TEXT FLY WITHIN
THE BOOK ONLY

UNIVERSAL
LIBRARY

OU_160818

UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No. 332.7 D 95P. Accession No 17828.

Author Durbin, E.

Title Problem of credit-policy.

This book should be returned on or before the date last marked below.

THE PROBLEM OF CREDIT POLICY

By the Same Author

PURCHASING POWER AND TRADE DEPRESSION

MONEY AND PRICES (Contribution to "What Everybody Wants to Know About Money," edited by G. D. H. Cole)

SOCIALIST CREDIT POLICY

THE PROBLEM OF
CREDIT POLICY

By

E. F. M. DURBIN
B.A.

LONDON
CHAPMAN & HALL LTD.
11 HENRIETTA STREET, W.C.2

FIRST PUBLISHED
1935
Chapman & Hall Ltd.

Printed in Great Britain by
EBENEZER BAYLIS & SON LTD.
THE TRINITY PRESS, WORCESTER
AND LONDON

and bound by
G. & J. KITCAT LTD.
LONDON

TO
MY MOTHER

CONTENTS

		PAGE
PREFACE		vii
	PART I. ANALYSIS	
CHAPTER		
I	THREE INTRODUCTORY PROPOSITIONS	25
II	THE DYNAMICS OF THE INDUSTRIAL AND FINANCIAL CIRCULATIONS (i) Monetary Expansion	43
III	THE DYNAMICS OF THE INDUSTRIAL AND FINANCIAL CIRCULATIONS (ii) Saving and Investment	89
IV	THE CHOICE OF POLICY	109
	PART II. POLICY	
V	CONSTANT MONEY INCOMES UNDER DYNAMIC CONDITIONS	147
VI	PRACTICAL POLICY (i) Discovering the Data	174
VII	PRACTICAL POLICY (ii) The Instruments of Control	195
VIII	PLANNED MONEY AND A PROGRAMME OF POLICY	216
	CONCLUSION	238
	APPENDIX	
I	PROFESSOR HAYEK'S DOCTRINE OF ASYMMETRY	242
II	MR. KEYNES' USE OF THE TERMS NORMAL INCOME SAVING AND INVESTMENT IN THE TREATISE ON MONEY	247
III	MR. ROBERTSON'S DEFINITION OF HOARDING	249
IV	A MATHEMATICAL NOTE ON THE ARGUMENT OF CHAPTER II §2. BY MR. R. G. D. ALLEN	254
	INDEX	263

ANALYTICAL TABLE OF CONTENTS

PART I: ANALYSIS

CHAPTER PAGE

I THREE INTRODUCTORY PROPOSITIONS - 25

§1. The distinction between the analysis of the value of money, the description of monetary institutions and the theory of policy.—A brief summary of the type of monetary system which will be assumed to exist throughout the argument of the book.

§2. The Simple Relation between Incomes and Costs.—The demonstration that if there is only one stage in production incomes will be identical with costs and the analysis of the circumstances under which prices will be identical with costs.

§3. The Complex Relation between Income and Costs.—The impossibility of an identity between Consumers' Income and Total Costs if there is more than one stage of production and the conditions under which Consumers' Income will be equal to the costs of producing Final Output.

The attempt to represent these relations in two dimensional diagrams.

§4. Capital Accumulation.—The conditions of monetary equilibrium with a continuous rate of capital accumulation.

II THE DYNAMICS OF THE INDUSTRIAL AND FINANCIAL CIRCULATION - - - 43

I. Monetary Expansion

§1. Money as a source of change.

§2. The General Effects of Monetary Expan-

CHAPTER PAGE

sion.—A formal analysis of the effect of an injection of new money at any stage taking account of the importance of—

(*i*) the presence or absence of contract frictions,

(*ii*) the relation between the period of Transaction Velocity and the period of Factor Mobility.

§3. Expansion by Consumers' Credits.—An account of the relations subsisting between: (*a*) the Absolute and (*b*) the Relative demands for Consumption Goods and Capital Goods; (*c*) the Absolute and Relative physical outputs of Consumption Goods and Capital Goods; together with an account of the sources of the demand for real physical capital. The effect on the absolute demand for capital of an injection of new money at any stage in production upon the demand for capital arising from this stage.

§4. Expansion by Producers' Credits.—The sources of instability in relative expenditures and price levels after the injection of Producers' Credits.

§5. The Sources of Monetary Expansion.—The sources of the demand for money to hold and spend and the relative quantitative significance of the Rate of Interest, the Rate of Invention, and the Rate of Money Profits in determining it.

§6. Conclusion.

III THE DYNAMICS OF THE INDUSTRIAL AND FINANCIAL CIRCULATIONS - - - 89

II. Saving and Investment

§1. The general character and source of deflationary disequilibria and the conceptions of Saving and Investment.

CHAPTER PAGE

§2. Forms of Divergence between Saving and Investment.—An account of the processes occurring in the following deflationary situations:

1. The hoarding of cash.
2. The hoarding of deposits.
3. Autonomous changes in the needs of the Financial Circulation.
4. The accumulation of new balances by firms and individuals.
5. The financing of losses by the sale of securities.

The controversies between Mr. Keynes and Mr. Robertson and Mr. Keynes and Professor Hayek about the significance of these phenomena.

§3. The Causes of Hoarding Simpliciter.—An analysis of the causes determining the demand for balances to hold.

1. Technical discontinuities and the cost of investment.
2. The extent of uncertainty.
3. The volume of real income.

§4. Conclusion.

IV THE CHOICE OF POLICY - - - 109

§1. Distinction between the long and the short period problems of policy and the chief solutions which have been suggested for the long period.

§2. Constant Prices.—The conditions under which stabilisation of prices is impossible and will lead to a cumulative inflation. The reasons for believing that a cumulative inflation must lead to a general depression.

§3. A constant Circulation.—The demonstration that the maintenance of a constant circulation will lead to a divergence between

CHAPTER PAGE

Saving and Investment if the short period of production is lengthened. The explanation of Professor Hayek's mistake in this matter and the elucidation of an ambiguity in the conception of an equality between the Supply of and the Demand for new capital.

§4. Constant Incomes.—The formal significance of Constant Incomes and the statement of the two fundamental assumptions upon which the reasoning of the Chapter has been based:

(*i*) that the only available method of monetary expansion is through the issue of producers' credits;

(*ii*) that the prices of the primary factors are relatively stable. The decision to remove these assumptions.

§5. The Mechanism of Consumers' Credits.—The meaning, forms, effects and possible uses of free money as Consumers' Credits. The possibility of using this mechanism for the stabilisation of prices.

§6. Autonomous Movements in Money Costs.—The effect of sudden and arbitrary movements in money wages or other money costs.

7. Conclusion.

PART II. POLICY

V CONSTANT MONEY INCOMES UNDER DYNAMIC CONDITIONS - - - - - 147

§1. The further study of the significance of Constant Incomes requires an analysis of dynamic conditions.

§2. The Simpler Changes and Adjustments.—The relevance of the criterion of Constant Consumers' Income is demonstrated in the case of:

CHAPTER PAGE

1. Simple Hoarding;
2. the accumulation of deposits by new commercial stages;
3. autonomous changes in the needs of the Financial Circulation;
4. an increase in the Rate of Saving without a sale of securities.

§3. The Difficult Cases:

1. *Variation in the Size of the Population*

Changes in population or of other primary resources is discussed under the assumptions of constant, falling and increasing capital per head and the general conclusion is established that the maintenance of equilibrium requires a constancy of income per head and not a constant total income.

2. *Changes in the distribution of Final Income*

The possibility of changes in the relative marginal products of labour and property are mentioned and the great difficulty of reconciling constant total incomes with changing relative shares in face of contract resistances is emphasized as the main difficulty of a constant income policy.

3. *The Sale of Securities situation*

The relation between the constancy of the Consumers' Income during a period in which securities are being sold and the real disequilibrium that exists is analysed. It is argued: (*i*) that in such circumstances the criterion of equilibrium becomes that of zero net profits instead of constant income per head, (*ii*) that new money should be created in one period and destroyed in the next.

§4. Alternative Formulations of the Conditions of Monetary Equilibrium.—The change of emphasis in favour of zero net profits raises the question as to whether there

CHAPTER PAGE

are better methods of stating the conditions of equilibrium than the detailed analysis of prices, costs and incomes contained in this book. Two alternatives are considered: (*i*) the analysis of monetary conditions in terms of the "supply of and demand for" money balances. (*ii*) Mr. Robertson's definition of "Hoarding". An attempt is made to demonstrate that neither of these forms of statement is unambiguous or true until it has been explained by a systematic analysis of prices, costs and incomes, which becomes the real basis of theory and action.

VI THE PRACTICAL EXECUTION OF A CONSTANT INCOME POLICY - - - - 174

I. Discovering the Data

§1. The problem of practice is divided into two:

1. The problem of discovering what is happening.
2. The problem of power—of controlling change.

The importance of a *system* of statistical indices is emphasized.

§2. The Means to Knowledge—a Matter of Indices. A pattern of six indices—Income, Trade and Stock Exchange *balances* and Income, Trade and Stock Exchange Clearings—is suggested.

§3. The Use of the Index Pattern.—The various movements which will occur in various monetary situations are analysed. The following possibilities are examined in detail:

1. Simple Hoarding.
2. The Accumulation of Balances.
3. Deficiencies of Investment.
4. Increase in population.

CHAPTER PAGE

5. Change in Distribution between Labour and Property.
6. Combined Processes.

§4. Cash.—The Difficulty that Deposit and Clearing figures do not contain the whole volume of monetary exchange is stated and analysed. Suggestions for overcoming the difficulty are made.

§5. Conclusion.—The importance which is to be attached to the Index Pattern.

VII THE PRACTICAL EXECUTION OF A CONSTANT INCOME POLICY - - - - 195

II. The Instruments of Control

§1. The problem of controlling change to be discussed under two heads:

A. INTERNAL POLICY

§2. The weakness of the existing instruments of control is explored.

1. Rate of Interest.
2. Open Market Policy.
3. Variations of willingness to lend.

§3. A New Instrument of Policy.—The necessity of controlling the income position of the community is stated and the suggestion is made that this could best be done by using the Budget finance of the Government for the purpose.

B. THE OPEN SYSTEM

§4. The Gold Standard.—The conditions which are necessary for the simultaneous maintenance of constant exchanges and constant incomes are stated and the overwhelming difficulty of maintaining constant exchanges in the face of a rigid income structure is emphasized. Reasons are advanced for supposing that the degree of exchange fluctua-

CHAPTER PAGE

tion between separate national "constant income systems" will not be very large.

§5. Conclusion.—The four objects of policy desirable for a privately controlled banking system are as follows: (*i*) the construction and use of the pattern of indices described in Chapter VI; (*ii*) the stabilisation of Income Clearings per head of the population; (*iii*) the use, if necessary, of an unbalanced Budget to do this; (*iv*) the maintenance of freedom in the exchange market.

VIII PLANNED MONEY AND CONSTANT PRICES - 216

§1. The relation between general economic planning and the planning of money is briefly set forth and the assumptions upon which a scientific defence of financial planning can be based, are defined.

§2. The Economic Case for a Unified Credit and Financial Control.—The scientific case for the planning of money is based upon three analytical grounds:

1. The inherent instability of the Industrial Circulation.
2. The institutional setting of the short period problem—that of curing the historical Trade Cycle.
3. The social advantages of maintaining constant prices and the impossibility of doing so without the resources of a Central Financial Authority.

§3. The Credit Policy of a Central Financial Authority.—The policy which it would be wise for such a Central Authority to pursue is discussed under two heads:

1. A *short period* policy is outlined whereby it should be possible to cure the Trade Cycle and secure a stable equilibrium of full

CHAPTER PAGE

employment from the phase of general depression. The policy implies the stimulation of Investment at one point in time and of Saving at another.

2. A *long period* policy, involving the use of an unbalanced Budget by which prices could then be stabilised, is described.

§4. Conclusion.—The importance of the case in favour of a Central Financial Authority.

APPENDIX - - - - - 242

§1. Professor Hayek's doctrine of an asymmetry between the effects of an increase in the Rate of Saving and an increase in the Rate of Expenditure is examined and criticised.

§2. Mr. Keynes' use of the terms Normal Income, Saving, and Investment in his *Treatise on Money* is examined and criticised.

§3. Mr. Robertson's definition and use of the term Hoarding is examined and criticised.

§4. A Mathematical Note on the Argument of Chapter II §2 by Mr. R. G. D. Allen.

INDEX - - - - - - 263

PREFACE

In the introductory pages of my book *Purchasing Power and Trade Depression* I wrote as follows:—

". . . Finally I have stated very shortly my view as to the nature of the banking policy which should be pursued if these variations in productive activity are to be avoided. I am perfectly aware that this is the least detailed and satisfactory part of the book. All that I have been able to do in the space and time available is to state what I believe to be the correct general principle of monetary policy and not to explain its detailed application to existing banking systems or to defend it from the various theoretical criticisms to which I know it will be subjected. . . . I hope to complete this unfinished work as soon as possible and make apparent the full reasoning behind, and the detailed meaning of, the solution to the problem of credit policy which I believe has been brought within our reach by the varied work on monetary theory that has been published in the last few years."

The present book has been written in fulfilment of this intention. I still believe that it has become possible in recent years for the economist to state much more clearly than ever before what can and what should be done in the realm of credit policy to secure and maintain indefinitely full employment and a maximum of productivity. It may be true that the wisdom necessary to implement a carefully chosen and scientifically valid credit policy is still lacking. But the primary task—the task of the investigator and the economist—has been carried many steps nearer to a final conclusion.

During the last five years there has been much bitter controversy in the field of monetary theory: it cannot even

now be said that all the controversies are resolved or that all the bitterness is gone. On the contrary, much that I myself say in the course of this book will seem merely foolish and wrong-headed to many people whose opinions are worthy of attention. Yet I cannot help feeling that a great advance has been made, that the agreement among economists about policy is more important than they realise, and that it is high time that those who debate and control policy should have at their disposal some of the positive results to which contemporary monetary analysis directly leads.

The practical purpose of this book is therefore to set forth certain conclusions about credit policy which I believe to follow logically from the recent theoretical analysis of credit expansion and contraction and to discuss the methods by which the correct policy or policies could in practice be implemented.

The theoretical interest of the book lies in the attempt to analyse the significance of certain types of contract in the price system, and in particular of long period contracts in the market for the primary factors of production. The discussion of monetary theory and credit policy has in my opinion been too much dominated by the assumption of price flexibility. For the Theory of Value and for the diagnosis of the problems of relative production and the distribution of available resources between employments, the assumption of free real adjustment has been exceedingly useful. But in the analysis of *policy* and most especially for an account of credit policy such presuppositions are misleading and dangerous. I have therefore done my best to contrast the results which follow when the prices of the factors of production move freely with those that can be deduced when contractual or rigid wage rates, land rents and debenture interests are taken into consideration.

I have also attempted the difficult task of discovering the effects of placing new money in the hands of consumers rather than in the hands of producers. This is a field of economic theory which has hitherto been left exclusively to the mercy of the monetary crank and propagandist.

The book falls into two Parts. In the first I have set forth

a general analysis of monetary dynamics. All theories of credit policy must ultimately be based upon some system of formal analysis and I have attempted to introduce into my own system some account of the significance of contract elements and consumers' credits. From this examination, if it is correct, two conclusions of great importance for credit policy emerge. They are stated at the conclusion of Part I. In the second half of the book I discuss the question of the practical execution of this policy, the statistical series by which it will be possible to reveal movement in the important monetary quantities and the instruments by which these movements can be controlled. In the last Chapter of the book I discuss, more briefly, the further question of desirable changes and reforms in the institutions of credit provision and management.

In the writing of this book I have been indebted in the main, as will be obvious, to the body of written work in the English language by Professor Hayek and Mr. Keynes and Mr. Robertson. I feel a particular indebtedness to the penetrating contributions of Mr. Robertson to the discussion of monetary policy and to Mr. Harrod's recent work on the same subject. For more personal help in the criticism and amendment of the manuscript I have to thank, and that very warmly, Mr. Barrett Whale of the London School of Economics, Mr. Harold Barger and Mr. Hugh Gaitskell of University College, London. Mr. R. G. D. Allen of the School has been kind enough to express part of my argument in mathematical terms for me, and his contribution is included in the appendix.

I have written in the hope that what I have to say will be of some little use in guiding the hands of those who, by their control of the means of payment, rule the human destinies of the modern world, and that the views here expressed may cast a brief ray of light upon the broken seas and darkness of our common economic life.

E. F. M. Durbin.

The London School of Economics. *April*, 1935.

PART I

ANALYSIS

CHAPTER I

THREE INTRODUCTORY PROPOSITIONS

§1. Money is at once the least important and the most important commodity in economic life. By itself the medium of exchange can do nothing to increase the quantity of real resources on which the standard of living enjoyed by a community ultimately depends. On the other hand the mismanagement of monetary policy can and does force into unemployment and thus utterly wastes a considerable fraction of these resources. Credit policy can only create the external conditions within which the accumulations of science and the fruits of human thrift can slowly encroach upon the realm of scarcity and poverty. Without those external conditions the rate of advance can be reduced to nothing. These are the limits set to the importance of the subject matter of this book.

At least three problems are considered by economists under the general heading of the theory of money and credit. They are:—

1. The analysis of the *nature of money* as a means of payment and a standard of value. Under this heading there arise the problems of defining money, of analysing the measurement and determination of its value and of discussing the various forms of money including those of cash and credit.

2. A description of the various *institutions* by which the monetary business of society is conducted and the theory of the way in which these institutions function. The description of Central Banks, commercial banks, investment and foreign exchange houses and their modes of operation fall under this general head.

3. Finally there is the analysis of *monetary policy proper*—the discussion of the steps which it is wise for monetary

authorities to initiate in order to secure or preserve certain conditions in the real world. It is true that no fruitful analysis of policy can wholly escape from the consideration of the monetary institutions within which and the instruments by which a given policy is to be executed. Too definite a separation of monetary theory from the discussion of financial institutions leads to sterility in both studies. Nevertheless there are a number of problems which are peculiarly the problems of policy—the source of movements in the demand for money, the nature of the circulation of money outside the banks, the forms of credit extension, the effects of variations in the quantity of effective money upon the real structure of physical production and the relation between the different types of monetary circulation—these are problems which are intimately bound up with the form of the institutions from which money is derived but they concern, not the form of those institutions, but the external results of monetary changes initiated by them.

It is with the third set of problems that this book is almost exclusively concerned. I shall make no attempt to recapitulate or add to the discussion of the nature and value of money. I shall assume the validity of the simpler forms of Quantity Theory and make use of Professor Fisher's formula $P=\frac{MV}{T}$ or $PT=MV+M'V'$[1] It will be part of my task to examine the relations between various forms of monetary velocity and the broad classification of the objects entering into the volume of transactions; but I shall not discuss in detail the meaning of index numbers or evaluate the different methods of expressing the relationship between money, goods and prices.

Nor do I propose to describe in any detail the institutions of the monetary world. It is my intention to suggest in the second half the book that certain changes in banking practice and a certain re-distribution of authority in the banking world are desirable. But at this point in the argument I shall take for granted the general mechanisms and forms of an advanced monetary system. It is therefore convenient

[1] See Fisher's *Purchasing Power of Money*, Chap. III.

to introduce here a very brief account of such a system. Its characteristic institutions are:—

1. A strong and well-managed Central Bank which possesses a monopoly of the right to issue legal tender currency and holds the Gold Reserve of the whole system under some form of reserve law, which acts as a bank for the commercial banks while its ordinary banking functions—if they exist—are not qualitatively important.

2. A number, large or small, of ordinary commercial banks which specialise in the provision of short term credit for industry, operate a cheque system and commonly engage in some or all of the business of the foreign exchange market.

3. A group of special financial houses associated with the foreign exchange market and concerned exclusively with the business of accepting and discounting bills of exchange.

4. A complex organisation extending all over the economy but especially concentrated in one or more centres which is engaged in (a) the purchase and sale of existing property rights and (b) the provision of the intermediate stages of long term capital for trading enterprise. Of this organisation the Stock Exchange is the largest and most important part. But there are other sections as well. Issue houses for both home and foreign investment and any firms concerned with the purchase and sale of land and old houses other than new houses form part of the economic mechanism whereby goods other than industrial products[1] are bought and sold.

I shall assume that all these institutions or groups of institutions exist and function under private control for private commercial profit.

We are now left with the third type of problem—the problem of monetary circulation and monetary change. The essence of the task is to discover, given the general character of the actual monetary circulation, what changes in the volume of effective money will preserve full industrial equilibrium through all the various types of external change to which the economy may be subjected. There are therefore

[1] The term "products" is used in the wider sense to include services. The real distinction lies between expenditures of money which result in employment and those—such as the purchase of an old house—which do not.

three things we need to know—(1) the actual form of the monetary circulation, (2) the types of change to which it may be subjected and (3) the way in which variations in the quantity of money will affect the interacting elements. There is nowadays a good deal of agreement among economists about the first question—the fundamental nature of the monetary circulation. As I have discussed it at length elsewhere,[1] it is only necessary to summarise and slightly adapt these common conclusions to the general purpose of this book. That will be done in the remainder of this chapter. We shall then be able to deal more easily with the other two fundamental and far more controversial problems.

I can best summarise the principles upon which in my opinion further reasoning must be based, in the form of three general propositions. These three propositions are concerned respectively with the relation between money incomes and money costs of production in a simple economy, with the same relation in a more complex system and with the general consequences of saving.

§2. The Simple Relation between Incomes and Costs.

The first proposition starts with the simplest conceivable relation between the prices of finished commodities and the money costs of production. Let us suppose that all types of production are controlled by a single Trust which employs all the factors of production in a complex technical pattern, but which sells all final products direct to the consumers. *Then it necessarily follows that Total Incomes will be equal to Total Costs.* This proposition, important as it undoubtedly is, is an arithmetical truism. Since there is only one production unit making payments to the factors of production and directly owning all the intermediate products, the whole of its payments must necessarily be made to consumers for there are no other producers from which to purchase anything; and the total of such payments—which make up total costs—must necessarily be equal to the total consumers' receipts for

[1] See my *Purchasing Power and Trade Depression passim* and, of course, also Hayek's *Price and Production*, Lecture II. Also described with great lucidity by M. A. Abrams' *Money*.

they are one and the same thing. What the paying authorities pay out must be equal to what the whole body of the recipients receive.

The validity of the truism is at once apparent if we take the diagram invented by Messrs. Foster and Catchings to demonstrate this point.

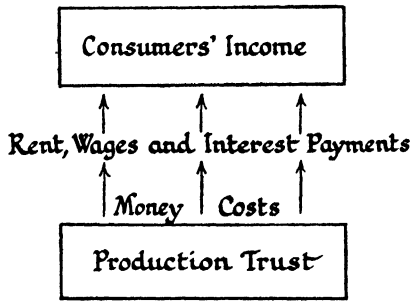


Fig. 1.

Every money cost paid to some necessary factor of production, or the owner of such a factor constitutes an exactly equivalent money income.

It further follows as a natural corollary that if the Consumers' Money Income is spent upon the output of consumption goods, *Total Prices will be equal to Total Costs*, and industrial equilibrium can be indefinitely maintained:

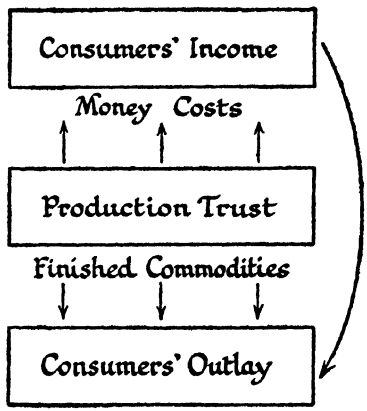


Fig. 2.

In such a case we have:—

Money Costs=Consumers' Income
Consumers' Income=Total Prices
Total Prices=Total Costs.

But it is necessary to emphasize at once that this proposition does not mean that prices *will* be equal to costs, or that industrial equilibrium *will* be maintained. Quite on the contrary, the argument even at this early stage already contains by implication a number of conditions without the fulfilment of all of which equilibrium cannot possibly be reached. The equilibrium of prices and costs can only be achieved on condition that the recipients of money income spend the *whole* of their current receipts upon industrial output. It does not of course matter whether they spend less money on one finished commodity as long as they spend more upon another, but it does matter vitally that they should spend all their income on industrial products of some kind. The necessary condition can be expressed in the following form:—

1. If industrial equilibrium is to be preserved the consuming public must *not spend any of its income upon commodities other than industrial products*. It may at first sight be thought that there are no alternative avenues of expenditure if *all* industrial products are excluded. This however is not the case. Finished goods, even if we count new capital instruments under this head, are not the only object of monetary purchase. *Consumers can buy property rights or claims to future income* and this type of purchase in the first instance and at the moment of purchase does not provide a market for industrial output. Consequently if the recipients of income even in this simple industrial order spend part of their monetary income in acquiring from each other claims to future income they would not necessarily provide an adequate market for consumption goods or maintain an equality between prices and costs. As long as they can buy more property rights than they had been buying, they may very well destroy the equilibrium of incomes and employment in the manufacture of industrial products.

2. More obviously the recipients of an income equal to

the costs of output must, if equilibrium is to last, spend the *whole* of that income and not increase their stocks of money. If they hold or hoard any part of their current income in money form then evitably they will create a deficiency of price equal to the whole of such hoarding.

We shall see that these two considerations lie at the root of the analysis of industrial disequilibrium and give rise to two of the essential problems of credit policy.

§3. THE COMPLEX RELATION BETWEEN INCOME AND COSTS.

The second proposition which I have to establish is more intricate than the first. It concerns the situation which arises when we no longer assume that the successive stages of manufacture are under a single financial control. If the various intermediate products necessary to the manufacture of each finished commodity are made in production units that are under separate financial control, the transition from each technical stage to the next involves an exchange against money. What in these circumstances—the circumstances of the real world—will be the relation between incomes, costs and prices? It becomes quite impossible that the Consumers' Income should ever be equal to the *total* payments made in production since many of these are payments made by producers to producers for these intermediate products. Such payments necessarily pass between producers and producers and not between producers and consumers. It is therefore plainly impracticable that the total of producers' payments to consumers (which constitutes the Consumers' Income) should be equal to the total of producers' payments including the payments for intermediate products. A part cannot be equal to the whole of which it is a part.

For industrial equilibrium to exist however, it is not necessary that the Consumers' Income should be equal to Total Costs. It is only necessary for the consuming public to be in a position to buy the whole of the *final output* at a price which covers cost of production including normal profit. If the money income accruing to consumers is equal in *each unit period of time* to the costs incurred by the manufacturers of final consumption goods and finished machines

in the same period, and if the consumers spend the whole of this income upon industrial output the price of output will be equal to the costs of the last stage. The output of that stage can therefore be sold at a profit during the period in question. The output of the stage behind will meanwhile be sold as the raw material of the last stage and at each of the earlier stages the same type of exchange will take place. Moreover all these processes take place simultaneously in a continuing system. The exact meaning of this statement will be plainer in a moment.

Therefore the *second* of these four propositions consists in affirming that: *in a complex structure of production the Consumers' Income can be equal to the Cost of final output.* The probability of monetary disequilibrium is greatly increased within the more complex commercial system but the *possibility* is not utterly destroyed.

The proof that this is so—that the income can be equal to the costs of the last stage—is derived from the verbal proposition that in a continuing system every element in the cost of the final commodity is being paid out to some consumer in the present and that therefore the total of these elements must be equal to the costs of the last stage in the present. Thus in a continuing system the element in the cost of a shirt which represents the payment for the labour employed to raise the coal which smelted the iron that made the loom which wove the cloth that was manufactured into the shirt, after having passed successively through the hands of the retail shopkeeper, the wholesale merchant, the shirt manufacturer, the weaver, the loom-maker, the iron-master and the colliery owner in previous periods of time must now be accruing to the miner. What is true of this element in the cost of the shirt is true of any element, and consequently of all elements. Thus the consumers as a whole, subject to the reservation that all money is spent on industrial output, are necessarily receiving in the present the total costs of the finished shirt. And what is true of shirts is equally true of wheat and razor blades, and cinema tickets, and so it is at least *possible* for the incomes of consumers to be equal to the costs of total final output.

As in the previous case the further conclusion that the *price* of final output will be equal to its cost of production depends upon the double proviso that the consumer spends the whole of his money income and that he spends it directly or indirectly, upon industrial products. But in the more complex case it is also necessary to add the further provision that producers must also spend the whole of their gross receipts in every stage upon some industrial product. They must either re-invest their gross income in industry or spend it themselves in consumption. Otherwise equilibrium cannot possibly be maintained.

An attempt has been made to represent this verbal argument in *diagrams*. It is by no means an easy task to do, if we seek to represent anything like the full complexity of the industrial process. Professor Hayek who made the first attempt escapes from some of the difficulties by assuming away the existence of fixed capital. Consequently he is able to ignore the depreciation allowances that must be made from any stage of production in the real world. Unfortunately this means avoiding a real problem and does in my view, lead Professor Hayek into important mistakes in his later conclusions.[1] As this is a matter of general importance and leads us to a much fuller understanding of the real significance of this second theorem, I propose to examine in some detail the diagrammatic representation of the circulation of money through the industrial system.

Let us take Professor Hayek's solution first. If we assume that there is no fixed capital the structure of production consists exclusively of circulating real capital upon which the primary factors of land and labour operate in its passage from stage to stage. In the case of bread, let us imagine it to be manufactured in three stages with two intermediate products—flour and wheat. Let us further suppose with Professor Hayek, that each of the three stages employs an equal quantity of the primary factors (100 units) per unit period of time. A simple diagram then emerges:—

[1] See Appendix Note 1.

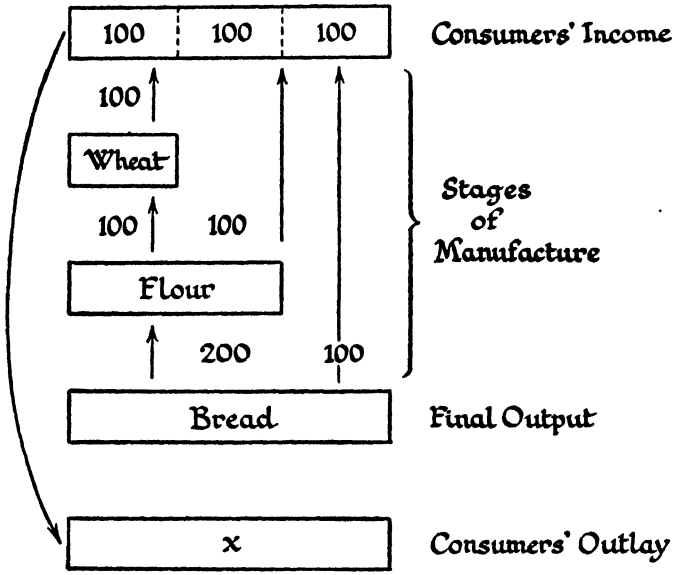


Fig. 3.

From the inspection of this diagram a number of important conclusions stand out:—

1. The total Consumers' Income is equal to 300 units per day derived in increments of 100 units from each stage, while the Total Costs of Production are equal to 600 units per day—300 incurred in the manufacture of bread, 200 in the manufacture of flour and 100 in the manufacture of wheat. Consequently the Consumers' Income is only equal to half of the Total Costs of Production.

2. Since however the cost of bread is itself only 300 units per day and the Consumers' Income *is* equal to this, the price of bread will always be equal to its current cost if the whole of the income accruing to consumers in each day is spent by them on bread.

3. It is further plain by inspection that just because we have assumed there is no fixed capital in any stage two simplifications follow—first that each stage buys only one product from a previous stage; and secondly that there is a last or final stage of production which buys nothing from any previous stage and merely purchases the services of

primary factors—in this case the wheat stage. If we allowed for the existence of ovens in the bread baking stage, of mills in the flour milling stage and of ploughs in the wheat growing stage both these simplifications would disappear. The baker would then not only have to buy flour, but would also be forced to replace his ovens, and the farmer would not be able to work with labour alone, he would have to buy an intermediate product—ploughs.

If we remove this simplification and allow for the existence of fixed capital it is clear that each stage of production must buy from at least two sources—from the market for the primary factors and from the manufacturer of machines; and that most stages must buy from three sources—the market for primary factors, the market for raw materials, and the market for replacement machines. It becomes much more difficult to represent the condition of the industrial circulation but not, in my view impossible. Let us return to the case of the shirt and trace its manufacture back through the retail shop, wholesale merchant, manufacturer, weaver, spinner, and raw cotton producer, allowing for the purchase at each stage of the various types of machine capital which are there necessary. The picture becomes something like the more complicated diagram in Fig. 4.

From this more complex diagram a number of things stand out clearly:—

1. There exists what may be called "the direct technical line of production" running back from each finished commodity through a series of intermediate products with a common physical substance to some ultimate agricultural or extractive raw material stage—in this case it runs from the shirt at retail and wholesale stage, through the manufacturer, the weaver, the spinner, the cotton broker and the cotton farmer to the ultimate cotton plantation. Now this cotton plant stage is a "last" stage in the sense that the cycle of production now turns back upon itself and begins to use some other physical substance as a base. But it is *not* a last stage in the sense that the wheat farmer was a last stage in the simpler diagram because in this case we take account of the fact that a farmer buys intermediate products as

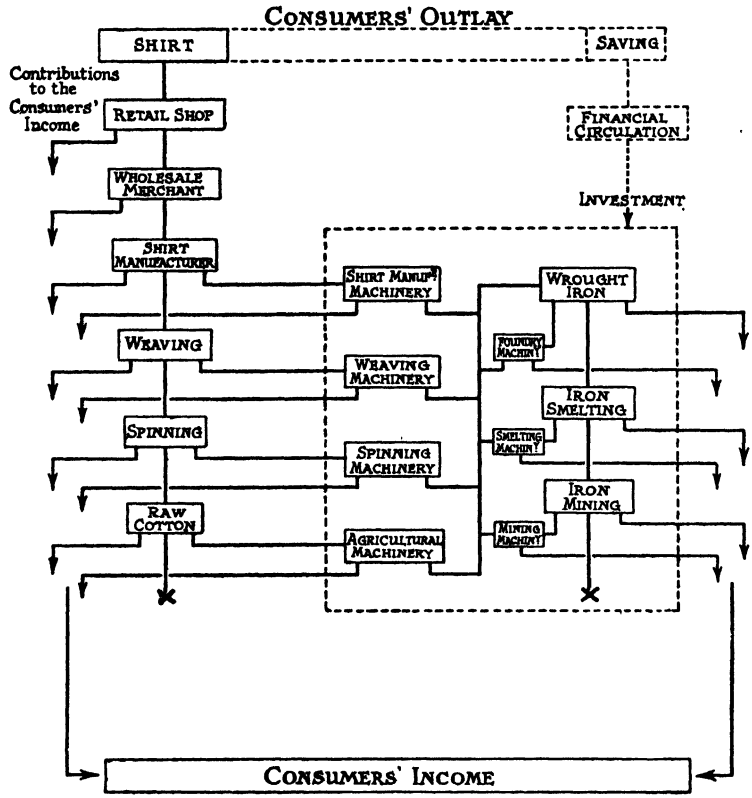


Fig. 4.

much as any other producer. He buys agricultural machinery and pays money to a group of machine industries.

2. Consequently it follows that it is not possible to trace every unit of money directly into the hands of the consumer. There are whirlpools or loop lines in the general backward flow of money through the industrial system and it is at least possible that some units of money might circulate for some time between producer and producer without approaching the income of any consumer. In our particular case a unit of money might pass through the agricultural machinery stage and then back to the wrought metal stage for some time. It can no longer be said that each unit

of money must pass straight through the structure of stages into the hands of a final consumer. At first sight it looks as though this consideration must invalidate the view that the receipts of final consumers *can* ever be equal to the costs of producing commodities in the last stages of production. This is not the case, however, as long as we consider a monetary circulation that has continued indefinitely in the past. In every exchange between the intermediate stages in question only a fraction of the money passes round the whirlpool. The remainder is constantly passed out into the general circulation which does flow backwards to consumers. Thus when money is spent upon wrought iron by the producer of agricultural machinery only a fraction of that money will then be spent upon foundry machinery and only a fraction of that fraction will be re-spent upon wrought iron. The amount of money not currently accruing to consumers will grow smaller and smaller until in a sufficiently long period it becomes negligible. At this point in the continuous process it becomes possible for the Consumers' Income to be equal to the costs of final output.[1]

3. Finally, for future reference it is of interest to notice one further point about this more realistic picture of monetary circulation.

Apart from the "main line" of industries and intermediate products there is a derived group of extractive, refining and machine making industries which possess a very general common character and which may be reasonably termed the *capital good industries*. It is in this sense that the terms "capital good" and "consumption good" industries will be used in the remainder of the book. Of course the distinction is one of process and not of commercial structure. Not only may any one production unit be in touch with a number of stages at once—the manufacturer of wrought iron

[1] This obscure difficulty has always appeared to me as one obstacle to the more realistic formulation of Professor Hayek's diagrams, and I am indebted to Mr. H. T. N. Gaitskell for this solution of the difficulty—which I am sure is the right one. At the same time it is curious to notice that if at any moment it were necessary to increase production from a stationary situation with general unemployment, this difficulty would become a reality. The necessary circulating balances would have to be provided at every stage, including that of direct consumption.

is selling to a great number of stages even in my diagram—but also it may be manufacturing both capital goods and consumption goods in the meaning of our terms. An electrical manufacturer may be—indeed will be—making a dynamo for a capital good stage and wireless valves for the consumer's market. These complexities are neither here nor there. There is a broad sweep of industries in a direct technical line with the finished product, and a group of metal and machine industries which contribute one general raw material—machines—to that line of manufacture and this is an important distinction.

We are then at liberty to conclude that even if we allow for the complexity of commercial ownership and the frequency of the exchange between intermediate products and money there is a fundamental tendency for Consumers' Income to equal the costs of the last stage of production.

§4. Capital Accumulation.

So far we have considered a complex but a static economy. We have succeeded in allowing for the existence of a certain quantity of fixed capital but have not analysed the circumstances in which the social stock of capital is made to grow larger. If part of the Consumers' Income is spent, not upon consumption goods, but upon new machines of various types a certain section of the industrial system—the group of capital good industries already described—will tend to expand and become specialised to meet this demand. The long run result of this increase in the production of machines is obvious—the productive capacity of the community is enormously increased and the standard of living is raised. It is not with this aspect of social saving that we are at present concerned, but rather with the problem of its influence on financial equilibrium in the industrial circulation. This is a subject which has received great attention from economists in recent times. I have dealt with it at length elsewhere, and do not therefore propose to repeat the full argument here.[1] For our present purpose the third

[1] cf. My *Purchasing Power and Trade Depression*, Chap. II, §§ 2 and 3, and Chap. III, and Professor Robbin's *Consumption and the Trade Cycle*, Economica, 1932.

essential proposition affirms *that the accumulation of real capital is compatible with monetary equilibrium.* The meaning of this theorem can be summarised briefly:—

1. The verbal argument of the previous section guarantees the equality of the Consumers' Income with the current cost of final output even if part of that final output consists of an increment on the stock of capital. The fact that part of the physical output of the later stages of production consists in new machines makes no essential difference to the argument that every element in the cost of machines will, in a continuing system which includes a continuous rate of investment, be accruing in the present to some consumer. Consequently it is right to assume that the money income received by the consumers could be sufficient to buy the full output of consumption goods and new capital at a profitable level of prices.

It is not however sufficient to leave the matter there, since the production of new capital, as distinct from the production of consumption goods in a static economy, will not leave the manufacturing efficiency of the community unchanged. It is still necessary to take account of the effect of the manufacture and use of these machines upon the output of consumption goods. The net result of the use of the additional machines is to increase the physical output of consumption goods. Industrial equilibrium can therefore only be preserved if an *increasing* flow of consumption goods can be marketed at a profitable price at a time when the quantity of Consumers' Income devoted to their purchase is not necessarily increasing at the same rate and may even be stationary.

2. It is now generally accepted that it will be possible to market the increasing output of consumption goods at a profitable level of prices as long as there is in the absence of monetary inflation, an effective Rate of Interest upon new savings. As long, that is to say, as there is a demand price for new capital—there must be a continuous series of opportunities for investments in productive enterprise that will reduce costs below prices whatever level of prices comes to rule in the market. A dynamic equilibrium of this kind is dependent upon a rate of *invention* which keeps pace with the

Rate of Saving and continually opens up new technical possibilities as the old ones are used up. But given this condition it is possible for more and more consumption goods to be sold at a constant total price simply because monetary costs are being steadily forced down. A Rate of Interest can only be paid continuously upon new saving as long as costs are continuously kept below falling prices. The possibility of maintaining monetary equilibrium in a developing economy is therefore determined by the existence or absence of a Rate of Interest upon new capital within the period of time in question. This important conclusion is, however, only a preliminary one. It is now necessary to investigate the sources of monetary change and the processes of real disequilibrium.

The representation in *diagrammatic form* of this final stage of preliminary analysis reveals these problems:—

1. The money which is saved by final consumers does not, for the most part, pass directly to the purchase of final output in the form of machines but passes first through the Stock Market and Issue Houses on what Mr. Keynes would call the Financial Circulation. From the Financial Circulation it emerges in one form or another—if equilibrium is preserved—for the purchase of part of the product of the capital good industries. In Fig. 4 the passage of money in this way through the Financial Circulation is indicated by a series of broken lines on the right of the diagram.

2. It is further complicated by the fact that the commodities which are bought by savings are not directly consumed by those savers—as are the consumption goods which they purchase. On the contrary, the new machines are installed somewhere in the structure of production—either in the industries manufacturing consumption goods or in the industries manufacturing new machines. The full circulation of money can however be represented in the following diagram:—

The Consumers' Income is divided between expenditure on Consumption Goods (Mr. Keynes' E - S) and Saving or the purchase of securities. The money expended on consumption goods passes back through the structure of consumption

good industries and makes a contribution to the Consumer's Income. The money spent on securities (Mr. Keynes' S) passes through the Financial Circulation and emerges—so we are assuming—in the purchase of machines for the capital good industries (Mr. Keynes' I). The capital good industries make the second major contribution to the Consumers' Income while the physical output of machines is invested partly in the capital good industries themselves and partly in the consumption good industries.

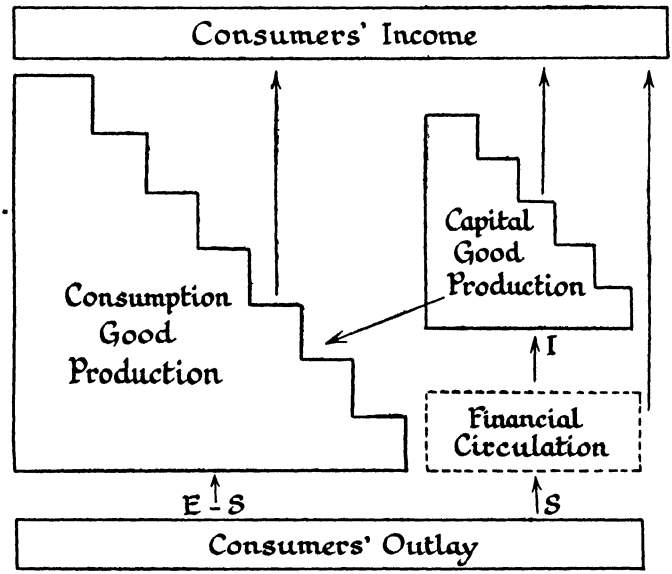


Fig. 5.

About this diagram it is necessary to remember:—

1. That it makes use of Professor Hayek's simplified triangles which are incorrect in two important respects:—

(*i*) each stage of consumption good production buys machines with its depreciation allowances directly from the capital good industries.

(*ii*) there is in reality therefore no final stage of consumption good production.

As long as we remember these two limitations the use of the simpler diagrams is permissible.

2. A small point—the value of Investment defined as the amount spent on new physical capital will always be less than the value of saving—by the amount of final income earned in the Financial Circulation. This fact does not, however, cause disequilibrium since the Consumers' Income is maintained at what it should be by the contribution of the Financial Circulation.

CHAPTER II

THE DYNAMICS OF THE INDUSTRIAL AND FINANCIAL CIRCULATIONS

I. MONETARY EXPANSION

§1. Credit policy is concerned primarily with the result of *changes* in the effective quantity of money. It is therefore necessary to remove all forms of statical presupposition from the field of our inquiry and to investigate the nature of money as a source of change.

The quantity of effective money—that is the quantity of money multiplied by its transaction velocity (MV)—can vary either upwards or downwards and our two most important inquiries are concerned with the analysis of these opposite possibilities. The first will be discussed in the present and the second in the following Chapter.

§2. THE GENERAL EFFECTS OF MONETARY EXPANSION.

Let us imagine that an outflow of new credit from the banks takes place. In order to generalise the conclusions most widely we will not specify for the moment either the stage at which or the legal methods by which the new money comes into existence. What will be the most general results of a net increase of credit? There are two types of consequence to be considered. In the first place there may be a purely monetary reaction to the inflation of credit. The injection may either raise or lower the demand for still more money—it may lead to either cumulative or equilibriating changes. And then in the second place there are the real in the sense of the non-monetary repercussions. What will be the effect of new money upon the distribution of real resources, for example, or upon the real rate of saving?

In anticipation of all that follows it may be stated that the effect of an injection of credit will depend upon three general conditions:—

1. The result will depend in the first and most obvious case upon the position and duration of the injection itself. A small injection is likely to have smaller effects than a larger injection. The result is also likely to depend upon the position at which the increased flow of money begins—whether it represents a direct increase in consumption expenditure or capital expenditure, for example.

2. The result will also be influenced by the type of price and distributional change that any given injection brings about, and this will depend in its turn upon the type and degree of rigidity in the system of money contracts upon which the entrepreneur bases his calculations and the structure of production that he chooses to plan. The effect of the injection will therefore depend upon the system of legal and commercial contracts in existence.

3. Finally the result will depend upon the relative speeds of adjustment of monetary quantities and physical quantities. In particular, the effect on the real structure of production of any injection will be profoundly influenced by the relation between the average period which it takes for a factor of production to move to a new position in the economic system where its net reward will be greater. In the theory of competition it is always assumed that any factor of production will move to a new position if it can there obtain a reward greater than the reward it has previously been receiving after full allowance has been made for both monetary and psychological costs of movement. Such a doctrine is an unexceptionable basis for our present purpose, but it obviously makes a radical difference to the analysis of the effects of an injection of new money whether the period of time which it takes the factor to discover the possibility of movement and actually to move is long or short relatively to the period of monetary transaction. If the average period of mobility—as we might call it—is equal to the period of transaction velocity[1] then the real structure of production will tend to become adapted to the commercial position which rules at the end of the first period of monetary circu-

[1] By "transaction velocity" is meant the number of times the representative unit of money exchanges against goods or property rights of any kind in the unit period, and by "income velocity" the number of times it exchanges against final output.

ERRATUM

Page 44, line 22. After the word "greater," continuing the sentence, read "and the period of transaction velocity."

lation after the injection. But if the period of mobility is several times longer than that of transaction velocity real adjustment will only begin at the end of several transaction periods and will tend towards a price situation quite different from that which ruled at the beginning of the injection.

It would be impossible to take up all these complex possibilities at once; the next section will deal with the question of the form which the injection takes. For the present the simple assumption will be made that a net addition to the effective quantity of money is spent at any point in the industrial structure, and the broadest and simplest results that will follow from this will be traced out.

To simplify the problem still further, let us assume in the first instance that there are no contracts enduring for longer than the average period of transaction velocity and that the period of time taken by a unit of the primary means of production to move from one employment to another is, on the average, long in relation to the period of transaction velocity.[1] The first assumption means that the prices of all factors of production will adjust themselves in one transaction period to the value of the marginal product in that period—*i.e.*, that when the price of coal rises, the price of miners' labour, the price of coal-mining machinery and the royalties upon coal will rise by the same percentage as the price of coal has risen. Consequently, at the end of the period the factors will receive the new total price of coal in the same proportion as they received the old total price of coal. The second assumption implies that the mobility of real resources is a long period phenomenon in comparison with the average length of time that it takes for a unit of money to pass from one hand to another. Given these two assumptions, which however must subsequently be removed, it is possible to give some account of any process of localised monetary expansion.

Suppose that a certain quantity of new money is spent in Period I the fifth stage out of ten stages (Stage A in Fig. 7) in the structure of production—using for this purpose the simplified diagrams invented by Professor Hayek.

[1] This part of the argument is set forth in mathematical terms by Mr. R. G. D. Allen in §IV of the Appendix.

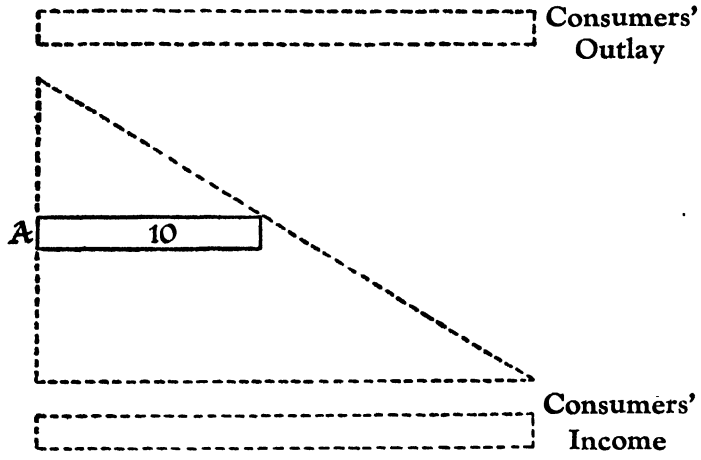


Fig. 6. Period I.

At this stage one-fifth of the gross expenditure is used to purchase primary factors and four-fifths to purchase intermediate products—then at the end of the first period four-fifths of the new money will by our first assumption be spent upon the product of Stage B and one-fifth will accrue to the owners of final income. The distribution of the new money will now be as follows:—

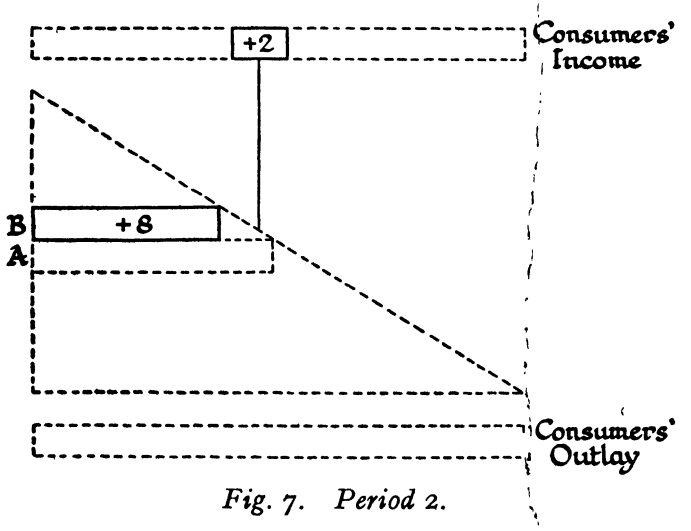


Fig. 7. Period 2.

This same process will repeat itself in Period 3 at Stage B (where one-fourth of the new money at that stage will accrue to consumers) but a new process of expenditure will begin. The money which previously entered into Consumers' Income will now enter into Consumers' Outlay and the whole of the first stage of production will experience a small diffused increase in money demand. The position will be this:—

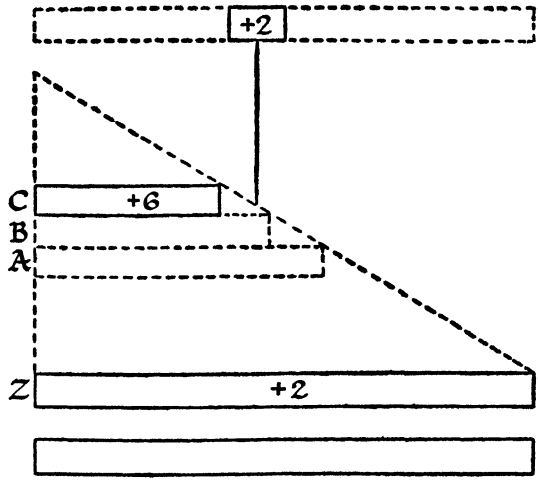


Fig. 8. *Period* 3.

In Period 4 all these processes will be repeated and yet another process will be added—namely, that part of the money now accruing to the stages from the increased Consumers' Outlay will be returned by those stages direct to the Consumers' Income. The latter will consequently be reinforced from two sources, Fig. 9, p. 48.

It is unnecessary to pursue this type of reasoning any further since three general results of the original injection and the subsequent circulation of the new money have now become apparent:—

1. The new money is being diffused rapidly throughout the system. In the first period new money is present in one stage only. In the second period in two stages, in the third period in three stages, and so on.

2. But the diffusion is of a certain kind—the new money

passes backwards from the point of injection but also directly to the Consumers' Income and from there through the whole structure of production from the beginning. As soon as the fifth period of circulation is passed the whole of the new money will have gone into the Consumers' Income and will have been spent at the first stage. Moreover certain quantities of the new money that have passed once through the Consumers' Income and Outlay will be returned a second time to the Consumers' Income from the later stages of production. Consequently the Consumers' Income is reinforced

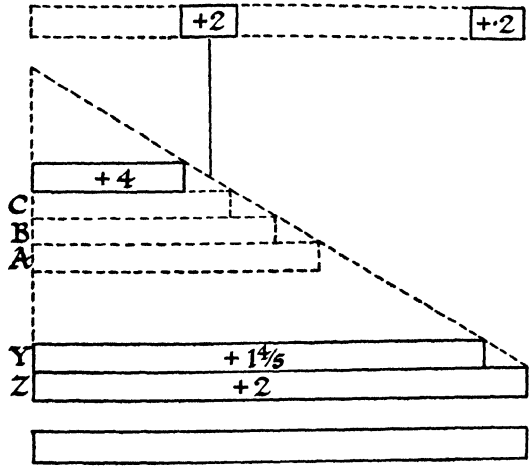


Fig. 9. *Period* 4.

from two sources. Nevertheless the increments of new money expressed as a proportion of the value of the product at the stages reached will rapidly diminish after the fifth period and the new money will tend to become diffused equally through all stages and to raise prices by the same percentage everywhere.[1]

3. Despite however the rapidity of the diffusion of the new money throughout the system and the consequent

[1] Mr. R. G. D. Allen has submitted this generalisation to certain arithmetical and algebraical tests (explained in §4 of the Appendix). According to these tests it appears that the stream of money received at any stage undergoes a wave-like oscillation which diminishes rapidly to nothing.

rapidity with which all stages and all prices will be influenced, there is an interval in which certain price differences will be considerable. In the second period for example the price of the primary factors in Stage A is 2 units of money above the price of similar factors in all other stages, while the price of intermediate products in Stage B is 8 units above the price in other stages. These increases may represent considerable percentage differences on the previous prices. As the diffusion continues these differences will be reduced until in the long run they will become negligible and disappear, but in the meantime they exist and must be considered.

It is the existence of these temporary price differences of more considerable size that makes the second assumption important. If the average period of mobility of real resources were short in relation to the period of transaction velocity the effect of the injection upon the real structure of production would be large and chaotic. Suppose for example that the average period of mobility is equal to the period of transaction velocity. Now the period of mobility is the period of time within which the representative unit of labour or land can be and will be transferred to another position in the structure of production in which its money reward is greater than in its previous position—allowing for its cost of transfer. If this period is equal to the period of transaction velocity then in our Period 2 there will be a rapid flow of resources to Stage A. But by the time they have reached this position the whole situation has changed for now Stage B is the profitable stage for the primary factors. The previous flow to Stage A will now be reversed and a new flow to Stage B will begin. But this already is too late since the profitable stages in Period 4 have become Stages C and Z. A series of changes and reversals in the direction of movement will thus begin. The resultant confusion and wastage of resources is obvious.

But suppose the average period of factor mobility is fifty times as long as the period of transaction velocity. This means that factors will move to a new position only after a value difference has been maintained there constantly over

50 periods of monetary transaction. The real results of a monetary injection now become entirely different. In the first place no movement of resources will begin until Period 50 of our sequence. By this time the diffusion of the new money will be well advanced and the number of stages enjoying some increase in money price will have reached or be approaching the total number of existing stages.[1] In the second place only those stages which have enjoyed a continuous maintenance of high price will be appropriate places for the reception of new resources. In these circumstances the amount of real adjustment will be immensely reduced and may amount to very little or nothing. The main result of the injection will be a series of temporary, small and isolated series of distributional changes. Certain resources will receive transitory quasi rents. It is therefore right to conclude that the volume of real adjustment resulting from a given injection will depend upon the relation between the period of mobility and the period of transaction velocity and will be less the greater the period of mobility is in relation to the period of transaction velocity. Since in reality the period of mobility must be many times larger than the period of monetary transaction it is probable that the changes in the real structure of production resulting from a single injection of money will not be very considerable.

To what extent will these conclusions be altered if we consider not a single injection but a *rate of injection* of new money at any point? Let us assume now that instead of one injection of 10 units an injection of 10 units *per transaction period* is made at Stage A. In the Period 1 the position will be just as before:—

[1] In the particular case here supposed, Mr. Allen's method demonstrated that after fifty periods the variations in price could not be greater than .1 of 1% between any two stages.

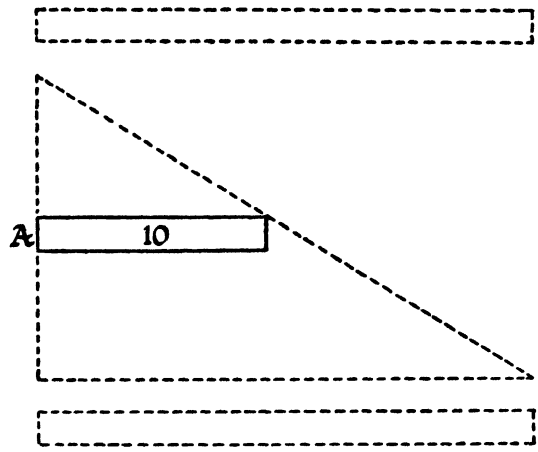


Fig. 10. *Period* 1.

In Period 2 however, not only will the new money have reached Stage B and the Consumers' Income but the increase at Stage A will also be maintained:—

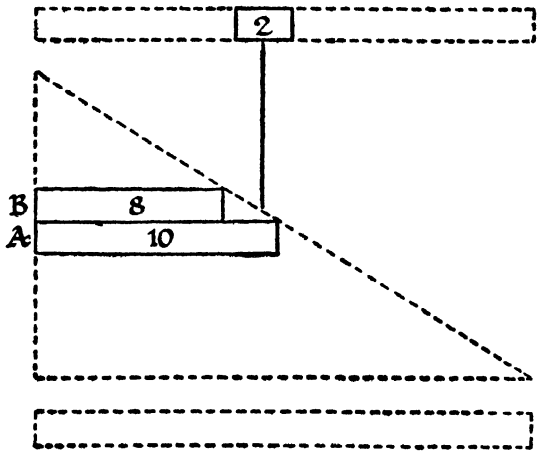


Fig. 11. *Period* 2.

From this point on the diffusion will be more rapid than in the previous case and the relative increase of prices will be maintained, i.e. in Period 3 four stages will be affected instead of two, but the rise in price at Stage A will have been

constantly maintained over three periods instead of during one such period:—

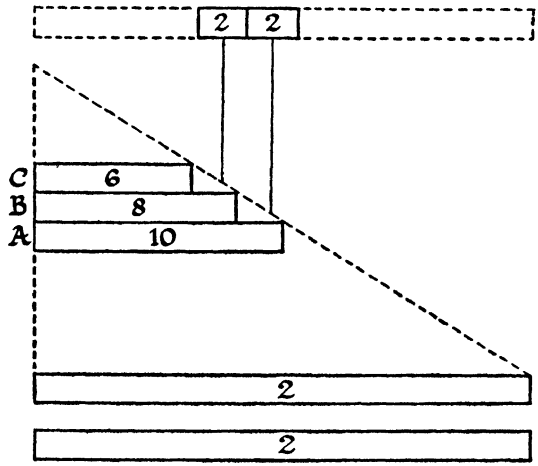


Fig. 12. *Period* 3.

The double reinforcement of the Consumers' Income will begin from Period 4 as in the previous case.

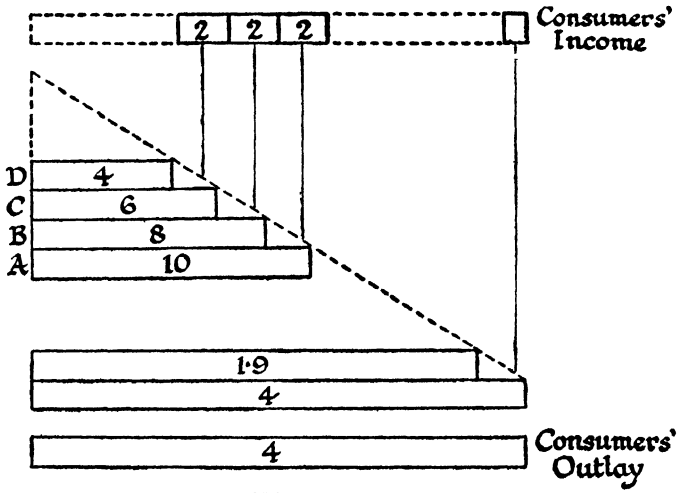


Fig. 13. *Period* 4

Two important differences are therefore introduced if the injection continues at a constant rate for some time:—

1. The increase of prices is spread much more rapidly over

the system. Consequently although the absolute rise of prices will be much greater than in the first case, the relative differences between prices ruling at any moment may be much smaller. To that extent the effect on the structure of production will be much smaller.

2. On the other hand the first differences in relative prices to be established will be maintained for a considerable period of time and although they may be overwhelmed in the long run by the general diffusion of money through the system, some of them will continue to exist for an almost indefinite period. The relative rise in prices at Stage A for example —the stage at which the injection occurs—will always be maintained since the money flowing back from the expenditure of Consumers' Income will continually raise prices at that stage by as much as it raises prices elsewhere, while to that general rise must always be added an additional rise due to the new money continuously injected. The moment at which this stage and the stages behind it will be brought into line with the rest will not arrive until the current injection becomes so small in relation to the ever growing flow of money created in the past that its significance can be neglected. That moment may not arrive until after a considerable number of transaction periods.[1]

It is therefore not easy to say exactly what difference a steady rate of injection will make to the real structure of production. The diffusion of price change will be more rapid but some distortions of the relative price structure will be maintained long after they would have disappeared if there had only been one injection. It is still true that the amount of real adjustment that is attempted during the inflation will depend on the relation between the period of factor mobility and the period of transaction velocity and it is probable that since the two results of continuing the injection offset each other, the increase in adjustment will not be as great as might at first be supposed.[2]

In order to complete this preliminary account of the

[1] There is also a third source of price difference—as Mr. Allen points out in the Appendix. Price differences between stages will exist because of the time differences in the incidence of the general movement upwards. Some stages will experience the upward movement before others and price

dynamics of inflation, it is necessary here to remove the assumption that no contract frictions are present. The essential condition secured by this assumption was the preservation in the inflationary situation of the proportionate division of the price of the product between the factors employed at each stage, and further, as one particular part of that condition, the maintenance of the same division between primary factors and the intermediate product coming forward from the previous stage. In removing the assumption we allow for the obvious fact that the prices of some factors are fixed by contract for more than one transaction period and that consequently a rise in prices will cause a change in the distribution of the gross value of the production and a disproportionate rise in the price of some resources. The commonest types of such contract are the wage, rent and debenture contracts which fix in the short period the costs of most products. Such fixities will concentrate the price change upon the type of money payment known as "profits" and will lead in an inflationary situation to a rapid disproportionality in the movement of this type of payment. This is a familiar notion and is the common basis of all existing accounts of the tendency of inflationary or deflationary movements to become cumulative.

About this type of disturbance in relative prices during an inflation two things must be emphasized.

First, the elements of profit is associated with the ownership, either by individuals or by corporate firms, of the fixed capital in the production unit. The individual entrepreneur or the members of a partnership, or the shareholders of a limited liability company are all characterised by the legal ownership of the fixed capital and goodwill of the plants they control. A general inflation which takes place within an industrial structure, containing a great number of such contracts is bound to force up the income earned by these factors.

differences will therefore appear. But they will be overwhelmed by the size of the general movement upwards. See Appendix 4.

[2] The costs of transference will, of course be more easily overcome by a large price movement than by a small. This will tend to make the volume of adjustment greater.

Secondly, this type of payment is a form of Final Income and as such it will cause a rapid change in the existing distribution of the price of the product between Consumers' Income payments and payments for intermediate products in favour of the former. If, for example, we make the extreme assumption that in Stage A all payments except profit payments are fixed by contract then the whole of the new money will enter into profits and revert at once (whatever stage Stage A may be) to the Consumers' Income:—

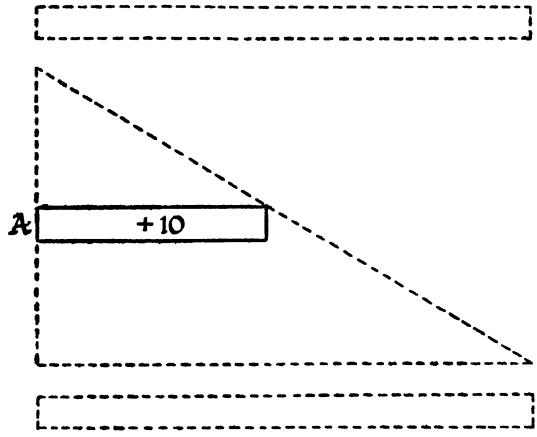


Fig. 14. *Period* 1.

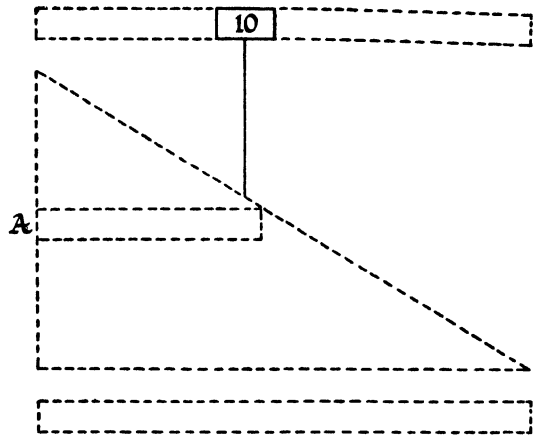


Fig. 15. *Period* 2.

UNIVERSITY LIBRARY
OSMANIA UNIVERSITY

The new money will, if it is not hoarded, now be spent at the first stage of production, and the net result of the whole process will be the same as if the Consumers' Income had been directly subsidised by the whole original increment of money:—

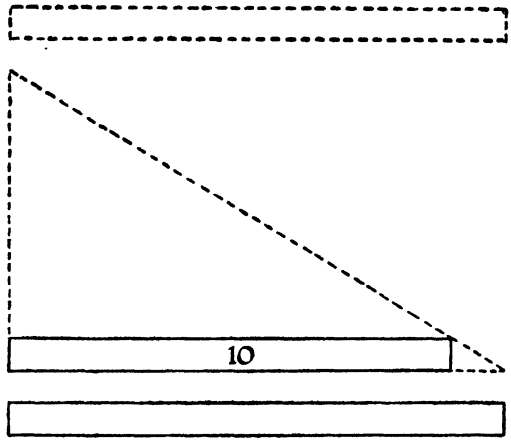


Fig. 16. *Period* 3.

It is therefore certain that the greater the extent of contract friction the more rapidly will the Consumers' Income be raised during an inflation independently of the position at which the money is being injected.[1]

This completes a preliminary investigation of the consequences of monetary injection. The results of such a simplified account are of course very tenuous and wholly provisional. An attempt to give them more weight and detail will follow in the remainder of the book. The provisional conclusions—for what they are worth—are as follows:—

1. That an injection of money at any point in the system will tend to diffuse itself over the whole of that system.

2. In the absence of contract frictions the diffusion will slowly approach a new general equilibrium in which the

[1] Of course the new income may be saved, but it has first entered wholly into final income.

receipts at all stages are increased by the same percentage.

3. That the extent to which the real structure of production undergoes any change or adjustment towards the price differences that are temporarily set up will depend upon the relation between the average period of factor mobility and the period of transaction velocity.

4. That the Consumers' Income is always raised and the presence of contract frictions greatly increases the rate at which the Consumers' Income grows.

Slight and obvious as these conclusions may be, they will be of some service in throwing light on the central problems of policy.

§3. Expansion by Consumers' Credits.

Throughout the last section the problem of the *type of injection* by which the inflation had been caused was altogether neglected. The assumed injection was allowed to occur at any stage and was of no specific legal or economic character. In the real world however, injections will be of a certain determinate legal type. The only important kind of injection that can take place under the guidance of normal or "orthodox" banking policy is an injection by way of "*producers' credits*". Such credits are granted by banks to producers for the purposes of improving their trading position and are made in exchange for a contract to repay the capital and a Rate of Interest upon the capital during the period of the loan. Extensions of credit are so commonly of this type that it is often assumed that they constitute the sole type of monetary change, but there is in fact a second type with precisely opposite characteristics. Injections could take place, and often have taken place in time of war, by giving new money straight into the hands of consumers. If a Government prints new notes and pays its employees with them, new money is injected into the system through the receivers of final income. In this case no contract of repayment is made and no Rate of Interest is charged. Such injections may be called "consumers' credits". In terms of Professor Hayek's diagrams these credits represent an injection of credit at the last stage of production.

Since, as we have already seen, any injection of credit whatever will be followed at once by a larger or smaller rise in the total Consumers' Income it will be of interest to inquire into the probable effects of a sustained inflow of Consumers' Credits.

In the past, controversy in this matter has centred around the nature of the influence which the increased demand for consumption goods will exert upon the demand for capital. That is essentially a false emphasis. There is no reason for believing that there will be any tendency for the rate of voluntary saving to be reduced if the Consumers' money Income is raised. On the contrary it is likely to be raised and we propose to return to this point in another chapter.[1] But as the controversy has arisen over the result of stimulating the demand for consumption goods alone we can best take up the analysis from that point.

There are two views which are held upon the matter. One opinion asserts that an increase in the demand for consumption goods is likely to reduce the demand for new capital, while the other believes that it is likely to increase it. Professor Hayek is the great exponent of the first view. He holds that the fundamental condition of scarcity imposes upon us the conclusion that any two mutually exclusive and all-embracing groups of industries must be competitive in any period. There is, at every moment, a fixed and limited quantity of primary and mobile factors of production and no industry can grow in size without drawing an increased supply of these resources *from* some other industry which will consequently be forced to contract in size. The expansion of the consumption good industries as a whole must therefore take place at the expense of the only other type of employment in the system—the capital good industries. Thus if there is any expansion in the relative demand for consumption goods—due either to a reduction in the voluntary Rate of Saving with a constant money income or to an expansion of money income restricted to the purchase of consumption goods—there must be a crisis and recession

[1] See Chapter IV, §5.

in the capital good industries in the sense that mobile resources will tend to move away from them.[1]

It is obviously not only possible but essential to agree with certain propositions in this general position.

1. It is not open to dispute that it would be impossible to increase the Real Rate of Saving measured as a fraction of the resources employed in manufacturing new capital without reducing the *fraction* used in the manufacture of consumption goods in any period, however short. That is an arithmetical truism. And naturally the opposite is also true. It would not be possible to increase the real output of consumption goods if there was full employment without reducing the Rate of Saving so defined even in the period of an earthly day.

2. Moreover, it is equally true, though not so obvious, that if there is a fixity in the total funds available within the industrial system—*i.e.*, if MV is constant—no money can be diverted to the purchase of consumption goods without causing a crisis in the capital good industries. This is a vital point. If the effective quantity of money is constant for the system as a whole then plainly *any* increase whatever in the expenditure on consumption goods is bound to be accompanied by an exactly equal reduction in the expenditure on new capital and a contraction in the market for the output of the capital good industries below that to which their capacity had been adjusted in the previous equilibrium. Increased expenditure on consumption and the appearance of losses and unemployment in the capital good industries are instantaneously related—or rather related in one transaction period.

When stated in this form—and it is an unexceptionable form—such an approach makes it very plausible to conclude, as Professor Hayek concludes, that *any* increase in consumption expenditure will necessarily reduce not only the relative but also the absolute output of new capital and the employment offered by the capital good industries. Yet such a conclusion is contrary to all sense of reality. It is almost

[1] For a very lucid account of this type of reasoning see M. A. Abrams' *Money*, Chapters I-III.

absurd to imagine that an increase in the general market for consumption goods at certain times—for example during a period of depression—would do anything other than occasion an immense recovery in confidence, a growth in the volume of investment and a consequent increase in the manufacture of new real capital. Nevertheless, Professor Hayek must and does deny this.

What are the propositions from which such unreal conclusions spring? There are two assumptions which are essential to Professor Hayek's view—first that the effective quantity of money (MV) is constant and secondly that there is no unemployment. It is the first—the assumption of a constant volume of circulation—which lends unreality to the whole analysis since it is precisely when MV is not constant that the relation between the demand for consumption goods and the output of new capital becomes important.

Let us then take the case in which the increase in the monetary demand for consumption goods is either caused or accompanied by an *increase* in the total funds within the industrial system. It still remains true that as long as the expenditure of this inflationary increase in money is concentrated largely or exclusively upon consumption goods there is a *relative* fall in the expenditure on capital, but it is perfectly untrue that this relative fall is necessarily accompanied, as it was in the previous case, by an *absolute* decline in money demand in any part of the system. The increased funds devoted to the purchase of consumption goods need not now be drawn from any other source as there is an autonomous net increase in the total supply of money.

What now will happen to (*a*) the absolute monetary demand for capital, (*b*) the relative monetary demand for capital, (*c*) the physical output of capital? To answer these questions let us revert to the type of industrial structure portrayed in Fig. 5 in which there is a set of stages associated with the manufacture of consumption goods and a parallel set of stages engaged in the production of new capital. It will be remembered that such a diagram is a considerable simplification of conditions in the real world, but it will serve to throw light upon the relation between the two types of

total monetary demand. It is impossible in such a framework to solve these same problems.

(*a*) THE ABSOLUTE MONEY DEMAND FOR CAPITAL.

Let us then assume a general industrial system in which there are $5n$ stages concerned with the direct manufacture of consumption and $3n$ stages with the manufacture of new capital. What will be the normal relation between these two industrial groups?

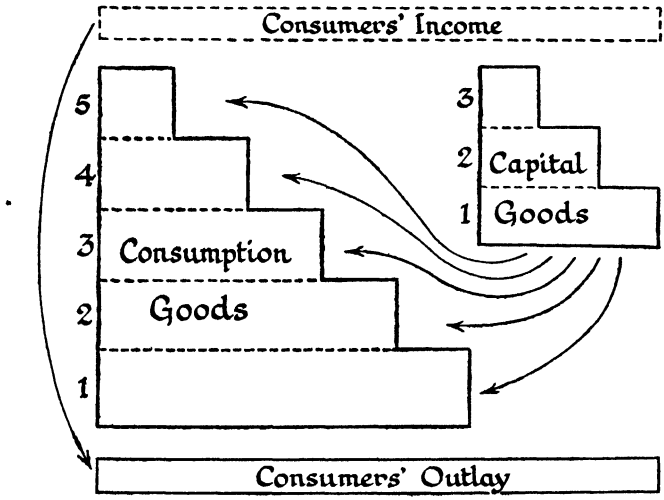


Fig. 17.

The separate stages of consumption good manufacture will purchase finished machines directly *from the last stage of capital good manufacture* for three general purposes, financing their purchases either out of their accumulated depreciation fund or out of their undistributed profits, or from the proceeds of new borrowing from the public. The three purposes for which they will purchase new machines are:—

1. For the replacement of existing capital as it wears out. These purchases may either represent the replacement of exactly the same capital in the different industrial concerns working in each stage of production, or they may involve the purchase of new types of machines made necessary by a

change in tastes unaccompanied by an increase in the general capitalisation of industry. Firms manufacturing the commodities for which the demand is increasing will purchase more capital and capital which is new to them, while firms manufacturing the commodities for which the demand is declining will purchase less capital, but the total purchase of capital from the stage for replacement will be constant and will remain constant for all stages as long as there is no consumption of capital and no change in durability through capital saving inventions.[1]

2. *For the extension of the production of consumption goods* without any change in the technique of production. If capital accumulation is taking place new capital will be demanded by the consumption good industries in order to expand the production of commodities which in each historical period are luxuries. A number of these commodities will doubtless require a higher capitalisation per unit value of finished goods and their increased manufacture will raise the average period of production, but certain luxury commodities—such as personal service for example—will not entail any such lengthening. In our own time, for example, there is a great increase in the demand for motor cars, musical instruments and electrical equipment of all kinds which probably require a higher capitalisation than those consumption goods regarded as necessities—but there is

[1] One point should be clearly understood. Changes in taste and changes in location cannot, apart from a change in capital per head, occasion any *increase* in the demand for capital. It is no doubt true and confusing on first inspection to observe that much of the current output of capital in any community arises not from a direct and obvious lengthening of the structure of production but merely from the manufacture of new commodities. The main demand for new capital since the War in this country, for example has arisen from "new commodity" industries—cars, gramophones, wireless, modern houses and so forth. In part no doubt this is itself a disguised increase in capital per head resulting from the manufacture of commodities which require a relatively large amount of capital, but nevertheless a residue remains which is solely attributable to changes of taste. We now build acetose machinery for artificial silk instead of weaving machinery for cotton fabrics. Yet it is nevertheless the case that this is really a demand for capital of the first and not the third type. It is a phenomenon of depreciation replacements and not of capital accumulation. Instead of replacing capital in the cotton industries the capital good industries make new forms of capital to equip the artificial silk industries and the fundamental adjustment of the system to the changed preferences of the consuming public is made at the machinery replacements or depreciation stage.

also an increased demand for house room and personal service which require no such increased capitalisation. The manufacture of luxuries, whether it raises the average period of production or not, makes up an important type of demand for capital made by the consumption good industries during a period of sustained capital expansion.

3. *For introducing more capitalistic methods of production*—either into the manufacture of new commodities or of old staple commodities. Here the governing consideration is the relationship between the new level of costs that is expected to rule after the new technique of production has been instituted and the level of prices that will then obtain. It is this type of investment and this Rate of Profits which is emphasized by many economists in the theory of equilibrium. As we have seen, investment will be carried, according to that theory, to the point at which the Rate of Profits is equal to the Market Rate of Interest. But also, as we have seen, the building of new capital and the institution of a new technique is a very uncertain process and the calculations upon which action must be based contain a very considerable degree of risk.

Now, *an expansion in the total Monetary Demand* at the first (Stage 1 on the left-hand side of Fig. 18) stage of consumption good production will set in motion two trains of action and reaction:—

(*i*) It will create an increase in the level of net money profits earned at this stage in so far as money costs are "sticky" at this stage. Net profits will rise at a rate determined by the extent to which the rate of rise of costs is less than the rate of rise of prices.

(*ii*) It will exert an influence upon the total money demand for Capital made by this stage according to the influence that it exerts upon the three types of such demand. The nature of that influence will be as follows:—

In so far as the firms situated in the first stage were in full equilibrium with one another the expansion in the demand for the output of the stage as a whole is not likely greatly to increase the replacement demand for capital.

All firms will be covering their depreciation allowances and there will be no reason within the firms for raising their depreciation expenditure. But in so far as some firms and some industries were out of equilibrium and were making losses, an increase in the total demand is likely to occasion a sharp increase in the depreciation demand. If firms and industries in the stage are out of equilibrium while the stage is in equilibrium with other stages, some firms and industries will be making profits and expanding, and other firms and industries will fail to cover depreciation costs. In so far as the increase in total demand relieves the position of the depressed firms, one of the first appropriations these will make out of their increased gross receipts will be for the renewal of capital. Consequently it is safe to conclude that the expansion in the demand for consumption goods at the first stage will *increase* the demand for capital in respect of depreciation at that stage, or leave it unchanged.

The effect of a rising money demand for consumption goods upon the demand for capital for extending the production of consumption goods is unequivocal. It will plainly raise it. The increase in money expenditure will be relatively intense in the contemporary luxury good industries and the absolute demand for capital in these industries will undergo a sharp expansion.

Finally the increased expenditure will raise the Rate of Profits in this stage and must therefore increase the difference between the present level and the anticipated level of costs after an installation of capital which changes the technique of production. This increase in the Rate of Profits may be considerable and will increase the margin of error that can be allowed in the marginal productivity calculation of risk upon which investment is based. It will therefore force up the absolute money demand for new capital arising from this stage on the third count.[1]

[1] It could also be shown as a simple deduction from the modern theory of costs that all firms will increase the scale of their operations if they had been in equilibrium before the rise of prices. Marginal revenue which was equal to marginal costs before prices rose will now be greater and therefore above marginal costs. General expansion will therefore begin.

The monetary demand for new capital at any Rate of Interest arising from the *first* stage of production will consequently increase in at least two and probably three of the forms in which such demand appears, and if the Market Rate of Interest is held in such a position as to make an inflation by way of Producers' Credits possible—which by hypothesis it is—there will be an increase in the absolute demand for finished machines. That is—the absolute demand for Consumption Goods and Capital Goods in their respective first or early stages of production will tend to move together (i.e. at Stage 1 on the right-hand side of Fig. 18). But what of the later stages?

The fate of the *second stage* (and succeeding stages) in the production of consumption goods during this process of inflation depends upon the way in which the increase in the gross income of the first stage is subsequently spent. In so far as competition exists a larger fraction of the new money will be paid out in increased costs of production. In so far as competition is restricted the new money will raise profits. But the real distinction lies between the money spent in the second period of time upon intermediate products—the output of the second stage of production—and the expenditure upon primary factors in the first stage—money which accrues directly to consumers.

Certain sums of money must pass back from the first stage to the second stage in purchase of intermediate products necessary in the first stage and the increase in such sums, consequent upon the rise in the gross demand for the products of the first stage, will exert in the second stage precisely the same influences as the original increase in gross demand exerted at the first stage. These we have already examined. The size of the sum in question will depend in the first instance upon the proportionate expenditure on intermediate products in the first stage and in the second place upon the degree of competition ruling between producers situated in the first stage. The greater each of these factors, the greater the sum which will accrue to the gross income of the second stage of consumption good production in the second period of time, and the greater the consequent

increase in the absolute demand for capital at that stage.[1]

The remainder of the increase of gross income received in the first stage will pass into the income of final consumers either in the form of increased entrepreneurs' profits or through an increase in the prices of the primary factors employed in that stage. The original inflation of Consumers' Income induces a secondary increase in itself. The further process of development depends upon whether the secondary increase is spent or saved:—

If it is *saved* the new money goes to supply the increased demand for capital and makes the divergence between the Natural and the Market Rate of Interest less than it would have been and thus the cumulative inflation less intense. Otherwise it exerts no different influence from any other kind of increase in the Rate of Saving and merely finances part of the current increase in the total demand for capital. If, on the other hand, the new money is spent it still further raises the gross expenditure on Consumption goods and begins the whole process that we are analysing over again from the beginning.

When all these lines of reasoning are gathered together it is seen that the expansion of the total monetary demand for Consumption Goods exerts two general influences:—

First it increases the absolute money demand for new capital at a rate determined by (*i*) the previous expenditure on capital replacement account, (*ii*) the relative increase in the demand for consumption goods requiring high capitalisation, and (*iii*) by the extent of risk involved in making the most profitable technical changes. In general it is bound to raise it above what it was.

Secondly it raises the profits of the earlier stages of both capital and consumption good production *relatively* to the later stages of each type of enterprise, since prices rise first in the earlier stages. The distortion of relative profits

[1] This is not quite accurate. If competition is perfect in the first stage the new money will be divided in the same proportions as before obtained between primary factors and the intermediate products of the next stage. In so far as monopoly exists the new money is deflected into the profits of the first stage.

occurs at a rate and to an extent determined by the "stickiness" of costs in the early stages and by the proportionate division in them between the expenditure on intermediate products and the primary factors of production. The greater each of these elements is the greater the inevitable distortion of the equilibrium of relative profits.

Whatever the complexities of the particular movements of money one simple conclusion stands out with certainty and that is that *the absolute monetary demand for consumption goods and the absolute money demand for capital must move together.*

(*b*). THE RELATIVE MONETARY DEMAND FOR CAPITAL.

We are, as yet, very little nearer the real production of capital, and we must now consider the course of the *relative* money demands for capital and consumption goods as the absolute money demand for consumption goods rises. Arithmetically speaking, the course of the relative Monetary Demand for new capital will depend upon the relation between the rates at which the direct demand for consumption goods expands on the one hand, and the rate at which the induced demand for consumption goods expands on the other, once the inflation is under way. If the induced growth in the rate of new investment is greater, expressed as a percentage of the rate of investment, at the moment the process begins, then the rate of growth in the monetary demand for consumption goods will be followed immediately by a relative expansion in the demand for capital, despite the fact that the original impulse lay in an expansion in the monetary for consumption goods. Thus if an expansion in the demand for consumption goods of 5 per cent per unit period of time causes a disproportionate increase in the demand for money to invest at the current market Rate of Interest—say to 10 per cent per unit period of time—and this demand for money is satisfied by the banks, there is bound to be a relative increase in the demand for capital.

Now it is certain, as we have seen, that this process of income inflation and the induced increase of investment must

distort the existing profit relations between stages. What repercussions will this distortion of the profit structure occasion? It is necessary to allow for two tendencies:—

1. In so far as competition is present in the markets for intermediate products bought by each stage of production the price of intermediate products will rise as gross expenditure in the previous stage increases. The increased cost of the intermediate products bought by each stage will reduce the profits in that stage and communicate the impulse to the next stage, with the net result that the relative distortion of the profit structure will decline. This conclusion follows directly from the general analysis of inflation contained in the previous section.

2. That in so far as the distortion of profits in favour of earlier stages is in fact maintained a slow induced movement of real resources to the earlier stages will begin. This is the movement upon which Professor Hayek concentrates attention in his analysis of inflation. But, in my view, he mistakes both the scale and the nature of the real adjustment. In the first place if the period of mobility is longer than the period of transaction velocity such a movement will always begin at a very late date in the history of an inflation and will go on slowly at all times during it. It will consequently be small in volume. *Moreover the movement of resources will be self-equilibrating.* As mobile resources move into the earlier stages the backward flow of money will rapidly *raise the prices of such resources in the earlier stages* and so offset the maintenance of a higher Rate of Profits by a continuing Rate of Inflation in the later stages of both capital good and consumption good production. Such a rise in the price of mobile resources in the earlier stages will plainly restore the equilibrium of relative *prices* for mobile resources in all stages and unless the techniques of production in the earlier stages are quite rigid it will not occasion a general collapse in them.

Finally the movement from the early to the late real stages of production is not a readjustment between capital good production and consumption good industries at all but between the early and late stages of both types of manufacture.

As long as the injection of Consumers' Credits is continued it will be necessary to make a slow and small readjustment of the mobile resources between the real stages of production—so as to occasion a small reduction in the volume of resources in the raw material stages common to capital good and consumption good industries and a corresponding increase of resources in the later stages. There will be rather fewer workers producing wheat and coal and rather more engaged in baking and in producing electrical equipment. This is a change no more serious than would be occasioned by a small change in the relative supply of raw materials due to exhaustion or technical change.[1]

(*c*). THE REAL OUTPUT OF CAPITAL.

We are at last in a position to inquire what will be the effect of an increase in the demand for consumption goods upon the *physical* output of capital. So far we have concerned ourselves wholly with the question of absolute and relative monetary demands. Our conclusion under this head is that an increase in the demand for consumption goods will always increase the absolute demand for capital and sometimes even the relative demand. But what will happen to the physical output of capital? The answer to this question plainly depends upon the employment position. There are two possibilities:—

1. If there is full employment then obviously the course of physical production will follow the guidance of relative expenditures and *relative profits* in the way made familiar by the analysis of competitive equilibrium. Mobile resources of all kinds, land, labour and capital, will gravitate slowly towards the production of whatever group of industries is offering the highest level of monetary rewards. If the Rate of Profits made in the consumption good industries is greater than that offered by the capital good industries there will be a reduction of employment offered by the latter, and in the reverse case there will be a slow expansion in their physical capacity. Now, as we have seen, it is quite conceivable that the induced absolute demand for capital will rise

[1]For a continuation of the analysis beyond this point see Chapter IV, §5.

at a greater rate than the original increase in the demand for consumption goods, and in such a case, providing the degree of contract friction be the same in both groups of industry, *the relative level of profits and therefore the physical output of capital will rise as a result of an increase in the Consumers' Income.*

2. But if there is *general unemployment* or even more, if there is a concentration of unemployment in the capital good industries the position is even less uncertain. Unemployment in any industry or group of industries means that the money demand price for labour or other resources is below the money wage demanded by the group of workers or other factors attached to that industry or group of industries. Any increase in the *absolute* money demand for any product of those industries, whether or not it represents a relative increase will be unequivocally associated with a diminution in the volume of unemployment and an increase in physical output of capital. Thus if there is general unemployment, any increase in the direct demand for consumption goods, associated as it must be with a rise in the absolute demand for new capital, is bound to result in an increase in the physical production of capital and an increase in employment offered by the capital good industries. This is a radically important conclusion upon which the whole further analysis of monetary policy depends.

Before, however, we turn to the question of policy—there is a second major problem raised by the injection of money. So far we have been concerned wholly with the influence of an increase in the demand for consumption goods—injections of consumers' credits: it is now necessary to examine the second type of injection—that of producers' credits—and the influences these are capable of exerting upon the monetary position.

§4. Expansion by Producers' Credits.[1]

In normal times banking authorities make the vast majority of their advances to customers who are producers. It is true that a certain quantity of overdrafts are made on private account and are used by the borrowers for consumption expenditure, but the total of these loans is too small a fraction of the whole to constitute a serious infringement of the general principle that the banks lend for production purposes. Fluctuations in the value of effective money are therefore predominantly fluctuations in the volume of producers' credits made available by the banks.

To investigate the results of upward fluctuations in this type of monetary supply it is useful to recall one of the propositions of the previous Chapter which showed that in an advanced capitalist system the expenditure on consumption goods is only a small fraction of the total expenditure in all stages. Now an injection of Producers' Credits, like any other injection, may either take the form of a single and isolated increment in the quantity of money—or it may take the form of a steady rate of credit creation extending over a long period. In the case of Consumers' Credits we considered only the second of these possibilities, but in the present case we will examine both.

A. In the case of the isolated increase of credit, let us suppose that before the injection took place the expenditure on consumption goods was one quarter of total costs—that the relative expenditure on finished consumption goods was 100: 300—and let us further assume that the injection is equal to 100 units of new money.

In the *first* period a rapid expansion in the demand for new capital must take place. These new credits are credits to producers and the producers who have borrowed them are under contract to repay the capital sum in a relatively short period of time and they are also under contract to pay a Rate of Interest. For these reasons they are compelled to spend

[1] The argument of this section must be qualified by the considerations raised by Mr. R. F. Harrod on this subject in his contributions to *Economica* in 1934. I have, however, delayed my consideration of these matters until Chapter IV §§ 5-6. The rationale of the argument of the Section lies in the implicit assumption that the prices of the primary factors are stable.

the new money on some kind of technical improvement in their property. Such improvements need not necessarily take the form of fixed capital but they cannot, except to a very limited extent, consist of consumption goods. We are thus safe in assuming that the whole of the new money must be spent on intermediate products or primary factors capable of increasing the scale of production during the period in which they are first issued. That is to say the expenditure on intermediate products will rise from 300 to 400 and the proportional expenditure on output of the consumption good industries will fall from 100: 300 to 100: 400, and there will be a relative and an absolute rise in the demand for the products of the basic industries. Mobile resources will move slowly towards them. This is the first and simple result of inflation by producers' credits.

But in the next (the *second*) period of monetary circulation the position becomes wholly different, not because there is any change in the fundamental preferences of the economic community, nor even because there has been forced saving—for it is at least conceivable that the whole increase of money in the first period should have been exhausted in causing the *price of capital goods* to rise without any reduction in the physical output of consumption goods—but simply because there is now a complete change in the institutional position and commercial nature of the new monetary funds. They have ceased to appear as the capital liabilities of the producers who borrowed them and they have entered instead into the gross income and net return of a certain group of producers—the producers of the intermediate products upon which the money was spent in the first period. No one is any longer constrained to spend the whole of his increased monetary receipts upon intermediate products or primary factors. Everything that subsequently happens will depend upon how this group of individual producers does in fact decide to spend the increase in their gross income.

Professor Hayek makes a particular assumption at this point. He argues that the total funds now available will necessarily be spent in the same proportions between inter-

mediate products and consumption goods as they were in the period before the inflation began. There was, according to Professor Hayek, a certain fundamental preference between the present and the future exhibited by the community as a whole which determined this proportion in the first instance and this proportion was disturbed by the injection of credits. Unless however there is reason to suppose that this original and fundamental preference itself has changed in the meantime it is only natural to assume that as soon as the community has obtained the control of the whole available supply of money it will immediately restore the proportional expenditure consistent with its true will. In this case it would restore the proportion of 1 : 3 so that the proportional expenditures would become 125 : 375.

There is an *a priori* validity in Professor Hayek's analysis at this point because he assumes that the situation is such as to make one preference in respect of gross income rule however the money is distributed between persons and between classes. But in the real world the position will be more complex and there are at least three separate complicating factors:—

1. It is at any rate conceivable that in the short period the owners of income will be guided in their choice between consumption expenditure and saving by the size, not of their real, but of their money incomes. If this is the case there is no necessity for the original proportions to be restored.

2. Of even greater theoretical importance is the fact that in the presence of contract frictions the injection of money is bound to change the distributions of income between persons, between classes, and between income groups. This is quite fatal to the view that the average preferences of the community must remain unchanged. It would only be by virtue of a most unlikely accident that this would happen. If for example wage rates are relatively stationary during the inflation there will be a disproportionate expansion of profit incomes and a redistribution of the social money income not only between Mr. Jones and Mr. Smith, but also between small incomes and large. It is scarcely conceivable in view of

the second type of redistribution that the preference between the present and the future should remain unchanged.

3. Finally, it must be remembered that in a fully dynamic situation in which the credit injection is imposed not upon a static economy but upon an economy which is accumulating capital, there is no such thing as a single preference between the present and the future. That preference, like all other preferences, is a function of the size of the real income from which the saving is made and in the interval between the two periods after the original injection the ruling preference may be altered.

Professor Hayek, in the context of *Prices and Production*, assumes all these sources of change away, but they remain obstinately present in any consideration of the real possibilities. Their presence makes it unreasonable to assume that the proportional expenditures set up in the second period will be the same as those existing before the inflationary process began. There are therefore three possible developments to be examined:—

(*i*) It is conceivable that *the whole of the new money will be saved and invested.* This would happen, for example, if the costs of the capital good entrepreneurs were quite rigid so that the whole of the money spent in the first period passed into their own net incomes as profits, and if their preferences between the present and the future were such that they saved the whole of the increase in their money incomes. In this case the expenditure on consumption goods would not rise at all, the proportional expenditures between consumption goods and intermediate products would remain at the level of 1 : 4 (100 : 400) which they had reached in the period of actual injection. The subsequent movements of wages and rents would cause an adjustment to the new and higher rate of capital accumulation over a period of time.[1] The only result of the inflation would thus have been to induce an upward movement in the rate of voluntary saving.

(*ii*) On the other hand it is again *conceivable* that the *whole of the new supply of money would be spent.* This would

[1] As wages rose of course the proportional expenditure would once more tend to change.

be possible if the capital good entrepreneurs received the whole of the increased funds and spent them or if the funds were generally distributed in the system but still entirely to people who increased their consumption expenditure to an exactly equal extent. The result would be an enormous proportional—indeed a catastrophic—increase in the expenditure on consumption goods. It would mean that the proportional expenditure would rise from 100 : 400 to 200: 300 and that the expenditure on consumption goods would increase from 100 to 200 or 100 per cent in a single circulation period!

(*iii*) The enormous probability rests with a development intermediate between these two extremes. It is virtually certain that after the new money has passed into the hands of the capital production entrepreneurs some of it will be spent and some of it will be saved. If x units are spent on consumption goods then the result will be that 100+x will be spent on consumption and 400—x will be spent on intermediate products. The history of the inflation in terms of relative expenditures, can be represented thus:—

Before the inflation	(t_0)	100 : 300
During the injection	(t_1)	100 : 400
After the injection	(t_2)	100+x : 400—x

The result of this analysis of probabilities is to make it certain that in the period of time after the injection has taken place there will be a change in the proportional expenditure between consumption goods and capital goods. The change can be expressed in either of two ways, both of them representing identically the same process.

In the *first* place it is obvious that the change in proportion involves a *reduction* in the relative demand for, or expenditure on, intermediate profits in general and capital goods in particular. The high proportionate demand for intermediate products set up in the first period of 400 : 100 is reduced in the second to 400—x : 100+x.

In the *second* place it is equally obvious that there is a *rise* in the absolute monetary demand for consumption goods equal to x units.

Now it is from a differing emphasis on these two aspects of one fact that the further differences of interpretation spring. Professor Hayek emphasizes the first aspect. There is, he says, in this situation a *reduction* in the relative demand for capital goods, and this must induce a crisis within the capital good industries through an outflow of mobile resources to the consumption good industries. The final result will be a crisis in confidence and a general recession. I have argued elsewhere that this view appears to me to assume an impossible degree of sensitiveness to relative profits in the real industrial structure and to arise from a confusion over the processes which can rightly be attributed to various periods of time relevant to economic development,[1] but in any case there is a more radical difference of interpretation. For it will be obvious from what has gone before that the real emphasis lies almost exclusively in the second aspect of the central fact. There is an expansion in the demand for consumption goods which I have already argued will occasion, in the presence of contract frictions, 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.

There, for the moment, we must leave the matter. The central thing emerging from the analysis consists in the very simple idea that *an injection of producers' credits will occasion under the conditions here assumed a subsequent and perhaps disproportionate increase in the demand for consumption goods after a brief period of exclusively capital expenditure.*

B. The central conclusion is not essentially different if we assume a *rate* of credit injection extending through several circulation periods instead of a single injection occurring in one such period. It is necessary in this case to take account of the course of all the separate injections as they pass from hand to hand in subsequent periods, but their general influence remains the same.

Let us assume that the original proportional expenditure was 1 : 10 in consumption goods and capital goods and that

[1] See *Purchasing and Trade Depression*, Chapter IV §5 and this Chapter, §3.

the rate of injection is 100 units per unit period of time. Then the expenditures on consumption goods and intermediate products will follow this course:—

		Expenditure on consumption goods.	*Expenditure on Intermediate products.*
Period before injection begins	t_0	100	1,000
Periods after	t_1	100	$1,000+100$
	t_2	$100+x$	$1,000+100+(100-x_1)$ [1]
	t_3	$100+x_2+y_1$	$1,000+100+(100-x_2)+(100-y_1)$ [2]

[1] Where x_1 = the sum spent on consumption goods out of the 100 units injected in t_1.

[2] Where x_2 is the sum spent on consumption goods of the 100 injected in t_1 and y_1 is the sum spent on consumption goods out of the 100 injected in t_2.

From this arithmetical construction it clearly follows:—

(*i*) That the larger the x's and y's:—

$$x_1\ x_2\ x_3 - - - - x_n$$

$$y_1\ y_2\ y_3 - - - - y_n$$

the quicker will be the reaction of the relative expenditures, since it will take the total of these elements less periods in which to attain to an equality and then surpass the steady rate of injection of 100 units per unit period of time.

(*ii*) That as long as the x's and y's have any positive value whatever there will be an increase in the expenditure on consumption goods from t_2 onwards—the result in which I am more particularly interested.

§5. The Sources of Inflation.

Finally, it may be of interest in this Chapter to turn aside for a moment and discuss the existing theory of the mechanisms whereby an inflation of credit can occur. It would

be generally conceded that an issue of free money or Consumers' Credits is only likely to arise as a result of Government action. We need not therefore discuss it at this point. A much more important problem appears when the origin of Producers' Credits from the banks is considered. I cannot help feeling that in this matter a certain falseness of emphasis has arisen from exclusive attention to the Rate of Interest on the part of the theoretical economist.

To begin from the beginning—it is very generally recognised that the public can do nothing to *increase* the quantity of money or the total liabilities of the Banks without the consent of the Banks themselves. Entrepreneurs and the consuming public can reduce the volume of deposits very easily by paying off their overdrafts or loan obligations to the Banks at an accelerated rate. Moreover, they can increase the total volume of monetary expenditure by turning over their stocks of money more rapidly, but they can do nothing to increase the size of those stocks if the banks are not willing to lend. The stocks of credit money in the system are controlled by the volume of advances made by the banks to their customers and it is plainly impossible for the public to force the hands of the banks in any conceivable way if they (the banks) will not increase their credit accommodation.

But it is not so obvious, and yet it is equally true, that the banks cannot increase the volume of effective money without the consent of the public. The banks can always increase the quantity of money stocks.[1] If the public will not increase its liabilities to the banks at the existing Rate of Interest and if it will not increase its borrowing at any Rate of Interest which the banks can safely charge—it is still open to the banks to force a large quantity of credit into the hands of the public by buying securities from them. The purchase of securities involves automatically an exactly equal increase in the quantity of money (M) for the community as a whole. But this does not involve any necessary increase in the effective quantity of money (MV). An

[1] Unless the public is paying off overdrafts at a faster rate than the whole of the Banking System is able to invest money in securities—a most unlikely possibility.

increase in the quantity of money it holds does not force the public to spend any greater total sum and if there is no inducement for it to increase its monetary *expenditure* the increase in the volume of money will be offset by an exactly proportional reduction in the average velocity of circulation and the quantity of effective money will remain constant.

It is therefore essential in any account of the sources of change in the effective circulation to examine the nature of the demand for money to *spend*.

Money is demanded by the public from the Banks for three important separate purposes:—

1. It is required to be *held* in respect of commercial transactions or industrial production involving a monetary turnover, and by consumers in respect of their average volume of consumption. This is what is meant by the "demand for money" in the usual formulation of the supply and demand theories of the value of money. If this demand rises—that is, if there is an increase in the quantity of money required to be held continuously as circulating capital—then a satisfaction of this demand by the Banks will not increase the quantity of effective money. If the quantity of balances supplied does not increase, MV will fall through an autonomous decline in Transaction Velocity, and the provision of the extra balances which are now demanded will not raise MV by a single unit. We shall return to this important conclusion, but for the present it is only necessary to emphasize that this sort of demand could never become the basis of an upward movement in the effective circulation.

2. Money can be demanded or borrowed from the banks to be *spent* on consumption. If the banks charge a Rate of Interest and the loans have to be repaid, consumption loans are not an important source of increased expenditure in a long period, for unless the funds borrowed are invested in some productive way there will be no sources from which the interest obligation can be met. Such loans may be used as a method of redistributing income in time—i.e. a method of enjoying anticipated future increases in income in the

present—but it is not a method of permanently or considerably raising the volume of the industrial circulation.[1]

3. Finally money can be borrowed from the banks for *productive expenditure*—to set up new capital, to improve productive technique in any other way, or simply to increase the volume of production in such a manner as to return the Rate of Interest upon the capital sum advanced by the Banks. Such a process of trading is a productive and self-financing process that can continue indefinitely and is certainly the main source of substantial upward movements in M and MV. It is by changes in the volume of the banks' capital advances to customers that the main upward variations in the volume of the circulation actually take place and we must therefore examine this type of demand in much greater detail. It is however important to realise that the new money need not be borrowed for investments in fixed capital alone. It may be borrowed to increase the turnover of existing firms as long as the net profit position enables the borrower to pay the Rate of Interest.

Our problem consequently reduces itself to this question—what determines the demand for money to be spent upon productive enterprise? Now it has always been argued by economists that the demand for money to be used for such purposes is determined by the critical relation:—

$$\frac{\text{the new margin between prices and the costs other than the new capital that will exist after the investment has taken place}}{\text{(divided by) the cost of such investment}}$$

i.e. the *Rate of anticipated Profit* on the one hand, and the Rate of Interest on the other. If for example it is anticipated that the installation of a machine costing £100 will reduce costs other than the cost of capital more than it reduces

[1] If there is a large amount of instalment buying there will be a net addition to the volume of effective money as long as the total volume of such purchasing is itself increasing. The moment that the total amount is stabilised there is no net increase in the quantity of effective money despite the maintenance of the volume of bank lending in respect of consumption, since for every new hire purchase credit granted by any bank or corporation an old credit of equal size is paid off.

prices by the sum of £6 per year and if the Market Rate of Interest is 5 per cent then the investment will be made since the reduction in total costs will be greater than the reduction in prices. A net profit will be gained. If, on the other hand, the market Rate of Interest is 7 per cent the installation will not be made for the reduction in prices will be greater than the reduction in total costs. Equilibrium in the exchange of loanable funds will therefore be reached when the Rate of Profits so defined equals the Market Rate of Interest—and if we call this Rate of Profits the "Natural" Rate of Interest then equilibrium can only be maintained as long as

the Market Rate of Interest = the Natural Rate.

This is now a very familiar proposition.

On this view the essence of the problem lies in the calculation of the marginal product which may be anticipated from the contemplated investment. Mr. Meade discusses this problem at great length and with admirable lucidity in his "Rate of Interest" in a Progressive State".[1]

From this generally accepted approach it directly follows that the Market Rate of Interest is a sensitive and potent element the movements of which will control, for good or ill, the whole monetary situation. The reasoning involves, for example, the conclusion that downward movements in the Market Rate of Interest— by ½ per cent or 1 per cent— will cause significant changes in the Demand for Money to be spent on new production and will therefore exert a direct and important inflationary influence. It is once more a familiar proposition that divergences between the Market Rate and the Natural Rate will lead to cumulative movements of inflation and deflation.

While it would be foolish to deny the validity of this view under the sensitive conditions of full equilibrium that it assumes, the extent to which the demand for money does in fact react to changes in the Market Rate of Interest is doubtful. It is at least necessary to emphasize certain facts which are of practical importance in the short run. The process of

[1] See J. E. Meade, *The Rate of Interest in a Progressive State*, Chapter IV passim.

calculating marginal productivities in the real world is more difficult than the foregoing theory suggests. Let us take the case of fixed capital as an example. It is obvious that there is a great element of *uncertainty* about the process of installing new capital if we take into account the fact that a completely new technique of production may be a necessary concomitant of such an installation. The marginal productivity of the new capital consists in the difference between the new level of costs and the new level of prices that will obtain after the capital has been installed. But we must notice:—

1. That the new level of costs is in many cases an extremely hypothetical and dubious matter. The installation of an " increment of capital" is a sufficiently easy process when it is defined in terms of equations and diagrams. In practice it involves a profound readjustment of the whole technique of production—a re-organisation whose final outcome is very doubtful. Not only is the estimate of the cost of the capital installation itself liable to error but the effect of the installation upon the efficiency of the production unit involves a further estimate which is even more liable to error.

2. The marginal productivity calculations are derived not from an estimate of the reduction in costs alone but from an estimate of the margin between the new costs and the price of the product which will rule *after* the change has been made. Consequently a calculation of future prices must enter into the final estimate. Such a calculation being purely hypothetical introduces a third element of serious risk, for if the producers are in a fully competitive position they will assume no change in price. If the technical change involves any increase in output that expectation will not be fulfilled. If on the other hand they are in a monopolistic or semi-monopolistic position they must calculate the slope of the demand curve for their product. In either case there is a grave element of doubt in the price anticipations of the producer.

It is almost impossible to believe if the element of risk is so important in the marginal productivity calculation that small

movements of the Market Rate of Interest will greatly affect the quantity of this type of investment at least in the short run. An example may make the argument plainer. Suppose that it is intended to substitute a mechanical chain system of loading barrels of beer on to a waggon truck at an estimated capital cost of £1,000. Not only is the capital cost an estimate but the installation of the new method for this one process will involve consequential changes in the training of labour, the type of transport, the shape of the cask, the storage of beer and even the method of keeping the brewery accounts. The change may involve a re-organisation of the whole production unit with the results which are extremely hypothetical, not in the sense that there is no evidence upon which a judgment can be based, but simply that the judgment is inherently hypothetical. It may even be *certain* that the change will reduce costs but the size of the reduction can never be certain. If then it is *calculated* that the instalment of capital costing £1,000 would make a difference of £50 p.a. to the difference between prices and costs the investment would in theory be made if the Rate of Interest was $4\frac{1}{2}$ per cent or even $4\frac{3}{4}$ per cent. In practice the element of uncertainty would completely overshadow the small calculated marginal gain for the estimate need only be 10 per cent wrong to make the change quite worthless. If the margin of error was as little as 15 per cent the investment would not be made within a range of interest rates from 5 per cent—$\frac{1}{2}$. And in this case matters have been simplified by the assumption that the output of beer is to remain constant. If a further uncertainty as to the shape of the demand curve for beer is added to the other sources of risk it becomes increasingly impossible to believe that such risks will be undertaken for small differential gains. All these real problems cannot be dismissed by airy references to "increments of capital" and "margins of risk" in a consideration of the actual demand for capital. The fact is that the Rate of Interest may not be so quantitatively important in the *short run* as the "delicate apparatus of marginal analysis" might lead us to suppose.

What I am trying to say is perfectly consistent with a

normal supply and demand analysis of the capital market; it is not in the least iconoclastic. All that I am doing is to give reasons for believing that the market Demand Curve for capital—assuming technical conditions to be given—is very inelastic.[1] We have long had an *a priori* account of the probable shape of the Supply Curve of Capital. Professor Cassell has given us reasons for supposing that the Supply Curve is highly elastic below 2 per cent because of the rapidity with which the advantages of annuity investment increase below that level and highly inelastic above that point because of the existence of important groups of savers with fixed rates of saving or rates of saving which vary inversely with the Rate of Interest.

The shape of the Supply Curve is likely to be of this kind:—

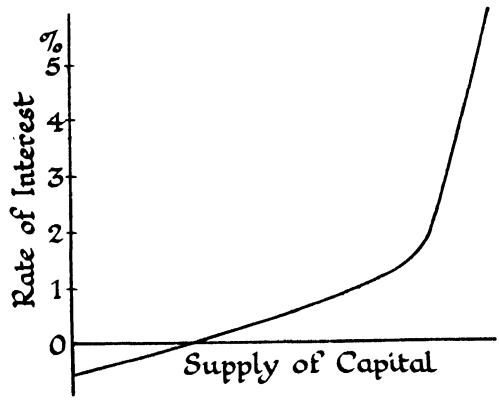


Fig. 18.

All that I am now doing is to advance reasons for believing that given a constant Rate of Invention (the essential statistical requirement for the construction of an ordinary Demand Curve) the Demand Curve for capital will be highly inelastic

[1] The Demand Curve for capital has, of course, only a short period, indeed an instantaneous, existence. It shows how much money would be borrowed here and now if the rate of interest were other than it is. It is this immediate reaction to the demand for money to be spent on new physical capital which I believe would be small.

throughout its length. So that the real condition of the capital market will be this:—

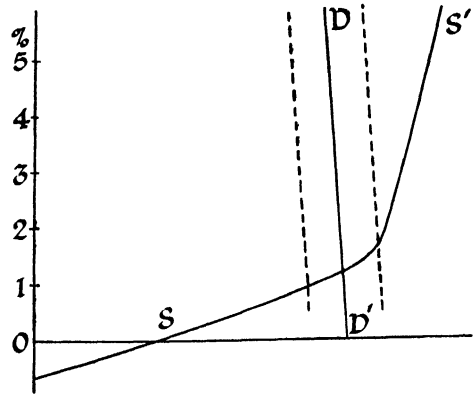


Fig. 19.

It is then obvious that the fluctuation in the Demand for Capital occasioned by changes in the Market Rate of Interest will not be large.[1]

[1] If the Market Rate is kept below the Rate which will equate the Supply and Demand for new Savings, the difference between the demand for saving and the supply of voluntary saving will be made up by the creation of new credits, so that the rate of inflation will be determined by the shape of these two curves. It will seem to follow from the foregoing reasoning that the rate of inflation resulting from any given divergence between the Equilibrium and Market Rates will depend on the position of the Market Rate itself. Then if the Market Rate is above the critical point the rate of credit creation will be small when the Demand Curve for saving in relation to the Rate of Interest is really vertical.

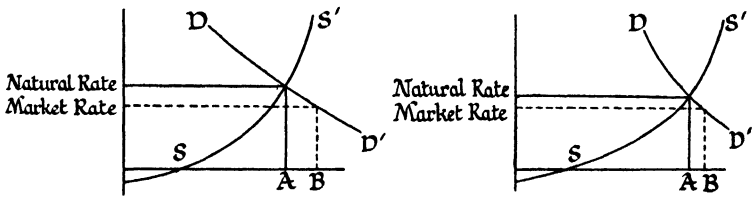


Fig. 20.

The Rate of inflation will be given by AB—the points where the Market Rate cuts the Supply Curve and the Demand Curve for new Saving respectively. AB is clearly smaller the steeper the slope of the Demand Curve.

The simple conclusion of this analysis will be offset in so far as there are fields for investment in connection with which the risk is actually small. The housing industry has provided such an avenue of investment in this country for the last ten years. The Rate of Interest *is* an important element in the cost of houses because they are durable. Moreover the construction of houses involves little or no technical risk and in the present position of our economy, and also because of statutory subsidies, the level of rents has been rendered less uncertain. The movements in the Rate of Interest have therefore exerted an important influence on the volume of house construction. Such a condition is likely to be fulfilled wherever there is an expanding demand for a given type of durable product, the production of which is well understood and consequently not greatly risky. The short period Demand Curve for new capital will therefore slope a little as it falls to the right. It will not be entirely inelastic throughout its length.

Does this conclusion imply that the Rate of Interest and the volume of investment will be determined wholly by the conditions of supply and not at all by the conditions of demand for new capital or loanable funds? Up to this point we have been concerned with the determinants of the statical demand curve for capital and not with the forces that cause the whole curve to move. Now there are two types of force which can and constantly do cause the conditions of demand to alter. These are:—

1. Technical discontinuities or *inventions*. We have explicitly assumed up to this point that technical conditions are given. It is then extremely difficult to believe that the risk element is not the overriding factor. But the position becomes entirely different if we consider changes in these technical possibilities themselves—i.e. if we allow for invention. An invention or technical discovery may cause large and indubitable changes in the cost position. A labour saving invention may reduce costs by $33\frac{1}{3}$ per cent—a new type of capital may halve the depreciation allowances. It is true that the uncertainty of the price estimate remains, but the degree of uncertainty on the cost side is immensely

reduced—or rather the permissible margin of error becomes far greater before the installation would be rendered commercially unprofitable. Hence a situation different in degree if not in kind arises from the existence of technical discontinuity.

2. The possibility of a general increase in *profits*. If prices are moving and if costs do not immediately follow them up or down there will be considerable movements in the Rate of Profits earned by the owners of fixed capital because in general the ownership of a business and of the residual surplus is associated with the ownership of the fixed capital. In these circumstances the Demand Curve for capital will move to the right or left. Again the margin of error which can be allowed for a marginal productivity calculation will be much greater because the size of the potential gain has become so very large in relation to the interest costs of the new capital. The precise forms and significance of an increase in profits we shall discuss in a future Chapter.[1]

This brings me to the only point that I wish to establish in this Section—that the demand for money from the banks for use in productive enterprise is chiefly controlled by the Rate of Invention and the level of money profits. Inventions will increase that demand. Money profits will increase that demand. Compared with these dynamic forces the movements in the Market Rate of Interest are of small importance in determining the volume of the *Industrial* Circulation in the short period.[2] It is therefore to these two influences that we must look in an attempt to discover the main sources of monetary expansion.

§6. Conclusion.

We have now attempted to analyse the results of an expansion in the effective quantity of money. Our examination has fallen into three divisions; first, the most generalised case possible—that of an injection at *any* stage was examined.

[1] See Chapter IV.

[2] Economists have been misled by the fact that the Rate of Interest is an important determining quantity in the Financial Circulation into thinking that it is equally important in the Industrial. As this problem involves the whole question of the relation between these two circulations, the matter must be left until the general problem arises.

The chief result appeared to lie in a diffusion of the new money throughout the system; a disproportionate increase of profits in the presence of contract frictions, a disturbance in the structure of relative profits and a readjustment of the real structure of production the size and direction of which depends upon the relation between the period of mobility and the period of transaction velocity. Secondly we took the more particular case of Consumers' Credits—and sought to prove that an upward movement in the demand for consumption would cause an upward move in the absolute money demand for capital goods and, in the presence of unemployment, an increase in the physical output of capital. Finally we examined the effect of Producers' Credits and discovered that a sudden increase in them is almost certain to induce an increase in the absolute demand for consumption goods and a fluctuation first upwards and then downwards in the relative expenditure on capital. The movements of the Consumers' Income may be quite disproportionate to the size of the injection of credit. It is upon these results that we must base an analysis of policy after discussing the opposite process of contraction and deflation.

CHAPTER III

THE DYNAMICS OF THE INDUSTRIAL AND FINANCIAL CIRCULATIONS

II. SAVING AND INVESTMENT.

§1. So far we have discussed exclusively the phenomenon of an *increase* in the volume of effective money—the processes of an inflation. We must now consider the opposite phenomenon—the reduction of the volume of effective money and the mechanisms of a *deflation.*

A reconsideration of the two conditions laid down for the preservation of equilibrium in the Industrial Circulation is necessary here. Equilibrium in the Industrial Circulation is given, and only given, if the market price of final output (consumption goods and finished machines) is equal to costs incurred in the last stage of production—a situation which can only be secured if two further conditions are constantly fulfilled:—

1. That no money is held up or delayed in its circulation through the system. That is to say, the Transaction Velocity of money or the number of times which the representative unit of money exchanges against commodities of any kind must not fall.

2. That none of the money earned in the production of physical output or services (Mr. Keynes' Industrial Circulation) should be transferred on balance to the system of markets in which mere property rights are changing hands (Mr. Keynes' Financial Circulation). Of course it does not matter for industrial equilibrium that *particular units* of money earned in the manufacture of consumption goods and machines should be spent upon property rights in any given period—that is inevitable if any saving is taking place at all—as long as an equal number of monetary units

pass out of the property market to the purchase of some kind of physical output in the same period. Disequilibrium begins when there is a *net* loss of money to the Financial Circulation.

By what general processes then is it possible that the price of finished output should fall short of its cost of production? In formal terms the answer to this question is simple enough —by the failure to fulfil either or both of the two essential conditions, just laid down—either that Transaction Velocity falls or that money is absorbed by the Financial Circulation. Unfortunately this simple answer does not suffice in understanding the intricate processes of deflation.

The steps by which deflationary situations can arise are very complex and it would be of great value to possess a system of terms by which they could be systematically described. Mr. Keynes in his *Treatise* attempted to provide such a system,[1] and although there are, I think, certain internal inconsistencies[2] in Mr. Keynes' system, and although I am given to understand that he now wishes to use his own terms in quite different senses, I believe that there is still a great use for a somewhat modified form of Mr. Keynes' original distinction between Saving and Investment.

If we call *Normal Income* that money income which, in the absence of extraneous monetary movements and in face of contract elements in the market for the factors of production would, if spent, secure full employment and cover the costs of final output, and if we then call *Saving* that part of Normal Income which is *not* spent on consumption goods (a purely negative definition), and *Investment* the amount of money which *is* spent on new capital, then equilibrium in the market for final output must be preserved if Investment equals Saving, so defined. This follows as a truism from the definition of Normal Income as that income which if spent will maintain full employment. When Saving is equal to Investment all the Normal Income which is not spent on Consumption Goods is spent upon new capital, and thus Normal Income is necessarily paid out in the purchase of

[1] Keynes *Treatise on Money*, Bk. III *passim*, but particularly Chapter 11 and Chapter 12.

[2] See Appendix Note 2.

final output as a whole. There is however no necessary equilibrium in the *real* structure of production under these conditions. More money may be spent on capital and less on consumption goods than had been spent heretofore and there may consequently be profits in one line of production and losses in another, but the total demand for the factors of production will be maintained unchanged as long as this fundamental equality is preserved.

The use of the terms Saving and Investment here proposed is somewhat different from that laid down by Mr. Keynes. I define Normal Income in such a way as to make it necessarily constant while he defines it in such a way as to cover autonomous changes in the prices of the factors of production. His own definition leads in my view, to certain mistaken conclusions which will be dealt with elsewhere.[1] For the moment the only point that matters is the conclusion, on my definitions as well as on his, that if Investment is equal to Saving monetary equilibrium in the market for final output will be maintained.

What will happen if they are not equal? If Investment exceeds Saving (that is, if the amount spent on new capital exceeds the part of Normal Income which is not spent on consumption goods) the price of final output must rise above its costs of production and net profits[2] must be made, since the Normal Income equals the cost of final output. In the same way, if Investment falls short of Saving so defined, the price of final output will fall below the cost of production and net losses will be made—familiar conclusions to students of Mr. Keynes' work. We have already considered the situation in which the injection of new money enables more to be spent on new capital than is currently being saved out of final income, and we are now solely concerned with the second type of divergence. How can Investment fall short of Saving? There are at least five different ways in which this

[1] See Appendix Note 2.

[2] The term "net profits" in this context means no more than a surplus over the maximum sums necessary to preserve full employment. Their existence does not necessarily involve an increase in the scale of output and the demand for money. "Net losses" do necessarily imply contraction, however.

condition can appear, and one of them has given rise to more controversy than any other.

§2. Forms of Divergence between Saving and Investment.

In the first place there are two ways by which the first fundamental condition of monetary equilibrium can be broken—the condition that the Transaction Velocity of money should be constant. They arise from the existence of two important kinds of money.

1. The first and most obvious way in which the amount of money spent on new capital can fall short of the amount not spent on consumption goods is if the public as a whole decides to hold a larger sum of money in the form of bank-notes or cash—if it *hoards cash*. This is a common and important phenomenon in economies in which banking facilities are not highly developed and in all economies during periods of financial panic. Clearly this involves a divergence between Saving and Investment because the cash which was hoarded was part of the money earned as costs of production and it was not spent on consumption goods—nor on fixed capital.

If we call the amount of cash M and its average Transaction Velocity V, and the amount of credit M′ and its velocity V′—then we have Fisher's second Quantity Equation:—

$$PT=MV+M'V'$$

and in terms of this equation V or the Transaction Velocity of cash will have fallen. A movement of this kind will be immediately apparent to the Banks for it will lead immediately to a "cash drain".[1] The public are holding more cash and if the total of cash is constant the Banks must hold less. Such a movement will be violently deflationary as long as the Banks keep a fixed proportion between Cash and Credit.

2. The second and less obvious form of hoarding is

[1] All declensions in the Transaction Velocity of Cash do not involve a drain of cash from the Banks. Indeed, if cash is spent less frequently, it will be accompanied by an inflow of cash.

deposit hoarding. In this case the public does not decide to hold a larger total of currency notes but certain individuals decide to accumulate larger bank balances. From the point of view of the relation between Saving and Investment this is clearly precisely the same thing as hoarding more cash, since both processes equally involve the decision not to spend part of the current income upon anything at all. In terms of the Quantity Equation $PT=MV+M'V'$ there is plainly a decline in V'. But from the point of view of the Banks the process is not precisely the same. As we have seen, the public is not able directly to influence the total volume of deposits which lies at the discretion of the Banks and the occurrence of deposit hoarding will not alter the size of the total liabilities of the Banks. All that it will do is to redistribute the existing total of deposits *between individuals*—certain individuals, the hoarders, will have more money; while certain other individuals, the producers of the products upon which the money would have been spent, will have less. Such a redistribution of liabilities between individual accounts is not traceable by the present accountancy practices of the Banks. It is true that certain other consequences of the movement may be discernible by the Banks. The hoarders are likely, other things being equal, to transfer their hoards from current to deposit account and producers are likely, as a result of the deflationary pressure which is subsequently put upon them, to reduce their demand for advances. The Banks will then experience after a time a decline in their profits earning assets and a rise in their interest bearing liabilities, but they are not able as in the case of cash hoarding, to trace the cause of this change to its source.

As well as these two methods of forcing down Transaction Velocity there are also two simple phenomena which leave Transaction Velocity unchanged but which break the second fundamental requirement of equilibrium that the whole of Normal Income should be spent on *industrial* production:

3. In the first place there may be an *autonomous in-*

crease or decrease in the needs of the Financial Circulation. Suppose either that there is an increase in the number of hands through which Stock Exchange securities or any other form of property right has to pass from one individual owner to another, or that the normal volume of property exchange is itself increasing. Either of these processes represents an increase in the demand for money in the Financial Circulation and an increase in the marginal value productivity of money in these uses. Money will then drain out of the Industrial Circulation and create a shortage of money there—quite apart from the condition of industrial production. The removal of funds from the Industrial Circulation involves a divergence between Saving and Investment (as defined by me), for Investment is defined with exclusive reference to the money spent on industrial output.[1] But it does not necessarily mean a fall in Transaction Velocity because there is no tendency at any moment to stop money from moving from one account to another. All that happens during the period in which the operations in the Financial Circulation succeed in appropriating a quantity of balances from the Industrial Circulation, is that some existing balances move from the account of an individual who was saving to the account of a broker or for other purposes in the prospecting market—presumably in exchange for a security sold by the borrower. Consequently in this period the Transaction Velocity does not decline although Investment falls short of Saving. Money moves against one type of commodity rather than another—against property rights rather than against industrial output—but it does not fail to move.

4. Furthermore precisely the same process can take place within the Industrial Circulation itself and with the same deflationary results. If *new individuals or new firms*

[1] It does not of course matter that the incomes earned in the Financial Circulation are in these circumstances increasing because the incomes in the industrial circulation will decline disproportionately, since there is a net increase of business in the financial circulations. The essential point being that the drain of balances to a new use is bringing pressure to bear on the general level of incomes in the industrial circulation.—*Cf.* Mr. Keynes' analysis *Treatise*, Bk. VI.

enter into the cycle of industrial activity and try to *build up new balances by borrowing* then there is also an increase in the demand for money and in so far as they succeed Investment will fall short of Saving. During the period in which these new balances are built up the money which enters into them does pass from one individual account to another; the movement will therefore not again occasion any fall in Transaction Velocity but since it does not exchange against industrial output a deflation of profits will ensue.[1] To this point we shall return in the next Chapter.

Finally there is the last way in which Investment can fall short of Saving; it has been analysed by Mr. Keynes and has given rise to the most controversy.

5. *The financing of losses by the sale of existing securities.* The movement of funds from the industrial to the financial circulations is undoubtedly a deflationary phenomenon and, as we have seen, autonomous changes in the financial circulation may occasion such a movement. But there is an even graver possibility and that is that the outflow of money to the Financial Circulation should be occasioned, not by any change in the Financial Circulation itself, but by events taking place entirely within the Industrial Circulation. This will lead to the development of a far more serious position.

If it is a common habit in the Industrial Circulation, and undoubtedly it is, for firms or individuals to accumulate assets in the form of stocks of saleable securities for the purpose of equalising dividends or income payments over time, the possibility of an intricate disequilibrium arises. Suppose, to take Mr. Keynes' favourite example, that an increase of saving on the part of the public has the impact effect of occasioning losses to the manufacturers of consumption goods, and that they meet this change in

[1] This point is often misunderstood and it is assumed that building up balances necessarily reduces Transaction Velocity. Transaction velocity is only reduced if the new balances are built up *out of income*. If they are borrowed, then in the material period they are not rendered idle. They circulate against the securities issued by the borrowers instead of against industrial output. Transaction Velocity is therefore maintained but net losses are made.

their fortunes by the sale of part of their stock of securities and with the liquid funds so obtained maintain their payments to the factors of production. The situation in the Industrial Circulation at once becomes deflationary.

There is one exception to this generalisation. If the reserves upon which the companies draw have been kept by them in the form of idle deposits held upon current or time account, a compensating tendency exists. There is a flow of funds into the Financial Circulation but there is also an increase in the total of actual funds. It is not therefore necessary that the volume of expenditure in the Industrial Circulation should fall. But if, as is far more probable, the reserves of the companies pursuing this policy take the form of saleable and interest earning Government and other securities the situation is strongly and persistently deflationary despite the fact that the money incomes of the consumption good factors are maintained at their old level. This is because the sale of securities on the part of the producers of consumption goods will prevent the rise in the price level of securities which would have taken place. Had it not been offset by this increase in the supply of securities the price level of securities would have risen as a result of the increased rate of Saving. The rate of interest will thus be held up despite the increase of saving and will arrest any stimulus to the volume of investment or prevent any adjustment to the new situation from taking place. Saving has risen, losses are being made in the production of consumption goods, but part or all of the new saving is necessarily being used to buy the securities newly brought to the market and the Rate of Interest cannot fall to the point at which it induces an equal outflow of new money for the purchase of new capital. Despite the maintenance of the Consumers' Incomes, losses are steadily being made in the production of consumption goods, there are no profits in the manufacture of capital and the Rate of Interest is not falling. This disequilibrium will exist however sensitive the dependence of the volume of investment upon the Rate of Interest.

As in the case of an autonomous change in the needs of the Financial Circulation there is no fall in Transaction Velocity. The units of money making up the flow of new savings do actually exchange against something—against the securities marketed by the producers of consumption goods—and while there will be no decline in the total monetary business of the Industrial and Financial Circulations taken together, there will be losses in the market for final output as a whole and a consequent reduction in confidence and investment.

The reality of this situation has been denied by no one, but Mr. Keynes' interpretation of it has been challenged from two sides, by Mr. Robertson and Professor Hayek.

(*i*) Mr. Robertson has attacked Mr. Keynes' reasoning in their controversy in the *Economic Journal* for 1931.[1] This is what Mr. Robertson says:—

"We must, I think, picture equilibrium as a state of affairs in which two streams of money radiate outwards from 'the public', one (A) passing through the dealers in consumption goods to the producers of consumable goods, the other (B) passing through the dealers in securities into the hands of company promoters and the like, and through them to the producers of new machines. 'The public' it is true, buy for the most part existing securities and not new issues; but it is a commonplace that it is only through their willingness to invest their savings in existing securities that money is set free in the hands of more adventurous persons to finance extensions in the nation's stock of real instrumental capital. Now suppose 'the public', feeling an increased desire to save but not to hoard, switches over a streamlet of money from stream A to stream B. The price of consumable goods falls, and we may accept provisionally Mr. Keynes' contention that their producers realise 'losses'. But unless there is a hitch-up in the movement of stream B either in the hands of 'the public' or in those of the dealers in securities, or in those of the promoters, etc., who spend the proceeds of new issues,

[1] *Economic Journal*, 1931, pp. 400-1.

the stream B will be augmented to a precisely similar extent, and the producers of machines will in any period make 'profits' precisely equal to the 'losses' of the producers of consumable goods. If, therefore, an impoverished boot-maker hurries on to the market with a block of War Loan to sell, the buyer (if any) who will rush to meet him will be not a member of 'the public', but (say) a bloated shipowner.

"Now I am far from urging that such a hitch-up of the money stream B may not occur—on the contrary, I think it of the utmost importance that it frequently does. What I am urging is that one thing, and one thing only, can make it occur, namely, *an increased desire on the part of somebody to 'hoard', that is, to keep resources idle in the form of bank deposits.* The point of difference between Mr. Keynes and those previous writers who have recognised the possibility of savings running to waste in a general fall of prices, seems to be that he is at pains to distinguish two factors at work, which he christens the 'excess-savings factor' and the 'excess-bearish' factor. . . . And he has been led into doing this because he has nowhere applied to P′ that rigorous Fisherine concept of a certain flow of money in a given time-interval meeting a certain flow of goods in the same time-interval, which in his first fundamental equation he has applied without question to P.

". . . Now how does this work out in terms of quantity equations? Let M be the quantity of money, V its velocity of circulation against output (alternatively, the number of times per year it becomes income), V′ its velocity of circulation in all transactions, R the volume of output, T the volume of transactions, P the price-level of R and P′ the price-level of T. Then our equations are $MV=PR$ and $MV'=P'T$. Comparing day 3 with zero day, it is clear that M and R and V′ are unchanged, and P and P′ have fallen, T has risen. Does the alleged inadequacy of the quantity concept to reveal the truth amount only to this—that we must be careful not to expect the price-level of *one set of things* to vary with the velocity of circulation of money against *another set of things*?"

Then Mr. Robertson tries to explain why Mr. Keynes has made these mistakes:

"And he has been led into doing this because he has nowhere applied to P' (the price level of capital) that vigorous Fisherine concept . . . which he applied without question to P (the price level of consumption goods)."

In these passages Mr. Robertson appears to be advancing two separate propositions: (*a*) That it is impossible for net losses to appear in the market for the output of capital goods and consumption goods taken together unless there is "hoarding" taking place somewhere in the system. (*b*) That the total situation envisaged by Mr. Keynes must be capable of resolution into terms of the Quantity Equation $P=\frac{MV}{T}$ because that is an arithmetical truism.

Now it seems impossible at first sight to concede Mr. Robertson's first contention. At the time when Mr. Robertson wrote this article the term "hoarding" was unambiguous in its meaning and implied the accumulation of stocks of cash or the building up of *idle* deposits by members of the trading public. It necessarily involved, indeed was synonymous with, the reduction of Transaction Velocity because the accumulation of additional reserves of currency or credit was inseparable from failing to spend units of money with the frequency which had hitherto characterised the expenditure of money everywhere. But we have seen that in the situation in which securities are sold by the producers of consumption goods there is no tendency for Transaction Velocity to fall, for in the period in which the balances would have passed to the producers of consumption goods in respect of their sale of product they actually pass to them at exactly the same rate in respect of their sale of securities. Deposits circulate just as rapidly and indeed, if the sale of securities is equal to the increment of saving, are possessed by exactly the same people as if the change had never occurred. It is therefore not true to say that losses in the market for final output must be associated with "hoard-

ing" as originally understood. Mr. Robertson, in a recent article,[1] has attempted to re-define "hoarding" in such a way as to make the whole position unambiguous. In this attempt I do not feel that he has been wholly successful, but the matter is more one of terminology than of substance.

The emphasis of Mr. Robertson's second contention is surely all the other way. It is obvious that any and every condition of total monetary transactions must be capable of representation in the PT=MV formula, since the equation merely states two methods of adding up the same items. Moreover, Mr. Robertson has put his finger on the exact point when he says that "V' (Transaction Velocity) is unchanged" and "T (the volume of things to be exchanged) *has risen*". To say, at the time that Mr. Robertson wrote, that Transaction Velocity was unchanged was in my view also to say that no hoarding had taken place, but it is perfectly right to insist that T has risen and that this is the sole reason why the price of industrial output has fallen. Why it is then necessary to say that prices can *only* fall if hoarding has taken place when Mr. Robertson himself insists that T has risen escapes my comprehension.

Let me make the position quite clear: in the situation envisaged by Mr. Keynes it is certain that if prices fall then T will have risen. The price of consumption goods is supposed to have fallen proportionately to the increase of saving. That can only happen if their output is maintained at its old level. Therefore, T in respect of consumption goods will not decline. The market for and the output of capital goods remains unchanged so that the volume of transactions in this respect is unchanged. Finally the rate of sale of old securities other than those marketed by the producers of consumption goods is unchanged. Hence all the elements entering into T are constant except for an increase in the total sales of securities because of the new sales made by the producers of consumption goods who are incurring losses. These sales represent a net increase in the volume of transactions in the Industrial and Financial Circulations combined and as such are the sole necessary explanation of the fall in prices and

[1] "Saving and Hoarding," *Economic Journal*, 1933.

the appearance of losses. Securities have been brought out of security hoards and the result is precisely the same as if additional stocks of wheat or meat had been brought out of commodity hoards and unloaded on the market, except that the deflationary results are more general and more disastrous.

(*ii*) The point which Mr. Robertson makes is one of theoretical rather than practical importance; he would not wish to deny that the situation analysed by Mr. Keynes is one of disequilibrium calling for "reflationary" adjustments. But this common view is challenged by Professor Hayek in his review of the *Treatise*. Professor Hayek appears to deny that the situation is seriously deflationary or justifies any attempt to increase Investment. In *Economica* for 1931 he writes as follows[1]:—

> ". . . The question now, is whether an excess of saving over investment in Mr. Keynes' sense caused by a part of savings being used to cover losses . . . will cause total incomes to fall below total cost of production.
>
> ". . . In the case . . . where producers of consumption goods do not reduce their own consumption but cover their losses by borrowing or selling capital assets, clearly the income derived from the production of consumption goods will not decline at all. . . .
>
> ". . . In (this) case, where the losing entrepreneur obtains from the other savers the capital necessary to make up for his losses, it is, no doubt, true that these individual savings are wasted, *i.e.*, make no increase of the capital equipment possible. But this is so only because it is assumed that the losing entrepreneur is consuming his capital and since the savings of other people are required to compensate for this is thus preventing any net saving. But since, on balance, there is no excess of incomes over net earnings, *there is no reason why any new investment should take place*; this is also shown by the fact that, because the production of consumption goods is going on at an unchanged rate, no factors of production can be set free for use in the production of new investment goods. *Any attempt to bring about an*

[1] Hayek, *Economica*, 1931, pp. 29–30.

increase in investment to correspond to this "saving" which is already required to maintain the old capital, would have exactly the same effect as any other attempt to raise investment above net saving; inflation, forced saving, misdirection of production and, finally, a crisis. It must be remembered that, so long as entrepreneurs insist on producing consumption goods at the old rate, and selling them below normal cost, no restriction of consumption and, therefore, no real saving is effected; and no stock of consumption goods will be accumulated to bridge the time gap to which we referred above."

This is surely a peculiar argument. Of course, it is impossible to deny that the sale of securities maintains Consumers' Income equal to the total costs of final output, or that if the decumulation by one person offsets the saving of another, there is no net saving available. But surely that is just the trouble—that is the inevitable and disastrous result of *wasted* saving. Professor Hayek appears to argue that just because savings are going to waste nothing is wrong and nothing can be done, while in point of fact this very wastage continuously and increasingly threatens contraction and unemployment. Everyone is in perfect agreement that it is *difficult* to know what actually should be done to restore equilibrium (and to this point we shall return[1]), but Professor Hayek wishes to solve the problem by entirely ignoring its existence. The real problem lies in the fact that despite the equality between Consumers' Income and the total costs of final output and despite the absence of funds for investment, *the producers of consumption goods are making losses and are living upon their capital* with the result that bankruptcies and losses are spreading in slow paralysis through the whole structure of industry. Hoarding is bound to be induced unless something is done. The situation can only be corrected by the appearance of net profits somewhere to offset the losses made in the final stages of production.

These would usually appear, at least on the assumptions of equilibrium theory, in an expansion in the demand for

[1] See pp. 162-168.

capital or an increase in investment. The criterion of industrial equilibrium is that of zero net profits in industry and that criterion is completely broken. One set of people are decumulating because they are *forced* to do so by the saving of another group and there is no possibility of equilibrium until the expenditure on capital is increased.

We can then be certain that Mr. Keynes has laid bare an important and intricate source of disequilibrium. It must further be remembered that this sale of securities by producers making losses is only one example of a general phenomenon. If there is any shock to confidence, if there is any increase in the preference for liquid resources, or if there is any secular trend in the sale of property rights, the same essential situation will appear. A general conclusion of the greatest importance is therefore emerging. If there exists in the economic order large stocks of property rights, the exchange of part of which gives rise to an important volume of monetary business, the equilibrium of the industrial circulation is inherently unstable, and with it that of output and employment. At any moment, and for one of many causes, the financial needs of this type of exchange may impose burdens upon the industrial life of the economy and require deflationary adjustments which are always difficult and sometimes impossible to make. Large stocks of securities, just as much as large stocks of commodities, constitute a continuous and serious threat to monetary equilibrium and the existence of stocks of securities is inevitable in a way that stocks of commodities are not. So far from denying the delicacy of the relations subsisting between these two great structures of monetary business, this analysis emphasizes their reality or importance. Of course, if deflationary income adjustments in the Industrial Circulation are easy to make, it is child's play to show the steps by which equilibrium can and must be restored.[1] The important change of emphasis between the new and the older view of this matter

[1] What will happen under perfect competition and in the absence of contract elements is the bidding down of the prices of the factors of production and the restoration of full employment in the Industrial Circulation at a lower level of money incomes. Such a restoration of equilibrium is prevented by contracts.

lies in recognising the fact that in face of the great importance of contractual prices in the Industrial Circulation the intricate relations subsisting between the two types of monetary exchange are far more likely to lead to disequilibrium than to equilibrium. For this analysis and this emphasis we are indebted to Mr. Keynes.

§3. The Causes of Hoarding Simpliciter.[1]

There is one last subject to which it may be wise to refer in this Chapter and that is the analysis of the general causes, as distinct from the forms, of Hoarding. In the discussion of the final significance of cash hoarding and deposit hoarding no mention was made of the reasons for an increase in the desire to hold money balances. There are in general three types of influence behind the individual and commercial demand for money to *hold*:—

(*i*) Firstly, there are purely technical causes. An individual or a firm will keep money balances because there are differences between the times at which money comes in and the times at which money is paid out in respect of the normal turnover of the business. At first sight this may seem to constitute an insufficient cause, for if the sums are big and the gaps are long it will be worth while lending or borrowing the balances or deficits instead of holding actual money. But the period for which it is possible for some firms and individuals to lend—*a fortiori* which it is possible to lend *profitably*—is not indefinitely short. It is not, for example, possible for the ordinary suburban householder to lend the cash in his pocket for the period he normally spends in bed at night. It would not be profitable for him to do so, since an act of lending of that kind involves considerable expenses— which would offset the tiny interest payments that could be earned. In the same way the comparatively small sums held by the majority of industrial firms could not be lent overnight for purely technical and commercial reasons of a similar type. The commercial

[1] An analysis very similar to the argument of this section, but with somewhat different conclusions, has already been published by Dr. Hicks ("A Suggestion for Simplifying the Theory of Money," *Economica* 1935). I am indebted to Dr. Hicks for indicating some of the problems to be solved.

difficulties can be attributed to economic indivisability of time or commodities, but that does not alter the fact that they represent an inescapable source of the demand for money to hold and that variations in the length of the periods between the receipt and payment of money, in the length of time which it takes to lend money, in the costs of lending money, and in the Rate of Interest to be earned on short term lending will all cause variations in the disposition to hoard balances.

(*ii*) In addition to the technical reasons for the existence of balances there is a demand for cash arising from the existence of uncertainty. Persons and firms hold money not only because the times of their receipt and disbursements cannot be made to coincide but also because their size cannot be accurately foreseen. A retail shop-keeper, for example, may be certain that the wholesale bill for the commodities on sale will have to be paid on a certain date, but he cannot be sure that his receipts in respect of sales will be equal to this sum. He must, consequently, hold a balance because of his uncertainty about the volume and time conditions of receipts. In the same way, the exact size of the costs may be unknown even if the receipts are certain. And finally both sums may be doubtful. For these reasons balances must be held in excess of the sums which could be profitably invested if the receipts and outgoings were either synchronised or exactly known.

But again it must be remembered that *if money could be immediately retrieved from investment the existence of uncertainty would not by itself give rise to a demand for money*, since the invested funds could be mobilised during the period in which the demand for them became apparent. It is only because the period required for recovering the money is not infinitesimally small that uncertainty gives rise to a demand for balances. But as the period of recovery is of a definite length for all types of investment except in the one case of money balances, the existence of uncertainty will greatly increase the demand for money and any change in the degree or extent of uncertainty will cause a change in the demand for balances.

The same line of thought has been expressed by Mr. Keynes and also by Dr. Hicks, in an analysis of the desire for financial liquidity—Mr. Keynes' "liquidity preference". Legal tender money is the only commodity which is completely liquid. Other resources—credit balances, short term securities, long term securities, finished commodities, intermediate products and fixed capital—represent a claim upon money but those claims can only be realised at varying lengths of time and with varying degrees of certainty. A long term security can only be redeemed at par after the lapse of years while a stock of real commodities, although it may be immediately saleable, is subject to a great deal of market variation in value. While I do not believe it is possible to arrange classes of goods into a general order of liquidity preference,[1] it is obvious that some classes of things such as cash balances and credit balances, are commonly regarded as more liquid than other groups of things. It is therefore justifiable to argue that prices which increase the general uncertainty about the volume of monetary receipts will increase the preference for more liquid resources and therefore the demand for money.

(*iii*). In both these ways the demand for money can vary if the volume of real income is fixed, but what will happen to it if the volume of real income commanded by the individual or firm is raised? If we suppose that the degree of uncertainty and the technical conditions of lending and investment are unchanged, the demand for balances—and the volume of hoarding—is simply proportional to the money turnover of the business world. There are consequently two cases which arise—the case in which an increased volume of physical transactions is accompanied by an increased money turnover and the case in which it is not. If a firm undergoes an expansion in the volume of its business at a constant unit price for its product and at constant unit

[1] For example, during a period of Trade Cycle depression fixed interest securities will be regarded as more liquid than equities or commodity stocks and will stand to the left of the series arranged in order of liquidity. But during a high inflation they will be regarded as less liquid and will stand to the right of them. This means that if confidence is further shaken during a depression the community will hoard fixed interest securities, while if it is shaken during a high inflation they will hoard real goods. There is therefore no general order of liquidity.

cost then its volume of money turnover will be directly proportional to the volume of its physical product. In that case its demand for balances will be simply proportional to the same quantity. But if the increase in physical output is secured by a reduction in costs so that the total price of the product and the total money turnover either remains constant ,or rises less rapidly than physical production, the volume of money balances demanded will either not rise at all or rise less than proportionately to the increase in physical production.

For the community as a whole the demand for money balances—or the current volume of hoarding—depends upon the physical volume of output *and* upon the price of that output—supposing the technical conditions and the degree of uncertainty to be fixed. If the physical volume of output is rising and the price of all or part of it is constant there will be an increase in the demand for balances to hold and these balances will either be provided by the Banks or they will be abstracted from current saving with the consequence that investment will be less than saving. Mr. Harrod has recently insisted upon this point and its significance will be considered in the next Chapter.[1]

§4. Conclusion.

It is now possible to draw a second series of important conclusions from the analysis of deflation parallel to those derived from the analysis of inflation. They are not reassuring. The possible causes of deflationary changes are numerous and complex. In face of contract frictions in the markets for commodities and factors of production their results will be cumulative and serious. Any increase in the length of the gap between the receipts and payments of the representative production unit, any increase in uncertainty, any increase in the costs of investment, a rise in the volume of property exchange, an attempt to prevent dividend fluctuations by the sale of securities, a rising population, a growth in the number of firms in any one stage or of the

[1] R. F. Harrod, *Economica*, 1934, "The Expansion of Credit in an Advancing Community," and Ch. IV, §5. of this book.

number of stages in production, and finally any increase in physical production at fixed prices will cause a deflationary divergence between Saving and Investment. Credit policy must be directed to the meeting of these complex dangers, which are just as real and just as important as the complementary dangers of inflation. It is remarkable that up to the present no school of thought in this country has been willing to lay equal emphasis upon these two equally serious sources of monetary difficulties.

CHAPTER IV

THE CHOICE OF POLICY

§1. What is the general credit policy which will maintain full employment during a period of capital accumulation and other dynamic change? From the outset it is necessary to distinguish a number of different aspects of this general question. It is highly probable in the first place, that a credit policy which might be advisable in a system already enjoying full employment and full industrial activity would be very unwise and even quite impracticable at a time when a sixth or a fifth of the community's resources were suffering from enforced unemployment. Furthermore, it is one thing to know what ought to be done in theory and quite another thing to know how to do it in practice. For these reasons it is necessary at the very beginning of an analysis of policy to distinguish three different inquiries which will immediately occur.

1. In the first place there is what might be called the *long period* or equilibrium problem. If we imagine either that the industrial system already enjoys an equilibrium of full employment or that the correct policy has been discovered which will bring this equilibrium into existence, then it is necessary to know by what general credit and price level policy that equilibrium can be maintained. This is not so much a long period problem as a problem characterised by the particular assumption that full employment already exists. It is, however, a problem which will arise only *after* the second problem of immediate policy has been solved and it is in this sense that I term it a long period problem.

2. The second and the more immediate problem is the cure of the Trade Cycle. How may a dynamic equilibrium which does not now exist, and which has never yet existed since figures were first recorded, be substituted for the cycles

of productive activity we actually endure? That is the essential question of short period monetary policy.

3. And the last problem arises from the distinction between analysis and action. It will not be sufficient for practical purposes merely to provide an answer in the terms of a formal economic analysis. It will not be sufficient to say that the object of policy should be to "stabilise prices" or equate "saving and investment", unless it is possible to specify the practical steps which should be taken in order to create the actual conditions of real equilibrium. If we attribute any utilitarian or scientific value to exercises in applied logic this will not be so.

Practical policy resolves itself into two problems. It is first necessary to discover the *quantities* in the real world which most closely approximate to the concepts of our theoretical analysis—a problem of selecting *statistics*: and then it is necessary to discover the *types of action* which will cause the desired relations between the statistical series to appear—a problem of action, policies and powers. The further meaning of this distinction will emerge in the second part of the book; in this present chapter and the next the problem of the maintenance of dynamic equilibrium will be dealt with.[1]

We start from the explicit assumption that full industrial equilibrium exists in a period of technical and capital change. Full equilibrium is taken to mean that the only human unemployment which exists is due to the irreducible minimum of sickness, imbecility and change of employment; that all other productive resources above the margin of zero net returns are in full commission, and that the relative outputs of particular consumption goods and of consumption goods in general relatively to capital, are all in the same proportions as the proportions in which final income is spent. How can this condition be preserved in face of capital accumulation, changing technical knowledge, changing supplies of other resources, and changing preferences in respect

[1] The problem of policy under the conditions of dynamic equilibrium is the subject of Chapter IV and Chapter V, the use of statistical series and the instruments of policy are discussed in Chapters VI and VII respectively, and the short period problem is reverted to in Chapter VIII

of the ownership of capital goods and other forms of property rights? In general terms the answer is easy, for in the light of what has gone before it is obvious that credit policy must avoid on the one hand the double and opposite dangers of deflation or the appearance of net losses in the industrial circulation, and on the other inflation or the appearance of net profits. But the precise meaning of this general conclusion is still a matter of some dispute among economists. It has been given three quite contradictory interpretations in recent times.

1. It has been taken to mean that the credit policy which will prevent both inflation and deflation will *stabilise the price level of final output.* In a static economy such a policy would involve a stationary circulation and a stationary Consumers' Income but in a developing system the successful execution of the policy requires the steady expansion of the circulation in such a way as to cause the Consumers' Income to increase at the same rate as final physical output is growing. This does not necessarily mean that the circulation itself will expand at such a rate. It may either expand more rapidly or less rapidly than physical output since the quantitative relations between the Circulation and the Consumer's Income may be changed by the processes of capital accumulation. The circulation must change in such a way as to cause the Consumer's Income to exhibit the same percentage growth as the volume of final output whatever its relation to the volume of the circulation may happen to be. The policy represents an attempt to enjoy the fruit of social abstinence and real accumulation in the form of rising money-incomes; it is scarcely necessary to emphasize that the *successful* execution of such a policy will exercise a most pacifying influence upon the competitive and distributional struggles inherent in Capitalism and lubricate its productive mechanisms to the greatest possible advantage.

2. But the same ideal of avoiding unstable inflations and deflations has been interpreted to mean the stabilisation, not of prices, but of the *effective circulation per head of the population.* Such a course would certainly be very "restrictive of credit" as judged by the criteria of present banking policy.

It would unquestionably avoid any danger of inflation but it would equally clearly occasion a peculiar movement of prices. Prices would be forced to move not simply and inversely with the changes of physical output, but also according to the changing relation between the volume of the Circulation and the size of the Consumers' Income. It is obvious that if no attempt is made to force up the Consumers' Income as final output expands, the increase of physical output will by itself occasion a proportionate decline in prices, but it is less obvious and yet equally certain that since the circulation per head is constant, anything which causes the volume of Consumers' Income attributable to any given Circulation to change will also cause proportionate movements in the level of prices. Thus if the total course of capital accumulation has the effect of *reducing the proportion* between the constant Circulation and the Consumers' Income derived from it, prices will be forced down not only because of the increase in physical output but also because of the absolute reduction in money income which is currently taking place. *Prices will fall more rapidly than output increases.*

3. And finally the avoidance of inflation and deflation has been taken to mean the *stabilisation of the Consumers' Income.* In a stationary economy this would mean stable prices but in a developing economy it would mean prices which fell solely as physical output increased.

The purpose of the Chapter is to assess the value of these three suggested solutions of the long period problem.

§2. Constant Prices.

The fact that the case for stable prices has never been argued clearly or consistently is not in the least because it has not been commonly believed in, but rather because it has been so commonly accepted as the obvious solution of the problem that no one has felt the need to justify their faith with any consistent logic. Mr. Keynes gives it a vague and relative blessing in his *Treatise,*[1] and elementary text books explain at great length the *distributional* disadvan-

[1] See Appendix Note 2.

tages of a moving price level.[1] Nevertheless it is commonly assumed by bankers, business men, and government officials, and until quite recently by the great majority of economists, to involve the achievement of equilibrium. Despite this community of agreement, it is possible to show that under certain assumptions commonly made by price stabilisers, stabilisation would be quite out of the question. It would be rendered impossible if these assumptions were true.

1. That the instrument of credit control by which the policy of price stabilisation is to be carried out is the common mechanism of producers' credits. 2. That the price level of the factors of production other than capital is slow to move relatively to the price of capital (or the level of money profits).

Capital accumulation necessarily increases the physical efficiency of the factors of production other than new capital as a group. With *constant* money prices for them the rise in their average physical efficiency is bound to cause a proportionate reduction in the average costs per unit of the final output attributable to them. If prices are stabilised through an outflow of money from the banks there is therefore bound to be an increase, and a disproportionate increase, in the level of money *profits*, and a subsequent increase in the demand price for new money. Not only will the real resources of society be induced to move into the capital good industries by the expenditure of the new money in excess of the amount which would have been attracted there by the current rate of voluntary saving, but also the rising expenditure of final output will be sufficiently large to cause a sharp increase in the level of money profits attributable to the owners of fixed capital.

Let us imagine for example a production unit in which the return on fixed capital has been 20 per cent of the turnover, i.e., that when the total receipts were £5,000,000, the expenditure on wages, rents and road materials was £4,000,000 and "profits" were £1,000,000. The firm then introduces new capital which raises physical output by 10

[1] See Lavington *The Trade Cycle*, and Clay *Economics for the General Reader*.

per cent with a constant market price for the products. The following conditions will then arise:—

Period	*Physical Output.*	*Price Level.*	*Total Receipts for Output.*	*Wages & Rents.*	*Profits.*	*Per Cent on Turnover.*
1	100	1	£5,000,000	£4,000,000	£1,000,000	20%
2	100	1	£5,500,000	£4,000,000	£1,500,000	27.27%

That is to say a 10 per cent increase in physical productivity, will, under the assumptions of constant prices for the product and the primary factors, occasion the profits measured as a percentage of turnover to rise from 20 per cent to 27.27 per cent. Absolute money profits will rise by 50 per cent.

On the view that has been argued at length in the earlier Chapters—that the demand for money to be spent in productive enterprise is determined by the level of money profits made throughout the system—the situation created by this attempt to stabilise prices is bound to become rapidly and cumulatively inflationary. The higher Rate of Profits due to the initial fall of costs becomes the basis of the demand for money to spend, and the demand for money and the demand curve for new saving will move quickly to the right. A still greater rate of credit expansion will be initiated if the Rate of Interest is kept constant. The increasing flow of producers' credits will attract even more resources into the capital good industries, while the increase in the output of capital will still further reduce costs although no doubt the rate at which costs fall will itself grow smaller.

But it is not in the least necessary that the policy of price stabilisation should break down at an early stage or that prices should rise for a considerable time as a result of these combined movements. The rate of real capital construction will be increased as long as the volume of credit is expanding and consequently physical output may begin to rise at an increasing rate for a period.[1] The realised level of prices will

[1] I do not mean that the new money will be spent exclusively on new fixed capital. Some, of course, will be spent on raising the prices of complementary factors, but since the Rate of Interest is relatively low there is likely to be some increase in capital construction.

depend on the relation between the rate at which final output is expanding and the rate at which credit creation is taking place. If the outflow of credit is taking place in an economy that is already involved in an immense secular expansion and in which consequently the utilisation of a large and expanding field of technical improvements is possible, the resulting rate of growth of physical output may be very large and it would be possible for a very great inflation of profits to take place without an upward movement of prices and even despite a downward trend in them. Something not unlike this may have been happening in America between 1925 and 1929.

The stabilisation could not, however, continue indefinitely because there are underlying causes which will cause the rate of credit creation to rise above the rate of increase of physical output. The rate of credit creation, in so far as it depends upon the absolute level of money profits, will grow larger and larger as long as there is any rate of technical invention associated with capital accumulation. The nature of an invention is to lower costs below their present level, whatever that level may be. In the situation which we are imagining the installation of new capital and the utilisation of new inventions will be proceeding steadily in face of constant prices for the primary resources. Costs will therefore steadily decline and in face of constant commodity prices the absolute profit margin will expand.

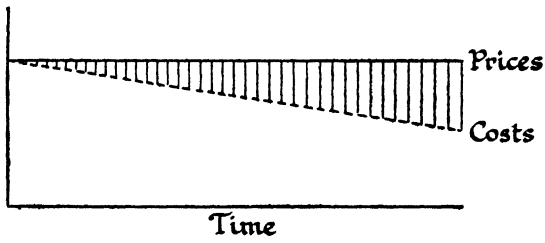


Fig. 21.

The rate of credit expansion determined by the absolute level of money profits will therefore rise steadily. Not so the rate of increase of physical production. Unless it could

be assumed that the rate of invention will itself rise as inflation proceeds and there can be no general reason why it should, the rate of physical increase is not likely to grow greater.[1]

A rising rate of monetary expansion will therefore encounter a constant rate of physical growth. In the long run the maintenance of the existing rate of increase in profits will involve a rise in prices. The banking authorities must, if they are to continue to stabilise prices, reduce the rate of inflation. But to do this will affect adversely the rate of growth of profits. It is impossible to avoid a conflict between the interests of price stabilisation and the maintenance of profit expectations of entrepreneurs. That is the real dilemma of price stabilisation policies in face of relatively constant prices for the factors of production.

It is not being argued that this is what actually happens during a "stabilisation" inflation. Such inflations are often brought to an end before any rise in prices takes place—either by a shortage of cash on the part of the commercial banks or by a Stock Exchange boom or by a sense on the part of the Central Bank that the market is "getting out of hand".[2] This I have argued elsewhere.[3] But if such an early check were not administered, prices would be bound to move upwards in the long run. Price stabilisers often point to the check that must at some point be administered to the system as the real cause for the failure of their policy, without realising that it is the sole alternative to high inflation.

[1] The situation at this point is very complicated because the rate of capital accumulation may itself be increasing through the inflation. Now the effect of an increasing rate of capital accumulation is in the short run to reduce the rate of increase of other physical production and in the long run to increase it. It is therefore very difficult to say exactly what will be happening to the *rate* of increase of physical production at any moment. It will be affected by the current increase of the rate of capital accumulation and the current increase of physical production through the *past* increase in the rate of capital accumulation. Since, however, Prof. Hayek has demonstrated (*Prices and Production*, Lecture III) that the maintenance of a given rate of *forced* saving will require a comparatively greater rate of inflation, we are safe to assume that the rate of *increase* in capital accumulation will be small in relation to increase in the rate of credit expansion. The consequent rate of increase in physical production is therefore likely to be, as I have assumed in the text, relatively constant.

[2] It appears to have been a combination of these latter two causes which occurred in America in the Spring of 1929.

[3] *Purchasing Power and Trade Depression* (Chapter VI).

It will, however, be asked at once why the imposition of a check when or before prices rise greatly matters. The policy the banking system is pursuing is that of price stabilisation, and so it will naturally resist any tendency to cumulative inflation. The Rate of Interest will be raised, credit will be restricted and the industrial system will be allowed to "settle itself down" to the new level that the Circulation has just reached. Why should not an inflation by way of producers' credits be allowed to continue until prices show a tendency to rise and then be checked just before prices actually rise by an upward movement of the Rate of Interest and such other deflationary measures as may be necessary? This has always been the implicit defence of price stabilisers. But it is open to a number of fatal objections.

1. It is virtually certain that the change in the policy of the banking system will be followed by a general contraction through a change in the expectations of producers. Let us make the assumption that is most favourable to those who believe in price stabilisation—namely that the banks do not wish to reduce the quantity of credit outstanding but only to stop it expanding still further. The moment that the halt is called the course of the price level and similarly of the level of profits is other than it would have been and other than it has been. Price expectations and profit expectations are disappointed. The rate of increase in absolute profits upon which investment has necessarily been based will not be maintained. That does not directly affect the commercial position of entrepreneurs who possess completed investments. In so far as the installation of new fixed capital financed by the credits has been completed the firms in possession of the capital will be in a strong commercial position. They will be the low cost firms in the existing situation and they will be relatively little affected by subsequent financial difficulties. But nevertheless there will be a number of enterprises which have been initiated upon the assumption that prices would remain constant and that profits would continue to rise. Above all, there is the current set of enterprises and capital installations which are not yet completed and which have only been begun upon the basis of

existing profit expectations. Those expectations are not fulfilled because the rate of expansion of credit upon which they were based has not been maintained. It is therefore impossible to escape the conclusion that certain investments will be stopped apart from those which would have been financed if the increment in credit expansion had been available. An absolute fall in the rate of investment is bound to be caused because the expectations upon which the rate of investment depended have not been fulfilled by the banks.

The moment that there is an absolute fall in the rate of investment the whole position changes. The money income of the community falls from its previous high point, prices decline for reasons other than an increase in physical efficiency, another circle of firms and enterprises makes losses, confidence is further undermined and investment still further reduced. The vicious circle of moving losses and cumulative contraction is begun. And the whole of this process becomes inevitable, even though there is no absolute reduction of the volume of lending in the first instance. In so far as it is necessary for the banks not only to reduce the rate at which credit is expanding, but also to reduce the absolute volume of credit in order to regain control, all these processes will occur even more sharply and on a larger scale. It is in general impossible to disappoint profit expectations without creating a severely deflationary situation, whether the change requires an absolute or a relative contraction of credit facilities.

2. Nor is this the whole story. One of the most certain forms of pressure that will be used by the banks will be a reduction in the loans made for speculation on the stock and property markets, or at least a reduction in the rate at which such loans have been increasing. If this pressure is exerted the prices of securities will not continue in their anticipated course and those operators buying for capital appreciation will suffer a reduction of profits and some absolute losses. The unloading of securities on to the market, a scramble for liquidity and a rise in the long term Rate of Interest will follow upon such developments. As the argument of a previous Chapter showed, the rise in the Rate of Interest

appears to be an unimportant commercial consideration; but one by-product of that rise is not unimportant. The value of all existing property rights in terms of money will be falling and this fall in aggregate value leads to two further deflationary results of considerable importance.

(*a*) The volume of *collateral security* available for bank advances throughout the system is sharply reduced. This fact not only makes the balance sheet position of competitive banks look bad and induces them to contract their risky investments still further, but it also shakes the confidence and reduces the borrowing power of productive enterprise. A general collapse of security values will therefore enforce a reduction of bank lending.

(*b*) The reduction in the capital wealth of individual property owners and consumers tends also to shake their personal confidence. It is likely both to reduce their expenditure and to make them afraid of industrial or risky investments for their money. A further element of contraction is created.

All developments in the Financial Circulation can only reinforce the fundamental contraction in the Industrial Circulation.

It therefore appears certain that at the end of a prolonged period of inflation a sudden "stabilisation" cannot be made smoothly without a reaction. Moreover, although there is nothing absurd in supposing the Industrial Circulation could settle down to a new equilibrium after a small and definite inflation of credit (as the reasoning of Chapter II made plain[1]), there is nothing in common between these proposals and the policy of stabilising prices. The moment that the rate of expansion is stopped and the system is no longer subjected to a proportionate flow of new money, the downward fall of prices will be immediately resumed quite apart from the disastrous effects upon confidence which may be reasonably expected if the previous inflation has been large.

All this makes it almost impossible to believe that prices can be stabilised in the face of a relative stability in the prices of land and labour, although it is certainly possible to exag-

[1] Chapter II, §3.

gerate the evil effects of a series of small, definite and controlled injections of credit. No one wishes to suggest that such small injections will be disastrous, while if they are deliberately limited in volume they can in no way become cumulative. If the inflationary injections are small, and the period in which they take place is short, the subsequent "loss of confidence" deflations, will themselves be small. These will in fact be roughly proportionate to the size of the induced profit inflation and to the strength of the expectation that has been created that such an increasing Rate of Profits would be indefinitely maintained. Although a short period stabilisation of prices is eminently possible, a series of such small injections as could be made from quarter to quarter cannot provide long period stabilisation. Over a period of five or ten years prices would have to fall to a considerable extent if the rate of capital accumulation were high, and a stabilisation for such a period would, under our present assumptions, involve a serious and unstable inflation, while a stabilisation for every alternate quarter would be accompanied by a secular fall of prices. It is therefore safe to conclude that *upon the specific assumption of relatively constant prices for the factors of production other than profit-bearing capital* stable prices are quite impossible. A later section will examine the significance of the underlying assumption upon which this conclusion is based: in the meantime the second suggested credit policy remains to be discussed.

§3. A Constant Circulation.[1]

It is Professor Hayek's privilege to propose the most ascetic ideal for the achievement of monetary equilibrium. He proposes to stabilise the effective circulation (MV), whatever happens to the volume of industrial output. There can be no question that such a policy, or anything approaching it, will fulfil the first simple condition of equilibrium—

[1] The argument of this Section with the exception of the last part of it (sub-section 6) is merely a repetition of the argument contained in Mr. Meade's *Rate of Interest in a Progressive State*, Chapter II Appendix. I was originally indebted to Mr. Meade and Mr. Maurice Allen for the analysis contained in the footnote on p. 187 of *Purchasing Power & Trade Depression* and in this Section.

that there shall be no cumulative inflation. Where no increase in the volume of the effective circulation is possible, there can clearly be no danger of profit movements and hence of cumulative movements.[1] The only question that arises therefore is whether or not the proposal offends the second fundamental criterion of policy—that there should be no deflationary wastage of saving. To answer this question we must examine Professor Hayek's views in greater detail.

1. It is first necessary to emphasize that by a "Constant Circulation" Professor Hayek does not mean a constant total supply of the means of payment but a constant supply of the means of payment multiplied by their average velocity of circulation against all types of goods. Professor Hayek wishes to stabilise MV and not M. If there is any decline in the Transaction Velocity of Circulation—if there is any hoarding of cash or deposits on the part of the public—Professor Hayek would be in favour of the banks pursuing an expansionist credit policy and he states this quite explicitly[2]. He would stabilise the total price of all things sold or, which is the same thing, make the area of his triangle constant.

2. Now it follows most clearly from this last statement of his proposal that its execution during a period of capital accumulation would, under certain circumstances, reduce the absolute size of the Consumers' Income. Capital accumulation is taken to involve a "lengthening of the triangle"—that is to say, a lengthening of the vertical dimension representing the "average period of production". If the area of the triangle is constant this process can only take place by a reduction in the length of the base—representing the Consumers' Income—as in Fig. 22. It appears to follow that Professor Hayek's policy of a stabilised MV will necessarily involve a steady reduction of the total volume of the Consumer's Income. In the absence of a reduction in the quantity of resources other than capital this means a steady fall in factor prices—that is in money wages per head and

[1] Inflations, through movements in the velocity of circulation, would still be possible if the volume of bank credit alone were stabilised but not if M V were stabilised.

[2] Hayek, *Prices and Production*, Lecture IV.

rents per acre. It is this aspect of Professor Hayek's proposals which has called them most sharply into question.

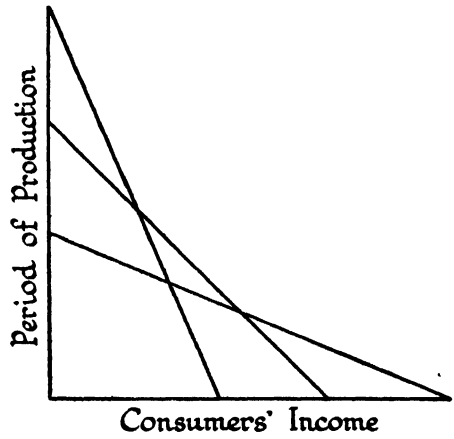


Fig. 22.

It is necessary to be clear at this point that the fall in money incomes within the lengthening capitalist structure arises not merely from a lengthening of the long period of production. The existence of a greater volume of physical capital per head does nothing by itself to reduce the level of money incomes. The demand for money associated with any structure of production arises not from the volume of physical capital invested in the structure as a whole but only from the quantity of circulating capital multiplied by the average period for which money is held in order to transfer that capital from hand to hand. It is the monetary turnover of business—the total value of intermediate products multiplied by the average period for which money is held against them—which represents the demand for money arising from any industrial structure. Now it is quite possible that the building of new fixed capital would greatly accelerate the movement of physical circulating capital through the system. An acceleration of this kind would cause a reduction in the quantity of balances required in each stage and might more than offset the growth in the number of technical stages of which the representative technical process is composed. In

such a case the process of capital accumulation will be accompanied by a reduction in the total demand for money to hold despite the increase in the long period of production which includes the production of the new fixed capital. An increase in the volume of balances becoming free through the acceleration of the rate of business turnover would occur, and likewise an ultimate tendency for the Consumer's Income to increase. Saving would in these circumstances exert an *inflationary* pressure.

This analysis makes it plain that the reduction of Consumers' Income which Professor Hayek envisages, arises from that particular type of capitalist development in which the average number of *unit time and commercial stages* through which goods must pass is permanently increased. That is to say, the product of multiplying the number of times which intermediate products are exchanged against money by the average period for which money has to be held to finance these transactions is increased as a result of the construction of new capital. Upon this assumption, and this assumption alone, will capital accumulation necessarily lengthen the perpendicular of Professor Hayek's triangle and occasion a decline in the Consumers' Income derivable from a constant Circulation. There is no reason to doubt that this has in fact been the effect of accumulating capital during the last hundred and fifty years. In any case we are only concerned to know whether the reduction in incomes which will take place *if* these conditions are fulfilled is necessary to the maintenance of monetary equilibrium as Professor Hayek holds. It is however important for this purpose to understand the source of such reductions.

4. The reduction in Consumers' Income which is involved in a lengthening structure of production is then solely due to an increase in the requirements of producers for financing an increased time x value total of transactions in intermediate products. *It is attributable to the building up of balances by entrepreneurs handling new intermediate products in new technical and commercial stages*—in particular by new firms in existing industries and by new industries entering the structure of production. Let us imagine a two stage structure of

production converted into a three stage structure with each of the two stages employing half, and three stages employing one-third of the primary factors. Then the position of the balances in the two system in equilibrium can be worked out from simple diagrams. In the two stage structure there will be 5 unit balances distributed in this way between producers and consumers:—

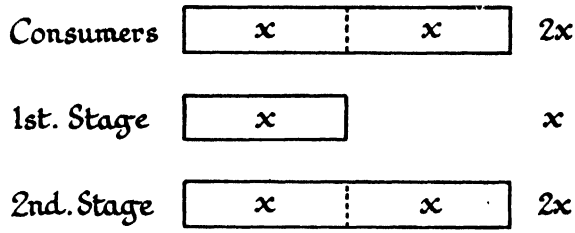


Fig. 23.

Consumers' Income and Balances=2x per unit period of time and Producers' Balances and Turnover=3x per unit period of time. In the three stage structure however there will be not 5, but 9 unit balances distributed thus:—

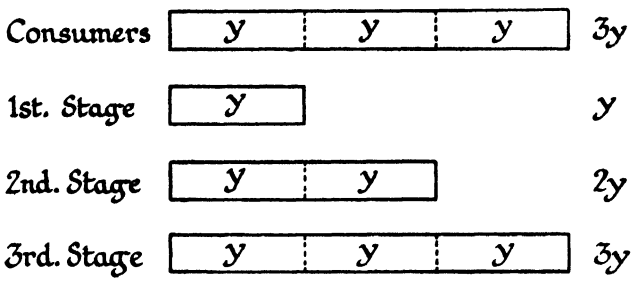


Fig. 24.

Consumers' Income and Balances=3y per unit period of time while Producers' Balances and Turnover=6y per unit period of time.

The assumption of Constant Circulation means that the total volume of the unit balances in both periods of time should be the same and therefore 5x=9y, thus:—

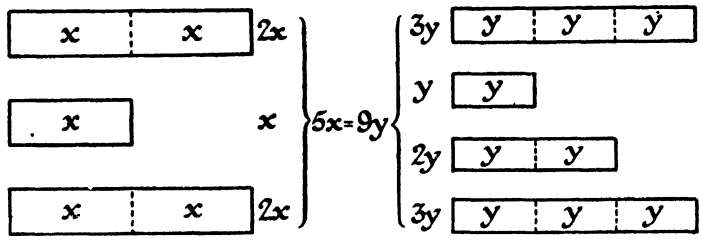


Fig. 25.

Now this means that Consumers' Balances and Income must be reduced from 40% (2x : 5x) to 33⅓% (3y : 9y) of the Circulation, *because the Producers' Balances and Turnover have risen from* 60% *to* 66⅔% *of the total circulation.*

The critical question is, how did the producers as a class obtain these extra balances and is the method by which they were obtained compatible with an equilibrium between saving and investment?[1]

5. Consumers' Income falls because and only because Producers have built up new balances. These balances must have come, in whatever period they were built up, out of the current supply of new savings. In *this* period Transaction Velocity was maintained at a constant level by the transaction which actually took place. Part of the balances saved by the consumers, passed into the hands of the producers, not in exchange for goods manufactured by them, but in exchange for old securities sold by them or new securities issued by them in order to finance their money turnover. Alternatively it is possible that the producers built up the new balances themselves by retaining part of their current turnover for this necessary purpose. But in either case, the conclusion is the same. *During this period Saving and Investment could not have been equal.* If the producers built up the balances themselves, their action was obviously deflationary

[1] Professor Hayek's analysis of the conception of the "Co-efficient of Monetary Efficiency" has nothing to do with this matter. The co-efficient of monetary efficiency is concerned wholly with the proportion of any quantity of physical goods entering into monetary transaction and could vary in a system in which there was no increase of capital in physical production. It has nothing to do with the lengthening of the structure of production and the increase in the volume of production.

for they were hoarding deposits and Transaction Velocity was reduced. But equally if they obtained balances from the savings of the public equilibrium would still have been destroyed, for although Transaction Velocity is maintained by such action, the amount of money spent on new physical capital will fall short of the money not spent on consumption goods by the value of the deposits thus accumulated. Consequently in this period of time:—

(*a*) The value of final output of all kinds will be reduced and permanently reduced.

(*b*) The aggregate price of output will be reduced below the total cost of production at the existing contract price for the factors of production.

Such a condition is deflationary and therefore represents a departure from the second fundamental condition of equilibrium and finally disposes of the claim of a Constant Circulation to be accepted as a solution of the formal requirements of monetary equilibrium in an economy sustained by temporal contracts.

6. It may finally be asked how it is that Professor Hayek has been led to make this particular mistake. It is especially remarkable that he should have done so since he goes out of his way to concede (*Prices and Production*, p. 90) that balances built up by new individuals through an increase in the population should be provided by the Banks. His argument therefore is for a *Constant Circulation per head.* Yet when it comes to balances built up by new firms he denies the righteousness of elasticity in this case although *the effect on the demand for money to hold is precisely the same.*

I cannot help feeling that the real explanation of Professor Hayek's attitude is to be traced to a crucial ambiguity in the idea of the "Natural Rate of Interest" due to a further ambiguity in the conception of the "demand for saving". Professor Hayek starts with the firm conviction that the "Natural" or Equilibrium Rate of Interest is one which will "equate the supply of with the demand for new savings". Now it is perfectly true that a credit policy which allows the balances demanded by new firms to be supplied by the

banks will not permit of an equality between the demand for loanable funds and the supply of *voluntary* saving from the public. All borrowing will not be financed out of the savings of the public. Part of the funds used in the full process of capital accumulation will be provided by the Banks and will not come from those who save. But this is just the point. What is meant by the "demand for saving" in the sense that an equality between the supply of and the demand for it will guarantee monetary equilibrium?

(*a*) The phrase "the demand for saving" may be used to mean the total of money required for new capital construction, *including the demand for money to hold* in respect of new commercial stages intercalated in the structure of production.

(*b*) Or it may simply be taken to mean the *demand for money to be spent on new physical capital.* If by the demand for capital is implied the first total, and by the Natural Rate of Interest the Rate of Interest which will equate the supply of voluntary saving with the demand for capital in this sense, then it would follow that the maintenance of the Natural Rate of Interest would involve or might involve the constant reduction of money incomes. But if by the demand for capital we mean the demand for real physical capital alone and not also the demand for more money to hold in connection with the changing volume of intermediate products then we are brought to a different conclusion. The Rate of Interest which will equate the supply of voluntary saving with the demand for new real capital will involve no reduction in money incomes. And it is perfectly certain that the Natural Rate of Interest in the sense of the Rate of Interest, the departure from which necessarily involves either a cumulative inflation or a cumulative deflation, is *not* the Rate of Interest which equates the supply of and demand for saving in the first sense. The new money which is issued if the Rate of Interest permits the new balances to be provided by the Banks will necessarily be held passive in the hands of entrepreneurs and will exert no inflationary influence upon the Rate of Profits. There is no escape from the conclusion, that Professor Hayek has been misled by a failure to distinguish the demand for new capital from the demand for money.

They are both a demand for savings of some kind but they are radically different types of demand from the point of view of credit policy.

§4. CONSTANT INCOMES.

Two conclusions of vital importance for the theory of credit policy have now been established. First, it has been shown that the policy of stabilising prices will lead to a cumulative inflation in the presence of contract frictions in the market for the primary factors of production, and secondly it has been proved that if capital accumulation leads to an increase in the demand for money to be held in respect of intermediate products, the policy of maintaining the circulation constant will involve a wastage of savings. These conclusions by themselves create a strong probability in favour of the intermediate policy of constant incomes. Incomes can only be stabilised if the wastage of savings is prevented and if they are stabilised a cumulative inflation will be avoided since prices will follow the trend of the money costs of production.

It would not however be of any service to leave the matter in this simple form. In the first place the conclusion in favour of constant incomes is a general and formal one and it is desirable to examine the implications of the policy under various changing conditions. In the second place it is founded upon particular assumptions and is only justified by those assumptions. In the next chapter we shall consider the implications of constant income policy, and in the meantime it is necessary to examine and remove the basic assumptions upon which the whole of this chapter has been explicitly founded.

These assumptions are, first, that the only available mechanism of credit expansion is that of *producers' credits*, and secondly that the prices of the factors of production are either *stable* or at least slow to move in comparison with the price of invested capital. These assumptions would seem to be largely true of the conditions of the European economy during peace time. They are the fruit of the common prudential canons of competitive banking practice

on the one hand and of the policy of Trade Union organisations on the other. Competitive banks are not in a position to make loans to consumers and the policy of Trade Unions has made wages depend upon the general commercial position of the economy. But these prudential canons and wage policies are neither laws of nature nor principles of ethics and no discussion of the theory of policy can be reasonably completed until the significance of opposite assumptions has been investigated.

Suppose, that is to say, we assume instead the prices of land and labour to be mobile *downwards*—that it is easy to reduce the level of industrial costs. Then the case against the policy of a constant circulation as a practical policy—although not the case against it as a theoretical proposition—would at once disappear. It would be eminently reasonable to stabilise the effective quantity of money and to allow the standard of living to rise as money incomes fell because of the even more rapid decline of prices and the cost of living.

But the important new assumption to make is not the mobility of money incomes downwards—an assumption which would take us forever beyond the range of practical interest—but the assumption of such a mobility *upwards*. Wages and rents can rise with ease but they cannot fall without social frictions of the gravest kind. But let us imagine that the level of these costs can be raised smoothly and that the banks or some other financial authorities are in a position to give new money to consumers—then entirely different possibilities open up.

§5. The Mechanism of Consumers' Credits.

The vital and definitive characteristic of credits issued to producers is that they must be put to some productive use at the time at which they are issued because (*a*) they have to be repaid and (*b*) because there is a contracted Rate of Interest upon them. The exactly opposite type of money is *free money*—money that is issued to persons in their private capacity upon which no rate of interest is charged and which need not be repaid. Such money is only issued in this country during time of war. But for purposes of theoretical inquiry

we must discover what would happen if it were possible to create such funds regularly during normal times in order to pursue some given banking policy—the stabilisation of prices for example.

Free money can be introduced into the system in two chief ways. It can either be given directly to consumers as it is when the employees of the Central Government are paid with new paper money or it can be paid to them through raising the costs to producers of the primary factors. Something like this is being attempted in America.

In examining the theoretical case of a direct free money gift let us assume that new free money is given away to consumers in each current period so as to raise the total money income by the same percentage as physical product is increasing. It is certain that the price level of final output—consumption goods and finished machines—will be stablised in the short period. But it will be stabilised in the face of falling costs. Capital accumulation is, by definition, increasing physical output and reducing the money costs of production. The position in respect of industrial profits will then be precisely the same as that analysed in §2 of this chapter. Price stabilisation will lead to an inflation of profits, the demand curve for money to be used for investment will move quickly to the right, and the conditions for a cumulative inflation set in. If now the increased demand for producers' credits is satisfied by the banks the volume of the effective circulation will rise, the Consumers' Income will move up again, and the ever-increasing sequence of inflation will begin.

But suppose that the induced demand for producers' credits is *not* satisfied? Then surely an entirely different situation emerges. Suppose, that is to say, that the only form of new money which comes into existence passes straight into the hands of consumers and that the banks are prevented from increasing their loans in any way at all. The resulting situation differs in two important respects from the ordinary attempt at price stabilisation by way of producers' credits.

(1) The new money which comes into existence does not

alter its commercial character as it flows through the system. It does not begin as an increase in the capital liabilities of certain producers and then become part of the gross income of certain other individuals. It begins and continues indefinitely in the income category of monetary receipts. Consequently an original issue of this type of new money in one period cannot be followed by unforeseen and disproportionate movements of other types of expenditure in subsequent periods. It will be remembered for example that in the case of the issue of producers' credits it would be possible for a rise of the order of 10 per cent in the volume of liquid assets provided by the banks to induce a rise in the Consumers' outlay of the order of 100 per cent. Reactions in the income structure of such disproportionate and uncontrollable nature become quite impossible if a definite volume of final money income is created in the first instance. The financial authority knows where it is, so to speak.

(2) Also there is no forced saving or dis-saving. The new money is handed directly to consumers who can dispose of it as they please. There is no theoretical reason to believe that if an increase in their real income comes to them in the form of an increase in money wages that consumers will either raise or lower their rate of saving above or below what it would have been. On the whole there is a practical probability that a fall in the Cost of Living tends to increase consumption, and that a rise in money incomes stimulates saving. But in any case, not only will consumers be able to choose what Rate of Saving they please, but the issue of new money will in no way disturb the real structure of consumption good production and new capital production. If the consumers' chosen rate of saving is constant throughout the period of inflation then there will be the same percentage expansion in the demand for capital as in the demand for consumption goods and the prices of new machines will show the same rate of profit to the producers of machines as the prices of consumption goods show to the producers of consumption goods.[1] There is therefore neither an insti-

[1] It will be remembered that Professor Hayek (*Prices and Production*. Lecture III) dismisses the possibility that Consumers' Credits can do any-

tutional change good product; nor a disturbing influence upon capital system. on as these funds flow back through the

Is it pos the issue able to conclude that prices could be stabilised by tinguis of consumers' credits in this way? We must dis- a pro two possible situations before establishing that such bability exists.

cas the *first* place we have to consider the simpler theoretical ti e in which this policy is assumed to have been con- inuously pursued from the time at which physical production increased. This case presents no real difficulty. In each period of time the Consumers' Outlay will rise by the same percentage as physical output and in every stage the appropriate distribution of the previous increase in expenditure will cause the expenditure at that stage to move up by the same percentage as physical output. Money prices will be stabilised and relative prices will be what they would have been in a non-monetary system. Such a condition fulfils Professor Robbins' requirement that "the value of the unit of account is written up in each period by the same percentage as physical output is increasing."

This does not mean that the amount of new money created

thing more than gratuitously increase unemployment, in an analysis where he assumes not only that the profits made in the consumption good industries and the output of new capital move in opposite directions, *but also that Consumers' Credits must necessarily be spent and not saved.* He therefore finds it easy to show that the issue of Consumers' Credits will lead to a crisis in the capital good industries. But in the context in which I am arguing such assumptions would constitute radical errors. I am supposing that the whole consuming public receives a steadily increasing money income over a considerable period of time, and that this steadily increasing income secures to them an equal increase in real income. In these circumstances it would be ridiculous to suppose that the whole addition to these incomes must be spent on consumption goods. Such a view would imply that their saving expressed as a fraction of their total income, steadily declines as their standard of living rises.

It is, however, true that a steady injection of new money at one particular stage in the structure of production will exert a disturbing effect on the relative levels of profit in the stages. Professor Hayek is however wrong to identify this disturbance with a reduction in profits of predominantly capital good producing stages. He appears to forget that the later stages in the production of capital for a new railway the construction of which is financed from the proceeds of a recent loan, is far *nearer* in point of production stages to the owner of final income than is the producer of raw cotton in the Americas, despite the fact that his product is destined for the manufacture of consumption goods. This is one of the most dangerous ambiguities involved in Professor Hayek's simplified triangles.

will be equal to this percentage. The amount of new money which must be created in each period is that sum which is sufficient to cause the Consumers' Outlay to rise by any given percentage and this sum is affected by changes in the commercial structure of production and the average velocity of circulation. In so far as the accumulation of capital leads to the type of commercial disintegration we have already discussed the amount of money which must be created will be more than in proportion to the desired increase in the Consumers' Outlay, while in so far as Transaction Velocity moves it may be either greater or smaller.

But in the *second* place the situation will be wholly different and more complicated if it is assumed that the process has not been continuous and that the issue of free money with a view to stabilising prices is just beginning. In this case a distortion of relative profits is inevitable. Up to the moment at which the policy is initiated the Consumers' Outlay has, let us say, been constant and the price level of final output has been falling by the same percentage as physical output has been increasing. Prices at the first stage of production are stabilised at the moment when the increase in Consumers' Outlay is effected while at that moment in other stages prices are still falling as output increases. This is simply one particular case of the general analysis of continuous inflation offered in Chapter II—the case in which the disturbing injection is occurring at the first stage. Profits are bound to be raised at that stage relatively to all other stages in the structure of production. Three general results follow:—

(1) There is bound to be some re-distribution of the real resources as determined by the relation between the period of Transaction Velocity and the period of factor mobility. The increase in profits will move rapidly through the system but since the injection is continuous there will be some real movements to compensate for it. The re-distribution will however not be between capital good and consumption good construction, but between the raw material and manufacturing stages of both types of production. Such a re-organisation of the structure of production is not a re-

organisation which must be reversed after a period but one that takes place towards a new equilibrium.

(2) The rise in profits in the early stages and the anticipation of increasing profits in the later stages may give rise to an inflationary increase in the Velocity of Circulation. An inflationary increase in producers' credits has been ruled out by the assumption that the Banks are not extending credit—but this does not prevent an upward movement in Transaction Velocity consequent upon the improvement in the profit position. Such movements can however be offset by a reduction in the rate at which the free money is created. No change in expectations or confidence will result from this compensating adjustment since the net result is to maintain the rate of income expansion constant. The Consumers' Outlay has been made to rise as output increased and calculations have been based upon this expectation. If an increase in velocity is providing some of the necessary increase in outlay it does not matter that the actual creation of new money is reduced. Outlay still rises by the required percentage. Of course, if the increase in velocity overwhelms the system and causes outlay to rise more than it should without any new creation of money, a positive deflation must begin.

(3) Finally[1] it is possible that the rise in profits in the manufacturing stages and the anticipation of stable prices with an increasing output may occasion hoarding in the earlier or raw material stages. If the entrepreneurs producing raw materials hoarded money on the anticipation of stable prices in the way envisaged in the last section of Chapter III (see p. 106) they would be utilising part of the current flow of savings for hoarding purposes. Such hoarding should be offset—as in any other case—by the creation of the necessary volume of credit and in so far as the process occurred the creation of consumers' credits would have to be supplemented by the creation of the necessary volume of producers' credits.

With these qualifications and in so far as this analysis is true, it would appear to follow that prices could be stabilised by the appropriate use of Consumers' Credits. The same

[1] I am indebted to Mr. Barrett Whale's criticisms for the reflections contained in this paragraph.

result could also be achieved by the use of the second type of measure mentioned at the beginning of the section. Prices could be stabilised if the volume of credit necessary to stabilise the price level of final output was issued to producers in the form of subsidies to the prices of the factors other than intermediate products—*i.e.*, subsidies in respect of payments to consumers. The subsidies would only need to equal the *increment* of physical production in each period of time since the expenditure of the increasing flow of income would by stabilising prices cause the receipts of the entrepreneurs to rise in each period to equal the physical efficiency of the last period. The continuous increase in total money costs would be equal to the increase in physical output and would be offset by the equal increase in the total price of their product. The advantage which the policy of subsidising the level of money costs possesses over the alternative course of giving new money directly to consumers lies in the fact that no profit inflation is induced by it and that there is no disturbance in the relative levels of profits between stages near to and stages far from the expenditure of final income. The entrepreneur's costs are stabilised—the increase in the physical efficiency of the factors which he uses being just offset by the increase in the money prices which, after each period, he has to pay for them—while the prices he receives for his products are stabilised also. It is therefore impossible for a profit inflation to occur. And there is equally clearly no disturbance of profits between stages because all stages are affected simultaneously by the upward movement of money costs. These costs and prices are everywhere stabilised at once.

These are conclusions of considerable theoretical importance. They re-open the question of price stabilisation. But they depend upon credit policies which are novel and in the highest possible degree unorthodox. What then is to be said about them of practical interest? Two facts emerge clearly at this stage:—

First that the immediate practical importance of these conclusions within the institutions of an individualistic capitalism is very much smaller than their theoretical

validity might suggest. Quite apart from the impact effects upon confidence which the initiation of such a revolutionary credit programme would inevitably involve, there are several most important difficulties which any such scheme would have to face. It would be extremely difficult to know how to distribute the new money to individuals and almost equally difficult to prevent the issue upon a rising market of producers' credits on the part of independent commercial banks if the first plan were chosen, while the supervision of accounts and the issue of a complex series of subventions to individual producers is entirely incompatible with the maintenance of economic independence in the case of the second plan. To take the type of difficulty involved in the first plan—it is almost impossible to conceive the principles according to which the new money could be issued, since the necessary "stabilisation allowances" could not be made in any continuous and determinate way. They must vary with the rate of increase of physical production. It would therefore be impossible to finance one definite scheme such as Family Allowances or Old Age Pensions out of new money created for the purpose, because the volume of additional money created would have to vary from year to year and would continuously pass into the ownership of some private account. Moreover, the complete cessation of the right on the part of the Joint Stock Banks to make loans or advances to their customers in excess of the amount that they then had issued, despite the rapid increase in the demand for them, would meet with insuperable resistance as long as the Banks were left as powerful independent financial corporations. In the case of the second plan the subsidies to primary factors only would involve a supervision of a systematic and continuous type that would be certainly quite incompatible with private enterprise as it is known to-day.

It must however be remembered that there is one method of re-enforcing Consumers' Income which is fully understood, not over-complicated and quite easy to control—and that is the remission of national taxation. It would not be utterly impossible, even within the present institutions of our economy, to unbalance the Budget continuously and make

up the deficit by the issue of varying amounts of unbonded credit to an amount determined by the course of physical productivity. Apart, once more, from the impact effects upon confidence which the initiation of such a policy might occasion, the mechanism itself would be simple and efficient. Concessions in taxation are frequently made, they are readily understood and can be easily controlled. Their monetary effect would be to give just the increase in the Consumers' Income for which we are looking. To this point we shall return in the future.

Secondly, it is important to emphasize that there are no real advantages in price stabilisation in the economic sense of the term *real*. Real Incomes will mount just as rapidly and physical output will increase just as freely with constant money incomes, falling prices and unit costs as it will with increasing money incomes, constant prices and constant unit costs. There is no "standard of living" advantage in this second policy. Yet it would be idle to deny that there are most important psychological and social advantages in the latter course of action. There can be no reasonable doubt that the vast majority of people feel much wealthier if they experience a constant increase in their money incomes in face of a stable Cost of Living than they do with stable incomes and a falling Cost of Living. Almost no one appreciates the considerable rise in real income enjoyed by the community since 1929. Society would be more stable and content, the direct dependence of money rewards upon the activity of social accumulation would give investment and machine construction a prestige and value which they lack to-day and which they very much need, if only prices could be stabilised. Perhaps the practical difficulties of a consistent policy of Consumers' Credits is almost insurmountable within the limits imposed by our present financial and economic institutions. So much the worse for those institutions. If they cannot supply the confidence necessary for wise policies then it is clear that the cost of a successful price stabilisation is a much more profound re-organisation of these forms of control, and the initiation of the fundamental institutions of a Planned Money. With these broader questions we are not for

the moment concerned, but we shall return to this matter again.

§6. AUTONOMOUS MOVEMENTS IN MONEY COSTS.

It will be best to take up a different kind of argument at this point. It is suggested by certain economists—notably by Mr. Harrod[1]—that it is not possible to advocate any monetary policy until we know what is happening to the prices of labour and land and other primary resources. It is only in relation to wage policy and dividend policy that the appropriate credit policy can be described. This is entirely consistent with the line of argument pursued in this book but in the hands of those who have advanced this position it has led to a somewhat unjustified expectation that prices can easily be stabilised.

Suppose, it may be argued, that during a period in which physical efficiency is increasing money wages and money rents and other types of primary factor cost are also advancing. Increasing physical efficiency will then obviously not be accompanied by proportional and opposite movements in money costs. Moreover, since physical output is increasing without a proportional reduction in unit cost the volume of monetary business will be increasing and the public will hoard new balances in proportion to the increase of physical output. That was seen to be true at the end of section 3 of the last Chapter (see p. 106). As Mr. Harrod says:—

> "Consider the case of a rising aggregate income and a stable price level. On the assumption of constant velocity the community will require to add to its monetary holdings at the same rate that income is increasing."

In these circumstances why should it be impossible to stabilise prices, or under other circumstances to allow them to rise steadily or fall less than proportionately to the increase of physical efficiency, by the issue of producers' credits to make up for the volume of autonomous hoarding?

Now if Mr. Harrod and those who think with him really

[1] R. F. Harrod, *Expansion of Credit in an Advancing Community*. *Economica*, 1934.

mean that there is a secular trend in the prices of all the primary factors—wages, rents, debenture interests, and all the rest—which happens to be equal to the rate of growth in physical income, then of course it is possible to stabilise prices. The second alternative outlined in the previous section—that of a general subvention to the costs of the primary factors—will in fact be realised. Unit costs will be stabilised and also prices. *Moreover, this is the one case in which prices could be stabilised safely by the issue of producers' credits.*[1] Mr. Harrod is quite right to argue that in these circumstances the public will hoard a quantity of money equal in proportion to the increase of physical output. Real Income and monetary turnover are rising in the same proportion and apart from any change in velocity, or in the technical conditions of the demand for money, a proportional increase in new balances will be required by the public. If these balances are not provided by the banks they will be hoarded out of current savings and Saving and Investment will be forced out of equilibrium. In these circumstances new credits provided to producers can be used to stabilise prices and the Rate of Interest which equates the supply of savings with the demand for physical capital in each period will stabilise prices.

But the possibility of this condition appearing in the real world is extremely remote. Is it seriously contended that such a complex secular trend is likely to arise? Of course, it might do so, but if it did, for how long could it be maintained? Moreover, and this is the essential point, it is quite impossible to induce such a condition by Rate of Interest policy and the issue of producers' credits. It would only be possible to stabilise prices by the issue of producers' credits if they had already been stabilised by an inflation confined to the incomes of the primary factors. The ordinary course of inflation financed by producers' credits cannot do this in face of relatively stable factor prices (*cf.* §2). Consequently, there are only two problems in connection with these assumptions that are worth raising:—

[1] This was, I think, the essential point made by Mr. Harrod and not properly understood by those who criticised his views.

First, it is vitally important to inquire by what practical policy it is possible to cause final income to rise in proportion to physical output. That was the problem discussed in the last section and the broad solution was that it is only possible by mechanisms of Consumers' Credits or free money.

Secondly, there is the very real analytical problem as to what will happen if there are local or general arbitrary increases in the level of money wages or other primary factor costs. This is the theoretical problem raised by the wage increases legislated in President Roosevelt's "codes of fair competition" or by the all round rise in time rates conceded by the Ministry of Munitions in this country in 1917. These sudden and arbitrary or autonomous increases in the level of factor prices were not derivable from monetary sources. The analysis of the effects of such measures is important and intricate but it has nothing to do with price stabilisation. In ordinary circumstances the prices of primary factors are the effect rather than the cause of monetary changes and in any case, unless the advance in the prices of primary factors which is envisaged by these measures is continuous and proportionate to physical output, they could not possibly become the basis of price stabilisations.

It may be as well to say something about sudden and arbitrary increases in wages or primary costs in general. Their influence is bound to be complex. In the *first* place the advance of wages—let us say—will reduce profits in all stages and in proportion to the wage bill at each stage. Since the Rate of Profits is the basis of the demand for new money, it will in this respect exert a sharp deflationary influence. Investment will fall off and bank advances will be contracted. If this were the only influence the analysis of the phenomenon would be easy and concise. But it is not the whole story because in the *second* place it is probable that such a movement will increase the expenditure on consumption goods—the profits in whose production will consequently rise. This is, independently of all other conditions, an inflationary phenomenon. Perhaps an arithmetical example will make the position clearer. Let us suppose that

there are four stages of production, each of which contributes 75 units to the Consumers' Income made up of a wage bill of 50 units and profits payments of 25 units, so that the total wage bill is 200 and profits are 100 for the whole system. And let us further suppose that the Rate of Saving under these conditions is 60 units per period of time. We then have a simplified circulation of this form:—

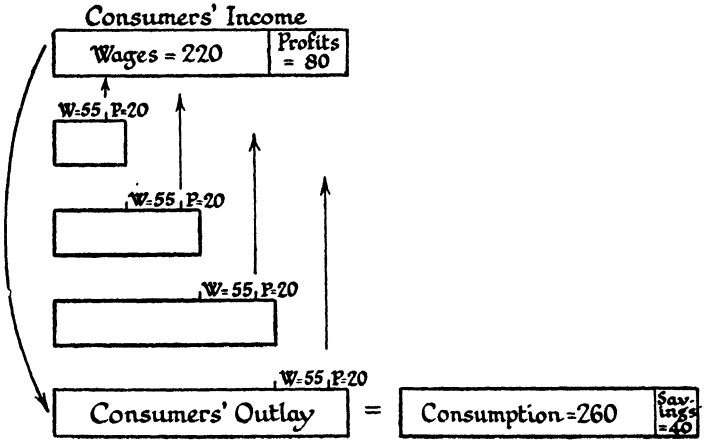


Fig. 26.

By working out the profit position in the last stage of consumption good production from the general distribution between intermediate products, wages and profits, we have this result:—

Cost of Consumption Intermediate Goods	=180
Wage Bill	= 40
Profits	= 20

We will now suppose (*a*) that money wages are everywhere reduced by 10 per cent so that the wage bill in each stage is reduced to 36 and profit payments are down to 20; (*b*) that as a consequence of the redistribution in favour of small incomes the current Rate of Saving is reduced to 40. The form of the circulation then becomes:

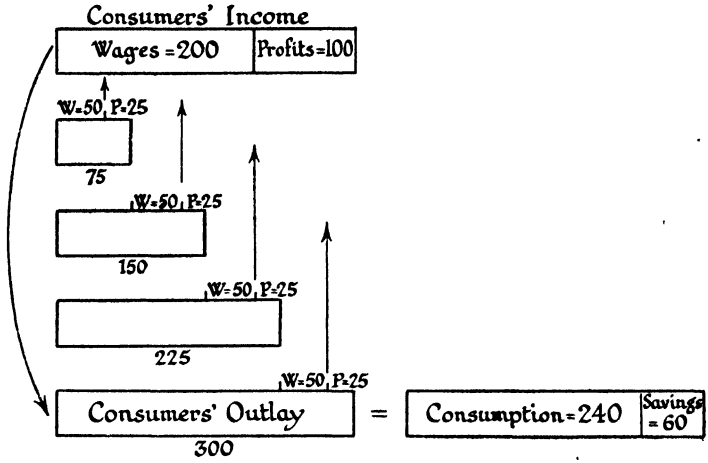


Fig. 27.

Proceeding now upon the same assumption as to the distribution of gross receipts between costs and profits we get the following result:—

Receipts 260 from the sale of Consumption Goods	Cost of Intermediate Products (as before)	= 180
	Wage Costs (up by 10%)	= 44
	Profits =	36

That is, profits are up by 80 per cent!

It is therefore probable that the autonomous movement of wages will cause a general reduction of profits and a disproportionate expansion in the profits of producing consumption goods. It is not easy to tell what will be the result. It is probable that the deflationary influence of the contraction in demand for capital at the earlier stages will more than offset the expansion in the demand for the later stages. But this is not certain. The technical conditions might be such that the anticipation of profits in all stages is so dependent on the profits in the last stage that the sharp rise in profits there might occasion an upward movement in the demand for money for capital construction as a whole. In that case the

net result would be an inflation if the banks met the rising demand with producers' credits.

The final result is doubtful and dependent upon a complex set of conditions, but it is possible to arrive at the following conclusions:—

(1) The general advance of money wages beyond the value of the marginal product of labour will initiate a process of labour saving invention and capital installation that will lead to unemployment.

(2) In so far as this can be offset by an inflation which raises money profits relatively to money wages the correct relations between wages and profits will be restored and the appearance of unemployment will be prevented.

(3) That it is very difficult to see how an inflation can be secured by manipulating the Rate of Interest and hoping to expand loans to producers. It is not of any great value to lower the Rate of Interest to producers who are making low profits or absolute losses. Something like this appears to be the difficulty in President Roosevelt's programme as I write (1934).

§7. Conclusion.

It is now possible to summarise the main conclusions of this part of the book. If the analysis has been correct the conclusions which bear upon policy are simple but of considerable importance.

1. The analysis can be said to establish the fact that if the only usable instrument of policy is an expansion or contraction in the volume of Producers' Credit and at the same time that wages and other primary factor prices are slow to move relatively to prices the only practicable policy is that of stabilising money incomes. These are, moreover, the conditions which are characteristic of an unplanned banking and industrial system. It is therefore to this policy—its further implications and execution—that we must look for the hope of stable prosperity if no general change in the institutions of society are in sight. As such it will be considered in further detail in the second part of this work.

2. But it can equally well be established from what has

been said that if the further mechanism of Consumers' Credits or free money can be used with care and consistency a stabilisation of prices might be successfully carried through. The cost of such a policy is, at the very least, a centralised and planned monetary system. The last chapter of the book will deal with the importance and practicability of this type of proposal which is very different in that it affects the institutions and not merely the use of the powers of financial control.

PART II

POLICY

CHAPTER V

CONSTANT MONEY INCOMES UNDER DYNAMIC CONDITIONS

§1. The analysis of the previous part of this book leads to the general and negative conclusion that, in face of relatively constant prices for the primary means of production, it would be impossible to stabilise prices and undesirable to stabilise the effective quantity of money. There remains the intermediate possibility of stabilising or attempting to stabilise the level of money incomes in the absence of a controllable mechanism of consumers' advances. But we are only left with this policy in the sense that two alternatives to it have been examined and rejected. It is impossible to accept constant incomes as the correct object of banking policy until the implications of such a procedure have been examined in greater detail and some conclusion as to the practical means by which the policy could be executed has been reached. These two matters are the subject of the Second Part of the book.

In a completely static economy the further consideration of stable money incomes would be useless. If no new capital were coming into existence, if the working population were stable, if the volume of property rights remained unchanged and if the public's preferences between the ownership of various types of wealth were all constant, then money incomes could not alter: but neither would prices, nor the Circulation, nor even the Rate of Interest. There is therefore nothing further to be gained by the examination of the static position. All further illumination will come from an analysis of the types of dynamic change—the different departures from static conditions—which can influence the level of prices, costs and incomes. We must review the important types of change which the monetary system can undergo and trace out the significance of maintaining or attempting

to maintain constant money incomes in the various circumstances thus created.

It is difficult to see how there can be any systematic classification of the possibilities of dynamic change. The static economy is defined by a set of arbitrary stabilities and the approach to the full dynamic position consists in allowing each one of the constant quantities to vary. It is proposed therefore merely to select those types of dynamic change which appear to be either most likely to occur in the real world or to throw most light on the implications of the policy which the book defends. It is not possible nor profitable to investigate every possible variation.

§2. THE SIMPLER CHANGES AND ADJUSTMENTS.

It is possible in the first place to dispose of a number of dynamic processes the theoretical nature of which it is easy to understand and where the application of Constant Income policy is scarcely controversial. The simplest type of change to which the monetary system is called upon to adjust itself is an alteration in the preference for the ownership of cash or credit balances relatively to other forms of property right—a change involving "hoarding" or "dishoarding" in the old sense; what Mr. Keynes would now describe as a change in the "liquidity preference" of the community.

1. *Simple Hoarding.*

If there is an increase in the volume of cash and credit balances held by individuals in respect of their private *income* transactions and these additional stores of money are accumulated out of their own money earnings, there is bound to be a decline in the Transaction Velocity of Circulation. In the absence of credit creation the expenditure on Final Output will be diminished by the whole of the hoarded money and the funds out of which the money income of consumers must be paid will be reduced. After a period of time, the length of which is determined by the average period of circulation, the money changing hands against all types of commodity in the Industrial Circulation will be reduced and the Consumers' Income will fall unless the

hoarding of one group of persons is offset by the dishoarding of another group. The price of output will fall below its cost of production. The successful execution of a stable Income Policy will therefore prevent, or rather offset, any tendency to hoard that the public exhibits. The Banks will have succeeded in offsetting any increase in the "liquidity preference" involving a decline in the Transaction Velocity. *How* this can be done a future Chapter[1] will try to show. Theoretically it makes no difference whether the hoarded form of money is credit or cash. In practice cash hoarding or a "cash drain" is a more disastrous phenomenon.

2. *Accumulation of Deposits by new Commercial Stages.*

As we saw in the last Chapter, the hoarding of money on income account—involving a fall in Transaction Velocity—is not the only way in which additional money comes to be required by the Industrial Circulation. If saving continues over a long period without occasioning losses to the producers of final output, a change in the demand for money may arise from the growing number of commercial and time stages through which intermediate products must pass. An increase in the balances held by entrepreneurs in respect of the growing volume of transactions in intermediate goods will not however occasion any decline in Transaction Velocity if the new balances are borrowed instead of saved from current income since the act of borrowing causes the balances to move against securities new or old—in the period in which the balances are built up. Transaction velocity is therefore maintained although Investment is less than Saving. But the process will nevertheless involve a decline in Income Velocity because a larger *proportion* of any constant total of money balances will thenceforward be held by producers and the representative unit of money must pass through a greater number of producers' hands before it comes once more into the possession of a final consumer. All this was seen in Chapter III. If this process is allowed to occur the total price of output is bound to fall although the total cost of employing the primary factors of production at their existing contract prices remains the same. It is precisely

[1] See Chapter VII.

this type of situation which the maintenance of money incomes is designed to prevent and the provision of the new balances which stabilises the Consumers' Income, will prevent net losses appearing in the Industrial Circulation.

3. *An Autonomous Change in the Needs of the Financial Circulation.*

A kind of change very similar to the last is that in which there is a direct increase in the demand for money to hold; but the change is not situated in the Industrial Circulation or associated with the accumulation of capital. The Industrial Circulation consists in the total quantity of money exchanging against the fruits of productive activity in all stages while the Financial Circulation consists in the exchange of money against *property claims* of all types, and just as it is conceivable that there should be an increase in the number of stages making up the representative process of physical production, so it is possible to imagine an increase in the number of stages through which property exchange must, on the average, pass. Suppose, for example, that a new class of intermediary brokers springs up or that speculators begin to speculate with larger sums of money, or that property owners change their share holdings more frequently —any or all of these movements will lead to an increased demand for deposits in the Financial Circulation. Money will tend to flow from the Industrial Circulation to the Financial Circulation by a redistribution of the assets of the Banking System between accounts arising in connection with these two fundamentally different types of monetary business. Since there is a net increase in the balances held from the intermediate stages of exchange in the two Circulations taken together, a deflationary pressure will be brought to bear on the Industrial Circulation and a subsequent reduction in the volume of Consumers' Income provided by that Circulation will occur without a sufficient compensating rise in the final income earned within the Financial Circulation. A movement of this kind, just as much as an increase in demand in the Industrial Circulation, could be offset by a Banking System which pursued an income stabilisation

policy and the dangerous deflationary pressure on the Industrial Circulation would be avoided.

4. *An Increase of Saving without the Sale of Securities.*

Suppose that after a period of time in which there has been a constant Rate of Saving and a constant absorption of capital into the structure of production and in which the consequent growth in the demand for deposits has been met by the Banks, there is now imposed an increase in the Rate of Saving. As I have argued elsewhere,[1] and as Mr. Keynes has always insisted, an increase in the Rate of Saving, requiring as it does a transfer of real resources to the capital good industries before full equilibrium can be restored, must first occasion losses in the body of consumption good industries. In the simple case the producers of consumption goods do not further complicate the situation by selling securities to maintain their dividends. Since the demand for new capital is directly controlled by the profits made in the production of consumption goods, it may still be possible that the situation will become sharply deflationary. There is a contraction in the demand for the factors of production in the consumption good industries and a sympathetic contraction in the capital good industries also.

On the assumptions we are now making it is important, however, to emphasize that the price level of securities is rising relatively to what it would have been had saving not increased, since the demand for securities has risen with the Rate of Saving without any increase in the volume of securities offered. The Rate of Interest will therefore be lower than it would have been. But there is nothing which guarantees the automatic re-establishment of equilibrium in such a position. It is quite conceivable and indeed highly probable—as Mr. Keynes has pointed out—that the rise in the price of securities, in the absence of increased willingness on the part of the producers in the Industrial Circulation to invest, will induce a secondary wave of hoarding in the Financial Circulation. The price level of securities has risen and the cost of any fixed amount of dividend income is thereby raised while the advantages of liquidity—the

[1] *Purchasing Power and Trade Depression*, Chapter III, *passim*.

possession of instantly exchangeable money—has not diminished. It is thus highly probable that the rise in security prices will cause an increased demand for deposits, while the net effect of the increase in the Rate of Saving will be to induce an outbreak of simple hoarding. Such a movement will be reinforced by the shock to confidence which the sudden loss of profitability in the market for consumption goods must always entail.

The only remedy for such a disequilibrium—which will rapidly affect the level of the Consumers' Income—plainly lies in the creation of net profits in the capital good industries. The Rate of voluntary Saving is permanently higher and the only hope for long period equilibrium lies in the expansion of the capital good industries by the transfer of real resources to them. It is true that since losses are being made in the consumption good industries without equal losses necessarily appearing in the capital good industries, a motive for the transfer of resources already exists. Either the prices of the primary factors are already lower in the consumption good industries than in their alternative capital employment or less of them are employed. But in reality there is a world of difference between unemployed resources pressing their way into industries where the money demand for the product is not expanding by forcing down the level of wages and rents in those industries against the organised opposition of the workers in them, and their being attracted into such employment by an absolute increase in the available employment. Especially is this true when the organised resistance to a reduction in money rates is strong. The rapidity of adjustment to the new situation will change if the absolute contraction and losses experienced in the market for one type of industrial product is offset by an absolute expansion in the market for, and an absolute rise in factor prices offered by, another type of production. The policy which will equate Saving and Investment, as here defined, and the consequent maintenance of a steady Consumers' Income will enormously facilitate the transfer of real resources. How Investment is to be stimulated and net profits created in the capital good industries will be discussed in future chapters.

These four processes are comparatively simple. It is easy to see how the changes which occur will affect the level of the Consumers' Income and why the maintenance of a Constant Income will avoid industrial disequilibrium. It remains to discuss those changes in which neither the effects nor the cure of the disequilibria are quite so easy to understand.

§3. The Difficult Cases.

Good examples of the more difficult type of change arise when a variation in the quantity of *primary* factors is considered or a change in the distribution of Final Income between income groups. Up to this moment it has been implicitly assumed that the quantities of land and labour are fixed and only the quantity of capital is free to change and it was also assumed (except for a short time in §6 of the last Chapter) that the share of the product attributable to the various classes of productive factor is constant. These two assumptions must now be removed. In each case we shall examine changes in the quantity and share of *labour* —but the application of the analysis to land as a natural resource would yield substantially the same results.

1. *Variations in Population.*

Changes in population have always played a considerable part in the analysis of the demand for money but in recent years economists have become aware that the traditional analysis is not sufficiently complex, and further consideration of the problems which are raised by this particular variation has reduced some economists to despair.[1] The difficulty lies however more in the intricacy than in the obscurity of the processes which are involved, and it is not utterly impossible to find a solution.

An *increase* in population sets in motion two important and opposite tendencies that it is essential to disentangle from each other. In the *first* and more obvious case the increase in the number of persons ultimately possessing incomes and competing for monetary balances will involve a deflationary increase in the demand for money. The attempt on the part

[1] See Mr. Meade's *Rate of Interest in a Progressive State*, pp. 23-24.

of new individuals to build up income balances and monetary reserves will have precisely the same influence as the attempt of new firms and new commercial stages to do the same thing. The effective quantity of money will be reduced if the balances are built up out of income, while the volume of property exchange will be raised if they are borrowed. In either case industrial equilibrium will be endangered.

But in the second place, and less obviously, the growth of population will exert an opposite influence upon the monetary position through its influence on the capitalistic nature of the structure of production. An increase of population by itself, other things remaining equal, will *reduce* the capital per head and therefore reduce the number of commercial

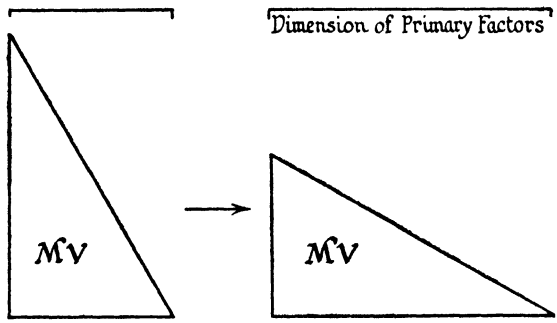


Fig. 28.

and time stages through which output has to pass. But by doing this the growth of the population *increases* the proportion which the Consumers' Income bears to any Circulation. If the Circulation is constant the increase in the population will in this respect tend to increase the Consumers' Income. That is to say an increasing population exactly reverses the process of increasing capital per head, and since the latter development caused an accumulation of balances in the lengthening structure of exchange, the reversal of this tendency will occasion a reduction of the length of the exchange process and a release of balances from the handling of intermediate products.

In diagrammatic form (Fig. 28) this appears as a diminution

of the height of the triangle and with a constant MV (*i.e.*, with the accumulation of individual balances offset by credit creation on the part of the banks) a proportionate lengthening of the base or an increase in the dimension of the primary factors. This inflationary effect is sometimes neglected in the study of population changes—no doubt because an absolute reduction of capital per head through the growth of population is not a common process in modern times. It nevertheless appears to be a real phenomenon which throws light upon the analysis of variations in the quantities of the primary factors.

It is obvious that the net effect of a change in population considered by itself will depend on the balance between these two forces, but an arithmetical truism of this type tells us nothing about the monetary policy which will enable the whole new labour force to be accepted into employment without disturbing the relation between prices and costs. Moreover, it neglects the other essential component of the dynamic situation—the current rate of capital accumulation. In any probable real situation the volume of capital will not be stationary and we must therefore take account of the relation between the rate of increase of the population and the rate of increase in the social stock of capital. All possible combinations of these two rates can be resolved into three cases: *capital per head* will be rising, or it will be constant, or it will be falling. The simplest case arises when the two rates are equal and capital per head is constant.

(*i*) Let us then suppose that the rate of growth of the population and the rate of growth in the value of capital are such as to leave the *capital per head constant.* The possibility of an inflationary release of balances through the shortening in the structure of intermediate product exchange is now excluded and there remain the deflationary accumulations of balances by the new workers on the one hand and the changing relation between prices and costs on the other.[1] The effect of the first influence is simple hoarding which must plainly be counteracted by the banks. The building up of

[1] The new workers will compete for the existing balances and so reduce the proportion which is held by the old workers in employment. There will then be two solutions: a general reduction of wage rates or unemployment. In the text a constancy of wage rates is assumed.

deposits by a new set of individuals will reduce the money value of the Consumers' Income and will force the price of total output below the existing level of total costs. While such a development would be quite contrary to the requirements of full and uninterrupted employment any tendency for the *total* income to fall must be offset by the creation of the new balances required on income account by the new income earners. If this is done and nothing more, the total Consumers' Income will be stabilised. But is this enough at a time when population is increasing? If it is, then the general formula for monetary equilibrium when it is extended to include the case of a rising population will be constant total income but a *falling income per head.*

There is, however, another important aspect of the growth of population. Capital per head is constant, it is true, and there will therefore be no increase in physical output per head by the utilisation of more effective because more capitalistic methods of production. There will be no net increase in industrial efficiency. But there will be *an* increase in industrial output. There will be more machines and more workers and consequently a larger volume of product will be manufactured. If then the total Consumers' Income is stabilised there is bound to be a reduction in the level of unit prices. A larger physical output will encounter the same volume of monetary expenditure and prices will fall. *Yet there has been no corresponding decline in unit costs.* Just because there has been no increase in capital per head and no consequent growth of efficiency there will be no reduction in factorial costs per unit of product, unless the money prices of the primary factors are forced down. Can there be any doubt that such a development would be disastrously deflationary and that what is required to preserve equilibrium in face of constant costs is a maintenance of stable prices. For they can be secured by raising the circulation so as to stabilise *Consumers' Income per head* so rendering output per head, income per head, and unit prices all constant. This will be possible just because output is increasing without any reduction in unit costs. The conditions analysed in Chapter 4, Section 6 will be realised and prices can be stabilised by the

emission of producers' credits. The increase in output at constant cost will induce the appropriate volume of hoarding, and the Rate of Interest which equates the supply of money savings with the amount of money spent on new physical capital will cause the Consumers' Income to rise. It is therefore *income per head* that should be stabilised and not total income.

The essential condition examined in the foregoing argument can be expressed quite easily in the usual diagram. The structure of production is growing in size but the constancy of capital per head preserves the same proportions between Consumers' Income and the value of intermediate products so that the *shape* of the triangle remains the same, although it grows in size. At the same time the length of the long period of production does not change. This can either be represented by larger triangular areas representing the growth of the value of intermediate products with a continuously increasing dimension or vertical scale for time—or by the same triangle with a continuously expanding horizontal scale for the value of primary factors. The first method is shown in Fig. 29.

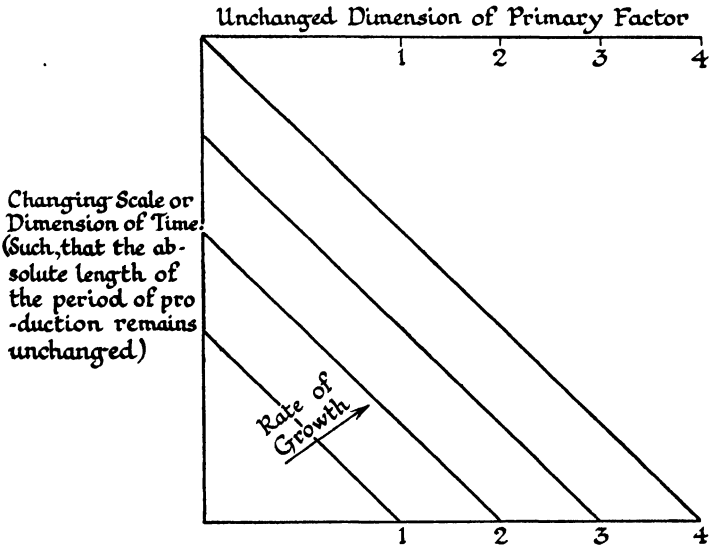


Fig. 29.

(*ii*) If the argument of the previous sub-section is correct it is not very difficult to decide the appropriate policy to pursue at a time when the rate of growth of the population is outstripping the Rate of Capital accumulation and *capital per head is consequently falling*. There the position is the exact reverse of that in which capital is accumulating—efficiency is decreasing and output per head is falling. The result of the decline in capital per head will be two-fold:—

(*a*) Balances will be released as the number of intermediate stages is reduced.

(*b*) *Unit costs will rise* as efficiency and output per head fall off.

If the total Consumers' Income is stabilised this may not be sufficient to secure equilibrium since output will necessarily be produced at a higher unit cost. In any case the level of costs other than capital is bound to move in simple and inverse relation to output per head and since an equality between prices and costs was secured when output per head was constant and also when it was rising by a constant Consumers' Income per head, presumably this relation will also remain when output per head is falling. This would obviously be the case if the decline in output per head were due to a direct loss of capital because that would be the correct antithesis to the condition in which capital per head is rising. The only difference made by the fact that the fall in productive efficiency is due to an increase in the population and not to a loss of capital, will be a tendency on the part of the new income earners to accumulate balances. In both cases a release of balances will result from the simplification in the structure of exchange. The ensuing reduction in the demand for deposits will raise incomes if the change is due to the loss of the capital and that might be sufficient to stabilise incomes in the case of a rising population. But in either case the credit policy that will secure a continuous equality between prices and costs is a policy which will supplement the Circulation if income per head is tending to fall and will reduce it if it is tending to rise. A Constant Income per head will, in all circumstances of changing physical proportions between population and capital,

preserve the essential condition that prices will move in simple and inverse proportion to output per head and therefore remain equal to unit costs.

(*iii*) Finally, if the rate of accumulation is greater than the rate of growth of population and *capital per head is rising*, despite the increase in population, new credit will have to be created in order to offset the accumulation both of the new industry and the new stages of production which are coming into existence before income per head will again be stabilised.

2. *Changes in the Distribution of Final Income between Property and Labour.*[1]

There are certain types of change in the underlying real determinants of economic life that may lead to an alteration in the share of final income which can be claimed by any group of economic resources. The relative prices of capital and labour, of capital and natural resources, or of labour and natural resources, may move in such a way that, taken in conjunction with the quantities of these resources in employment their separate shares may rise or fall. Since in modern society both natural resources and capital are subject to private ownership the important distinction lies between the share attributable to labour on the one hand and to property rights in capital and natural resources on the other. The possibility of quantitatively important changes in the fraction of final income attributable to labour through the distributive mechanism of competition constitutes one of the major problems which those who propose a policy of Constant Incomes must face.

Let us suppose in the first instance that the sort of situation Dr. Hicks[2] suggests actually arises—the course of technical invention and accumulation taken together result in the marginal productivity of capital rising at a greater rate than the marginal productivity of labour so that a reduction takes place in the share of Final Income attributable

[1] The subject of this Section has been analysed at some length by Mr. Harrod in Part I of his article, "The Expansion of Credit in Progressive Society," *Economica*, 1934.

[2] Hicks, *Theory of Wages*, Chapters VI and X read in conjunction.

to labour. In these circumstances the marginal product of labour may be rising absolutely and the standard of living of the workers may be increasing, but nevertheless their relative share may be declining. Under a regime of stable prices the situation would be perfectly tolerable, but under a regime of stable total income (in the absence of population movements) the position would be more serious. With stable prices the absolute rise in social productivity would be accompanied by constant monetary expansion and the absolute rise in the level of real wages would be brought about by a rise in the money rates of remuneration. The only outcome of the underlying change in relative shares would be a disproportionate increase in the money incomes received by the owners of property. Developments of this type might cause temporary friction but they would be nothing in comparison with the strains which would appear in the distributional system if a policy of constant incomes was in operation. For then the fall in the *fraction* of Final Income attributable to labour would necessarily involve an equal reduction in the absolute sum of money paid over to labour as a class. The total income, of which labour receives a diminished fraction, would itself be constant. In the absence of any offsetting decline in population, money earnings per head and all money time rates would either be reduced by the same percentage as the relative share has fallen or come to exceed the value of the marginal product of labour. There would be a downward secular trend in money wages.

Now this would be a very serious situation. The workers inevitably look and will continue to look to their money wages and not to real wages in assessing their economic position. Despite the fact that the Cost of Living may be falling more rapidly than money wage rates the workers will only be conscious—or their spokesmen will only allow them to be conscious—of the attack upon the money rates specified in Trade Union agreements. There has been ample evidence in the course of the recent depression to show that the attention of the working population is fixed upon the money price of labour and that big movements can occur in the cost of living without causing an appreciable change in the deter-

mination of Trade Union officials to organise a firm resistance to the reduction of money rates. Such a policy on the part of the Trade Unions when accompanied by a persistent stabilisation of total money incomes must lead to that most serious and disastrous thing—a secular upward trend in unemployment. The installation of labour-saving devices would proceed with remorseless continuity and the stabilisation of incomes would bind the system with constricting severity.

There can be no question that this is much the most serious difficulty which the advocates of a Constant Income policy must face. To the dilemma thus created there appears to be no real solution within the mechanisms of competitive banking practice. The attempt to stabilise prices by the issue of producers' credits is certain in the circumstances we have assumed, to cause a rapid profit inflation and an unstable general inflation. There is no general upward tendency in money costs. The Trade Unions are determined to *stabilise* money rates and as there is a less than proportionate increase in the demand for labour the level of money wages will not rise. A price stabilisation will therefore bring prices above costs just as rapidly in this case as it would do if no Trade Unions existed and the "stickiness of wages" was wholly attributable to temporal contracts between competitive employers and employees. On the other hand, the control of the relative shares of labour and capital or the successful achievement of price stabilisation by means of an issue of Consumers' Credits is wholly beyond the powers of a competitive Banking System and a competitive capitalism—not because these institutions are necessarily chaotic in their operation but simply because in an economy based upon atomistic production and *laisser-faire* there can be no controlling authority whose business it is to finance and offset the results of a breakdown in any essential part of the machinery of competitive organisation. That machinery must be working efficiently in every one of its parts for the economy to be able to adjust itself to new conditions of relative productivity.

3. *The Deflationary Sale of Securities.*[1]

We must finally return to a purely monetary source of disturbance. Suppose that any change in the Industrial Circulation results in the net sale of securities held there as one form of financial reserve. This process has already been examined as an instance of a divergence between Saving and Investment and it is now necessary to re-consider it in the light of its relation to the maintenance of Constant Incomes and to an equilibrium between price and costs. The relation is necessarily complex because it offers the only example in all those that have been cited in which there is a distinction between the maintenance of constant money incomes and a maintenance of equality between prices and costs. This paradoxical relation can be made plain.

(*i*) If we imagine that the sale of securities is induced by a rise in the Rate of Saving and the consequent losses to the producers of consumption goods, it is not difficult to see that Consumers' Income will not be reduced if the producers sell securities. If the value of the securities sold is just equal to the losses which are currently made there will be no decline in the money incomes paid out by the consumption good industries as a whole. The sale of securities has been made in order to hold up the dividend payments which would otherwise have fallen as a result of the losses incurred. Nor, in the first instance, is there any reason to anticipate a fall in the income derived from the production of new capital. It is true that such a reduction is likely to be a secondary consequence of the fall in profits earned in the last stages of production, but leaving this complication on one side—a complication which will only make the existing position even more severely deflationary—the income derived from these industries will be maintained for a time. Therefore the two sources of the Consumers' Income will be sustained and the Consumers' Income as a whole will not fall. As we have seen this aspect of the matter led Professor Hayek astray.

(*ii*) But in this case at least, the constancy of the Con-

[1] The subject of this section is considered by Mr. Robertson in his article "Saving and Hoarding," in the *Economic Journal*, 1933. The last Section of this Chapter and §3 of the Appendix is concerned with the general thesis of that article.

sumers' Income is no guarantee of industrial equilibrium. In fact its maintenance is undoubtedly accompanied by net losses in industry, for consumption good industries are making losses and entrenching upon their financial reserves while capital good industries, so far from making a net profit are either already making losses or are about to make losses.[1]

What then can be done in order to relieve the deflationary pressure which is resulting in bankruptcy and industrial contraction? It is certain that the achievement of equilibrium will be greatly facilitated if Investment rises at the moment when Saving increases so that the resulting net profits in the capital good industries will keep *net profits for the system as a whole equal to zero.* In order that the last condition should be fulfilled the losses which are plainly being made in the consumption good industries should be offset by equal profits in the capital good industries. This can only be achieved by an increased monetary expenditure upon the output of new machines at the moment when Saving increases in volume.

At first sight this analysis would appear to indicate that a simple increase of Investment by the issue of new producers' credits to borrowers would bring Investment to an equality with Saving. Mr. Keynes probably regards this as a sufficient answer. But, in point of fact, a dilemma remains, for if new money is created at a time when securities are being sold it is being created at a time when the Consumers' Income is already constant and then, as the money passes back through the commercial stages, the Consumers' Income will *be forced up.* And what is more important it will be forced above aggregate costs. Nor is this all. As the new money will be spent or may be spent at least in part, upon the current output of consumption goods the losses which were being realised by that associated group of producers will be reduced by an equal sum and the volume of security sales will decline by an equal amount. The reduction in the sale of securities will then release funds from the Financial Circulation and these released funds, flowing back to the Industrial Circulation, will occasion a secondary rise in the Rate of

[1] When the reduced Hoarding begins.

Profits. The original increase in credit will therefore perpetuate itself and in so far as it leads to an increased monetary demand for consumption goods it will double itself. The cure of a deflation will produce a disproportionally large inflation.

Mr. Robertson has examined this situation[1] and he comes to the conclusion that, in the light of this particularly perverse behaviour of the monetary quantities, there is nothing to be done except to destroy in the second stage part or all of the money created in the first. This conclusion appears inescapable. The net profits deliberately created in the capital good industries must be made to die away as the real resources move out of the consumption goods industries and the system settles down to a new equilibrium with equal efficiency rewards to the factors in both types of employment. The real position is surely this:—

1. In the *first* period of time—the moment at which the sale of securities begins—direct Investment should be raised by a sum equal to the value of the securities sold by producers. The upward movement of Investment during this period of monetary exchange will not involve any increase in the Consumers' Income if Mr. Robertson's reasonable assumption is made that the process of monetary circulation through time must be divided into a number of unit transaction periods in which money cannot pass through two complete transactions.[2] The position of money throughout the series of changes can be represented in an arithmetical example. Let us suppose that before the increase of saving takes place, or the sale of securities begins, the turnover of the final stage in the consumption good industries is 100, the turnover of the final stage in the capital good industries is 50, and the sale price of securities in the Financial Circulation is 25.

(*a*) Thus we have:—

[1] *Economic Journal*, 1933. D. H. Robertson, "Saving and Hoarding."
[2] See Appendix, §3.

Consumption Good Industries.		*Capital Good Industries*		
Sale Price of Consumption Goods ..	100	Sale Price of New Capital	50	Security Turnover 25
Producers' Payments (from previous Sales)	100	Producers' Payments (from previous Sales)	50	
Consumers' Income (=Producers' Payments)	100	Consumers' Income	50	

Total Consumers' Income: 150

(*b*) When the Rate of Saving rises and the Sale of Securities begins without any stimulus to Investment—the Consumers Income will be maintained as long as the Security sales continue:—

Consumption Good Industries.		*Capital Good Industries.*		
Sale Price of Consumption goods ..	90	Sale Price of New Capital	50	Security Turnover $=\frac{35}{(25+10)}$
Sale of securities .. (Losses=10)	10			
Producers' Payments (from previous sales)	100	Producers' Payments	50	
Consumers' Income (=Producers' Payments)	100	Consumers' Income	50	

Total Consumers' Income=150

The producers of consumption goods thus maintain their gross receipts and are consequently able to keep up the level of incomes by selling their stock of securities. But they are nevertheless making losses and becoming bankrupt although the producers of capital are not making profits.

(*c*) If however during this period Investment is raised by a sum equal to the price of the securities—the Consumers' Income will not be increased but the producers of capital will make profits:—

Consumption Good Industries.		*Capital Good Industries.*		
Sale Price of Consumption goods ..	90	Sale Price of Capital *including injection* 50+10		Security Turnover
Sale of securities .. (*Losses*=10)	10			
Producers' Payments (from previous sales)	100	Producers' Payments (*Profits*=10)	50	25+10
Consumers' Income (=Producers' Payments)	100	Consumers' Income	50	

Total Consumers' Income=150

That is, net profits are equal to zero and the Consumers' Income is maintained.

2. But in the *second* period of time the temporary equilibrium will be destroyed because the new money will now accrue to the consumers employed in the capital good industries—and the Consumers' Income will rise. Yet the price of consumption goods will still stand at 90, producers will still make losses and the losses must be offset by further injection if Net Profits are to be zero:—

Consumption Good Industries.		*Capital Good Industries.*		
Sale Price of Consumption Goods ..	90	Sale Price of New Capital	50+10	Security Turnover
Sale of Securities .. (*Losses*=10)	10	(*Profits*=10)		
Producers' Payments (from previous sales)	100	Producers' Payments (from previous sales)	50+10	
Consumers' Income (=Producers' Payments)	100	Consumers' Income	50+10	=25+10

Total Consumers' Income=160

Despite the fact that Net Profits are zero the Consumers' Income is rising.

3. Nor is it sufficient merely to cease the creation of credit

at this point. The increased income will now be spent at least in part upon consumption goods and to the extent that it is, the losses of the producers of consumption goods will be cut down and the sale of securities will cease. There will then be a backward flow of money from the Financial Circulation. Let us suppose that half the increment is spent on Consumption Goods:—

Consumption Good Industries		*Capital Good Industries*		
Sale Price of Consumption Goods ..	95	Sale Price of Capital Goods ..	50+10	Security Turnover
Sale of Securities ..	5			
(*Losses*=5)		(*Profits*=10)		
Producers' Payments	100	Producers' Payments	50+10	=
Consumers' Income	100	Consumers' Income	50+10	25+5

Total Consumers' Income=160

So that the Consumers' Income is up from 150 to 160 and there are Net Profits of 5 units in the two groups of industries taken together. There is no alternative therefore but to check the incipient inflation by withdrawing at this later stage part of the credit created in the earlier. In the meantime it is to be presumed that the existence of Profits in the capital good industries will have stimulated the movement of real resources into those industries and the losses in the consumption good industries will be reduced, as they should be reduced, by the withdrawal of factors and a contraction in their size. No one would wish to pretend that this is a simple or satisfactory proposal but something of the sort is the only possible policy in face of so intricate a disequilibrium.

This ends the analysis of the implications of a Constant Income policy. It should be apparent that despite the real difficulties arising from the possibility of alterations in the determining quantities of the distributional system the successful maintenance of Constant Income will enable the Banking system to surmount most of the dangers of monetary disequilibrium and that it will be possible to

maintain full employment indefinitely at constant money prices and with rising real incomes. It is therefore the correct general criterion of policy for a banking community restricted to the granting of advances to producers. It is however of interest to notice that at least in the last instance of disequilibrium the Banking system is called upon to take steps which necessarily involve a temporary increase in the Consumers' Income and that the emphasis really lies, at this point, not so much with the maintenance of a constant level of incomes as with the maintenance of *net profits* at zero. A change in emphasis of this kind raises the question of alternative methods of resolving the problem of credit equilibrium and of the common ground, if such exists, between an analysis based upon the examination of *money incomes* and those based upon other conceptions. Before going on to discuss the practical execution as distinct from the theoretical implications, of the Constant Income policy it may be as well to consider other answers to the fundamental problem with which we are dealing.

4. *Alternative Formulations of the Conditions of Monetary Equilibrium.*

There are at least two other systematic analyses which it is of interest to compare with this account of the problem of credit policy. The first is the traditional analysis in terms of the supply of and the demand for money to hold—associated with the earlier Cambridge work in this field and with the views of Professor Cannan. The second is the more recent and very penetrating attempt of Mr. Robertson to universalise the conception of *Hoarding* so as to embrace all the possible causes of monetary change.

1. It is obviously possible to describe most of the monetary disturbances discussed in this Chapter as due to increases in the *demand for money* and they have often, in the course of this book, been so described. All the simple sources of disturbance are of this kind. The hoarding of cash or of credit in the primary sense is nothing more than increased demand respectively for cash balances to hold and for credit balances to hold. The accumulation of deposits in new commercial

stages can again be described as an increase of demand for deposits in commercial employment. Any autonomous change in the monetary needs of the Financial Circulation is nothing but an increase in the demand for deposits on the part of brokers and financial middlemen. As we have already seen an increase in the Rate of Saving only exerts a deflationary pressure if it induces a subsequent increase in "liquidity preference"—which is nothing other than a general increase in the demand for balances to hold. The complex changes associated with a movement in the size of the population can all be regarded as occasioning changes in the need for balances on income account. And finally even the sale of securities is equally reducible—as Mr. Robertson has pointed out—to an increase in the needs of the Financial Circulation. The securities brought out of hoards represent a series of additional transactions not associated with any movement of average costs and consequently requiring an additional quantity of money to finance them. It is therefore possible to reduce all these complex phenomena to the single conception of "variations in the demand for money to hold." It is not possible to subsume the difficulties arising from distributional changes under this head but that is because they are scarcely monetary difficulties, arising as they do from a breakdown in the mobility of relative prices.

Does it not follow from this brief review that the necessary condition of monetary equilibrium can be most simply expressed by stating that the changes in the demand for money should always be met by equal changes in the supply of it? As long as the correct interpretation is given to the terms of this statement it is an unexceptionable account of the whole matter. But there are certain grave deficiencies in the form of statement itself—deficiencies which arise both from ambiguities in the terms composing it and from its lack of appropriate emphasis.

In the *first* place the phrase "the Demand for Money" may either be taken to mean the whole mass of economic goods—including both physical commodities and existing property rights—that moment by moment is offered in

exchange for money; or it may be taken to mean the willingness to take money from the market at its market price. If the first meaning is assumed then the statement that the supply of money should be kept equal to the demand for it leads directly to a defence of price stabilisation, for any increase in the physical volume of production must be regarded as a sufficient reason for a proportional increase in the supply of money, since it obviously means an increase in the "demand for money" as defined. It becomes difficult or impossible to distinguish between these increases in the volume of physical transactions which do require additional balances and those which do not, without an entirely separate and equally important account of the determinants of money costs. It would therefore seem reasonable to increase the volume of money proportionately to any increase in physical production and so stabilise prices—an unwarrantable conclusion.

If however, in the *second* place, the "Demand for Money" is taken to mean the willingness to borrow money at the current price for any purpose it may come to include the willingness to borrow money to be spent on new capital. This would be a complete capitulation to the wholly erroneous commercial doctrines of the Banks. The arbitrary satisfaction of that demand without any previous analysis of the significance and influence of the Rate of Interest in the market for new savings might lead to a large and cumulative inflation.

Finally it is hardly necessary to point out that any simple statement in terms of an equality between the supply of and the demand for money contains no reference to any objective statistical criterion of policy such as the level of prices or the level of profits or the level of money incomes. It does not state explicitly what will happen to these averages as capital accumulation proceeds and as the other sources of disturbance come into existence; and although no doubt the explanation of these things is implicit in the original statement and can be made explicit by a detailed investigation of its meaning, the statement itself is quite useless without this further reasoning. This reasoning constitutes the real analysis

of credit policy. The consideration of banking policy is thus better fulfilled by a detailed examination of the different processes of change.

The truth is that the supply of money should only be equal to the demand for money in the Financial and Industrial Circulations considered separately; and this only upon the assumptions that the demand for money is that demand which taking account of the movements of costs, the rate of accumulation, the volume of intermediate transactions, the size of the population and the course of liquidity preference, will prevent such movements of prices or profits as would tend to become cumulative. There is no gain in simplicity and a considerable loss of lucidity in this type of formula.

2. A much more serious rival to the analysis here offered lies in Mr. Robertson's new definition of "Hoarding". Invented by Mr. Robertson himself, the present conception was previously associated with a quantity inversely dependent upon Transaction Velocity. Hoarding implied the actual accumulation of idle balances of cash or credit and the consequent reduction of the average velocity with which the given type of money moved through the network of exchange. Upon this definition of Hoarding it is impossible to subsume a great number of the changes which have been examined in this Chapter. It is true that the accumulation of deposits on income account and the deflation induced by an increase in the Rate of Saving can be so subsumed since these developments imply a fall in Transaction Velocity. But this is not the case with the remainder of the dynamic situations here analysed. The accumulation of deposits by new firms for example implies no decline in Transaction Velocity as long as those balances are borrowed in the open market, because if they are built up by the sale of new securities these sales increase the turnover of the Financial Circulation and maintain the average velocity of circulation. In the same way the sale of securities by producers making losses or an autonomous change in the structure of the Financial Circulation need not involve any Hoarding as originally defined.

But Mr. Robertson now suggests[1] that the conception be redefined in such a way as to embrace, as Mr. Robertson thinks, every possible source of monetary disequilibrium. Suppose we assume that the course of monetary circulation can be divided into a number of unit periods in which money can pass once from hand to hand but not twice. It is then clear that the money received by an individual in one such period cannot be spent in the same period but can only enter the stock of money possessed by him and so become available for expenditure in the next unit period. There is therefore, at any moment, a certain proportion existing between a man's *Money Stock* and his *Disposable Income.* Mr. Robertson wishes to re-define Hoarding so as to refer to this proportion and to nothing else—a man is guilty of Hoarding or dis-Hoarding if he seeks to raise or lower the proportion which his "money stock" bears to his current "disposable income". The object of banking policy will then become, and the preservation of monetary equilibrium will consist in, the off-setting of any tendency to Hoard or dis-Hoard so defined.

The new definition certainly brings a larger number of movements towards disequilibrium within the bounds of the proposition. The process of accumulating balances by new producers is a case in point. At the moment the new producers sell securities in order to procure new balances they are certainly increasing the proportion between the balance they wish to hold and the "disposable income" they currently possess. All changes in population and the needs of the Financial Circulation and the deflationary results of a simple increase in Saving can be expressed in similar terms. Mr. Robertson also believes that the sale of securities can be expressed as an attempt on the part of the sellers to build up a higher proportion between their "disposable income" and "money Stock" but in thinking this Mr. Robertson would seem to ignore the current fall in "disposable income" from which the relevant individuals suffer. It consequently follows that the only result of the sale of securities is to maintain a constant proportion between "money stock"

[1] *Economic Journal*, 1933. "Saving and Hoarding."

and "disposable income" that would otherwise have fallen. This matter is argued in the Appendix,[1] but in any case it is certain that if we define Hoarding as any attempt to make the proportion between money stock and disposable income higher than it would have been, the great majority of monetary disturbances can be reduced to such a process.

Once more, however, it does seem to me that Mr. Robertson's form of statement, accurate, unambiguous and lucid as it may be, lacks something of practical value. It does not make explicit what will happen to prices, incomes and costs—measurable and statistical quantities—in various conditions of dynamic change, and as such it is not a plain guide to policy. It therefore seems reasonable to prefer the more detailed form of exposition here adopted, which although it contains no more than a sophisticated interpretation of the "supply of and demand for money" and "Hoarding" formulae can be made to contain, it does gain not a little in explicitness and practical reference.

[1] See Appendix, §3.

CHAPTER VI

THE PRACTICAL EXECUTION OF A CONSTANT INCOME POLICY

I. Discovering the Data

§1. There now opens up what is perhaps the most interesting stage of this inquiry, for it is necessary to discover how the policy of equilibrium, the general theoretical outline of which was described in the previous Chapter, can be executed in practice. In the previous Chapters of the book attempts were made to answer the theoretical question which was posed at the beginning—what is the long period price and income policy by which an existing equilibrium of full employment can be maintained through times of dynamic change? At the present point the second question lying at the root of our inquiry must be taken up—by what practical measures can this policy be implemented?

When dealing with the practical, as distinct from the theoretical problem, there are two different kinds of task to be discharged. The first is that of discovery and knowledge—how can a banking authority come to know what is happening in the real world to which its credit policy must be adapted? The second task is that of *power*—how is it possible to *control* what is happening? At any moment a great number of relevant changes are occurring in the industrial system; consumers are receiving streams of money in the form of income; they are taking decisions about spending or saving certain fractions of that income, the Stock Market is buying and selling certain quantities of securities, entrepreneurs are embarking upon capital schemes of varying total costs, and the public is accumulating or decumulating its stocks of money. All these things are simultaneously determining the total financial conjuncture and the probable industrial future. At the same time figures representing the

course of prices, deposits, advances, clearings, investments and sales are being made available by the statistical departments. Any authority which assumes supreme monetary control must, if it is to act with reason and light, be able to discover from the available figures the kind of changes in relation to which it has to sustain equilibrium.[1] The acquisition of this knowledge is a matter of applied statistical technique—of finding existing or conceivable figures to indicate which of the types of change discussed in the last Chapter is actually occurring in the industrial world.

But for a policy to be successful, it must not only be enlightened—it must also be effective. We must therefore discuss not merely the question of *knowledge* but also the question of *action*. It is not enough for the Central Banking Authority to know what is happening unless it can also govern events and alter the sequence of monetary development so as to bring equilibrium out of chaos. For example, the Banks besides knowing the actual size of Consumers' Income or of current Investment, must be able to alter the volume of these if full employment is to be indefinitely maintained. Knowledge is not always power.

§2. The Means to Knowledge—a Matter of Indices.

Ideally speaking, the Banking Authority must know what is happening to a large number of separate and independent quantities—the Consumers' Income, the volume of saving, the volume of Investment, the volume of Stock Exchange Transactions, the velocity of credit circulation, the volume of retail sales, the money stocks held by producers—and many other total prices. It will be quite impossible to collect all these figures at once and separately, partly because of the immense practical difficulties of the task, and partly because some of them—such as the quantity of Saving as here defined—cannot be directly measured. Consequently it is

[1] It is not my business to defend here the existence of bodies capable of acting consciously in economic affairs. The title of the book refers to "policy" and policy means conscious action and a discussion of its form pre-supposes the existence of a body that is capable of having a policy. A little is said on this matter in Chapter VIII.

necessary to find some combination of indices, the relations between which will tell us as much as it is necessary to know about the quantitative changes that affect the monetary system. No one seems to have attempted to discover such a grouping of figures or to analyse in any way the statistical possibilities of a combination of Index Numbers that might be used for this purpose. It nevertheless appears to be a task of urgent importance.

It is therefore in default of any other plan in this field that I offer, very tentatively, the following suggestions; but I must emphasize that they are a theoretical analysis of the significance of figures and not a statistician's account of figures or the possibilities of obtaining them.

Suppose that the commercial banks of any monetary system—the Clearing House Banks of the English system—agree to divide their liabilities to their customers into three groups in such a way that the cheques drawn upon the groups of deposits so classified can be distinguished from each other in the Clearing House.[1] In order to carry out such a classification the banks would have to ask their customers to distinguish in all cases between their private accounts and their business accounts whatever kind of business; large or small, industrial, commercial or financial, joint stock company or personal enterprise, in which they were engaged. To a very large extent this distinction already exists. A great volume of monetary business is affected under the seal of joint stock companies and is therefore purely commercial in nature, while a large number of people have purely private accounts. But in a certain number of cases—the accounts of small tradesmen and of small manufacturers, for example, an industrial business and a private income are handled in one account and by the expenditure of one legal deposit. The Banks must see that customers discontinue this practice and distinguish with care in every case between the balances held in respect of the turnover of their business

[1] I speak throughout this chapter as though all cheques passed through the Clearing House. In practice it would be necessary to add to the Clearing House totals the sum of cheques passed between the accounts held at one bank. There is no theoretical or statistical difficulty here once the figures are obtained.

and those held in respect of their own net income. This should not constitute an insuperable difficulty.[1]

In addition to this division into personal and commercial accounts, the Banks must further sub-divide the commercial accounts into those which are financing *industrial* transactions and those which are financing *property or Stock Exchange* transactions. Such a distinction already exists to some extent since the liquid assets of the Banks invested with brokers and Money Market dealers of various types are usually distinguished from the advances to industry and other forms of Bank investment. But it is important that this distinction should be carried out on the liability as well as on the asset side of the Banks' business so that the quantity of deposits *used* for the transfer of property can, in large measure, be distinguished from those bound up with the financing of industrial activity.

We are not for the moment concerned with the practicability of these divisions but only with the resulting statistical series that emerge if a satisfactory method is discovered for carrying out the classification of deposits and balances here proposed. If such a method is discovered the following groups of deposits will emerge:—

1. *Personal Accounts.*—The bank accounts or deposits which handle the net or final income of all persons in the community and which are either spent or saved by consumers.

2. *Trading Accounts.*—The Accounts of the same persons in so far as they carry on the production of industrial products of any kind—making up the total of deposits associated with the manufacture and sale of all intermediate products up to and including the retail sale of finished consumption goods and the last stages in the manufacture of new capital.

3. *Stock Exchange Accounts.*—Representing predominantly the purchase and sale of existing security and property rights and also the purely intermediary stages of saving and investment. If the cheques drawn upon balances held in these three types of account are distinguished in some simple way from each other—by different colours or different serial

[1] Again I am referring to statistical difficulty. There may be many grave practical difficulties, of a legal or political or personal character, but with these we are not concerned in this book.

numbers—it will then be possible to distinguish in the Clearing House between the volume of monetary business engaged in each of these three fundamentally different types of financial employment. An important pattern of figures containing six indices will be set up:

Private Balances will give rise to *Clearings on Private Account* and will represent the expenditure of the Consumers' Income.

Trade Balances will give rise to *Clearing on Trading Account* and will represent the volume of transactions in the Industrial Circulation.

Stock Exchange Balances will give rise to *Stock Exchange Clearings* and will represent the volume of transactions in the Financial Circulation.

This is the pattern which will emerge:—

Private Balances	Trade Balances	Stock Exchange Balances
↓	↓	↓
Private Clearings	Trade Clearings	Stock Exchange Clearings

And it is proposed to argue in a moment that the relations between the figures in this pattern will tell the Monetary Authority a very great deal about the course of events in the Monetary Circulation.

In the meantime, however, there are two difficulties which arise at once in any attempt to read into such a set of figures the significance that I wish to attach to them.

In the *first* place these figures represent the totals of *credit transactions* alone, while in the real world a considerable volume of business—particularly in Income Account—is carried on by the use of *cash*. A very considerable proportion of the wage bill of a modern community is still paid out in cash and a considerable proportion of retail sales and a diminishing proportion of subsequent purchases and sales are financed by cash. Therefore totals which are composed purely of credit items will not represent the real position. This is probably the greatest difficulty which faces the construction of a set of figures meant to demonstrate accurately the course of monetary affairs, but for the moment let us make an assumption which merely avoids the difficulty—namely that all transactions are carried out by means of

cheques. The false simplicity of this assumption will enable us to treat the principles of interpretation clearly so that the question of cash transactions can then be discussed with a clearer understanding of its significance.

In the *second* place an important quantity of "property exchange" and of the intermediate stages of Saving and Investment does not pass through the Stock Exchange at all, but is discharged by Private Accounts or by ordinary Trading Accounts. If, for example, a private person purchases an *old* house (the purchase of a new house would be an ordinary industrial transaction from our point of view since it involves the purchase of a physical product newly manufactured) the transaction will pass through an ordinary private account and so into the total of Private Clearings although it plainly represents the exchange of a mere property right and as such should appear in the total of Stock Exchange Clearings. A great volume of house purchase never touches the Stock Exchange at all. And furthermore, if one company buys a piece of land or a machine or simply the stocks belonging to another company, without recourse to brokers or financial intermediaries of any kind, a transaction that is scientifically speaking a Stock Exchange transaction will appear in the total of *Trade* Clearings. A limitation of this kind is almost insurmountable. Both Income Balances and Trade Balances will occasionally be used for the purchase of property rights instead of manufactured goods and although something might be done to separate out certain large transactions of this kind, it would, in general, require far too detailed an analysis of the list of cheques drawn to make the statement accurate. It will therefore remain as a limitation to the accuracy of the whole set of figures. It must however be remembered that it is only variations in the average percentage this type of transaction bears to total transactions which will constitute an inaccuracy in reading the movement of the indices, since a constant proportion exerts no influence on the movement of relative sizes. Such variations are not likely to be large. What really matters, as it will be seen, is not the arithmetical exactitude of the totals but changes in the relations between

them. The changing relations will not be altered by a universal error as long as the bias created by that error does not change. We must however, bear in mind the existence of the inaccuracy.

Finally it is of interest to note that it is also possible—according to the statisticians—to obtain figures at comparatively short intervals representing:—

1. The *Volume of Retail Sales* which will be a valuable figure for our purposes because it gives a direct measure of that part of the Consumers' Income which is not saved in the ordinary sense but is spent upon consumption goods.

2. The *Volume of Current New Investment* made up from an estimate of the total new issues in the Stock Exchange, the total appropriations made for capital improvement by Joint Stock Companies, and appropriations made for the same purpose by private firms. The movement of this total as an Index Number will be of great interest in detecting at certain moments the probable relation between Saving and Investment.

What light is thrown then, upon the course of monetary movements by the existence of this basic pattern of indices and the two subsidiary indices that have just been mentioned, if the simplifying assumption is made that all monetary transactions are cheque transactions? The next section will examine this problem.

§3. The Use of the Index Pattern.

It would appear that the examination of the movements of these indices taken together will reveal most, if not all, of the processes of dynamic monetary change described in the last Chapter. Let us examine them one at a time.

1. *Simple Hoarding.*

An accumulation of balances in any part of the system will be instantaneously revealed by the movements of the separate elements of the pattern of indices. The hoarding—in the old sense—of credit balances on private account, for example, will cause a particularly simple change in the figures. The attempt to accumulate balances on personal account will be accompanied by an immediate rise in Private

Balances and a fall in Private Clearings and a subsequent fall in all other figures. Private Clearings are bound to decline because less money is spent upon goods in general by final consumers; and since Private Clearings represent the total expenditure upon the final stages of both the Industrial and Financial Circulations alike, either or both of the other pair of figures must fall. If the Hoarding is at the expense of expenditure on physical output the receipts of the Industrial Circulation will decline whether or not there is an instantaneous and equal decline in the Consumers' Income provided by the Industrial Circulation, and the Balances at the disposal of the Industrial Circulation and the volume of transactions in the Industrial Circulation will both fall. If, on the other hand, the Hoarding is at the expense of saving or the purchase of property rights a similar decline will take place in the Financial Circulation, while if the Hoarding is partly at the expense of one and partly at the expense of the other, all figures in the pattern will fall. Such a change would be a typical Hoarding condition, and might be called the "Private Hoarding Pattern."

It would take this form:—

Pattern 1.

Figures.

Balances	*Clearings*
Private +	Private—
Trade—	Trade—
Stock Exchange—	Stock Exchange—

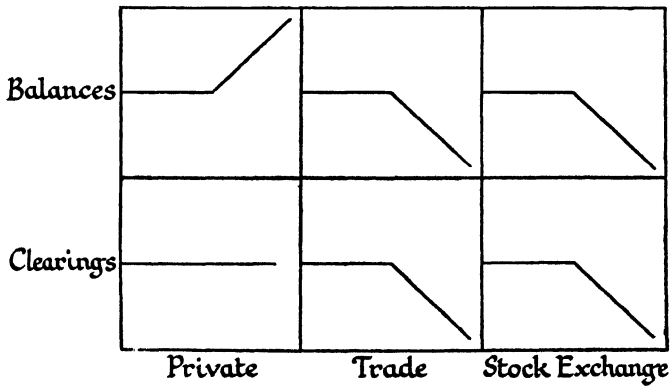


Fig. 30.

2. *The Accumulation of Balances.*

There next arise cases the theoretical analysis of which has already been discussed:—(1) an accumulation of balances in the Industrial Circulation through the increased complexity of the structure of production, or (2) the accumulation in the Financial Circulation—an autonomous change in the needs of the Financial Circulation. In each case a rise in the relevant balance figure and a decline in either or both of the other balance figures will accompany the *primary* change. The difference between either of these cases and the hoarding of balances on private account lies in in the fact that Clearings for the increasing Circulation must rise by as much as the other two Clearings figures jointly decline. At least this must be so as long as Transaction Velocity does not fall. Thus in the case of the accumulation of balances in the Industrial Circulation—the Trade Balances will rise at the expense of either or both the Private Balances and Stock Exchange Balances, while Trade Clearings will rise by as much as Private Clearings and Stock Exchange Clearings together decline. A second important pattern will therefore emerge in something like this form:—

Pattern 2.

Balances	*Clearings*
Private—	Private—
Trade+	Trade+
Stock Exchange—	Stock Exchange—

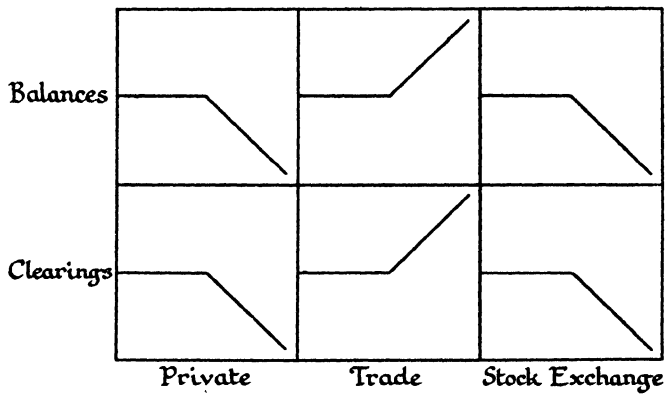


Fig. 31.

In this case as distinct from the previous case the +'s and —'s will cancel out in each column and there will be a decline in neither the Balance total nor the Clearings total i.e. MV is constant.

3. *Deficiencies of Investment.*

When Saving is in excess of Investment through a rise in the Rate of Saving unaccompanied by a sale of securities the pattern of indices will exhibit a more complicated movement. As we have seen it is necessary to distinguish two stages in the development of the movement. In the first of these stages there is no induced hoarding and the increased saving takes the form of increased purchases of existing securities equal in volume to the fall in the purchase of physical commodities. Since neither the Consumers' Income nor the outlay of that income upon physical product and securities taken together has declined, the Balances and Clearings held in Private Account will be constant during this period, and a simple transfer of Balances and Clearings from the Trade division to the Stock Exchange division of the pattern will take place. The position will be this:—

Pattern 3.

Balances	*Clearings*
Private O	Private O
Trade —	Trade —
Stock Exchange +	Stock Exchange +

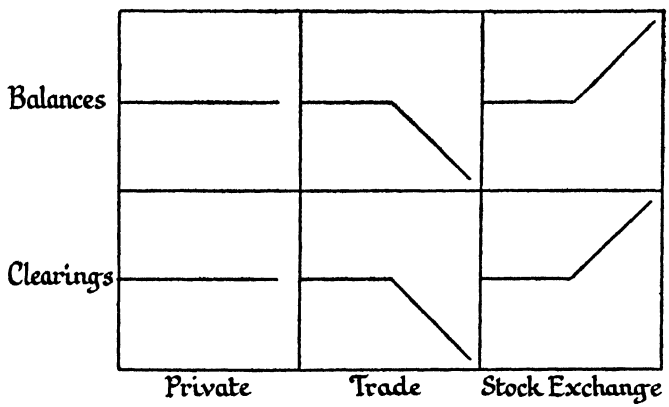


Fig. 32.

Such a position is however unlikely to remain stable because losses are being made in the Industrial Circulation. So that in the *second* place a wave of induced hoarding is likely to appear and this will bring down all the figures except those of Private Balances and possibly Stock Exchange balances. A pattern very like the first or simple hoarding pattern will emerge—with Private Clearings, Trade Balances and Clearings and possibly Stock Exchange Balances all down, and Private Balances alone maintained.

4. *The More Complex Cases of Change.*

Those changes, the theoretical analysis of which proved so difficult, do not represent any peculiar difficulty of detection in terms of this pattern.

(*a*) An increase in population will at once occasion: (*i*) a decline in the total of all balances divided by the population; (*ii*) a tendency for the average size of the balance held in Private Account to fall; (*iii*) the accumulation of balances in income account and (*iv*) since Transaction Velocity is not affected an upward movement of balances without a fall in the total of Private Clearings.

A very characteristic pattern is produced by this change:—

Pattern 4.

Balances	*Clearings*
Private +	Private —
Trade —	Trade —
Stock Exchange —	Stock Exchange —

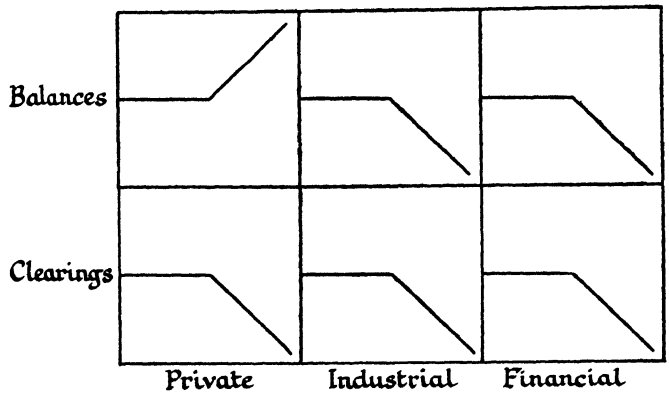


Fig. 33.

(*b*) *A change in distribution between Labour and Property* would not appear in the pattern at all. Any deflationary consequences will become apparent at once and in so far as wages are paid in cash there will be a change in the proportion of Final Income contributed by credit. But an independent statistical inquiry will be necessary to establish the direct origin of such a movement, chiefly characterised as it is by a sustained increase in unemployment in face of a constant wage level.

(*c*) The position which will arise from a *sale of securities* induced by a rise in the Rate of Saving will be as difficult to interpret in the statistical sense as it is in every other sense. The essential disequilibrium lies in the fact that part of the Consumers' Income is used to purchase securities in the Stock Exchange instead of purchasing either consumption goods or new capital and that the reduction in the sums paid to consumers which would otherwise follow the original deflationary change is thus prevented. Moreover, to follow Mr. Keynes' analysis most closely, it is necessary to assume that the sale of securities by the entrepreneurs and the purchase of them by the savers takes place at the same time as would have been occupied by the sale and purchase of consumers' goods—so that MV for the Industrial and Financial Circulations combined is constant throughout the process. What then would happen to the six indices during the period in which the sale price of the securities is equal to the increment of saving?

It is certain that Balances held on private account will not decline because the payments to consumers are maintained by the sale of securities and their private expenditure has not changed. Since the total expenditure on consumption goods and securities combined has not altered, the index of Private Clearings will also be constant. Furthermore since the loss of balances due to the original divergence between Saving and Investment is offset by the fruits of the security sales the *balances* held by producers will not fall. Trade Balances will therefore be constant. But Trade Clearings will not be constant as long as the brokers' cheques drawn in favour of the entrepreneurs for whom they have sold

securities are credited, as they should be credited, to the total of *Stock Exchange* transactions.[1] The purchase of physical products will be less and the turnover of the Industrial Circulation will be down so that the Index of Trade Clearings will fall. Finally since the brokers pass the extra balances which they receive from the Savers to the entrepreneurs making losses Stock Exchange Balances will be constant, while the volume of transactions in the Stock Exchange—or the index of Stock Exchange Clearings—will rise. A very characteristic pattern will demonstrate this in which all the deposits at the end of the process are constant and there is a transfer of Clearings from the Trade to the Stock Exchange Accounts:—

Pattern 5.

Balances	*Clearings*
Private O	Private O
Trade O	Trade —
Stock Exchange O	Stock Exchange +

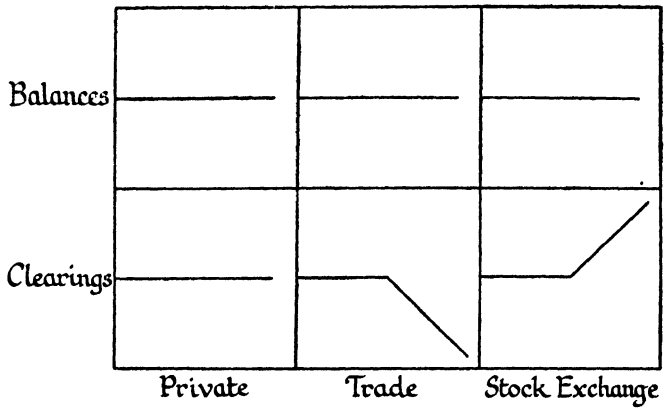


Fig. 34.

Enough however has been said to indicate the use to which such a pattern of indices could be put in order to diagnose monetary changes of a simple theoretical type. There are really three important types of simple pattern which emerge:

[1] The general principle being that cheques should always be credited to the Clearings figure of the accounts for which they are immediately drawn.

(*i*) The simple *Hoarding* arrangement involving a fall of Transaction Velocity and characterised by a rise in one Balance figure and a decline of all other figures in the group. (*ii*) An "*accumulation of balances* without a decline of Transaction Velocity" type, in which one part of Balance and Clearing totals rise while the other two pairs decline; and (*iii*) The most complex types of change that have been analysed where the Income Balances and Clearings remain constant while there is a deflationary transfer of balances or clearings to the Stock Exchange total. The nature of these broad movements can only be discovered by the use of some such set of figures examined and analysed as a system of relations.

Unfortunately, the full practical difficulties of diagnosis have not been allowed for, since each of the types of change has been examined *in isolation*. It is by no means necessary, nor even likely, that this simplification will be guaranteed in the real world. The much more difficult case in which two or more of the different types of process take place together has therefore to be considered.

5. *Combined Processes.*

Let it be supposed, for example, that a process of Private Hoarding is offset by an equal sale of securities on the part of affected entrepreneurs. Such a situation is complicated even in theory, since the deflationary effect of the Hoarding will be temporarily offset by the influence of the security sale. To understand the position of the indices in the pattern it is best to proceed index by index:—

1. *Private Balances* will *rise* in the first instance from the original and causal act of Hoarding. The subsequent decline in Consumers' Income which would be the normal result of the original Hoarding, will be offset by the sale of securities made for the especial purpose of preventing such a fall. Consequently, as long as the process continues there will be a steady piling up of Private Balances without any decline in the money income at the disposal of the body of consumers—a most peculiar and characteristic result.

2. *Private Clearings* will however be *down* despite the

maintenance of Consumers' Income just because the process of Hoarding is continuously taking place—the usual Hoarding condition for this index.

The other figures in the pattern will exhibit equally peculiar movements.

3. *Trade Balances* will *not* be reduced despite the severity of the continuous process of Hoarding. Producers are offsetting the fall of their receipts from the sale of physical output by the sale of securities and in doing so they continuously transfer balances to themselves out of the Financial Circulation.

4. *Trade Clearings* on the other hand, excluding Clearings derived from the sale of securities, and in so far as they arise from the sale of physical output, will be *down* by the extent of the original Hoarding.

5. Meanwhile, *Stock Exchange Balances* will be on the decline because Balances are being transferred from the Financial Circulation in exchange for the securities sold by the Industrial Circulation. The Stock Exchange Balances will not be replenished by new Saving, as they were in the case of ordinary security sales, because the disequilibrium is due to private Hoarding *simpliciter*.

6. And for the same reason Stock Exchange Clearings will be *down* despite the increase in the number of securities sold, because there is a net loss of Balances to the Industrial Circulation. This means that the price level of securities will fall disproportionately to the increase in the volume offered for sale and the Rate of Interest will be forced up disproportionately high.

The fundamental phenomenon of such a situation is the transfer of Balances from the Stock Exchange to Private Account by way of the Industrial Circulation. The transfer of balances *through* the Industrial Circulation maintains the stock of balances held there, but all the Clearings are down through the persistent Hoarding which is taking place on Private Account. Consequently, this peculiar pattern emerges, which it would be foolish to pretend is easy to interpret:—

Pattern 6.

Balances	*Clearings*
Private +	Private —
Trade O	Trade —
Stock Exchange —	Stock Exchange —

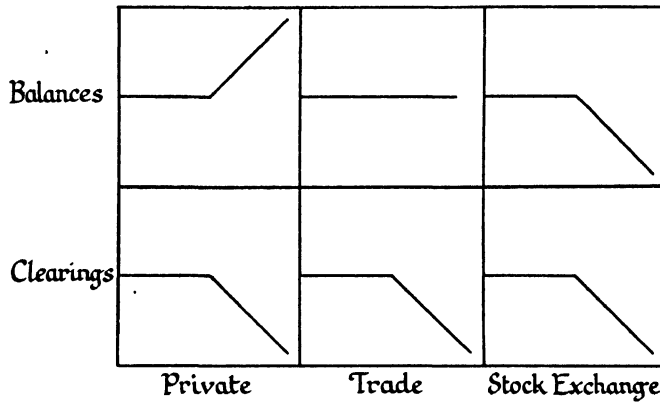


Fig. 35.

The main difficulty which faces this method of diagnosis—the existence of cash balances and cash transactions, now remain to be dealt with.

§4. CASH.

The main simplifying assumption that has been made throughout the previous section is that the whole of the monetary business of the community is carried out by means of cheques. But as was noted at the beginning of this Chapter, such an assumption is not yet justified in the most advanced industrial communities. Even in this country where the development of the cheque system first began and where it has been carried to its greatest lengths, there is still an important volume of business transacted by the payment and receipt of cash. The existence of this volume of cash transactions invalidates any simple conclusions derived from the study of credit figures alone. Suppose, for example, that the index of Private Balances was rising. This would indicate that Hoarding on Private Account was taking place in so far

as purely credit instruments were concerned, but it might be offset by a decline in the amount of Cash Balances held in Private Account and merely represent a change in the habits of the public in favour of bank accounts. The real significance of the change would therefore be lost if exclusive attention were devoted to credit indices. Of course the reduction in Cash Balances held by the public would become apparent at once in the form of an inflow of cash to the Banks, but this would not prevent the pure credit index from moving in a confusing way.

There are these points which should be noted in a consideration of this difficulty:—

1. The volume of cash which is held on account of Stock Exchange Transactions is almost certainly negligible—consisting in nothing more than the till money in brokers' offices. It is therefore safe to conclude that Cash Balances are held only in connection with cash purchases on Private Account and in connection with the payment of Wages on Trade Account. This means that Cash Balances are intimately bound up with the payment, receipt and expenditure of the wages share in the Consumers' Income. So much is this the case that Professor Irving Fisher argues that the Velocity of cash circulation can be calculated by assuming that each unit of cash has changed hands twice—in the payment of wages and in the expenditure of wages—in the period that each unit is outside the Bank. Whether or not this is a justifiable deduction it is obviously safe to conclude that Cash Balances will be held on Private Account and Trade Account chiefly, and on Trade Account mainly in connection with the wages bill.

2. It is quite easy to discover the *total* of Cash Balances in the hands of the public at any moment by deducting the amount of cash held within the Banking System from the total amount issued by the Central Banks. But it is not so easy to discover the division of this total between Private and Trade Accounts.

It should not however, be quite impossible to do this. In the first place, once the threefold divisions of cheques which has been advocated here is fully executed, it is quite easy to

discover the amount of cash *withdrawn* from the Banks on Trading Account. This does not really tell us anything about the balances held by traders since the latter figure is determined by the relation between the amount of cash brought into their Balances by entrepreneurs from the Banks and the amount of cash paid *out* of their Balances in respect of wages. Nevertheless, an increase of hoarding by entrepreneurs in the form of cash is not a highly probable development under modern conditions; it is very likely that the amount of cash held by entrepreneurs in their productive capacity is simply proportional to the amount of cash withdrawn by them from the Banks for wage payments. This would not be true in times of panic but it would be approximately true under normal conditions. It would therefore be possible to make a rough calculation of the Cash Balances held on Trade Account by inspecting the cash withdrawals on Trade Account; a subtraction of these from the total would discover the Cash Balances held on Private Account. The total of Credit Balances and of Cash Balances so calculated on Private and Trade Account respectively would then be added together to give the index of Private and Trade Balances for the pattern of indices in question.

3. But there is not only a volume of Cash *Balances* but also a quantity of Cash *Purchases* or Cash Turnover—Cash "Clearings", so to speak—to consider. Here again it is surely not out of the question to make some correction of reasonable accuracy. Cash will be spent very largely by consumers upon physical products at retail stage. A smaller quantity of cash will be spent by entrepreneurs upon intermediate products. The great proportion, although not all, of the cash spent in either form will be paid into the Banks so that the total Cash "Clearings" = the total Cash Receipts of the Banks in any period. It is now necessary to divide these Cash Clearings between Private Account and Trade Account and there is plainly no accurate method of doing this short of a separate inquiry into the sources of cash receipts in the hands of those who have paid cash into the Banks. This is the second unavoidable limitation upon the accuracy of the whole set of figures. This will be taken into

consideration later, but in the meantime it is only necessary to assume that some inquiry has been made into the proportional contributions made by consumers and entrepreneurs respectively to the total of Cash "Clearings", and that the totals of Private and Trade Clearings are obtained by an addition to Private Credit Clearings and Trade Credit Clearings. Our system of indices is then complete.

§5. Conclusion.

It is at once obvious that such a schedule of statistical series as this chapter has advocated for purposes of diagnosis and policy making, is anything but easy to create and anything but foolproof to interpret. In the first place neither the indices nor the material to make them, is at present in existence. Indeed, it would be necessary for the existing commercial Banks to change their accountancy practices altogether and to agree to start a new and unusual method of classifying their liabilities. It would also be necessary for them to provide figures which would reveal among other things, their cash position. Both of these steps would be far from easy to achieve. In the second place, even if the figures are available, they will suffer from two statistical defects. It is impossible to measure the quantity of property transfer which does not at any time pass through the Stock Exchange Clearings, or to discover how the total of Cash Transactions should be divided between Private Clearings and Trade Clearings. It would be necessary either to neglect any changes in the proportions which these two ratios might undergo and deal in crude figures alone or alternatively to attempt a calculation of their probable size and correct the crude figures accordingly. Changes in the volume of private property transaction might safely be ignored, but it would probably be necessary to make some calculation of the volume of cash transactions that ought to be appropriated to the Private Clearings figure. In any case, it is more than probable that these purely statistical difficulties could be overcome or greatly modified over a period of years by the improved collection of primary data. In the third place, however, there are difficulties of a purely scientific kind. It

would be foolish to suggest that the complex movements of these figures which would inevitably take place could be interpreted easily. Even after seasonal fluctuations had been removed and changes in the banking habits of the public had been allowed for, the movements of the refined indices would be very confusing, at least in the beginning. Since all monetary changes in the real world would be of a "mixed" type, the movements themselves would be complex, open to more than one interpretation and subject to variations in the classification of particular accounts. The work of understanding the figures is plainly very difficult. But so is any other piece of scientific and statistical interpretation, and the difficulties in this case are not insurmountable. Interpretation would become increasingly valuable as statistical experimentation and logical hypothecation continued.

What then is the value to be attributed to the analysis here attempted? I would only claim for it three things:—

1. That *some* such system of figures and some such analysis of their significance is quite essential if we are ever to progress far on the road to an enlightened credit policy. It is impossible to act both wisely and consciously unless the responsible authority knows what is happening. The blind can no longer profitably lead the blind. It is therefore only as an unsatisfactory beginning to a radically necessary undertaking that I should wish to defend the contents of this Chapter.

2. That some of the specific proposals and figures contained in this scheme appear to me to be necessary to any satisfactory programme of action. It is essential to distinguish the Financial from the Industrial Circulation as far as possible, and it would surely be invaluable to discover the volume of deposits held on Income Account and the turnover arising from the expenditure of the whole of the Consumers' Income. These simple steps, quite apart from the more complicated superstructure that I have attempted to build up on them, would be an enormous improvement upon the complete ignorance of important monetary quantities in which we are now condemned to live.

3. And finally, if some such satisfactory series could be

built up there are certain important types of change—such as the "simple hoarding pattern" and the "accumulation of balances pattern"—which would be quite easy to detect once the figures existed.

It is consequently not entirely without hope of quick, albeit very modest results, that such a plan could reasonably be started.

If then the first central problem of practical policy is solved and some method has been devised for discovering the tendency and order of events, the second stage of the practical inquiry begins. The object of policy will be to stabilise the Consumers' Clearings per head—the Consumers' expended Income per head—and we want to know by what policies and with what powers the Banks will seek to meet and offset any tendency to rise or fall in that figure.

CHAPTER VII

THE PRACTICAL EXECUTION OF A CONSTANT INCOME POLICY (*continued*).

II. The Instruments of Control.

§1. By what methods a Central Banking Authority can hope to control the monetary situation is the problem which the present Chapter will attempt to solve. It will consider the policy of the existing Joint Stock and Central Banks only. The examination of the case for a great extension of the powers of the Banks and an alteration of the seat of financial authority will be made in the next Chapter.

A consideration of policy falls naturally into two parts—the methods of controlling the internal position and the methods of organising and controlling external trade relations.

A. Internal Policy.

§2. The central strategic problem of financial power lies in the ability to raise, lower or maintain the volume of the effective circulation (MV). How can a Central Banking Authority control the volume of monetary expenditure in the community at large so as to cause the indices of income and industrial activity to stand in those positions relatively to each other that it desires them to occupy? This is not a question of the Banks' controlling, to any important extent, the *way* in which the gross income of the community is spent. It is not desirable that they should control either the apportionment of final income by the consumer between different types of consumption good or its more general division between spending and saving. The only important task for the Banks is to see that any changes which may occur in the disposal of the gross income in the hands of the community between products and employments shall not cause the

volume of effective money to be other than that quantity which will maintain general industrial equilibrium. This, according to the argument of this book is the quantity that will maintain the Consumers' Income per head of the working population constant.

The "quantity of effective money" is for all practical purposes determined by two separable[1] and logically independent quantities[2]—the quantity of the means of payment provided by the Banks and the average rapidity or velocity with which the units of money pass from hand to hand against commodities of any kind. Now the Banks cannot in general, directly affect the velocity of circulation to any appreciable extent. Velocity of circulation is the expression of the willingness of the public to spend—to utilise the balances they hold for the acquisition of goods other than money. Thus it is the direct result of the combination in their minds of their commercial position with their psychological expectations. These factors can only to a very limited extent be affected by the Banks. Pronouncements of the Banks of England for example, on the current financial and trade position of the country may change in some degree the expectations and confidence of the business world, while a revision in the *existing* terms of overdraft contracts by the commercial Banks—a rare phenomenon—can alter to a very small extent the actual trading position of a large number of borrowers. But for the most part the Banks can only hope to influence the volume of effective money by changing or seeking to change the *quantity* of money held by the public. It is perfectly true that changes in the quantity of money may exert an important influence, at least in the short period, upon the rapidity of circulation; but this influence, like every other influence which the Banks can bring to bear upon industrial and commercial confidence is mediated through a primary influence upon the quantity of money.

[1] It has been argued that for certain theoretical reasons it is not possible to distinguish any single commodity the quantity of which may be said to have an average velocity of circulation, but for our present purpose the distinction remains of value.

[2] These quantities are not, of course independent of each other in the short run.

The problem then simplifies into this question—how can the Banks influence the volume of deposits held by the public?

The present orthodox means at the disposal of the Banks are three in number:—

1. The Banks can change the *Rates of Interest* which they charge for short or long period loans, for the discounting of industrial and commercial paper, or for any other kind of credit accommodation. It is then to be expected, at least in theory, that a variation in the price of the service provided by the Banks will occasion some change in the quantity of the service demanded by the public consumer and that therefore the volume of credit will rise or fall. The change of policy is expected to exert an appreciable influence by altering the *cost* of borrowing—the important causal relation upon which the faith in this instrument depends.

2. The second weapon in the armoury of the Banks is usually called *Open Market Policy*. It is supposed to be a particularly effective instrument in the hands of the Central Bank but it must not be forgotten that it can be used and is not infrequently used by the ordinary commercial Banks as well. If the *Central Bank* goes into the "open market" and buys securities, the sellers of the securities receive Central Bank deposits in exchange and pay them into their Commercial Bank Accounts, with the result that the claims of the Commercial Banks upon the Central Bank (i.e. their deposits with the Central Bank) are increased by an equal sum. As most Commercial Banks regard their deposits at the Central Bank as part of their Cash Reserves their cash position is greatly strengthened if the Central Bank pursues an open market policy. They are placed in a position to lend more to the public and as long as they succeed in keeping a constant proportion between their Cash Reserves and their deposit liabilities the money in the hands of the public will be increased by the inverse multiple of the reserve fraction which the Banks maintain. In this country the proportion at which the Banks aim is approximately 10 per cent so that, *as long as they are successful in attaining the object of their cash reserve policy*, security purchases by the Bank of

England will be multiplied by 1,000 per cent in the Industrial and Financial Circulations taken together. In the same way and in the opposite sense, a sale of securities by the Banks will occasion a large proportionate contraction of credit. But, it is essential to remember, the increase of money is wholly conditional upon the ability of the Banks to maintain a fixed proportion between their cash holdings and their total liabilities, which in its turn depends entirely upon the ability of the Banks to increase and reduce their lending to the public as and when they please.

3. The final power which the Banks possess, and one which constitutes in the opinion of many bankers their most effective weapon, is the power to vary *their willingness to lend* at any Rate of Interest, or, what amounts to much the same thing, the *degree of security* they require from borrowers. At any Rate of Interest there is a group of borrowers who, either because of its great size and consequent importance to any particular Commercial Bank or because of the safe nature of the collateral which they can offer, will undoubtedly be supplied with credit by the Banks. At the other end of the scale there are borrowers with such bad commercial prospects that no sensible Bank would lend to them. Neither of these groups constitutes any potential source of change in the supply of money, but in between them there sometimes exists a wide range of possible borrowers whose proposals and collateral vary in an infinite series of gradations between safety and great danger. It makes all the difference to the volume of accommodation provided to this group of borrowers whether the local representatives of the Bank are instructed by the Advances General Manager that the Bank in question is a "keen" lender or not. Considerable variations in the supply of money will arise simply from variations in the degree of security required by the Banks, or in their pure willingness to lend to the members of this intermediate group.[1] The effectiveness of the weapon of variable security will depend upon the existence and size of the margin of reasonable but risky investments offered to

[1] And also upon the severity of the pressure they exert to make borrowers repay part loans—but this is simply part of their general willingness to lend.

the Banks and the willingness of the Banks to vary the degree of the commercial risk that they are willing to bear.

These are the only orthodox mechanisms at the disposal of the Banks. How valuable they are in controlling the movements of the effective quantity of money must now be examined. There are three points to be made:—

In the *first* place there can surely be no reasonable doubt that variations in the Bank Rate *in so far as it changes the costs of borrowing* is quite ineffective when prices and profit margins are moving. It is possible that during a time of general stability when active competition in all markets keeps the prices paid to entrepreneurs and their costs of production very closely together, the small changes in the cost of borrowing made by variations in the Market Rate of Interest will make an appreciable difference to the type of capital scheme and to the number of such schemes which the controlling authorities in industry will be willing to finance by loans from the Banks. Even in this case the element of risk is overwhelmingly important as the argument of Chapter II shows. But in a world conditioned by the phases of the Trade Cycle these delicate adjustments are plainly not effective controls. Who can possibly suppose that during the period 1929-1932 when wholesale prices fell by something like 25 per cent and when profits were reduced by 30, 50 and 70 per cent or even altogether destroyed, that movements in the Bank Rate from 5 per cent to 2 per cent—regarded simply as a change in the cost of borrowing—could have had any appreciable influence in forcing up the rate of borrowing? Some relative effect it may have had—more money may have been borrowed than would have been borrowed had the Rate not fallen—but a controlling influence it certainly did not and could not possess. Equally certainly during any of the post war inflations characterised by a rapidly rising level of prices, and even during the relative stability of prices in face of falling costs between 1926–1929 it is doubtful whether the fractional movements of the Bank Rate and the small changes in total costs which they force upon the borrowing public, could possibly offset the large total profits which are emerging during these times.

Even the jump of the Bank Rate at the moment of crisis is of more significance as a warning that lending operations must be contracted than as a pure cost of borrowing process. It is only during periods of full equilibrium—periods which never exist in a system dominated by large cyclical fluctuations—that narrow cost margins are likely to exert the controlling pressure attributed to them in pure theory. Bank Rate is unlikely in face of other violent changes to control the quantity of money during any phase of the Trade Cycle.

In the *second* place, however, it is very probable that the use of Open Market Policy will be very effective during certain phases. As normally used by the Central Bank, this instrument affects the quantity of money in industrial and commercial use by changing the cash position of the commercial Banks. It is therefore likely to be effective when, but only when, the cash position of the Banks is in question. If, for example, there is a run on the banks such action will relieve the deflationary pressure; but if the Banks are in a safe cash position and already possess a large quantity of surplus cash reserves no amount of inflationary Open Market Policy on the part of the Central Bank will have the least influence. If the Banks had been able to lend more they would already have done so, since their cash position would have justified an increase in this—the most profitable part of their business. The purchase of securities by the Central Bank will, in such circumstances, merely pile up further sterile cash reserves, for which the Commercial Banks have no use. It will produce no inflationary change in the present. The Commercial Banks, as we have already emphasized, must wait upon the pleasure or potency of the public to borrow. And equally clearly, the Central Bank must make in such a situation a very large sale of securities before it can exert an effective deflationary pressure upon the Banks. The whole of the surplus reserves must be destroyed before a further reduction in their volume will force the Commercial Banks to diminish the volume of their advances. The only time at which Open Market policy is effective is the short period during the boom when the Commercial Banks are lending to

capacity and when they are down to their minimum cash ratio. The provision of cash reserves at such times will increase their lending capacity and a reduction of them will force a general contraction. But this is a poor time and a poor occasion for Central Bank action. All the trouble has already set in and the opportune moment for Central Bank action already passed.

When the purchase or sale of securities is carried out by the *commercial banks*, as distinct from the Central Banks, the policy can be completely effective in increasing the *quantity of money* in the hands of the public. In order to go very far with this type of policy the Commercial Banks must act together; but if they all buy securities from the public with newly created deposits at a constant rate, not only will they acquire a greater fraction of the property of the community for themselves, which is a bad thing, but they will also create an equal increase in the volume of the deposits in the hands of the public, which may be a desirable thing. Possession of this power therefore gives the Banks a direct and absolute control over the size of the public's deposit and cash holdings. The amount of deposits and cash held by the public can be profoundly influenced by the Joint Stock Banks. But this is unfortunately not enough for purposes of policy. It is not M but MV that matters and the great increase in deposits which has, in recent times, been accompanied only too often by a fall in Bank Clearings emphasizes the difference between controlling the quantity of money and controlling effective circulation. What is really required is the power to increase or reduce the community's rate of Investment and the community's *expenditure*; and it is not enough, in order to do that to be able to control the quantity of money balances held by the public. The issue of new money, at a time when the profit position is stagnant or growing worse is too often accompanied by an offsetting growth of automatic hoarding. Changes in the potential reserves of liquid capital at the disposal of industrial enterprise is not enough—not nearly enough—to provide the power of control.

In the *third* and last place it is obvious that the same strictures apply to changes in the degree of security asked or

the willingness to lend exhibited by the Commercial Banks. Such changes are completely effective or can be made so, for purposes of *reducing* the Quantity of Money in the circulation. If the Banks refuse to lend upon any terms then the quantity of money will fall at a price dictated by the rate at which overdrafts are being liquidated. In each current period a certain number of overdrafts are paid off by the persons in whose favour they were created and if they are not-recreated in favour of those persons or other persons the out-standing assets and liabilities of the Banks will be reduced by the amount of the cancelled advances. But the position becomes wholly different when the Banks raise the quantity of money by lowering their security requirements or increasing the risk element which they are willing to bear. If there is no fringe of unsatisfied borrowers other than say, gentlemen proposing to extract gold from seawater there is no possible course the Banks can pursue. They are utterly impotent if the public, on balance, do not wish to increase their capital liabilities to the Banks. It cannot be over-emphasized that the complete dependence of the public upon the Banks for an increase in the means of payment is strictly paralleled by an equally complete dependence of the Banks upon the public for any power to perform their function of rendering liquid capital available. There must be two parties to the conceiving of a bank credit.

Thus the crucial inability to increase the effective circulation when deflationary influences are at work—when confidence is shaken and profits are declining—remains the central deficiency of existing banking mechanisms. The complete failure of "expansionist" policies in recent years drives this most important conclusion home.

It is time that the impotency of the Banks to control the financial condition of our present economy should be honestly faced. The truth is that the deflationary powers and mechanisms of the Banks acting by themselves and without the co-operation of industry are excellently powerful simply because the Banks are universal creditors and can foreclose without the consent of the debtors. But their *independent* inflationary powers, for precisely the same reason are negli-

gible. They cannot force entrepreneurs to enter into obligations to them. In a free country a contract has to be drawn between two willing parties. I am not arguing that the *policies* of the Banks are deflationary rather than inflationary over the long period. They are almost certainly consistently and dangerously inflationary but this fact has blinded the public and even economists to the impotence of their independent position. Industry and the banks together are always in an inflationary mood, their general co-operation is consequently inflationary in its normal results—but the powers of the Banks acting by themselves are not, and cannot on the present basis of their practice, control deflationary tendencies. That is the great weakness of our credit system and raises in an acute form the problem of strengthening the monetary armoury of the Banks. How can that be done?

§3. A New Instrument of Policy.

The weakness of all existing banking powers lies in the fact that it is only possible to influence the representative individual's "capital commitment" position by making it easier or more difficult for him to borrow from the Banks. But a change in the ease or difficulty of increasing capital liability is quite ineffective when society is concerned with its income or profit position, and the provision of no amount of credit facilities will do any good if no one wants to borrow. The only possible way to restore willingness to borrow is to reinforce the *income position* of the community and to operate directly on the unborrowed monetary receipts of producers or consumers. Is there any way of controlling income directly?

It has already been seen that there are two theoretical ways of doing so. It can be done if the Banks grant interest free *Consumer's Credits*—a mechanism which represents to them the insoluble problem of distributing arbitrary increases of money income to their customers; or it can be done by providing the money necessary to increase producers' costs free of interest. The full authority and detailed oversight of a completely planned economy is requisite to this latter policy. In neither direction is there much reason to

expect a solution of the problem within the existing arrangements of property and exchange.

But is there any modification of these policies which would enable a Central Financial Authority to increase expenditure in the community as a whole without recourse to the provision of new money for individuals or the supervision of the cost accounts and payment policy of productive industry? There seems to be a reasonable half-way measure which might secure for the Banks a considerable power to influence for good the income position of the community without requiring any profound reform in the institutions of existing financial controls, or a distribution of power between them. Such a possibility lies in a moderate use of the powers of *taxation*. Taxation in the ordinary sense merely transfers without reducing a constant volume of purchasing power, and the reduction of taxation merely means that the public is placed in a position to spend more money while the Government is forced to spend less. Even a decrease in taxation which is financed by the flotation of a loan and is unaccompanied by a reduction of expenditure will not occasion a net increase in the community's gross income unless it can be shown or reasonably assumed—and these things are never easy to show or assume—that the money borrowed from the public would not otherwise have been invested by them. The position is quite different, however, if the budgetary deficit is financed by the issue of *new* money. For then any increase in the expenditure of the public made possible by the reduction in the burden of taxation will be a net increase.

The method by which the income is obtained is, no doubt, highly unorthodox. When it is desirable to reinforce the income position of the community, it would be necessary deliberately to unbalance the Budget by the remission of taxes which the Chancellor could not, in the ordinary sense, remit, and to finance the deficit thus created by the issue of unbonded credit to the Government by the Bank of England or the Joint Stock Banks acting together. If the reinforcement of income is successful and the level of employment and money is restored to its previous equili-

brium level the deficit could then be destroyed by the re-imposition of the taxes to complete the return from disequilibrium to the previous equilibrial relation between Consumers' Outlay, the costs of industrial output, and the taxes raised to balance the Budget. Such measures are nothing more than a thinly disguised direct inflation, but since the disposal of the extra funds available in a Budget is a familiar and commonly understood social phenomenon, they nevertheless resolve the otherwise insoluble problem of distributing new money to individuals and classes.

Doubtless the effects upon confidence in an individualistic capitalism would make hay of this sort of proposal. The existence of an unbalanced budget by itself is rightly regarded as a serious weakness in any economy, and the financing of an unwanted deficit by ordinary borrowing is treated, and rightly treated, as a temporary and unsatisfactory palliative. The deliberate creation of a deficit and the financing of it by unbonded inflation would invert the task of the Chancellor of the Exchequer as long as the existing criteria of Budgetary orthodoxy remain what they are, and confidence or the lack of it depends upon their strict observance. The consequences of only the first steps of such a policy might occasion either a sharp contraction of confidence or induce a flight from money to goods that would dislocate the monetary machine for half a generation. If these things are true, they constitute an indictment of the present basis of financial confidence and the existing distribution of investment control. All that such taxation measures achieve is, after all, to offset the deflationary developments which call them into being. They are capable of restoring the monetary position which it is in the most essential economic interests of the community to preserve. The fact remains that such an addition to the armoury of the Banks would meet just that weakness which so plainly they possess—their inability by independent action to ride the whirlwind and the dismal storm of a general downward movement in the Transaction and Income Velocity of monetary Circulation.

B. The Open System

§4. THE GOLD-STANDARD.

In a monetary community dependent to any important extent upon the import and export of commodities and services it is virtually impossible to remain on the Gold Standard and also to pursue the Constant Income Policy that is here being advocated. The maintenance of constant exchanges—which is the central requisite for successful operation of the Gold Standard—and stable incomes is only possible if these conditions are all simultaneously fulfilled:—

(*i*) That the same income policy is pursued by the other countries with which the particular system is in gold communication. Otherwise, if the external level of money incomes is rising, an inflow of gold into the constant income system will take place and the maintenance of a constant proportion between the circulation and the gold reserves of the Central Bank will become incompatible with the preservation of constant incomes; or else if the external level of incomes is falling an outflow of gold will emphasize in the opposite direction the incompatibility of the Gold Standard and Constant Incomes. The existence of any harmony between countries operating on automatic stabilisation is completely dependent upon an identity of income policy.

(*ii*) But it is also dependent, in equal measure, upon a similarity of dynamic technical conditions. Not only must the Rate of Invention be the same throughout the constant exchange area, but also the rate at which these new discoveries are being untilised must be the same. Both causes affect the rate of change in technical efficiency and thus the rate of change of costs, and they must either be the same in the separate countries or so related as to give the same final result. The Rate of Invention may be high in one country and the Rate of Saving in another, but unless the resultant is the same the level of costs in the several parts of the constant exchange system will move relatively to each other and the Balance of Payments between the two parts will move against the system with the higher costs. A sustained gold flow will

again render impossible of simultaneous achievement a constant relation between gold and the circulation, and a constant relation between total incomes and the physical factors of production.

(*iii*). Finally, an unlikely constancy in reciprocal demand is necessary for the simultaneous preservation of constant exchanges and constant incomes. If the demand of the whole Gold Standard area for the products of any part of that area undergoes any considerable change, either an increase or a decrease, then there will be an equivalent flow of gold to or from the affected area. Unless the conditions of reciprocal demand between each part of the area and the whole area are either constant, or offset by contemporary changes in real income, the maintenance of constant exchanges by that part will be incompatible with the maintenance of constant incomes.

In general, constant exchanges require continual adjustment in the level of internal money incomes to the changes in the foreign trade position of the country. They are therefore only compatible with Constant Incomes if the Balance of Payments for the country is held constant, either by a constancy in the cost conditions of external industry with a constancy of reciprocal demand, or by fluctuating cost and demand conditions which happen so to fluctuate as to offset each other continuously. It would, for example, be compatible with income equilibrium for the costs of producing exports to rise as long as the external demand for these imports rises at an equivalent rate and so leaves the available quantity of foreign exchange unaffected. Or, what is more possible, temporary changes in the Balance of Payments could be offset by temporary changes in the volume of Foreign Lending or Borrowing. Such things are not impossible, but they are, in the highest degree, unlikely. A continuous adjustment of the Balance of Payments so as to preserve constant incomes is impossible under a regime of private enterprise. A relatively small but continuing change in the world demand for a particular product or group of products—such as manufactured textiles—may subject a national system to severe deflationary pressure without any

compensating change in its productive efficiency. Adjustment to such a situation can only be made either by a variation of incomes or a variation in the external value of a country's money.

It is a commonplace of current economic analysis that an advanced capitalist system like our own suffers from, or is characterised by, a rigid income system. The existence of long period contracts for the hire of land is reinforced by the growing habit of Joint Stock Enterprise to finance itself by the issue of debentures and other fixed interest liabilities and the growth of Trade Union bodies capable—in a democratic order—of enforcing wage agreements which it is expensive and even dangerous to break. Since the great economic disease of a competitive order is insecurity, it is natural that the utilitation impulses of men should lead them to the erection of barriers which they believe will protect them from the most dangerous of such fluctuations. Thus everywhere in industry it has become difficult to lower the money costs of the factors of production. Protracted income deflation would put an almost intolerable strain upon a democratic community so conditioned.

It is to an economy of precisely this kind that the maintenance of Constant Exchanges is a severe, a dangerous, and unrewarding task. The Gold Standard system is an exactly unsuitable mechanism for such a society. If the level of money incomes is high, or becomes high relatively to the gold parity of the currency an attempt to use the mechanism of the Standard will render the position far worse. The outflow of gold will, if the Central Bank is engaged in "playing the game", lead to a deflationary pressure in the market. As we have seen, the deflationary powers of Banks once they are used with determination are exceedingly effective and there will follow as large a *monetary* deflation as the Banks desire. But, as Mr. Keynes has always insisted, monetary deflation is only the first and the easiest of the steps whereby alone equilibrium can be restored. Prices and turnover are down but not costs. Nor can costs be immediately or easily reduced, and the short period resultant must necessarily take the form of a quick and disproportionate

reduction of money profits. The further internal deflationary consequences of this distributional change are serious enough but they are greatly reinforced if trade relations with the external world are of any importance. The imposition of deflation in face of constant incomes implies not only that the one way to restore equilibrium in the Balance of Payments is by reducing the consumption of men and women forced into unemployment, but also that no real solution has been found for the underlying maladjustment in the foreign trade position. It is more than probable that the action of the Central Bank will force on a tendency to cumulative disequilibrium. It must be remembered that the existence of foreign trade relations makes foreign investment possible or the purchase of securities of companies operating abroad, and that if a deflationary policy is pursued by the Central Bank the internal level of profits and profit incomes is greatly depressed. Can there be any reasonable doubt that the net result will be to "drive capital abroad"—to raise the volume of Foreign Lending? If this is brought about and if the induced rise in Foreign Lending is greater than the benefits to the Balance of Payment derived from the reduction in the consumption of imports by the unemployed plus the increase of exports following upon the slight fall of prices, then the only result of the deflationary measures of the Bank will be a continued and even accelerated outflow of gold. A new equilibrium in the Balances of Payments might be arrived at by the creation of a considerable volume of unemployment and a consequent reduction of the import consumption of the excluded workers. In the absence of Foreign Lending this "solution" to the foreign trade problem might suffice, but if Foreign Lending is possible even this dreary stability is in the highest degree improbable. Rigid incomes, constant exchanges and industrial equilibrium are not a comfortable *mènage a trois*.

In a discussion of credit policy it is not relevant to analyse the course, or consider the possibilities of removing such a rigidity of incomes. It is one possible assumption about the condition of the real world, and as an assumption it is as good as any other. But surely it is obvious that if the income

system is rigid and as long as the rigidity remains substantially unchanged there is an overwhelming case for the construction of a world economy based upon constant national money income systems connected by fluctuating paper exchanges. The internal rigidity of incomes can then impose no intolerable or cumulative strains upon the foreign trade position of any one country. About this particular solution of the dilemma, to which the existence of rigid income systems is bound to lead, these are three points to be made:—

1. It is essential to distinguish exchange fluctuations which have actually taken place and the resultant uncertainty in the trade relations of the world community, from those which would exist if an income stabilisation policy in all its parts were applied to the world unchanged in other respects. Exchange fluctuations which now take place are conditioned and in large measure caused by, the movements of the world Trade Cycle. The vast majority of exchange crises, enforced depreciations, and consequent exchange fluctuations are directly caused by those large scale movements of money incomes within national areas, which it is the chief purpose in the first part of this policy to prevent. The depreciation of the pound in recent years and the wild fluctuation of the dollar since 1933 would both have been completely unnecessary if a severe decline in the national incomes of England and the United States had not set in in 1929. It is disingenuous of those who defend the Gold Standard and advocate a return to it to compare the two types of exchange fluctuation—those due to the historical instability of incomes and those which would arise under a regime of constant incomes. It is not true to argue that the maintenance of stable incomes on paper involves the type of exchange movement which has been associated with a wide abandonment of the Gold Standard and the subsequent feverish attempts to expand the Consumers' Income by "reflation".

2. In an equilibrial world—where the maintenance of constant money incomes within rational areas has removed the main impulses to social unrest—the sources of exchange

fluctuations would be reduced to three in number. They would rise from changes in relative efficiency, changes in reciprocal demand, and changes in trade policy. Changes in relative efficiency are likely to occur and may very well be large. It is certainly probable that the expansion and rate of accumulation in certain areas of the world will rise and fall *relatively* to each other to a considerable extent. The Far East is, for example, not unlikely to show a great *relative* increase in efficiency as against the West within the century. Such movements are, however, for the most part slow and steady movements and are perfectly compatible with long periods of comparative exchange stability. Changes of reciprocal demand, on the other hand, may very well be more sudden and more arbitrary. A sudden fashion for artificial silk or a sudden demand for anthracite coal to be used in a newly discovered process is likely to disturb the volume of foreign exchange bought or sold in the course of a single year or quarter. But these sources of change are not likely to be great and there is evidence to show that changes in demand during periods of relative industrial tranquillity, are not quantitatively serious. Finally, changes in trade policy are quite arbitrary and sudden and may be large. Whether they are likely to be as frequent in a world freed from the fluctuations of the Trade Cycle remains to be seen, but in any case they occur as frequently and exert just as disastrous results in a regime of constant exchanges as they would under a regime of constant income. Thus the conclusion seems to be that apart from trade policy the forces making for instability in the exchanges are likely to operate slowly where they are considerable in size and to be small when they are quick to develop, and that it is probable that they would be quite compatible with considerable periods of stabilisation within narrow margins and day to day fluctuations within these margins. That is a radically important conclusion.

3. Finally, it is necessary to remember that in a period of continuous but small exchange movements a series of special institutions—future exchange brokers, exchange insurance companies and various "cover" devices and operations—

would come into existence for the purpose of bearing the specialised cost of exchange uncertainty. The risk associated with the instability of the exchange would become an insurable risk. As such it would be an element of cost in business peculiar to international trade and would restrict the volume of such trade, but it would not constitute an impassable barrier to international exchange.

These reflections lead towards a general conclusion. It is essential to recognise that the real choice before a rigid income world is not the choice between stable exchanges and the absence of risk peculiar to international exchanges on the one hand, and a world with such sources of risk fully present on the other, but a choice between the risks associated with slowly moving exchanges and those that are inseparable from sudden departures from the Gold Standard. As long as incomes are rigid the continuous operation of an automatic Gold Standard over a large area of the earth cannot possibly be secured for long, and the only practical result of attempting to set it up will be to concentrate the risk which is inescapable under these conditions, into the short periods of sudden and enforced departures from the chosen parities. Certain economists by emphasizing the extent and severity of the shock to confidence which our own departure from the Gold Standard in 1931 administered to the world economy, are unconsciously strengthening the case against a return to rigid exchanges, for they are making it increasingly plain that the risk involved in such inevitable departures is, on balance, greater than that which it is reasonable to expect under a regime of related paper currencies. Until they have discovered some method of restoring elasticity to the income system by changes which do not involve far-reaching social dislocation it is not open to them logically to suggest or advise a return to the Gold Standard. It is reasonable to emphasize the evils which are inseparable from fixed money contracts; and it is the business of the economist to explain the conditions necessary for the attainment of perfect industrial and monetary equilibrium, but it is not his business either to advocate one part of that system when an integral but different part is wholly lacking to it, or to con-

tent himself with a Pharisaical contempt for the shortcomings of men in their economic relations. The problem of policy *is* the problem of real men in such relations, and if the economy is characterised by positively inclined demand curves or by constant money costs it is with that world and with that world alone that the policy-maker has to struggle. It is therefore reasonable to conclude that foreign trade should be called upon to adjust itself to the exigencies of internal equilibrium; and it is more than probable that the results of subordinating international exchange to the maintenance of internal money incomes in this way will raise the volume of that exchange far beyond any quantity that it could otherwise reach although it may reduce its relative share in the total of industrial activity because of the spectacular recovery which internal production would enjoy.

§5. CONCLUSION.

The argument of this book therefore reaches at this point the end of its first main task. In a system of banking control and practice which is not greatly different from the present one and assuming that the general conditions of industrial equilibrium already exist, it is possible to lay down these central principles of banking policy.

1. The Banks should take steps to provide themselves with the data out of which the indices of Private, Trade and Stock Exchange Balances and Clearings discussed in Chapter V can be constructed. They can do this simply by instituting a new method of classifying their liabilities and a different method of publishing the returns of the Clearing House.

2. When the Central Bank is possessed of the necessary figures, and after the passage of a period sufficiently long for the significant movements in them to be separated out from seasonal fluctuations with reasonable accuracy, the Banks should proceed to the stabilisation of the average Private Clearings per head of the population by the use of the orthodox instruments of policy:—

i. Bank Rate movements.

ii. Open Market Policy and the raising and lowering of the standard of requisite security.

3. Should these instruments prove ineffective at any time to control the movements of the indices in question—in particular if uncontrollable deflationary forces should emerge within the Industrial Circulation—the Banks should attempt to use, in co-operation with the Treasury or other organs of the national exchequer, the final instrument of taxation. In so far as the other instruments of inflation or deflation have failed the Banks should take over the burden of financing the Budget or return that burden to the Treasury, leaving the Chancellor to control the distribution of the Budget total between various forms of taxation.

4. The Exchange Market should be allowed to remain free and the external value of the currency should reach whatever value is consistent with the full execution of the other items of the programme.

This total policy is relatively simple to carry through and is not by any means incompatible with a retention of the existing forms of banking and finance and the existing distribution of executive power. It is easy to exaggerate both the extent of the administrative changes which are necessary and the alteration of policy which is required to inaugurate a more rational and consequently more stable monetary policy. It is difficult to overestimate the real economic advantages which might flow from such a change. To-day is a time of great economic opportunity.

But this programme clearly abstracts from one essential aspect of the real world. It does not attempt to analyse the problem of short run policy or describe how an industrial equilibrium which does not exist can be created by measures which do not prevent its indefinite continuation. These arguments, have, that is to say, abstracted from the existence of Trade Cycle fluctuations. Yet these exist and their existence profoundly affects what it is possible to do. It is quite impossible for example to stabilise money incomes at the height of the boom, although that is the only period in the whole cycle of capitalist activity when there is reasonably full employment, since the state of confidence and plans of investment existing at the moment of boom are both dependent on the maintenance of a given rate of income expansion. On the

other hand although it would be very *possible* to stabilise incomes during the period of depression it would be eminently absurd to do so. In a rigid income system it would mean condemning the industrial order to a terrible struggle for the reduction of every type of monetary cost. Thus a very grave dilemma faces those responsible for monetary policy during a period of recovery.

I have abstracted from these problems in the present Chapter just because I believe that they are insoluble by these orthodox means and because I believe that they will only yield to a programme of more radical reform than has been suggested. It is to this more profound adjustment of our Banking practice, some steps of which lie almost outside the work of a pure economist, that I propose to turn in the next and last Chapter of the book.

CHAPTER VIII

PLANNED MONEY AND CONSTANT PRICES

§1. The contemporary discussion of "economic planning" has been more prolific in nonsense and confusion than that on any other subject in recent times. Supporters of planning and conscious control in the economic sphere are as blind to its difficulties as its opponents are to its merits. In the first place opponents and advocates alike group the most dissimilar types of Government intervention and forms of control into one general category. Government schemes for the cartelisation of particular industries, private monopolistic restrictions, isolated acts of industrial nationalisation and measures involving comprehensive foresight and the control of industrial relations, are all lumped together as "interference" or "planning" without any economic, political or social analysis of the type of interest or the final end that is served by the amalgamation or "plan". Any kind of institution which differs from competition among many sellers is praised by the one and condemned by the other party to the controversy. The direction of economic life by any other method from that of a pattern of reflex actions conditioned by the stimulus of monetary reward or the search for private utility becomes the object of unbridled dislike or equally unbridled confidence. In the second place discussion is further confused by a most barren methodological confusion. No attempt is made to distinguish between the logical implications of certain legal forms and the actual social content of the corresponding historical institutions. Either the opponents of planning contrast the theoretical equilibrium of atomistic competition with the historical evils of spontaneous or enforced cartelisation without perceiving that they are comparing like with unlike; or the advocates of planning seem to imagine that there is an inherent superiority

in grouping smaller interests into larger interests without specifying the forms of social control that are to be realised in them. There is as yet nowhere in the literature of the subject any serious attempt to compare the formal logic of planning with the formal logic of unregulated competition. The muddle into which this branch of economic inquiry has fallen in recent times is really due to this deficiency more than to anything else.[1]

This book is really no place in which to clear up these confusions nor for me to defend my own belief in the theoretical superiority and social necessity of a Planned Economy. But it would be impossible to conclude a discussion of credit *policy* without examining the relevance of a general conviction of this kind to the particular question of money and credit.

Planning is, I believe, necessary for the achievement of certain social ends that are valuable in themselves. Capitalism, both in theory and practice, depends for its adaptability to organic change upon the pursuit of private monetary profits. It further relies for the discipline necessary in industrial life upon the authority of a class of employers and managers, and for the sinews of progress upon the savings made from large private incomes. Inequality in the distribution of wealth and a distinction between employer and employed are therefore essential institutions in an economy based upon private enterprise. Before a superior form of social life which is free from personal indignity, free from arbitrary authority and free from class distinctions can be brought into existence the fundamental institutions of property and profits must be replaced by the institutions of social authority in economic affairs. Moreover, if organised democratic resistance to the class and distributional evils of capitalism is not either to break to pieces the productivity and adaptability of existing economic machinery, or in its turn be broken by the emergence of protective organisations upon the other side, some solution of the implicit class

[1] Even Mrs. Wootton's excellent book *Plan or No Plan* is not entirely emancipated from this evil. Her description of Capitalism is analytical and based upon the theory of competitive equilibrium while her account of Russia is descriptive and historical. That is not a fair comparison.

struggle must be found. The rescue of democracy from the complex economic problems created by the freedom of institutional organisation within it leads inevitably to the need for some form of Planning. It is necessary on these grounds to plan economic life in order to extend and even to protect the continued existence of the small measure of personal liberty we have so hardly and so uncertainly won. That, in my view, is the final rationale of Economic Planning; and as an integral and necessary part of Economic Planning in general, it seems to be the ultimate reason for Monetary Planning in particular. Since however this type of reasoning is based upon certain judgments of social value it is not relevant to pursue that line of reason now. As Professor Robbins has reminded us, economic science not only can, but also must, remain indifferent between social ends.

Fortunately it is not necessary to look beyond the purely scientific field to find reasons for a redistribution of authority and the emergence of new institutions in the field of money and credit control. An analysis of monetary policy must be based upon certain assumptions as to the conditions of contract and the freedom of prices ruling in the industrial world with which it has to deal, and any conclusions about monetary policy must specify the nature of those assumptions. *Any* set of assumptions will do for the work of pure theory but the assumptions must be verifiable and true before any rational choice of *policy* can be made. Now it is my profound conviction that if we make two assumptions—the realism of which can be checked by the examination of almost any set of relevant figures—purely scientific arguments for such a reform of *banking* institutions as will render a *"planned money"* possible become overwhelming. The two fundamental assumptions are:—

1. That a rigid income structure exists: that is to say that the costs of land, labour and loan capital are subject to long period contracts which cannot easily be revised downwards; and that consequently the money payments which stand in opposition to profits cannot be easily reduced.

2. That the real structure of the industrial system is such

as will arise after it has been subjected to a series of Trade Cycle fluctuations or cyclical credit inflations.

The validity of these assumptions is scarcely open to question. An examination of a representative index of money wages during the depression phase of the last three years will demonstrate the rigidity of this type of money cost. The long period nature of land rent contracts is an ancient and well known characteristic of the present property system and the growth of debenture and other fixed interest capital liabilities in recent times can easily be verified.[1] Consequently the existence of a rigidity in costs other than profits is not open to question. The second assumption is equally familiar and true. Any set of employment or production figures shows a predominantly cyclical movement which is quite unmistakable. It is this historical process which has controlled the relative sizes of the various components of the industrial structure. Within the limits of these assumptions the case for a Planned Money becomes extremely strong. A "Planned Money" does not necessarily imply a transference of property rights in banking enterprise to the State, but simply the unification of *policy control* in such a manner that one person or committee—the Central Banking Authority—is able to review the total industrial and financial conjuncture and to control the policy of every organ which directly effects the flow of money income and expenditure. This must necessarily include supervision of the Treasury policy of the Central Government. It is necessary to examine the value of such a "unity in financial command" within an economic system so conditioned.

§2. The Economic Case for a Unified Credit and Financial Control.

The case for the conscious control and effective planning of credit investment and taxation operations rests upon three important analytical grounds; the inherent instability of the credit position in the Industrial Circulation, the presence of institutional factors in the self sustaining mechanism

[1] See Robbins, *The Great Depression*, Chapter IV, p. 63.

of Trade Cycle fluctuations, and the social disadvantages of a Constant Income Policy.

1. *The Inherent Instability of the Industrial Circulation.*

As was seen in the first two Chapters of this book, the profit and employment situation depends almost exclusively upon the maintenance of zero losses in the Industrial Circulation. In the third and fifth Chapters were discovered a large number of processes which prevent this essential condition from being fulfilled. An upward fluctuation of the disposition to save, a wave of Stock Exchange speculation, a number of purely technical changes in the structure of the Financial Circulation, an unwillingness of particular groups of entrepreneurs to cut down their dividend payments in proportion to the losses they are making; any or all of these events will cause an outflow of funds from the Industrial Circulation and the appearance of net losses in the manufacture of final industrial output. In the absence of contract frictions these changes will not, any more than any other type of varying preference, raise insuperable barriers to the re-establishment of equilibrium. Funds are removed from the purchase of industrial output it is true, but the consequent fall of prices and profits will be followed, through the operations of perfect competition, by a corresponding fall of the prices of factors other than fixed capital and the level of money profits will be rapidly adjusted not necessarily to the same, but necessarily to an equilibrium level. Every factor of production will remain in employment, or be received back into employment, at a slightly diminished price and at a constant or rising real price in terms of consumption goods because of an induced fall in the Cost of Living.

But no such adjustments can be expected in the real world that is now being discussed. The disproportionate reduction of profits will not disappear and investment will be checked as a result. At once the dynamic process becomes cumulative—the fall of investment and widely distributed losses further undermine confidence, force up the preference for liquidity and lead to increased inroads upon the security reserves of Joint Stock enterprise. All these evil consequences may flow

from a simple change in the relative preferences for various forms of property ownership, that is to say, from the isolated actions of individuals unconscious of the general results of their actions. The existence of a large volume of money balances held for the mere exchange of property rights superimposed as it is at present upon the contractual element in economic life—itself necessary for the reduction of uncertainty—renders the equilibrium of purely industrial activity extremely precarious. At any moment the changing property preferences of the community may plunge the economy into a cumulative industrial disequilibrium. Yet it is upon industrial equilibrium alone that the whole superstructure of economic and social welfare rests.

Thus there is an overwhelming argument on *a priori* grounds for the creation of a body with the power and intention to watch over the delicate but potentially disastrous relations between the Industrial and Financial Circulations and to see that the needs of the Industrial Circulation are always met and never denied. The only conceivable argument against the creation of such a body must be on the grounds that its actions would, although better informed than the actions of individuals or competing Corporations, be controlled less by reason and public interest. An argument of this purely psychological and sociological character cannot be examined here since it lies outside the terms of reference of an unaided economist. All that can be affirmed upon analytical grounds is that without the beneficial operations of such a body the actions of isolated individuals, unconscious of the intricate relations and dependencies of the monetary circulation, cannot possibly achieve or maintain continuous industrial equilibrium.

2. *The Cure of the Trade Cycle.*

When the analysis is extended to include not only the contractual elements in all financial transactions but also the existence of large cyclical fluctuations in the volume of trade, the preliminary conclusion of the previous Section is reinforced. It is not proposed to examine the theory of the causes of the Trade Cycle in this Chapter.[1] Fortunately there

[1] Part II of *Purchasing Power and Trade Depression* is concerned exclusively with this problem.

is a common agreement among economists that whatever the detail of the causal sequences, the primary cause and characteristic trend of the fluctuations is due to an original inflation of producers' credits. This analysis as far as it goes is sufficient to lay bare the real dilemma that faces all short period monetary policy.

In the first place it means that the real structure of production which has endured a series of these limited inflations is bound to be of a certain kind. Those industries which are predominantly associated with the manufacture of fixed capital, and the other commodities upon which capital funds must be expended, will not only be larger than they would have been without these periodical expansions of credit, but they will also be larger relatively to other types of industry than the average Rate of Voluntary saving at any level of money income can maintain in equilibrium. A volume of resources has been attracted to the capital good industries at prices for the factors of production which can only be sustained by the appropriation of streams of newly created money to the purchase of new capital and new capital alone. Therefore, it is only during a period of continuing inflation that full employment of the factors of production in all employments can possibly exist at equilibrial money prices. A structure of production called into being by an inflation can only be restored to full activity *in that form* by another inflation.[1]

[1] There are two further points of explanation which it may be wise to make:

(1) The real disequilibrium which the Trade Cycle inflation is likely to cause in the capital structure of the community has been widely misunderstood. It is not that there is too much *capital* in the system or that the real capital built up out of forced saving is rendered useless or valueless by the subsequent deflation. The real disequilibrium lies wholly in the size of the capital good industries. They are adapted to a rate of expenditure on fixed capital made up partly from the voluntary saving of the community and partly from the expenditure of the new credits issued by the Banks. Full employment in those industries at the existing level of money prices from the factors of production can therefore only be offered when the rate of expenditure on new capital is reinforced by the credits of an inflation. The failure to understand this point is well illustrated in a review article in *The Economist Book Supplement* for July, 1934, and in Mr. Roll's *About Money*, p. 183.

(2) Mr. Barrett Whale has, however, pointed out to me that the disequilibrium is neither cumulative nor absolute. If in the recovery phase of a Trade Cycle the *voluntary* Rate of Saving rises to or above what the induced

The full dilemma of policy, is in the *second* place, now made apparent. It would be as well to examine the condition of full depression—the condition that existed in England or America in 1932. Prices are down, profits are reduced to nothing or less, unemployment is high, social disaster is imminent *and* money incomes and costs are rigid. In such a situation—such a desperate situation—it is a pedagogical impertinence to advocate deflationary measures. Deflation could only force the community into deeper cycles of disaster and inflame the fever of society. There is no conceivable policy other than that of "reflation"—the attempt by the provision of "easy money" and other inflationary devices—to relieve the profit position. And to a certain extent the policy will be successful. As profits are recreated, confidence will revive and investment will begin again. The volume of unemployment will fall. Such a reflationary recovery can continue with perfect safety until there is an equality between prices and costs in the consumption good market and full employment in the consumption good industries, and up to the point at which the quantity of capital production appropriate to the full volume of consumption good production is coming to the market. But if our analysis of the structure of production within which this recovery is taking place, is even approximately correct, the achievement of this stage will not represent the restoration of full employment or the achievement of full industrial equilibrium. A large volume of resources will still be involuntarily unemployed in the capital good industries. Now it would not be humanly practicable to stop at the moment when credit expansion has cured—at least in popular estimation—part of the unemployment problem, but not the whole of it. Nor would it be wise to do so, for it would mean the

Rate of Forced Saving had been in the previous boom, then the whole of the resources in the economy can be re-employed by simple reflation. Such a possibility cannot be ruled out in a rapidly developing economy. It is no doubt one part of the explanation of the rapidity of recovery from depression in the early phases of capitalist development, when the Rate of Saving was rising quickly—and one reason for the difficulty of recovery at a time like the present when the Rate of Saving is not growing greater. This point is more fully analysed in a slightly different context by Mr. D. H. Robertson's article *Saving and the Natural Rate of Interest* in the *Economic Journal* for 1934.

abandonment of a great mass of physical and human capital to the slow processes of industrial readjustment which a wiser policy could save from the heavy consequent losses.[1]

The nature of the wiser policy is not self-evident. Beyond the point at which there is an equality between prices and costs in the consumption good market and full employment in the consumption good industries, the further expansion of credit necessary to reduce unemployment to nothing will bring prices above costs in the consumption good industries and begin the inflation of profits that lies at the root of all unstable expansions. "Reflation" sows the seeds of a subsequent crisis.

It is not intended to attempt to resolve this dilemma here. All that it is necessary to emphazise is the indisputable conclusion that there is an inherent or institutional defect in an advanced capitalist order which prevents the cure of the Trade Cycle by ordinary credit policies, and which makes it sensible to affirm that in one way the Trade Cycle is an inherent and constitutional disease of Capitalism itself. The simultaneous presence of strong contract frictions and an inflated capital structure predisposes the system to a continuation of a self-conditioned cycle. And it is highly probable that only a complex, carefully articulated, and long period credit policy, involving at certain points the restriction of credit or the reduction of a rate of credit expansion that would be perfectly "safe" according to the accepted criteria of banking policy, and extremely profitable to the Banks into the bargain, will be capable of providing a final solution. Only a Central Authority whose business it is to conceive such a policy, watch the order of its phases, and control the necessary elements in its execution, could possibly embark upon such a difficult task with any hope of success. That is the second argument for the creation of such an authority.

3. *The Long Term Price Level Policy.*

It is not only in satisfying the exigencies of short period policy that the existence of a Central Authority in the

[1] See Robertson, *Economic Journal*, 1934.

monetary sphere opens up new possibilities and new hopes. We have already seen (see Chapter IV, §§ 5 and 6) that the policy of a stabilised Consumers' Income which has been advocated in this book is a *pis aller* fraught with difficulty. Particularly is this so when there are changes in the distribution of Final Income between classes of primary factors. A return to the discussion of long period policy can now profitably be made.

Price stabilisation by the issue of producers' credits in face of constant or relatively constant prices from the factors of production is impossible. The issue of Consumers' Credits by the existing commercial Banks is out of the question. Consequently, price stabilisation is out of the question. But this does not rob the policy of constant prices of its immense economic and supra-economic advantages. The steady expansion of money incomes without any offsetting change in the Cost of Living would create everywhere a greater sense of prosperity and economic achievement. It would make all adjustments to changing preferences, either between different types of consumption goods or between consumption goods and capital, very much easier because they could all take place with very much smaller absolute reductions of monetary rewards than is possible under a regime of constant total income. And finally, the identification of the rate of social accumulation with a rate of increase in money incomes would bring home to the community the social advantages of saving in a way that nothing else could possibly do. It would be foolish to deny that there are real advantages of immense social importance in such an expansion of money income. The advocates of constant prices have suggested the policy which is socially ideal, however impossible it may be to execute in practice.

This general judgment is immensely strengthened after a consideration of the weaknesses peculiar to Constant Income policy. We saw in Chapter 5, §3. 2, that there is one situation in which the execution of this policy imposes a terrible strain upon the financial and social system. This occurs when the forces of competition are making for a downward revision of the share of labour in the final income of

society. A falling share means a falling absolute total of money income if the total of which the share is a fraction is itself constant. With no compensating change in population the preservation of a constant total income would mean the steady reduction of the demand for labour in face of stubborn Trade Union resistance. The ensuing crisis would be prolonged beyond the limits of purely economic affairs. One is bound to recognise this skeleton in the cupboard of the case for Constant Incomes.

It is only necessary to devise a policy by which the stabilisation of prices can be carried through without the initiation of a cumulative inflation and all these difficulties disappear. It is at least worth inquiring whether a monetary system planned under a unified control could remove the inherent instability of the Industrial Circulation, cure the Trade Cycle or achieve the stabilisation of prices in the long run.

Before attempting to answer these questions it may be as well to explain the precise meaning of a "Planned Money" in the present context. It is neither a detailed supervision of the day to day work of commercial banks and other financial institutions nor even the social ownership of controlling interest in the Banks as commercial organs. It is simply the concentration of power and the unification of control. What is necessary is that there should exist some body or authority which can control the set of decisions now made by commercial bankers, discount houses, accepting houses, credit corporations, and the Treasury authorities as to the volume of money that shall become available on income and on capital account. It is not essential that a Banking Corporation should own the common stock of the English Joint Stock Banks, but it is necessary that some official or Committee of the Treasury or the Bank of England should be able to call the Overdraft Managers of the Joint Stock Banks into conference and inform them authoritatively of the credit policy that they are subsequently to pursue. Policy must be centralised and to that extent the rights of property must be curtailed.

It may be thought that the existing Central Bank—the

Bank of England—is the appropriate body for this purpose and that in practice it already performs the functions mentioned above. In point of fact, however, the Bank of England fails to fulfil the conditions of the necessary controlling body in at least three distinct ways:—

1. It has no power to insist upon collecting the information that may be necessary for the guidance of policy from the other corporations in the money market. It cannot, for example, compel the Joint Stock Banks to classify their liabilities in the way that was suggested in Chapter 6.

2. It has no final powers over the Treasury and cannot control the direction and timing of fiscal policy any more than the Treasury can directly control the purely Banking operations of the Banks.

3. It does not in practice call the Joint Stock Banks into regular and efficient co-operation and makes no attempt to control directly—as distinct from influencing the banks indirectly by operating on their cash reserve position—the day to day credit policy they are pursuing.

If the constitution and practice of the Bank was so reformed that it did in fact collect all the necessary information, did control directly the quantitative credit policy of the Joint Stock Banks, and was empowered to direct the fiscal policy of the Government, it would become the sort of Financial Authority I have been advocating and would be capable of carrying out monetary "planning" as that term is used here. The same qualities would be possessed *a fortiori* by a Socialist Banking Corporation which owned the Banks or by a Committee of Treasury equipped with Parliamentary powers to manage monetary affairs. Any one of these three would constitute a suitable Financial Authority. The constitutional form of such a body is not pertinent to the present discussion which deals only with the question of policy. Assuming that such a body exists, what short term and long term credit policy ought it to pursue?

§3. The Credit Policy of a Central Financial Authority.

The problem facing the Central Financial Authority can be

divided at once into the short term problem of establishing equilibrium in the midst of Trade Cycle oscillations and the long period problem of maintaining that equilibrium. At all stages a third task—that of overcoming the inherent instability of the Industrial Circulation will be present. It is therefore possible to examine policy under these three heads:—

1. *Short Period Policy—the Establishment of Equilibrium.*[1]

The Financial Authority is called upon to restore equilibrium to an industrial world, in which as we have seen, a series of inflations has increased the size of the capital good industries beyond the point at which voluntary saving can keep them in equilibrium with the rest of the industrial system.[2] A simple reflationary policy will therefore not secure any stable equilibrium. The immediate choice before the Financial Authority is that of stabilising incomes at the point of full employment in the consumption good industries and simply abandoning the excess capacity—physical and human—of the capital good industries; or of embarking upon some more ambitious policy that will enable it to save as much as possible of the existing mass of capital. Unless the capital good industries have become so large that the marginal productivity of their potential output has fallen to nothing—an extremely unlikely eventuality—the second and more ambitious policy will undoubtedly benefit total output and will moreover save the human beings associated with the capital good industries from prolonged unemployment and despair. But how is this more ambitious policy to be successful?

Suppose the Financial Authority takes over control of credit policy during the depression phase of the Trade Cycle. All industries are working under capacity, prices are down and profits disproportionately low, investment languishing and unemployment high in capital good and consumption good industries alike, but particularly high in the

[1] The argument of this section is also contained in the pamphlet *Socialist Credit Policy*, Part II.

[2] See footnote on p. 222.

former. Plainly the situation will not improve until Investment in the technical sense is forced up, and thus the first task of the authority will be to restore confidence and attempt to stimulate the Rate of Investment. This it can do, after the liquidation of the main outstanding debts of the affected industries, by the normal inflationary instruments of policy:

Low Bank Rate
Active Open Market Policy
Government Guarantees upon Private Investments of various kinds
Public Works
Direct Government Investment in industries or services under its immediate financial control.

By the active pursuit of all these policies at once, and also by raising the degree of risk that the Commercial Banks are prepared to bear in connection with advances to producers through the guarantee which can be given to their Clearing House position and in anticipation of the increase in commercial prosperity that will follow upon the successful progress of the general credit policy, the fall in the Rate of Investment could be checked and ultimately reversed. The ordinary Trade Cycle recovery will now set in, with a little less liquidation than would ordinarily take place.[1] All financial indices of turnover will rise together with indices of output while the unemployment index will decline as the new money flows back to all parts of the system.

The normal Trade Cycle recovery initiated in these ways can proceed with perfect safety until the unemployment in the consumption good industries is reduced to nothing. But as the previous section argued at length, this will not entail a cure of the unemployment problem. On the contrary, a large volume of unemployment will persist in the capital good industries. Yet beyond the point at which the consumption good industries are working to capacity a further increase in the Rate of Investment will, in so far as the new

[1] Which is, of course, contrary to the views of certain economists, a positive advantage as long as the marginal productivity of the fixed capital in the capital good industries has not fallen to zero.

money is subsequently spent on consumption goods, bring the total price of consumption goods above their total cost of production at the fixed level of money costs for the factors of production that has everywhere been assumed. Net profits will be created and any further uncontrolled inflation will create expectations that will drive the Financial Authority to dangerous lengths in the creation of new credit or to the forcing of a financial crisis by imposing a check upon their expansionist policy.

The only radical solution for such a dilemma is to force up the Rate of Investment *by forcing up the Rate of Saving*. The distortion in the structure of production has been caused by forced saving in the past; that is, by the attraction to the capital good industries of real resources derived from the increased monetary expenditure on the part of entrepreneurs into whose hands new money has been given by the Banks. A Rate of Saving enforced by this method cannot however be maintained because of the unstable nature of a credit inflation. The resources now attached to the capital good industries can only be employed by raising the Rate of Investment to the level that it reached in the previous boom, and by raising it in such a way that it cannot again be reduced. Is there any method by which the Rate of Investment can be forcibly and *permanently* raised?

One way of increasing the Rate of Investment permanently would seem to be by an appropriate use of the instrument of *Taxation*. If the Government takes from the people an increasing fraction of their rising money incomes, either in the form of voluntary loans or by taxation for the purposes of capital expenditure it has it permanently in its means to control the volume of expenditure and the volume of investment. Thus the Financial Authority would, in the situations now envisaged, continue the expansion of credit beyond the point at which the index of unemployment in the consumption good industries had fallen to nothing, but thereafter would begin to tax any further rise of income away from the hands of the public in order to stabilise the volume of expenditure on consumption goods and to finance the growth in the volume of Investment. The result would be for the

price level of the total output of consumption goods to remain stationary. A profit inflation would consequently be avoided, while the Consumers' Income and the Rate of Investment would continue to rise through the action of the Financial Authority in forcing a diversion of income from expenditure to saving. In the meantime the output of consumption goods would begin to rise at a faster rate because the rate of social accumulation had been forced up.

If this policy were successful it would surely involve the ideal solution of the short period problem. The public as consumers would lose nothing by the enforced saving, since their money incomes would be increased by as much as net saving was raised by taxation. Neither would their real consumption be reduced. In the short period the full output of consumption goods is coming on to the market, while the subsequent rise in the volume of consumption good production due to the increase in the rate of accumulation, is likely to reach the market just as rapidly as a rise in output occasioned by the slow transfer of resources to the consumption good industries. In fact, it is likely to come about faster in view of the restrictions to the mobility of the primary factors. On the other hand, all the resources of the economy are brought back—comparatively rapidly—into full employment.

The real difficulty facing the Financial Authority lies in a tendency which may arise in the body of taxpayers to reduce the volume of their voluntary saving as a result of the rise in taxation. If the community reduces its voluntary saving by as much as the Government increases the estimated Budget yield, not only will the funds required to force up the Rate of Investment fail to appear, but the expenditure on consumption goods will begin to rise above the equilibrium point. It is not very probable that this will happen because total money incomes will be expanding concurrently with the increase of taxation and the community is much more likely to save when it can stabilise its monetary expenditure on consumption goods and divide the remainder between taxes and saving. But in so far as taxpayers do reduce their voluntary saving despite the increase of money income in

their hands, the execution of this policy is frustrated. No crisis however can ensue. The Financial Authority has simply to keep the Rate of Investment equal to the taxation yield and the funds becoming available for investment from voluntary saving, taken together,—(S=I)—and if these funds are not sufficient to find employment for all the resources attached to the capital good industries, their employment must be sacrificed in order to preserve the general conditions of industrial and financial equilibrium. The ultimate justification of the short period policy is simply that it is worth making a serious attempt to salvage the capital already sunk in the capital good industries and that a weapon capable of sustaining a rate of forced saving lies to the hand of a Centralised Authority in the instrument of taxation. A Rate of forced Saving secured by an increase of taxation is inherently more stable than the same Rate of forced Saving obtained by inflation. There is no conceivable danger in such an attempt except the danger that it will only be partly successful.[1] In so far as the Government is capable of raising the Rate of Saving an increase in stable employment is guaranteed.

If then, the Financial Authority, has reduced unemployment to nothing and stabilised the total expenditure on consumption goods and the Rate of Investment at such levels as will make net profits equal to zero, but has not removed the surplus capacity of the capital good industries, what long period policy should it then pursue?

2. *Long Period Policy—and Constant Prices.*

Two problems face the Financial Authority after financial equilibrium has been established—the first a purely monetary problem and the second an industrial problem. It is the form of the short period policy which creates the industrial problem, in so far as it did nothing to remove the surplus

[1] I have treated the short period policy here outlined at somewhat greater detail in Part II of a pamphlet entitled *Socialist Credit Policy*, published by the New Fabian Research Bureau. It should be noted that I have assumed this policy to begin in the *depression* phase of the Trade Cycle (1920 or 1932 in recent times) and I have not considered the position that would arise if policy began in the period of Trade Cycle boom—in America in 1929—for example. It is exceedingly hard to know what could be done to avoid a depression.

capacity in the capital good industries or transfer resources to employments where they could be maintained without the necessity of forced saving—and where they would consequently make the largest possible contribution to the satisfaction of the consumers of final income. On the contrary, special steps were taken to maintain employment in these unsuitable positions on the assumption that it is better to enjoy the commodities that specialised and immobile factors are able to produce in the positions they now occupy rather than to lose the whole of them or a large fraction of them in the attempt to bring about an abortive transfer to other employments. But that is no reason, in the long run, for not making the appropriate adjustment in the real structure of production as new labour and new capital flow into being. Steps should be taken to see that as new labour comes on to the market it finds its way into consumption good industries and that its absorption there is financed by the gradual reduction of the special taxes imposed to carry through the original investment plans of the Financial Authorities. Thus over the long period the distortion in the structure of production and the special investment programme made necessary by it, will both disappear into voluntarily financed capital good and consumption good production. The transference of resources here envisaged is not only a slower and therefore an easier process but it is carried through with a constant total price for final output which means that the transfer to an industry always takes place under the stimulus of net profits in that industry and not because of the forcible lowering of wage rates in it.

During the readjustment of the structure of production and after the adjustment has taken place the long period monetary problem proper emerges. By what general price and income policy is full employment to be maintained? From everything that has gone before in this book it should be obvious that there are two alternatives between which the Financial Authority may choose—the first is the stabilisation of money income per head of the population and the second is the stabilisation of prices.

The first alternative presents no difficulties. A central

Financial Authority is in a particularly strong position to observe the course of monetary movements by means of a pattern of indices of the kind discussed in Chapter V, and to use all the instruments of policy examined in Chapter VI to control the development of the financial situation. If, after full employment equilibrium has been reached, it then throws the whole weight of its power into permanently stabilising the Private Clearings per head the industrial system will develop smoothly at a rate determined by the voluntary Rate of Saving. In doing this, the Authority will, of course, destroy for ever that disastrous instability of the Industrial Circulation which must otherwise continually threaten our industrial prosperity.

But the real advantages of price stabilisation remain. Can the Financial Authority embark with safety upon this more ambitious task? This is the last problem to be faced. As we have seen there are three ways whereby in theory prices can be safely stabilised. They could be stabilised:—

by the issue of new money to consumers at a rate equal to the growth of final output;

by subsidising the costs of the entrepreneurs' factors of production other than intermediate products to the same extent;

or by financing a budget deficit with new money to an appropriate total.

It is highly probable that the Financial Authority, of a kind assumed here, would not be in a position to make use of two of these mechanisms. Subsidising the costs of factors other than intermediate products requires a supervision of industrial costs and industrial payments which is only consonant with the possession of complete managerial powers and could therefore only be efficiently achieved in a fully planned Economy. Not only would a stupendous accountancy problem have to be faced and solved but also considerable powers would have to be vested in the Financial Authority of determining the course of industrial disbursement. The Authority would therefore cease to be a banking organ *simpliciter* and would become a Supreme Planning Authority in all its parts. Whether such a transformation is

desirable or not is a question which lies outside the boundaries of the problem we are, for the moment, considering. And in the same way, in order to issue money directly to consumers, the Financial Authority must build up a vast system of charitable distribution and make decisions on ethical and personal matters which lie entirely outside its capacities as a Financial Committee. Thus it is only through the Budget that a centralised monetary system can in general influence the market for final output.

But it should not be out of the question for the Authority to stabilise prices by a careful use of the unbalanced Budget. What it could do is to see that the Budgetary expenditure is made to exceed taxation receipts in each period of time by such a sum as will keep a given proportion between Consumers' Income and the final physical output of all kinds constant.

Imagine for a moment that the whole of the new money brought into the Chancellor's hands is paid directly into the Consumers' Income. Then the Budget deficit should be in direct and simple proportion to the increase of physical output. Thus if the simple assumption is made that physical output grows by a fixed increment per unit period of time, a fixed sum will be added to the taxation receipts in each identical period. If, for example, physical output grows by 100 physical units per unit period of time and the Consumers' Income =£5,000, and the Budget £1,000 at the same time, this series of equilibria[1] will arise:—

	Output	Consumers' Income	Budget Position	Consumers' Outlay	Price Level
t_1	1,000 tons	£6,000	Budget £1,000 (Taxes £1,000)	£5,000	5
t_2	1,100 tons	£6,000	Budget £1,000 (Taxes £500 New Money £500)	£5,500	5
t_3	1,200 tons	£6,500	Budget £1,000 (Taxes £500 New Money £500)	£6,000	5

There will be a steady increment to the money in the

[1] See Chapter IV, §5.

economy, a constant Budget total, a constant Budget deficit (£500) financed by the issue of new money and a constant level of prices per unit of output.

If other assumptions are made—that the rate of growth of physical output is a percentage of the total output in each period of time, that the Budget is not a fixed sum but a percentage of Consumers' Income, and so on, a different schedule will be reached, but it will be based on the same principle. The price level of final output can be stabilised by the issue of new money to consumers via the Budget.[1]

It must however be remembered that prices have been stabilised at a time when costs are falling because of the accumulation of new capital. *A profit inflation is therefore bound to occur*, and it is only if the Financial Authority can resist the producers' subsequent demand for credit acommodation, that a cumulative inflation can be prevented. It is further only on the assumption that the competition of entrepreneurs will *raise* the price level of the factors of production in all employments more rapidly than they themselves are able to move to the position of maximum monetary reward, that a distortion of the structure of production in favour of the earlier or near stages of production can be avoided. If however the Authority is able to resist the inflationary pressure and if the period of time required to move the real factors of production is long in relation to the period of circulation—an extremely probable assumption —a stabilisation of prices can be safely carried through.

[1]If it is assumed that there is a 10 per cent rise in physical output the Budget is equal to 20 per cent of Consumers' Income the schedule of new money issue becomes as follows:—

	Output	Consumers' Income	Budget Position	Consumers' Outlay	Price Level.
t_1	1,000 tons	£6,000	Budget £1,000 (Taxes £1,000)	£5,000	5
t_2	1,100 tons	£6,000	Budget £1,000 (Taxes £500 New Money £500)	£5,500	5
t_3	1,210 tons	£6,500	Budget £1,100 (approx.) (Taxes £450 New Money £650)	£6,050	5
t_4	1,331 tons	£7,150	Budget £1,200 (approx.) (Taxes £495 New Money £705)	£6,655	5

§4. Conclusion.

The theoretical reasoning of this Chapter seems to establish an extremely strong *a priori* case for believing that a centralised Banking Authority will remedy precisely those deficiencies from which our existing monetary system suffers. It would be able, through the position it would occupy in the financial structure of the community to gather the statistical data without which all policy must be blind and uninformed, and it could exercise the powers by which it is alone reasonable to think that the inherent instability of the Industrial Circulation can be overcome. Disastrous fluctuation in industrial activity could thus be cured forever, and the more elastic and free moving policy of stable prices be safely pursued. A new financial machine and a redistribution of power within it might release for another century the productive powers of mankind.

CONCLUSION

At the end of my book on the theory of under-consumption written in 1932 I said:—

"It therefore seems to me that the third and right policy for the banking system to aim at, the policy which will avoid a painful income deflation on the one hand and a profit inflation on the other, is the maintenance of a *constant consumer's income per head of the population*. . . .

"I may say, in passing, that I do not wish to suggest that it is absolutely impossible to stabilise the price level of consumption goods, because that would not be theoretically true. If it were possible to issue credit to consumers in just the right amounts . . . then it would be possible to stabilise *all* price levels and avoid the appearance of net profits. But in the absence of co-ordinated banking, industrial and trade union and Government action, such a policy cannot be executed; and the essential fact is that it is not necessary. If it were possible to maintain a constant consumer's income then saving would proceed by virtue of its power to reduce costs. . . .

"If what has been said in this Chapter is true then a conclusion of great importance can be derived from it. It is not likely that we shall enjoy an easy road to salvation in curing the Trade Cycle. We must choose between the relief of inflationary policies and temporary prosperity and settling down to a cure which is slow, which is devoid of spectacular success and which in the first instance is as painful as the disease. . . .

"I write this critical essay at a time when the theory of under-consumption is more powerful than it has ever been before and when, in a dozen different forms, it is influencing the decisions of legislative and financial bodies towards inflation . . . I am sorry that I cannot join their number or share their hope. I believe with reluctance that this theory

does not tell the truth about the processes of monetary circulation or describe the real alternatives that are before us, and that if we are to have the courage to live with open eyes and to accept the hard discipline of an uncompromising realism we must turn away from the false hopes of prosperity which the theory of under-consumption has everywhere called forth."

Readers of the present book will see that I have changed my views in one important respect and the stress of my emphasis in two equally central matters. It no longer seems to me to be true that the only method of bringing equilibrium out of Trade Cycle fluctuations lies in further deflation during the period of depression. It is now obvious that reflationary policies can be pursued with perfect safety to the point at which there is a full equilibrium in the market for consumption goods and that the Rate of Interest which will secure such a reflation is the equilibrial Rate of Interest for the contemporary structure of production and the ruling consumers' preferences whether it is positive or negative. And I believe that a reasonably powerful central control could, by pursuing a sufficiently complex long term policy, succeed in salvaging the real social capital invested in the industries producing instrumental goods.

And in the same way I am now clearer both as to the theoretical importance of a monetary expansion by way of Consumers' Credits and the practical advantages of a stable level of commodity prices. It would no longer appear impossible to achieve this desirable condition if governmental and banking policy can be integrated and used to control the income position of the community. The requisite conditions for achieving this new and vitally important power lie in the creation of the institutions of a planned money and a willingness of Governments to vary taxation policy for reasons other than the financial needs of the current administrative Budget. Whether these changes are politically possible it is not my purpose either to affirm or deny. Nor is it the business of any economist *qua* economist to affirm or deny these or any other political possibilities.

But if these measures are not radically impracticable then

it is wise to entertain a reasonable hope. If certain institutional changes can be effected without panic or social upheaval it is sensible to anticipate the permanent cure of unemployment and the beginning of a period of steady and uninterrupted economic progress. Production can be made to rise, poverty to wither away and security to grow at a pace determined by the willingness of the owners of final income, or society in its corporate capacity, to make provision for scientific research and capital accumulation. It should be possible to banish unemployment forever. It should be possible to double the standard of living in thirty years. These are reasonable expectations.

Finally there is no more powerful enemy of reasonable hope and moderate economic ambitions than the Giant Despair. I believe that economists have been guilty of a disservice to society and an offence against reason by concentrating too exclusively upon popular fallacies and the too frequent denunciation of popular unreason. I speak as myself a sinner in this matter. The public at large has shown itself intolerant of the negative and calm superiority of economists and it is right to be impatient of such impertinence. The general public knows that all is not well in the economic sphere and its members feel in their bones that it cannot be true that there is no hope and that nothing can be done. It is ridiculous to suppose that mankind is condemned through the fatal power of its reason to experience nothing but suffering and disillusionment from the glorious and resistless march of natural science. Common men feel that it must be true that our increasing knowledge and power has given for the first time in the history of human culture the opportunity to secure simultaneously and at once the opposing and hitherto irreconcilable virtues of security and progress. We can all live in safety and grow in wealth if only we can find the way. And it is the business of the economist to find it. The explanation of the widespsread popularity of the monetary crank and of views which are demonstrably ridiculous among people who are otherwise educated and reasonable is a measure of the extent to which the economist has failed in this essential task. It would ill-

behove the doctor to criticise the Christian Scientist and the dietetic fad if he could not himself cure any disease. It is not enough to denounce heresy if the book of truth contains nothing but empty pages. Economics must propound policies and create hope if it is to live or be of service to men.

There is reasonable hope and there is unreasonable hope. I have written this book in a faithful endeavour to separate what is reasonable from what is unreasonable. I can only hope that there resides somewhere in the deep springs of our social consciousness the will to create for ourselves the machinery of foresight and power and to enthrone in the control of economic affairs that gift of reason which has distinguished in every age the ascent of human society towards the ideal of its own fulfilment in the happiness of the common man.

APPENDIX

NOTE 1. Professor Hayek's doctrine of an Asymmetry between the effects of an increase in the Rate of Saving and an increase in the Rate of Expenditure.
NOTE 2. Mr. Keynes' use of the terms Normal Income, Saving, and Investment in his *Treatise on Money.*
NOTE 3. Mr. Robertson's definition and use of the term Hoarding.

NOTE 1. PROFESSOR HAYEK'S DOCTRINE OF ASYMMETRY.

". . . Let us first consider the course of changes in voluntary Saving, that is, simple shifts of demand between consumers' goods and producers' goods . . . suppose that consumers save and invest an amount of money equivalent to one fourth of the income of that period. We may assume further that these savings are made continuously, *exactly as they can be used for building up the new process of production.* The proportion of the demand for consumers' goods to the demand for intermediate products will then ultimately be changed (n.b. reduced) from 40:80 to 30:90 or 1:2 to 1:3. 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 of thirty now available for that purpose . . .*"

Hayek, *Prices and Production,* pp. 45-46.

And then,

" Speaking generally, it might be said that the effects of a relative increase in the demand for consumers' goods (i.e. a fall in the Rate of Saving) are the reverse of the effects of an increase in the relative demand for producers goods (i.e. a rise in the Rate of Saving) . . . *There are, however . . . important differences.*

"The relative rise in the prices of (mobile) producers' goods will make the larger processes (i.e. new investment) un-

profitable. . . . *But* while the non-specific goods, in particular the services of workmen in those higher stages, have thus been thrown out of use because their amount has proved insufficient and their prices too high for the profitable carrying through of the long processes of production, *it is by no means certain that all those which can no longer be used in the old processes can immediately be absorbed in the short processes. Quite the contrary: the shorter processes will only gradually absorb all the available producers' goods as the product progresses towards consumption and as the necessary intermediate products come forward".*

Hayek, *Prices and Production*, pp. 81-3.

The argument of these passages is anything but plain. They do however suggest that Professor Hayek is advancing two propositions that are radical to his theory of the Trade Cycle and which—true or false—are of interest to the general theory of money. The two propositions are:—

1. That it is always possible to *increase* the Rate of Saving without creating more unemployment than would be caused by any other change in relative demands. Whatever unemployment may appear can be traced directly to contractual frictions and is not likely to differ appreciably in amount from that which would arise from an equal proportionate change in demand between foodstuffs and clothes for example.

2. But that a *reduction* in the Rate of Saving results in a quite different and much more serious type of disequilibrium that cannot be traced to contractual rigidities but which is due to the more fundamental technical nature of capitalist. production. For now unemployment will be due to the fact that the mobile resources can only be absorbed slowly into the consumption good industries because ". . . . the shorter processes will have to be started *at the very beginning and will only gradually absorb all the available resources* as the product progresses towards consumption and as the necessary intermediate products come forward."

There is therefore, according to Professor Hayek, an asymmetry between the effects of an alteration of consumers' tastes which results in an *increase* in the output of

capital and the alteration that involves a *reduction* in the output of capital.

The probability that such an asymmetry exists is not very great at first sight. A change in the Rate of Saving either upwards or downwards implies little more, in a regularly advancing economy, than a rise in the output of one group of industries and a fall in the output of another group. Any change in the real structure of production can only proceed as an alteration in the relative outputs of the machine and consumption good industries is achieved, and once that process is finished the main process of adjustment is complete. The change in relative outputs can however itself only be secured by a movement of mobile resources from one industry to another and any kind of temporal price contact will delay and frustrate that movement. But this will be true just as much of a movement of resources into the capital good industries—required by an increase in the Rate of Saving—as of a movement into the consumption good industries—required by a fall in the Rate of Saving. Any asymmetry between the two movements would be entirely accidental and not at all organic. Yet Professor Hayek believes that an organic asymmetry exists.

It would exist if one of Professor Hayek's pictures of the rise and fall in the Rate of Saving had any counterpart in reality. If the process of increased saving could be accurately represented by Professor Hayek's picture (see p. 84) of a society abandoning the less direct method of producing consumption goods *altogether* and beginning the construction of a vast new machine that would ultimately yield a larger output of final income upon the basis of an insufficient accumulated stock of consumption goods a fundamental asymmetry might indeed exist, for it would then be sensible to suppose that when the stock proved insufficient a most profound and almost impossible adjustment of the economy would be required. The producers would be forced to abandon their great machine altogether, and begin from the very beginning to pick berries in a wood. Whatever may be the virtues of such a picture in illuminating Professor Hayek's theory of cyclical fluctuation it is a radically inaccurate

picture of the results of changing the Rate of Saving in an economy adapted to any regular process of accumulation. If the Rate of Saving in a community goes up from 5 per cent to 10 per cent of final income, it is of the first importance to realise:—

1. That *no* stock of consumption goods is built up or can be exhausted.
2. That it is not even necessary that the physical output of consumption goods should decline by a single point. Since the Rate of Saving is continuous the output of consumption goods will be rising steadily and the transfer of resources to the capital good industries is not necessarily large enough to override the secular increase in consumption.
3. A reduction in the Rate of net Saving does not occasion in any way at all the use of shorter or less capitalistic methods of production but merely a reduction in the rate at which more capitalistic methods of production are introduced. Arguments that are constructed to explain a change in the average period of production involving a consumption of capital—whether right or wrong—are quite irrelevant to an examination of the effects of a change in the Rate of Saving.

There is therefore no relevance in Professor Hayek's picture of the Bigger Machine and there is—as far as the argument has led us—nothing more required by a fall in the Rate of Saving than a transfer of resources between two related employments.

But there is a more profound source of misunderstanding to which Professor Hayek is led by the identification of the abstract temporal and value stages of his diagram with the industrial stages of the real structure of production. What Professor Hayek appears to think is that the "top stages" of the triangle, which are characterised as we have seen by the remarkable property of using no intermediate products at all, do exist in the real world. He has said that "it is always possible to start a new stage"—because it requires no intermediate products to do so. Increased saving can therefore

always take place by two men and a dog embarking upon a new operation in hitherto intact forest. To increase the production of later stages however, raw materials and machines —two types of intermediate product—are always required. Slight indications of this point of view are to be found in *Prices and Production* (see pp. 72-7 and p. 82). Professor Hayek says for example: "Goods in the lower stages of production will generally be of a more specific character . . ."—carrying with it the suggestion that the earlier or more capitalistic stages have a smaller and smaller equipment of specific factors until in the "ultimate" stages of production no specific factors are to be found at all.

Nothing could of course be more untrue. There is no conceivable sense in which the stages more distant from the production of consumption goods employ less specialised factors. On the contrary the earlier stages of raw material production and the actual stages concerned with the manufacture of machinery contain the most intricate and powerful of modern machines, while the later stages of assembly and manufacture contain a large proportion of unskilled and mobile labour. If there is any general difference in the balance between specific and non-specific factors it is in the opposite direction to the one that Professor Hayek supposes although there is almost certainly no such general difference. And, needless to say, there is no single stage in a modern economy that is or can be started without intermediate products. New types of machines are manufactured by existing machines—that is all.

Professor Hayek has been misled by too literal an interpretation of his own diagram. In the real world there is just the same combination of mobile with immobile labour and capital in the stages where output can be increased by a rise in the Rate of Saving as there is in the industries where output will be increased by a fall in the Rate of Saving. Adjustment to the two positions is therefore identical and unemployment will arise from the existence of contract frictions just as much as if the Rate of Saving rises as if it falls—indeed, more so if the demand for capital is derived from the demand for consumption goods. There is therefore no

important difference or asymmetry arising from the technical conditions of production although such an asymmetry may exist in the opposite direction to the one Professor Hayek imagines, but for quite different reasons. In so far as the supposed asymmetry is necessary to Professor Hayek's theory of the Trade Cycle, that theory itself is invalidated by this mistake.[1]

NOTE 2. MR. KEYNES' USE OF THE TERMS NORMAL INCOME, SAVING AND INVESTMENT.

Mr. Keynes' position on price and income policy is not easy to determine. In the *Treatise on Money* he does not describe the conditions of monetary equilibrium in terms of the price level of final output at all, but in terms of "an equality between Saving and Investment". In certain passages however, he interprets this to mean a general stability of purchasing power or prices. Thus in discussing the significance of equilibrium he writes:—

> "If therefore the banking system can regulate the amount which it lends in such a way that the market-rate of interest is equal to the natural rate, then the value of investment will be equal to the volume of saving, total profits will be zero, the price of output as a whole will be at an equilibrium level, and there will be no motive moving productive resources between the production of consumption goods and the production of capital goods unless or until the purchasing power of money is also at an equilibrium level. *The condition for the stabilisation of purchasing power is, therefore, that the banking system should behave in this way and according to this criterion.*"[2]

And again, when dealing with Mr. Robertson's defence of cyclical fluctuations he speaks of stable prices as the plain cure for such fluctuations:—

> "I conclude, therefore, that Mr. Robertson's contentions though they deserve serious attention, are not sufficient

[1] M. A. Abrams' *Money* repeats this type of argument in detail.
[2] *Treatise on Money*, Vol. I, p. 158. Italics mine.

to dispose of the *prima facie* presumption in favour of *aiming at the stability of purchasing power as a general rule,* in preference to the oscillations of the Credit Cycle."

It is scarcely open to dispute that we should prefer a stability of purchasing power *relatively* to the wild price fluctuations of the Trade Cycle; it is by no means clear that this relative stability will be obtained by rigid price stabilisation policies—as I have already argued in the text of this book.

The precise relation between an equality of Saving and Investment as defined by Mr. Keynes and the price level of final output is not easy to determine. The answer depends first upon the interpretation of the nature of the Fundamental Equations ($P=\frac{E}{O}+\frac{I'-S}{R}$, $\pi=\frac{E}{O}+\frac{I-S}{O}$) and then upon the interpretation of the conception of the Normal Income.

In the first place, if the Equations are simply statements of the monetary determinants of the existing price level and are another way of saying that P and I would be different if any of the other terms were other than they are, then they tell us nothing about the nature of equilibrium policy and nothing about the fate of prices in periods long enough for O to change. In this respect the Equations are purely statical in type and do not provide tools for a dynamic analysis as Mr. Keynes claims for them.

But if, in the *second* place, they are meant to represent average flows over a period of time, then we are at liberty to ask what would happen to prices if Saving and Investment are equated for a period. Since Saving is defined as the difference between *Normal Income* and the expenditure upon Consumption goods, the answer to such a question depends upon the interpretations of the conception of Normal Income. This is, however, no easy task. Normal profits is literally defined by Mr. Keynes (p. 125) as the profits which will cause the entrepreneurs to embark upon no change in the scale of output and therefore no change in the quantity of fixed capital.

". . . For my present purpose I propose to define the 'normal' remuneration of entrepreneurs at any time as that rate of remuneration which, if they were open to make new bargains with all the factors of production at the currently prevailing rates of earnings, would leave them under no motive either to increase or decrease their scale of operations."

The maintenance of Normal Income would thus prevent the setting up of any new capital, would prevent any investment from occurring and would render all saving completely abortive.

This is such a strange conception that many of those who have read Mr. Keynes' *Treatise* have assumed that the correct interpretation of his conception of "Normal Income" was that income which would maintain full employment in the absence of autonomous monetary change and in the absence of a "wastage of Savings". In these circumstances Normal Income would be constant for a constant population since there would be no new money to bid up the prices of the factors of production while there would be no wastage of savings to reduce them. But on this interpretation it is certain that an equality between Saving and Investment would not permit of constant unit prices, since if all the Normal Income which is not spent on Consumption Goods is spent on new capital the total price of total output is constant. Any increase in physical efficiency such as will be produced by the accumulation of capital will necessarily be accompanied by a fall in unit cost and unit price. There therefore seems to be no sensible way in which the maintenance of monetary equilibrium requires the maintenance of static prices even on Mr. Keynes' assumptions.

NOTE 3. MR. ROBERTSON'S DEFINITION AND USE OF THE TERM HOARDING.

"I assume the existence of a period of time to be called a 'day' which is finite but nevertheless so short that the income which a man received on a given day cannot be allocated during its course to any particular use. A man's

disposable income . . . is thus the money received not on that day but on the previous one.

"A man is said to be *hoarding* 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. . . .

" . . . We may turn now to a somewhat different case, to which Mr. Keynes has invited particular attention. In this case entrepreneurs, instead of reducing their expenditure to match the reduction in a position to do so by selling securities to the public, whose saving takes from the start the form of purchasing these securities and not of adding to its money stock. But the scale of securities by consumption entrepreneurs indicates that they realise that their income received on day 1, and at disposal on day 2, will only be M_b—X (=increase in saving); their action, therefore, in ensuring by the Sale of Securities, that their money stocks at the beginning of day 2 shall be M_b (*i.e.*, more than it would have been) constitutes hoarding. . . . Thus the fall in P may equally be ascribed to the Hoarding of the Consumption entrepreneurs."—D. H. Robertson's "Saving and Hoarding" *Economic Journal.*

In Section 4.2 (p. 171) of Chapter V, I had reason to mention:—

(1) That Mr. Robertson's original definition of hoarding—the accumulation of idle stocks of cash and credit—made it equivalent to a reduction in Transaction Velocity. Money which would otherwise have exchanged against output or securities of some kind does not exchange against anything at all.

(2) That on this definition of hoarding many changes involving a disturbance of monetary equilibrium by the reduction of prices below the level of existing contracted money costs cannot be described as due to Hoarding. The accumulation of balances in a lengthening structure of production, in so far as it is financed by borrowing, will not lead to a fall in Transaction Velocity although it will force down the Income Velocity of money.

From the above quotations it is clear that Mr. Robertson wishes to change his definition in two ways:—

1. By drawing a distinction between the *money stock* or quantity of money received in any period of time and the volume of *disposable income* available for expenditure during that period. As long as the velocity of circulation is not infinite there must be some period of time, however short, between the receipt of money and the expenditure of money —a period in which a given unit of money can pass through one exchange but not through two exchanges. Within these unit periods there must exist a distinction between money received and money spent.[1]

2. By defining Hoarding with reference to this distinction. Hoarding thus becomes "any process which will increase the proportion between a man's Money Stock and his Disposable Income in any unit period of time."

The new definition separates the idea of "hoarding" from any necessary immobilisation of cash or credit and some new term must be found for those changes. These changes are cases of "hoarding" but not the only cases of "hoarding". Many further types of disequilibrium will be brought under the terms of the new definition. As was explained in the text of this book, all cases of the accumulation of balances—either by individuals or new firms—will become cases of hoarding because in every such case there is an addition to the relevant Money Stock which is not paralleled by an increase in the Disposable Income.

I have explained my reasons for not basing a systematic analysis upon the new definition[2] and here I wish to examine Mr. Robertson's contention that all forms of monetary disequilibrium can be expressed in terms of it. Mr. Robertson believes, as the above quotations show, that the case in which

[1] It is of course important to realise that the "disposable income" or money expended by individuals during any one unit period may be influenced by the *anticipation* of future money stocks. People may borrow in Period 1 because they expect to receive more money in Period 2. Disposable income may therefore be larger through borrowing and credit operations than the Money Stock of the previous period. But this does not alter the validity of the distinction between Stock and Disposable Income. Such a distinction must exist as soon as Transaction Velocity is less than infinite.

[2] See Chapter V, §4.

the producers who are making losses sell securities in order to maintain dividends can be described as a case of hoarding by them. Here I must express a doubt. I believe that Mr. Robertson has neglected the current fall in Income which they experience.

Turning to the quotations, it is in the first place of interest to note that there is a subtle change of emphasis between the actual definition and the use of the conception to analyse the supposed example. In the definition Hoarding takes place if a man "raises the proportion which he *finds existing* on any day" while in the analysis "the consumption entrepreneurs realise that their income *will only be*" a reduced sum and they take anticipatory measures to prevent the situation from arising. This is a significant difference. The definition of Hoarding does not imply foresight or anticipatory action, while the analysis implies both.

As an example of this process, suppose that on Day 0 the public holds a certain Money Stock derived from their money receipts of that day and also a Disposable Income equal to their money stock and derived from the money stock received on the previous day. They spend the whole of their Disposable Income on Day 0, which becomes the Money Stock of the entrepreneurs manufacturing consumption goods. They also hold an equal Disposable Income, so that the ratio between the Stock and Disposable Income of the potential hoarders is 1. The monetary position is then this:—

Day 0

PUBLIC		CONSUMPTION ENTREPRENEUR	
Money Stock	10		
Disposable Income	10		
Expended on Consumption Goods	10	→ Money Stock	10
		Disposable Income	10

On Day 1 the public save 2 units out of their Disposable Income instead of spending the whole of it upon consumption

goods and with this money they buy the securities that are sold by the entrepreneurs making consumption goods with a view to maintaining their dividends payments. The entrepreneurs by this measure maintain their Money Stock equal to their Disposable Income:—

Day 1.

PUBLIC		CONSUMPTION ENTREPRENEUR		
Money Stock	10			
Disposable Income	10			
Consumption 8	———	→ Money Stock	8	10
Saving 2	—Security →	Acquired Stock	2	
	←—Sale	———		
		Disposable Income		10

Thus the consumption entrepreneurs have done nothing to *increase* the proportion between Money Stock and Disposable Income—which remains at 10:10, or 1 throughout the process.

It is however true that they have taken steps to make the proportion larger than it would have been. They have maintained it at 10: 10 when it would otherwise have fallen to 10: 8 but they have taken no steps to make it greater than it was. It is of course open to Mr. Robertson to call any process that makes the proportion between Money Stock and Disposable Income higher than it would have been without such action a process of Hoarding. But since the sale of output by entrepreneurs just as much as the sale of securities, will make the proportion of their Money Stock to their Disposable Income higher than it would have been without the sale this definition reduces any process of sale whatever to a process of Hoarding. This would surely be an over general use of the term and the conclusion must be that all types of possible monetary disequilibrium cannot be brought under Mr. Robertson's new definition.

It is of interest to note that if the consumption sale does not take place until Day 2 Hoarding on Mr. Robertson's definition will take place. On Day 1 no security sales will

take place but the Money Stock of the entrepreneurs will decline:—

Day 1

PUBLIC		CONSUMPTION ENTREPRENEUR	
Money Stock	10		
Disposable Income	10		
Consumption	8 ——→	Money Stock	8
(Saving	2)		
		Disposable Income	10

The savings will either be hoarded in the Financial Circulation or the entrepreneurs making capital goods will receive them. The entrepreneurs making consumption goods will involuntarily "dishoard". On Day 2 their Disposable Income will fall to 8, and if they sell securities they will sharply increase the proportions between Stock and Income and will consequently hoard.

Day 2

PUBLIC		CONSUMPTION ENTREPRENEUR		
Money Stock	10			
Disposable Income	10			
Consumption	8 ——→	Money Stock	8	10
Saving	2 —Security→	Acquired Stock	2	
	←Sale—			
		Disposable Income		8

Consumption entrepreneurs have raised the critical proportion from 8: 10 to 10:8!

It is the anticipatory nature of the action in Mr. Keynes' case which has been too much for Mr. Robertson's definition.

NOTE 4. A MATHEMATICAL NOTE ON THE ARGUMENT OF CHAPTER II §2. By Mr. R. G. D. Allen.

(*The general effects of monetary expansion*)

The production process considered in the following algebraic treatment is the simplified one defined in Chapter II §2 above. It is assumed that there are n stages of production and that the consumers' outlay, together with any injections of new money, passes through from the earlier to the later stages of production taking equal periods of time

from one stage to the next. The effect of the injection of new money into the productive system will be examined in two cases, i.e. the case of a single injection at a given stage and the case of a constant rate of injection over time also at a given stage.

Case I. *A single injection of new money.*

An amount £a of new money is injected, in the first period of time, at the (n—m+1)th stage of production. Denote by £x_r the increment of this new money in the Consumers' Income in the rth period of time (r=1, 2, 3. . . .). The conditions of the problem then give

$$\left.\begin{aligned}
x_1 &= \frac{a}{m} \\
x_2 &= \frac{a}{m} \\
x_3 &= \frac{a}{m}+\frac{1}{n}x_1 \\
x_4 &= \frac{a}{m}+\frac{1}{n}(x_1+x_2) \\
&\text{---------} \\
x_m &= \frac{a}{m}+\frac{1}{n}(x_1+x_2+\ldots\ldots+x_{m-2}) \\
x_{m+1} &= \frac{1}{n}(x_1+x_2+\ldots\ldots+x_{m-1}) \\
&\text{---------} \\
x_{n+1} &= \frac{1}{n}(x_1+x_2+\ldots\ldots+x_{n-1})
\end{aligned}\right\} \quad \ldots\ldots\ldots\ldots(1)$$

and for all later periods ($r \geq n+2$)

$$x_r = \frac{1}{n}(x_{r-n-1}+x_{r-n}+\ldots\ldots+x_{r-2}) \quad \ldots\ldots\ldots\ldots(2)$$

The increments of the new money at all stages of the production process can be expressed in terms of the values of x_r at various periods of time.

For $r \geq n+2$

$$x_{r-1};\ \frac{n-1}{n}x_{r-2};\ \frac{n-2}{n}x_{r-3};\ \ldots\ldots;\ \frac{2}{n}x_{r-n-1};\ \frac{1}{n}x_{r-n}$$

represent the increments of new money in the successive stages of production in the rth period. The sum of these increments, together with the increment of consumers' income, is equal to the total injection, i.e.

$$x_r+x_{r-1}+\frac{n-1}{n}x_{r-2}+\frac{n-2}{n}x_{r-3}+\ldots\ldots\ldots+\frac{2}{n}x_{r-n+1}+\frac{1}{n}x_{r-n}=a \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Finally, the percentage price changes in the successive stages of production in the rth period are proportional to

$$x_{r-1};\ x_{r-2};\ x_{r-3};\ldots\ldots\ldots;\ x_{r-n-1};\ x_{r-n} \ldots\ldots\ldots\ldots \quad (4)$$

It follows, at once, that the variation over time of the increment of new money in any productive stage is similar to the variation of the increment of new money in the Consumers' Income. An adequate description of the diffusion of the new money through the production process is thus obtained by considering the variation of x_r over time. The variation of x_r over the first $(n+1)$ periods of time is given by (1). This variation assumes an up-down-up or wave like form and the shape of the wave depends primarily on the value of m. The smaller is the value of m, i.e. the later in the production process is the injection of the new money, the more violent is the initial wave variation in the value of x_r.

The changes in the value of x_r, after the initial wave, conform to the relation (2). The increment in the Consumers' Income in any period is simply the arithmetic average of the corresponding increments in the n periods up to the period last but one before the one considered. The initial wave-like variation of x_r is thus persistent through time but the amplitude of the wave is continually damped down as time goes on. As r tends to infinity and the damping continues indefinitely, the value of x_r, must tend to become constant. The limiting constant value of x_r is given by letting r tend to infinity in (3), i.e. it is given by the value x where

$$x+x+\frac{n-1}{n}x+\frac{n-2}{n}x+\ldots\ldots\ldots+\frac{2}{n}x+\frac{1}{n}x=a$$

Hence, $$x\left\{1+\frac{1}{n}(1+2+3+\ldots\ldots+n)\right\}=a$$

i.e: $$x\ \left\{1+\tfrac{1}{2}(n+1)\right\}\ =a$$

The limiting value of x_r is thus

$$x=\frac{2a}{n+3}$$

which represents the permanent increment of new money in the Consumers' Income after the oscillations have died down. The form of the oscillations depends on the stage at which the injection of new money takes place but the permanent increment in the Consumers' Income is dependent only on the number of stages and not on the stage of injection.

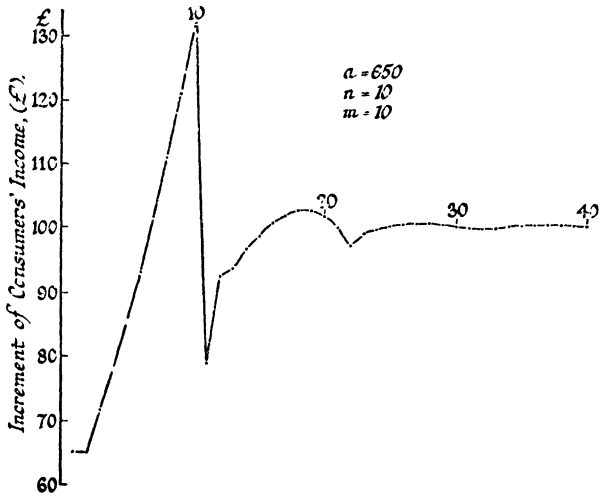
It remains to consider the relations of the price increases at the various stages of production and the way in which the relations change as time goes on. From (4), the percentage price increases in the rth period are proportional to the n values of the increments in the consumers' income in the n periods immediately before the rth. The extent to which the percentage price increases differ in any period is thus indicated by the amplitude of the wave-like oscillation of x_r in the preceding n periods. There are considerable differences in the price increases at the various stages of production at first but these differences tend to disappear and, in the limit when the oscillations have died down, all prices are increased by a fixed percentage proportional to $2a/n+3$.

The extent of the damping down of the oscillations of the amount of new money at any production stage and the tendency to uniform percentage price increases throughout the production process are best illustrated by the construction of actual numerical examples. A production process consists of ten stages and £650 of new money is injected into the system. In the limit, the consumers' income is increased by a constant amount £100, while the additional money in the various production stages varies regularly from £10 at the highest stage to £100 at the first stage. In this way, the prices at all stages are increased by the same

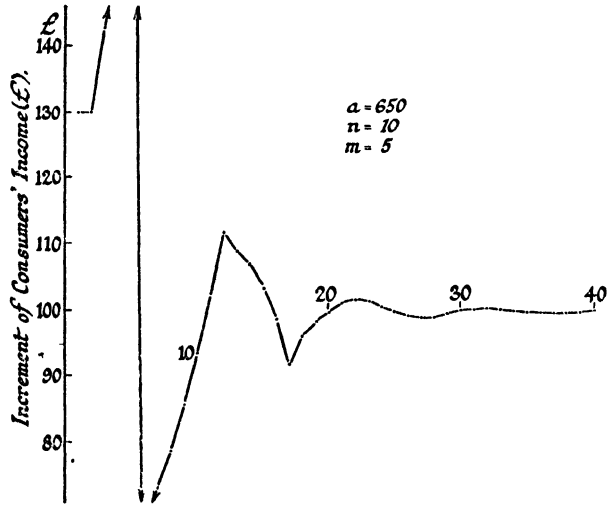
percentage amount. This limiting result is quite independent of the stage at which the new money is injected. But the oscillation in the increment of new money at any stage and the damping down of the oscillation as time goes on is dependent primarily on the stage of injection of the new money. Two cases can be taken for illustration:

(*i*) injection at the sixth of the ten production stages ($n=10$, $m=5$)
(*ii*) injection at the first of the ten production stages ($n=10$, $m=10$).

The injection in the first case is in the middle of the production process and in the second case at the level of the Consumers' Outlay. The oscillation in the values of the increment of new money in the Consumers' Income, which is typical of the increment at any production stage, is then shown by the two graphs below.



(Graph 1. $a=$£650, $n=10$, $m=5$.)



(Graph 2. $a=£650$, $n=10$, $m=10$.)

The rapidity with which the new money becomes diffused through the system can be illustrated by giving, in these two cases, the maximum variation in the percentage price increases at the various production stages in the 15th, in the 25th and in the 50th periods. We find:

	Maximum variation of % price increases		
	15th period	25th period	50th period
Case (i)	115%	11.6%	0.1%
Case (ii)	53%	5.7%	0.07%

Case II. *A constant rate of injection of new money.*

An amount $£a$ of new money is injected into the production process at the (n–m+1)th stage of production in every period of time. If $£x_r$ is the increment of new money in the consumers' income at the rth period, the conditions of the problem give

$$\left.\begin{aligned}
x_1 &= \frac{a}{m} \\
x_2 &= \frac{2a}{m} \\
x_3 &= \frac{3a}{m} + \frac{1}{n}x_1 \\
x_4 &= \frac{4a}{m} + \frac{1}{n}(x_1+x_2) \\
&\cdots\cdots\cdots\cdots \\
x_m &= a + \frac{1}{n}(x_1+x_2+\cdots\cdots+x_{m-2}) \\
&\cdots\cdots\cdots\cdots \\
x_{n-1} &= a + \frac{1}{n}(x_1+x_2+\cdots\cdots+x_{n-1})
\end{aligned}\right\} \cdots\cdots\cdots\cdots (5).$$

and, for $r \geq n+2$,

$$x_r = a + \frac{1}{n}(x_{r-n-1}+x_{r-n}+\cdots\cdots+x_{r-2}) \cdots\cdots\cdots\cdots (6).$$

The increments of new money at the various stages of production in the rth period ($r \geq n+2$) are

$$x_{r-1};\ \frac{n-1}{n}x_{r-2};\ \cdots\cdots;\ \frac{m-1}{n}x_{r-n+m};\ a+\frac{m}{n}x_{r-n+m-1};$$
$$\cdots\cdots;\ \frac{2a}{m}+\frac{2}{n}x_{r-n+1};\ \frac{a}{m}+\frac{1}{n}x_{r-n}$$

The sum of these increments, together with the increment in Consumers' Income is equal to the total injection of new money up to the rth period. So

$$x_r+x_{r-1}+\frac{n-1}{n}x_{r-2}+\cdots\cdots+\frac{2}{n}x_{r-n+1}+\frac{1}{n}x_{r-n}+$$
$$\frac{a}{m}(1+2+\cdots\cdots+m)=ra$$

i.e.

$$x_r+x_{r-1}+\frac{n-1}{n}x_{r-2}+\cdots+\frac{2}{n}x_{r-n+1}+\frac{1}{n}x_{r-n}=$$
$$\left(r-\frac{m+1}{2}\right)a \qquad \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots (7).$$

The percentage price increases at the successive stages of production in the rth period are proportional to

$$x_{r-1}; x_{r-2}; \ldots\ldots; x_{r-n\,m}; \frac{an}{m}+x_{r-n+m-1}; \ldots\ldots\ldots\ldots;$$

$$\frac{an}{m}+x_{r-n+1}; \frac{an}{m}+x_{r-n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (8).$$

It is again sufficient to consider the variation of the increment of new money in the Consumers' Income as typical of the variation of the increment at any production stage. The variation of x_r is given by (5) for the initial phase of $(n+1)$ periods. This variation shows a wave-like oscillation about a rising trend and the form of the wave depends primarily on the value of m, i.e. on the stage at which the injection constantly takes place. The averaging process of the relation (6) determines the values of x_r for the later periods and shows that the oscillation of x_r about a rising trend continues through time but that these oscillations tend to die away in very much the same way as in the single injection case. Since the oscillations are about a rising trend, however, their relative importance is to be expected to decrease much more rapidly as time goes on than in the case of the single injection.

It remains to isolate the form that the trend of the values of x_r tends to assume as the oscillations die away. It is easily seen that a steady increase in the value of x_r at the rate of $2a/n+3$ per period satisfies the essential relation (6). It is also seen that this steady growth of x_r satisfies the relation (7) when r tends to infinity. It can be taken, therefore, that the limiting form for x_r when the oscillations have died down is

$$x_r = \frac{2a}{n+3}\, r$$

The steady limiting growth of x_r is dependent only on the number of stages in the production process; the stage at which the injection takes place affects the extent and nature of the oscillations of the increment of new money in the Consumers' Income but not the ultimate growth of this increment.

Finally, the percentage price increases at the various stages of production are now seen to be related in a rather complex way. A study of (8) shows that there are three factors making for differences in the price increases in any period. Differences arise, in the first place, by reason of the oscillation in the value of x_r over time. These differences are of exactly the same nature as those found in the single injection case and they tend to disappear as the oscillations in the value of x_r die away. Secondly, there is a difference between the percentage price increase in any one of the higher m production stages and the percentage price increase in any one of the earlier production stages. The first price increase is higher by an amount proportional to an/m and the cause is clearly the continuous flow of newly injected money from the stage of injection up to the higher stages. The absolute amount of this difference is constant and persists through time. Finally, there are differences in the price increases due to the trend in the variation of x_r over time. Since, in any period, the percentage price increases at successively higher stages of production are proportional to earlier and earlier values of x_r, the percentage price increase at one stage tends to be greater by an amount proportional to $2a/n+3$ than the percentage price increase at the next higher stage. The absolute amount of these differences is again constant and persistent through time. The price structure, therefore, shows differences which persist as long as the injection of the new money proceeds. But notice that these differences are of constant *absolute* amount. All the percentage price increases are increasing rapidly and steadily through time with the result that the absolute price differences tend to become of less and less relative importance.

The variation in the value of the increment of new money in Consumers' Income (or at any production stage) can be illustrated by the construction of an actual numerical example and shown by a graphical method similar to that adopted in the previous case. This is, however, scarcely necessary. All that need be noted is that the wave-like oscillation in the value of x_r is similar to that shown in the graphs above but that the oscillation takes place about a rising trend instead of about a horizontal one.

INDEX

INDEX

ABRAMS, M. A., 28, 59, 247
Allen, Maurice, 120
Allen, R. G. D., 45, 48, 50, 53, 254–63
Asymmetry, Doctrine of, 242–7

BALANCES: Bank, Private, Trade and Stock Exchange, Index Patterns of, 175*ff*
Banks, The, and Producers' Credits, 78*ff*
Bank Rate, Variations in the, 197, 199*f*

CANNAN, Professor, 168
Capital,
Absolute Money Demand for, 61*ff*
Relative Monetary Demand for, 67*ff*
Real Output of, 69*ff*
Supply and Demand Curves of, 84*ff*
Capital Accumulation, 38–42
Cassell, Professor, 84
Central Financial Authority, A,
Credit Policy of, 227*ff*
Short Period Policy of, 228*ff*
Long Period Policy of, 232*ff*
Circulation, Constant, 120–8
Clearing House, 176*ff*, 213
Clearings,
Private, Trade and Stock Exchange, Index Patterns of, 175*ff*
Consumption Goods,
Effect of Increased Demand for, 58*ff*
Constant Exchange, 206*ff*
Cost, Money, Autonomous Movements in, 138–43
Costs, Incomes, and,
Simple Relation between, 28–31
Complex Relation between, 31–38
Credit Policy, Choice of, 109–44
Long and Short Period Problems of, 109–110
Chief Solutions for the Long Period, 110–2
Constant Prices, 112–20
Constant Circulation, 120–8
Constant Incomes, 128–9
The Mechanism of Consumers' Credits, 128–38
Autonomous Movements in Money Costs, 138–48
Conclusion, 143–4
Credits, Consumers',
Monetary Expansion by, 57–70
The Mechanism of, 129–38
Credits, Producers',
Monetary Expansion by, 71–77
The Banks and, 78*ff*

DEFLATION, Analysis of, 89–108
Deposits, Accumulation of, 149*f*, 182*f*, 93, 187

ECONOMIC Planning, 216*ff*
Exchange, Foreign, 208*ff*

FINANCIAL Circulation, Autonomous Variations in Needs of, 93*f*, 150*f*
Fisher, Prof. Irving, 26, 92, 190
Foreign Lending, 209
Foster & Catchings, 29

GAITSKELL, H. T. N., 37
Gold Standard, The, 206–13

HARROD, R. F., 71, 107, 138*f*, 159
Hayek, Prof. F. A. von, 28, 33*ff*, 41, 45, 57, 58*ff*, 72*ff*, 101*f*, 116, 120*ff*, 131*f*, 162, 242*ff*

Hicks, Dr., 105, 159
Hoarding,
  Causes of, 104–7
  of Cash and Deposits, 92*ff*, 121, 134, 138, 148*ff*, 180*ff*
  Robertson and, 99*ff*. 171*ff*, 249*ff*

INCOME, Normal, 90*ff*, 247*ff*
Income Policy, Constant,
  Practical Execution of, 174–94
  Preliminary, 174–5
  The Means to Knowledge, 175–80
  Use of the Index Pattern, 180–9
  Cash Transactions, 189–92
  Instruments of Power, 195–215
  Internal Policy, 195–205
  Weakness of Existing Instruments, 195–203
  A New Instrument, 203–5
  The Open System, 206–13
  The Gold Standard, 206–13
  Conclusion, 213–5
Incomes and Costs,
  Simple Relation between, 28–31
  Complex Relation between, 31–8
Incomes, Constant, 128–9
  Under Dynamic Conditions, 147–73
  Simpler Changes and Adjustments involved, 148–53
  The Difficult Cases, 153–68
Index Patterns, 175–89
Industrial Circulation,
  Equilibrium in, 89*ff*
  Autonomous Variations in Needs of, 94*f*
  Inherent Instability of, 220*f*
Industrial Equilibrium,
  Maintenance of Full, 110*ff*
Inflation,
  General Analysis of, 43*ff*
  Sources of, 77–87
Instruments of Power, The
  Weakness of Existing, 195–203
  A New Instrument, 203–5
Interest, the Rate of, 39*f*, 58, 63, 65, 66, 67, 78, 79, 80*ff*, 117, 126*ff*, 129, 139, 143, 147, 151, 157, 170, 197*ff*, 239
Invention, 86*f*, 206
Investment,
  Saving and, 89–108
  Deficiences in, 183*f*
  the Rate of, 229*ff*

JOINT Stock Banks, The, 180, 195, 201, 204, 226*f*
Joint Stock Enterprise, 208

KEYNES, J. M., 40*f*, 89*ff*, 94, 95*ff*, 105, 112, 151, 163, 185, 247*ff*

LAVINGTON, 112
Luxury Goods, 62*f*, 64

MEADE, J. E., 81, 120, 153
Monetary Efficiency, Coefficient of, 125
Monetary Equilibrium, Conditions of,
  Alternative formulations, 168–73
Monetary Expansion,
  General Effects of, 43–57, 254*ff*
  by Consumers' Credits, 57–70
  by Producers' Credits, 71–77
  Conclusion, 87–88
Money,
  Demand for, 168*ff*
  Planned, 216–41
  Three Introductory Propositions, 25*ff*

OPEN Market Policy, 197*f*, 200*f*, 229

PLANNING, Economic, 216*ff*
Population, Variations in, 153*ff*, 184
Price Level Policy, Long-Term, 224*ff*
Prices, Constant, 112–20
Property and Labour,
  Distribution of Final Income between, 159*ff*, 185
Purchasing Power and Trade Depression, 38, 76, 116, 151, 221
Profits, the Rate of, 63*f*, 68, 69*f*, 76, 80*f*, 114, 120, 127, 140

REFLATION, 223*f*
Robbins, Prof. L., 38, 132, 219
Robertson, D. H., 97*ff*, 162, 164, 168*f*, 171*ff*, 223, 224, 249*ff*
Roll, Eric, 222
Roosevelt, President, 140, 143

SAVING, the Rate of, 40, 58*f*, 66, 131, 141, 151*ff*, 162*ff*, 169, 171, 183, 185, 206, 230, 232 234, 242*ff*

Saving and Investment, 89–108,
Forms of Divergence between, 92–104
Causes of Hoarding, 104–7
Conclusion, 107–8
Mr. Keynes' use of the terms, 247*ff*
Securities, Deflationary Sale of, 95*ff*, 162*ff*, 185
Security, Degree of, 198*f*, 201*f*
Socialist Credit Policy, 228, 232
Stock Exchange, The, 27, 116, 174*ff*, 220

TAXATION, 204, 230*f*
Trade Cycle, 109, 199, 211, 214, 220, 221*ff*, 226, 228*ff*, 232, 238*f*, 247, 248
Trade Unions, 129, 160*f*, 208, 226
Transaction Velocity, 44*f*, 49*ff*, 57, 68, 79, 89*f*, 92*ff*, 97*ff*, 121, 125*ff*, 133*f*, 149, 171, 182, 184, 187, 205, 250

UNEMPLOYMENT, 70, 223

WAGES, Arbitrary Increases in, 140*ff*
Whale, Barrett, 134, 222
Wootton, Barbara, 217