is that Knight's concept of capital prevents him from being able to analyze certain important economic questions. For example, Hayek writes that Knight's views prevent him from seeing how " . . . the choice of particular methods of production is dependent on the supply of capital, and from explaining the process by which capital is being maintained or transformed. . . ." [149] He continues, " the problem is . . . how the existence of a given stock of non-permanent resources makes possible their replacement by newly produced instruments, and at the same time limits the extent to which this can be done." [150] Finally, the " . . . analysis of this effect of the existence of capital goods on the direction of the investment of current resources is possible only in terms of the alternate time structures of production which are technically possible with a given equipment." [151]

(4) *Summary.*

The two most significant features of this journal literature are as follows: First, Hayek's article " On the Relationship between Investment and Output " has definitely shifted the meaning of the period of production from that which was given in *Prices and Production.* The concept of the investment period is quite different from the technical " stages " of *Prices and Production.* Second, Knight's criticisms have indicated that the period of production, viewed either in the disinvestment or in the construction sense, cannot be measured. His comments on this matter should stimulate thinking on the ways of measuring changes in the capital structure.[152] In *Prices and Production* a change in round-aboutness was expressed in terms of a change in the number of stages. But the notion of a tech-

149 *Quarterly Journal of Economics*, vol. l, 1935, p. 204.

150 *Ibid.*, pp. 214-215; see also, p. 222.

151 *Ibid.*, p. 220; see also, p. 227.

152 See the remarks of Hansen, Boddy, and Longrum, *Review of Economic Statistics*, vol. xviii, 1936, pp. 53-61.

nical structure changing in this fashion is difficult to accept even if one could identify the first and the last stage. In Hayek's later writings it is the period of investment which epitomizes the round-aboutness of the capital structure, but we have seen that this is inadequate because no definite measurement of the "period" is possible. Some clarification of this issue is necessary if progress is to be made in the analysis of the formation and destruction of capital values.

CHAPTER VI

THE POLICY OF "NEUTRAL MONEY"

(1) *Meaning of neutral money policy: some conditions in which the supply of money should be altered.*

THE entire theory presented in *Prices and Production* and in the various articles that Professor Hayek and other members of the Austrian School have written appears to indicate that industrial fluctuations can be avoided and full employment can be maintained only if the "effective circulation" of money, i. e. the quantity of money times its transactional or exchange velocity, is kept constant.[153]

In the face of falling demand conditions, any attempts to bolster money demand by expanding consumers' credits will merely lead eventually to a shrinking of the productive structure.[154] Expansions of producers' credits lead, as we have shown, to the formation of capital which is eventually destroyed in a financial crisis. In Hayek's theory it seems that a constant money policy is appropriate at all times. Yet he denies the possibility of effective recovery being established after a crisis by the expansion of either producers' or consumers' credits, and this in spite of the well-established fact that during such periods there occur rapid and considerable changes in the transactional velocity of money. For example, he has written that as an economy moves through crisis into a depression, "the thing

153 Haberler suggests that the term "trade velocity" would be more appropriate. It seems certain that Hayek does not include financial transactions in his theory. See Haberler's *Prosperity and Depression* (Geneva, 1937), p. 57 n. Currie states that Hayek is using an income velocity concept (*American Economic Review*, vol. xxvi, 1936, p. 791). But I find no evidence to support this interpretation.

154 An elaborate criticism of the Foster and Catchings thesis was written by Hayek in his article on "The Paradox of Saving" (*Economica*, vol. xi, 1931, pp. 125-169). I shall return below to the recent proposals of Mr. E. F. M. Durbin concerning the practicability of consumer credit expansion as a weapon of monetary policy.

which is needed to secure healthy conditions is the most speedy and complete adaptation possible of the structure of production to the proportion between the demand for consumers' goods and the demand for producers' goods as determined by voluntary saving and spending." [155] Continuing, he writes that "the only way permanently to 'mobilise' all available resources is, therefore, not to use artificial stimulants—whether during a crisis or thereafter—but to leave it to time to effect a permanent cure by the slow process of adapting the structure of production to the means available for capital purposes . . . and so at the end of our analysis we . . . confirm the old truth that we may perhaps prevent a crisis by checking expansion in time, but that we can do nothing to get out of it before its natural end, once it has come." [156]

This seems to be a very definite statement of policy, yet we shall see that some major qualifications must be urged against it if it is to be made thoroughly representative of the most recent statements of Professor Hayek.

There are certain instances in which the maintenance of a "neutral money" policy requires an increase or decrease in the volume of money. First, since the structure of production as described in *Prices and Production* applies to a "closed system" and thus, in the real world, to world trade as a whole, it will be necessary for expansions or contractions in the effective money supply of a nation to vary with the proportion of its trade to the total world trade.[157] Not only does this disclose a considerable degree of abstraction in the theory, but it suggests the infinitely complicated character of the task of monetary policy. How are the authorities to be sure whether a given increase in the domestic activity of a nation is the result of an inflationary boom or of the permanent gaining of a more important position in world trade? Furthermore, if changes in

155 *Prices and Production*, p. 98.

156 *Ibid.*, p. 99.

157 *Ibid.*, pp. 109-112.

the world's money supply can be shown to be responsible for considerable disturbances, it would seem to follow from the inability of nations to make appropriate arrangements for international controls of almost any sort that the world must *inevitably* face periodical crises. Second, if there is a change in the proportion of total trade effected through the use of money —that is, a change in the coefficient of money transactions— there should be a like change in the quantity of money in order to forestall disturbances arising from other than " real " causes. Third, " . . . any transfer of money from one part of the economic system to another or from one stage of production to another where the co-efficient of money transactions is different will also make a corresponding change of the quantity of money in circulation necessary." [158] Fourth, changes in the transactional velocity of money must also be counteracted by opposite changes in the volume of money. This last is a particularly important point, for Hayek has insisted that under no conditions should a depression be resisted by an increase in the quantity of money, although it is in such periods that transactional velocity varies with the greatest amplitude. If he did argue that this fall in velocity should be resisted he would find himself in the reflationist camp and close, in this respect, to Hawtrey. But this policy is, of course, consistently rejected. It seems clear, however, that if the theoretical concept of money neutrality is ever to become a guide to practical policy, some definite means must be devised for distinguishing between the fall in velocity which is to be *artificially* corrected and the fall which is to be allowed to continue to its *natural* end.

(2) *Criticism of the policy of constant money volume by Durbin, Meade, Harrod, Ellis and Angell.*

The appropriateness of maintaining constancy in the effective volume of money has been severely questioned by Durbin, on the ground that in the event of a lengthening of the capitalistic

158 *Ibid.*, p. 122.

structure of production the policy is essentially deflationary. Durbin's reasoning is as follows: (a) Hayek would stabilize effective circulation "whatever happens to the volume of industrial output"[159]; (b) as the average period of production increases, this requires a decrease in consumers' incomes: "wages per head" and "rents per acre" must fall; (c) this tendency cannot be traced to an increase in fixed capital because an increase in this quantity might "accelerate the movement of physical circulating capital through the system" and, other things being equal, release money which would tend to raise consumers' incomes; (d) the fall in consumers' incomes is traceable only to the "building up of balances by entrepreneurs handling new intermediate products in new technical and commercial stages";[160] (e) regardless of how the balances are accumulated this would be deflationary, since new savings would be absorbed in the new balances;[161] Hayek arrives at his conclusion because he has failed to distinguish between the demand for savings as "the demand for money to be spent on new physical capital" and as that amount *plus* "the demand for money in respect of new commercial stages."[162]

A similar line of argument is developed by J. E. Meade[163] to show that the volume of circulation must be increased, if population increases, to provide for the "balances which the

159 *The Problem of Credit Policy*, p. 120.

160 *Ibid.*, pp. 122-123.

161 The very same argument is advanced by H. S. Ellis in discussing "neutral" or "constant" money as a policy. See his *German Monetary Theory, 1905-1933* (Cambridge, 1934), pp. 350-351 especially.

162 *The Problem of Credit Policy*, p. 127. This position is also taken by Durbin in his debate with J. C. Gilbert, which grew out of Mr. Gilbert's advocacy of a policy of keeping M rather than MV' (where V' represents the income velocity of money) constant. See J. C. Gilbert, "Banking Policy and the Income Velocity of Money," *Economica*, New Series, vol. i, 1934; see also, Durbin's "Mr. Gilbert's Defense of a Constant Circulation," *ibid.*, vol. ii, 1935, pp. 220-222, and Gilbert's "A Rejoinder to Mr. Durbin," and "Note" to the same (*ibid.*).

163 *The Rate of Interest in a Progressive State* (London, 1933), pp. 11-24.

new population will want to build up." This view is, as Meade points out, merely a repetition of the earlier argument developed by D. H. Robertson.[164]

All of Durbin's references to *Prices and Production* are to the first (1931) edition of the Lectures. This is of some interest because in the second (1935) edition, Hayek has made substantial changes in the particular section criticized by Durbin. Briefly, Hayek there says that the constancy of money supply would make a reduction of consumers' incomes necessary if the structure of production is lengthened, but that "in view of the notorious rigidity of wages" such a reduction would be "certainly very undesirable."[165] This reduction of wages would be prevented if money could be injected into the system so that there would be no disturbance to the proportion between the demand for producers' goods and the demand for consumers' goods. But Hayek thinks that this "cannot be solved in practice."[166] Furthermore, the volume of the effective circulation should, according to Hayek, be held constant in the "case of the transition to more capitalistic methods of production . . . also for an increase of production caused by the absorption of unused resources [and] . . . even in the particularly difficult case of an increase of production caused by the growth of population, the discovery of new natural resources, and the like."[167] But this policy is only desirable "apart from the special difficulties which may arise from the existence of rigidities."[168] This suggests a point of fundamental im-

164 *Banking Policy and the Price Level*, chapter v, sec. viii. But Robertson's theory was concerned directly with the course of the price level and only indirectly with "neutrality." Although Meade suggests that this section of Robertson is to be interpreted as a statement of the necessary conditions of money neutrality, Robertson himself feels that the question is not yet satisfactorily handled. See, e. g., his article, "Mr. Harrod and the Expansion of Credit," *Economica*, New Series, vol. ii, 1935.

165 *Prices and Production*, p. 106.

166 *Ibid.*, p. 106.

167 *Ibid.*, pp. 106-107.

168 *Ibid.*, p. 106.

portance. If the difficulties which arise from rigidities are in no sense *special* or atypical, it seems to follow that the argument of *Prices and Production* leads us to a statement of policy which must be substantially qualified before it can stand as a norm of practical policy. This must be true when we have to apply the policy to an economic system which is, to use Hayek's own terms, characterized by "notorious rigidity" in wage payments.[169] If this qualification of the policy appropriate to the transition to more capitalistic methods is dictated by the sort of consideration urged by Durbin—that is, that new balances must be built up—then the force of Durbin's criticism is largely dissipated. This is not at all certain, however, for Hayek says nothing about balances as such in this section. Furthermore, the argument does not suggest that this is the point which Hayek has in mind. But it is difficult to interpret Hayek on this matter, important as it is, for the reason that he has nothing to say about the kind of policy which would be appropriate in a system of rigid prices.[170]

The question as to what constitutes money neutrality has been further discussed by Mr. R. F. Harrod with special attention to the maintenance of neutrality in an expanding community, that is, one in which real income is increasing because of the increasing effectiveness of a given supply of resources.[171]

169 *Ibid.*, p. 106.

170 Furthermore, the controversy with Knight has made it abundantly clear that the lengthening of the "average period of production" should not be interpreted as requiring an increase in the stages in either a technical or a commercial sense. The theory concerns periods of "investment" and does not deal exclusively with technical changes. (See Machlup, *Journal of Political Economy*, vol. xliii, 1935, pp. 608-610.)

171 R. F. Harrod, "The Expansion of Money in an Advancing Community," *Economica*, New Series, vol. i, 1934, pp. 287-299. See also, his letters to *The Economist* (London), *Book Supplement*, October 6 and November 10, 1934. Discussion of Mr. Harrod's suggestions have come from many quarters; see the letters of N. Kaldor, H. Barger, J. Stafford, and G. Haberler in *The Economist, Book Supplement*, November 10, 1934; further, D. H. Robertson's article "Mr. Harrod and the Expansion of Credit," and Harrod's "Rejoinder to Mr. D. H. Robertson," both in *Eco-*

Harrod suggests that people will, in the "normal course of progress" want to hold real balances of greater value and that "if it is required to equate loanable funds to savings this entails that *additional* bank loans should be equal to the value of savings side-tracked into the holding of additional value in the form of money. This equality can only be maintained on one condition and that is that banks make sufficient additional loans to keep prices stable." [172]

It has been pointed out by Robertson and also by Barger that the holding of a larger value in real balances is automatically achieved if prices fall as a reflection of increasing productivity. But if people desire to accomplish this end by holding larger money balances, then if there is no change in the quantity of money this will involve a decrease in velocity and a drain on the active circulation.

The question which particularly interests the Austrian critics of Harrod's position is whether or not this policy would involve a disequilibrium between Savings and Investment and a disturbance to the structure of production. The debate between Harrod and these critics (Haberler and Bode) is extremely confusing and does not, I think, advance the theory. It is quite clear from this particular exchange that there can be little chance of agreement until there is some better understanding of what each means by the basic concepts of savings and investment.[173] Although Robertson discusses this case in *Banking Policy and the Price Level,* his treatment does not throw any direct light on the question of whether or not such a policy

nomica, 1934. Further discussion from the Austrian point of view is found in G. Haberler and K. Bode's "Monetary Equilibrium and the Price Level" and Harrod's "Rejoinder to Drs. Bode and Haberler," both in *Economica,* 1935.

172 *The Economist, Book Supplement,* October 6, 1934, p. 8 (my italics).

173 I confess that Harrod's "Rejoinder to Drs. Bode and Haberler" (*Economica,* New Series, vol. ii, 1935) is very difficult for me to follow. I believe Harrod imputes to his adversaries a definition of savings that they do not hold.

as Mr. Harrod proposes would cause a mis-direction of resources. As has been shown above, Robertson merely shows that it is likely that the transition to a higher stage of productivity can be made with greater ease if additional money is injected into the system, but does not show that no crisis is necessarily involved in the action.

This particular debate emphasizes, it seems to me, the necessity of distinguishing between the effects of increasing output and the effects of additional hoarding of money balances, on the relevant sections of the price system. The two are viewed as necessary corollaries by Harrod, but not by Hayek. Harrod wants to counteract both, Hayek only the latter. This, I think, is because Harrod sees considerable difficulties in a falling price level when many price relationships are relatively fixed over considerable periods. Harrod does not deal satisfactorily, however, with the consequences of money injections which are sufficient not only to provide larger money balances, but also to increase money incomes enough so that the increasing output can be purchased at stable prices with continually expanding consumers' expenditures.

Further criticisms of the "constant money volume" ideal as a monetary policy have been made by H. S. Ellis in his recent book, *German Monetary Policy, 1905-1933*. The issues raised by Ellis are as follow. (a) As the number of stages increases with a lengthening of the structure of production the quantity of money must be increased, or else prices will fall by more than the change in real costs. This additional decrease in prices will be caused by the need for holding more money in new balances. This is precisely the same point as the one made by Durbin and has, I think, been sufficiently discussed above. (b) A change in the proportion of the demand for consumers' goods to the demand for producers' goods would not change the value of capital proportionately, "because this entirely neglects existing stocks of goods in process. Consequently no conclusion can be reached as to the money-work-to-be-done involved in an

increment in saving." [174] This is, I think, a valid point; Hayek's error here is due to his over-simplification in *Prices and Production*. Hayek's triangles are cross sections of accomplished equilibrium positions. They do not depict the transition from one position to another, and thus tend to underestimate the difficulties which would arise on this account. (c) A lengthening of the structure of production does not necessarily entail a change in the number of " productive stages " which are being used. This point has been freely admitted in recent writings by members of the Austrian school but it does not necessarily, of itself, dispose of the neutral money concept.[175] (d) The theory of *Prices and Production* neglects altogether the demands made upon the money supply by the Financial Circulation. This particular issue has been discussed at great length by Machlup, but he places the blame for misdirection of investment on inflation rather than on the capital fund absorptions of the stock market.[176] In an extended discussion and review of the literature on this topic, Ellis aligns himself with those who believe that an important absorption does take place. In this respect he follows the argument of Keynes and Robertson.[177] The same point of view has been expressed by Durbin, whose revised diagram of the economic structure makes special provision for financial transactions. His discussion turns mostly on the " increase in the number of stages through which property exchange must, on the average, pass," [178] and maintains that the deflationary effects should be counteracted by maintaining a constant money income stream. This would itself require increasing the money supply, which the Austrian theorists would keep constant.

174 Ellis, *op. cit.*, p. 354.

175 See e. g., Machlup, *Journal of Political Economy*, vol. xliii, 1935, p. 608.

176 *Börsenkredit, Industriekredit, und Kapitalbildung* (Vienna, 1931).

177 Ellis's very competent discussion of this point is found in chapter xxi of his book (*op. cit.*). A detailed bibliography of the very large literature on the topic is included in the book.

178 Durbin, *Problem of Credit Policy*, p. 150; see also, p. 93 ff.

(e) "No certain conclusions can be drawn as to the absolute amount of money which a given increment of savings will withdraw from the consumption sphere, because there is no necessary coincidence of velocities of money in the two fields of productive and consumptive expenditure." [179] Of course, this consideration increases the difficulty of showing what will be the influence on prices of an increment of savings. But Hayek proposes, as has been shown above, that changes in the money volume should be made to counteract changes in velocity. The real difficulty, from the point of view of policy, is that Hayek argues that compensations should be made in "that part of the business system where the change in business organization or the habits of business had taken place." [180] The practical difficulties of this sort of a policy hardly need mention. Professor Hayek should suggest how this could be done without making the adjustment a seizure of property, and without causing more damage than the lack of the adjustment might lead to.

(f) Ellis argues further, along familiar lines, that a falling price level is inimical to technical progress because it creates a pessimistic atmosphere in which entrepreneurs will not function effectively, even if the falling price level is merely a reflection of falling real costs. This is contrary to all that one can find in Austrian theory. Hayek would merely say that if the entrepreneurs must have inflation then they must also have crises. Robertson has argued that they should have inflation in appropriate amounts at appropriate times, but he also insists firmly that there is no reason why entrepreneurs should be distressed by falling prices if they are compensated by falling costs. The argument advanced by Ellis is, in one respect at least, similar to that stated by Veblen when he terms the business cycle a "malady of the affections," to indicate that men are "exhilarated" only when values are rising—that this is one of the

179 Ellis, *op. cit.*, pp. 354-355.

180 *Prices and Production*, p. 124.

requirements of the working of "business enterprise." But Veblen argued further that this necessary inflation involved also a necessary crisis and liquidation, with a marking down of capital values to a lower level from which the rise might begin anew.[181]

(g) Continuing to treat the concept of constant money volume as a norm of practical policy, Ellis insists that in view of all the factors affecting the size of the effective circulation, an impossible wizardry would be required in the business man who would make a correct estimate of the future course of prices. Of course this is true. The establishment of the policy itself would also require, among other things, an even higher degree of ability. For example, the Austrian theory that capital extensions will be kept within maintainable bounds by an "equilibrium" rate of interest (provided there are no monetary disturbances) implies a more simplified view of the cost of capital than would seem to be of much use in interpreting the "money market."[182] To the extent that factors making for uncertainty are traceable solely to monetary disturbances, and to the extent that a constant money volume would make disturbances impossible, it is correct to say that uncertainty would disappear in a "neutral" money system of this sort. But I do not think that even Professor Hayek would state the case so strongly. On the contrary, his recent article on "The Maintenance of Capital" makes note of uncertainities that may arise from non-monetary factors.

181 See his *Theory of Business Enterprise*, chapter viii. The general conclusion of Veblen's business cycle discussion is very interesting in the light of much that has been said here. He finds prosperity, on a stable basis, to be incompatible, not with a changing volume of effective circulation, but with the "competitive management of business." The latter leads to the former and is the more nearly basic consideration. To impose such a policy as a constant money volume on the system of business enterprise would, in Veblen's view, involve the destruction of the fundamental motive power upon which the system depends, namely, rising money values.

182 On this point see Professor W. C. Mitchell's review of Professor L. Robbins' "The Great Depression," *Quarterly Journal of Economics*, vol. xlix, May, 1935, pp. 503-507.

(h) Ellis' own conclusion as to policy is that any intelligent monetary authority would vary the volume of money in all the cases sanctioned by Hayek, and also in the other cases mentioned in the points above. Just what his own policy as to the Financial Circulation would be is not clear. In view of his complaint against the falling price level, it seems reasonable to say that he has more of an inflationary leaning. He is not certain about the effects of forced saving, except to say that Hayek has not proved that it is "necessarily more disastrous in its final effects than its absence might be." [183] He concludes that the answer to the above question of the merits of forced saving "will vary from time to time and from country to country. It will not be discovered through reasoning as to perfect competition." [184]

Finally, the proposal that the correct monetary policy is to stabilize the product, money supply times exchange velocity, has been criticized by Professor J. W. Angell.[185] Angell's criticisms, based on empirical studies of the behavior of money, may be summarized as follows. (a) Adjusting the money supply to correct short period variations in exchange velocity would be difficult to accomplish with sufficient promptness and accuracy. This is due to the frequency and amplitude of short period changes in exchange velocity. (b) Over long periods of time the chief difficulty is that velocity changes are mainly related to the money volume of financial transactions. Because the latter does not move very closely with the indexes of production and trade it is likely that the application of Hayek's policy would involve a correction of money supply just the opposite to that required by the conditions of non-financial activity. (c) Because of the presumably high velocity of money in financial transactions this phase of economic life is not likely to be significantly affected by changes in the money supply.

183 *German Monetary Policy*, p. 356.

184 *Ibid.*, p. 356.

185 See his *Behavior of Money*, McGraw-Hill, New York, 1936, pp. 126-128.

This is a conclusive argument against the proposal that the effective money supply should be stabilized. This must be admitted when exchange velocity is interpreted to include financial transactions.[186] If this is not the correct interpretation to place upon Hayek's concept, that is if he means to exclude financial transactions, it is necessary for him to propose a practical measure of what might be termed non-financial exchange velocity. Since Hayek does not do this the practical significance of his neutral money proposal is considerably reduced.

(3) *Hayek's interpretation of "neutral money" as an analytical tool rather than as a statement of practical policy.*

Almost all of the criticisms urged against the Austrian position that have been discussed above, with the exception of Knight's theoretical differences, have been leveled directly against the concept of neutral money (considered as a constant volume of effective circulation) when viewed as a norm of policy. This is quite understandable, for most of the theory of *Prices and Production* seems to lead logically to this policy as the only one which will maintain economic stability. However, certain passages in *Prices and Production* provide good reason for questioning the relevance of this sort of criticism. In his reply to Hansen and Tout,[187] Professor Hayek said that " . . . the concept of neutral money was meant in the first place to be an instrument of theoretical analysis and not necessarily a tool of practical policy." [188] Furthermore, concerning the attempt to maintain neutrality in the money supply, he has said that " . . . *it is by no means inconceivable that considerations other than the direct monetary influences on prices, such as the existence of long term contracts in fixed sums of money, the rigidity of prices, and such like institutional factors, may*

186 See above, p. 216, n. 4.

187 "Capital and Industrial Fluctuations," *Econometrica*, vol. ii, no. ii, April, 1934; reprinted in the second edition of *Prices and Production*.

188 *Prices and Production*, pp. 160-161.

make such an attempt entirely impracticable, because it would set up frictions of a new kind. In that case, the task of monetary policy would be to find a workable compromise between the different incompatible aims." [189] Clearly, then, as far as matters of policy are concerned, Hayek is neither advancing a neutral money norm in the usually expressed sense nor is he neglecting the influence of rigidity in the institutional pattern.[190]

Again, in another passage, we find Hayek arguing that " . . . the degree to which a concrete system approaches the condition of neutrality is one and perhaps the most important, but not the only criterion by which one has to judge the appropriateness of a given course of policy. *It is quite conceivable that a distortion of relative prices and a misdirection of production by monetary influences could only be avoided if, firstly, the total money stream remained constant, and secondly, all prices were completely flexible, and thirdly, all long term contracts were based on a correct anticipation of future price movements. This would mean that, if the second and third conditions are not given, the ideal could not be realized by any kind of monetary policy.*" [191]

In view of the fact that our system does not meet these two conditions, it would seem to follow that the ideal of neutrality cannot be maintained. But since some policy must be followed and since this must, it appears, be a "compromise" policy, it certainly seems necessary that very close attention should be given to the statement of the policy in its most appropriate form. On the positive side, Hayek has written that in face of the practical impossibility of maintaining a constant volume of effective money, and in face of the unsettled state of the

189 *Ibid.*, p. 161 (my italics).

190 But Hayek still maintains that if policy departs from neutrality one must expect serious monetary disturbances. This follows by definition. It is not clear, however, whether these would be greater than the disturbances which grow out of the frictions "of a new kind" which he claims may result from the establishment of neutrality as a policy!

191 *Ibid.*, p. 131 (my italics).

theory upon which any policy is to be defended, the "semi-automatic" international gold standard should not be replaced by "a more or less arbitrarily managed currency." [192]

(4) *Durbin's criticism of the neutral money policy: the importance of assumptions concerning the utilization of resources and price responses.*

Although it may be true that Hayek never meant the concept of "neutral money" to be anything more than *one* criterion of the ideal monetary policy, it is certainly true that the concept has been used by him, as an only criterion, to dispose of various suggested monetary and general economic policies.[193] On the basis of the reasoning of *Prices and Production,* Hayek has clearly rejected the policies of expansion of either producers' or consumers' credits because they create crises. Other theorists have not seen fit to do so; among these we may list Hawtrey, Robertson and Keynes.

Similarly, Durbin, whose remarks on the desirability of maintaining the effective circulation constant have been noted above, has developed an extended criticism of the *policy* implications of *Prices and Production* as found in the first (1931) edition. This criticism leads him to a radically different view as to appropriate policy. We shall concern ourselves, however, not with that alternative policy but with the portion of his argument which questions the basic assumptons of Hayek's theory. Hayek has argued that an arbitrary increase in consumers' credits will create a crisis in the earlier stages of production by altering the proportion between the demand for consumers' goods and the demand for producers' goods. This general conclusion is denied by Durbin, on the ground that if unemployment exists the increased demand for consumers'

192 *Ibid.*, p. 127.

193 The Austrian theory provides the principal argument of Robbins' *The Great Depression,* and his article on "Consumption and the Trade Cycle" (*Economica,* vol. xii, 1932, pp. 413-430). Both of these are concerned with matters of policy, and in both the "neutral money" concept takes nearly complete charge of the argument.

goods which would grow out of expanded consumers' credits would revive confidence in the capital goods industries and increase employment. He attributes Hayek's conclusion to the fact that Hayek assumes the expansion to take place in a system which is fully employed. Surely this whole exchange emphasizes the vital significance of discussing the merits of any given policy only after taking account, with reasonable completeness, of the circumstances in which the policy is to be applied. It may very well be true that the policy which is appropriate to full employment is not the policy appropriate to the depth of a depression. This is, as I see it, the core of the whole difference between Hayek and Durbin.

According to Durbin, an increase in expenditures on consumers' goods which takes place in the face of unemployment in the capital goods industries will increase the absolute demand for capital goods, although it will generally reduce the *relative* demand for capital goods as compared to consumers' goods. The further effects of the expansion, according to Durbin, will depend on the proportion between the "money spent in the second period of time upon intermediate products . . . and the expenditure upon primary factors in the first stage." [194] In any event, the "absolute money demand for consumption goods and the absolute money demand for capital must move together." [195] All of this is based on assumptions of "sticky prices" and unemployment. But in this argument Durbin seems to have gone to just the other extreme from Hayek. For example, he argues that the expansion of activity will begin because the money injection would raise marginal revenue without raising marginal cost.[196] But the really crucial questions seem to be

194 *The Problem of Credit Policy*, p. 65.

195 *Ibid.*, p. 67.

196 *Ibid.*, p. 64, n. Even on this sort of reasoning, the new equilibrium would doubtless be one of greater marginal costs as well as revenues. But the problem, which concerns a specific good, could not be resolved without a knowledge of the specific cost and revenue conditions of the relevant

these: How long will this condition, and thus the expansion, exist? Will costs be forever constant in the face of increasing revenue? Obviously this depends, as Durbin has himself indicated,[197] on the extent of competition. Ellis is quite correct when he says that the results of such changes cannot be discovered by reasoning on the assumptions of perfect competition. But neither can they be reached by assuming prices to be completely rigid. Of course, the whole of Durbin's argument is not based on the assumption of complete fixity of costs. If we were to discuss his own suggestions as to policy, this would be very evident. I introduce his criticism at this point merely to emphasize the different conclusions, at least with respect to the short period of time, that can be reached by assuming different conditions of employment and different degrees of price flexibility.

Aside from his questioning of Hayek's conclusions as to the effects of an increase in consumers' credits, Durbin has insisted that the same line of argument may also be advanced in the case of an expansion of producers' credits. It will be recalled that Hayek's theory had indicated that an expansion of such credits will lead, after a forced lengthening of the structure of production, to a reversal to the pre-existing structure as the increased money incomes are *all spent* on consumers' goods. We have suggested above that the structure may be extended over a longer period of time if the prices of factors do not rise with equal rapidity due to contract frictions. Durbin points out that this sort of situation would mean a profit inflation; and also that, rather than all of the added income being spent on consumers' goods, a considerable proportion would be saved. The effect of the credit expansion would be " a subsequent and perhaps disproportionate increase in the demand for consumption goods after a brief period of exclusively capital expenditure." [198] He argues that the result hinges on the degree to which the larger incomes are saved or spent. In the event that

197 *Ibid.*, p. 65.

198 *Ibid.*, p. 76.

they are spent on consumption, or at least that a large proportion is so spent, the policy will invoke "a sharp upward movement in the Rate of Profits and a consequent increase in the absolute demand for new capital throughout the structure of production. In the end a general inflationary situation will develop."[199] The end conclusion is similar to Hayek's if the case is carried to an extreme. The interesting point is that a number of assumptions are either explicitly or implicitly involved in Durbin's argument which are radically different from those of the Austrian theory. They can be listed as follows: (a) prices are "sticky" rather than flexible, (b) partial rather than complete employment exists, (c) spending habits will change in the face of increasing incomes, (d) a distribution of income changed in favor of the receivers of profits will lead to a greater rate of saving, (e) the rate of interest is unimportant as a cost due to the "element of risk" involved in investment, and to the difficulty of calculating the marginal productivity of capital, (f) interest as a capitalization factor is ignored, (g) the distribution of resources, as a process, is actually less sensitive to changes in relative profit levels than as presented by Hayek.[200] Much of the Austrian theory seems to have been developed on assumptions which are just the opposite of these. While one could not say that this is the sole reason for the different views as to "policy" to which the theories lead, it is doubtless true that it is a very important factor in determining that result.

(5) *Summary.*

In this section we have shown that Hayek's conclusion that the volume of effective circulation, that is MV, should be

199 *Ibid.*, p. 76. These conclusions are meant to be applicable, in general, whether one deals with a single injection or a rate of increase in the money supply.

200 As Hawtrey points out, "sunk" costs will reduce the sensitivity of response. The notion of the "specific" good might be broadened, as a makeshift, to take account of financial as well as technical features.

held constant in order that money should be " neutral " as concerns the operation of the economic system, is subject to some criticism. First, Hayek himself has indicated that (a) in so far as the policy is framed for a closed system, and because in practice this means the whole economic world, it follows that the money supply of any nation must be changed in response to a change in the proportion of total world trade which it enjoys, (b) changes in the proportion of total trade affected by money requires changes in money supply, (c) shifts in the distribution of total trade between sections of the community having different coefficients of money transactions also require changes in M, and (d) changes in the rate at which people use money balances, other than those changes which occur as features of the business cycle, must be counteracted by opposite changes in the quantity of money. But he does maintain that, except where rigidities in prices would make the adjustments difficult, changes in population, changes in the length of the structure of production, the absorption of unused resources, new discoveries of resources and the like do not require changes in the effective money supply. We have noted in several places that, since the rigidities do exist, it is also necessary to state the policy which is appropriate under these latter conditions. Both Hayek and his critics agree that the appropriate policy here is not a constant volume of effective money.

We have also shown that Messrs. Durbin, Harrod, Meade, Ellis, and Angell have indicated reasons why the volume of effective money should or should not be altered to take care of various developments likely to occur in an expanding economic system. All of these criticisms of the policy of holding MV constant take account of the fact that certain prices and certain incomes are relatively rigid. Hayek has taken the position that the " neutral money " concept applies only to a system where all price elements are flexible. He now holds that the concept of neutral money was offered as a tool for theoretical analysis and that some " workable compromise " is necessary for a system

in which wage rates resist change and in which the prices of certain commodities are relatively rigid.

Finally, we have shown how Durbin's thesis that economic recovery might be stimulated by expanding consumers' credits achieves a certain strength because he takes into account both the differences in flexibility of different prices and incomes and the degree of utilization of resources which obtains when the expansion of credit occurs. The fact that Hayek assumes perfect flexibility of prices and complete utilization of resources accounts, in large part, for the differences between these two writers as to the appropriateness of any given monetary policy.

CHAPTER VII

GENERAL SUMMARY

In Chapter II of this essay we developed the general nature of Hayek's monetary theory of the business cycle. We also summarized his criticisms of certain monetary and non-monetary explanations of the cycle. With respect to the latter type of explanation, we showed that Hayek disposes of these theories by considering them strictly as non-monetary theories. As Hayek states the non-monetary theories they do not seem very convincing. This is because Hayek reduces the theories to purely non-monetary explanations of the cycle. However, when the theories are taken as originally developed, that is, explanations combining both monetary and non-monetary elements, they are infinitely more convincing. This is a significant point because it is on the basis of his criticism of these highly emasculated versions of the non-monetary theories that he lays his claim for the sufficiency of the monetary theory of the cycle. We have seen that a really adequate theory of the cycle must take account of both sets of factors.

The cause of industrial fluctuations is stated by Hayek to be the "elasticity of the volume of circulating money." This is the factor which must be introduced, according to Hayek, into the "real" type of explanation in order that the phenomena of the cycle may be adequately accounted for. We have shown in subsequent sections how elasticity of the supply of effective money, that is, MV, enables capital to be formed which cannot maintain its value. The capital consumption which occurs when values are subsequently lost is, according to Hayek, the essence of the cycle and the source of unemployment.

But we have already seen, in connection with our study of Robertson, that if the "real" causes of disturbances are treated as operating in a system which has an elastic money supply, one can throw considerable light on the business cycle. We hence conclude that the factor which Hayek emphasizes, the elasticity of the money supply, cannot be used by itself to

explain cyclical variations of activity. What is necessary is to take account of all the institutional factors which operate in our business economy. The institutions, among which we include the money system, act together to produce the cycle. The fact that Hayek has to refer to certain technical questions (as in his "stages of production," his "specific" vs. "non-specific" goods, etc.), and to certain institutional phenomena (as the relation between wages and profits), in order to explain the various characteristics of the cycle, indicates that the "monetary" cause alone is insufficient as an explanation of the cycle.

In Chapter III we introduced the main concepts and definitions which Hayek uses in *Prices and Production* to explain the action of monetary factors in causing the business cycle. This means, for the most part, a discussion of the "structure of production." We examined the effects of changes in voluntary savings and of changes in the supply of circulating money on the structure of production. It was seen that, according to Hayek, the former leads to maintainable and the latter to non-maintainable changes in the structure of production. The criticism of the theory presented in this chapter was left to later chapters.

In Chapter IV we turned to Hayek's explanation of how monetary factors affect the structure of production. This involved a discussion of price margins, changes in the margins, the rate of interest, and the distribution of goods through the structure of production. We showed that a change in the structure of production was represented as being a change in the proportion of the demand for consumers' goods to the demand for producers' goods. The definition of the depression period as one in which capital values fall—that is, a period in which capital is consumed—was discussed. It was shown that Hayek's explanation of this phenomenon involves a discussion of income changes caused by inflationary expansions of bank credit.

In commenting on this theory we pointed out that Hayek's assumption of a complete utilization of resources is not only

difficult of precise statement but leads him to take untenable positions on the way the system will actually respond to changes in money demand. The effect of a monetary change on prices will obviously work itself out through changes in demand and supply conditions. What Hayek's method does is to allow for immediate shifts in demand curves (under the impetus of the increased money supply), and to postulate rapid price changes because supply (with resources totally utilized) is highly inelastic. (If one makes the more defensible assumption of an only partial utilization of resources, it is seen that with a greater elasticity of supply, price responses (and therefore forced savings) are less rapidly forthcoming.

In discussing Hayek's theory of shifts of goods from one stage of production to another, we have pointed out that his propositions minimize the importance of expectations. This manifests itself in Hayek's tendency (as Keynes has indicated) to identify the rate of interest with the prospective marginal efficiency of capital. Of course, the fact that Hayek tries to consider business operations in a system in which money is neutral naturally leads to a view of a society containing much less uncertainty than does the real world. But Hayek should take into account the uncertainties created by monetary disturbances when discussing the effects of changes in the money supply. And there are also certain "real" factors which may operate to create uncertainties. It should be noted that these factors, which play such an important part in Robertson's analysis of the cycle, are assumed out of the argument by Hayek. But they must be taken into account if the theory is to be adequately developed.

We pointed out, in commenting on Hayek's theory of price margins, that some correction is necessary to take account of production costs other than interest. Because the price margin is set equal to the interest payment, the theory of the price margins is, in effect, the theory of the rate of interest. Hayek does identify the rate of interest, in equilibrium, with the marginal efficiency of capital. In an equilibrium position there is

less significance to this fact than in a period of transition. In the latter period the rate of interest must be compared with expectations as to the marginal productivity of capital, which are subject to great inaccuracies. The process of economic change in this period can only be adequately dealt with by taking account of all of the various rates of interest charged for various uses, and of the expectations entertained for the use of the capital funds in various sections of the economy. A complete account requires that one *explain* the whole structure of interest rates, and also that one explain the formation of expectations as to capital productivity at the margins of the various alternative uses open for exploitation. Hayek's analysis is inadequate in that (a) he deals merely with *an* interest rate, and (b) he does not adequately discuss factors influencing expectations as to the marginal productivity of capital. Furthermore, the analysis which we find in Hayek of price responses is inadequate because he does not consider how the effect of changes in voluntary savings affects different kinds of goods, and because he does not consider the different degrees of price sensitivity of different sections of the price system. Here again the analysis would be much improved if Hayek, taking full account of the degree of utilization of resources, had stated the theory in terms of changes in demand and supply conditions. This procedure is essential if one is to deal adequately with the behavior of costs and revenues and with profits. Finally, on this topic of price margins, Hayek's analysis does not take account of the notion of the intensification of the derived demand for durable goods. If Hayek had considered this business response, and if he had not made the assumption of complete utilization of resources, he might not have reached his conclusion that, with but few exceptions, any change in the effective money supply must, inevitably, cause an economic crisis. In commenting on Hayek's theory of capital consumption we have indicated that the theory of the crisis as presented by Hayek assumes (a) that there is perfect flexibility of wages, and (b) that wage incomes are never saved. The theory should

be developed for the case of relatively sticky wages, and it should be shown how the doctrine of crisis is affected if it is assumed that part of the increased wage income is saved. More realistic assumptions concerning these matters would also have led Hayek to different conclusions as to the inevitability of a reverse movement in a structure of production lengthened by an expansion of the credit supply.

In Chapter V we discussed Hayek's concept of the "period of investment" to show how it differs from the "stage" analysis of *Prices and Production*. The criticisms of Prof. F. H. Knight were summarized. The main point made in Knight's debate with the Austrians is that one cannot measure the period of production or the period of investment. He has also insisted that lengthening the time structure of production is merely one, not the only, method of using more capital in a society. This debate has shown very clearly that the capital theory which is basic to Hayek's theory of money and prices has not yet been adequately expressed.

In the concluding chapter we considered the conditions under which the supply of money would have to be changed in order to maintain stability, as these conditions are set out by Hayek and by some of his critics. It is clear from our discussion of these ideas that the notion of "neutrality" in money is by no means clearly defined. There is still no basic agreement as to the conditions of monetary neutrality in an expanding economy.

Equally significant is Hayek's statement that the idea of a constant money supply is not an appropriate policy for a community in which wages and prices are relatively rigid. If this is the case, then what is most needed at this time is that Hayek should try to show what is the appropriate monetary policy for a community having a relatively insensitive price and income structure, and normally utilizing something less than the total of available economic resources. Only by stating the theory in these realistic terms can a policy be defined which will be applicable to the real world.

PART IV

J. M. KEYNES

CHAPTER I

INTRODUCTION

J. M. KEYNES'S *General Theory of Employment, Interest and Money*,[1] with which this essay will be principally concerned, presents an analysis of the factors which govern the volume of employment and the level of output in current systems of free enterprise. In this respect its aims are similar to those of his earlier *Treatise on Money*,[2] although the *General Theory* differs in many respects and deals with some questions not considered in the earlier volume.

The *General Theory of Employment, Interest and Money* is really concerned with general problems of economic theory and not with monetary theory *per se*. But Keynes's method of dealing with the movement of prices cannot be discussed without taking into account his whole theory of production. It will therefore be necessary for us to go into all of the important features of the *General Theory*.[3]

In this introductory chapter we shall, first, state the grounds upon which Keynes disagrees with the "classical economists"[4]

1 Harcourt Brace, New York, 1936, pp. xii and 403. Hereafter referred to as the *General Theory*.

2 New York, 1930, 2 vols.

3 This integration of monetary theory with general economic theory involves what Keynes calls a "monetary theory of production" or "the complete theory of a monetary economy." (*General Theory*, p. 293.) What has been said above is not to be taken as meaning that Keynes does, and that others discussed in this volume do not, have a basis of general economic theory for the discussion of monetary and business cycle theory. Keynes differs from the others in that the volume which we are to discuss deals explicitly with the theoretical background.

4 Keynes means Ricardo and his followers: this includes Mill, Marshall, Edgeworth, and Pigou (*General Theory*, p. 3, n.). Fisher, Hawtrey, and Robertson are excluded from the "classical group" (despite the fact that Robertson, as we have shown, has definitely stated his dependence on Marshall!); these writers are claimed by Keynes as great-grandparent, grandparent, and parent, respectively, of his present theoretical position (*Economic Journal*, June, 1937, p. 241, n. 2). Keynes would help matters

and, second, summarize the main propositions of his theory of employment. In Chapter III we consider Keynes's concepts of the "propensity to consume" and the "multiplier." In Chapter IV the "marginal efficiency of capital" and the rate of interest are discussed. Chapters III and IV taken together deal with factors governing employment. Chapter V deals with Keynes's explanation of changes in the level of prices. Chapter VI discusses his theory of the business cycle and the suggestions which he makes for the stabilization of the level of economic activity. The final chapter, VII, summarizes the theory and the comments which have been made concerning the different concepts.

(1) *Keynes's criticisms of "classical economics": comments on his views.*

Although there are many points on which Keynes claims to differ from the classical school, the principal ones are as follows: (a) Keynes argues that "within a certain range the demand of labor is for a minimum money-wage and not for a minimum real wage" and that the classical school erred in assuming that the supply of labor is a function of real wages as a sole variable;[5] (b) the "illicit assumption" of the classical school that workers can alter their real wages by altering their money wages is not borne out by the facts because money wages and real wages (and unemployment) tend to vary inversely;[6] (c) classical theory is wrong in identifying supply and demand because it is incorrect to assume that what is not spent on present consumption is spent to provide for future consumption;[7] (d) the classical theory of interest fails to take into account the significance to savings of changes in income.[8]

more if he would avoid such terms as "the classical school" and give reference to actual works when referring to its (generally unidentified) members.

5 *General Theory*, pp. 8-9.

6 *Ibid.*, pp. 10-12.

7 *Ibid.*, pp. 18-21.

8 *Ibid.*, pp. 175-185.

The first point, (a), seems to be a justifiable criticism. Workers probably do behave as Keynes indicates,—that is, they do offer more labor for higher money wages, even though real wages are lower. But the reason why this fact is not accounted for in Marshall's theory is that his assumption concerning the price level makes it possible to say that an increased money wage for any given worker means a higher real wage.[9] This brings us directly to points (b) and (c). Actually, monetary disturbances do occur and in most instances it is apparently true that money wages (both rates and earnings) vary not inversely but directly with real wages (both earnings and rates). But this is not always the case. The facts are not such as to allow us to make a general statement one way or the other. Neither the classical nor the Keynesian proposition is *generally* true.[10] The classical assumption would be valid on the further assumption that there is no change in monetary conditions. While this latter assumption was made by Marshall in order to develop the fundamentals of value and distribution theory, it is not correct to argue that no attention was ever given to the monetary factor by this "classicist." Thus Keynes's third criticism, (c) above, is only correct if we can argue that Marshallian economics never took account of monetary disturbances. This is clearly not the case, although Marshall's "*Principles*" did not take account of money changes over short periods.[11] It may also be well to point out at this

9 See Marshall's *Principles of Economics*, p. 62.

10 This conclusion is based on the data found in Professor Paul Douglas's *Real Wages in the United States, 1890-1926*. The data examined are money and real annual earnings and hourly rates of earnings for all industry. Of course it would be desirable to compare monthly data and to study specific lines of employment. While *real* and *money* rates of wages (and earnings) of labor vary directly in the great proportion of years, the *money* rates and earnings tend to vary with greater amplitude. See Douglas, *op. cit.*, Table 73, p. 205 and Table 84, p. 230.

11 See the article by Prof. W. C. Mitchell on "The Role of Money in Economic Theory," reprinted in his book *The Backward Art of Spending Money* (New York, 1937), pp. 149-176, especially p. 166, n. Ricardo argued

time the significance that lies in the fact that both Keynes and Marshall utilize the idea of small increments in discussing the supply of labor. There is implied in this procedure an oversimplification of the conditions of the bargaining process. Actually a worker rarely chooses between a small increment to real income (earned through a small increment to labor expended with the attendant small increment of dissatisfaction) and the loss of a small amount of leisure. In the first place, he bargains for money wages. While current real wages are taken into account, the worker, like everyone else, is quite in the dark as to what real wages will be in the future.[12] Second, the worker may have to choose between a general acceptance of whatever "overtime" his employer sees fit to ask of him and *unemployment*. There is no sense to the small increment notion in this sort of situation. Third, Keynes's idea that more labor will be forthcoming at lower real wages is difficult to understand in terms of the increment theory, but not so if expressed in other terms. Workers who are wholly unemployed are not accepting lower real wages under these conditions. They are therefore ready to accept work even though the terms are worsening. The workers who are employed may and often do strike for higher money wages, but the majority will continue to work at progressively declining real rates because they have no other alternatives than to do the work or lose employment. Thus, in this case too the real nature of the worker's problem is not shown if we think in terms of small increments.

In general, Keynes's criticism of the classical position is that it does not take account of the possibility of employment increasing (decreasing) as a result of an increase (decrease) in the price of wage-goods (that is in the cost of living or

that a change in the value of money would not affect relative values. Since value (his main interest) was unaffected this monetary factor was ignored. There is no indication in his *Principles* of how a monetary change might alter the degree of utilization of resources. This is Keynes's chief interest.

12 The scheme of tying money wages to real wages would remove most of this uncertainty. The effect on employment is more obscure.

the prices of goods purchased out of wages) relative to money wages. Keynes's position on this matter suggests his preference for inflation rather than wage-cuts as a means of reducing unemployment. If more work will be offered and accepted at decreasing real rates, then recovery can be brought about by monetary measures which raise the price of wage-goods and make it possible for employers to offer the higher money wage rates. But if more labor is not forthcoming at declining real rates, this expedient is not possible, and workers must accept both lower money and lower real rates of wages in order to increase employment.[13] Because the support of Keynes's position on this point requires the use of all of the concepts developed in the *General Theory*, we will not attempt to comment upon it until we have presented the general theory in outline.

The comments which can be made on Keynes's criticism of the "classical" interest rate theory will be made in the chapter of this essay dealing specifically with the rate of interest.

Professor A. C. Pigou, Keynes's chief target in these matters, replied recently to this criticism of "classical" economics.[14] Although Professor Pigou's defense is brief, it very pointedly indicates that Keynes has been unduly severe (in some instances quite wrong) in his attack. In particular, Pigou insists that the effect of a rise in the price of wage-goods must also be considered from the point of view of its effect on the supply curve of labor, and he implies that a proper consideration of this aspect of the question would dispose of Keynes's chief objection to classical theory.

Professor Pigou has likewise pointed out that one cannot determine the effect of a reduction in money-wage rates unless one knows what sort of banking policy is being practiced at the time.[15] This is, in a certain sense, the same kind of con-

13 See J. Viner, "Mr. Keynes on the Causes of Unemployment," *Quarterly Journal of Economics*, vol. li, November, 1936, pp. 147-167.

14 "Mr. J. M. Keynes' General Theory of Employment, Interest and Money," *Economica*, New Series, vol. iii, May, 1936, pp. 115-132.

15 Pigou, *op. cit.*, p. 128.

clusion at which Mr. A. P. Lerner arrived in his summary and interpretation of Keynes's theory.[16] In his view, the result is determined by " other conditions." If this is true, as it seems to be, then it can rightly be said that the fault of the " classicists " has been that they argued on a too " simple rule." But this seems to be equally true of Keynes's argument.[17]

While there are many aspects of this first chapter of the *General Theory* that it would be interesting to consider in more detail,[18] such an undertaking would carry us too far into general value and distribution theory. We may conclude this summary of Keynes's criticism of the classical " postulates " by saying that it is, in effect, a general criticism indicating that the theory of employment must be considered with full attention to the monetary factors. Keynes's emasculated version of the so-called " classical " theory does not really present the Marshallian position adequately.

(2) *Preliminary summary of Keynes's theory of employment.*

Before discussing the concepts of the *General Theory* in detail it may be well to summarize, as Keynes does,[19] the main outline of this theory of money and employment. The psychological " law " that individuals will tend to consume progressively smaller proportions of their income as that income increases is the clue to, if not the basis of, the theory. From this it follows that, as employment and income increase, there must be increases in new investment to absorb the new savings or else there will be a deficiency of returns to entrepreneurs, and they will not be induced to continue to offer increasing employment. Spending habits are determined and expressed by the community's Propensity to Consume; the Inducement to Invest,

16 " Mr. Keynes' ' General Theory of Employment, Interest and Money ',"
International Labour Review, vol. xxxiv, Oct., 1936, pp. 435-454.

17 *Ibid.*, pp. 442-443.

18 For example, Keynes's *acceptance* of the proposition that wages equal the marginal productivity of labor.

19 *General Theory*, pp. 27-32.

which must be strong enough to absorb resources not directed to current consumption industries, depends on the Marginal Efficiency of Capital and the relevant rates of interest. The *General Theory* is concerned, then, with showing how it can come about that, with a given propensity to consume and a given rate of new investment, the level of employment may be such that the marginal disutility of labor is less than the real reward of labor, i. e., that less than "full employment" may be said to exist. Keynes describes this situation as one in which "involuntary unemployment" exists in the sense that employment would increase if there were an increase in the price of wage-goods, i. e., the cost of living, relatively to money wages; more work would be offered and more accepted than at the previous low level of prices.[20]

There are, according to Keynes, no substantial grounds for the belief that there are forces operating which will tend automatically to adjust the spending habits of the community (the propensity to consume) with the investment activities (the inducement to invest) in such a way that full employment will necessarily be achieved. Furthermore, the difficulty of making this adjustment increases as the community becomes "richer"

20 *Ibid.*, p. 15. Keynes seems unable to avoid the usual difficulties involved in the concept of "full employment." Curiously enough his "full employment" does not mean the absence of what is often called "technological unemployment" or what he terms "frictional unemployment." It appears, then, that the community's labor force is fully employed when a further increase in the price of wage-goods relatively to wages would not attract a larger supply of labor and where existing unemployment is due only to slow technical adaptations to change and to "unwillingness" of workers to take employment. Since this would mean the absence of "involuntary" unemployment it seems correct to say that it constitutes "full" employment (*ibid.*, pp. 15-17). These distinctions between types of unemployment enable Keynes to force attention to the particular condition of "involuntary" unemployment (in which he is most interested). But they have the disadvantage of diverting one's attention from the unemployment which grows out of changes in real demand and supply conditions as they operate in a technical setting characterized, above all else, by friction. See also Keynes's essay in *The Lessons of Monetary Experience*, edited by A. D. Gayer, New York, 1937, p. 150.

and as its stock of capital goods increases; the former because the propensity to consume becomes weaker, and the latter because it is increasingly difficult to find attractive fields of new investment.[21] The problem resolves itself, then, into an explanation of the factors that govern the Propensity to Consume and the Inducement to Invest.

21 See especially, *General Theory*, pp. 104-106.

CHAPTER II

BASIC TERMINOLOGY OF THE GENERAL THEORY

IT has been quite freely admitted by Keynes that many of the difficulties that grew out of the *Treatise* were due to its definitions. There seems to be little to gain from a detailed discussion of this now rejected terminology. But certainly the treatment of Keynes's present theory of employment must be prefaced by at least a summary statement of the definitions used in the argument. These differ very substantially from the definitions of the *Treatise*. We shall set them forth here in about the order that they are introduced by Keynes,[22] reserving some for introduction at those points of the discussion where they can be seen more clearly, provided such postponement does not seriously impede the development of the theory.

1. *Factor Costs* are the payments to all factors of production, thus excluding payments to other entrepreneurs.

2. *User Cost* equals payments (a) to other entrepreneurs, plus (b) "the sacrifices which . . . the entrepreneur . . . incurs by using the equipment instead of leaving it idle." [23]

3. *Profit* equals the value of "resulting output" less the sum of Factor and User Costs.

4. *Total Income*, which equals Factor Costs plus Profit, equals *Proceeds*.

5. *Aggregate Supply Price* is the "expectation of proceeds" which just make it worth while to offer any given level of employment. Employment depends on aggregate supply price, since employment will tend to be set at that level which will maximize the excess of proceeds over factor and user costs (i. e., profits). Then the *Aggregate Supply Function* can be written $Z = \phi(N)$, where Z equals Aggregate Supply Price and N the volume of Employment.

22 *General Theory*, chs. iii-vii.

23 *Ibid.*, p. 23.

6. The *Aggregate Demand Function* can be written $D = f(N)$, and relates Employment (N) to the Proceeds (D) expected from any given level of Employment.[24] Thus if at any value of N, D is greater than Z, then N should rise until costs make Z and D equal. N is given by the intersection of $Z = \phi(N)$ and $D = f(N)$; the value of D at the point of intersection is the *Effective Demand.*

Therefore, the intersection of the functions determines the point of maximum expected profits, and the level of employment. The value of expected proceeds at this point is the *Effective Demand.* In any set of circumstances it is a unique value, and it can be termed "deficient" only if it corresponds to less than the level of full employment. Keynes does not argue that supply creates its own demand in the sense that (a) there is a point of effective demand for every value of N, and (b) there is a tendency for the stable equilibrium value of N to equal "full employment," *i.e.*, the point beyond which output becomes inelastic. On the contrary, he argues that a condition of insufficient effective demand may keep the level of employment below this optimum point for long periods. It is necessary, therefore, for Keynes to explain why demand can be deficient in this sense. This is equally necessary as a part of his theory of the trade cycle, for Keynes argues that since full employment is seldom if ever accomplished, fluctuations are around a level of less than full employment.

With respect to this particular concept, Robertson claims[25] that Keynes has created some confusion by sometimes using

24 It is important to bear in mind that Keynes does not impute any high degree of certainty to such "expectations." He states that the entrepreneur has "several hypothetical expectations held with varying degrees of probability and definiteness." (*General Theory*, p. 24. See also *ibid.*, p. 148, n.). This suggests the reason for the author's willingness to accord "confidence" a large measure of importance as an economic factor. The force of uncertainty is much emphasized in the sections which deal with long term expectations. See especially *ibid.*, chapter xiii.

25 "Some Notes on Mr. Keynes' General Theory of Employment," *Quarterly Journal of Economics*, vol. li, November, 1936, pp. 168-191.

the notion of effective demand to mean what an entrepreneur *can* expect to receive from any given level of employment and sometimes to mean what the entrepreneur *does* expect to receive.[26] Robertson suggests that a possible discrepancy between these two views may be important in explaining the process of recovery from business inactivity. He argues as follows: if D equals Z at less than full employment, and if entrepreneurs do expect that an increment of expenditure will be balanced by an increment of income, the additional employment will result in an increment of profit even if, as Keynes argues, the money spent does not all return as income. This increment of profit, while it is not as large as the entrepreneur would need in order to equate D and Z, may be sufficient, viewed in an optimistic light, to warrant further increments to expenditure. This gradual return of confidence may eventually justify itself.[27] The difference between anticipations and realizations is an important factor in what Robertson terms the "natural recuperative powers of the economic system." Briefly, this indicates that employment is not necessarily in stable equilibrium at a point of less than full employment, but that there may be cumulative movements towards more complete employment which are stimulated by changes in anticipations.

7. Such concepts as the National Dividend, net addition to capital equipment, and the general price level are all rejected on the ground that they lack the "precision" necessary to causal analysis. Keynes suggests the use of two "fundamental units of quantity"; they are quantities of money-value and of employment. The unit of employment is the Labour-Unit, which Keynes says is "sufficiently defined for our purpose by taking an hour's employment of ordinary labor as our unit and weighting an hour's employment of special labor in proportion to its remuneration."[28] The money wage of this labor

26 Robertson, *loc. cit.*, p. 169.

27 *Loc. cit.*, pp. 168-170.

28 *General Theory*, p. 41.

unit is called the *Wage Unit*. Keynes states, then, that " . . . much unnecessary perplexity can be avoided if we limit ourselves strictly to the two units, money and labour, when we are dealing with the behaviour of the economic system as a whole; reserving the use of units of particular outputs and equipments to the occasions when we are analysing the output of individual firms or industries in isolation; and the use of vague concepts, such as the quantity of output as a whole, the quantity of capital equipment as a whole, and the general level of prices, to the occasions when we are attempting some historical comparison which is within certain (perhaps fairly wide) limits avowedly unprecise and approximate." [29]

Finally, and this is of considerable importance, changes in current output are measured " by reference to the number of men employed (whether to satisfy consumers or to produce fresh capital equipment) on the existing capital equipment." [30]

From the conceptual point of view these units of measurement have considerable advantage in simplicity; this is a not unimportant matter when the purpose is to examine the interrelationships of the economy as a whole. But there are certain difficulties that it is well to recognize at the very beginning. For example, how are we to define the " ordinary labor " which must be identified before we can determine the number of labor-units in any given kind of labor? One must solve this difficulty in order to measure output, since Keynes expresses the latter in terms of labor-units employed. I have been unable to find an answer to this particular question. The question is an important one, for it bears on the possibility of constructing the kind of measures which would have to be used to determine upon the appropriateness of any given policy. It cannot be that particular workers are to be weighted with respect to their productivity; this course leads to the difficulties of productivity imputation and is certainly to be avoided if the

29 *Ibid.*, p. 43.

30 *Ibid.*

aim is, as Keynes's seems to be, the construction of "precise" measures. Keynes tells us that workers are to be weighted according to the relation of their remuneration to the remuneration of the "ordinary" worker. But if wage rates are influenced by other than productivity factors, then the resulting measure will not be an accurate index of output; it will most certainly not be a "precise measure." And to establish this criticism it is necessary only to indicate that the relative bargaining power of different groups of workers is an important factor in determining the wage rate, or other remuneration which they will receive from employers. Keynes also accepts the proposition that wages equal the marginal product of labor.[31] But this implies further assumptions concerning competition; there is no reason to doubt that workers receive other than their marginal product in a non-competitive market. Changes in relative position of different labor groups with respect to bargaining power might indicate, according to Keynes's method, changes in output. Even though he has stated that he measures output by the number of men employed, he has presented the labor-unit as the "unit of employment."

Furthermore, the method of measuring output with respect to the volume of employment, considered as a sum of labor units, may serve to divert attention from changes in the productivity of labor during the various phases of the cycle. We have seen, in our discussion of Robertson, that this factor can be made an important part of the explanation of the cycle. It is very difficult for me to see how the same sort of analysis could be made with Keynes's concepts.

Finally, if there is any significance (for the whole economy as well as for special industries) in the distribution of labor resources as between different alternative uses (in so far as a particular kind of allocation may involve the extension of some special productive facilities to a point which is in excess of

31 *Ibid.*, pp. 17-18.

their market possibilities), then this significance is too much dulled by Keynes's method of summating all labor and considering, not the progress of special parts, but only the direction of the whole. To carry this to the extreme is to say that all that is important is that men should work; while this *is* an extreme expression it serves, as extremes do, to display the weakness of the actual concept.

8. Proceeding now to Keynes's definitions of Savings and Investment, it may be helpful to present a preliminary statement of his concept of income. Holding the following concepts to be relevant to some given period of time, let A equal receipts from sales to consumers or other producers; let A_1 equal expenditures on finished output purchased from other entrepreneurs; let G equal the value of the capital equipment at the end of the period (including stocks of finished and unfinished goods). Then, in order to compute the income of a given period, one must deduct from the sum of the foregoing, $A + G - A_1$, a sum which represents that part of the value of the total given "which has been contributed by the equipment inherited from the previous period." [32] Two methods of making this computation are advanced. First, (a) assume that B′ would have been spent maintaining and improving the equipment if it had not been used, and (b) let G′ equal the value of equipment at the end of the period. (c) Then $G' - B'$, conceptually, represents the value of the equipment at the beginning of the period, and also represents the maximum net value which might have been carried over from the previous period and conserved through the period in question, if the equipment had not been used to produce output of value A. (d) $(G - A_1)$ equals the value of the equipment at the end of the period in question less the additions made to equipment during that period. (e) $(G' - B') - (G - A_1)$ is the "measure of what has been sacrificed . . . to produce A," [33]

32 *Ibid.*, p. 52.

33 *Ibid.*, p. 53.

or is the User Cost (U) of A. (f) Factor Cost plus User Cost, or F plus U, equals the Prime Cost of A. (g) Entrepreneurs' income, which it will be desired to maximize and which is of causal importance to employment, will equal A — (U + F). (h) Since F equals incomes of non-entrepreneurs or "factors," *Aggregate Income* equals A — U. This is the computation of income which is presented by Keynes [34] as being of special significance to the processes of production.

Second, from the point of view of consumption the concept of income is developed differently, as follows. There are certain involuntary losses which are suffered by the entrepreneur in any period ". . . for reasons beyond his control and irrespective of his current decisions, on account of (*e.g.*) a change in market values, wastage by obsolescence or the mere passage of time, or destruction by catastrophe such as war or earthquake." [35] These losses are distinguished from the changes in the value of the entrepreneur's capital equipment which were defined above as due to his voluntary decisions. That part of such losses which are, although unavoidable, not altogether unexpected are termed *Supplementary Costs,* (V) i. e. "the excess of the expected depreciation over the user cost," [36] Thus A — (U + F) — V is the significant consumption concept from the entrepreneur's point of view. In this sense the Aggregate Net Income equals A — U — V. Those involuntary changes in the value of capital equipment which are unexpected are classified as *windfall* changes and are viewed by Keynes as not having the same kind of effect on consumption as the expected changes of V.[37] The difference between supplementary costs and windfall changes, which must be drawn if income is going to be expressed in these terms, is admitted by Keynes as being "partly a conventional or psychological

34 *Ibid.*, pp. 52-54.

35 *Ibid.*, p. 56.

36 *Ibid.*

37 *Ibid.*, pp. 57-58.

one" and with no "unique principle" of distinction. He concludes that "we cannot get closer to a quantitative definition of supplementary cost than that it comprises those deductions from his income which a typical entrepreneur makes before reckoning what he considers to be his net income for the purpose of declaring a dividend (in the case of a corporation) or of deciding the scale of his current consumption (in the case of an individual)." [38] At best, however, there is a degree of vagueness to this concept of net income.[39] Furthermore, there seem to be many questions concerning the degree to which windfall changes will affect consumption, although they are minimized by the very general statement that supplementary costs can be made to mean any deduction that the typical entrepreneur feels it is fitting to make in computing net income.[40] No claim of unambiguity is made for the concept of net income, and hence no similar claim for the concepts of net saving and net investment, but Keynes does insist that these concepts refer to consumption and that the "quite unambiguous" concepts of income, saving, and investment are more significant because of their immediate relevance to the theory of production or employment.[41]

9. Contrary to the theory of the *Treatise*, the definition of Income given above leads Keynes to the conclusion that in any period of time there must be, because of the fact that every transaction is two-sided, an equality between Savings and Investment. That is, if for any given period of time (following the notations of 8 above) $A - U$ equals Aggregate Income, $A - A_1$ equals sales to consumers, and if *Saving* equals the

38 *Ibid.*, p. 59.

39 *Ibid.*, p. 60.

40 We shall see later that a fall in the value of securities consequent upon the sudden collapse of the schedule of marginal efficiencies of capital, which is the key to Keynes's explanation of the crises, may alter the propensity to consume quite appreciably. The force of such a change is made to depend on the extent to which there is a "stock-mindedness" in public attitudes (see especially *General Theory*, p. 319).

41 *General Theory*, pp. 54 and 60.

"excess of income over expenditure on consumption,"[42] then Saving equals $(A-U)-(A-A_1)$ or A_1-U; *Net Saving* equals A_1-U-V. Defining Investment as "the current addition to the value of the equipment which has resulted from the productive activity of the period," or "that part of the income of the period which has not passed into consumption,"[43] it is clear that this also equals A_1-U and that *Net Investment* equals A_1-U-V. This identity might also be stated as follows: where Income equals $A-U$ and where A equals sales to consumers and entrepreneurs (let us say $C+E$) and where the entrepreneur's investment equals the excess of his purchases from other entrepreneurs over his own user cost (i. e. $E-U$) then, since $I=A-U$ and $A=C+E$, $I=C+E-U$, or $I-C=E-U$, and Saving is equal to Investment.[44]

This formulation of the necessary identity of saving and investment seems to be, formally, quite correct; there is some question, however, as to the adequacy of this method for the analysis of certain important economic processes. Let us take, as an example, the explanation of the theory as presented by Mr. A. P. Lerner.[45] He argues that if Y is set equal to the aggregate income of a given period, and if C and I are set equal to the parts of that income earned from the production of consumers' goods and investment goods, respectively (they are therefore also the amounts spent, in that period, on consumers' and investment goods), and further, if savings (S) is the excess of income (Y) over expenditures on consumption (C), then S must equal I.[46] This result is explained and

42 *Ibid.*, p. 61.

43 *Ibid.*, p. 62.

44 See especially, *ibid.*, p. 64.

45 *Op. cit.*, pp. 444 and following.

46 $Y=C+I$; $S=Y-C$; therefore, $C+I=S+C$ and $S=I$. Keynes deals with increments; he writes $\Delta Y=\Delta C+\Delta I$. Thus if $\Delta Y-\Delta C$ equals savings, savings and investment are always equal because $\Delta Y-\Delta C=\Delta I$. We shall see that part of ΔI may be money held on balance.

defended by Lerner in the following examples. In the first place, he indicates that the theory does not mean that an individual cannot save more (or less) than he invests: the propositions apply to *aggregate* saving and investment. In the second place, the theory does not mean that because an individual saves more than previously, it is therefore necessary that there should be an increase in aggregate investment. Even, he argues, if the individual saves more (that is, spends less on consumption goods), while all other individuals in the system spend the same amount as before on consumption goods, the decrease in C will diminish Y and, as both Y and C decrease by the same amount, S will be unchanged and the identity of S and I is preserved. Finally, the creation of new money by the "authorities" does not lead to a disparity between S and I. This is explained as follows: The people who "are left with the extra money" do have an excess of S over I but this is exactly balanced by either (a) counting all that expenditure on consumption which is financed with the new funds as "negative savings" and/or (b) counting as investment that part of the borrowings which are spent on other than consumption goods. So, here again, S must equal I. Thus, in no one of these three cases is there any disparity between saving and investment, although in both the second and third cases there are changes in incomes.

Compare this version with Robertson's theory of the disparity between saving and investment and its consequences. He has argued, as we have shown in the essay devoted to his work, that the saving of a given period can be defined as the excess of the income of the immediately previous period over the expenditures on consumers' goods in the given period. Further, in any given period, some of what is being saved may be kept on balance rather than spent on investment goods, and this difference between S and I will reflect itself in the lowered income of the given period. On the other hand the income of the given period may rise above the income of the previous period if expenditures increase over the previous

day's income by virtue of (a) dishoarding or (b) an expansion of credit. In the last case there is an excess of investment over saving in the given period, since expenditures of the period in question exceed the income of the previous period. Thus the income flowing onto the market as outlay on any given day may be greater (less) than that of the previous day or period by virtue of acts of dishoarding (hoarding) or credit creation (credit cancellation). These changes are represented as changes in the relationship of S and I, and as causes of changes in incomes, prices, and output.

The choice between these two methods of procedure, if a choice is to be made, ought to depend on their relative usefulness in explaining important economic processes. It is, I think, the distinct advantage of Robertson's method over Keynes's that it allows one to express changes in credit expansion and contraction and changes in the velocity of circulation of money, in any period of time, directly in terms of the S and I concepts. Lerner does not deny the importance of these processes, but the Saving and Investment apparatus which he and Keynes use does not allow for their direct representation. In so far as these are important processes, it does seem that a method which attempts to deal with and represent them directly has an advantage over one which veils the changes or processes and requires that separate devices be set up to proceed with their special analysis.

It may seem difficult to understand how two such contrary results can be arrived at as to the relationships between saving and investment. This is due, it seems to me, to the different treatment of time by Keynes and Robertson. Robertson's period, the "day" is defined as a period so short that income earned in any given day cannot be spent in that day but becomes the disposable income of the succeeding day. We have already seen that in Lerner's interpretation of Keynes's theory, it is explicitly stated that the income of any given period is equal to the expenditures on consumers' and investment goods in that same period. In the former case it is quite possible for

expenditures to differ from income; in the latter case it is not. Robertson's intention seems to be to devise concepts which look directly to the flow of money expenditures on the market, to changes in that flow of purchasing power and to the price, income, and output results which grow out of the changes. The power of individuals to alter the ratio of money expenditure to money balances, that is to increase the rate of turnover of money against goods, and the power of the banks to add to or subtract from the supply of money are, in Robertson's theory, the two means for changing the flow of money spendings. He arrives at the conclusion that there can be disparities between saving and investment by studying the process of money utilization over a period of time which is so brief that, in that period, the income which is earned cannot be spent. Thus, the necessary equality of expenditures on consumers' and investment goods to the incomes earned from the production of those two categories of goods which is premised by Keynes is not at all a necessity to Robertson. And it is in the possible inequality of the two quantities that the disparity between saving and investment is to be found. The essential difference in the two theories is in the way the problem of time is handled.

As an example of Keynes's method we have only to remind ourselves of the case, cited above, of an individual saving more than previously while all other members of the community leave their spending habits undisturbed. In this case the income of the whole community falls and, since both Y and C decrease equally, no change takes place in S (which is defined as $Y-C$). But what period of time must be taken if we are to argue that a decrease in expenditures on consumption at one point in time is to result in decreases (exactly equal) in the community's income at another point in time? It is true, of course, that the expenditure of a unit of purchasing power necessarily involves the receipt of a unit of purchasing power, but there is the additional question of how long a period is

necessary to take account of the response of income-disbursing agencies to changes in receipts.

Another example can be found in Keynes's treatment of the concept of "forced saving." Robertson conceives of the possibility of dishoarding or of an increase in the money supply acting, in his "day" period of time, to increase the flow of money demand over the amount that is *currently* being held off the market for consumers' goods in order to be utilized in the market for investment goods. Keynes constructs a terminology which indicates that even in this case there is an equality between savings and investment, and thus proceeds to the conclusion that the notion of forced savings is of little if any importance.[47] He argues that an increase in the quantity of money (presumably with velocity remaining constant) may have the effect of increasing employment and income by causing a reduction in the rate of interest, and that this will lead to a larger amount of saving. He also argues that this new rate of saving can only be called excessive or forced by reference to some standard rate of saving. All of this is, however, quite remote from the point that is meant to be brought out by Robertson and Hayek. They are interested not in how this change will settle down, but (in the immediate case) in how the distribution of resources will be affected by these new liens on goods being placed in the hands of entrepreneurs. They are considering *concurrent* saving and investment behavior; whereas Keynes seems to be thinking of current investment and a subsequent process of saving which acts to balance the accomplished investment. This accounts, I think, for Keynes's failure to see the real point to the forced saving argument—namely, that a current redistribution of resources is forced by the monetary change. This same failure to consider the changed distribution of resources, or the changed time-structure of production of the Austrian theory, is char-

47 *General Theory*, chapter vii, sec. iv.

acteristic of his discussion of the *consequences* of the issuance of additional bank credits.[48]

One further interesting feature of Keynes's discussion of saving is his view that an act of saving may serve to depress employment. This is not a thoroughly unambiguous part of Keynes's theory, but if he means by "spending"[49] expenditures on final consumers' goods, then his view is definitely that an increase in savings, other things equal, decreases employment.[50] That is, saving may be "actively inimical" to new investment in so far as the expectations of final demand are reduced.[51] What Keynes seems to mean is that money income may be held on balance rather than spent on either consumption or investment. This is not, however, a complete statement. It will be remembered that the leakage of savings which played a large part in the theory of the *Treatise* was traced to the financing of losses, and that Keynes went to considerable effort to show that this wastage might occur without there having been any change in the rate of turnover of money balances. In the *General Theory* the argument runs as follows: an investor desires the prospective yield when he purchases an investment, but he has a choice between purchasing a "real capital asset" and "the ownership of money and debts."[52] From this it would seem to follow that there would be a tendency for individuals to shift from real assets to money or debt holdings if the prospective yield on the former is not in excess of the rate of interest. If the individual decides to hold larger balances, this is manifested by a fall in the rate of turnover of money. The relation of prospective yield to interest determines the direction of spending and thus the production of new investment goods. In a certain sense this is the

48 *Ibid.*, pp. 81-85.

49 *Ibid.*, p. 185.

50 *Ibid.*, pp. 210-211 especially.

51 *Ibid.*, p. 212.

52 *Ibid.*

way Professor Pigou has interpreted Keynes on this point. Pigou agrees that a decision to save does not necessarily carry with it a decision to invest in capital goods. The alternative, according to Pigou, would be for the saver to hoard money.[53]

That Keynes believes this sort of situation to be one of very considerable importance is very clear; in his view there has been a ". . . chronic tendency throughout history for the propensity to save to be stronger than the inducement to invest." [54]

The relationship of these matters to the whole theory of employment lies in the fact that the level of employment depends on the Aggregate Demand Schedule and the Aggregate Supply Schedule, and that the former is comprised of expenditures on present consumption and real capital goods. The level of employment, then, may fall below the optimum if Aggregate Demand is reduced by (a) a falling off of expenditures on consumption, and (b) a failure of the inducement to invest which brings it about that funds not spent on consumption are also not spent on the purchase of real capital assets. This last involves, however, a portion of the theory which has not yet been adequately discussed, and to which we must now turn.

53 That the results of this simple hoarding cannot be told without a knowledge of current banking policy is the gist of Pigou's remarks (see *op. cit.*, pp. 125-127). It can hardly be said that Keynes has neglected the matter of bank action, but he has not addressed himself to this matter in as detailed a fashion as has Robertson, whose *Banking Policy and the Price Level* is concerned principally with this very matter.

54 *General Theory*, p. 347; also see p. 348.

CHAPTER III

THE PROPENSITY TO CONSUME AND THE "MULTIPLIER"

IT was indicated in the summary of Keynes's theory that he traces a very close relationship between the "propensity to consume," which represents the way income is divided between purchases of consumers' goods and investment, and the level of employment. We may move now to a discussion of the consumption concept itself, and to the criticisms which have already been urged against it. The discussion of the place of the concept in the whole theoretical structure, however, must wait upon the examination of Keynes's theory of interest and the demand for capital.

(1) *Propensity to Consume: explanation and criticism of the concept.*

The propensity to consume is defined as "the functional relationship χ between Y_w, a given level of income in terms of wage-units, and C_w, the expenditure on consumption out of that level of income, so that $C_w = \chi \cdot (Y_w)$ or $C = w \cdot \chi \cdot (Y_w)$," [55] The Aggregate Demand Function is defined as the relation of "any given level of employment to the 'proceeds' which that level of employment is expected to realise." [56] The propensity to consume determines that part of the "proceeds" relevant to the Aggregate Demand Function

55 *General Theory*, p. 90. The term "wage-unit" is defined and commented upon in II, 7, above. This formulation depends on there being a relation between N (employment) and Y (income) such that changes in N are exactly reflected in changes in Y. Keynes claims no more for this than that it is a "good approximation" (*ibid.*, p. 90). Subscripts indicate that both consumption expenditures and income are expressed in terms of the wage-unit.

56 *Ibid.*, p. 89. Recall Robertson's suggestion of the necessity of distinguishing between what *can be expected* (given the spending propensities) and what the entrepreneurs may, in fact (or fancy), actually expect to realise.

which derives from expenditures on consumption goods; expenditures on investment goods make up the other part, and are determined by other factors to be discussed under the general heading of the "inducement to invest."

Expenditures on consumption are made to depend chiefly on the income, Y, which is generated by a given level of employment. Certain other factors, objective and subjective, are also held by Keynes to influence the consumption expenditures which will be made. Since Keynes takes the subjective factors as given,[57] we may concern ourselves principally with his exposition of the operation of the objective factors. They are as follows:

(a) At any level of employment, consumption expenditures will vary in the same proportion as the value of the wage-unit, although some deviation from this might be expected if changes in the value of the wage-unit are coincident with a changed distribution of income.

(b) Although Keynes admits that net income rather than income is the concept of most importance to consumption, he argues in this section that changes in net income not reflected in income (and vice versa) are of no "practical importance" as concerns consumption expenditures.

(c) Windfall changes in capital values which, Keynes states, bear "no stable or regular relationship to the amount of income," [58] are "major" influences in determining consumption.

(d) Only very considerable changes in the rate of interest will be likely to change the propensity to consume in the short period (the main influence of interest being via its effect on income).[59]

57 *Ibid.*, p. 91.

58 *Ibid.*, p. 92.

59 If increased interest rates have the effect of reducing investment, they would tend not to encourage but to discourage saving (see especially *ibid.*, pp. 110-112); the theory that the supply curve of saving is elastic usually assumes that changes in the rate of interest are not coincident with changes in income (see, e. g., Professor T. N. Carver's *The Distribution of Wealth*,

(e) Changes in the taxing policy of the state are likely to have a considerable effect on spending.

(f) "Changes in expectations of the relation between the present and the future level of income,"[60] while they may affect individuals, are held to average out for the whole community and to exert relatively little effect because of their uncertainty.

Keynes's conclusion is that, given the money value of the wage unit, the consumption constituent of the Aggregate Demand Function (and thus savings) is principally determined by the level of income in terms of the Wage-Unit.[61] The factors (c), (d), and (e) listed above, as has been shown, can exert independent influences in so far as they are not in any stable relationship to Y_w, but Keynes is content to express his conclusion in such general terms that their influence is completely overshadowed by changes in Y_w. Finally, the shape of the Aggregate Demand Function is given by "the fundamental psychological law . . . that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income."[62]

New York, 1926, pp. 229-258). According to Keynes, it is the relation between the rate of interest and the marginal efficiency of capital which influences saving by means of its effect on employment and income. (*General Theory*, pp. 111-112.)

60 *Ibid.*, p. 95.

61 Not the least interesting of Keynes's comments on saving is that in which he points out that "actual rates of aggregate saving and spending" depend on the level of income and *not* on the various "virtues" (*General Theory*, pp. 110-112); according to the *General Theory*, it is only when "full employment" is established that "Virtue resumes her sway" (*ibid.*, p. 112). But this is surely an overstatement. There are two immediate factors influencing the rate of saving (i. e. the excess of income over expenditures on consumption), namely, the amount of income flow and the relative attractions of the income's different alternative uses. Keynes's case could be more reasonably stated in these terms, for it is clear that aggregate saving may be substantially reduced, even in the face of strong tendencies to the virtue of "thrift," if income tends to decline.

62 *Ibid.*, p. 96.

As a result of this relationship it follows that if employment, and therefore income, tend to increase " . . . not all the additional employment will be required to satisfy the needs of additional consumption." [63] Thus " . . . employment can only increase *pari passu* with an increase in investment; unless, indeed, there is a change in the propensity to consume. For since consumers will spend less than the increase in aggregate supply price when employment is increased, the increased employment will prove unprofitable *unless there is an increase in investment to fill the gap.*" [64]

Before we move on to the further exposition of Keynes's position, let us examine this concept of the " propensity to consume " somewhat further. While the notion of a propensity to consume is unquestionably an important one, it is not at all certain that Keynes's conclusions regarding it are altogether correct. For instance, Professor Viner has raised the question as to whether expenditure depends on currently realized or on anticipated income.[65] Obviously, if the latter is the significant determinant, then the consumer must be assumed to have a store of wealth to draw upon; if he does have this store of wealth, then he may also act with respect to *its* current (perhaps anticipated) valuation. All of this in no way destroys the point which Keynes is making; it amounts merely to a suggestion that other factors than currently realized income influence consumption expenditures, and that when they are taken into consideration they make the problem more rather than less indeterminate.

We might add that the propensity to consume may be influenced not only by the amount of wealth held in the form

63 *Ibid.*, p. 97.

64 *Ibid.*, p. 98. My italics.

65 " Mr. Keynes on the Causes of Unemployment," *Quarterly Journal of Economics*, vol. li, November, 1936, pp. 147-167; see especially, pp. 163-167. See also the article by Professor A. H. Hansen, " Mr. Keynes on Underemployment Equilibrium," *Journal of Political Economy*, vol. xliv, October, 1936, pp. 667-686; p. 674, n., especially.

of illiquid assets, but also by the amount of the cash balance over which the consumer has power, and which may be altered if the situation seems appropriate. This, of course, opens up the question of the factors which influence hoarding and dishoarding on the part of consumers. It seems not at all unlikely that where purchases are postponable, such action may have considerable effect on the flow of money demand onto the market for consumers' goods. But here again, any decision as to the implications of this action must be based on knowledge of the conditions under which the alteration takes place, of how the consumers act to accomplish their end, and of how the banking system behaves in the particular instance.

There is still another point of considerable importance. Is it correct to attend only to the aggregate of consumer demand, or is it necessary to take into account the distribution of that total demand, in any period of time, as between different kinds of commodities? In order to answer this question, let us ask it again in somewhat different form. Suppose that as Y_w varies C_w is distributed differently, in that as income increases, purchases of durable goods are effected which were postponed from the previous period of decreasing income. This means that consumers adjust budgets to incomes by varying purchases of certain durable commodities as, for example, furniture or houses. If this does happen then the demand for durable goods arising out of consumer expenditures varies directly with, but with a greater amplitude than, income. Has it not already been shown that if we break down the demand for goods in this fashion we may find possibilities for great variations in the demand for producers' goods and thus, in Keynes's terms, in the marginal efficiency of capital? [66]

But this does not indicate that Keynes is wrong. I think it merely shows that such an extension of his concept of propensity to consume would lend considerable support to his explanation of variations in employment and output. The sig-

66 Which is, I think, the main thesis of J. M. Clark's *Strategic Factors in Business Cycles.*

nificant point is that the example illustrates how rather important features of the system of business responses may be veiled by a conceptual apparatus which is expressed only in terms of aggregates.

(2) *The marginal propensity to consume and the multiplier: comments on Keynes's methodology.*

The next step in the development of Keynes's argument is the introduction of the concepts of the Marginal Propensity to Consume and the Multiplier. The former, dC_w/dY_w, represents the relationship between increments to consumption and to income—the value of the ratio tending to fall farther below 1 as successive increments to income tend to lead to successively smaller increments to consumption. Any given increment to income, Y_w, leads to increments in expenditure on consumption goods C_w, and on investment goods I_w, so that $dY_w = dC_w + dI_w$. This equation can be written $dY_w = k \cdot dI_w$ "where $1 - 1/k$ equals the marginal propensity to consume." [67] Thus k indicates that "when there is an increment of aggregate investment, income will increase by an amount which is k times the increment to investment." [68] It follows that if $1 - 1/k$ equals $\frac{dC_w}{dY_w}$, the greater (lesser) the marginal propensity to consume, the greater (lesser) the value of k. In this way a relation is established between k and the Aggregate Demand Function.

Keynes makes a very important use of the concept of the Investment Multiplier, by an argument which it is necessary to follow in some detail. The purpose of his discussion, which makes use of the Employment Multiplier notion introduced

67 If k equals $\frac{dY_w}{dI_w}$, it can be shown that $1 - 1/k$ equals $\frac{dC_w}{dY_w}$; the latter is equivalent to the original proposition that $dY_w = dC_w + dI_w$. *General Theory*, pp. 114-115.

68 *Ibid.*, p. 115.

into economic theory by Mr. R. F. Kahn,[69] is to show how a small increment of investment will tend to cause a greater increase in total income and employment. Mr. Kahn's concept represents the ratio of the increment to primary employment to the increment to total employment so that, where the employment multiplier equals k′ and where primary employment equals N_2, $\triangle N = k' \cdot \triangle N_2$. Then, assuming that k equals k′, if the marginal propensity to consume is set equal to 9/10, to use Keynes's example, the value of k is 10 and an increment of employment (primary) will stimulate an increment to total employment equal to ten times the former. This is the case as set up by Keynes. Of course there is no reason why the increment to primary employment should be stimulated or financed as a public works scheme, but Keynes discusses the matter on the assumption that it is so stimulated. Recent experiences with public works, however, indicate that counteracting influences may act to cut down the value of the multiplier; these matters are discussed by Keynes under the headings of two general results.[70] In the first place, the primary em-

69 See R. F. Kahn "The relation of Home Investment to Unemployment," *Economic Journal*, vol. xli, June, 1931; also Keynes's pamphlet, *The Means to Prosperity* (New York, 1933), which embodies the idea in a program of action. Keynes's comments on the Multiplier served further to stimulate interest in the concept; see G. Haberler, "Mr. Keynes' Theory of the Multiplier," *Zeitschrift fur Nationalökonomie*, August, 1936. The following are also very useful discussions of the same concept: J. M. Clark, *Economics of Planning Public Works* (Washington, 1935); M. Mitnitzkey, "The Effects of a Public Works Policy on Business Activity and Employment," *International Labour Review*, vol. xxx, no. iv; G. Colm and F. Lehmann, "Public Spending and Recovery in the United States," *Social Research*, vol. iii, no. i, May, 1936; E. R. Walker, "Public Works as a Recovery Measure," *Economic Record*, vol. xi, Dec. 1935; H. Neisser, "Secondary Employment: Some Comments on R. F. Kahn's Formula," *Review of Economic Statistics*, vol. xviii, no. i, Feb., 1936.

70 Keynes's first conclusion concerning the investment multiplier as it applies to the public works case is made on the assumption that there is "no reduction of investment in other directions" (*General Theory*, p. 117). This, of course, assumes away what may very well be the heart of the question. Pigou has suggested (*op. cit.*, p. 123) that the really important

ployment may serve to raise the interest rate because of the larger cash holdings which may be required as investment and employment increase in the face of a not too sympathetic bank policy, and because the method of investment stimulation may cause a sharp increase in the liquidity preference schedule in the sense of a greater desire on the part of people to hold their wealth in the form of cash. Second, the marginal efficiency of capital may be reduced by virtue of a raising of capital equipment costs, and because of the development of less optimistic views concerning the prospects for yields. Thus the two important factors influencing the inducement to invest *may* be unfavorably affected by an attempt to stimulate total employment through public works expenditures. All of this seems to show that it would be extremely difficult, in any specific instance, to assign any definite value to the multiplier; at all events it could only be an estimate of what is expected to happen *in the future*.[71]

Now while the concept of the multiplier is important in organizing thought on the very important question of the indirect effects of public spending, it seems quite certain that Keynes's use of the idea in dealing with *causal* relationships is incorrect.

In order to show where Keynes's theory of the multiplier involves an error let us consider, first, the criticism which has

unknown is the bank action which is necessary to implement the increase in incomes which the multiplier indicates will be achieved. According to Professor Pigou, it is "only with a banking policy directed to keep the money rate of interest constant... that the addition to new investment and the multiplier are independent and, so to speak, additive factors, jointly determining the effect on the volume of employment" (*ibid.*, p. 123.)

71 It may very well be that, as far as indirect effects on the marginal efficiency of capital are concerned, the expenditures made by the government will be no more important than the kind of price and wage policy which it serves to force upon the general business community through its own practice. These effects, very indirect to be sure in many instances, may be more important than the effect of increasing revenues. In any event the value of k is the result of the interaction of many factors, not all of them operating to affect the inducement to invest in the same way.

been advanced by Professor G. Haberler.[72] Haberler points out that Keynes's formulation of the relation between the marginal propensity to consume and the multiplier, or

$$\frac{1}{1 - \frac{\Delta C}{\Delta Y}} = k,$$

means that, in a *formal* sense it is possible to assign a value to the multiplier on the basis of knowledge about the marginal propensity to consume. Haberler points out that, formally, this is quite true. But he insists that, actually, it is not possible to do so. Keynes gets into this difficulty, according to Haberler, because he treats "relationships by definition as causal relationships."[73]

It seems clear that when one considers the nature of the conditions which operate to determine both the marginal propensity to consume and the value of the multiplier, one cannot determine the latter from the former in spite of the fact that the two are formally related to one another. This situation is explained by Haberler as follows. Keynes uses two concepts of marginal propensity to consume. They are (a) the "formal" sense, in which

$$k = \frac{1}{1 - \frac{\Delta C}{\Delta Y}},$$

and (b) the "ordinary or psychological" sense in which one deals with the factors influencing the use of income. But the value of k cannot be derived from the data which can be examined in connection with (b). Even though the only data which can be examined are those which are relevant to (b), the value of k cannot be derived from this information. Haberler points out that the value of k will depend on various factors such as the extent of the "leakages" of expenditures

72 "Mr. Keynes' Theory of the Multiplier," *Zeitschrift fur Nationalökonomie*, August, 1936.

73 *Ibid.*, p. 301.

into money balances, the effect of the new spending on the marginal efficiency of capital, and the magnitude of the income velocity of money.

But there is another way of expressing this methodological point which does, I think, reveal Keynes's error somewhat more simply. We begin with the perfectly unassailable proposition that $\triangle Y = \triangle C + \triangle I$. Now Keynes defines k as equal to $\frac{1}{1 - \frac{\triangle C}{\triangle Y}}$ when he says that $1 - \frac{1}{k} = \frac{\triangle C}{\triangle Y}$. If we substitute this expression for k into the equation $\triangle Y = k \cdot \triangle I$ we have $\triangle Y = \left(\frac{1}{1 - \frac{\triangle C}{\triangle Y}}\right) \cdot \triangle I$. This equation shows that it is necessary to know what the change in income will be in order to tell what effect a change in investment will have on income! In short, Keynes begs the entire question in his attempt to show what effect an increment to investment will have on income. What effect the new investment will have depends on a whole series of variables which are altogether unaccounted for in this formulation. Those mentioned by Haberler are significant; so also, as was suggested above, is the effect of the spending on the cost structure.[74] In short, by defining k as equal to $\frac{1}{1 - \frac{\triangle C}{\triangle Y}}$ Keynes determines the value of the multiplier *after the effect on income has been produced.*[75] This sort of procedure does not

74 Factors which must be considered in determining the probable effects of public spending are discussed by J. M. Clark. See his *Economics of Planning Public Works* (Washington, 1935).

75 By dealing with the *accomplished* change in income Keynes neglects the time problems involved in the theory of the multiplier. It stands to reason that the additional spending must work out its effects *over time.* Keynes's statement that the theory of the multiplier holds good "in every interval of time" (*General Theory*, p. 123 and erratum note, p. 403) is of no use whatsoever in explaining how income changes through time.

explain why the assumed change in income did occur, yet this is the problem which calls for explanation.

There is an interesting section in the *General Theory*[76] where Keynes comes face to face with this matter of factors influencing the multiplier. He discusses public attitudes and confidence and the extent to which they may render quite abortive any attempts to "stimulate" activity. It is, of course, true that in a system which is largely wedded to the notion that the state should not take an active part in any production of goods and services which might be remuneratively produced by private enterprise, there is little left for the state to do which will not appreciably depress business morale because it doesn't "pay." Keynes recognizes this and so, with great faith in a high value for the multiplier, he seems to find considerable comfort in speculating as to the advantages which might grow out of pyramid-building, etc.[77] But this is only because he seems to feel that such activities would be the least unpalatable to private enterprise, and would still have the advantage of stimulating investment in other more useful goods and services under the management of private enterprise.[78] The inconclusiveness of this particular part of Keynes's work illustrates how inadequate is his treatment of the *causal* factors in the theory of the multiplier.

76 Chapter x, sec. vi.

77 *General Theory*, p. 220; see also the same on the possible advantages of "digging holes"!

78 In view of the qualifications which Keynes has urged against the use of the multiplier, it is perhaps justifiable to point out that his statement that such expenditures will be most effective at the very bottom of a depression should be considered in the light of the possibility that at such a time confidence may be easily shattered. It would not, however, be correct to lay too much stress on this point, for it appears in the light of recent American experience that private enterprise is more amenable to outside influence at that time and that it tends to become increasingly hostile to government activity in the business field as recovery proceeds. See J. R. Hicks, *Economic Journal*, June, 1936, pp. 241-242, on the relationship between public works and "expectations" and thus upon the degree of determinateness in forecasts to which the method of the *General Theory* can lead.

CHAPTER IV

THE MARGINAL EFFICIENCY OF CAPITAL AND THE RATE OF INTEREST

IT was indicated in the preliminary summary in Chapter I that a considerable portion of Keynes's theory of the business cycle can be stated in terms of the relationship between the marginal efficiency of capital and the rate of interest, in so far as they interact to determine the Inducement to Invest.[79] In order to develop Keynes's theory of the cycle it is necessary to review his analysis of these two factors.

(1) *The marginal efficiency of capital: explanation and criticism of the concept.*

The marginal efficiency of capital is defined by Keynes as "that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price."[80] This seems to be equivalent to saying that it is the rate which would equate current demand price, *based on future prospects of yield,* with the current supply price under conditions of equilibrium. The significance of the concept is that if the rate of interest is less (more) than the marginal efficiency of capital, the demand price for particular capital goods will be greater (less) than the supply price and there will be a tendency for production to be adjusted to a higher (lower) level of employment and income. In this form it seems to lead to one version of the market-natural interest rate theory. The concept relates specifically the prospective yield and the current replacement

79 This is basically the relationship between the demand for and the supply of loanable funds. See especially, *General Theory*, p. 165. See also Robertson, *Economic Journal*, vol. li, p. 175.

80 *General Theory*, p. 135.

cost of the marginal increment of capital goods. The marginal efficiency of capital as a whole is given by the greatest of the marginal efficiencies of particular capital goods.

The concept of the Investment Demand Schedule for capital as a whole shows the relationships between the marginal efficiency of capital, as defined, and the various rates of investment. The curve should show the rate of marginal efficiency diminishing as the rate of investment increases (considered from the static point of view) because of increases in relevant supply prices and decreases in the prospective pecuniary productivity of marginal increments of particular capital goods. It can be argued then, as Keynes does, that investment will be pushed to that point at which the marginal efficiency of capital is equal to the rate of interest.[81]

There is a certain vagueness attached, however, to estimations of the marginal efficiency of capital for the reason that these estimations must be based on future prospects. In so far as this is true, and if the community is typically subject to fluctuations in the rate of activity, the estimates are only possible within a fairly wide range of uncertainty. This seems to entail marked indeterminateness in the investment demand

81 In his article on "Mr. Keynes' Theory of Employment," *Economic Journal*, vol. xlvi, June, 1936, pp. 238-253, Mr. J. R. Hicks seems to have confused these matters. He points out (p. 249, n.) that the economic system is always in equilibrium in the sense that the marginal efficiency of capital equals the rate of interest, but none the less his whole interpretation of Keynes's argument is in terms of discrepancies between the marginal efficiency of capital and the rate of interest. He apologizes for this on the grounds that "positions of disequilibrium are purely conceptual *reductiones ad absurdum*." Surely the essential point is not so much the equality of the marginal efficiency of capital and any relevant rate of interest as it is the level of employment which is determined by these two factors. Our main interest, if we are to follow this approach at all, should be in the shifts in the investment demand schedule and/or the relevant rates of interest. As Keynes puts it, the investment demand schedule tells us "the point to which the output of new investment will be pushed, given the rate of interest" (*General Theory*, p. 184). This centers the concept of equilibrium on the ***level of employment.***

schedule.[82] Keynes discusses such "long term expectations" at considerable length. The net result seems to be that, abstracting from possible changes in the rate of interest, the marginal efficiency of capital is apt to be very variable because of the necessarily uncertain and changeable basis upon which future estimates are established. From this it follows that the concepts of the investment demand schedule and the inducement to invest are vague and uncertain to the same extent.[83] This fact of variability makes the maintenance of a sufficient volume of investment and employment a very considerable task. Keynes's opinion seems to be that this end cannot be realized merely by a policy of varying the interest rate. In fact, he has moved a considerable way from that point of view. In his opinion it is and will be necessary to adopt much more direct methods. This means, to him, that the state will have to assume "an ever greater responsibility for directly organizing investment."[84] This involves not only his theory of interest, which has not yet been explained, but also the further question of "policy." Before we can discuss these matters adequately it will be well to consider somewhat further the concept of marginal efficiency as applied to capital.

There is a fundamental difficulty involved in this concept; really a two-fold difficulty. In the first place, the marginal efficiency of capital cannot be used as an analytical device without presupposing a whole structure of distribution theory which enables us to distinguish between and evaluate the contribu-

82 The unconvincing conclusions to which abstract concepts may lead when it is difficult to give them any definite "values" are well illustrated by the argument of the *General Theory* (pp. 141-142) to the effect that a fall in the value of money will stimulate employment by raising the marginal efficiency of capital. The proposition is brought nearer to reality when Keynes introduces the effect of the rate of interest in this situation. No attention is given here to how the money is spent or what effect it has on expectations, except in so far as it influences the rate of interest.

83 The uncertainty is not in the concept, *per se*, but in the "*value*" which might be assigned to the factor at any given point.

84 *General Theory*, p. 164.

tions of all the productive factors. This conceptual difficulty is not, it seems to me, adequately considered by Keynes. There is in the *General Theory* a tacit acceptance of the main tenets of the "anticipated marginal pecuniary productivity" theory.[85] But this theory is meant to describe the conditions of a highly competitive market. Keynes does not go into the qualifications that must be made to the theory when it is applied to an imperfectly competitive market.

Further, if there is an essential interdependence of economic phenomena, then there is probably as much significance, on cost grounds at least, in the marginal productivity of labor (that is, in the anticipations of yield) and the money rate at which a unit of labor is rewarded as there is in the corollary notions with respect to "capital." It seems not unlikely that wage theory could be raised to a level of significance equal to that now enjoyed by capital theory in the analysis of the business cycle. The working capital of a firm is "productive" in the sense that it finances the employment of labor, and its pecuniary productivity is significantly influenced by the relation between the "productivity" of the employed labor and the rate of wages prevailing in the market.[86] But our purpose here is not to insist on the essential and general superiority of either one or the other of the two concepts as an analytical device; it is simply to indicate that neither one nor the other can be developed independently.[87] Keynes's procedure of dealing only

85 We have already noted the explicit acceptance by Keynes of the marginal productivity theory of wages.

86 The significance of labor costs will, of course, vary for different kinds of productive processes. This again indicates the necessity of a less general approach to economic analysis.

87 This general question is referred to by Prof. A. H. Hansen in *Economic Reconstruction*, Report of the Columbia University Commission (New York, 1934), p. 216, n. He refers to a natural-market rate wage theory developed in an article by Jorgen Pedersen, "Wicksell's Theorie des Zusammenhangs zwischen Zinssatz und Geldwertschwankungen," *Archiv für Sozialwissenschaft und Sozialpolitik*, May, 1933. But Hansen does not altogether subscribe to either the interest or the wage theory, in this form; he is particularly inter-

with the relation between the rate of interest and the marginal efficiency of capital is undoubtedly due to his assumption that wages *equal* the marginal productivity of labor. When this assumption is removed, the rate of wages becomes a more important element in the theory.

The second aspect of the difficulty is this: Keynes has constructed a concept of the marginal efficiency of capital as a whole. But it may well be that the most illuminating data for economic analysis are those concerning the expected returns on capital investments in different sections of the economic system. This is particularly important in an imperfectly competitive market. There is a remarkable difference here, for example, between the methods used by Hayek and by Keynes. The former is interested, in *Prices and Production,* in the profit margins (that is, *realized* productivity) in various parts of the so-called structure of production; his whole theory of economic adjustment and change runs in terms of intra-structural differences in returns. The latter, on the other hand, scarcely touches this question in his enthusiasm for the "whole." To many students this will seem to be a not too desirable sort of procedure; J. M. Clark, for example, rests his analysis almost completely on a study of differences in response as between different parts of the system.[88] Briefly, the method of explaining unemployment by reference to *a* rate of interest and *a* marginal efficiency of capital (a schedule of demand for investment funds) involves a degree of simplification which may obscure some really important causal factors.

Finally, there is the added question of the determination of the *shape* of an Aggregate Investment Demand Schedule. The problem may be stated in this way: How will the marginal efficiency of capital vary if all other factors, aside from the amount of capital, are held constant? On the other hand, how

ested in a generally flexible cost structure, and avoids the placing of exclusive significance on either interest or wage costs (*op. cit.*, pp. 216-217).

[88] Note, for instance, his treatment of "Timing" in his recent *Strategic Factors in Business Cycles*, pp. 23-73.

will the marginal efficiency of capital vary if, while the amount of capital varies, labor is increasing in amount and efficiency, if new and more productive natural resources are being opened up, and if new techniques of production are being introduced? These are the problems which would have to be dealt with (and even here we have abstracted from anticipations) if one is to explain variations in the productivity of capital. Since Keynes places so much emphasis on this concept, it seems that he might have attempted a more comprehensive analysis of the dynamics of the productivity theory. We do get some hint from Keynes as to the effect of increasing capital equipment on the expected returns from further new investment; the discussion is found in the section concerned with the trade cycle theory. But here we find no solution to the question of the trend in returns when all factors increase proportionately, as compared to the trend in a society where capital alone is increasing in amount. Nor is there any discussion of the "economies" (or "diseconomies") which might conceivably influence the shape of the Investment Demand schedule in either case. But to this matter we can return when we have discussed the theory of interest. This is a necessary step, for we shall see that the trade cycle and, more generally, the normal level of employment are influenced by the interaction of the marginal efficiency of capital and the rate of interest.

(2) *The theory of the rate of interest.*

A large part of the discussion which has been stimulated by Keynes's *General Theory* centers around his theory of the rate of interest. It is this portion of his work which Mr. Keynes believes to be particularly significant as a departure from customary methods of economic analysis. The theory is of particular interest to us because it is in this connection that monetary factors are introduced into the general theory as determinative forces. In the following paragraphs we shall attempt to state Keynes's theory of the interest rate and to show how it relates to the general theory of employment.

At the very outset, Keynes indicates that the significance of the interest rate theory is that it throws light on the factors which govern the terms on which loanable funds will be supplied.[89] The schedule of the marginal efficiency of capital, on the other hand, indicates the terms on which loanable funds will be demanded. These two factors, interest costs and the marginal efficiency of capital, are determined independently of one another and taken together govern the rate of new investment.[90]

In developing his interest rate theory Keynes points out that individuals make two different decisions: (a) what proportion of income to spend on present consumption and (b) how income not spent on present consumption is to be utilized. The latter decision involves a choice of alternative uses of savings. The individual is conceived of by Keynes as thinking in terms of *two* alternatives, namely, purchasing illiquid assets or maintaining a liquid position by holding cash. The result of the decision as to consumption and saving is represented in the marginal propensity to consume; the decision as to how the savings are to be utilized is represented by what Keynes calls the liquidity-preference of the individual. The schedule of liquidity-preference is defined by Keynes as the curve showing the amounts of cash which the public will desire to hold at various rates of interest (prices of long-term debts). The curve is represented as being one which shows that a fall in the rate of interest will increase the demand for cash, and *vice versa*.[91] Thus it may be said that the rate of interest is *determined* by liquidity-preference and the supply of cash. Keynes defines the rate of interest as the price which equates the demand for and the supply of cash, not as the price which equates the "demand for resources to invest and the readiness to abstain from present consumption."[92] The rate of interest is,

89 *General Theory*, p. 165.
90 *Ibid.*, pp. 245-247.
91 *Ibid.*, p. 167.
92 *Ibid.*

in other words, a return for sacrificing liquidity rather than a return for abstaining from present consumption or "waiting."

The importance which Keynes ascribes to this tendency of individuals to hold cash has led him to consider in some detail the various reasons for which cash is held. They are as follows: (a) the *income-motive,* traceable to the necessity to "bridge the interval between the receipt of income and its disbursement," (b) the *business-motive,* traceable to the necessity to "bridge the interval between the time of incurring business costs and that of the receipt of the sale-proceeds," [93] (c) the *precautionary-motive,* which is due to the necessity of providfor "... sudden expenditure and for unforeseen opportunities of advantageous purchases, and also to hold an asset of which the value is fixed in terms of money to meet a subsequent liability fixed in terms of money," [94] and (d) the *speculative-motive* (which is by all accounts the most important motive), which is determined by the rate of interest in the sense that "... there is a continuous curve relating changes in the demand for money to satisfy the speculative motive and changes in the rate of interest as given by changes in the prices of bonds and debts of various maturities." [95]

The speculative motive for holding cash, which is the most significant reason for there being a preference for liquidity, is explained by Keynes as being the result of two necessary conditions. First, that there is uncertainty as to the future price of debts (rate of interest). This means that an individual is not certain of the terms upon which debts owned can be converted into cash. Second, if one feels that the present price of debts is too high (that is, that the current rate of interest to be earned for parting with liquidity is too low) he will sell assets to hold cash. This means, *ceteris paribus,* that as the rate of interest rises the amount of cash which the community will want to hold decreases.

93 *Ibid.*, p. 195.
94 *Ibid.*, p. 196.
95 *Ibid.*, p. 197.

It can be said then that, given the schedule of liquidity-preference, the rate of interest is determined by the supply of cash, or given the supply of cash the rate of interest is determined by the position of the liquidity-preference curve. The rate of interest can change, according to this theory, because of changes in either of these two determining factors. From the point of view of the control program it can be said that, given a certain schedule of liquidity-preference, the monetary authorities can lower the rate of interest by purchasing long-term assets. As their prices are bid up, the public will prefer to hold cash rather than non-liquid assets, and the rate of interest will decline. Obviously, the effect of this action may be to leave the interest rate unchanged if, while the authorities are purchasing debts, the liquidity-preference of the community increases (that is if the curve of liquidity-preference shifts upwards).

Keynes designates the total supply of money as M; then he sets M_1 equal to that part of the supply which is held to satisfy the income, business, and precautionary motives. M_2 is set equal to that portion of the supply which is held to satisfy the speculative motive.[96] If we let R represent the rate of interest and L the schedule of liquidity-preference, we may say that if M_1 remains constant in amount and if there is no change in L, an increase in M must raise the prices of debts (lower the rate of interest) to that point at which the supply of cash will equal the demand for cash at the given rate of interest. It seems to follow from Keynes's theory that the effect of the increase in M on the rate of interest will depend, in this instance, on the elasticity of the liquidity-preference curve. But any change in M may, by affecting R, cause a change in the volume of activity and income, and thus cause a portion of the increased money supply to be absorbed in an increase in M_1. At any rate, the increment to the money supply will distribute itself somehow between M_1 and M_2, depending on the effect

96 Hawtrey calls M_1 "active" balances and M_2 "idle" balances. See *Capital and Employment*, p. 167.

of a change in R on income and the demand for cash to satisfy income and business requirements. Of course if L changes while the change in M is taking place, the distribution of the money supply between M_1 and M_2 will depend on the effect that is produced on interest. If liquidity-preference is rising while the money supply is being augmented, then the rate of interest may actually rise (the price of debts may fall) as people become more and more anxious to achieve liquidity. This is a factor of some importance, because it suggests the qualifications that have to be urged against the proposition that the monetary authorities can lower the rate of interest by buying long-term debts. They can do it, according to this theory, as long as the public is not increasingly unwilling to sacrifice liquidity at the existing rates of interest.

Keynes has pointed out that in a certain sense the liquidity-preference approach to this theory of interest can be expressed in terms of hoarding.[97] Thus, the tendency for individuals to prefer to hold cash rather than non-liquid assets cannot in itself cause the amount of hoards to increase. But it can, by causing sales of securities, force their prices down (raise the rate of interest) to that point at which individuals are no longer unwilling to hold debts. At this point we may say that the "bear" influence is overcome by a "bull" influence, and the demand for and supply of cash are equated at a higher rate of interest. This would amount, in this theory, to a raising of the whole liquidity-preference curve. The opposite case of an increasing willingness of individuals to sacrifice liquidity in order to gain the interest-earning advantages of non-liquid assets means a lowering of the liquidity-preference curve. In this case, the price of bonds would be bid up to that point at which the "bull" influence would be overcome by the "bear" influence, and the

97 But in Keynes's theory hoarding does not mean the holding of larger amounts of cash. It means a change in the views of the public as to the price which they must be paid to sacrifice cash liquidity.

supply of and demand for cash would be equated at a lower rate of interest.[98]

(3) *Comments on Keynes's interest theory.*

Let us now consider some special aspects of this theory of interest. As has been pointed out, the rate of interest is determined by the interaction of the schedule of liquidity-preference and the supply of cash. The principal difficulties in this formulation concern (a) the meaning of "cash," (b) the relation of the concept of liquidity-preference to the more familiar concepts of "hoarding" or "velocity", and (c) the independence of the interest rate of the demand for loans.

We may examine, first, the meaning of the term "cash" or "money"; Keynes is not altogether clear on this point. "As a rule," writes Keynes, "I shall, as in my *Treatise on Money,* assume that money is co-extensive with bank deposits";[99] but he also says, in the same place, that anything up to three-month instruments, depending on the "particular problem," can be thought of as a store of generalized purchasing power and thus, presumably, as cash. But the central significance of the rate of interest in Keynes's theory calls for a more careful statement of the meaning of one of its principal *determinants.* What are the different problems which call for different definitions of money? The door to any statistical verification of the Keynesian theory is completely closed until

98 This account of the theory of the rate of interest is taken from the *General Theory,* chapters 13 and 15 especially. Keynes discusses the theory in his article on "Alternative Theories of the Rate of Interest," *Economic Journal,* vol. xlvii, June, 1937. In this article he insists that the theory runs in terms of the demand and supply for cash and not in terms of the demand and supply for *credit* (a view which he attributes to Robertson, Ohlin, and Hicks). He also indicates that another source of demand for cash comes from the needs of maintaining a cash balance prior to the actual investment in some enterprise. He suggests that this source may be of some importance in a boom period (*ibid.,* p. 247).

99 *General Theory,* p. 167, n. This is by no means definitive: would one include both time and demand deposits?

we can have a more satisfactory definition of what is to be considered as "money" or "cash."[100]

But suppose that we take Keynes's statement that for some purposes, at least, "time-deposits" and "Treasury Bills" can be conceived of as cash in his sense.[101] Is it not likely, as has been pointed out by Professor Jacob Viner,[102] that the satisfaction of the desire for liquidity can be accomplished without altogether diminishing the means of satisfying the demand for investment funds? There is considerable significance in Viner's suggestion that the money market mechanism may be such that the purchase of short-term assets ("cash" to Keynes, in some instances) may be made to provide for the financing of long-term projects.[103] This uncertainty as to what is meant by the term "cash" suggests a further major criticism of Keynes's liquidity-preference theory. Actually an individual has more than a choice between holding a long-term debt, purchasing a capital asset, or holding a demand deposit. There are, in point of fact, a multitude of different special uses for money which is not spent on present consumption. That is, there are many different *degrees* of liquidity.[104] It is both impossible and inappropriate to distinguish simply between *liquidity* and *illiquidity*. The proper development of the idea of liquidity-preference requires, first, a general statement of the different alternatives

100 This defect in the interest theory has been very ably discussed by Mr. P. T. Ellsworth, "Mr. Keynes on the Rate of Interest and the Marginal Efficiency of Capital," *Journal of Political Economy*, vol. xliv, 1936, no. vi, p. 774, n.

101 *General Theory*, p. 167, n.

102 "Mr. Keynes on the Causes of Unemployment," *Quarterly Journal of Economics*, vol. li, no. i, Nov., 1936, pp. 147-167. See pp. 154-157 especially.

103 See Viner, *op. cit.*, p. 156. This means, it seems, that the creation of cash is in the power of those who issue (sell) short-term credit instruments.

104 The development of theoretical systems invites the use of categories; indeed, scientific procedure is impossible without their use. But difficulties arise when the categorization gets out of line with the facts. Marshall's notion that there is a certain continuity in economic phenomena which makes categorization difficult seems especially in point at this stage of the argument (see his *Principles*, Eighth Edition, p. ix).

open to individuals, and, second, an analysis of the factors which influence people in balancing the respective attractions of the various alternatives. Keynes's theory is inadequate in that he over-simplifies the processes of investment.[105]

There is also an interesting question raised by Keynes's work in relation to the second general difficulty listed above, namely, the connection between the liquidity-preference concept and "hoarding." The point illustrates the difficulties involved in definitions. Viner interprets Keynes's liquidity-preference theory as being a device for taking account of the velocity of circulation of money against goods in general, or of hoarding.[106] Mr. A. P. Lerner, however, presents a different interpretation. The latter points out that no new hoarding can take place unless there is a change in the total of money holdings, that is, unless there is a change in the money stock. This follows logically from a definition of hoarding (net aggregate hoarding) as a change in the total of money holdings. However, if we define hoarding as a change in the ratio of disposable income to money holdings (after Robertson) it becomes a velocity concept (as Viner would seem to have it), and can change without there being any change in the money supply.

Differences in definition of this sort make it exceedingly difficult to interpret theories correctly. More seriously, the acceptance of any one definition may have the effect of influencing quite substantially selection of the particular type of economic change which is brought under examination.[107]

As we have seen, the idea of hoarding enters into Keynes's theory through changes in the position of the schedule of liquidity-preference. But if we interpret the concept of liquidity-preference as leading directly to a study of the influence of changes in the rate of turnover of money, there are other factors which would probably have to have more weight than they

105 Hawtrey has suggested that it is necessary to take the more complex situations into account. See *Capital and Employment*, pp. 218-219.

106 Viner, *op. cit.*, p. 153 especially.

107 See also A. H. Hansen, *op. cit.*, p. 675.

have received in the *General Theory*. For example, Viner has suggested that the effect of velocity changes can only be traced by taking account of the rigidity of the price and cost system in which the monetary change is acting. Viner, evidently, would place great emphasis on velocity changes, but would insist that they are especially influential when they operate in an inflexible price system.[108]

The third difficulty listed above, the relation of interest to the demand for loans, carries us into the center of interest rate theory. On this point there has already been substantial discussion of Keynes's theory. Both Professor Viner and Mr. D. H. Robertson have argued, on very similar grounds, to show that the interest rate is not independent of the demand for investment funds. Viner points out that the demand for cash for business uses and for consumption uses is influenced by the investment demand for capital and by consumption expenditures, respectively.[109] Robertson has shown that "productivity" conditions play a leading part in influencing those who take up, and hold, a part of the money supply for the operation of business.[110] Both writers attempt to re-establish the notion of interdependence in economic processes, and in particular to show how demand conditions affect the rate of interest from the investment side. The tendency of interest rates to vary directly with the quantity of money can be at least partially explained by the increasing demand for funds which develops with the expansion of activity.[111] This seems to indicate that if the demand factor is to be found in Keynes's theory, it must be shown that there is some relation between the desire (or better, the necessity) of business men to hold cash as business activity increases and the position of the curve representing liquidity-

108 Viner, *op. cit.*, p. 152.

109 *Ibid.*, pp. 158-159.

110 D. H. Robertson, "Some Notes on Mr. Keynes's General Theory of Employment," *Quarterly Journal of Economics*, vol. li, Nov., 1936, pp. 175-178 especially.

111 See Robertson, *op. cit.*, p. 178 and 178, n.; also Viner, *op. cit.*, p. 159.

preference. This seems to be really inherent in Keynes's theory. He does not, however, place much emphasis in the *General Theory* on these changes in connection with the determination of the schedule of liquidity-preference.[112]

Aside from the above reason for believing that there is some significant relation between the demand for funds for productive activity and the rate of interest, another reason has been advanced by Mr. Hawtrey to indicate that the rate of interest is not determined independently of the marginal efficiency of capital. He argues that a decline in the marginal efficiency of capital, traceable to a greater use of capital equipment, may cause some funds to be unused in productive investment (he uses the term " active investment ") because of a difference between the new yield and the rate of interest. In this situation the price of securities will rise, and the rate of interest will fall.[113] Thus, Hawtrey shows that the rate of interest tends to adjust itself to the marginal efficiency of capital.[114]

On the other hand, Keynes argues that it is the rate of interest which influences the marginal efficiency of capital.[115] Keynes has written that if a man is not induced to hold wealth in cash and if he buys a capital-asset rather than loaning the money, the prices of such assets will rise. If the prices of capital-assets rise relatively to their costs of production the volume of current investment will increase, and *vice versa*. This is to say that the public's view as to the appropriate level of the rate of interest determines the disposition of investible funds, the prices of capital goods and, thus, the marginal efficiency of capital.

112 In a later article, " The General Theory of Employment," *Quarterly Journal of Economics*, Feb., 1937, p. 210, Keynes agrees that this factor may act to increase the rate of interest. He also indicates that it is an important element in cycle theory.

113 *Capital and Employment*, p. 194.

114 *Ibid.*, p. 197.

115 *Quarterly Journal of Economics*, vol. li, Feb., 1937, pp. 222-223.

Hawtrey and Keynes are, therefore, taking different views as to the nature of the causal relation between the two factors. But I think it is possible to state the argument in a way which will emphasize the importance of thinking of interest rate determination in terms of an interaction of the demand for and the supply of investible funds. This is an important point, because Keynes tends to neglect the demand aspect of interest theory, which is usually emphasized.

Although Keynes thinks of an individual as having only three alternatives in the use of funds which are not spent on consumption—either to hold cash, to lend, or to buy capital assets [116]—there are in fact many alternative uses of funds. The marginal efficiency of capital indicates the expected yield, *at the margin,* when funds are actually used in investment and not held on deposit. Since it is the relations between the returns on the various alternative uses which determine how an individual will use his funds, we can say that an individual's decision as to how he will hold his wealth will be determined by the various returns (yields) on different investments. Thus the marginal efficiency of capital, if it is rising, may act to encourage people, for example, to use their savings to purchase equity securities, to make investments in their own enterprises, or to loan to others. This preference for "illiquidity" as against holding cash is not a function of any one factor, but is certainly influenced, along with other factors, by the yield being earned and expected on particular capital investments. When this yield is high individuals are able to offer higher prices for the use of money funds—in the case of equity securities, to offer new issues to the public at more attractive earning rates—and individuals will be willing to hold fixed-income securities only at lower prices. That is, the schedule of liquidity-preference declines. This means that, *ceteris paribus,* the rate of interest will rise. Likewise, if there is a decline in the marginal efficiency of capital a growing preference for fixed-income securities will

116 *Ibid.*, p. 217.

tend to lower the rate of interest. It appears, then, that there is a definite causal relation between the marginal efficiency of capital and the long-term rate of interest. I think this is in keeping with the so-called " common-sense account " of interest, which indicates that there is a relation between the demand for loans, based upon productivity, and the rate of interest charged for the use of funds.

Thus in both concepts, the marginal efficiency of capital and the schedule of liquidity-preference, we find problems which have either been unsatisfactorily dealt with or have been pretty much ignored. There appear to be adequate grounds for concluding that Keynes's analysis is not complete, even in the reasonable sense in which completeness could be asked for in these matters, nor is the theory, as expressed, a satisfactory explanation of the factors which determine the productivity of capital and the propensity to hoard.

CHAPTER V

THE THEORY OF PRICE MOVEMENTS

(1) *Summary of the theory of prices.*

HAVING discussed the concepts of the marginal efficiency of capital and the rate of interest in the previous chapter, we can now turn to Keynes's theory of the relationship between " effective demand " and the general level of prices. In the next chapter we will then show how these ideas are utilized in explaining cycles in business activity. According to Keynes's theory, effective demand (that is, the point of intersection of the aggregate demand function and the aggregate supply function) is in equilibrium at the point of full employment. If less than full employment obtains, the demand is said to be deficient and he argues that increases will lead, in general, to increases in output and employment. On the other hand, quite different results come if increases in effective demand are carried beyond the point of full employment. An increase of this order will " merely affect prices," that is, output and employment will not increase.[117]

The very sketchy theory of money and prices which we find in the *General Theory* is developed in connection with this concept of effective demand and of changes in its quantity. At this point it should be clear that Keynes's theory of prices, in so far as it is related to effective demand, must trace price movements back through effective demand to the aggregate demand and supply functions and, in turn, to the various factors which determine their shape, position, and movement. This fact must be constantly borne in mind in interpreting Keynes's price theory. Otherwise his price analysis will appear to be concerned only with the effects of changes in the stock of money on effective demand, and of the latter on the levels of prices and

117 That is, at the point of full employment, the elasticity of employment is 0 and the elasticity of the wage-unit equals 1 (*General Theory*, pp. 285-286).

output. In principle, Keynes is concerned with the price and output results which flow from the intersection, at different points, of the aggregate demand function and the aggregate supply function. At considerable risk of over-simplification, we may first summarize Keynes's explanation of the relationship between changes in the quantity of money and changes in effective demand, wages, prices, and output.

The brief treatment which Keynes gives these matters is of a very general nature. Prices, wages, output, and employment are dealt with only in terms of general levels. He makes no special effort to particularize about these quantities. Furthermore, his first conclusions are reached by assuming the productive units to be homogeneous, interchangeable, and having constant wage returns. On the basis of these assumptions, he concludes that output increases with increases in effective demand up to the point of full employment. After that point has been reached, if effective demand continues to increase with increases in the quantity of money, prices and wages will rise in what he terms "true inflation."

In order to explain the more complicated character of actual price movements, Keynes makes a number of important qualifications to this general statement. The qualifications are as follows: (a) effective demand may not increase in "exact proportion" to changes in the supply of money—that is, a given increase in M will be associated with a certain change (positive except in "highly exceptional circumstances") in effective demand, although it is difficult to say how great the change will be, in view of the fact that M works out its influence through R and thence onto effective demand in a quantitative degree determined by (1) the schedule of liquidity-preference, (2) the schedule of the marginal efficiency of capital, (3) the investment multiplier, and (4) the factors to follow under headings (b), (c) and (d); (b) due to the fact that productive units are not homogeneous, diminishing returns will set in as output increases, causing prices to rise with the cost of labor irrespective of the stability of the wage-unit; (c) if

the supplies of productive services are not entirely interchangeable, shortages or "bottlenecks," may develop as employment rises, causing "a sharp rise in the price of certain commodities" before full employment has been established;[118] (d) money wages will tend to rise discontinuously as employment increases, tending to cause prices to rise before the point of full employment is reached; (e) other marginal cost factors may also tend to increase as employment increases.

(2) *Comments on the theory of prices.*

On the whole, the principal significance of this theory lies in the method which Keynes uses and not in the conclusions which are reached. In particular, it should be noted that the effect of changes in M on effective demand operates *via* R and is conditioned by liquidity-preference, the marginal efficiency of capital, and the marginal propensity to consume. These factors are, in turn, further conditioned by the organizational and technical factors suggested under headings (b), (c), (d), and (e) above. Until we can *assign values* to these variables, it is impossible to state Keynes's theory of prices in quantitative terms of any degree of exactness. It is, of course, true that the values to be assigned are unknowns; this suggests that the real significance of the theory is in its concepts. Indeed, this is Keynes's intention. As he has put it, its function is "not to provide a machine, or method of blind manipulation, which will furnish an infallible answer, but to provide ourselves with an organized and orderly method of thinking out particular problems."[119]

118 It is in connection with this factor that the production period concept, as used by Keynes, is most intelligible. He defines the period of production of a product as "*n* if *n* time-units of notice of changes in the demand for it [the product] have to be given if it is to offer its maximum elasticity of employment" (*General Theory*, p. 287). Thus, for *technical* reasons, output may not change as rapidly as price in response to a given increase in demand. Keynes's use of the concept is notably free of the investment implications which now characterize the Austrian theory. Nor, contrary to the Austrians, does Keynes relate this technical interpretation to the interest rate in any direct manner.

119 *General Theory*, p. 297.

Furthermore, the theory is couched in terms which are so general as to be rather difficult to use in the study of actual price changes. The market conditions relevant to the distribution of particular goods are so different, the technical conditions of production vary so greatly as between special goods, and changes in the conditions of demand affect various goods so differently that propositions expressed in terms of total demand, total output, general technical conditions, etc., while they may attain a certain internal consistency, are no more than the very first steps in a theory of prices. The traditional methods of value analysis, which place the emphasis on the demand and cost conditions of particular goods, seem to be lost sight of in this general interest in the "whole." If the price (assuming that that is the important economic phenomenon) of a commodity changes, it is because, *in a particular market situation,* changes in revenue and cost conditions have so affected returns as to encourage individuals or groups to alter these sales conditions. And monetary movements, whether they be changes in the stock of money or in the rate of turnover, affect prices through these special revenue and cost conditions. It is only, it seems to me, by keeping one's mind firmly fixed on this elementary truth that one is able to see how prices will be affected by the impact of monetary changes.

With Keynes's attitude towards the function of price theory most people would be sympathetic; but it is not altogether certain that the method which Keynes proposes is the most appropriate to price analysis. Its real strength is that it traces price changes back to the factors which influence the demand for goods and the factors influencing their cost of production. But there are several special problems which do not seem to me to be adequately handled.

In particular, one aspect of price analysis which must be emphasized and which seems to suffer from insufficient attention in Keynes's version of the price system is the special character of price behavior of different parts of that system. Corporate policy, as well as government action with respect to

special commodities, is certainly an element in the economic picture which cannot be disregarded. This is especially true with respect to short period movements.[120] Furthermore, there seems to be some evidence that the action of these bodies is being chiefly exerted in the direction of bringing about a greater degree of rigidity in prices. If this practice becomes increasingly characteristic of the system in some of its important parts, then price theory will need to be stated in such a way as to take adequate account of the differences in price behavior involved. It is becoming increasingly evident that the effect of money on the economic system is very much dependent on the character of price behavior.[121]

Again, there is some possibility that a statement of price theory which centers as much interest as does Keynes's theory on changes in prices may have the quite undesirable effect of diverting attention from the relations between costs and prices —that is, from changes in the cost-price structure.[122] While a knowledge of prices and their changes will provide a part of the data for analysis along these lines, the variations in costs may be traceable to changes in the degree of utilization of plant and in the effectiveness of productive agents. For this reason it is not altogether correct to say that Keynes's defect is that he does not particularize about the system of prices. This is a defect, but it is present in all general price theories. A more subtle defect is that an attention to prices alone will not adequately display the factors influencing profits, and through them the causal forces behind business activity. If selling prices and costs are relatively inflexible, if a large proportion of costs are

120 Keynes makes occasional reference to "administered" or "rigid" prices. There is no consistent effort, however, to incorporate this important factor into the whole price theory. See, for example, *General Theory*, pp. 268 and 270.

121 See, for example, A. R. Burns, *The Decline of Competition*, pp. 245-266. Also, see Gardiner Means, *Industrial Prices and their Relative Inflexibility*, Senate Document, no. 13, 74th Congress, 1st Session, 1935.

122 See, for example, *Economic Reconstruction, Report of the Columbia University Commission*, pp. 20-25.

relatively fixed in nature, and if the system displays a considerable variability in the extent to which capacity is utilized, the incentives to expansion and contraction must be looked for in the profit conditions of business and not directly in price movements. If a plant is under-utilized, an expansion of demand may make for lower average aggregate costs and higher profits without any change in average revenue. An interest in price as such is an interest in average revenue alone, and if our intention is to explain variations in output and employment the data on prices can provide only a part of the explanation.

Finally, there is in Keynes's theory the obvious implication that one can change the rate of output of goods and services by the use of monetary devices. He writes, "the view that *any* increase in the quantity of money is inflationary (unless we mean by *inflationary* merely that prices are rising) is bound up with the underlying assumption of the classical theory that we are always in a condition where a reduction in the real rewards of the factors of production will lead to a curtailment in their supply." [123] Because he believes (as do most economists) that the factors of production will continue to offer their services (perhaps in increasing amounts) if real rewards fall, he argues that an increase in the quantity of money is sufficient to increase output. But all of this, as we have seen, depends on a long line of reasoning concerning the effect of changes in the money stock on interest, on the marginal efficiency of capital, on money wages, and on prices. The conclusion that one can change the rate of output by changing the money stock is no more defensible than the proposition that one can lower the rate of interest by increasing the supply of money.[124] Both propositions are true only if enough other conditions (of costs and revenues) are assumed to operate appropriately.

123 *General Theory*, p. 304.

124 It is a matter of very considerable interest that statistical investigations do not appear to substantiate the general conclusion at which Keynes arrives. See, e. g., J. W. Angell, *The Behavior of Money*, pp. 159-162.

CHAPTER VI

THE BUSINESS CYCLE AND PLANS FOR THE STABILIZATION OF ACTIVITY

(1) *Explanation of the business cycle.*

We turn now to Keynes's discussion of the business cycle. In the main, his theory is that a sudden shift (decrease) in the schedule of the marginal efficiency of capital causes entrepreneurs to hesitate in making new commitments. This change in expectations of yield, which is the medium which Keynes uses to show how confidence affects the economic system, alters the Investment Demand Schedule. Associated with the changed expectations of yield there may also be, according to Keynes, an upward shift in the curve of liquidity-preference and, on the assumption of an unchanged money supply, an increase in the rate of interest. The conjunction of these two factors, both manifesting the changed psychological state of the entreprenneurs and of the saving public, serves to discourage new investment. As investment falls off employment, output, incomes, and aggregate demand will decrease also. Briefly, a change in the Investment Demand Schedule and in the state of liquidity-preference is responsible for the transition from "boom" to "slump."

Of course the above is no really satisfactory explanation of the business cycle; one must account for the change in the expectations for yield, and also for changes in the public's views as to the most appropriate way to hold wealth. We know that Keynes's theory indicates that the marginal efficiency of capital will tend to decrease as investment increases, but this is a long-run and not a short-run view. Moreover, even if it were the latter, it does not explain either the "suddenness" of the change or the necessary disparity between expected yield and interest costs. In the *General Theory* this sudden change in expectations is explained variously as an "error of pessi-

mism,"[125] as "disillusion,"[126] or "doubt,"[127] which is fed by the falling off of current yield as the stock of new investment goods increases and by a growing feeling that current production costs are higher than they will be in the future.[128] This is surely the point at which Keynes's cycle theory is most disappointing. On the conceptual side, the analysis is not carried far enough really to indicate *why* yield tends to fall off (Keynes says "perhaps" it will).[129] There is also some difficulty, I think, in seeing just where and how the "psychological state of mind" comes to affect pecuniary calculations. There is little doubt but that some of the important causal forces are psychological in nature, but one would like to have a better statement of their character and a better treatment of how they operate in connection with the "technological" factors.

Keynes presents, however, a somewhat more detailed explanation of how recovery from a "slump" may take place. There seem to be two important factors which make for the necessary improvement in the expectations for future yield on capital. First, after an interval of time, "use, decay and obsolescence" cause an increase in the marginal efficiency of capital. Second, surplus stocks of goods, piled up during the boom, are gradually absorbed (a process of disinvestment) and create a demand for investment in working capital.[130]

Working back from this theory, it seems reasonable to say that the original falling off in expectations for future yield can be traced to an excess production of durable instruments and stocks of goods. At least, this would seem to be Keynes's version of the crisis.[131] The recovery, then, is a process of

125 *General Theory*, p. 322.

126 *Ibid.*, p. 321.

127 *Ibid.*, p. 317.

128 *Ibid.*

129 *Ibid.*

130 *Ibid.*, pp. 317-320.

131 It is surprising that Keynes has made no use of the theory that there is a tendency for the production of durable goods to be highly variable

re-equipping society with durable instruments, become relatively scarce, and of re-building a supply of inventories which has been abnormally diminished during the slump. This restoration of profitability to current activity (and of rentability to existing equipment) may proceed at such a rate, according to Keynes, as to develop expectations for future yield which lead to the excessive activity of the boom.

(2) *Comments on the theory of the cycle.*

It is not difficult to criticize Keynes's theory of the cycle, because of its very general character. But criticism on this ground is not altogether justifiable, since it is quite clear that Keynes is less interested in the theory of the cycle than in the long-run tendencies of the economic system. There is doubtless a great deal more that Keynes would want to say about the details of the cycle as such if his interests were centered particularly on that problem.

The most noticeable aspect of the "notes" which Keynes has written on the cycle is their apparent lack of any factual proof. By proof is meant a demonstration, for example, that stocks or inventories do behave the way he says they do. All of the quantities which Keynes places in relation to one another —employment, money and real wages, interest, money supply, degree of utilization of capacity, and prices—vary during the cycle in ways which carry considerable significance. Keynes makes no attempt, however, to test any of his deductions with facts.

If this attempt to study the variation of economic phenomena were made, it would require a far greater degree of particularization than Keynes's main concepts will allow as they now stand. Although this generality is a virtue in some respects, it raises many detailed questions. For example, in what fields does the yield tend to fall off first? Is there any regularity in

because of the operation of derived demand. The idea seems to fit very neatly into Keynes's theory.

the "timing" of *different kinds* of activity? What are the details of money behavior during the different phases of the cycle? How do incomes behave? Questions of this character can only be answered after appropriate categorization and careful observation. This sort of analysis has not been attempted by Keynes. His remarks are, as he calls them, merely "notes" on the cycle.

A more complete theory of the business cycle would require an explanation of the turning points in the cycle. No adequate explanation is given of why the change in the relationship of the marginal efficiency of capital to the rate of interest occurs in such a way as to produce the observed variations in the rate of investment. Nor is there any adequate discussion of the relation between cyclical and other variations. In reality, it is often difficult to distinguish clear-cut cyclical patterns in economic activity. What we have are more complicated longer periods, in which changes of a secular sort are taking place along with the briefer variations usually labelled "cyclical." But all of these questions are unattended to in the *General Theory* because, as we have pointed out, Keynes is less interested in this particular phase of economic theory than he is in the larger question of reformulating the methodology of economic analysis.

(3) *Summary of Keynes' control program.*

The fact that Keynes's interest in the cycle is secondary is indicated again by the character of the suggestions which he advances for the reduction of involuntary unemployment. They are not so much devices for treating the problems of "booms" and "slumps" as they are suggestions for the long-run ordering of society. The program which he suggests follows logically from his theory of the causes of involuntary unemployment.

We have already seen that the interest rate, which is governed by the schedule of liquidity-preference and the supply of cash, is apt to remain at a relatively high level for reasons of a psychological nature—a persistent desire on the part of the

public to avoid an illiquid use of its resources. We have also seen that the rate of new investment is governed by the relation between the marginal efficiency of capital and the rate of interest. Finally, we have seen that the expected yield on capital tends to vary for reasons, again of a largely psychological nature, which are more or less independent of the rate of interest. When new investment is insufficient to absorb the savings of the public, losses appear and under-employment increases.

On the basis of this sort of argument it is easy to see that Keynes would be likely to find more hope for reducing involuntary unemployment in a program which sought to influence the marginal efficiency of capital than in one which sought solely to influence the rate of interest. For example, he has argued that a temporary redundancy of fixed capital and stocks of goods, buttressed by a continuous reduction or disinvestment in working capital, may depress expectations of yield to such a low level that no possible interest rate reduction could have any stimulating effect.[132] If this is the case, and if indirect methods cannot serve to improve the prospects for yield on capital investments (whether long or short term), then one is left with the necessity of either waiting for some "natural recuperation" to set in or else of making *direct use* of resources. Keynes is so impressed with the possibility that this situation may lead to a further decline in the propensity to consume and to a further increase in the schedule of liquidity-preference, and he is apparently so sceptical of the self-recuperative powers of the system, that he comes out very strongly for a program of direct government use of resources. He concludes that "in conditions of laissez-faire"[133] the fact is that "the duty of

132 *General Theory*, p. 320. This is the situation which Hawtrey terms a "credit-deadlock."

133 One can only speculate as to what Mr. Keynes really means by this; he has already announced the "*End of Laissez-Faire*." But there is a very important matter at the bottom of this obscurity. What one might reasonably suggest as a course of action for a system in which the government normally

ordering the current volume of investment cannot be safely left in private hands."

This much does not mean that Keynes would take no action to influence the interest rate. On the contrary, he would like to have the interest rate kept at a level below the marginal efficiency of capital. This could be done by expanding the supply of cash. But, as we have seen, it may be a very ineffective course of action if the public's preference for liquidity is increasing at the same time.[134]

There is also another control scheme which is discussed rather thoroughly by Keynes. This is the scheme of wage-flexibility which he attributes to the classical economists.[135] Most of his discussion here concerns the possibility of stimulating activity by reducing money wage rates. His conclusions on this point are very definite. To sponsor such a policy is regarded as (a) "foolish," because of worker resistance, (b) "unjust," because of the inflexibility of many money incomes, and (c) "inexperienced," because of its effect on the burden of debt.[136] Furthermore, the policy would probably have the undesirable effect of weakening the propensity to consume and depressing the marginal efficiency of capital, if employers expected more wage reductions in the near future. As a general conclusion, Keynes states that the most appropriate policy for "laissez-faire" would be to (a) stabilize the wage unit in the short period, (b) allow enough flexibility in the wage system to allow for movements from one industry to another, and (c) as

plays an entirely passive role in economic affairs may not be the appropriate course for a government which has established procedures for direct economic action. By his very abrupt statement Mr. Keynes has also leaped directly over every *political* problem; I think that in a more deliberate statement he would be willing to concede the importance of some of these problems.

134 Hawtrey argues that investment processes are insensitive to changes in the long-term rate of interest, due to the great uncertainty concerning yield. See *Capital and Employment*, p. 217.

135 *General Theory*, ch. xix.

136 *Ibid.*, pp. 267-269.

a long run policy, allow wages to rise slightly as prices are stabilized.

Keynes's conclusions about the policy of wage rate reductions has been discussed by Professor Viner.[137] Viner believes that there is a real possibility that such action would not tend to injure the profit conditions of business. He argues that the theory that wage reductions will injure profit conditions depends on there being an immediate and proportionate decrease in both marginal variable costs (and thus in price, on the assumption that price tends to equal marginal variable costs) and in average variable costs. If such a response does take place, then there will be a greater absolute decrease in marginal variable costs and in average revenue than in average variable costs. Viner meets this argument by indicating that it is likely that the response in price (average revenue) will not be immediate. While enjoying the reduction in average variable costs caused by the wage cut (and a decrease in average aggregate costs which will depend, in amount, on the proportion of fixed to variable costs), the entrepreneurs will suffer no appreciable and immediate reduction in sales at the original prices. If this price and sales response is not immediate, then the profit condition of the entrepreneur will be improved. He may then go on, as Viner anticipates, to make expenditures which have been postponed to this time because of a depressed profit condition, and may thus increase the volume of employment which is offered.

From our point of view, which is the examination of method, there are several significant considerations which are evident in this difference of opinions. First of all, the essential difference between Keynes and Viner is itself a matter of method. The former is assuming a highly competitive system (he is actually criticizing laissez-faire conditions, it seems), in which there is an immediate, or at least a very ready, adjustment of price to marginal variable costs. The latter arrives at his con-

137 *Quarterly Journal of Economics*, vol. li, Nov., 1936, pp. 160-163.

clusion by assuming a less competitive market, in which the adjustment takes place only after a time lag possibly long enough to show such appreciable and sustained profits that employment will be improved. Here we have a very interesting example of the differences that may characterize conclusions based on different assumptions as to the nature of the market.

Also, the effect of a wage reduction on prices will depend in part, in so far as marginal costs do influence prices, on the proportion of variable costs which are wage costs. In some instances it might be shown that other costs might be a more important force in bringing about improved profit conditions. This, again, is a matter to be determined by close observation of the specific line of trade in question. In some important instances, as for example in the railroad industry, the policy of cost-flexibility may be more appropriately directed to overhead than to variable costs. In short, the desirability of a policy of wage flexibility is not a matter to be determined either on the assumption of perfect competition or as a policy for the " economy as a whole ". When average revenue has been forced out of line with average cost, the situation obviously calls for correction, but it seems impossible to prescribe the remedy except in the full light of the special circumstances of any given line of trade.

Larger questions are also involved on both sides of this issue. In Viner's argument, one must always take account of the kind of response that will be met from the side of trade union forces. A policy of money-wage reduction cannot be discussed without taking this factor into account. In both views, it is also necessary to state the kind of banking policy which is necessary to implement the wage policy.

Finally, either argument might well be analyzed from a different angle to indicate the kind of relationship between costs and prices which normally evidences itself in the economy in question. Considerable importance hangs on the time lag which Viner suggests will elapse before adjustment takes place. While it would not be possible to lay down any " rule ", or anything

more than a rough statement of tendency, it would be a matter of interest to know how the system has actually responded in the past to such conditions.

The method which Keynes utilizes to determine the justification of money-wage reductions is to consider their probable effects on (a) the propensity to consume, (b) the marginal efficiency of capital, and (c) the schedule of liquidity-preference and the rate of interest. There is no definite decision as to (a), although Keynes is inclined to feel that the repercussions would be " more likely to be adverse than favorable." His analysis of the effect on (b) leads to the conclusion that the prospect of continued wage reductions would do more to depress expectations than to improve them. As to (c), Keynes seems to feel that the only appreciable improving influence in this direction must be sought in a reduction in the demand for money. But he finally concludes that a moderate wage-cut would have only an unimportant effect on long-term interest rates while an immoderate cut would tend so to shatter confidence as actually to raise interest rates.

It is by this argument that Keynes supports his conclusion that a policy of wage flexibility is not a practical device for stabilizing the economic system. But all of this requires the qualification that the effect on (a), (b), and (c) above, of a reduction in money wage rates, will probably depend on whether or not the immediate effect is to improve the profit status of industry. We have indicated above that this depends in turn on the revised state of current and expected costs and current and expected revenues. The effects of such action can best be studied in terms of changes in these factors in any given line of business. It is also essential to take into account the non-monetary factors which will act to influence the expectations of employers (it is to Keynes's very great credit that his concepts are in such form as to allow an easy expression of the influence of such factors), the banking policy both of the current situation and of the calculable future, and the aims and accomplishments of other parts of the general economic policy,

of which wage-reduction is likely to be only one phase. It is essential to insist on this very last point: no conclusion as to the influence of wage flexibility can be arrived at until one has taken account of the other policies which are being pressed concurrently by the authorities.

Keynes has also used the theory which we have been discussing to throw light on the current problem of controlling boom conditions in England.[138] This program is of particular interest because it involves more detailed suggestions than were presented in the *General Theory*. The main point in Keynes's argument here is that interest rates should under no conditions be raised; such action is to be avoided, as he puts it, like "hell fire." In his mind the increase in rates, which is not called for by any precariousness in the position of the banks, would tend to create the slump which it is the intention to avoid. It might also have the effect of raising disastrous expectations of further increases in the interest rate. None the less, he does feel that in such conditions of activity it is desirable to take steps to dampen down the rate of investment, especially in the more speculative lines of trade. His preference is for doing this by indirect methods—by means of more effective and exacting exchange listing requirements, by influencing the banks to be more cautious about sponsoring security flotations, by an "austere" Treasury policy of financing armament out of taxation (the opposite of the appropriate slump policy of lightening the tax burden), and by holding back on "local improvements," that is, by reducing the rate at which localities carry out public works projects. Keynes is also very anxious to lay plans for combatting any slump which does appear, and he therefore suggests the establishment of a public body to plan appropriate public works projects.

Thus the traditional device of interest rate control is found by Keynes to be ineffective in a slump and ill-advised in a boom. The central position in the control scheme seems to have defi-

138 "How to Avoid a Slump," *London Times*, January 12-14, 1937.

nitely passed over to direct action by the state in the field of public expenditures.

In general, Keynes argues for a policy which would increase the propensity to consume and which will increase investment activities until full employment is achieved. The first, it seems, is to be sought principally through a taxation policy which will raise levies on higher incomes and which will impose heavy death duties.[139] The second is to be effected by state action aimed at maintaining interest rates at that level which, taken relatively to the expected yield on capital,[140] will maintain full employment. If an effective reduction of interest rates cannot be made,[141] it is necessary to have recourse to a policy of public works expenditures which involves a "comprehensive socialization of investment."[142]

There are no new problems of conceptual analysis involved in these suggestions, but there are some very general considerations which seem worthy of note. We have already seen, in our discussion of the "value" of the multiplier, that the chief difficulty in Keynes's public works scheme, on the grounds of his own theory, is that it may have unwanted effects both on the expectations for future yield on capital and on liquidity-preference. This is particularly true when the scheme calls for a progressive increase in the public debt. If these expectations are very substantially injured, and if the propensity to hoard does tend to strengthen, then Mr. Keynes's scheme will head for a more thorough socialization of economic life than he appears to calculate. Furthermore, somewhere on this course it would be necessary to decide to spend some of the resources of the state in providing the bare means of subsistence (to the further destruction of private expectations), unless the community is to starve itself building roads over which no private

139 *General Theory*, p. 378.

140 *Ibid.*, p. 375.

141 He fears it cannot (*ibid.*, p. 378).

142 *Ibid.*, p. 378.

producers can see any advantage in transporting goods to market. This latter very pessimistic view would result from the opinion that public works will tend, progressively, to depress private expectations. The more optimistic view is based, of course, on the belief that such a depression of feeling will not develop—in fact, that increased revenues from public expenditures will improve profit conditions and tend to raise private investment. The truth probably lies somewhere between these extremes. But a very significant question is raised as to the kinds of social system and social action which such a program requires. It is one thing to conceive of a social system planned for collective action and maintained as such; another matter to conceive of a system partly socialized and partly private; and still another matter to think in terms of a system which is expected to alternate between socialized and private investment with the various phases of the business cycle!

To the "radical", the program advanced by Mr. Keynes will not commend itself as a fundamental cure for the basic economic ills of capitalism. To the "conservative" it probably suggests an undesirable extension of state action into the field of private industry. To the person willing to accept the necessity of state action of this sort it leaves some of the problems, which seem to be of central significance, quite unsolved. It is, for example, much to be desired that Keynes should indicate the kind of wage and price policy which is to be practiced by the state in its public works program, and to indicate, further, how the program is to be financed. Finally, one must show what the state can do by way of public works which will provide needed goods and services to the community without unduly disturbing private expectations.

CHAPTER VII

SUMMARY

In the foregoing chapters of this essay on Keynes we have summarized and commented upon the main features of his recent volume, *The General Theory of Employment, Interest, and Money*. In Chapter I we showed, by way of introduction, why he considers his theory more *general* than that of the classical economists. He argues that classical theory is applicable only to a system in which there is a tendency for the marginal disutility of labor to be equal and opposite to the marginal utility of the wages earned at that point. If this were the case, *ceteris paribus*, only an offer of higher *real* wages would encourage workers to accept more employment. Keynes holds that since this is a special and not a typical situation, the classical theory is "special" in nature. On the other hand, Keynes argues that the *General Theory* is applicable to all situations, and indicates conditions under which more employment will be accepted at *lower* real wages. I think the main conclusion of *practical* importance that grows out of a comparison of these two views is that a rigid adherence to the former would require one to support a policy of wage-cutting as a depression remedy, while the latter indicates that recovery may be started by an expansion of the money stock which raises the prices of consumers' goods relatively to money wages (that is, lowers the rate of real wages).

We suggested, further, that the classical assumption which Keynes criticizes traces to the fact that monetary disturbances are treated by the classical writers (for example, Ricardo and Marshall) as non-operative in the situations which they described in their value and distribution theory. While it certainly cannot be said that the monetary factor was ignored by Marshall, it is also quite clear that its virtual exclusion from his value theory did not heighten the reality of that structure

of thought. Keynes's attempt to introduce the monetary factor into general economic theory is, I think, an altogether appropriate development. This is perhaps the most significant feature of Keynes's work.

As to Keynes's proposition that employment can be increased by raising the prices of wage-goods relatively to money-wages, this depends on there being in actuality the kind of relation between money, interest, the marginal efficiency of capital, and the level of employment which Keynes posits. In the various sections devoted to these special concepts, however, we have found reasons to doubt that increases in the money stock will alone cause an increase in output. We have also seen that the concepts utilized by Keynes are not adequately developed (Chapters III and IV). Keynes's proposition cannot, therefore, be taken as satisfactorily demonstrated.

In Chapter II we discussed the principal terms of Keynes's theory, with special attention to the concepts of Saving and Investment. We have seen that the equality between saving and investment which Keynes premises depends on a different handling of the problem of time from that which we found in Robertson's work. We have also seen that Keynes's preoccupation with the idea of equality between savings and investment has led him to disregard altogether the idea of " forced savings " and the change in the distribution of resources which this may entail. I can see no way in which this latter set of ideas can be reconciled with the Keynesian theory.

In Chapter III our main criticism was of the concept of the multiplier. We showed that, when developed from the concept of the marginal propensity to consume, the multiplier merely shows the change in income which *has been* accomplished. The concept is of no special value in dealing with the practical problem of finding out how much of a change in income *will be* produced by any given amount of investment expenditure.

In Chapter IV we discussed the concept of the marginal efficiency of capital and Keynes's theory of the rate of interest.

In connection with the former, we suggested that Keynes had not adequately handled the dynamic aspects of capital theory. Further, he assumes an equality between wages and the marginal productivity of labor which makes it impossible for him to give an adequate explanation of profits.

The interest rate theory was also discussed at some length. In general, our attempt was to show that the rate of interest charged for various kinds of loans *is* influenced by the marginal efficiency (anticipated productivity, in the older terminology) of capital. This point of view is, of course, opposed by Keynes, who insists that the causal relation runs from the rate of interest to the return on investments.

Finally, in Chapters V and VI we dealt with the brief sections of the *General Theory* concerned with the theory of prices and the business cycle. In connection with the latter we suggested that Keynes's high hopes for regulating economic activity through public works expenditures (I think this is what the control problem really comes to) are expressed without sufficient regard for the larger political problems which are involved. But on this point no one can speak with any very great definiteness.

As we have indicated in various places, the main object of our work is to examine the analytical devices used by different writers in the study of prices and production. Keynes's volume has been especially interesting in this respect, because he emphasizes his departure from customary methods of analysis. In discussing the various aspects of his general theory, however, we have found it to be quite faulty on several grounds. Keynes is, I think, rightfully disturbed by the fact that some of the most important problems in economic theory are dealt with only very sketchily in his last book. On the other hand, his attempt to settle once and for all the meaning of "productivity" is quite disappointing: he has here dealt with capital almost to the complete exclusion of labor, and he has not, as we have shown, given an adequate statement of the productivity of

factors under dynamic conditions. There is in this respect little improvement over the older statements of productivity theory.

Then there is the interest theory, which he considers a great departure from and improvement over " classical " theory. We have tried to show that his neglect of capital productivity weakens rather than strengthens his analysis. In this discussion, as throughout the volume, Keynes fails to define clearly some of the important terms, and deals in a very general fashion with certain problems which are best dealt with along lines involving more detailed analysis.

From our point of view, then, Keynes has not been altogether successful in his reformulation of economic theory. His real contribution, I believe, is in his insistence that general economic theory, that is the theory of value and distribution, must be stated in terms which give full recognition to the operation of monetary forces, and in his attempt to construct a " monetary " theory of production. Neither of these tasks seems to me to have been adequately accomplished, but Keynes has indicated some of the lines along which the development should proceed.

PART V

CONCLUDING REMARKS

In the foregoing essays we have dealt with the monetary and business cycle theories developed by four of the leading writers in these fields. Their respective explanations of changes in prices and production have been summarized, with special emphasis on the analytical devices which are used. Although no detailed comparison of the four structures of thought can be made in this volume, we have attempted in various parts of the essays to call attention to some of the more important likenesses and differences. Our criticisms of the analytical methods and the main conclusions of the various writers have been advanced in the various essays, and no attempt will be made at this point to recapitulate that material in detail. But there are some questions which will bear restatement in this final section. They concern the procedures of economic analysis and the statement of economic policy. The questions concern what seem to me to be the principal inadequacies of the theories which we have been examining.

(1) *The relations between monetary theory and general economic theory.*

The first and most important analytical problem concerns the general character of monetary theory. It is quite clear that that branch of economics is now very closely connected with business cycle theory. This fact has been constantly evidenced in the preceding essays. This is altogether appropriate, since it is quite impossible to trace monetary movements except as parts of a larger pattern of general economic activity. But there is another relationship which may not be so fully appreciated. That is the direct dependence of monetary theory on the general theory of value and distribution.

It will certainly be conceded that if this dependence does exist, the theory of money is no more adequate than the gen-

eral economic theory which it takes, perhaps tacitly, as its point of departure. A few examples of this dependence are especially worthy of note. The whole of Robertson's theory of lacking has been shown to be constructed on a concept of "current economic output." To recall this fact is sufficient to indicate that unless we can express with some degree of determinateness the quantity, in terms of value, of a man's current economic output, we cannot state the conditions of his savings activities along the lines followed by Robertson. The difficulties of the theory of factor productivity are well known, but it does not seem to be adequately recognized that these same difficulties are barriers to the proper statement of the theory of saving.

Another example is found in Keynes's concept of the "marginal efficiency of capital." If we are to explain a business cycle by reference to differences between the rate of interest and the marginal efficiency of capital, we must know what determines not only the rate of interest but also the anticipated productivity, at the margin, of one factor, capital, which produces its returns *jointly* with the other factors of production. That is to say, in Robertson's case we need to know the productivity of labor while in Keynes's theory we need to know the productivity of capital. Both of these are difficult problems and neither can be solved independently. All of this indicates that there is a high degree of interdependence between the general theory of value and distribution and the theory of movements in prices and production. If the latter theory is stated with the aid of arbitrary assumptions as to the productivity and earnings of the factors of production, the explanation of capital formation that results is no explanation at all because it evades the fundamental problems.

It might be held that the examples cited show a dependence of business cycle theory on general economic theory, but that they do not indicate the relevance of the latter to monetary theory. Such an objection might be made if one thinks of monetary theory as being concerned exclusively with prices. Even if such a view could be admitted—and it could not be so

admitted without making the statement of monetary theory impossible—other cases might be cited to make the argument more satisfactory. For example, Keynes's theory of prices, as we have outlined it above, indicates that prices will rise in what he terms "true inflation" when, under the impetus of increasing demand, output reaches that point at which further increases in the stream of money demand cause further increases of prices but not of output. Even before this point is reached, as Keynes shows, prices will rise because of the tendency of some marginal costs to rise in the face of increasing expenditures. No clearer example could be desired to show that the effects of monetary factors on the various elements of the price system must be studied with reference to the supply conditions of particular goods. And this sort of analysis requires the use of all the analytical apparatus of general value theory. There is no such thing as a demand for goods *in general*, a *general* price level, the output of goods *in general* (even when categorized into producers' and consumers' goods), except as aggregates or averages of *particular* phenomena. What we have in fact is a set of demand and supply conditions for all the various goods and services of the community. If money exerts any influence on the price of a good, or upon its rate of output, it does so because it affects its particular cost and revenue conditions. Therefore, if we are to study the *modus operandi* of this effect we must do it in terms of changes in the demand (revenue) and supply (cost) conditions of that particular good. Our whole problem would be infinitely simplified, and much of this analysis could be avoided, if any given change in the money stock would raise all demand curves immediately and proportionately and would alter all cost curves in an equally harmonious manner, or, alternatively, if the monetary disturbances would cause different degrees of change in the prices of different goods which could be dealt with in terms of an average change, without this procedure causing any of the important relations within the price structure to be overlooked. I think no one would be likely to argue that either of these happy

states of affairs is apt to obtain. If the situation is otherwise, then it is necessary to place the analysis on more specific grounds. It can be said quite definitely that a closer attention to the particular and special conditions of different elements of the economic system, and their analysis in terms of their own cost and revenue conditions, will yield a better understanding of how money affects the economic system. As has been indicated, this procedure requires the use of all the analytical apparatus of value theory.

It is an important fact that the theory of value is now undergoing a considerable re-examination, prompted by a growing feeling that its assumptions concerning the character of the market have been such that the theory does not deal effectively with market realities. That markets are only imperfectly competitive is a readily admitted fact; but the theory of market price is only just beginning to deal adequately with the conditions of imperfect competition. It is also necessary that monetary theory, which must take value theory as a point of departure, should take account of the character of actual market conditions. Robertson has recognized this point, but has not made the revision of *Banking Policy and the Price Level* which he feels it requires. No more than a beginning has been made when one has stated how money influences prices and production in a system of small individual proprietors operating in a highly competitive market. And this is substantially the kind of economic system which is assumed throughout *Banking Policy and the Price Level.* In other words, monetary theory needs to be developed with full recognition given to the institutional pattern within which money must effect prices and production.

In connection with this matter, the following considerations should be borne in mind: (a) the important economic "firm" is a large quasi-monopolistic corporation and not a small individual proprietorship, (b) it may be a firm's policy to stabilize the prices of individual commodities even in the face of rather considerable changes in cost and revenue conditions, (c)

the incomes of the various factors of production vary differently in accordance with different kinds of contractual relationships.

As regards the first consideration, it is obvious that the whole foundation of competitive assumptions emerges as quite inadequate when current institutional facts are taken into account. Furthermore, the theory cannot be correctly stated in terms of "wholesalers" who stand between producer and consumer (as has been Hawtrey's practice) when that function is absorbed by the manufacturer. Nor can the idea of "stages" and the nice reflection of price changes from one stage to another (as in Hayek) carry much conviction when we know that the whole process may be within the province of a single large corporation. Conclusions can of course be drawn by reasoning which has reference to an hypothetical institutional setting, but this is only a first step towards the analysis of the world as it operates. One of the shortcomings of current monetary theory is that the needed revisions of the first assumptions are not made with sufficient thoroughness.

With respect to the second consideration, it is clear that the theory of prices cannot afford to assume that prices are determined by individuals dealing in a highly competitive market. A consideration of actual price-setting practices raises real problems for one who argues that prices should fall as a reflection of increases in productivity. The chances of such an adjustment being made readily and effectively in a system of small producers seem infinitely greater than in a system dominated by large corporations that may be reluctant, for various good reasons, to make a downward revision of prices.

Finally, in connection with the third point, one may note that the increasing revenue incident to an increase in the effective money supply will be distributed between the various factors of production differently than would be the case if each factor received a return governed by a determinative marginal productivity, and if this rate of return were immediately sensitive to changes in productivity. The way increasing money ex-

penditures will return to the market as consumer expenditures, which is an important aspect of price theory, cannot be adequately dealt with without taking into consideration this problem in the theory of distribution. We have already noted that Hayek's theory, as found in *Prices and Production,* assumes a ready adjustment of wages to changing conditions of demand for the goods of the different stages. We have also shown that if the theory is expressed in terms of a relative intractability of some returns (especially labor) quite different results follow. It is, in short, impossible for monetary theory to deal with the stream of money expenditures on the market for final goods, and with changes in that stream of purchasing power, without taking into account the institutional factors which influence prices and the costs of the productive factors.

There are other institutional facts which are of importance to monetary theory. Although a very healthy scepticism is now growing as to the meaning and significance of a general level of prices, there seems to be less readiness to recognize that the same objections can be urged against the concepts of *a* wage level or *a* rate of interest. The complicated character of the labor market and its structure of wage rates is no less difficult to deal with than the capital market and its diversity of rates. Furthermore, aside from this question of the different rates of wages and interest, there is the matter of the method by which individuals and corporations provide themselves with capital funds. There seems to be a tendency on the part of some theorists, and certainly of Robertson, Hayek, and Hawtrey, to argue as though the producer typically borrows by means of the so-called commercial loan. On the contrary, as corporations grow in size (a tendency which seems inevitable in view of the nature of the "machine technique"), borrowing for productive uses will be done increasingly through the long-term capital market. This point is significant because it suggests that the long-term rate of interest is more important as a control device than the short-term rate of interest. We have seen that Hawtrey's control program is weakened

by his tendency to impute major significance to the short-term rate.

Another example of the need of taking institutional facts into account may be mentioned. We have noted in the Austrian theory presented by Professor Hayek a device for presenting the technical form of society. This was referred to as the concept of the "stages" of production. Is it not correct to require that such a picture of society should be made as realistic as is consistent with the statement of a general theory? Should not the picture take account of the actual technical and organizational structure of society as regards both production and finance? We have pointed out in our criticism of this concept that it is inadvisable to reason on the assumption that original means of production are brought into use without the complementary utilization of produced means of production. These points have been suggested by other writers, and we have noted them above in the essay on Hayek's theory of prices and production. We call attention to them once more at this point because they illustrate the necessity of framing theoretical concepts so as to deal as realistically as possible with the important institutional facts of the system.

(2) *The distinction between monetary and non-monetary forces.*

The second analytical problem to which we call attention is as much a problem of business cycle theory as it is of monetary theory. It concerns the necessity of drawing appropriate distinctions between monetary and non-monetary factors, and of indicating as accurately as possible the *modus operandi* and the causal significance of each. This is of importance because, as we have seen, some of the principal differences between writers, both on matters of analysis and on the statement of policy, can be traced to their taking different views as to the significance of these two sets of factors. Unless this distinction is clearly drawn and the explanation of the two sets of factors carefully set forth, it is impossible to state a policy which is

adequate to control variations in economic activity. I think there is less difficulty in stating how these two factors act and interact *during* the major swings of a cycle. The principal difficulty (and this is of great importance in connection with the formation of an effective control program) is to show how the two sets of factors operate at the *turning points* of the fluctuations.

It is, however, extremely difficult to carry out this kind of analysis on an empirical plane because "real," that is non-monetary, forces operate *through* a monetary medium. For this reason it may be impossible to say how much of a given change in prices, or in output, is due to monetary and how much to non-monetary factors. All of the forces operate together to produce a composite result, and a very difficult analysis must be made if one is to attempt to estimate the relative significance of the several causal factors. It is necessary to face a problem of this magnitude, however, for two reasons. First, if one is to set out to explain *why* fluctuations in economic activity occur, one must assign appropriate degrees of significance to the various factors which are recognized as having causal influence. Second, the analysis is essential if one intends to propose devices for *controlling* economic activity. It is necessary, one might say, for both diagnosis and prophylaxis. I believe that the current tendency to attribute great efficacy to monetary devices is based largely on an inadequate analysis of the causal significance of non-monetary and monetary forces respectively.

If we compare the writers discussed above on this point we find, in general, that Robertson is the only writer who has made a systematic attempt to analyze economic variations in these terms. Hawtrey has not really made any study of this kind, and this fact doubtless accounts to a considerable extent for his tendency to depend so very strongly on monetary factors in his control program. Hayek's preoccupation with the influence of changes in the quantity of money leads him to a considerably more limited explanation of the cycle than seems consistent with actual developments. Finally, it is to Keynes's credit that he deals with certain psychological propensities which are non-

monetary factors; but his analysis of the technical aspects of machine production is inadequate. The cycle theory which he states is too fragmentary to allow for any real judgment on this point.

(3) *The treatment of the time problem in monetary theory.*

The third problem of analysis concerns the treatment of time in monetary theory. In so far as economics deals with the responses of business to changing conditions of demand and supply, it must also deal with the fact that these responses are not adjustments to a fixed point but are, on the contrary, constantly frustrated and re-directed tendencies made in response to an unending chain of disturbances, and that the operation of these adjustments involves a period of time. Also, the cases we have to deal with do not involve one phenomenon responding at a time, but involve situations with many phenomena responding at the same time and probably at very different rates of speed. While it is necessary in the first steps of the analysis of such a complicated situation to assume all changes but one to be non-operative, it is perfectly clear that a complete analysis requires the removal of this assumption. As an example of this kind of analytical difficulty, take the case of the simple hypothetical examples of Robertson's *Banking Policy and the Price Level*. Here we have changes in the money supply causing immediate changes in the price level. But we need analytical tools to deal with the fact that while a given monetary change is taking place there are changes occurring, to name only two, in income and output. We can assume, as Robertson does, that the period of circulation of money is equal to the period of production of goods, but this leaves altogether unstated the conclusions which are correct for a society in which this simple harmony does not prevail. It may be that this is a more complicated problem than general theory is capable of dealing with. If this is the case, then it is perfectly clear that the conclusions of theory need to be stated with considerable qualification. The very greatest credit is due to Robertson for his work in formu-

lating theoretical concepts for the treatment of the time problem. But the real task of assigning correct values to the concepts is still not accomplished. This is one direction in which progress must be made if time-consuming changes and adjustments are to be dealt with adequately.

In discussing Professor Hayek's *Prices and Production,* we found the concept of time at the very heart of his theory of price movements. At present the chief difficulty, as I see it, is to reconcile the theory of that series of Lectures with the later articles by Hayek and the other Austrian writers. The concept of the stages of production as found in *Prices and Production* relates to different time structures of production, with special reference to the distribution of productive resources and to changes in the organization of the whole productive structure. In more recent writings Professor Hayek has shifted the emphasis to the investment period. All of this requires much more explanation than has been offered up to this time. But whether the reference is properly to a productive structure or to an investment period, one must take account of the difficulty, emphasized by Professor Knight, of conceiving of a "period" in either connection. As we have seen, the problem can be attacked by assuming a situation in which original means of production are used without the aid of produced means of production, and where the final product is produced and consumed simultaneously. But this assumption is not compatible with the facts of a market where produced means of production are used in all processes, and where some final products are projected into the future for an indefinite period of time. These are doubtless not insuperable problems, but the concepts of the Austrian theory should be restated in such a way as to make them more adequate to deal with this particular issue. If the "period" refers to the passage of goods through the productive structure, then the anatomy of that structure and its related financial structure should be more faithfully represented; if it is desired to emphasize the investment aspect (as seems to be the case), then the time problems of the investment of capital

should be dealt with in such a manner as to give the notion of a period some definite meaning.

It should also be indicated that both the concept of the period of circulation of money and the notion of a period of production of goods are usually expressed as *general* ideas—that is, as averages—and are therefore inadequate to deal with the fact that different sections of the money supply and different parts of the total output of goods respond at different rates. The significance of this point is illustrated by the difficulties connected with that part of Hayek's theory which concerns the rate at which new money spent by producers will appear on the market as additional demand for consumers' goods, and the rate at which output will be altered as a result of this change in the effective money supply. We have shown that the theory of the turning point of the cycle cannot be stated without taking the details of this situation into account.

Another place where the time problem was found to be an important source of difficulty was in Keynes's theory of the multiplier. All of Keynes's equations apply to cross sections of a process which works continuously through time. While his equations show the relation between total income and its distribution, between expenditures on consumers' goods and savings which occurs at a certain *point* in time, income itself is a flow which continues through time. Thus the multiplier, the value of which is based on the achieved income at a given point in time and its utilization at that particular time, does not deal at all with the dynamic problem of when and to what extent an increment to investment at one given point in time will affect the income of the future. Keynes's theory of the multiplier is good, as he says, for every point or interval in time. Yet it does not throw any direct light on the continuous operation of the economic system through time.

There are other examples that might be given of analytical problems which are especially complicated by the time factor. But those cited should be sufficient to illustrate our point, that analytical methods must be developed which are appropriate

to deal with the fact that economic phenomena operate through time. The proper handling of this difficulty also involves detailed studies of output changes and of the behavior of individuals in using money funds, in order that reasonably accurate values may be assigned to the period of production of goods and the period of circulation of money.

(4) *Some problems in the theory of monetary policy*

Finally we come to the problems involved in the statement of monetary policy. From the pragmatic point of view, monetary theory should provide an explanation of the operation of monetary forces which will make it possible to state the governing principles of monetary policy. But in the foregoing essays we have seen that when monetary theory is approached from different points of view, the writers arrive at quite different statements of what constitutes appropriate monetary policy. Let us consider some aspects of this important result.

In the first place, monetary policy, rightly considered, is but one of the necessary elements of general economic policy. The work of both Keynes and Robertson makes this point quite clear. The latter has no special faith in the omnipotence of monetary control, and has expressed himself very pointedly on the necessity of larger measures, while the former includes in his program of action a considerable participation of the state in controlling the volume of new investment. But in the case of the Austrian school we have an implied, and sometimes explicit, faith in the notion that all that is necessary is a "neutral" money policy and time for the system to work out its own cure. Hawtrey is apparently confident that monetary measures are sufficient for all situations except his so-called credit deadlock.

These are quite different positions. The explanation of the differences seems to be that the point of view adopted depends on whether fluctuations in general business are attributed solely to monetary causes, or are explained in the more complicated terms of an interaction of monetary and non-monetary factors. If one believes that the sole cause of industrial fluctuations is to

be found in faulty monetary practice, then one can argue that the only remedy required is a revision of that practice. But if one does not accept a purely monetary theory of the cycle, then an appropriate control program will appear to involve more than purely monetary measures. It is for this reason, I think, that Robertson has always stood for a wider program of action than Hawtrey. Keynes has not, in *The General Theory of Employment, Interest, and Money,* taken all of the important institutional facts into consideration, but he does nevertheless have a sufficiently non-monetary slant to come to substantially the same type of conclusion as Robertson. The case of the Austrian theorists is difficult to interpret. We have shown in the essay on Hayek that we cannot take the policy of neutral money as presented in *Prices and Production* as a statement of policy, but there are places in which it does seem to be advanced as such. It is interesting to note that Hayek's dissatisfaction with the policy of neutral money is due to his recognition of certain institutional facts, notably the intractability of certain money incomes and the uncertainties attached to long-term estimates. What this indicates is that monetary policy cannot be stated aside from wage policy, or without reference to the important non-monetary as well as monetary factors.

Another reason for the present unsettled state of matters on this subject is that there is no clear recognition of the necessity of stating monetary policy with reference to the phase of the cycle in which the policy is to be applied. It is one problem to state the aims of long run policy; it is quite another to indicate what should be done in a particular state of expansion or contraction. In the foregoing essays we have seen that this problem involves a statement of policy for a system in which there is only a partial utilization of economic resources, as well as for a situation in which resources are fully utilized. It has been indicated above that the principal criticism of the policy indicated in Hayek's *Prices and Production* is that the whole analysis is based on the assumption that resources are fully utilized.

But even though agreement might be reached as to the necessity of framing policy with due consideration of the degree of current utilization of resources, there might still be differences of opinion as to the policy appropriate for any given state of activity. Robertson has shown, for example, that not all changes in output are to be suppressed. But this still leaves the authorities with the problem of distinguishing between appropriate and inappropriate fluctuations. In the case of both Hawtrey and Keynes, special attention is given to the situation of severe depression, but the interest rate controls which are suggested by these writers differ, as we have shown, quite substantially. Hayek's position is again, in this respect, difficult to state. In spite of some qualifications, the emphasis seems in most instances to be on the necessity of rigid adherence to a policy of keeping the money supply constant, regardless of the state of utilization of resources.

In connection with long run policy, we have also noted that there are many differences between the writers and many still-unsettled questions. The problems seem to center around the determination of policies appropriate for situations in which changes are taking place in (a) the volume of capital, (b) the size of the population, and (c) the productivity of labor.

With respect to (a) we have found that Hawtrey is the only one who would attempt to make compensations by changing the supply of money. But his writings do not, as far as I have been able to discover, provide us with any standard by which to determine the amount of either the change in capital or of the required adjustment of the money supply. It is impossible to apply the program unless these basic matters are settled. An important question in this connection is this: how can the correction for an increase in capital be made so that the increase in the money supply will not stimulate an excessive expansion, and thus lead to the crisis which Hawtrey has shown to be so easily started?

Both Hawtrey and Robertson agree on the necessity of making adjustments to counteract population changes, but the

latter has not as yet presented any more than a very rough solution of the problem of the degree of compensation which is required by a given amount of population change. Hawtrey leaves the matter unsettled by providing no complete statement of policy. It is not enough to say, as Hawtrey does, that the money supply should be corrected by reference to changes in the labor supply. One has to determine how much of a correction is necessary for any given population change. The answer to this question is unlikely to be derived from data on the size of the population. We must know more about changes in output and the factors influencing people to hold money balances, before this sort of correction can be made in appropriate amounts.

There is also no agreement as to the policy which should be adopted in the case of changes in productivity. Robertson, Hawtrey, and Hayek seem to agree that a falling price level which reflects changes in productivity should not exert a depressing influence on business, but Keynes favors a stable price level as a long-run policy. Here is a difference of fundamental importance, since both Robertson and Hayek have stated that the maintenance of a stable price level in the face of increasing productivity will eventually lead to a crisis. Keynes does not, however, attempt any direct refutation of the theory upon which Hayek bases his view.

This, then, is the unsettled state of monetary theory and monetary policy. We have found disagreement not only on the details of analytical methods but also on the main conclusions as to desirable and appropriate monetary policy. Future developments in this branch of economics will have to provide more effective tools of analysis, and will have to indicate more clearly than has yet been done both the ends of monetary policy and the means by which they can be realized.

APPENDIX

BIBLIOGRAPHICAL NOTE

The closeness of the relation between the theory of money and the theory of the business cycle makes it impossible to construct a bibliography on either subject without a certain amount of trespassing in the other field. However, this list has been prepared with the end in view of indicating works on monetary theory and only those works on the business cycle that are especially concerned with the monetary aspects of that condition of affairs. It should be used with the clear understanding that it is in no sense a complete bibliography. A complete compilation of books and articles on these subjects is clearly too great a work to be undertaken in this connection. But a decision to compile something less than a complete list involves the making of many choices, and in doing this one risks criticism on both what has been and what has not been included. It is the author's hope that such sins have not been too great and that students in these fields will find this at least a useful introduction to the literature.

In general, the bibliography is of the literature of what Robertson calls "the recent monetary controversy." No attempt has been made to cover pre-war materials except when especially significant works have been in point. Furthermore, with very rare exceptions, the bibliography does not cover publications of date later than 1937.

The following abbreviations have been used:

Acad. Pol. Sci. .....Proceedings of the Academy of Political Science
Am. Ec. Rev. ..... American Economic Review
Archiv für S & S ..... Archiv für Sozialwissenschaft und Sozialpolitik
Can. Jr. Econ. .....Canadian Journal of Economics and Politics
Econ. Jr. .....Economic Journal
Econ. Record ..... Economic Record
Int. Labor Rev. ..... International Labor Review
Jhrb. für N & S .....Jahrbuch für Nationalökonomie und Statistik
Jr. Am. Stat. Assoc. .....Journal of the American Statistical Association
J. P. E. .....Journal of Political Economy
Jr. Royal Stat. Soc. .....Journal of the Royal Statistical Society
P. S. Q. .....Political Science Quarterly
Q. J. E. .....Quarterly Journal of Economics
Rev. Econ. Pol. ..... Revue d'Economie Politique
Rev. Econ. Stat. ..... Review of Economic Statistics
Rev. Econ. Stud. .....Review of Economic Studies
Schm. Jhrb. .....Schmollers Jahrbuch
W. A. .....Weltwirtschaftsliches Archiv
Ztsch. für Nat. .....Zeitschrift fur Nationalokonomie
Ztsch. für V & S .....Zeitschrift für Volkswirtschaft und Sozialpolitik

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INDEX

Aggregate demand function, 312
  relation to propensity to consume, 326-327
  shape of, 328-329
Aggregate supple function, 311
Agriculture, business cycle and, 119-121
Angell, J. W., 225, 359
  on money changes and productive activity, 44-46
  on neutral money policy, 287-288
Appropriate fluctuations, 113-114
  definition of, 125

Barter economy, 223
Bellerby, J. R., 87
Business cycle
  agriculture and, 119-121
  cash drains and, 74-77
  contraction phase of, 68-71, 78, 178-180
  duration of, 227
  expansion phase of, 71-74, 173-178
  institutional factors and, 122-126
  monetary theory of, 21-23, 46, 102-104, 216-217
  money system and, 125-126
  period of, 76, 82-84
  psychological explanation of, 221
  real cost changes and, 116-117
  real demand changes and, 117-119
  real factors and, 112
Business recovery, changes in money supply and, 276-277

Capital,
  defined by Robertson, 135-136
  planned-perpetuity of (Knight), 266
  real, 245
  widening and deepening of, 61-63, 85-86
  working, effect of interest on, 60-61
Capital formation,
  hoarding and, 150-153
  inventories and, 174-175
  population changes and, 153-154
  productivity changes and, 154-155
Cash balances, 32-37, 39
  banking policy and, 197-200
  equilibrium and, 52-53
  motives for holding, 344
  propensity to consume and, 330
Cash drains, 24
  business cycle and, 74-77
Circulating capital,
  industrial expansion and, 174-175
  value of, 159-160
Clark, J. M., 330
  on business responses, 341
  on originating causes, 84
  on principle of acceleration, 118, 258
  on wages, employment, and purchasing power, 65
Classical economics, Keynes on, 304-308
Commercial loans, 47
Consumers' goods, 228
  demand for producers' goods and demand for, 291-293
Consumers' incomes and outlays, 31, 43
  definition of, 28-29
  equilibrium and, 53-54
  influence of credit on, 29-30
  money demand and, 40
  price level and, 39
Consumption expenditures, factors influencing, 327-328
Cost-price relations, 192, 358-359
Credit deadlock, 61, 78-81, 84
Credit elasticity, 225-227
Credit control, interest rate and, 60
  qualitative, 184-185
Crises, financial, 77-78
Current economic output, 137-138, 164-167
Currie, L., 225, 276

"Day", 143-144, 170-171
  defined, 155
Demand,
  distribution of, 231-232, 248-249, 330
  effective, 312
    money supply and, 355
    Robertson on, 312-313
  for finished goods, 41
  general, 24, 43, 55-57, 80
    definition of, 50
Deposits, velocity of, 45
Douglas, P., 305
Durbin, E. F. M., 253, 278-281, 290-293

Economic control,
Keynes on, 364-371
Treasury policy and, 369
Economic sequence, 267, 271-272
Ellis, H. S., 283-287
Employment, elasticity of, 354
and wage reductions, 365-369
influence of marginal efficiency of capital on, 364
Equilibrium,
cash balances and, 52-53
consumers' income and outlay and, 53-54
disturbances of, 49
monetary, 23-25, 37
fundamental condition of, 41, 50-51
Expectations, 255-256
of profitableness, 219-220

Factor cost, defined, 311
Factors of production, 228
Fleek, K., 225
Finished goods, importance of demand for, 41
Fixed capital, interest rate and, 96
Forced saving, 138, 150, 193-195, 206-208, 243-244
Haberler, G., 276
on the multiplier, 334-335
Hansen, A. H., 249-250
Harrod, R. F., 281-283
Hawtry, R. G., *see* Table of Contents
Hayek, F., *see* Table of Contents
Hicks, J. R., 336
on marginal efficiency of capital, 338
Hoarding, banking policy and, 153
capital formation and, 150-153
defined, 140, 156
liquidity-preference and, 346, 349-350
relation to real hoard, 143

Inappropriate fluctuations, factors influencing, 126-128
Income, disposable, defined, 155
generation of, by bank loans, 26
stabilization, 87-88
structure of production and, 245-248
Inflation, economic control and, 92-95
Keynes on, 359
Keynes's preference for, 307
Installment selling, 30
Interest rate, alternative uses of funds and, 352
capitalization and, 182
credit regulation and, 60
demand for loans and, 350-351
determination of, 345
economic control and, 95-98
effect on lacking, 181
effect on working capital, 60-61
fixed capital and, 96
industrial fluctuations and, 183-184
long term investment and, 181
monetary equilibrium and, 59-63
price margins and, 239, 254-255, 257
relation to money supply, 345-346
structure of production and, 241-242
working capital and, 96-98
Interest rate theory, Keynes on importance of, 343
Intermediate goods, defined, 228
Inventories, capital formation and, 174-175
short lacking and, 174-175
Investment period, 261-265
Investment, public, 186-187
Investment Demand Schedule, 338
relation to slump, 360
shape of, 341-342

Kahn, R. F., 157, 332
Keynes, J. M., *see* Table of Contents
Knight, F. H., 261-265, 268, 269-270

Labour Unit, 314-316
defined, 313
Lacking, 166
abortive, 140
applied, 140, 198
automatic, defined, 137
measure of, 147
defined, 134-135
direct, defined, 139
effect of interest rate on, 181
indirect defined, 139-140
induced, 208-209
defined, 138
long, banking system and, 176-177
during expansion, 176
open-market operations and, 180
relation to saving, 140-141
short, defined, 136
durable goods and demand for, 175-176
during expansion, 174-176
inventories and, 174-175

spontaneous, defined, 137
theory of, competitive assumptions and, 171-172
Leaps, 113, 194
Lerner, A. P., 308, 319-320
Liquidity-preference, defined, 343
hoarding and, 346, 349-350
slump and, 360
Viner, J., on, 348-349

Multiplier, comments on, 335
defined, 331
Haberler on, 334-335
Marginal efficiency of capital, changes in, 360
defined, 337
distribution theory and, 339-340
influence on employment, 364
production of durable instruments and, 361-362
Marshall, Alfred, 38, 52
Meade, J. E., 279-280
Mitchell, W. C., 305
Monetary, equilibrium, interest rate and, 59-63
instability, disorders arising from, 87-89
policy, ideal, 90-91
stability, conditions of, 87-89
stabilization, conditions of, 54
theory, general economic theory and, 377-383
Monetary control, 26-27
devices of, 12-13
inadequacy of, 188
Money, average period of circulation of, 138-139, 144-145, 169
creation of, 30, 40
demand, consumers' outlay and, 40
flow of, and price level, 149
quantity theory of, 37-39
stock of, and price level, 149
supply, business cycle and, 125-126
changes in, and business recovery, 276-277
and structure of production 236-238
effective demand and, 355
price level and, 149

Needs of trade argument, 159
Neutral money, as analytical tool, 288-290
policy of, 277-278
and velocity changes, 287-288
Durbin, E. F. M., on, 278-281, 290-293
Ellis, H. S., on, 283-287
Harrod, R. F., on, 281-283
institutional factors and, 288-290
Meade, J. E., on, 279-280
Open-market operations, 180-181
lacking and, 180

Pedersen, J., 340
Pigou, A. C., 307-308, 325
Price level, consumers' outlay and, 39
money flow and, 149
relation of saving and investment to, 158
policy, population changes and, 199
productivity and, 195-197
tests of, 191-192
Price margins, 239-244
interest rate and, 239, 254-255, 257
savings and, 240-241
structure of production and, 240
Price stabilization, 88-89, 194-195
Prices, "bottle-necks" and, 356
diminishing returns and, 355
relation to wages, 63-66
stimulus of rising, 193
Primary factors, 268
Producers goods, 228
demand for consumers' goods and, 291-293
Production, period of, 138-139, 144-145, 169-170, 228-229, 386-387
changes in, 269-270
measure of, 268-269, 272-273
price disturbances and, 161
Profit, defined, 311
Propensity to consume, anticipated income and, 329
cash balances and, 330
defined, 326
marginal, defined, 331
relation to Aggregate Demand Function, 326-327
Viner, J., on, 329
Public expenditures, economic control and, 98-100
Public works, 336, 364, 370-371

Real hoard, defined, 142-143
relation to hoarding, 143
Reflation, and rentability, 182
Releases and absorptions of cash, 32-37, 41
and productive activity, 34, 44-46
Resources, complete utilization of, 251-253
Ricardo, David, 305

Robertson, D. H., *see* Table of Contents

Saving, and Investment, 34-36, 57-59, 157-159
  defined by Keynes, 316-325
  relation to price level, 158
  Robertson on, 320-324
  "simple-minded" definition of, 157
  price margins and, 240-241
  relation to lacking concepts, 140-141
  voluntary, changes in structure of production and, 234-236
Souter, R. W., 218, 225
Specific goods, 253
  defined, 230
Sraffa, P., 244-249
Stages, of production, 229-232, 284
Stinting, automatic, 137, 147
Structure of production, 229-232
  income changes and, 245-248
  interest rate and, 241-242
  involuntary saving and changes in, 234-236
  money supply and changes in, 236-238
  price margins and, 240
  unemployment and, 250-251

Time, in monetary theory, 385
Trader, definition of, 30
  receipts and expenditures of, 30-32
Tout, H., 249-250

Unemployment, involuntary, defined, 309
  structure of production and, 250-251
Unspent margin, 39-40
User cost, defined, 311

Veblen, T., 285-286
Velocity, income, 40, 141-142
  neutral money policy and, 287-288
  of bank deposits, 45
  of money supply, 39, 276
  relation of income to transactional, 142
Viner, J., 329, 348-349, 366-368

Wages, incremential theory of, 306
  natural and market rates of, 340
  Pedersen on, 340
  policy of, and economic stability, 63-66
  reductions in, and employment, 365-369
  relation of money to real, 305
  relation of prices to, 63-66
  relation of productive activity to prices and, 63-66
  system, and economic stability, 122-123
  unit, 314
Wants, gluttability of, 178-179
Working capital, interest rate and, 96-98

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