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THE THEORY OF INDUSTRIAL DEVELOPMENT IN ECONOMICALLY UNDEVELOPED COUNTRIES

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE UNIVERSITY OF MICHIGAN

COMMITTEE IN CHARGE:
Assistant Professor William B. Palmer, Chairman,
Assistant Professor Gardner Ackley,
Professor Z. Clark Dickinson,
Assistant Professor Amos H. Hawley,
Professor Charles F. Remer,
Professor Leonard L. Watkins.

BY

YING HSIN

UNIVERSITY OF MICHIGAN

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INTRODUCTION

The rise of modern industry in the past few centuries has brought with it two major types of economic change. First,there is the decline of the unit cost of output .This phenomenon seems to be attributable ,in turn,to either or both of two developments which have accompanied the rise of modern industry. (1) Progress in the arts has greatly increased the productiveness of labor while (2) the increasing size of plants has made possible the economies of mass production.When there is progress in the arts,or technological improvement,the already existing cost curve is replaced by a new ,and lower ,cost curve. As for the larger scale of operations ,in a number of industries there is a diminution of both operating cost and capital investment per unit of output with increasing scale of operations. Moreover,when several related industries arise in the same place,each industry may benefit from the economies of local specialization,the utilization of by-proudcts,etc. In these ways cost is reduced and output is increased.[1]

The second major type of economic change consists of a rate of population growth less than the rate of increase in real income .Two developments largely account for the spread between these rates of growth.First, the size of a community's population ,within the limits determined by the living standards which the people desire ,is governed by social conditions rather

than by general biological and economic conditions. At the present time,for example,most industrial countries have reached an equilibrium between their birth and death rates,not because of an insufficiency of food to support larger populations,but because of a change in the attitude of mind among the people toward child breeding,which appears to be a product of urbanization. In other words,the change of population in this case is not responsive to a change in economic conditions. Therefore, an increase in real income ,as a result of technological improvement,for example,would not necessarily lead to a corresponding increase in population. This point had been fully discussed in a number of books on population problems[2] and does not need to be elaborated here. The second factor which helps to account for a greater rate of increase in real income than that in population is the influence of continuous technological improvement in agriculture. This means that a smaller and ever smaller proportion of workers is able to raise food for the whole population ,and therefore an increasingly larger proportion of workers may be diverted to the production of industrial goods. Thus,the output of agriculture is maintained and that of industry tends to increase or ,in other words,the share of agriculture in total output declines while that of industry tends to rise.[3] Hence the industrial output ,which is progressively increased in this way,becomes additional income to the people concerned. From this it follows that the growth rate of total

real income is greater than that of population.

However, there is a group of countries which is to be distinguished from the industrial countries by their lack of adequate industrial development. This group of countries we shall regard as economically undeveloped. There are two broad types of such countries . One type is made up of the so-called new countries, such as many in Latin America, where the extent of arable land in relation to the size of population is so large that their labor may be said to be fully utilized on an average sized farm. Because there is an abundance of arable land to be tilled, an increase in population probably would not lead to a decline of per capita real income. Such countries may increase their per capita real income through agricultural mechanization , without the necessity for industrial development. New Zealand, for instance, has achieved the highest per capita real income in the world through agricultural mechanization. The second type of economically undeveloped country includes the so-called old countries , like China and India, where the extent of arable land relative to the size of population is so small that every average sized farm is crowded with excessive labor, a part of which is not utilized. Such countries will be regarded as over-populated , in the sense that their populations have become so large that any further increase would not be accompanied by a proportional increase in income.

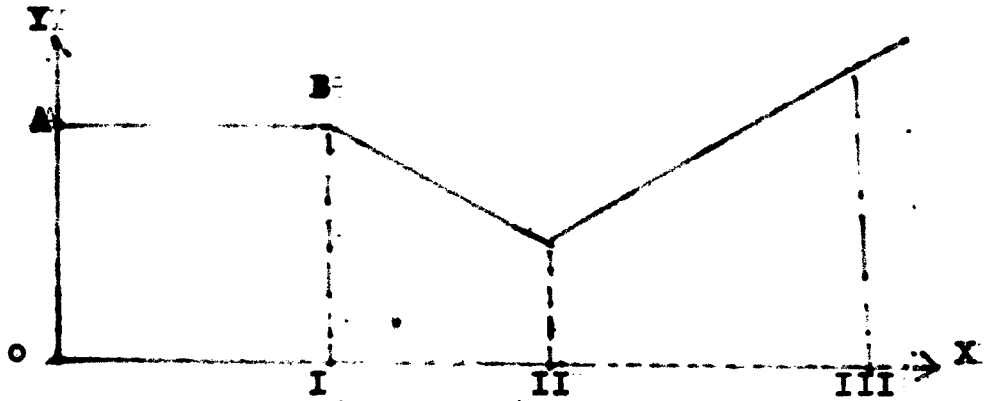
An economically undeveloped country as defined might conceivably be in a state of economic equilibrium in which the

income per head and the size of population are both fixed over consecutive periods of time. When Adam Smith described China's economic condition as having been"long stationary", he evidently had this idea in mind . "China",he wrote,"though it may perhaps stand still,does not seem to go backwards. Its towns are no-where deserted by their inhabitants. The lands which had once been cultivated are no-where neglected. The same or very nearly the same annual labor must therefore continue to be performed ,and the funds destined for maintaining it must not ,consequently, sensibly be diminished . The lowest class of laborers (must) keep their usual numbers".[4] This kind of absolute economic stationariness which Adam Smith described might be true for a short time -- a few days or a few months,for example--in a part of China ,but is not applicable to China as a whole according to Chinese history. According to Chinese history China was sometimes in a different kind of economic equilibrium,one in which the relative change in total income was equal to the relative change in the size of population,resulting in continuously balanced economic progress. The living conditions of the Chinese people had changed very little in the two thousand years prior to the arrival of the Westerners,whereas China's population had varied with the lapse of time. With no change in the technology of production ,each farmer can cultivate only a definite number of acres of land,but as long as there is arable land available of approximately constant fertility,the population may increase without necessarily causing a decline of per capita income. Thus, a moving equilibrium between total income and the size of the

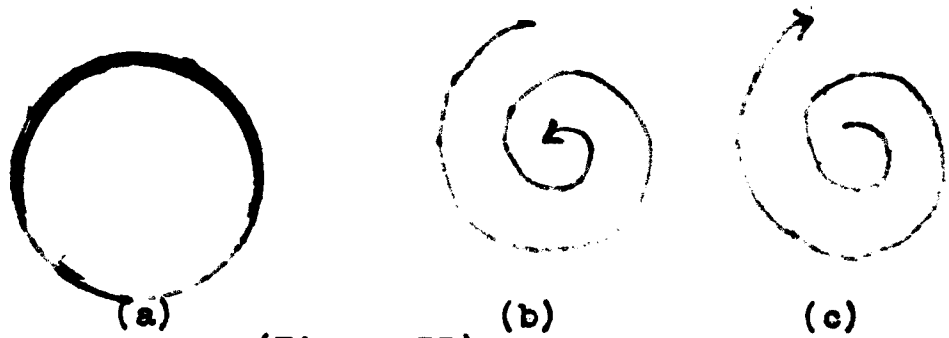
population emerges. In fact,as Professor L. Robbins indicates, only this type of economic equilibrium has practical significance.[5]

In the preceding pages we have implicitly considered three general types of economies . One may be called the circular flow economy which could be achieved either if there are equal relative changes in income and in the size of population ,or if per capita income and the size of population both remain constant over consecutive periods of time. In both cases the per capita income remains unchanged. In this type of economy net saving is zero,and there is only an amount of gross saving in each period sufficient to replace capital equipment. Also ,since a circular flow economy is characterized by constant consumption per capita,the amount of capital,and therefore the amount of saving per capita,must also be constant through time. The second type of economy may be called a contracting flow economy, which would be distinguished by a smaller rate of growth in income than in population ,thus providing a continuously shrinking per capita income. The income currently consumed in such an economy is greater than the income currently produced,and thus there is continual dissaving and disinvestment. Just the opposite is true in the third type of economy in which the per capita income expands in each successive time period. It is characterized by a current income produced greater than the current income consumed ,leaving a certain amount of savings for new capital investment.

These three types of economies ,then ,are distinguished from one another by the behavior of the per capita income flow through time. The following two diagrams represent alternative ways of showing their respective characteristics. The first diagram depicts the income flow of a community which progresses through three successive stages: from a circular flow,to a contracting flow,to an expanding flow economy. In this diagram the



(Figure I)



(Figure II)

X-axis represents time and Y-axis represents per capita income. In the first stage ,from the origin O to the point I,the straight line AB shows a constant amount of per capita income through time. This line indicates a straightforward income

flow and expresses no idea of periodicity. In the second stage, from I to II, per capita income falls through time. It rises in the third stage, from II to III. In the second diagram (part a) the circular flow of income is shown as a circle . We may take any point on the circle as a starting point or an ending point. The income flow, beginning at the point selected, will complete its circuit within an interval of time, and might repeat the circuit flow indefinitely. Thus a concept of periodicity is formed. A spiral is used in the second diagram (part b and c), to indicate the income flow in both a contracting and an expanding flow economy, depending upon which direction of flow is selected .[6]

In this thesis we shall not analyze either the circular flow or the contracting flow types of economy. It is submitted that the above brief contrast of these two types with the expanding flow economy is helpful in understanding the significance of industrial development to which we shall give our major attention. We shall not attempt to present the practical history of , or the practical policies that have been followed in, any of the economically undeveloped countries. We shall examine only the economic theory pertaining to economic development in general , with special reference to conditions now facing thickly populated, non-industrialized countries.

The following pages of the Introduction contain a summary,

by chapters,of the findings of this thesis.

CHAPTER ONE

In chapter one,we study the principle which governs the demand price of resources and how,according to this principle, the demand price for each kind of resource could be raised . The principle governing the demand price of resources is the law of supply and demand which ,in the course of industrial development,may be stated in terms of economic diversification. An increase in the demand price of a resource would depend upon an increase in the number of alternative uses for that resource. There are three reasons for this.

(1) In the first place,when there is a sufficient variety of uses for any one resource ,different units of it may be allocated to those particular uses most suitable for their special qualities . In this way the productivity of the resource in general may be raised ,and it will command a higher price on the competitive market. In the case of labor,for example,some people might have genius in the arts and others in industrial management. If artistic and managerial occupations,respectively, are not available to them,their contributions to society would be less valuable. The application of this reasoning to the case of land is quite similar. Some plots of land might be suitable only for growing cotton and some suitable only for growing rice. The productivity of such plots is obviously

greater if they can be allocated to these most appropriate uses.

(2) In the second place, the demand for a certain kind of resource in only one or two branches of production might be too small to absorb all available units of the resource into employment. The reason for this is that consumers generally want but little of any one product, preferring to have a portion of one and a portion of another. Therefore, an increase in the number of alternative uses would increase the demand for the resource and, consequently, its price. This reasoning applies with especial force to the demand for necessities, which is usually inelastic. For this reason the production of a certain kind of necessity would give only limited opportunity for the employment of labor. In other words, when the people's economic wants are limited to necessities, a continuous increase in the supply of labor would eventually mean some part of the labor could not be employed.

(3) Finally, an increase in the number of alternative uses for a resource whose supply is limited would result in more intense competitive bidding for it. This in turn would lead to the retirement from use of some units of the resource in branches of production on the margin where the return is relatively lowest.

Turning to an examination of the morphology of economic diversification, we find that it consists of progress from the primary to the secondary, and then to the tertiary, economic sector. The primary economic sector is made up of those econ-

omic activities in which labor is applied to land (broadly, to natural resources) for the extraction of raw materials. In the secondary economic sector ,labor is applied to raw materials to produce finished goods. The tertiary economic sector includes all economic activities which consist of the rendering of service.

The extension of economic activities in this sequence depends upon improvements in the technology of production. Technological improvement not only enables man to exploit more resources,but also economises the utilisation of labor. The fact that an improved technology expands the scope of usable resources is illustrated by the shift from a pastoral economy to an agricultural economy,when the field of resources is extended to include arable land as well as cattle. To carry the example beyond agriculture,the present-day industrial economies of some countries seem to know no limit of space at all to the resources which they exploit for industrial production. They have not hesitated to search both under the ground and in the air to find resources capable of exploitation. The second effect of technological improvement ,that it economizes the use of labor ,is incontrovertible. For example,the use of non-human sources of energy to move the working instruments of production pre-supposes technological improvement beyond a state of primitive production. This recourse to non-human sources of energy releases labor from the application of brute

muscular power in production . That is,human labor as a form of controlled energy in the process of production is released ,but this does not mean that human labor as an intellectual agent controlling the application of power has been replaced . On the contrary,the productivity of labor is raised ,especially when it is transferred to the secondary and tertiary economic sectors as they expand the use of technological improvements. Moreover,the productivity of labor in the primary sector is also raised as an aspect of technological improvement there, for some workers must be ratained in the primary sector to direct the processes of production in that sector. Wages in the primary sector,also ,must be high enough to retain the required number of workers in spite of the attractiveness of higher pay in the other sectors.

Technological improvement,changes in the supplies of labor and capital,etc. are responsible for the economic changes discussed in preceding paragraphs . An explanation of economic causality of this kind,in which certain variables depend for their behavior upon a set of prior conditions ,belongs to the theory of economic development. It treats the prior ,or causative ,conditions as fundamental data. For an expanding industrial economy these data are:

1. The growth of population.
2. Increase of capital investment.

3. Technological improvement.

4. Changes in governmental economic policy.

In succeeding chapters we deal ,respectively ,with each of these four variables. Changes in the technology of production will be discussed together with the increase of capital investment ,however, for every change in the technology of production calls for some outlay of capital.

CHAPTER TWO

The growth of population is the first variable listed. When industrial development gains the upper hand ,a constant supply of labor with an increasing supply of capital or a greatef growth in capital than in population would result in a rising per capita income. In the second chapter we discuss this type of economic expansion in terms of economic diversification. As a result of the extension of economic activities and the concurrently increasing demand for labor ,we shall see how the over-population problem in an economically undeveloped country would disappear in the process of industrial development.

Five broad questions regarding changes in population may be treated in connection with industrial development: the population's size,age composition ,and working age ,as well as the geographical and occupational distribution of those who work.

First,the size of the population in the developing country would increase when the death rate is reduced without a corresponding

decline in the birth rate. Second ,age composition of the population would change as the people tend to live longer and longer,and their life expectancy tends to increase year by year, as a result of the gradual improvement of living and sanitary conditions . Third, the opening of working opportunities for young and old people in the secondary and tertiary economic sectors would increase the span of working years in the population . Fourth,the spatial pattern of population distribution will change because improvements in transportation will bring people to places that were sparsely inhabited before,either for the exploitation of raw materials or for the construction of new industry . Fifth,labor will shift from the primary to the secondary and tertiary economic sectors. Surplus workers on over-crowded land holdings ,as in the so-called old countries, would be withdrawn from agriculture and absorbed into other occupations. "Farm output would not suffer ,while the whole new output would be net addition to the community's income."[7] In short,the rate of increase in total income would outrun the rate of growth in population .

Finally,the increase in population would come to an end in due time because the economic and social conditions which affect people's state of mind about child breeding would change in the course of industrial development. Urbanization and a rising standard of living ,for example,would lead to the desire on the part of most young couples for the control of birth. Thus,if the country under consideration is over-populated before indus-

trial development starts, there would be no more problem of over-population when the industrial development has been completed. At that time it might rather have to face a problem of under-population if its birth rate falls below its death rate and the income per capita is still rising.

CHAPTER THREE

The size of population in a community during the process of industrial development tends first to grow and finally to become stationary, as pointed out in chapter two. The second variable listed at the end of chapter one, capital investment, behaves in a similar manner. In this chapter we indicate the significance of capital formation and its relation to economic development in general. Attention is given to the function of capital in production, the requirement of capital investment for technological improvement, and the relation of capital accumulation to the rate of interest. In connection with changes in capital investment we discuss the third basic variable, technological improvement, because every kind of change in technology calls for some outlay of capital.

Several observations may be made about the relation of capital formation to economic development in general. An increased use of capital in production releases some labor from work which it had to do before the capital was introduced. When the proportion of capital is increased in the production of a certain good, there is a deepening of the capital structure. The function of capital in production is economical whenever the increase

in capital reduces the cost of production per unit of output. An increase in capital investment also facilitates the harnessing of natural resources which are not accessible to man without the help of working instruments.

Turning to the differences between a stationary ,a progressive economy,we find them to lie not in the status of the land or labor supply ,but only in the status of capital formation. Neither an abundance of land nor of labor alone can create a progressive economy. A vast area of potentially useful land,if technological unavailable ,would be of no usefulness. Moreover,too much labor relative to the other factors of production would even discourage economic progress,for we should observe the substitution of labor for capital if labor is relatively cheap and the rate of interest is high. Therefore,we must look to the state of capital formation to find what distinguishes a stationary ,a progressive and a regressive economy from one another.

Technological inventions in the natural sciences may be utilized in the industrial field by changing the capitalistic process of production. The trend toward larger capacity units has been accompanied by a decline of equipment expenditures per unit of output,i.e.,the scale of production has increased while the investment per unit of output decreased. The reason is that more capital equipment usually results in higher productivity ,for ,among other things,there is continuous operation of the

instruments of production ,which is absent in a more or less primitive rural economy.

An increase in capital would tend to reduce the rate of interest so that the present value of an investment might be spread over a longer period than would be possible with a higher rate of interest. Thus,the feasibility of extending investment to those projects which are able to yield only relatively low returns arises,and the field of investment could expand into otherwise unexploitable branches of industry.

If the community's population finally ceases to grow ,its economy would ultimately arrive at a point where the rate of returns from investment would be just equal to the rate of interest;arrival at this point would be the inevitable consequence of a steady increase of capital investment ,because there would be diminishing returns from each new and marginal investment. This point,at which profits are zero and there are no further outlets for investment,indicates arrival at a stationary economy which would be stabilized at a higher level of capital and income per head than had prevailed before the start of industrial development.

CHAPTER FOUR

In chapter four we take up the general question of the efficacy of an increase in capital investment to reduce

the number of unemployed resources on the one hand ,and to increase the national income on the other. The effects of three types of investment are studied: investment from internal saving ,investment from abroad ,and credit expansion which is a kind of forced saving.

(1) Capital formation through internal saving would impose two kinds of pain cost upon the people in the community. First, they must reduce their demand for ,and consume less of ,the primary products they have been producing; e.g.,it might be necessary to exchange some of them for imported capital equipment . This is a kind of pain cost on the demand side. But there is another kind of pain cost on the side of supply. To establish the new industry part of the labor force would have to be transferred to the secondary or tertiary economic sector. This would result in a shortage in the supply of primary products,and unless the people are willing to reduce their enjoyment of primary products (or unless they are forced to do so),workers who remain in the primary sector would have to work harder in the next period to fill up the gap between demand and supply.

The conclusions which emerge from an analysis of capital formation and its effect upon national income in an industrializing country may be summarized as follows: (1) Income from initial investment would be partly spent and partly hoarded by the rural people who might keep their funds on hand because of a lack of savings institutions in rural areas. (2) The re-investment

of income performs two primary functions: it increases the community's productive power and it offsets the people's saving, thus preventing it from causing the national income to contract. In an economically undeveloped country the conditions which affect this second function are different from those which prevail in an already industrialized country. In both cases there are two conditions to consider in determining the secondary effects of an initial investment. First is the marginal propensity to consume relative to currently produced income, and second is the marginal propensity to save relative to current investment. Although a high level of consumption is required for a high level of national income, consumption by people who do not contribute anything to production is a drain on the national income, and is especially undesirable in a country seeking to industrialize. Furthermore, in an economically undeveloped country over-saving is in general impossible, and the employment of resources in such a country is in large measure restricted not merely by a small accumulation of capital, but also by technical conditions, etc. Therefore, in an economically undeveloped country a high marginal propensity to consume is not to be desired in order to prevent over-saving, as it is usually held to be in a fully industrialized country.

(2) Raising capital from abroad places credit at the disposal of the borrowing country. To what extent the imported capital will raise national income in the borrowing country

depends upon the nature of the investment ,whether it is direct or portfolio,the nature of goods imported to implement the lending,and so on. If the borrowing country lacks a producers' goods industry and all the capital imported is made up of capital goods,the expansion of national income due to capital importation would be nil. This follows because payments for the manufacture of the capital goods are made to foreigners. Later,the export of commodities in payment of interest to the lending country would reduce the real income available for local consumption. Therefore,an initial investment from abroad would not produce the same effect upon national income as would be produced by investment from internal saving,because in the latter case,payments for capital goods are made to domestic producers.

(3) Financing the initial investment by credit expansion would increase the current use of available resources,and improve the qualitative utilization of resources already employed. But not all forms of credit expansion would facilitate capital formation. Whether it would encourage capital formation or not depends upon how the credit is used and how extensive the unused resources are. It would produce different effects if it were placed in the hands of consumers rather than in the hands of producers. It would substitute productive for unproductive consumption by increasing the employment of unemployed labor,thus decreasing the number of consumers who do not produce.

Beyond the point of full utilization of resources ,of course, credit expansion would result in an inflation rather than in the formation of capital.

CHAPTER FIVE

In the three preceding chapters we have discussed the first three variables listed at the end of chapter one as being responsible for economic change . As regards population growth and capital formation in the course of industrial development, a familiar pattern of change has been explained: these two variables show a tendency to rise at first ,and later to decline. It is different with the third variable,changes of technology, which might continue after the population and capital investment have ceased to grow. With this analysis behind us ,we turn in the present chapter to analyze the fourth variable ,governmental economic policy toward industrial development.

We deal with three questions in chapter five: first,the importance of governmental economic policy toward industrial development;second,the comparative advantages of the capitalist and the socialist economic systems for industrial development; and third,the merits of a balanced public and private enterprise system for industrial development.

There are a number of considerations which bear upon the importance of governmental economic policy toward industrial development. They are summarized in the following paragraph.

The economic peculiarity of modern industry,that it enjoys

decreasing costs per unit as output expands,underlines the importance of governmental economic policy toward industrial development. As it grows in size ,industry comes to affect its own social environment by influencing the patterns of production and consumption ,in addition to the conditions of employment,the allocation of resources,the prices of products ,etc. On a large scale,industry is characterized by the economic interdependence of supply and demand ,and if there is a lack of coordination between the two,economic fluctuations occur. There are many particular groups of industries whose operations call for extensive cooperation,and thus planning is required for their successful development. In some cases the government of an economically undeveloped country must take the initiative in industrial development,and then set up carefully coordinated economic policies which will not discourage entrepreneurs. At the outset of economic development,the direction of capital investment,mainly toward industry or mainly toward agriculture,depends upon the government's decision. The pace of economic development would also be fundamentally affected by the presence or absence of financial facilities and the attitude of government toward industrial units as expressed in monetary,fiscal and commercial policies. The political influence over industrial expansion will of course be largely decided by whether a capitalist or a socialist economic system is selected.

Two problems are of vital importance for the choice of an economic system . One is the distribution of income,the other is the allocation of resources. It is desirable to obtain the maximum utility from the distribution of income,and to obtain the maximum of productive service from resource allocation. The distribution of income under a socialist system is definitely better than under a capitalist system. With regard to resource allocation,however,State monopoly of economic activities and the inefficient bureaucratic administration of a socialist economic system are as bad as private monopoly of enterprise under a capitalist system in their effects upon the unit cost of output. For a better distribution of income ,a better allocation of resources,and a better development of industry , neither the socialist nor the capitalist system is as satisfactory as a balanced economic system in which public enterprises and private enterprises could compete on equal terms ,thereby eliminating some inefficiencies of both capitalism and socialism.

INTRODUCTION--FOOTNOTES

1. Cf. in particular:
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   J. Viner, Cost Curves and Supply Curves, pp. 25-42, Zeitschrift für Nationalökonomie, 3/1, 1931.
   G. F. Shove, Increasing Returns and the Representative Firm, Economic Journal, March, 1930, pp. 94-116.

2. See in particular:
   National Resources Committee, Problems of Changing Population, 1938.
   W. S. Thompson, Population Problems, 1942.

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   K. Mandelbaum, The Industrialization of Backward Areas, 1945.
   Colin Clark, The Conditions of Economic Progress.

4. Adam Smith, Wealth of Nations, p. 73.

5. Cf. Lionel Robbins, On A Certain Ambiguity in the Conception of Stationary Equilibrium, Economic Journal, June 1930.

6. Cf. F. H. Knight, The Theory of Investment, Quarterly Journal of Economics, 50/1, 1935.

7. Cf. K. Mandelbaum, loc. cit. ch. I.

CHAPTER I

THE EXPANDING FLOW ECONOMY

1. The Purpose of this Chapter

The amount of a society's real income may be increased in two ways: either by a quantitative increase of available resources, or by qualitative improvement in the utilization of available resources. Obviously people's living conditions may be improved if there is an increase in the quantity or variety of existing resources; and similarly if there is improved utilization of given resources, a typical unit of resource will render more service in production. An improvement in the utilization of labor, for example, would raise its productivity. Throughout this chapter both methods of improvement are taken into consideration simultaneously.

In the first section we shall inquire into the principle governing the demand price of resources in general. This principle turns out to be the law of supply and demand, and we shall show how a change in demand for resources affects their supply by changing their price. In the second section we shall inquire how the demand price of labor would be increased. By means of technological improvement, the utilization of labor is economized and economic activities are extended from one field to another. An increase in capital or land, with a smaller increase, or with no change, in the population would

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raise real income per capita. In the third section we deal in detail with conditions responsible for the economic changes discussed in the first two sections. A number of variables are set down with reference to an expanding industrial economy.

2. The significance of economic diversification

Ordinarily there are two ways for a community to bring more of its resources into use. First, the cost of production may be disregarded in order to increase resources used, as in the case of raising wages to attract laborers who are reluctant to work at lower wages, or raising the demand price for the products of land. This case would also appear during war, whenever an increase in the supply of military materials is required to meet the needs of the battlefield, irrespective of increasing cost per unit of output. When the community concerned has reached full employment, rising cost of production would be proportionally greater than the increase in output because less efficient and more reluctant workers must be employed. Unless, however, the marginal return to labor is zero, additional product will be added to the total income. The second method of increasing the resources used is to raise the productivity of labor and subsequently to reduce the unit cost of output by technological progress or improvements in the organization of production. In this case the cost structure in the branch of production concerned would be shifted to another basis, upon which the new relation of cost and return as a whole would be built.

In the present section we shall consider only the first of these two problems: how to raise the demand price of resources. The second, the significance of technological improvement, will be discussed in the next section.

In a rural community, agriculture may be regarded as providing the major employment for any kind of resource. Alternative uses for some kinds of resources are possible, but they would offer employment only on a relatively small scale. The available resources, if concentrated in agricultural employment, in general suffer both qualitative and quantitative limitations in rendering the maximum of service. Some resources are less efficiently employed because of the lack of adequate alternative uses. On the one hand, too much of one resource relative to others may be concentrated in agriculture; or on the other hand, perhaps agriculture is not the field best suited for the qualities of a particular resource.

When the population and the per capita consumption of a good are both given, the demand for the good is determined if the possibility of substitution is disregarded. In one case, the demand for the good concerned may be inelastic, as the demand for necessities usually is. The production of necessities would give limited opportunity for the employment of labor, and whenever the people's economic wants are restricted to such necessities a continuous increase in labor would eventually reach a point at which a part of labor would not be employed.

In another case, the demand for a good may be elastic, but it would not be increased indefinitely. This is so because we generally want but little of any particular product, but prefer to have a portion of one product and a portion of another. In either case, therefore, there is a quantitative limitation upon the employment of resources whenever the number of alternative uses is limited.

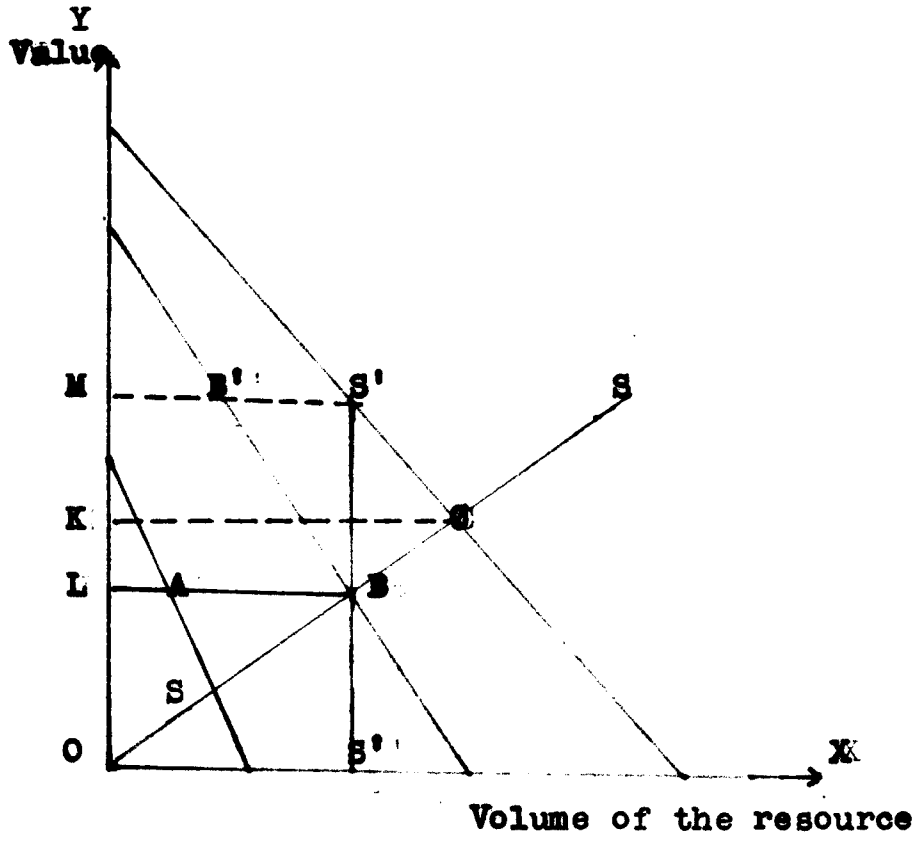
Let us turn now to the individual factors of production. There would be more waste of talents if labor is employed in few occupations than if there are many occupations from which to choose. The geniuses and talents of different people would be more adequately utilized if each could choose the job most congenial to his taste and ability. Some people, for example, might have genius in the arts and some in industrial management. Without such jobs to employ them, their contribution to society would be inferior. Also in the case of land, there are differences in quality arising from climate, fertility, location and resources hidden therein. In a predominantly agricultural community the land is utilized only for growing certain kinds of primary products. Land which is not suitable for growing such primary products might not be properly utilized. An increase in the alternative uses available for land has here the same significance that it has for labor. Without adequate alternative uses to meet the different qualities of land, the utilization of some land would likely have a very low productivity.

To summarize, when there is a sufficient variety of uses, each resource may be allocated to a superior use appropriate to its particular qualities, where its productivity may be higher and where it may command a higher price on the competitive market.

The demand price of an existing resource will rise in response to either an increase in the number of its alternative uses or an increase in other resources whose uses are complementary. This rise in price will cause a retirement of the resource's use in some branches of production on the margin.

In the following diagram, the X-axis expresses the volume of a certain resource of homogeneous character which may be used in the production of two goods, as (a) and (b). The Y-axis expresses the value of the marginal product in the production of these goods, as shown by the curves A and B. When a new alternative use is introduced, as for the production of the good (c), two possibilities are present. First, if the supply of this resource in the market is fixed, as indicated by the vertical line S'S', the value of the marginal product of this resource would ascend from OL to OM. The distribution of the resource is changed from LA and AB, respectively, in the production of A and B to MB' and B'S', respectively, in the production of B and C. The resource would be withdrawn from the production of A which yields a relatively low return.

The amount of the resource in employment, however, might be increased as the demand price rises if some units had been



unemployed, e.g., labor in voluntary unemployment. If the supply curve of the resource is SS, the value of its marginal product would become OK. The production of the good (a) is now possible, and could command as much of the resource as indicated by the range between the curve A and the point K. In this case, the value of the marginal product of the resource is increased by LK. The units of the resource in unemployment are reduced by the range between S'S' and the point C.

3. Industrial differentiation

In the preceding section we have analyzed the significance of economic diversification in terms of the law of supply and

demand. Three cardinal points were made. First, each resource may be allocated to a use more in keeping with its particular characteristics and may attain there a higher productivity, when there is a sufficient variety of resource uses. Second, the demand for a certain kind of resource in one or two branches of production might be too small to absorb all of this resource into employment, since consumers generally want but little of any one product, but prefer to have a portion of one and a portion of another. Third, an increase in alternative uses would bring about through competitive bidding the retirement of a resource from use in some branches of production on the margin which yield relatively low returns. Thus the preceding section is devoted to an analysis of the principle governing the relationship between economic diversification and the value of resources in general.

The value of any one of the three factors of production, however, is governed rather by its abundance relative to the other two factors. The value of a unit of labor in terms of the available land or capital, for example, may be a far more truthworthy guide than labor's valuation as determined merely by the demand for labor in its alternative uses.

Given a constant supply of all three factors of production, the value of each factor, broadly conceived, in terms of the other is constant. In the face of few alternative uses, the value of labor would decline upon its growth relative to the labor employed, and a consequent net loss to labor in the dis-

tribution of income, if the number of laborers were to increase. To counteract such a development and to raise real income per head, two ways are open to such a community: the supply of labor could be reduced, or capital or land could be increased to bring about alternative uses for the growing labor supply. As a corollary of this proposition about an increase in the labor supply, an increase of capital or land relative to labor would enhance the value of labor.

It should be noted that, while the relationship of wealth to man is taken as the central feature of our discussion, the value of labor, or a change in its value, is always taken to be the first and foremost criterion for measuring economic progress. In the following discussion, emphasis is placed upon the increased alternative uses of labor as a consequence of industrial differentiation, which is made possible by an increase of capital or of land or both due to continuous technological progress.

Assume a particular unit of land useful for growing either wheat or corn. If land is scarce and wheat and corn both compete for this unit of land, its value will rise until it is divided between wheat and corn in such a way that the marginal return from both uses is the same.[1] Competition for its use may take the form either of an absolute increase in labor or capital, or of their transfer to it from other uses.

A national economy as a whole may be said to consist of three economic sectors: (1) The primary sector, involving the ap-

plication of labor to land in order to extract physical raw materials; agriculture, mining, forestry, and fishing fall into this sector; (2) The secondary sector, where labor is applied to raw materials to produce finished products; manufacturing and construction are examples; (3) The tertiary sector, consisting of the rendering of human services in such fields as commerce, transportation, domestic, professional, and public service.[2] An increase in alternative uses for a factor of production usually implies the diversification of economic activities beyond one economic sector thus defined, for the following reason. Usually among alternative uses of a factor in the same economic sector, very little qualitative improvement in the factor's use is available. Therefore, a rise in the value of a factor, which may be accompanied by an improvement in its use, requires a transfer of the factor from one sector to another sector when the second sector could pay a higher price and provide higher productivity per unit of input.

All three of these economic sectors co-exist in any community, in whatever stage of economic evolution it finds itself. The predominance of any one sector may, of course, differ between communities, but no community is altogether without a handicraft industry and some professional services, examples, respectively, of the secondary and tertiary sectors.

The concentration of human effort in the primary economic sector, consisting of economic activities required for the sa-

tisfaction of fundamental wants such as those for food, clothing and shelter, is the first step toward laying the foundation for a truly human society. Economic activities are extended whenever the technology of production is pushed forward by degrees and there is gradual improvement in the utilization of labor. In this way new economic goods are created to satisfy new and less urgent economic wants.[3] These new goods, at first apt to be regarded as luxury items for the enjoyment of a few people, tend later to be consumed by all people in the community. Thus, the demand for them comes to be stabilized by social habituation, and a new level of consumption is supported and stabilized by new, derived economic wants. In other words, the production of new goods is expanded and is then maintained through the stabilization of their demand.

When a satisfactory production of physical goods to meet the fundamental economic wants has been attained, the emphasis of economic activities is extended, first from the primary to the secondary economic sector, and later to the tertiary sector, indicative of the morphology of economic evolution. Each step in the extension of economic activities creates new products which are worked out more or less on the basis of the products from the previous sector. Thus the products of the primary economic sector provide the foundation for the secondary sector. Therefore, the creation of new industries does not render the old industries unnecessary. Rather, new industries are built

up on the basis of, and usually enlarge the demand for, the products of old industries.

A very significant aspect of the extension of economic activities is the improvement in the utilization of human labor as it is released from one economic sector and re-employed in another, extended and enlarged sector. The use of non-human sources of energy to move the working instruments releases labor from its passive role as supplier of muscular power in the process of production. To reduce the use of labor power in production, however, is not to eliminate labor from production. In the extension of economic activities from the primary to the secondary sector of the economy, for example, some laborers must be retained in the primary sector to direct productive activities there. But the value of labor left therein is gradually increased, as its productivity rises whenever more units of labor are transferred into secondary and tertiary sectors.

As an aspect of the steady extension of economic activities and the continuous emergence of new industries, new kinds of resources are opened up to use in each stage of the economic evolution. In a pastoral economy people usually depend upon cattle to provide food, clothing, and even houses. As economic progress proceeds from a pastoral to an agricultural economy, people learn how to utilize the resources on the surface of the earth. In the present industrial economy, even such resources as are found

in the air and under the ground, in the Arctic and in the Antarctic, are exploited. Indeed, there seems to be now no limitation of space upon the exploitation of resources for the production of various industrial goods, whereas there are such limitations in agriculture. A growth of capital or land relative to the supply of labor in this way tends to raise the value of labor.

In this process of industrial differentiation the concept of productiveness has gradually undergone change. In a pastoral economy, nobody would regard land as productive. The sole wealth consists of cattle. As farming arose and grew in scope, land came to be regarded as productive. But in such an economy, where economic wants are primitive in character, only that labor which could produce material goods is thought to be productive. Service is considered non-productive as Han Fie-tzu and Adam Smith argued with vigor.[4] These writers did not imagine the possibility that the rendering of non-material services would ever support so many people as at the present time. Of course, the allowance by economists that services are productive took place only after economic progress had gone so far that fundamental wants were relatively satisfied, and the output of agricultural products per farmer would support more people than at an earlier stage of economic evolution. Today we find the concept of productiveness being carried even farther when it is argued in industrial countries during a period of over-production of agricultural and industrial products,

that income generation via deficit spending policies is productive. Theoretically and in fact, even consumption is now regarded as performing a productive service as shown by the transfer of idle savings into investment. This concept of productiveness, it seems, will be strengthened as time goes on.

4. Active vs. passive variables

The repercussion upon per capita real income of quantitative changes in the three factors of production as an aspect of industrial differentiation, was discussed without inquiring into the conditions underlying these changes. Some important elements underlying changes in the supply of factors were indicated in the preceding sections, such as changes in technology, an increase in wealth, etc.

All explanations which describe the emergence of certain economic conditions as dependent upon one other set of conditions belong to the theory of economic development, and the causative conditions which must be prior in time are treated as fundamental data. J. B. Clark takes population, tastes, capital, technique and the form of industrial organization as five possible types of economic change.[5] Professor F. H. Knight, following the line set by Clark, added the distribution of ownership of productive capacity, geographical distribution of people and things, public policy and monetary conditions to this list.[6] Writers differ in the variables taken into consideration and the classification thereof, depending upon their purposes and the problems they intend to discuss.[7]

For the purpose of the following discussion, those data which are taken as the determinants of economic development are called active variables, and those whose emergence is the result of changes in active variables are called passive variables. Following this definition, we take the following factors as active variables, in relation to which economic expansion must be studied:

1. Growth of population;
2. Technical improvement;
3. Increase in capital investment;
4. Change in governmental policy in relation to the national economy.

With regard to changes in population, we consider five broad elements in connection with labor: the size, the age composition, the working age of the population, and the geographical and occupational distribution of those who work. Technical improvements are connected with the improvement of labor and capital utilization. Technical improvement facilitates industrial differentiation by hastening the expansion of economic activities on the one hand, and by making possible greater economy in the use of labor and capital in existing industries on the other hand. Moreover, it may expedite the transfer of labor and capital from existing industries into those newly created.

Under the increase in investment, we include Kalecki's savings, Schumpeter's credit creation and, if any, investment

from abroad. At the beginning of economic development the services of commercial banks are available only in the cities in the country concerned; savings in the rural communities are in general retained on hand by farmers and might not be converted into investment. Sometimes, there is an inflow of capital from abroad. In these cases investment is not necessarily equal to savings. If the funds for investment are raised through credit creation, a part of the services and capital committed to the new investment may be withdrawn from other established industries.[8] In a contracting flow economy, however, in which unemployed labor and land are both abundant, it is legitimate to assume that there is no significant transfer of productive services from existing industries, for the latter are so poor as not to be worthy of mention. It is also possible that the transfer of productive resources from existing industries may be concurrently supplemented by the absorption into service of unused resources.

Economic development is initiated, and fundamental data are affected, by human decisions, either individually or collectively; and to be effective, these decisions must be backed up by existing economic conditions. Individual decisions regarding private investment are active in so far as there is available investment opportunity. Such opportunity is created by the decisions and actions of groups, such as governments.

Between economically undeveloped countries and capitalist countries, there is a difference in the type of leadership in

economic development. In the former type of countries leadership in economic development is usually assumed by the government on the ground that only the government is capable of absorbing the impact of an uncertain institutional environment upon a newly formed enterprise. Even in capitalist countries, where opportunities already exist for private investment, we may observe at the present time that the government plays a no less important role than the entrepreneur in initiating economic development; perhaps this is an indication of the change in economic structure from the self-sufficiency of a rural economy to the interdependence of an industrial economy. This situation will tend to be strengthened in the future, and is evidence against the theory that leadership in economic development depends on the entrepreneur. In a socialist state, in which economic activities are prescribed beforehand by state authority, it seems not possible to have a class of entrepreneurs act as leaders in business. Economic development in such countries, as well as in economically undeveloped countries, is as a rule assumed by the government, and expressed in its economic policy.

Mr. A. H. Hart[9] classified government expenditures, transfer payments, corporate profits taxes, other business taxes, and personal taxes under active variables, supposedly subject to change by positive policy and, in contrast to Mssrs. Beveridge and Kaldor, took private consumption, private investment, income

payments, disposable income, and individual savings as passive variables. This classification, although set out from the view point of full employment, is compatible with our reasoning. With the increasing power of government and the increasing funds held by it, governments in every country now have every opportunity and authority, through the control of money supply or changes in economic and fiscal policies, to exercise influence over, or actually to determine, initial commitments toward economic development. Government is too powerful and too important to be ignored in economic theory. The increasing influence of government in the economic field may be attributed to a kind of double adaptation: on the one side to the new technical conditions and the social outlook of enterprise, and on the other to the new international conditions. As commercial competition becomes more and more national in character, there is a great need for organization in the internal as well as in the international phase.[10]

It is admitted that Taylorisation in factory management and similar developments may improve the conditions of production and reduce the unit cost of output; nevertheless, industrial organization is in large measure governed by progress in technology. Hence it is not necessary to take the improvement in industrial organization as an independent, or active, variable. As exemplified by K. Marx's observation, " . . . with the discovery of a new instrument of warfare, the firearm, the whole internal organization of the army was necessarily altered,

the relations within which individuals compose an army and can work as an army were transformed, and the relation of different armies to one another was likewise changed."[11] Industrial organization is always shaped by the progress in technology, in a manner similar to the effect of weapons upon army organization, and therefore industrial organization had better be treated as a passive variable.

Among the four active variables, tastes are not mentioned, although tastes are a fundamental datum in the lists of Clark and Knight. According to Professor E. Roll, there are three types of changes[12] in tastes. The first is autonomous, the causes of which cannot be easily traced; the second is repercussive changes in consumers' demands which are themselves the results of changes in population and so on; the third consists of induced changes in tastes which are deliberately brought about. According to his distinction, the second type of changes in taste falls under, although it does not exhaust, our category of passive variables whose behavior can be traced to the direct influence of other data.[13] It seems untenable that either the autonomous or the induced changes in tastes would mould the economic structure. A change in fashion, as an example of an autonomous change, would by no means increase or decrease the capital investment in the form of sewing machines. Tastes are, in fact, governed by customs, physical environment and transportation. There would probably

be no changes in tastes unless these factors undergo prior change. As for transportation, it is governed by technical conditions, a factor already under consideration, while customs and the physical environment are relatively rigid. Therefore, except for changes in tastes which reflect the disintegration of existing social norms and the evolution of new ones, and on that account must not be regarded as predominantly capricious, some of our tastes appear to be characterized by a high degree of stability.[14]

5. Conclusion

In this chapter we have demonstrated that an increase in the demand price of a resource would depend upon an increase in its alternative uses. There are three reasons for this. First, the demand for a certain resource in one or two branches of production might be too small to absorb all of the available units of this resource into employment, since we generally want but little of any one product, but prefer to have a portion of one product and a portion of another. An increase in alternative uses would increase the demand for the resource and raise its price. Second, when there is a sufficient variety of uses, each resource may be allocated to a use more in accordance with its particular qualities, where its productivity may be increased and where it may command a higher price on a competitive market. Third, the increase in alternative uses would result in the price being bid up under competition, which would force the release

of some units of the resourse from branches of production on the margin, where it was earning a relatively low return.

The morphology of economic diversification was the second topic dealt with in this chapter. We found that a national economy consists of three economic sectors. First is the primary economic sector which is principally concerned with the application of labor to natural resources in order to extract raw materials. The secondary economic sector is concerned with the application of labor to raw materials in order to produce finished goods. The tertiary economic sector includes all economic activities which consist of rendering services. The morphology of economic evolution consists of shifting the emphasis of economic activities from the primary to the secondary economic sector, and later, to the tertiary sector. Both technological improvement in the utilization of labor and an increase in wealth take place in the extension of economic activities, and this extension results in an increase in the per capita income.

Finally, in this chapter, we have considered what conditions are responsible for the economic changes discussed above. Four variables were mentioned, which are, with reference to an expanding industrial economy:

1. The growth of population.
2. Technological improvement.
3. The change in capital investment.
4. The change in governmental economic policy.

In the following chapters we shall deal with each of the four variables. Changes in technology will be discussed along with changes in capital investment, for every change in the technology of production must involve some outlay of capital.

FOOTNOTES FOR CHAPTER ONE

1. How the market equilibrium is determined when two or more commodities compete for one piece of land is studied in sections 3 and 4 in "Einige Punkte einer Preistheorie mit Boden und Arbeit als Produktionsfactoren" by Ragnar Frish. Cf. Zeitschrift fur Nationalokonomie, 3/1, 1931.

2. Cf. A.G.B. Fisher, The Clash between Progress and Security, London, 1935, p. 33. Colin Clark, The Conditions of Economic Progress, 1940, p. 7.

3. Cf. Senior's law of variety or Jevons' law of succession of wants. "We generally want but little of any one kind of commodity, and prefer to have a portion of one kind and a portion of another kind . . . . Human wants tend towards variety." (See W. S. Jevons, Political Economy, 1884, pp. 17-18.)

4. Han Fie-Tzu was a great politician and protagonist of legalism in China. His economic doctrines were converted two thousand years later into French physiocracy.

5. Cf. The Distribution of Wealth, p. 56.

6. F. H. Knight, Risk, Uncertainty and Profit, p. 147. Idem, The Ethics of Competition, chap. 6.

7. Veblen, Schumpeter, Hansen, et al differ from J. B. Clark and Professor Knight in treating the fundamental data of economic change. Veblen takes technology and institutions as the important factors in economic change. Hicks' classification of variables is similar to J. B. Clark's. Robertson distinguishes between real factors and monetary factors. Professor Schumpeter regards the concept of economic development as covering the following five cases. "1. The introduction of a new good or a new quality of a good. 2. The introduction of a new method of production . . . . 3. The opening of a new market . . . . 4. The conquest of a new source of supply of raw materials or half manufactured goods . . . . 5. The carrying out of the new organization of any industry, like the creation of a monopoly position or the breaking up of a monopoly position." Professor Hansen distinguishes between extensive and intensive expansion. Intensive expansion rests on intensive investment, which arises from technological progress. Extensive investment

arises from the occupation of new territory and the growth of population. Another economist, M. Kalecki, unlike Professors Schumpeter and Hansen, considers increasing population and productivity as necessary but not sufficient conditions for long run development. His conclusion is that the chief determinants of trend are changing habits of capitalists' consumption, rentiers' savings, and innovations. Cf. T. Veblen, Essays in Our Changing Order; J. R. Hicks, The Theory of Wages; Robertson, The Banking Policy and Price Level; Schumpeter, The Theory of Economic Development, p. 66; Hansen, Fiscal Policy and Business Cycles, chap. I; Kalecki, Studies in Economic Dynamics, 1944.

8. Schumpeter, The Theory of Economic Development, ch. 3.

9. "Model-building and Fiscal Policy," The American Economic Review, 1945, 35/4, pp. 545-546.

10. Cf. G. D. H. Cole, "Planning International Trade," International Conciliation, Documents for the year 1934, pp. 107-108; and Loveday and others, The World's Economic Future, London, 1937, pp. 66-84.

11. Cf. K. Marx, Wage-labor and Capital, London, 1942, p. 28.

12. Cf. E. Roll, Elements of Economic Theory, 1937, pp. 217-218.

13. The first and third types of changes in tastes are also admitted by Professor Schumpeter. But he, unlike Professor Roll, thinks of them in a different way. According to Professor Schumpeter, where spontaneous and discontinuous changes in consumers' tastes appear, it is a question of a sudden change in data with which the business man must cope. Hence we have possibly a question of a motive for, or an opportunity for, other than gradual adaptations of his conduct, but we do not have a question of such other conduct per se. Therefore, this case does not require a new method of treatment. Furthermore, innovations in the economic system do not as a rule take place in such a way that new wants first arise spontaneously with consumers, leading to an alteration in the productive apparatus under pressure from them. It is the producer who initiates the economic change, and consumers are educated by him if necessary. (Schumpeter, The Theory of Economic Development, p. 65.) Therefore, it is justifiable to proceed on the assumption that consumers' initiative in changing their tastes is negligible, and that all changes in consumers' tastes are incident to, or are brought about by, producers' action. (Idem, Business Cycles, p. 73.)

14. This might be the reason why Professor F. H. Knight also thinks that changes in attitudes toward productive activity are particularly subject to external causes, and accordingly less amenable to economic analysis; and Professor Walker takes it as a theory of extra-market operations which helps us to take account of such changes in opinion or attitudes to particular types of activity as are engineered by business men or others, with a view to making the market work more favorably for them. (See E. R. Walker, From Economic Theory to Policy, p. 145.)

CHAPTER II

THE SHIFTING OF LABOR

1. The purpose of this chapter

Population change was the first variable listed in the preceding chapter. Where industrial development gains the upper hand, a constant supply of labor with an increasing supply of capital or land, or a lagging of population growth behind that of capital or land, would result in a higher per capita real income. In this chapter, the increase in real income per head due to this relationship between labor on the one hand and capital or land on the other, is to be discussed in terms of economic diversification as set out in the preceding chapter. Through the extension of economic activities and the attendant increase in the demand for labor, we shall see how the over-population problem of economically undeveloped countries, like China and India, would disappear in the process of industrial development. The major questions related therewith will be discussed in this chapter, and include, first the spatial and occupational redistribution of population and, second, the growth and cessation of the growth of population in the course of industrial development.

2. The relation of the size of a population to industrial development

A large population is sometimes required for economic expan-

sion. If only a certain percentage of the average purchasing power may be diverted to buy the product of a specified new industry, a minimum size of population is required for establishing the industry. Under this condition, an increase in population implies an increase in the market for the product of the new industry. If we choose a different assumption, that of a constant amount of real income per head, the establishment of an industry in terms of the capital required would still require a certain minimum size of the population. Assuming that only a certain percentage of real income per head can be diverted into capital formation, construction of the industry is possible only when the population reaches a size which must be at least equal to the product of the reciprocal of the percentage times the amount of capital required for the industry.

Concerted action, in terms of the labor contributed toward construction of the industry, calls for sacrifice by every working person in the community according to the ratio between the size of the population and the amount of capital required. Capital formation in the midst of industrial development is an alternative to consumption of exactly the same amount of real income to which the capitalists or, if the capital is raised by taxation, the people in the whole community, are entitled. Only a country as thickly populated as China could have built the Great Wall and the Grand Canal under the poor engineering conditions of the times.

3. Spatial redistribution of the population

Changes in the spatial pattern of population distribution will accompany industrial differentiation. Through the adequate development of transportation, markets will be extended to every corner of the country, and raw materials will be found in various places. Such raw materials are brought to the industrial centers in a direction of flow opposite to that of labor and capital brought there for the exploitation of resources. People rush to hitherto uncultivated lands where the sources of raw materials take the form of mines and newly-established plantations. New villages and towns will arise, and will serve as both consumers' and producers' clusters for the newly developed industries. People will continue to move until the marginal productivity of labor is uniform in all parts of the country. A geographical redistribution of population will thus raise the marginal productivity of labor and the people's real income in all parts of the country. Accordingly, commerce, manufacturing and transportation per se would have to bring more people along with their extension, and this would tend to make the local economy prosperous by enlarging the markets for local products. The exploitation of underground resources, commerce, manufacturing, transportation and the like are the very substance of industrial development, but are completely absent or present on a very small scale in an agricultural economy. As they arise, they would attract people by providing new opportunities for earning a living. The direction of

the flow of man-power and capital is determined by the facilitation of transportation, the location of resources and of markets.

Suppose the new industries are established in an overpopulated rural community and that there is a rush of immigrants into the community simultaneously with the local industrial development. There is no assured reason to assume that immigration would increase the seriousness of the local overpopulation problem. Before the outbreak of the Sino-Japanese War no Chinese thought it possible to move millions of people to West China without the risk of starvation, as seemed indicated by the recurrence of local famines prior to the war. Surprisingly enough, however, these provinces in West China tended to be prosperous as more and more people settled there. No serious famine has taken place during the entire war period. One reason might be that approximately all of the immigrants were absorbed into the newly established industries, which served as outlets for local agricultural products and enriched the local people so that they had purchasing power to buy food. Industrialization during the war has reduced the seriousness of over-population in these provinces, although their population was considerably increased.

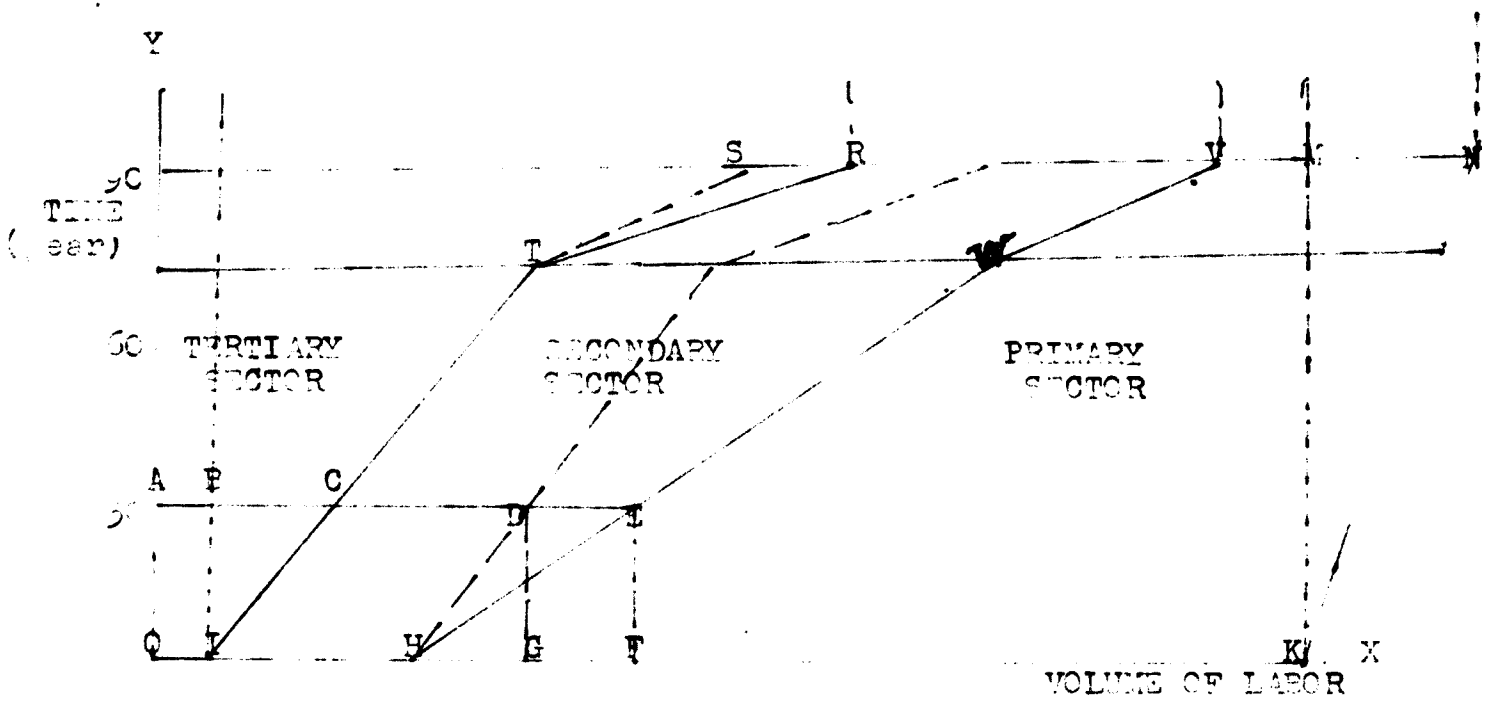
4. Occupational redistribution of the population

In the first stage of industrial development, demand for labor in the primary economic sector would not materially change

for some years, until the technology of production improves and more efficient tools are used for production in the primary sector. During this first stage, therefore, all the labor needed for development of the secondary and tertiary economic sectors must be absorbed from other sources than the primary sector. In other words, it is the development of the secondary and tertiary economic sectors which creates opportunities for turning idle though workable labor into productive activity, and increases the proportion of the working population.

As the following diagram indicates, in the process of industrial development relatively high wages in the secondary and tertiary economic sectors draw workers away from the primary sector as soon as unemployed labor has been exhausted. Continuation of this transfer of productive labor from the primary sector would result in the rise of wages there and would finally lead to the use of machines in this sector as soon as it is cheaper to employ machines than to keep high-wage labor on the land. In this diagram the X-axis expresses the volume of labor employed or the size of population in which employed labor is equally distributed, and the Y-axis expresses the time occupied by industrial development, with ten years as a unit period. OI, IH, and HK are the volumes of labor, respectively, in tertiary, secondary, and primary sectors at the beginning of industrial development. As in-

OCCUPATIONAL REDISTRIBUTION OF POPULATION OR EMPLOYED LABOR



dustrial development is carried on, supposedly until the 30th year, the volume of labor transferred into the secondary and tertiary sectors would amount to HF, of which GF has moved into the secondary sector, and HG, equal to BC, into the tertiary sector.[1]

Reasons for the growth of the secondary and tertiary economic sectors at the expense of labor employed in the primary sector lie in the relative changes in the demand for, and the supply of, their products. The elasticity of demand for primary products, required for the satisfaction of elementary physiological wants, is usually less than unity, and such wants do not change materially in the course of economic progress. The relatively stable demand for products of the primary sector can be met with a comparatively small amount of labor after the introduction of mechanized methods in agriculture.

The rising incomes of the people, on the other hand, raises the demand for services and products belonging to the secondary and tertiary sectors,[2] increasing the demand for labor in these sectors. Under present conditions of rising economic nationalism in various countries, labor is not transportable across national boundaries, and therefore must be supplied internally by being diverted from the primary sector.

During the process of industrial development, the proportion of the working population engaged in the primary sector

declines while it is increasing in both the secondary and tertiary sectors. The proportion of the working population engaged in the secondary sector appears to rise until the point of maximum industrialization is reached, beyond which the secondary sector begins to decline, as shown by RS in the diagram. (TS is parallel to WV). The apex of the secondary sector, beyond which it turns down, may be delayed or hastened, depending upon the rapidity of technological progress, the distribution of wealth and a number of other conditions. The turning point might be reached a little earlier if technological improvement is accelerated by a faster rate of industrialization arising from favorable human and resource factors, etc. Thus, the period of industrialization varies with the physical environment, technical conditions, human factors, etc. Different countries tend to differ from one another, in the rapidity of industrial development due to different economic conditions.

The growth of economic activities in the secondary and tertiary sectors opens up opportunities for light work demanding less physical strength than work in the primary sector. Consequently, younger and older people who were excluded from work previously are absorbed into productive activities. Although not so much bodily strength is required for jobs in the secondary and tertiary sectors, technical experience is respected, and this can be accumulated only through training or

education. Thus the working age of the population tends to be lengthened, although the time required for education might also be extended.

5. Population growth

Under the influence of incessant technological improvement, it becomes possible for a smaller and smaller proportion of workers to raise the food requirements of the whole population. An increasingly larger proportion of workers may be diverted to the production of industrial goods. Thus, the output of agriculture is maintained and that of industry tends to be greater. The industrial output, which is steadily increased in this way, becomes additional income to the people concerned, resulting in a greater real income per capita.

This increase in real income due to industrial development would improve the living and sanitary conditions of the people. There might be some reduction in infanticide as a consequence of rising incomes. The people would be able to live longer and longer because of more and more medical progress, and their life expectancy would tend to increase. The size of population would grow because of the reduction of the death rate. The birth rate, determined by the state of mind among the people in respect to child breeding, might be the same as before in the first few periods of industrial development. The maintenance of the previous birth rate, when the

death rate has been reduced, would produce a new, greater, difference between the birth rate and the death rate as a rate of growth.

The shifting of labor from the primary to the secondary and tertiary economic sectors reduces the labor on farms. Whenever the country under consideration is over-populated and a part of the laborers on over-crowded farms are withdrawn from agriculture and absorbed into other occupations, its over-population problem would be relieved. The turning point in population growth will arrive when the occupational and spatial redistribution of population has been completed. This is so because the economic and social conditions which affect the people's state of mind in respect to child breeding change during industrial development. Urbanization and a rising standard of living, for example, would lead to a desire on the part of most young couples for the control of birth. In other words, if the country under consideration is over-populated before the start of industrial development, there would be no problem of over-population when industrial development is completed. What it has to face might rather be the problem of under-population whenever its birth rate falls behind the death rate and the income per head is still kept rising.

6. Conclusion

Population changes during the process of industrial de-

velopment may be treated under five broad headings: the size, the age composition, and the working age of the population, and the geographical and occupational distribution of those who work.

First, the size of the population in the developing country would increase when the death rate is reduced without a corresponding decline in the birth rate. Second, age composition of the population would change as the people tend to live longer and longer, and their life expectancy tends to increase year by year, as a result of the gradual improvement of living and sanitary conditions. Third, the opening of working opportunities for young and old people in the secondary and tertiary economic sectors would increase the span of working years in the population. Fourth, the spatial pattern of population distribution will change because improvements in transportation will bring people to places that were sparsely inhabited before, either for the exploitation of raw materials or for the construction of new industry. Fifth, labor will shift from the primary to the secondary and tertiary economic sectors. Farm output would not suffer, in spite of the fact that a part of farm labor would be absorbed into non-agricultural occupations, but the whole of the new output would be a net addition to the community's income.

Finally, the increase in population would come to an end in due time, because those economic and social conditions which affect the people's state of mind in respect to child

breeding would change in the process of industrial development. Urbanization and the rising standard of living, for example, would lead to the desire on the part of most young couples for the control of birth. In other words, if the country under consideration is over-populated before the beginning of industrial development, there would be no over-population problem as soon as industrial development is completed.

FOOTNOTES FOR CHAPTER TWO

1. See in particular:

   Colin Clark, The Conditions of Economic Progress.
   E. Cannan, "The Changed Outlook in Regard to Population," Economic Journal, December, 1931.
   Charles F. Roos, Dynamic Economics, 1934, p. 6.

2. Cf. Introduction, Chapter Three and Chapter Four for the reasons for the increase in income in the process of industrial development.

CHAPTER III

THE DEEPENING OF THE CAPITAL STRUCTURE

1. The purpose of this chapter

As shown in the preceding chapter, the population of a country during the country's industrial development tends first to grow, and finally to remain stationary. The change in capital investment, subject of this chapter, is quite similar. In this chapter, we shall indicate the significance of capital formation in relation to economic development in general, giving attention to such matters as the function of capital in production, the necessity of capital investment for technological improvement, and the relation of capital accumulation to the rate of interest, etc. Technological improvement, the second variable mentioned in the first chapter, will be discussed along with changes in capital investment, for some outlay of capital must be made for every kind of change in the technology of production.

2. The function of capital in production

The establishment of an industry primarily depends upon capital, or the "derived" factor, as Boehm-Bawerk calls it, which is progressively more man-created as we view it in its forms from raw material to that of producers' goods. The more refined the form of the producers' good, the more labor is

consumed in its fabrication. Capital increases the employment of labor by differentiating economic opportunity, but reduces the employment of labor in the primary economic sector.

In a primitive agricultural economy, production is carried on largely with the use of labor and land. There are only simple utensils and instruments, like the hoe and the plough. If there is need for any other forms of capital, it is for food and buildings, which are not directly applied in production. Agriculture is like other productive activities in that production takes place over time, usually a year. The provision of food to those who produce is of vital importance during this time. It is primarily in this sense that agricultural production is similar to capitalistic production. We may say, however, that capital in agriculture is more concerned with the provision of a living for the farmer than with directly participating in production. Hence it does not form as conspicuous and indispensable an element in agricultural production as it does in industrial production. This is the fundamental difference.

In a cattle economy, capital is also indispensable in this sense, but it is not directly related to production at all, even though the breeding of domestic animals takes a longer time, usually several years, than does agricultural production. Thus, it is inappropriate to say that a cattle economy is more "capitalistic" than an agricultural economy, merely because its production requires a longer time, and so more capital in the

form of food. Time, although one of the distinguishing elementary factors in capitalistic production, cannot constitute its characteristic feature.

A primitive agricultural economy is primarily self-sufficient and stationary. The economic cosmos consists of a definite concatenation and a mutual interdependence of individual incomes, for goods produced must ultimately exchange against, and therefore constitute demand for, other goods, as J. B. Say pointed out. The producer appears as the buyer of goods produced by others, or as the consumer of his own goods, for people produce goods for their own consumption as well as for the market. Production is on a small scale and exchange is not a matter of great importance. In such a self-sufficient, closed economy, the people live primarily on the basic elements of production, that is, on labor and natural resources.[1]

By contrast, an industrial economy is built upon the basis of the mutual interdependence of various industries. The product of one industry is consumed by other industries or by people employed in other industries. Every kind of industrial economy is basically an exchange economy, not only within the communities in which individual industries are located, but between communities based upon different industries. Every kind of industry must starve on a narrow market, and the life or death of every industry depends solely on the extensiveness of its market. An industrial economy is, therefore, primarily

an open system of economy. The process of exchange depends upon the development of communication, and the latter necessarily increases the advantages of large-scale operations and tends to hasten their ascendancy. In the construction of communication and transportation systems which connect the various parts of the world into an organic-like body, the industrial world is characterized by a large and continuing demand for capital.

Both land and labor are required to create capital. Labor, in sharp contrast to capital, cannot be accumulated, whereas capital can be accumulated to an unlimited extent. Land, in contrast to capital, is immobile and, in the case of arable land, its utilization is limited by the climate, etc., so that it is available for use only under proper conditions. Labor tends to be mobile and transferable within a country, but personal prejudice against strange religions and customs usually leads people to a love of their native land. Moreover, sometimes a person who gets accustomed to a particular climate would not like to move into another kind of climate. A further distinguishing feature of labor is that no individual person would be engaged in productive activities both day and night. Thus, to a certain extent, both land and labor have limitations of time and space upon their roles in production. Capital, however, can be transferred from one place to another, and capitalistic production may be characterized by a continous process, supposing there is labor available for alternative work in the day and night.

Because of these limitations on land and labor in the productive process, densely populated countries as well as sparsely populated countries are characterized by a lack of economic opportunities for earning a reasonable living, if their capital accumulation is not large enough to supply satisfactory instruments of production. Countries with an abundance of land, but with a meagre accumulation of capital, suffer from poverty in the same way as countries with an abundance of labor. A densely populated country is stricken with poverty, not because of too large a population, but because its natural resources are not developed. A sparsely populated country may have adequate natural resources in sight, yet its people may be as poor as those of a densely populated country. The fundamental reason lies in the fact that economic opportunities are created by, and are limited by, capital, in both the material and technical sense of the word. Without adequate instruments for unearthing natural resources, their paucity or abundance makes no difference for human livelihood. As long as economic opportunities are rare, labor in such countries may be unable to find employment, and may become surplus in the balance of supply and demand.

The creation of economic opportunities must depend upon accumulated capital unless labor is incessantly and intensively utilized to such an extent that the exploitation of natural resources is carried out by hungry men, or by a more efficient

use of the resources at hand. But there is a physical and technical limit to the strenuous efforts in the use of labor and land in this case. The fruit thereof might not be equivalent to the sacrifices. Moreover, the exploitation of certain resources, although they might be in sight, would be impossible unless sufficient capital is available.

Production requires time, and workers must consume during the period of production. Without a stock of food sufficient to last from one harvest to the next, a community cannot occupy itself with agriculture. Therefore, provisions and other commodities must be saved up or otherwise held ready, if labor is to be supported. Raw materials which are worked up are also indispensable. Houses and buildings in which work is carried on, or which are otherwise necessary to business, must also be included.

Because of the interchangeability between labor and capital, that part of capital called working capital which represents wages paid to labor, may be exchanged with that part of capital called capital equipment, whenever the latter is worn out and an increase in the rate of interest is favorable to a reduction in the employment of capital equipment and an increase in the employment of labor. Working capital, like food, not used directly for the production of consumers' goods, may be turned into a higher form of capital, capital equipment, through the use of labor. Thus, it is not necessary to make an anti-

thesis between working capital and capital equipment. On the other hand, if we want to know the answer to the question of whether land or labor does compete on an equal basis with the third factor of production, capital, we must treat capital as real capital or capital equipment, not as working capital, or it is impossible to distinguish among the three factors.[2] Furthermore, in accounting practice, the claim to things is usually reckoned as capital. It is capital, so far as lucrativeness is concerned, because it can yield income to its owner. But from the point of view of the community as a whole, it is disqualified as capital, for the claim to things is merely a title to a portion of income already yielded by capital other than the claim itself, plus labor and land. The right to things itself cannot yield any social income to the community. In the following pages, therefore, the endeavor is made to denote by capital only the apparatus of production, usually termed capital equipment.

Capital as a means of production is regarded by Boehm-Bawerk as having five uses: setting labor into activities, sparing or releasing labor, performing labor, as a mediator for the control of the power of nature, and helping bridge the time-space between the commencement and the end of a work.[3] Boehm-Bawerk, moreover, regards capital as having three functions. First, its existence is "a symptom of pursued advantageous roundabout ways of production;" second, an active inter-

mediate cause for the completion of the roundabout way of production; and third, also the cause for the pursuit of other roundabout processes of production than those already existing on the ground that the more capital accumulated, the more it may be directed into creative productivity or saved for future use.[4]

The function of capital in production, it seems to me, is economical in general, and an increase in capital may reduce the cost of production per unit of output. As already explained, if we want to discuss capital on the basis of its competition with other factors of production, we must treat it as capital equipment, in contradistinction to labor. When we do so, the replaced land or labor must be greater in cost, in reality or expectation, than the capital that could be applied. Entrepreneurs who increase their use of capital relative to other factors of production act on this basis as a rule. The applied capital must be less expensive, both in the prime cost of the equipment and in overhead cost in the form of interest, than the cost of labor replaced or otherwise to be used, either retrospectively or prospectively. A change in either prime cost or overhead cost affects the entrepreneur's decision.

For an increase in capital investment to be effected, the total amount of the services of labor and land necessary for the production of the capital equipment must be less than the

combined services of labor and land saved by applying the capital that is to be produced. This is analyzed in real terms, not in money terms, which may or may not coincide with the real terms, depending upon the particular conditions.

An increase in capital investment would facilitate harnessing natural resources that are not accessible to men without the aid of working instruments. This might be called a super-man function of capital, in the sense that the work done by capital cannot be done directly by human beings, regardless of how dexterous and wise they may be. As K. Marx observed, "... the capacity of rendering services by working instrument is free of the personal limitation of human labor force."[5] For example, the concentration of millions of tons of force at a point, as in striking piles into the bed of a river for the construction of a bridge, can be done well only by a pounding machine. The essential condition for the use of machines in production is to have a prime mover capable of exerting any amount of force, and yet be under perfect control. In this case, not the cost of production but the type of project is of vital significance. The use of capital equipment is sometimes imperative, no matter how great the cost may be.

Almost every kind of material wealth is wrested from the world of nature, where there are numerous and enormous masses of power and free goods, out of which a great multitude of items of wealth may be fashioned. An undeveloped country is characterized by the mere presence of natural resources in their

primitive state. Moreover, almost every kind of capital good is non-producible by human labor without a highly developed capital structure. Therefore, for the economic development of undeveloped countries, the developmental function of capital, which cannot be performed by labor alone, is of importance not only for unearthing natural resources, but for the manufacture of instruments requisite therefor. To a certain very limited extent, it is possible to incorporate technique into the structure of production by bare hands, but with some properly accumulated capital more can be done. Furthermore, with a variety in the capital structure, various techniques may be incorporated into the structure of production to obtain different results. By incorporating technique with the use of capital as an instrument, the possibility of unearthing natural resources that were originally inaccessible may be opened.

If capital equipment is used to extend the field of available land, the change in the supply of capital synchronizes the change in the supply of both land and capital. Only on the basis of this relationship is it understandable how an increase in capital could synchronize a cumulative increase in wealth, as has happened in the industrial countries. Only on the basis of this relationship is it understandable how a community with vast land can increase its wealth at a greater rate than a community with little land, or how a country hav-

ing vast land but little capital may be as poor as a beggar. So it is also true of capital that "money makes money," as Adam Smith says. "When you have a little, it is often easy to get more."[6]

There is no limit of land in the progress of science. The availability of land varies only with instruments and that knowledge which discovers the connection between free goods and human wants; if there is a lack of either the instruments or the knowledge, the resource concerned would be unavailable. A progressive community is usually one in which science is interwoven with production. But the intertexture of science with production is effected only through the technology of production, the activation of which must be effected through capital equipment. Therefore, the influence of the progress of science which is felt in production is transmitted only by capital equipment, and capital accumulation is usually characteristic of a progressive economy.

As a result of an increase in the supply of capital, labor can be released relatively or proportionally from work in the primary sector, and leisure time, which is the source of civilization, thus increased. If the people are striving for wealth, the time spent on production in the secondary and tertiary sectors could be increased, as pointed out previously.

Economic progress may be partly attributed to an increase of labor productivity and partly to a growth of capital. If the percentage of a country's labor force required in primary pro-

duction merely to meet the domestic demand for an actual current diet is defined as the primary requirement, the remaining percentage of the labor force, which may be diverted into industrial production, into the production of new capital goods, or into the production of goods for export, may be called the secondary requirement. The size of the labor force for the secondary requirement varies with the degree of mechanization in agriculture and so on, although per se it shows also the percentage of labor force which may be diverted into the production of capital goods. As the primary requirement of labor force is lessened, or as the technical capital structure is deepened, capital formation can be quickened. Therefore, an increase of capital could be cumulative if it is created by capital, and approximately additional if created by labor. This difference accounts for the cumulative increase of wealth in the industrial countries, and the rigors of the struggle for wealth in primitively agricultural countries, in which all products might be conceived of as a bundle of services of land and labor.

3. The role of capital in industrial development

The supply of land, though vast in a material sense, may be very limited in a technical sense. Land, in the sense of natural resources, is not in itself wealth. People may live upon land full of natural riches, as the North American Indians lived upon the land which now comprises the USA, and neverthe-

less be very poor, because they cannot labor in such a way as to turn the natural riches into wealth. The Cherokee tribesmen in North Carolina at the present time provide a current illustration.[7] By contrast, people like the Dutch and Japanese, living on bits of very poor land, become wealthy by industry and providence. Labor alone cannot produce prosperity in a community if the state of the arts is archaic, and a community with an already numerous population, would tend, surprisingly, to degenerate upon the heels of an increase in population because of the decline of capital per head. Although they are usually taken as the original dichotomy of the factors of production, labor and land alone, whatever the conditions of their supply, would not make possible the differentiation between a progressive and a regressive economy. On the one hand, China has an abundance of both labor and land, but is relatively poor, while on the other hand, countries in Latin America, which have relatively abundant land but less labor, are as poor as China. Evidently, a community is not enriched by mere "great land and numerous resources" which are not available.

For reasons explained above, the abundance or scarcity of labor and land in a country plays no role in determining whether its economy will be progressive or regressive, even if the proportion between labor and land is changed in either direction without a change in capital per head. Thus, whether

an economy is progressive or regressive depends little upon the conditions of the supply of land and labor, and "the difference between a stationary, a progressive or a regressive economy is found only in the state of capital formation."[8] If capital formation is only sufficient to cover replacement, it is a stationary economy; if there is new capital formation with population given, it is progressive; and if capital per head is declining, it is regressive. The progressiveness of an economy, therefore, is a phenomenon of the increase in capital per head, and economic development is primarily a phenomenon of the increase in investment.

Industrial development tends, on the one hand, to increase capital investment required for the establishment of various industries, and on the other hand, to carry out technical improvement, and both of these are examples of a deepening of the capital structure.

A growth of real investment may take the form either of a deepening of the capital structure or a widening of the capital structure. In the production of certain goods there are usually two kinds of capital: one comprises the means of production which we call capital equipment, and the other comprises working capital to pay for the labor force currently used.[9] Deepening of the capital structure means that a larger ratio of capital equipment is used in the production of certain goods, while the widening of capital means that capital equip-

ment grows pari passu with the increase of working capital. With a given state of the arts, there is an optimum size for the efficiency of the capital equipment. This optimum size varies with the technology of production, if the available capital is adequate to adapt itself to the requirements of technology.[10]

Unless knowledge is stationary, the deepening process does not necessarily involve lengthening the period of production, although a change in the structure of production is inevitable. If the advantages of the division of labor consist solely of the fact that a series of operations previously performed by one man were divided among a number of men, each of whom becomes more efficient at his special task, the effect would probably be to shorten the period of production instead of to lengthen it. In the industrial development of economically undeveloped countries, the introduction of machine production to replace handicraft work is "just the reverse of roundabout."[11]

The deepening process, although it was an inevitable phenomenon of industrial development, is of concern to us only for the reason that at first the capital per head, and then the real income per head, can be increased. Industrial development, as it relates to material changes, means an increase in the kinds and quantity of real capital. The change in real capital is often regarded as necessary from the twin viewpoint of employing people, and of increasing the real income produced by capital and labor.[12] For a country in

which productivity per head is too low even to support one's self and one's family because of a lack of capital equipment, it is important to accelerate the deepening process. The deepening process will be carried out to the point at which the employer is indifferent toward increasing capital equipment or his employment of labor.

Technical achievements in the research work of physics and chemistry, from which the productivity of capital is usually derived, may be realized in the industrial field only if there is adequate capital equipment. Almost all changes in industrial techniques involve some measure of capital outlay in more than one way. The march of technological progress is coupled with a growth in the volume of physical capital, both per unit of labor employed and per unit of output. As technological developments are introduced and gradually adopted, they call for heavy new capital outlays, especially when they represent the rise of new industries. Furthermore, as the demand for new products grows, additional capital is required for an expansion of plant and equipment to meet the increased demand.

A rather general technological development has been the increasing utilization of large capacity equipment. The trend toward larger capacity units was accompanied by a decline in equipment expenditures per unit of output, viz., an increasing size of production with a declining investment per unit of output. In Diesel plants, for example, investment per unit of

output varies inversely with total capacity, declining from $230 to $106 as the total capacity increases from 100 to 10,000 kilowatts.[13] The explanation is that increased capital equipment usually results in higher productivity in the form of continuous production, which is absent in a more or less primitive economy. A variety of economies, such as the indivisibility of machinery and the specialization of marketing and management, would favor an increased scale of operations by the firm.[14] Whenever the most progressive technology of production is incorporated into the process of production, using a sufficient supply of capital, the most efficient scale of production may be created.

The development of large scale production, benefitting as it does by decreasing equipment expenditures per unit of capacity, would further bring about a situation favorable to the acceleration of capital formation. In addition, the productivity of labor could increase to a relatively high level, in proportion to technological improvement and increases in capital equipment. In the U.S.A., to produce a given volume of output, just one-half of the labor was necessary in 1936 compared to 1899; that is, there was exactly a 100 per cent increase in the productivity of labor.[15] Assuming that the same amount of labor was employed in the U.S.A. in 1936 as in 1899, the output could have been doubled.

Economic progress, as reflected in expanded capital equip-

ment, may take either of two forms. In the first, both capital and labor per unit of output are synchronously decreased; this may properly be called absolute economization. Standardization of products, which can occur only with machine methods of production, is the prime condition of the reduction in unit cost as such. In the second form of economic progress, there is an increase in capital per unit of output which might equal, exceed, or be less than the labor saved per unit of output; this may be called relative economization. In a word, two kinds of economic progress may be connected with technological progress: the one is labor-saving and the other is capital-saving. Technological progress which results in labor-saving will, on the one hand, bring about unemployment in the industries concerned and, on the other hand, create new possibilities of employment in industries manufacturing producers' goods. Thus the demand for labor in constructing and maintaining producers' goods and in securing raw materials will be increased. Technological progress which is capital-saving may lead, directly or indirectly, to the tying up of a smaller amount of capital in the manufacture of the same quantity of product, given the same technique of production. If it directly affects a particular industry, it will increase the supply of capital available to the rest of industry.

In a different vein, technological progress is described by most economists as the source of profits. It has the effect

of inducing entrepreneurs to increase capital investments. In addition to the saving of capital, the saving of purchasing power as a result of lower prices incident to the technological progress, affords a source of capital for new investment. The increased investments would, in turn, absorb (or more than absorb) the displaced labor.[16]

The same quantity of money income would buy more goods than before the introduction of technical progress; there is an increase in real income per head, assuming that population does not increase in proportion. Usually the saving effected on wages of the formerly employed workers forms a fund out of which wages could be raised above the level of their marginal product before the new technique of production was introduced. Thus, in the process of technical improvement, we can expect a general increase in wages.

As a result of technical progress, either in the form of capital-saving or labor-saving, the law of proportionality is subject to change. Barring indivisibilities, the physical marginal productivity of every factor must, in the absence of technical progress, monotonically decrease. Technical progress breaks off any such curve and replaces it with another which, again except for indivisibilities, displays higher increments of product throughout, although it also decreases monotonically. On the other hand, technical progress might effect the introduction of new or cheaper raw materials in the

manufacture of goods already known; and sometimes it results in the creation of new products and wants. It might reduce the cost of production of primary goods, directly or through creating new possibilities for the utilization of waste products in the form of second materials, by-products and low-grade resources. There is also the possibility, however, of loss of capital invested in plant that is made obsolete by technical progress. When a new invention affects one group of industries, it is those industries whose costs are not affected by the invention that especially suffer an oscillation in their structure of production; progress to the new method of production takes place with a minimum of oscillation in the industries directly affected. In an economically undeveloped country, however, these considerations are not of great importance, since there are so few existing plants to reckon with.[17]

The tendency of the rate of interest to decline is self-evident whenever the average stock of capital per worker rises. The increase in capital would relieve its scarcity. If the statement is true that "the owner of capital can obtain interest because capital is scarce," then "we might aim in practice at an increase in the volume of capital until it ceases to be scarce."[18] The diminishing rate of interest in the presence of a diminishing scarcity of capital would mean that investment could be carried out on easy terms; for the present value of the investment might be spread over a longer period at

a lower than at a higher rate of capitalization. In other words, with the low rate of interest at which capital for investment is borrowed, all investments which could yield even a relatively low income in the future are worthwhile if they sufficiently reward the entrepreneur's painstaking and pay for the interest expenses. Suppose that the entrepreneur's painstaking is rewarded at a constant rate, then the possibility of extending investment to those fields which are able to yield only a relatively low income is increased as the rate of interest falls. Thus, the accumulation of capital, as a result of initial investment, is able to relieve the scarcity of capital in undeveloped countries, and the field of industry would tend to expand in otherwise unexploitable directions.

Although the absolute amount of capital could increase year by year, the marginal productivity of capital, as investment is gradually extended to fields yielding lower income, would definitely decrease; or, if investment increases in the same field, its marginal productivity decreases unless the technology of production is improved, owing to the law of diminishing returns.

At the beginning of industrial development, the technical coordination within industries and between various industries is seldom complete because of the inefficiency of workers, the limited capacity to use capital equipment, the lack of skilled labor and institutional obstacles.[19] But as soon as technical

coordination is achieved, along with the substitution of habituation in place of antagonism toward industrial development on the part of the populace, the productivity of capital would be increased, reaching an optimal point with a given state of the industrial arts. Thereafter, capital formation would proceed at a declining rate or at a relatively stable rate, because of the gradual exhaustion of investment opportunity. If technological improvement is not forthcoming, the productivity of capital might tend to decline because of the increase of capital beyond the optimum point in existing industries. It also seems probable that man-hour output would decline appreciably with the gradual attainment of full employment, because less well-trained workers would be employed, and malingering and industrial strife might be expected to increase.

The increase of capital investment would ultimately bring about a balancing of the rate of returns with the rate of interest as a consequence of the diminution of returns from the new and marginal investment, given the state of the arts and in the face of a cessation of population growth. This zero point of profit, or the disappearance of further outlets for investment, indicates arrival at a new circular flow economy, stablished at a higher level of capital and income per head than prevailed before the introduction of industrial development. There might be no more technological progress whatsoever. Equally possible, however, is a rise in the productivity of capital to a higher level, owing to the intensive util-

ization thereof and to technological change, which might be primarily directed at improving the existing industrial equipment. In other words, "the proportion of income saved does not inevitably rise as income increases."[20] This, however, merely indicates that capital formation has ceased within the country concerned, but does not imply that saving is zero. If any income is saved during the period, it is probably exported in the form of foreign lending. All the increased income, however, except for that required to replace capital equipment, must be consumed, thereby improving the people's livelihood and keeping the economy from further progress.[21]

4. Conclusion

An increase in capital would relieve labor from producing the good toward whose production it is applied. Whenever the proportion of capital is increased in the production of a certain good, there is a deepening of the capital structure. The function of capital in production is economical whenever an increase in capital may reduce the cost of production per unit of output. An increase in capital investment would also facilitate the harnessing of natural resources which are not accessible to man without the help of working instruments.

Abundance of land or of labor alone cannot create a progressive economy. A vast area of useful land, if technologically not available to us, would bestow nothing upon us. Too much labor, on the other hand, relative to the other factors

of production, would even discourage economic progress, as shown by the substitution of labor for capital whenever the labor is relatively cheap and the rate of interest is high. In other words, the difference between a stationary, a progressive or a regressive economy is not to be found in the state of land and labor supply, but only in the state of capital formation.

Through the deepening of capital, technological inventions in natural science may be realized in the industrial field. The trend toward larger capacity units was accompanied by a decline in equipment expenditures per unit of capacity, viz., increasing size of productive unit with declining investment per unit of capacity. The explanation is that more extensive capital equipment usually results in higher productivity in the form of a continuous process of production, which is absent in a more or less primitive rural economy.

An increase in capital would tend to reduce the rate of interest, so that the present value of an investment might be spread over a longer period than previously. In other words, the possibility of extending investment to those fields which are able to yield only a relatively low income is increased when the rate of interest declines. Thus, we could extend the field of investment to otherwise unexploitable branches of industry.

The increase of capital investment would ultimately bring about a point of equality between the rate of returns and the rate of interest, as a consequence of diminishing returns from the new and marginal investments, if we are faced by a cessation of population growth. This zero point of profits, or the disappearance of further outlets for investment, indicates arrival at a stationary economy stabilized at a higher level of capital and income per head than prevailed before the start of industrial development.

FOOTNOTES FOR CHAPTER THREE

1. J. A. Schumpeter, The Theory of Economic Development, ch. 1.

2. C. A. J. von Gadolin, "Uber einige Einwande gegen die zeitbezogene Kapitaltheorie mit besonderer Rucksicht auf die Stellung der Kapitalguter," Weltwirtschaftliches Archiv, vol. 49, p. 517, 1939.

3. Positive Theorie des Kapitales, pp. 140-1, Innsbruck, 1909.

4. Ibid. pp. 172-174. Bohm-Bawerk defines intermediate cause in such a way: "Zwischenursache, sage ich, und abermals nicht 'Ursache.' Das Kapital gibt keinen selbstandigen Anstosz, sondern pflanzt nur einen von originaren produktivkraften gegebenen Anstosz fort, sowie ein gestoszener Ball die Bewegung einen andern anderen mitteilt. Man hat die funktion des kapitales wohl auch als ein Einfangen von Naturkraften bezeichnet. Ganz richtig und sehr glucklich." (Ibid., p. 173.)

5. K. Marx, Das Kapital, vol. I, p. 260.

6. Wealth of Nations, p. 93.

7. Cherokee women pound rice by using a wooden club and a hollowed-out stump.

8. C. A. J. von Gadolin, op. cit., p. 517.

9. K. Marx, Das Kapital, Erstes Buch, pp. 337-8, Leipzig.

10. R. G. Hawtrey, Capital and Employment, p. 36. Mr. Hawtrey writes: ". . . the widening of capital equipment means the extension of productive capacity of the flotation of new enterprises, or the expansion of existing enterprises, without any change in the amount of capital employed for each unit of output. The deepening means an increase in the amount of capital employed for each unit of output." Mr. Hawtrey's definition is correct only under the assumption of constant technology of production. For the improvement of the technology of production would reduce the capital used per unit of output. The deepening of the cap-

ital structure in our sense does not necessarily result in more capital used per unit of output. An increase in capital equipment, incorporated with improved technology of production, might result in more than a proportional increase in output. Thus, there is neither a deepening nor a widening process in Mr. Hawtrey's definition, for capital formation grows not *parri passu* with, but less than, the increase in the output of final goods. This is the reason why Professor Hansen, who uses these two definitions of Mr. Hawtrey's, cannot find any deepening process during the last fifty years or more, as contradictory to economic reality. (See Hansen's *Fiscal Policy and Business Cycles*, p. 355 et. seq.) It seems there would never be a deepening process if the improvement of technology of production on proceeds *pari passu* with capital formation. Therefore, these terms, if used in our sense, can more adequately explain the true phenomenon of economic progress. In the process of industrial development, the increase in investment always proceeds *pari passu* with technical development.

11. C. E. Ayres, *The Theory of Economic Progress*, ch. 3.

12. Norman S. Buchanan, *International Investment and Domestic Welfare*, p. 75, 1945.

13. David Weintraub, "Effects of Current and Prospective Technological Developments upon Capital Formation," *American Economic Review*, Supplement, Vol. 19, No. 1, March, 1939, pp. 15-32.

14. Stigler, *The Theory of Price*, pp. 133ff.

15. Colin Clark, *The Conditions of Economic Progress*, p. 382.

16. Mentor Bounitian, "Technical Progress and Unemployment," *International Labor Review*, vol. 27, Jan.-June, 1933, pp. 327-348.
Emil Lederer, *Technical Progress and Unemployment*, International Labor Office, 1938, pp. 16, 100, 102, 251, 252.

17. J. A. Schumpeter, *Business Cycles*, p. 88.
The Industrialization of Japan and Manchukuo, 1930-1940, edited by E. B. Schumpeter, 1940, p. 362.
Hayek, *op. cit.*, pp. 309, 320-321.
W. E. Armstrong, *Saving and Investment*, The Theory of Capital in A Developing Community, 1936, p. 165.

18. Keynes, General Theory, p. 376.

19. Cf. C. F. Remer, American Investment in China.

20. Cf. Colin Clark, loc. cit., p. 406.

21. "In face of rapidly growing knowledge and slowly growing or stationary population, it is inevitable that the staple or heavy industries which provide materials should decline relatively to those which provide finished goods and services . . . . The lighter industries are susceptible of an indefinite multiplication which makes the demand for their products, taken as a whole, insatiable. Increase a person's power of spending, and he will not increase his purchases in weight or bulk so much as in refinement of form. . . . So, given a stationary population, we may expect the already observable tendency toward a less proportion of the whole labor force being employed in the heavy industries and a larger in the lighter industries to become more pronounced." See E. Cannan, "The Changed Outlook in Regard to Population," 1831-1931, Economic Journal, Dec. 1931, pp. 525-6.

CHAPTER IV

THREE MODELS OF INVESTMENT

1. The purpose of this chapter

In this chapter we treat the general question of an increase in capital investment, in relation to a reduction of unemployed resources and to an increase of the national income. We shall study the effects of three types of investment, respectively, upon national income.

2. Unused resources

There is a relative abundance of unused resources in an economically undeveloped country. The abundance of labor in a so-called over-populated country is illustrative. When labor is concentrated on farms beyond the point of optimum returns its productivity declines. Equally important as an explanation of labor's low productivity, however, is the backwardness of the ploughing techniques, which renders the tillage of less fertile land impossible. An increase of capital equipment would raise the capital per head and change the technique of agricultural production. Land which was formerly not worth intensive ploughing would be brought into extensive cultivation, and formerly unemployed labor would be employed. Thus an increase of capital brings about three changes: an increase in the land utilized, an increase in labor

employed, and an increase in productivity per worker.

National income fluctuates within limits set by three factors: consumption, investment, and unused resources. If the product of each additional unit of a factor of production is entirely consumed, the marginal propensity to save is zero. If investment is equal to savings, then with a zero marginal propensity to save, new investment must be zero, and the volume of unused resources is left unchanged. The amount of unused resources which may be drawn into production is dependent upon three elements: the original extent of the unused resources, saving from current income which is not invested, and changes in the technology of production which in an expanding economy would increase the possibility of bringing more and more previously unusable resources into productive use.

The multiplier function of initial investment is brought into play only if there exist adequate unused resources. The national income in real terms would presently reach a maximum as all unused resources are brought into employment, and the multiplier function of added investment in a state of full employment would assume a purely monetary form. In short, there would be inflation.[1] The marginal propensity to consume, no matter how large it may be, would no longer expand the real income flow because unused resources are exhausted. At this point the function of the multiplier as a stimulus to the fuller employment of resources is lost. Under this condition, the income flow would be maintained at

a constant level if all savings are offset. Therefore, it follows that an increase of investment would raise national income only when it gives employment to unused resources.[2]

The amount of capital formation is partly determined by the extent of unused resources which may be transferred into productive use at the time of economic expansion. Capital formation would continue to increase until full employment is attained. The rate of capital formation attains a maximum, however, not at the point of the full employment when voluntary savings are exhausted and consumption encroaches upon capital, but at some point before full employment is reached. Some time before full employment is achieved there is still a relatively large amount of unused resources, and economic expansion may be carried out more rapidly by making use of them. Usually the larger the volume of unused resources, the more spectacular capital formation may be if changes in the technology of production are synchronized with the increase of capital.

To bring unused resources into employment requires an initial investment. Different sources of this initial investment would produce different effects upon national income, especially, different secondary and tertiary effects. The initial investment might come from any one of three sources -- from abroad, from internal savings, or from credit expansion -- and each source would produce different effects.

Investment may be defined as internal savings plus capital inflow or minus capital outflow, assuming that all

internal savings are offset. Usually there is no capital outflow in an economically undeveloped country, and we need take into account only savings and capital inflow. Credit expansion, although it is a form of forced saving, works out differently from saving-and-investment out of current income. An economically undeveloped country would probably utilize all three ways to raise funds for industrial development, and thus would experience a combination of effects. For the purpose of analysis, we shall consider each particular type of investment separately.

3. Investment from savings

Let us assume a closed economy in which the investment for initial development is obtained from internal savings; furthermore, let us assume that this closed economy is in a stationary state so that the quantitative relationships prevailing among the national income and its division into savings to replace capital equipment and current consumption are constant. We have previously indicated that a circular flow economy is characterized by constant income and capital per head.[3] A change in the quantity of capital would bring about a change in income per head, and this change in income would in turn modify the composition of capital between the working and fixed categories.[4] Usually a rise in income per head would raise the marginal propensity to save relative to the marginal propensity to consume. Conversely, a decline in income per head would raise the marginal propensity to consume relative to the marginal propensity to save. In the

circular flow economy it is assumed that income per head is a constant or, implicitly, that all savings are offset and reappear in the income flow. A change in the amount of investment from savings, such as we assume in this case, however, would bring with it a change in the income flow, and thus would disturb the circular flow economy.

Because the initial investment is raised from internal saving, the total amount of saving in the country must have exceeded the amount required for the current replacement of capital equipment, leaving an amount of net saving large enough to meet the requirement of economic development. Suppose that all saving is done out of income payments originating in the primary economic sector, and is diverted from current consumption to the production of capital equipment. Suppose further that all labor for the production of capital equipment is taken from the primary sector. Then the output of primary products would decrease in the first year. The reduction of primary products available to the natives constitutes the pain cost of economic development which they must suffer on the side of demand. The initial investment would increase national income in the second year, but there would be a smaller supply of primary products. Therefore, consumers would bid for the limited amount of them, forcing labor remaining in the primary economic sector to be used more intensively and more efficiently. This is another kind of pain cost, which they must suffer on the supply side.

In an open economy which will be more fully analyzed in the next section, the funds for capital formation could also be raised from domestic saving, and if so, this explanation also holds true in general. There is one difference, however: the products of the primary sector which are not consumed are directly exported in exchange for capital equipment, so that part of the labor which must be transferred out of the primary sector for the production of capital equipment in a closed economy is retained there until the capital equipment is imported. But the pain costs which the natives must suffer on both the sides of demand and supply are the same as before.

In a modern society the process of transferring savings to producers may be performed through the borrowing and lending activities of savings banks and through the securities, or capital, market. In this way "the demand for other economic goods is reduced in favor of the demand for securities."[5] This shift of demand from consumers' goods to securities is, in fact, the saving process. As a result of it, the price of consumers' goods might fall as funds are transferred to the purchase of securities. Not all of the capital expressed in monetary terms, however, reflects real capital formation. As more securities are purchased, or as they rise in price, the prices of existing producers' goods increase, but there may be little, if any, change in real capital formation. In order to avoid misunderstandings of this kind, hereafter the term "investment" refers, not to

the buying of stocks or bonds, but to the canalization of a part of current productive activities into the building of railways, etc., indicative of real capital formation.

Once the capital equipment has been manufactured or imported, labor is required to operate it, and changes in the technology of production incidental to the developmental process may bring some natural resources, previously unused because technology was inadequate, into employment. "For that part of the rise in real income which is due to long run factors (i.e., the rise in productivity) savings rise in the same proportion as real income; while for that part which is due to the elimination of unemployment, savings increase in a higher proportion."[6] In the process of industrial development, the increase in per capita income raises the marginal propensity to save more than the marginal propensity to consume. This is because consumption is a function of habitual behavior, and tastes and wants are more or less determined by social norms and religious beliefs which, unless there has been a social revolution, are probably stable in the society. Therefore, the fundamental wants would not change materially, although a slight increase in the marginal propensity to consume is probable in the short run.

We have no reason to assume, however, that all of the increased income attributable to the initial investment would be spent. In an economically undeveloped country the branches of commercial banks rarely penetrate into the rural communities, and rural people usually keep their funds on hand.

Thus, as a matter of fact, saving among rural people takes the form of hoarding -- a leakage in the national income. Because of this leakage, the higher level of national income could not be maintained, unless the leakage is offset in some manner; credit might be expanded, for example, and this will be discussed later. Rural people habitually hoard, and it is probably realistic to say that the more the rural people save, the more will be hoarded, although we are not able to calculate the quantitative magnitudes. Thus a leakage in some proportion to the increased national income through rural hoarding is probable, although it is possible that dishoarding among rural people would occur and would offset part of the hoarding.[7] As a consequence of these uncertainties, the secondary effects of an initial investment are not easy to determine.

The reinvestment of savings performs two kinds of functions: "In the first place, it serves to increase the productive power of society. In the second place, it offsets acts of savings which individuals, business firms, governments or other public or private agencies wish to perform. So far as investment balances these acts of saving it prevents them from leading to a decline in the level of employment and income."[8] A high level of saving is usually associated with a high level of national income. Hence, if national income is rising, it is necessary to have an increasing rate of investment to prevent the increasing rate

of saving from forcing contraction of the national income. In undeveloped countries, the average and marginal propensities to save are both low as compared with the industrial countries. At the inception of industrial development the possibilities for successful investment are restricted by technical and social conditions, etc., and hence are less in a country just embarking upon industrial development than they are in a country already industrialized. Therefore, we cannot be assured that there will be outlets for the volume of saving arising from the increased marginal propensity to save. We must therefore face the prospect that the flow of income might contract in due time, unless all savings are offset, or unless the marginal propensity to consume is prevented from declining.

It is possible, however, that the initial investment might produce only a slight secondary effect on national income owing to industrial mismanagement. If so, the productive services rendered by the initial investment might be less than the distributed income in the form of wages, rent, etc. associated with it; that is, there might be some consumption of capital.

Therefore, two conditions must be taken into account in determining the secondary effects of an initial investment. The first is the marginal propensity to save relative to investment, and the second is the marginal propensity to consume relative to income derived from the investment.

Although a high level of consumption is required for a high level of national income, as Keynes expressly explained,[9] consumption without any contribution toward production would make the national real income contract as in the case of war expenditure. A high propensity to consume in an industrial country is desirable, not only because its secondary effects are favorable to the increase of national income, but also because it is required to provide outlets for over-saving and for the avoidance of unemployment. We have shown previously that over-saving is in general impossible in an economically undeveloped country, and the presence of unused resources is, in large measure, due not only to limited capital accumulation, but also to technical conditions, etc. Therefore, a high propensity to consume is not desirable in an economically undeveloped country. In the sense that savings are required for capital formation, and must be equal to investment, we prefer a low, rather than a high, propensity to consume.

An initial investment from current saving involves pain costs on both the demand and the supply sides of the community, as we pointed out above. If the initial investment is quite large, as is usually the case, the people's resistance to saving will be increasing unless pressure from the outside is applied; examples of such outside pressure would be savings accomplished by selling securities to the public, compulsory insurance funds, and so on. Private outlays on investment will rise, in general, only when incomes rise.

"It rises as a result of higher incomes, and cannot be made the cause of rising incomes."[10] Of course, it might be stimulated by an invention, but the environment in an undeveloped country is seldom favorable for inventing. It is not to be expected that an economically undeveloped country would produce so fantastic an invention that it would be able to attract initial private investment on a large scale. Normally, private investment is directed toward producing goods which consumers usually demand, and would rise only as a result of rising consumers' demand, or as a result of an anticipated increase in consumers' demand. An increase in consumers' demand, however, depends upon an increase in their incomes, which would only be possible, in the case under consideration, after industrial development has begun. Thus, the savings required for initial investment must come from forced saving under governmental direction; this means either a high rate of taxation or credit expansion. This is especially true whenever people are unwilling to risk their painfully saved funds in a new and uncertain industry. It applies with particular force in the midst of political chaos and uncertainty about public policy toward private enterprise.

4. Investment from abroad

Let us begin by examining the process of investment from abroad, and its effects upon national income and capital formation. In an open economy such as we are going to assume,

it is doubtful that investment from abroad would produce the same effect as investment from internal saving, which we have just described. According to multiplier theory, imports from abroad reduce national income in the importing country and raise it in the foreign country where the imports originated. Would capital movement have the same effects?

Before proceeding further, we must distinguish two types of imports. The importation of capital equipment differs from the importation of a consumers' commodity which reduces the demand for domestically produced goods of the same kind, or for their substitutes. The reduction of output as a result of the reduced demand would decrease employment within the country, and would also decrease the national income if there is a free market for foreign exchange. But this analysis applies only to an excess of imports over exports. If commodity imports are balanced by an equivalent value of exports there will be no change in the total national income, but rather, probable changes in the industrial structure, for the importation of a certain consumers' good would modify the domestic industry which produces it or its substitutes. An excess of imports over exports, on the other hand, would result in the transfer of purchasing power abroad until the rise of the rate of foreign exchange under a paper standard, or a reduction of national income under a gold standard, could act to restore equilibrium.

Capital inflow, the second type of import, would first of all place credit at the disposal of the importing country and might not be immediately reflected by an importation of goods. In this case, capital inflow is like an export surplus, at least temporarily, because the borrowing country would have a favorable balance of payments vis a vis the lending country. But in the developing country (which has no heavy industry), the capital inflow would take the form of capital goods imports, which might reduce to zero the expansion of income inflow by way of reciprocal stimulation of consumption and investment -- the so-called Wicksellian process, for the import of capital goods drains most of the income from the initial investment to the exporting country.[11] Nevertheless, the investment from abroad would still increase employment in the borrowing country to some extent, for the payment of wages (if part of the employees were natives) and the purchase of local raw materials would stimulate the local economy and raise its level of income. The effect would be different if the capital import takes the form of direct investment to be completely operated by foreigners who would receive payments of interest, profit and wages, but not rent, which would be retained by the natives. Part of the wages would be spent locally for the purchase of local products, depending upon the propensity to consume of the employed foreigners. That is to say, only that portion of wages which reflects the propensity to consume

of the foreigners would produce a secondary effect upon the local national income. Because land in a country initiating industrial development is relatively cheap, rent might be very small and constitute only a negligible proportion of the total initial investment. If the direct investment is operated by natives with the exception of a few technicians and managers, most of the wage payments go to natives and only interest, profit and a small portion of wages would be pocketed by foreigners. The degree of technical education among the natives and their capacity to use capital equipment will be the controlling factors in this area. Generally speaking, direct investment would raise the employment of unskilled laborers to some extent.

Portfolio investment, on the other hand, produces effects upon the national income different from those produced by direct investment, in that only interest payments are received by foreigners. Wages, profit and rent are all pocketed by natives. The secondary and tertiary effects of these incomes received by the natives are similar to the effects of investment out of internal saving, which were examined in the last section. Here we are interested in the repercussions which follow from the payment of interest and, in the case of direct investment, profit, etc., to foreigners.

To effect the payment of interest, etc. abroad, the value of exports from the debtor country must exceed the

value of imports. If foreign capital invested in a country is relatively large in amount, the value of exports in payment of interest would be large. Exports from Latin American countries over the 1929-1939 period amounted to about 10 per cent of world exports, and their imports accounted for only 6 to 8 per cent of the world total. This situation was due to the debtor position of Latin America relative to other countries in the world.[12]

In general the export of commodities produces income in the exporting country. But would the export of commodities in payment of a debtor country's debts produce income? According to multiplier theory, when there is unemployment of resources in an industrial country, the export of commodities without equivalent inpayments would produce a larger national income than is drained off in the form of commodity exports, via its secondary and tertiary effects. The export of commodities from an undeveloped country to a creditor country in payment of interest, etc., is quite different in effect, however. In an industrial country the tendency to over-save must be offset, and when it is, the size of the national income is left unchanged. It is believed to be better to have funds invested for the production of exports without the receipt of equivalent imports than to allow the national income to enter a spiral of contraction. But in an economically undeveloped country there is no problem of over-saving. Industries producing commodities for export in payment of interest, etc. would

still exist, and produce commodities for internal consumption, if there were no requirement to produce for export. Exports of this nature, therefore, reduce the income to be shared by the native population.[13]

Whenever producers receive additional income, they may save it, spend it on imports or spend it on home-produced goods and services. Among these three ways of disposing of their income, only the third would create additional income within the country concerned. Imports create new income for persons outside the country but reduce the incomes of natives. Furthermore, it is likely that a part of the new income derived from the initial investment would raise the propensity to import somewhat. Thus, not even all of the national income remaining after the deduction of interest, profit, etc. for remittance abroad would be retained within the country. It should be borne in mind that exports in excess of those necessary to transfer interest, etc. abroad are rare for such countries, if not actually impossible.[14] For these reasons a decline of imports would raise national income.

Whether an initial investment from abroad results in domestic capital formation or not depends upon the nature of the investment: first, whether it increases national income, and if so, to what extent; and second, whether it increases exports. If it increases national income, and even goes so far as to produce a favorable balance of

payments, it would encourage capital formation. Investment from abroad which is able to satisfy this condition must be a relatively long term loan at a low rate of interest and must be devoted to the development of industrial productivity; foreign investments for exploitative purposes merely exhaust the local natural resources without contributing to the productivity of local industry or labor. Fundamentally, capital formation depends upon the productivity per worker and, even though the investment may serve to increase exports, its net effect upon the economy depends upon how the favorable balance of payments due to the new exports is utilized. If it is all used for the purchase of consumers' goods abroad, it would not raise the productivity of labor, and would exercise no permanent influence in the direction of increasing the national income. In such a case the marginal propensity to import is just equal to the marginal propensity to export, and there is no net gain on either side.

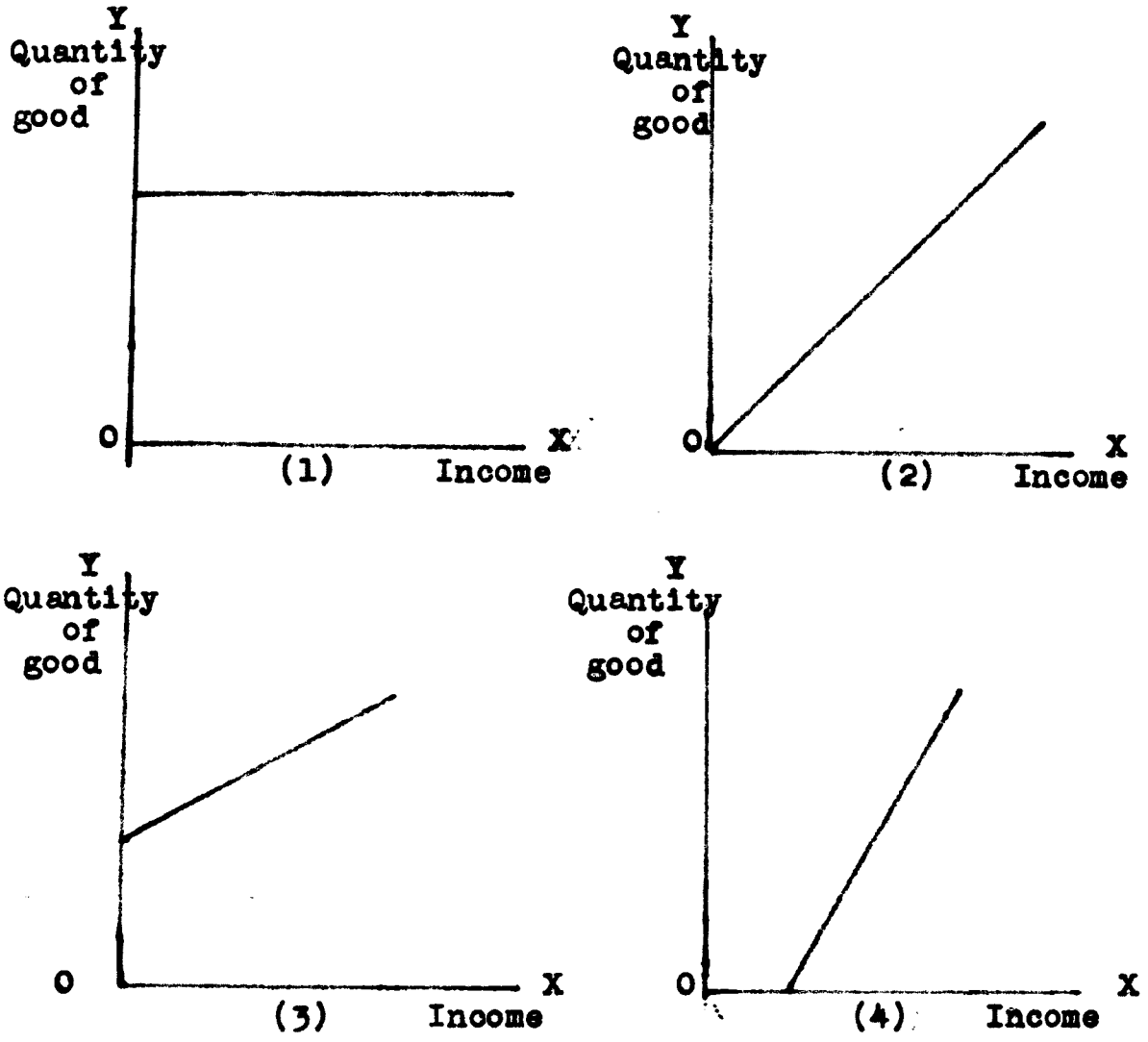
A high propensity to import, as one kind of leakage in the national income, would lead to a spiral contraction of the national income, and thus do great damage to the national industry and the level of employment, unless it is promptly modified. If an adverse balance of payments is allowed, the additional resources made available in this way must be "used to improve the balance of payments position in the future --- i.e., either

in developing new industries suitable for exports, or industries (such as agriculture) whose product is a substitute for imports."[15] A continuous adverse balance of payments usually leads to the authorities' raising the rate of interest in an attempt to correct it; but it cannot be corrected in this way if due to a fundamental maladjustment of the economic structure, so that the only result of the authorities' action may be to precipitate the collapse of full employment. "As a long run policy it would have been neither desirable nor even possible to maintain an adverse balance of (large) magnitude. To eliminate it, measures would have had to be taken either to increase exports, or, if that proved impossible, to cut imports by restricting purchases from abroad to those commodities which are essential and for which it is not easy to find substitutes in home production."[16] On the contrary, "a favorable balance of payments, provided it is not too large, will prove extremely stimulating."[17]

The functional relationship between the marginal propensity to import and national income would be determinate if the former is calculated over successive periods, and changes in both variables are known — given, of course, a stable price level, interest rate and wage rate. Usually "large countries are likely to have a low marginal propensity to import; and small countries a high marginal propensity to import."[18] Once the transportation and communication systems of a large country are properly developed, it is possible to achieve

self-sufficiency in most raw materials, and the development of industrial diversification would possibly raise the national income at a more rapid rate than the increase of imports. Thus, the marginal propensity to import of a large country might diminish, relatively, in case its industrial development is carried out along proper lines. Industrial development in a small country, on the other hand, might increase its dependence upon foreign countries for raw material supplies and foodstuffs, thereby raising its marginal propensity to import.[19]

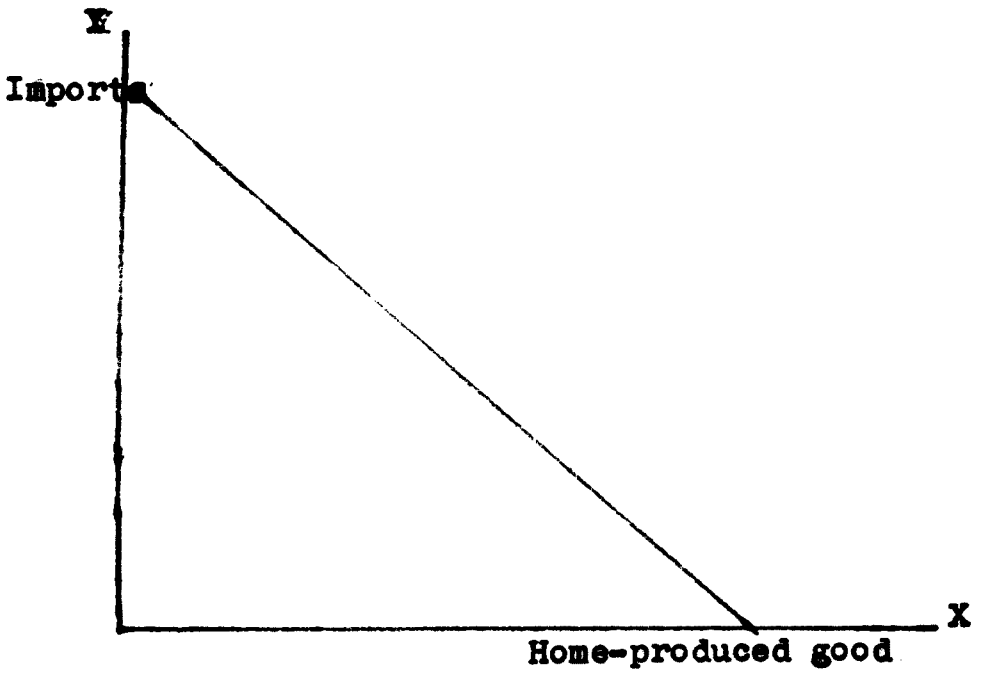
The behavior of the propensity to import in response to an increase of national income as a result of economic development depends, to some extent, upon the nature of the country's imports. Some commodities have great income elasticities of demand and some do not. The importation of a commodity whose income elasticity of demand is greater than unity would increase at a greater rate than the increase of national income. In each of the accompanying diagrams, the X-axis represents national income and the Y-axis represents the quantity of a good imported. In the first diagram, a change in national income would not affect the quantity of the good imported. In the second diagram, a change in national income would be accompanied by a proportional change in the quantity of the good imported. In the third diagram, where income elasticity of demand is less than unity, the relative change in the quantity of the good imported is always less than the rela-



tive change in national income. In the fourth diagram, where the income elasticity of demand is greater than unity, a relative change in national income always produces a greater relative change in the quantity of the good imported. The offset to an increase in national income due to import leakage would be greater in the fourth case than in the third case.

The income elasticity of demand for manufactured goods usually is greater than unity, but for foodstuffs, it is usual-

ly less than unity. Thus the balance of payments could easily run against the raw material producing countries if the world develops economically along different lines. If the substitution elasticity, or cross elasticity, of demand is equal to unity, it means that in the process of industrial development if the relative change in quantity of the home-produced commodity is approximately equal to the relative change in price of the imported commodity, the substitutability of the home-produced commodity for the imported commodity would have an approximately linear correlation. This is shown in the following diagram, where the indifference curve between



the home-produced and the imported commodities indicates that they are perfect substitutes for each other. If the substitution elasticity of demand of the home-produced commodity for the imported commodity is greater than unity, then a slight decrease in price of the imported commodity would cause a more than proportional decrease in demand for the home-produced commodity.

5. Investment by credit expansion

Credit is not an agent of production, but is a special mode of production like exchange or division of labor. Its expansion would transfer resources from those who have them to those who obtain the credit. But "to transfer is not to create. Credit creates capital not a whit more than exchange creates commodities."[20] Although credit does not create capital, it does render important services to production. The creation of credit makes possible expropriation, by means of which capital can be transferred out of the hands of those who are incapable of employing it productively. In other words, credit provides a way to withdraw capital either from sterile hoarding or from unproductive consumption, so as to "(1) increase the current supply of productive services, (2) to bring about better or greater utilization of available goods."[21]

Not all credit expansion facilitates capital formation. Whether it will encourage capital formation or not depends upon how the credit is used, and upon how many unused resources there

are. Credit expansion for the purpose of meeting governmental expenditures during a war would not necessarily lead to capital formation, although it might under certain conditions, such as the existence of a large volume of unused resources. If the created credit goes into the hands of consumers, it would diminish capital available to producers. For "the inflationary augmentation of consumer purchasing power would lower the relative share of total purchasing power devoted to investment purposes. This would mean a relative diminution in the supply of capital disposal."[22] On the other hand, if the created credit is placed at the disposal of producers, the credit would represent future wealth. But the credit itself should not be reckoned as wealth; wealth would come into existence in the form of the real capital which the credit was intended to create. The construction of the Yangtze Valley Dam in China, for example, requires capital. Credit expansion for the construction of the dam will create real capital in the form of the Dam. "Where new money capital was absorbed, (i.e., tied up without release for use elsewhere) there was formation of new real capital; where there was no real capital formation, there was no absorption of money capital."[23]

But the possibility of the creation of capital through credit expansion lies in the existence of unused resources. As a matter of fact, unemployment can be reduced through credit expansion, provided there is no simultaneous increase in cost, or at least, provided that the increase in cost lags behind the

tempo of the credit expansion. For otherwise the amount of credit expanded would be dissipated among the various cost items such as wages, etc. And again, the unemployed labor in undeveloped countries as in others, constitutes an overhead cost.[24] Any laborer, in work or not, would have to live on something. Credit expansion would substitute productive for unproductive consumption by bringing unemployed laborers into employment. If consumption by the unemployed is assumed to be the same before and after they are employed, an increase in the national income would be synchronized with an increase in capital if all the increased income is diverted into investment.

In the sense that the sole function of credit expansion is to bring unused resources into production, it is implicitly limited by the total amount of unused resources available under the given state of the arts, and not by the total amount of idle funds. Idle funds among the people in an undeveloped country are usually not extensive, and are probably not sufficient to meet the demand for funds essential to economic development. The low income per head in such countries leaves little margin for the people to save. Thus the amount of credit created must not be restricted to the amount of idle funds held by the people. The amount of unused resources in economically undeveloped countries is usually quite large. So, in the process of economic development, credit expansion is required at the end of each stage of industrial development,

even if idle funds held by the people are entirely offset. Otherwise a deflationary tendency would occur within the framework of the rising national real income.

This is evident in economic development financed by savings with a constant amount of money in circulation. The start of the upswing can be financed by loans from idle funds without the necessity of expanding credit. But after the volume of business and employment increases, an expansion of credit is required for two reasons: One is that the increased employment of unused resources leads to a higher real income, and the other is an increased number of exchanges and a higher liquidity preference to handle the increased number of transactions, speculation, and so on.[25] Unless we increase the medium of exchange a deflationary tendency is predestined because of these factors. Needless to say, credit expansion in excess of the proper amount needed for the rising level of income would raise money incomes and costs, and lead to inflation before full employment is reached.

As a result of credit expansion some resources (e.g., labor and land) would be withdrawn from employment in less efficient uses. In this way a relatively more efficient use of resources already employed at the time credit expansion is undertaken may be expected. Moreover, after the completion of the roundabout methods of production induced by credit expansion, the flow of consumers' goods, once reduced, will rise

in proportion to the additional productivity so that consumers will have more to consume. Further credit expansion will not be needed when the processes of production are completed, but consumers must refrain from saving more than they previously did, and entrepreneurs must refrain from consuming capital.[26]

Thus the increase in real income, as well as the increased leakage, calls for credit expansion. Of course it is possible that the velocity of the circulation of money might increase as the financial and transportation systems are improved; furthermore, as barter transactions decrease among the rural people their tendency to hoard might diminish. All of these factors would counter-balance the need for larger cash balances to transact a growing volume of business.

6. Conclusion

Capital may be increased in three ways: by investment from savings, by investment from abroad, and by credit expansion which is a kind of forced saving. Capital formation making use of internal savings would impose two kinds of pain cost on the people of the community. First, they must reduce their demand for, and consume less of, the primary products which they produce. Second, there is a kind of pain cost to be suffered on the supply side. As soon as a new industry is established making use of the capital equipment, part of the labor force would have to be transferred into the

secondary or the tertiary economic sector. This would cause a shortage in the supply of primary products, which would have to be made up of harder work on the part of labor remaining in the primary sector unless the people are willing to, or are forced to, reduce their enjoyment of primary products.

Income from the initial investment would be partly spent and partly hoarded by the rural people who might keep their funds on hand because of the absence of banking facilities. The reinvestment of income performs two functions: it increases the community's productive power, and it offsets saving by the people which might otherwise cause the national income to contract. There are two conditions which must be taken into consideration in determining the secondary effects of the initial investment. First is marginal propensity to save relative to investment, and second, is the marginal propensity to consume relative to currently produced income. Although a high level of consumption is required for a high level of national income, consumption without any contribution to production would make the national income contract. In an economically undeveloped country over-saving is in general impossible, and the employment of resources is restricted not merely by a limited accumulation of capital, but also by technical conditions, etc. Therefore, a high marginal propensity to consume is not desirable.

Raising capital from abroad places credit at the disposal of the borrowing country. The extent to which the capital im-

ported will raise the national income of the borrowing country depends on the nature of the investment, the nature of goods imported to implement the borrowing, and so on. If the importing country lacks a producers' goods industry, and all of the capital imported consists of capital goods, the expansion of national income due to the initial investment would be nil. This is so because the expenditures paid out for the manufacture of the capital goods go to foreigners. What is worse, the export of commodities in payment of interest to the lending country would reduce the incomes of local people. Therefore, if the initial investment is from abroad, it would not produce the same effect upon the national income as if it were financed out of internal savings which are used to pay for capital goods domestically produced.

An initial investment financed by credit expansion would increase the current use of productive services and bring about a better or greater utilization of available resources. But not all credit expansion would facilitate capital formation. Whether it encourages capital formation or not depends upon how the credit is used and how many unused resources there are. It would produce a different effect if placed in the hands of consumers rather than in the hands of producers. Credit expansion would also substitute productive for unproductive consumption by bringing more labor into employment. An inflationary tendency would replace capital formation, however, when a point is reached at which there are no more unused resources.

FOOTNOTES FOR CHAPTER FOUR

1. The defect of multiplier theory is that it is stated in terms of money income, not real income, in dealing with the level of employment. Machlup gives some criticisms of this theory in his International Trade and National Income Multiplier, chapter 10.

2. Cf. J.S. Mill, Principles, Book I, chapter 5. "Increase of capital gives increased employment to labor, without assignable bounds."

3. See Introduction.

4. Cf. Erik Lundberg, Studies in the Theory of Economic Expansion, p. 198. "The size of working capital will increase in proportion to . . . . the increase of the current output."

5. Fritz Machlup, The Stock Market, Credit and Capital Formation, p. 98, 1940.

6. W. H. Beveridge, Full Employment in A Free Society, Appendix C, p. 385, 1945.

7. This dishoarding may be thought of as seepage, in contrast to leakage.

8. Staley, World Economic Development, p. 39, 1945.

9. General Theory, p. 125.

10. Beveridge, op. cit., p. 140.

11. G. V. Haberler, Prosperity and Depression, 1939, pp. 410-411.

12. Paul R. Olson and C. A. Hickman, Latin American Economics, p. 10.

13. "A decline in the annual amounts payable overseas on account of interest and dividends has exactly the same effect as an increase in export income." Cf. Clark and Crawford, The National Income of Australia, p. 93. Here we neglect the decline of exports from the debtor country to pay for interest and so on. For in certain cases, the increase of national income in the creditor country would increase its imports from the debtor country.

14. The value of both exports and imports are usually in linear correlation with the national income. Cf. Staley, op. cit., chap. 8 and Clark and Crawford, op. cit., pp. 95-96.

15. Beveridge, op. cit., p. 388.

16. Ibid., p. 364.

17. Keynes, General Theory, p. 338.

18. Machlup, International Trade and the National Income Multiplier, p. 201, 1943.

19. Cf. F. W. Paish, "Banking Policy and the Balance of International Payments," Economica, vol. III, November, 1936, pp. 413-22. Mr. Paish points out that primary producing countries probably have a high marginal propensity to import, while advanced industrial countries probably have a low marginal propensity to import.

20. Credit could not create resources any more than exchange or the division of labor could. But all of them would improve the utilization of available resources. Cf. Charles Gide, Principles of Political Economy, ch. 7, sect. 3. D. C. Heaton & Co.

21. Howard S. Ellis, German Monetary Theory, 1937, p. 425.

22. Machlup, The Stock Market, Credit and Capital Formation, 1940, p. 177.

23. Ibid., p. 30.

24. Cf. J. M. Clark, Studies in the Economics of Overhead Cost, 1923, pp. 25-27, 397-403, 463-464; and Keynes, "Treatise on Money," vol. II, pp. 124-126.

25. Cf. Hans Neisser, "Der Kreislauf des Geldes," Weltwirtschaftliches Archiv, Vol. 33, p. 378.
Two sets of forces work toward changing the price level: on the one hand the law of diminishing returns, tariffs, monopolies, and the costs of social legislation, the military establishment, and the public debt tend to raise prices; on the other hand, technical discoveries, the increasing division of labor and cartel economies in marketing tend to lower prices. According to Angell

the circuit velocity of money is stable; so, unless the volume of money is increased, the price level will tend to decline when the volume of real income is increased. Cf. Othmar Spann, Theorie der Preisverschiebung der Teuerung, Vienna, 1913, pp. 1-10, or Ellis, op. cit., p. 181; and J. W. Angell, The Behavior of Money, chap. 5.

26. Hans Neisser, "Monetary Expansion and the Structure of Production," Social Research, Vol. I, November, 1934, p. 434 et seq.

CHAPTER V

GOVERNMENTAL ECONOMIC POLICY

1. The purpose of this chapter

In the three preceding chapters we have discussed three of the variables responsible for economic change. As regards population growth and capital formation in economic development, a familiar pattern of change has been explained in detail. Technological change, the third variable, however, might continue after the population and capital investment have ceased to grow. Of the four variables originally proposed, only the fourth, governmental economic policy in relation to industrial development, has yet to be discussed.

In this chapter, three questions are dealt with: the importance of governmental economic policy toward industrial development, the comparative advantages of capitalist and socialist economic systems for industrial development and the merits of a balanced enterprise system for industrial development.

2. The significance of economic interdependence

The rise of modern industry to economic dominance entails two conflicting, though complementary, tendencies. One is industrial differentiation and the other is economic interdependence. Both are distinctive features of an industrial economy in contrast to a self-sufficient agricultural economy. We have

thus far examined the significance of industrial differentiation without regard to economic interdependence.

The first step toward economic interdependence within a community, as well as within the world as a whole, is the development of a transportation system to connect the various parts of the world into an organic-like body, which is required for industrial development on the basis of an exchange economy. Industry is "socialized" in the sense that it affects the production and consumption of the whole society, as well as influencing employment, the allocation of resources, prices, etc. An increase or decrease in production as a result of a change in capital investment, for example, would affect the level of employment, the national income, and so on. A change in the price of one industry's product would affect the prices of goods produced by other industries, but in a diminishing degree as the interdependence due to substitutability decreases, or as the remoteness of products derived from the original product increases. A change in the distribution of wealth responds to this dispersional change in prices. In this sense industry, although owned and operated privately, takes as its developmental basis the community as a whole, and becomes the tie of economic solidarity for the community. In contrast to an agricultural economy, "interdependence has supplanted independence: a great organization has taken the place of a mass of unconnected producers."[1]

We pointed out in an earlier chapter that the development

of one industry depends upon the demand of other industries, and/or of consumers employed by other industries. This interdependence of demand among different industries means that the output of each should be in balance with the demands of the others, a result which can be brought about by design and planning when a new industry is to be established as one unit in a group of related industries, unless the cost and price system is allowed to operate through the market as the ultimate arbiter for selecting which industries should survive in competition. Balance between the supply and demand for each industry as a unit of the national economy can be foreseen, planned, and put into effect only by the national government in various countries under present conditions in the world. At the present time there are predominantly two enterprise systems: one is a system of free enterprise, in which the selection of industries for establishment is left to the operation of market forces; the other is a controlled enterprise system, in which the establishment of industries is in the hands of the national government. The development of the latter system is a natural result of the interdependence of an industrial economy. In the industrial countries, the changed nature of economic expansion from both extensive and intensive investment to merely intensive growth,[2] as a result of the end of population growth and territorial expansion, strengthens the tendency toward a controlled enterprise system. There is a consequent necessity for drastic change, in short, from a free market economy to a

planned, government-directed economy. The emergence of government as an active economic force necessarily deforms a free enterprise society, in which economic freedom is upheld as the rule, in contradiction to which any government activity is detested.

A practical consequence of "the socializing of economic activity", which is characteristic of an industrial economy and which is insensibly brought about by these facts, is to be found in a deepening sense of collective responsibility. This is indicated by the "social" hostility toward capitalism, shown in the notion that the general interest is the most important of all, but is not best secured by everybody's endeavor to promote his own interest. Philosophers and economists, in view of the weaknesses of free competition, have become more willing to accept the deliberate regulation of industry by an authority which, at all events, professes to represent the whole community.[3] Of course, the "fiscal" necessity to find new resources to provide revenue for ever-increasing governmental expenditures without crushing the taxpayer, and the "political" desire of the government to extend its functions in order to increase its power and stability, respectively accelerate the emergence of state control over, and direct participation in, industry.[4]

The presence of economic fluctuations in a free enterprise system leads people to repudiate it in economically undeveloped countries which wish to begin industrializing. Economic action

taken to correct such fluctuations tends to unite the political and economic activities by the governments of such countries, and strengthens the belief that government policy tends to play a far more important role than hitherto in carrying out plans for economic development. There are also some particular considerations for countries which wish to industrialize. In the establishment of some modern industries there is a need for heavy investment which it is relatively difficult to meet in poverty-stricken countries. Such industries will not be established unless the government assumes the responsibility. On the other hand, with the penetration of governmental activities into many a field of business in countries where central and local governments enjoy relative despotism, no individual enterpreneur can survive the competition of industries financed by government unless he has had the cooperation of government before setting up new plans. Without a considerable prospect of success, no entrepreneur would bring together various productive factors for production, even though he might have a plan connected therewith. The failure of a number of non-industrialized countries to industrialize is due to the fact that the government, while itself impotent to initiate industrial development, takes an attitude of non-cooperation, or, it might better be called an attitude of politico-economic strangulation, toward private enterprise.

The increasing importance of the role of government in the economic field, in both industrial and non-industrialized

countries, heralds the modification or discard of many accepted political and economic theories which are contradictory to this tendency. New theories of governmental economic policy are adopted to meet this situation, and deal with the choice of an economic system, the economic basis for the national economy, the appropriate fiscal, monetary, commercial and taxation systems, the appropriate attitudes toward the rate of interest, international capital movements, tariff and trade restrictions, etc. Special importance attaches to the demarcation between public and private enterprises for, on the one hand, if the demarcation is inappropriate, it would deter private investment and impede economic development, either directly or indirectly; on the other hand, if the line of demarcation is correctly laid down, and if there is sufficient flexibility in adapting to a changing economic situation, the correct demarcation would serve to produce full employment. Thus, either restrictive or encouraging effects upon industrial development may be expected from governmental economic policy.

3. The importance of governmental economic policy

Before the decision in favor of industrial development is made, there is usually an argument between directing economic development toward agriculture or toward industry.[5] A preference in governmental policy for industrial development over an agricultural economy, or vice versa, would change the direction of capital flow as between industry and agriculture, and there-

fore would have an effect upon the rapidity with which industrial development progresses. The predominance of economic development in agriculture in certain countries where there is extensively uncultivated arable land, would produce a timely stimulus toward their economic prosperity, supposing that their natural resources other than arable land are quantitatively not sufficient to attain a balanced development between agriculture and industry. On the other hand, wherever no more arable land is worthy of cultivation, and relatively abundant natural resources other than arable land are left unexploited, it seems better to engage in industrial development even though there is a seriously insufficient food supply for the domestic population. Assuming the insufficiency of food supply is due to too large a population to be supported by the domestic food production, the endeavor of a government to develop agriculture exclusively, or predominantly, is similar to "fishing while climbing up a tree." Although the causes leading to the insufficiency of food supply are manifold,[6] the tillage of marginal and submarginal land is economically of greater importance than other factors, at least in a number of so-called economically undeveloped countries. In such a case, the extension of land ploughed would really strengthen the tendency already at work, that the cost of the extension is greater than the equivalent of the products associated with it, unless the cost of production is simultaneously reduced through revolutionizing the agri-

cultural technique. Technological improvement in agriculture, if not backed up by a satisfactory degree of industrial development, however, would lead to mass unemployment and unduly high percentage of damaged machines arising from the inadequate distribution of repair stations. If so, the real cost added might outweigh the real cost it was intended to save.

The fear of technological unemployment as an aspect of industrial development is offered by a number of economists as one of the reasons behind the preference for an agricultural, rather than an industrial, economy. This point of view leads to the fallacy that land can keep more people employed than industry does. People who argue in this way neglect several important factors: the increase of the employment of labor to produce machines, the differance in the elasticity of demand for industrial and agricultural goods, and the necessity of employing more labor when there is an increase in the demand for commodities and labor is not already fully employed, given no change in technology.

In the first place, technological progress makes possible the absorption of labor displaced by machines when the economy is in a state of normal economic progress. In the United States, for example, the number of workers in various industries was increased from 27 millions to 48.8 millions during the thirty years from 1900 to 1930. In a number of other industrial countries there was a similar tendency. The late Professor Cassel observed that ". . . an oft-quoted example is given by one of the

great automobile factories, where the number of workmen required to build a car in one week has been reduced from 55 in 1922 to 8 in 1934. Thus, six-sevenths of human labor has been saved; nevertheless, the total number of workmen has increased from 3,200 in 1922 to 16,000 in 1934."[8] Technological progress stimulates industrial differentiation, through which the displaced labor in one industry would be absorbed by other, newly established industries. The possibility of industrial differentiation is based upon what has been called the influence of the increased power to enjoy upon the desire to enjoy. For a man "who has habitually worked ten hours a day will employ the half hour saved by the new machine in gratifying some other want; and as each new machine adds to these gratifications, new luxuries will open to his view, which continued enjoyment will as surely render necessary to his happiness."[9]

A number of economists who are afraid of technological unemployment think in terms of a constant capital supply and a constant demand for commodities, with the consequent conclusions that the "constant capital" can be increased only at the expense of "variable capital," and that an increase in the productivity of labor would reduce the demand for labor.[10] We shall find the second point to be groundless as our discussion proceeds in the next few paragraphs. With regard to the first point, an increase in constant capital might come from an increased national income in a progressive economy, and does not in any sense require a reduction of the absolute share of labor in the

national income. Again, no symmetrical relation necessarily exists between constant and variable capital, since capital comes fundamentally from labor and land, excepting the fact that constant capital formation must be supported by variable capital. When the increase of constant capital comes from an increased national income, it is not implied that variable capital is reduced; when new capital is formed by the joint action of labor and land, an increase of constant capital must be coupled with an increase in variable capital.

In the second place, since the demand for primary products is relatively inelastic compared to that for industrial products, when there is an increase in their output there would be a disproportionate and greater fall in their price, unless there were a proportional and simultaneous population growth in the country concerned. In other words, an increase in output in the primary economic sector due to technological progress would reduce the employment of labor there, unless new outlets for its products are created by industrial development or population growth. By contrast, the elastic demand for industrial goods leads to the possibility of increasing labor employed in the industrial sector, because a fall in the price of these goods would cause a greater increase in their demand.[11] "Thus, even in a rationalized industry, in which labor cost has been reduced, the greater the elasticity, the greater the derived demand for labor, and the greater, therefore, the opportunity for reabsorb-

ing labor and of adding to the total quantity of labor employment."[12]

In the third place, according to the acceleration principle of derived demand, an increase in the final demand for consumers' goods would give rise to a greater increase in the demand for capital goods in an industrial country, therewith to increase the employment of labor. However, "the demand for consumers' goods in general and the demand for factors of production in general," are not necessarily uniform in tendency. Coupled with an increase in the final demand for consumers' goods might be a reduction of the capital supply, and therefore a decrease in the demand for labor, supposing that the latter is conditioned upon the capital supply. But the employment of labor rarely approaches the limit of capital supply in a progressive economy, where the rate of savings is always increasing.[14] Moreover, in real terms an increase in the demand for consumers' goods means a larger or a proportional increase in the demand for input, part of which might be labor if the rate of interest remains constant.

Monetary policy is connected with industrial development in a number of ways, the most important of which is the rate of interest in relation to the price of securities issued by the industrial units. Unless there is a securities market to facilitate the marketing of stocks, investors and the industrial units would hardly find opportunities to come together. Further-

more, unless the investors have personal interests in the enterprise more than purely money-making, investment to them would be like an ordeal since their funds, once invested, would be hard to free of the industry through a financial marketing process. The price of securities associates itself with the rate of interest or of discount. A high rate of interest or of discount, although able to attract capital from abroad, would lead to a low price of securities and discourage investment in industry. Quite similar are the relative heights of the equilibrium rate of interest, defined in Wicksellian theory as that rate which equilibrates savings and investment, and the market rate, which, to a large extent, can be reduced or raised by appropriate monetary policy. Because many industrial undertakings are marginal in nature, a change in the market rate will tip the balance in one direction or the other. And again, if the monetary authority adopts a policy of discriminatory rates of interest in favor of industrial loans, industry would be better equipped with capital equipment than otherwise. The international phase of monetary policy, shown in the rate of foreign exchange and the balance of payments, is associated with industrial development in respect to exports and imports, a tight or an easy money market, the level of employment, etc.

A fiscal policy with increasing revenues as its purpose is, as a rule, fatal to industrial development. Whenever a government by this means takes away the gains of private enterprises during the period of prosperity, and is fiscally impotent to relieve their burdens during periods of depression (and this is

usually the case in most of the economically backward countries) private enterprises would be unable to balance their accounts over the entire cyclical period and might be discouraged or destroyed, except a few which are lucky enough to survive the infliction. Of course, industry might be invigorated by the increased governmental expenditure whenever resources are not fully employed. In the very increased public expenditures, however, lies the danger of an overburden of taxes imposed on the public, if the increased expenditures are ineffective in stimulating industrial production due to a variety of different handicaps, or because national productivity can undergo no increase because the economy already has full employment under a given state of the arts. For example, public expenditures in most of the economically undeveloped countries are increasing through time in the midst of expansions of their civil service systems, without accompanying increases of industrial production.

Quite different in effect is an enlightened fiscal policy such (for example) as a double budget system in which current operating expenditures are accounted for in an operating budget, and capital outlays in a capital, or investment, budget. Other instances of enlightened fiscal techniques would be an amortization system to insure a balanced operating budget over the entire cycle, or the setting aside of revolving funds to tide over business difficulty during depressions. All of these fiscal practices have in common the tendency to induce industrial sta-

bilization and the full utilization of resources in a society of free enterprise.

The life or death of an industry in its state of infancy often depends upon the primary aim of commercial policy of the country in which it is located. Taking into account only the concerned industry, and disregarding all other possible changes associated with a policy of protection, it would usually be stimulated if granted protection against the competition of foreign countries by means of a high protective tariff. There is much to fear, however, from a tariff merely for the purpose of revenue. If a government is strong enough to execute a revenue tariff policy, but is not strong enough to protect the national industry from foreign competition and to give a helping hand whenever needed, the result is disastrous. A weak government with a strong hand on private enterprise is usually a foe to industrial development. This is a tragedy even worse than having no government at all, because eggs are taken out by killing the goose.

When there is a discriminatory governmental economic policy to encourage or discourage a particular group of industries, as described above, the prospect of success in these industries depends not only upon market fluctuations (and upon competition from public enterprises if there are any), but also upon the intentions of government expressed in such policies. The threat of dynamic interference by government in business brings it about that "men must try to outguess the government as yesterday they

tried to outguess the market." But there is an important difference, for "the market factors obeyed at least relatively objective laws, while governments are subject to a good deal of whim."[15]

Faced by active government interference, private enterprises are subject to intimidation from both the fluctuations of market conditions and changes of governmental policy. As the gain to be expected from establishing an industry is uncertain, private investment would lag until a very clear prospect is in sight. Therefore, intermittent switches of major objectives in governmental economic policy are not advisable. Any change must be based upon the de facto situation, and not upon the whims of a few people; once decided upon, the new policy must be maintained at least for a number of years, so that private investment has a definite direction to follow or has time to snift from one field to another.

4. Comparison between public and private enterprise

Let us now inquire into the effects of the institutional environment upon the costs of and returns from, production, and seek to discover what effect institutional change has upon outlets for investment and the rapidity of industrial development.

The tendency of the state to play an increasingly important role in the economic system of private enterprise is due to the public's dissatisfaction with business cycles which are inherent in it without state action. Business cycles are usually attribut-

ed to three causes: defects inherent in the structure of production, inequality of income distribution, and underconsumption. At a time of increasing demand, businessmen rush to increase their orders of goods and enterpreneurs increase the installation of capital equipment. When the period of gestation is over, the output of consumers' goods will be enlarged, but the increase of investment implied a diminished demand for consumers' goods. Thus the increase in output and the decrease in demand combine to force down the price of consumers' goods. Furthermore, in the period of prosperity, wages invariably lag behind the rise of prices; as a result, wage earners' real income does not increase so fast as their money income, and a disproportionate fraction of real income flows into the hands of non-wage earning classes. Whereas the poor spend most of their income, well-to-do consumers and business firms save more. Consequently, the volume of consumption tends to be unduly small, given the existing inequality of income distribution. This lag of wages behind prices, when added to the normal inequality of incomes, makes a formidable inroad on the capacity to consume. Hence there is overproduction, making for poor outlets for investment.

On the contrary, in a socialistic economic enterprise system, which does not aim at profit-making, economic activities are uniquely determined with economic interdependence taken into account. Prices and output are prescribed beforehand, according

to the national demand. Moreover, the systematic coordination and orderly distribution through time of the establishment of new ventures in all lines of economic activity could prevent bursts of investment at some times followed by violent periods of contraction, better than could any automatic or manipulative variation of the rate of interest or the supply of credit.[16] Supply and demand are adjusted to each other. Resources are efficiently utilized without the danger of private enterprises increasing their marginal revenues by controlling output whenever they face an inelastic demand. There is no longer an equilibrium of price and cost at a level of output which leaves excess capacity unutilized, as seems true in the present monopolistic industrial fields, and which further retards economic development when there is no competition by public enterprise to break the impasse.

Closely related to the free enterprise system is the monopoly by capitalists of the means of production, which increases the gap in income between the rich and the poor. The monopoly of land absorbs into the hands of landlords all the increment in its value due to improvements in the economic environment. Monopoly of the means of production in industries is abominable in that labor is exploited and oppressed under the despotism of capital. Thus poverty in the midst of opulence becomes a paradox in a free enterprise society. As a famous Chinese poet described it one thousand years ago, "The

flesh and wine decay in the rich man's cupboard, while frozen corpses strew the road."[17]

Coupled with socialization of all the means of production might be a change in the distribution of wealth which would reduce or abolish the rentiers. There might be no more unearned incomes going into the hands of rentiers and landlords. Instead, society as a whole might receive the fruit of economic progress. What is more, the attainment of economic equality is followed by true and universal equality in other fields. Everybody has an equal chance to develop his or her genius and personality, and there is equality in the competition for various kinds of opportunities offered by the society. Money does not serve the interest of particular persons, but the interest of society as a whole.

In addition, there are economic wants which must be satisfied collectively or, even if they can be formulated individually, cannot be effectively satisfied by spontaneous contracts between business men because to secure spontaneous cooperation between the owners of different parts of the earth is difficult when the field of necessary action is extensive. Many services are of obvious utility but are best rendered by methods which involve the use of a network of long strips of land, difficult to purchase save by compulsory power. Under this category would be included the services of public utilities, canals, irrigation works, and so on. The necessity for public enterprise in this case, as in others, has long been

recognized. Adam Smith made it the third in his list of duties of the sovereign to erect and maintain certain public works and certain public institutions which it can never be to the interests of any individual or small group of individuals to maintain.[18]

A government may leave unperformed or unregulated some economic activities which would be neglected, or at least not so well performed, by private enterprise, without yet abandoning a primary duty or exposing itself to the dangers of anarchy. The conduct of some undertakings as private ventures would be unprofitable, but is required in the common interest. In such undertakings, there is much to be said from the standpoint of administration, in favor of the harmony of control and unity of direction which might be possible under public operation but not under private management and public regulation. The practical conclusion to which this analysis leads is that society should be protected against oppression by exclusive privileges administered for personal interest, while at the same time, it should secure such advantages as flow from concentrated organization.[19]

It may be plausibly claimed, however, that certain defects are inherent in a system of public enterprise. There is, fundamentally, the alleged incapacity of the state, or of any political subdivision (especially if it is democratic), to exercise the entrepreneurial functions. M. Paul Leroy-Beaulieu, for example, holds that the state has not the requisite spirit

of initiative, for it is not subject to competition; nor has it real competence for the entrepreneurial function since it is not organized for the purpose of production; nor yet does the state have continuity of personnel, for its personnel is constantly subject to the vicissitudes of politics and elections. Consequently, state enterprise will produce at greater cost than private enterprise, or, to put it another way, its action will be exactly contrary to the hedonistic principle of maximum satisfaction at a minimum cost.[20] The bureaucratic method of transacting business and the moral atmosphere that goes with it, often exert a depressing influence upon the most active minds. This effect is due primarily to the difficulty, which is inherent in a bureaucratic machine, of reconciling individual initiative with the mechanics of bureaucracy. Often the bureaucratic machine gives little scope for initiative, but much scope for vicious attempts to smother it.[21] Thus, although business cycles would be brought under control by a system of public enterprise, economic progress would encounter a number of formidable obstacles, broadly due to a general lack of individual initiative in improving production, and to rigidity of both the price and production structures in the face of changing market conditions which call for their respective adaptations.

The institution of private enterprise, with entrepreneurs acting as sponsors for invention, management and commercial speculation, provides for decentralized initiative, and this initia-

tive in turn operates through the market which acts as the organizing principle. A free market rewards with higher gains the transfer of resources to lines of production where they are more urgently needed; it punishes, with losses and reduction of income, the continued use of productive resources in one line of activity when they could produce a higher return elsewhere. In these ways, the maximum division of labor compatible with given tastes and given techniques of production is continuously secured.

A socialistic economy is far different from this, especially as regards the incentive to improve business which it offers. Victory in the struggle between egoism and altruism in the breast of every layman would usually go to the former. Relatively, the incentive to business improvement would no doubt be better in a private than in a socialist enterprise system, because of the difference in the standard of payment, one according to productivity or ability, the other according to need.[22] With the complete elimination in a socialist society of the progressive stimulus of competition, industrial trusts are super-monopolistic in character, and because of bureaucratic methods of management which are unavoidable when the state endeavors to manage everything, shoddy goods are produced. There would be a high proportion of inexperienced and ill-trained executives and engineers in industry, for they could ascend to high positions by political relationships rather than by ability and experience. There would be frequent discrepancies between

the production plans laid down by the central authority and the available stocks of raw materials because of the reluctance of laborers to work or because of miscalculation by the planners. Furthermore, there might be much waste, carelessness and inefficiency due to the lack of an altruistic sense of duty on the part of bureaucratic administrators, for whom the profit-and-loss motive of private enterprise would have been eliminated, although it is theoretically possible that "the kind of responsibility that exists in the large scale corporation could no doubt be reproduced in a socialistic society."[23]

The success or failure of an industry depends in large part upon the conscientiousness with which those in charge seek to reduce costs. In this respect, private ownership would be superior to public ownership, since under the former, individuals' personal fortunes depend on the success of the industry, but the two are seldom if ever closely connected in the case of public servants. Furthermore, the position of the personnel in charge of a public enterprise is different from that of the personnel in charge of a business corporation. This might be shown by contrasting the manner in which personnel in a public enterprise and personnel in a private enterprise treat their respective customers. Personnel in civil service is official, but that in a business corporation is obscure. Employees of a business corporation normally wish to solicit business from the populace, or else the business is doomed to failure; but we cannot expect that personnel in a

public enterprise would necessarily have such an incentive. The reasons may be found partly in the fact that there is no fear of failure in a state-financed enterprise, and partly in the great difference between private and public enterprises in their standards for selecting personnel. With increasing reliance upon state enterprises there is also the political danger of an ever growing officialdom, since the different economic functions will gradually be converted into offices to be filled by competitive examination, or still worse, by nepotism and influence. It is to be feared, and already it is a fact in some countries -- in China, for example -- that the number of offices in state or municipal enterprises will be regulated, not by the needs of the public service, but by the number of persons seeking offices. Moreover, the transacting body is more or less infected with a political aura, or at least it is more related to governmental prestige than is a private enterprise. As compared to private enterprise, a public enterprise is in a superior position to solicit the help of government in case of trouble with the people. In this respect, can we suppose that common businessmen are similar to the personnel of a public enterprise? Only on the basis of these considerations can we understand why inefficiency, mismanagement and big losses prevailed in so many public enterprises in Russia and China, even during the period of rapid wartime inflation.

In particular, one crucial assumption for the success of

public enterprise is open to serious question: the assumption of no conflicts between capital (represented by the state-employed manager) and labor.[24] As a rule the managers require more efficient work and lower pay of the workers as an indication of the success of their enterprise. Equally dogged, however, is the workers' demand for higher pay and better working conditions with fewer hours of work. The manager of a state enterprise who fails to make a profit will possibly be reprimanded or demoted. Only on the basis of this point can we understand why, in the Russian purges during the second five-year plan, numerous technicians and industrial managers were placed on trial on the charge of sabotage and wrecking, and why the Stakhanov movement based on piece wages was introduced to replace time wages. The introduction of piece-work rates was evidently a reflection of low efficiency among workers in the state factories. Under the condition that the harder one works, the more the state takes from him, how could we expect that efficiency of work in state enterprises would not decline?[25]

Another phase of the conflict between capital and labor is expressed in the rate of payment. Although the ability of employers to pay has now been set as a standard for wage payment in the United States, in socialist states like Russia wage payments are not dependent upon the financial resources of particular employers. It is by no means possible to base wage

payments on financial resources and to get equal payments for the differences of earning power in different industries are too striking. This is especially true in a socialist society, where the state must establish some industries irrespective of their profitability, and where the market's function of equalizing profitability in different industries is smothered. Theoretically, the manager of a productive unit would bid for labor on the basis of its productivity, and would keep accounts on that basis. But if the productivity per head in different sections of the society is not equal, and if the allocation of capital resources on the basis of their productivity is improper, payment of wages on the basis of ability to pay would entail a more radically unequal distribution of income than prevails under the present capitalist society. In Russia, unequal payment between the manager and the worker continues, and may be greater than similar inequalities in a capitalist society.[26]

Unfortunately, prejudice against the system of private property always leads its critics to the belief that the size of income payments is proportional to the distribution of ownership of the means of production. This is a non sequitur, however, for it ignores tout a fait a number of other institutional factors. First, "while many of the working class have become property owners, many of the propertied class have become the

paid servants of public companies and other institutions. . . . The division of income between property and labor is no longer a division between two sources of income largely possessed by the same individuals."[27] Second, the rise of income taxation has brought it about that the income from property is no longer proportional to the value of property, or the means of production, owned. Heavy income taxes imposed upon property would reduce, although not eliminate, the inequality of income payments arising from property ownership. At the present time, bank deposits are not less safe than the ownership of property. While owning nothing that could actually be called a means of production, one having bank deposits may have more income than some people in the so-called propertied class.

5. The balanced enterprise system

Two questions are of vital importance in the choice of an economic system. One is whether the income would be distributed in such a way as to attain maximum total utility in consumption for the community as a whole. The other is whether resources would be allocated among different industries to obtain their maximum service in production.[28] If the way of distributing income would yield a larger aggregate satisfaction under one economic system than under another, then the latter system involves a relative waste of resources. For example, the unequal distribution of income under the present capitalist system results in the neglect of relatively more

urgent wants and the satisfaction of less urgent ones, yielding less than the maximum possible total utility. Again, if the allocation of resources would result in less total service under one economic system than under another, there is a relative waste of resources, directly or indirectly, under the first system, assuming that the technology of production is the same in both systems. Under a capitalist economic system, for example, the equalization of marginal cost and marginal revenue at a point short of minimum average cost in monopolistic industry, coupled with the existence of excess capacity, is a kind of waste directly connected with production.[29] The costs of competition among different producers for business, in the form of advertising, is another relevant kind of waste. Under a socialist economic system, the attainment of a relatively fair distribution of income would increase total utility because more urgent wants among various kinds of people would be satisfied. In this respect, a socialist economic system is definitely better than a capitalist economic system. Is a socialist system better, too, in the allocation of resources? A socialist system can, of course, avoid a number of kinds of waste in connection with the costs of competition among producers for business, which is characteristic of a capitalist economic system. But how is it with the prime cost of production? In the determination of the prime cost of production in a socialist system, we are confronted with a pricing problem.

Assume there is freedom in the choice of occupation and freedom of choice in consumption, with the means of production and the producers' goods industry controlled by a Central Planning Board. There are two methods to determine the cost of production. First, the Central Planning Board must impose two rules for the decisions of industrial managers in their guidance of production: they must choose that combination of factors which minimizes the average cost of production, and they must set the scale of output at the point where marginal cost is equal to the price of the product. In this way, the same principle which determines equilibrium price on a competitive market is applied to a socialist economy, with the difference that a process of trial and error is added.[30] While defining price as "the terms on which alternatives are offered,"[31] "a socialist economy would be able to put all the alternatives into its economic accounting. Thus, it would evaluate all the services rendered by production and take into the cost accounts all the alternatives sacrificed.[32] Second, even though there is no market for capital goods as pointed out by Professor Mises[33] and a number of other economists, the prices of the means of production may be derived from product values by imputation,[34] if we are given the per capita income and the equilibrium prices of all consumers' goods arrived at by the adjustment of demand to supply. Each equilibrium price combined with all the others would determine the prices of the means of production through

a process of imputation. Such procedures, however, although theoretically possible, are really quite roundabout, and unavoidably influenced by arbitrariness on the part of the planners. Furthermore, the imputation theory of value and returns identifies prices and incomes with quantities of goods, and does not allow for the fact that money return (or the value of output) does not necessarily reflect physical output; thus the former never can be explained by a productivity or marginal productivity theory.[34]

Although the principle of scarcity may be applied to the valuation of resources in a socialist economy as well as in a capitalist economy,[36] "economic accounting is unthinkable without market relations,"[37] and market relations for the means of production are absent in a socialist economy. Moreover, the adjustment of price to cost in a competitive market is not brought about by the adjustment of demand to supply, but by competition among producers themselves, which is absent in a socialist ecohomy. Therefore, it seems unjustifiable to apply the principle of price determination on a competitive market to a socialist economy. If one defines price as the terms on which alternatives are offered, he is faced with an endless chain of substitutions, and cannot find its starting and ending points unless all the goods and services available, as well as their qualities, are separately evaluated.

The impossibility of rational economic accounting, and

the lack of a free pricing system would lead to a reduction of output in a socialist economy as compared with a capitalist economy. The only way out of the dilemma is to choose an economic system which would not have the defects inherent in a capitalist system, but which would have the merits of a socialist economy and also the convenience of economic accounting.

For the additional reason that one cannot have what he has worked hard for, a socialist state is bound to discourage economic development. On the other hand, however, in a system of extreme private enterprise, oligopolistic control of the means of production might entail the general danger of such a distortion in the allocation of capital and labor that it could later be eliminated only by insolvencies and bankruptcies, which constitute a harsh and dangerous corrective. Moreover, since non-price competition, which usually prevails under oligopolistic competition, takes on the aspect of a horse race where long shots may pay off at any moment, submarginal producers are encouraged to stay in the field.[38] Therefore, neither of the two economic systems is suitable for carrying out industrial development to its fullest extent. Again, economic control must result in the control of livelihood and thought. The control of people's livelihood and thought by the state is no less abominable than their control by capitalists. In either case, there is no personal independence so secure as under the institution of a moderately private economic system. This is why

both the capitalist and the socialist countries at the present time are tending to come more and more toward a mid-point, that of a mixed economy.

In both of the extreme economic systems there lurks the danger of political commotion, and it can be suppressed only by a vigorous and ruthless police system. The extreme form of a system of private property may be found in a feudal state, and the extreme form of the State ownership of everything may be found in a communist State. The gratuitous taking away of the people's gain in both the feudal and the communist states must lead to attitudes of hostility by the people toward the government and, needless to say, it would not lead to patriotism at all. Herein lies the cause of the ruin of Czarist Russia and the cause for reform of the economic system in Stalin's Russis on the eve of the German invasion. The progressive restoration of the family, of private property, and of inheritance can be reasonably explained only by reference to a decision by the Soviet authority that "the citizen of the Soviet Union must be encouraged to feel that he has some personal possessions to defend."[39] Economic despotism is intolerable, whether exercised by the capitalist or by the state. We may imagine a person who has nothing to live on except what is donated by somebody else. How is the man to escape being subject to dictation by the donor? In a socialistic society, dismissal from one state factory implies the danger of

starvation, for one could not be employed by any other factory.

The above considerations indicate that neither state enterprise nor private enterprise is entirely defective, but that each has some merits over the other. Thus it would be desirable to constitute a better economic system than either one is if taken alone, by preserving the merits of each system in its proper sector in such a way that they supplement each other and make for a smooth functioning of the national economy. If both are appropriate to function in the same industrial field, let them co-exist and compete with each other, thereby eliminating the inefficiency and inappropriate allocation of capital and labor that would characterize either of them taken alone.

The balanced economic system is flexible. It is not rigid, as are both a purely socialist and a purely capitalist system, but allows for the dominance of either public or private enterprise, as either may be necessary due to changing economic conditions. Because of the flexibility of its adaptation to economic, or even to political and social, conditions, it might be applied on a large or a small scale according to conditions in the country concerned. It offers a way of escape from a highly regimented private industrial system on the one hand, and from an equally highly regimented collectivist system on the other.[40]

At least four rules are important for the division between private and public enterprise: First, if harmony of control and unity of direction of the enterprise are not required for public welfare, and if there is inadequate proof that private interests will not operate it for lack of confidence in its profitability, the enterprise must be left to private hands. If it is not appropriate for operation entirely under private ownership, let it be a common field for both public and private enterprises. Second, to attain the minimum cost of production and full utilization of resources, and thereby to achieve the maximum national income, let both kinds of enterprise compete on equal terms, even in those industries which the government deems it better to operate itself. "The thing is, not that governments should never engage in business, but, that if they do, they should not be empowered to prevent private enterprise from competing with them, and that they should be subject to the same rules of fair competition as the others. What is essential is, not that there should be no government enterprise, but that there should be no government monopoly."[41] The waste of government monopoly in the utilization of resources is similar to, and probably greater than, that of private monopoly, and both would result in a lessening of the national income. Third, state ownership of enterprise is not advisable whenever the bureaucratic administration is inefficient, and thereby the cost of production is higher

under state than under private ownership. In a country in which political corruption always avails itself of the opportunities for defalcation afforded by public enterprises, it is better to have fewer public enterprises. Under the pretext of State operation for the general welfare, but with a real intention to benefit certain of the political authorities or their relatives, economic development would take a turn for the worse. Bureaucratic corruption may take one of two principal forms: One is that the offices in public enterprises "serve to give employment to sons of influential persons,"[42] or to their relatives, all of whom are probably amateurs at industrial management; the other is that people may avail themselves of opportunities in the management of public enterprises to do private business.[43] Both of these forms of corruption were to be seen in almost every country during World War II. Sometimes public enterprise is extended from one industrial field to another, not out of economic necessity, but for reasons of nepotism. In such a case, the field of private enterprise is narrowed, and public enterprise fails to attain its full development because of the inaptitude of its management. Fourth, the government must not take the profitability of an enterprise as the standard for state ownership. Although it may fit fiscal needs in certain cases, it is incompatible with moral standards to take over a private enterprise when it is profitable. If the government were to vie with business men for profits,

nobody would take the initiative in industrial development. To accept the standard of profitability for taking over private enterprise, or for the operation of State enterprise, is to open a door for corruption in a broad sense of the word.

In other respects, the field of public enterprise should in principle be confined to producers' goods industries, especially those related to national defense. First, most industries related to national defense, broadly speaking, are producers' goods industries, especially machine, steel, and chemical industries, etc. The development of these industries is connected with the utilization of resources which must be used very sparingly, if reserve stocks are slim. Second, the construction of producers' goods industries usually requires large sums of capital which are not easy to raise among the people in an economically undeveloped country, and therefore the government should take the initiative. Finally, but most important, income fluctuation tends to be concentrated in producers' goods industries, or to originate there.[44] Demand for producers' goods is derived from the demand for consumers' goods, and the effect of changes in the latter is cumulative. If these industries are in private hands, they will be subject to business fluctuations as in the past, for entrepreneurs would expand or contract production in response to increases or decreases in market demand. But under

government control, they might be expanded to their full extent in spite of a depression, and employment in them kept at a normal level. In this way, "State enterprise would serve as a central pivot around which the rest of the economy would revolve."[45]

The appropriateness of government enterprise in producers' goods industries implies the inappropriateness of government enterprise in consumers' goods industries. There are not sufficient funds for government to establish both kinds of industries, and even if there were, there would be little scope left for private enterprise. All of the consumers' goods industries should be left to private hands. Individual entrepreneurs can probably provide for the actual needs of people as they arise better than the State can, for "the planning authority cannot confine itself to providing opportunities for unknown people to make whatever use of them they like."[46] The district and provincial governments in China like to operate consumers' goods industries and thus compete for profits in them with the common business man, because there is an immediacy of profit in them and a small capital investment is needed for their establishment. This is a bad phase of government enterprise in China. Consumers' goods may satisfy only particular tastes, and they are sometimes produced on a very small scale due to limited demand. Therefore these industries constitute a proper field for private enterprise.

Two considerations are important in relation to State enterprise. The first, and by far the more important, is that capital, as well as current, budgets be set up and published annually, so that the public, as well as the government, can exercise supervision over revenues and expenditures related to public enterprises. Since most government enterprises, except some special ones such as education, are absolutely independent of government subsidies, there should be government regulations requiring a proper proportion of surplus to be set aside as a profit-and-loss reserve, and dividends shared by the employees should be limited to not more than a maximum percentage as set by a definite regulation. Sometimes in State enterprises, the abominable phenomenon emerges that their employees receive several times as much income as regular civil servants with similar qualifications, merely because the enterprise makes a profit. Worst of all, government subsidies are asked, or higher prices are put on the enterprise' services, in years of losses, while shares in various forms are distributed to the employees. When their chief asks for subsidies, employees of such public enterprises, and in the subordinate organizations thereof, might receive higher incomes in various forms than employees of other government organizations without any business revenues. This could be due to two factors: First, the budget of the State enterprise may not have been under the scrupulous supervision of the government and the public,

or second, a previous surplus may have been shared to the last penny with the employees.

The second important consideration in relation to State enterprise is that if there is a non-profitable enterprise in which the entrepreneur would not engage, of course, the government must give subsidies. If there is any surplus, however, it should be sent to the national treasury. In other words, if a public enterprise requires government subsidy in times of depression, the national treasury must receive all of the surplus which emerges in lucky years. When adapted to particular cases, it is sound either to have a public enterprise, absolutely independent of the national treasury, or to have it share both its profits and its losses with the latter. Other methods than these just open up roads to corruption. Furthermore, the employment of managers must be consistent with definite standards, so that people who are competent only in occupations other than business and the professions related thereto, are excluded. That a man is competent in political activities does not mean that he is qualified for a business career. The ways and means by which to emerge from obscurity are entirely different in business and in politics. The requirements for the two occupations and the sense of duty needed are also different, especially where there are political disturbances, when a personal interest in the end always justifies the means. Managers must be selected from among experienced

business men or experts. If men who emerge from political activities are employed, the enterprise would offer them money to expand personal interest in various forms and under various pretexts. Personal relatives, for example, might be employed, without having definite work assigned to them, for they would be reserved merely for their employers' further personally political activities. However, if there is private enterprise to compete with public enterprise, inefficient public enterprises would be wiped out, provided the government does not support them.

6. Conclusion

The economic peculiarity of industry, that it is subject to decreasing cost per unit as output expands, is responsible for the importance of governmental economic policy toward industrial development. Industry is characterized by economic interdependence in supply and demand, and hence its rise would affect society as a whole: in its patterns of production and consumption, in respect to employment, the allocation of resources, and so on. A lack of coordination between supply and demand, however, leads to economic fluctuations. Furthermore, where there are a number of industries, there is need for extensive co-operation among them, hence planning is required for their development. The government in economically undeveloped countries must take the initiative in industrial development, and formulate economic policies which do not discourage entrepreneurs.

The direction of capital investment as between industry and agriculture depends upon the government's decision. Economic expansion would also be affected by the presence of financial facilities, and a favorable environment effected through monetary, fiscal, and commercial policies. Yet further political influence upon industrial expansion lies in the choice of an economic system, either socialist or capitalist.

Two questions are of vital importance in the choice of an economic system. One is the distribution of income, and the other is the allocation of resources. Maximum utility is desired from the income distribution, and maximum productive service from the allocation of resources. Although the socialistic distribution of income is definitely better than that of the capitalist system, the inefficient bureaucratic administration and State monopoly over economic activities in a socialist system are as undesirable in relation to the unit cost of output as is the private monopoly of enterprise in the capitalist system. To achieve a better allocation of resources and a better development of industry, neither the socialist nor the capitalist system is so desirable as a balanced economic system in which public and private enterprise would compete on equal terms, thereby eliminating the disadvantages of both systems in their pure forms.

FOOTNOTES FOR CHAPTER FIVE

1. J. B. Clark, The Distribution of Wealth, p. 12.

2. Hansen, op. cit., p. 42.

3. Readings in Industrial Society, edited by L. C. Marshall, pp. 1037-1039.

4. Charles Gide, Political Economy, chapter 5.

5. There have been a number of disputes over the proper economic basis for a country's development, illustrative of this statement. As examples, in the United States there was the celebrated argument between Hamilton and Jefferson for an industrial republic or an agrarian democracy, respectively; Keynes argued for a rural India, many Indians argued for industrialism; in China the Kuomintang favored an agricultural basis for the economy, with industry serving as a means of national reconstruction, while other Chinese supported industrial development.
   When he reviewed Morison's The Economic Transition in India, Keynes wrote: "It is an unfortunate consequence of the English connection, that industrialism should present itself to Indians as the royal road to prosperity and to a dignified position among nations." He held this view because "every diversion of indigenous capital from agriculture, where her relative advantage is great, to industries, where, to mention one only of the difficulties, the relative positions of coal, iron, and the sea place her at a disadvantage, will be to the detriment of her economic prosperity." (See Economic Journal, 1911, pp. 427-8.) But more than twenty years later, he sang another tune. "Experience accumulates to show that most modern processes of mass production can be performed in most countries and climates with almost equal efficiency." (J. M. Keynes, "National Self-sufficiency," Summer, 1933, Yale Review.) For further references, see The History of the United States, by A. Nevins and H. S. Commager; Our Economic Problem, by P. A. Wadia and K. T. Merchant, chapter 28; The Agrarian State versus the Manufacturing State, by A. Wagner; and The Terrors of the Predominantly Industrial State by Brentano in Taussig's Selected Readings in International Trade.

6. The insufficiency of a country's food supply may be local or national in scope. If it is local, the country faces a transportation problem rather than one of increasing the food supply. Either of two remedial measures may be

effective if there is a national shortage of food. First, the internal food supply may be increased. Second, labor may be diverted into production of industrial goods to export in exchange for food imports. Except in the case of a wartime blockade by an enemy power, when food self-sufficiency is required, it is stupid to supply food internally rather than to obtain it in exchange for industrial exports.

The usual cause of famine in most of the so-called economically undeveloped countries is a lack of effective demand for the daily necessities. People are hungry, not because there is no available food, which could be imported, but because they have no purchasing power to back up their appetites. One must have something to exchange for something he wants; if he has nothing, he could obtain nothing in exchange. Therefore, what we have is not a problem of securing food self-sufficiency, but a problem of how to increase employment opportunities. In other words, only industrial outlets for the surplus labor on farms would relieve the problem of food supply in these countries. Professor E. Cannan powerfully argues this point: "This line of argument," says he, "falls in well with the popular confusion between the importance of a trade as productive of necessaries and its importance as 'giving' employment -- a confusion which is largely responsible for the prevalence of the absurd cry of 'Back to the land' and the childish contempt for luxury trades -- but it is fundamentally unsound. 'The narrow capacity of the human stomach' noticed by Adam Smith, and the narrow breadth of the human back, hinder the indefinite expansion of demand for the necessaries of food and clothing, so that progress in wealth and civilization necessarily and happily leads to a smaller proportion of the population being employed in producing necessaries and a larger in producing luxuries." (See "The Problem of Unemployment," Economic Journal, March 1930, pp. 53-4.)

7. M. Bounitian, See Note 16 in ch. 3.

8. G. Cassel, On Quantitative Thinking in Economics, p. 140.

9. Charles Babbage, The Economy of Manufactures. 1835, paragraphs 404-407.

10. Cf. K. Marx, Das Kapital, ch. 23. Both terms, constant and variable capital, are used in Marx's definition.

11. Cf. Hawtrey, loc. cit., p. 131.

12. T. E. Gregory, "Rationalisation and Technological Unemployment," Economic Journal, Dec. 1930.

13. Hayek, The Pure Theory of Capital, Appendix 3.

14. Keynes, General Theory, ch. 10.

15. Hayek, The Road to Serfdom, pp. 73-74.

16. J. A. Schumpeter, Capitalism, Socialism and Democracy, pp. 196-7.

17. This poem was written by Tu Pu who was one of the greatest poets in Chinese history.

18. Wealth of Nations, p. 681.

19. J. W. Garner, Introduction to Political Science, 1910.

20. Charles Gide, op. cit., p. 209.

21. J. A. Schumpeter, op. cit., p. 207.

22. We lay stress on the relative state of incentive; for it is not a problem of whether or not there is an incentive to business improvement; it is a question of which kind of economic system will provide the greater incentive.

23. Lionel Robbins, Economic Planning and International Order, pp. 222-3.

24. In regard to the workers, "Undoubtedly the public authority is a better employer than a private one. It offers better conditions of employment, including pensions, better working conditions, greater security and stability." (F. E. Lawley, The Growth of Collective Economy, vol. 1, 1938, p. 455.) But we should pay attention to the point that funds for public enterprise come from the public. The rewards in any form in excess of the general level of wages for similar kinds of work would take place only at the expense of the public.

25. In Russia, in 1946, the first year after World War II, liquidation of the collective farms on a large scale was carried out for reasons of inefficiency and corruption.

26. Cf. Detroit Times, December 23, 1945, "George B. Shaw compares Red System with Western Democracies." Division of society into rich and poor; manual workers' wages varying in the proportion of 10 to 1; those of the brain workers 200 to 1; and the poorer workers with less cash in their pockets than in those of capitalistic

England and America." For further reference, see Colin Clark, The Conditions of Economic Progress.

27. Edwin Cannan, "The Changed Outlook in Regard to Population, 1831-1931," Economic Journal, December 1931.

28. Cf. A. C. Pigou, Socialism versus Capitalism, chaps. 2 and 3.

29. E. H. Chamberlain, The Theory of Monopolistic Competition, pp. 77.

30. C. F. Oskar Lange, etc., On the Economic Theory of Socialism. Mr. A. P. Lerner's opinion is different from Mr. Lange's. "The two rules," says he, "which are necessary for the economic running of a socialist society in accordance with the tastes of the spenders of income in the society are: (1) Every producer must produce whatever he is producing at the least total cost. (2) A producer shall produce output or any increment of output that can be sold for an amount equal to or greater than the marginal cost of the output or increment of output." (See "A Note on Socialist Economics," The Review of Economic Studies, 4/1, Oct. 1936.)

31. P. H. Wicksteed, The Common Sense of Political Economy, London, 1933, p. 28.

32. Cf. Lange, etc. op. cit., p. 104.

33. "The essential point where Professor Mises went far beyond anything done by his predecessors was the detailed demonstration that an economic use of the available resources was only possible if this pricing was applied not only to the final product but also to all the intermediate products and factors of production, and that no other process was conceivable which would take in the same way account of all the relevant facts as did the pricing process of the competitive market." See "The Nature and History of the Problem," by Hayek in Collectivist Economic Planning, p. 33.

34. Cf. Fredrich von Wieser, Natural Value.

35. Robert Liefmann, "Zur Diskussion uber die Kosten-und-Ertragstheorie," Zeitschrift fur Nationalokonomie, 3/3, 1931, pp. 368-383.

36. A. P. Lerner, "Economic Theory and Socialist Economy," pp. 60-61. The Review of Economic Studies, vol. II, Oct. 1934.

37. L. D.Trotsky, Soviet Economy in Danger, New York, p. 33.

38. Purdy, Lindahl and Carter, Corporate Concentration and Public Policy, p. 520.

39. Andre Gide, Back from the U.S.S.R., p. 70.

40. A. H. Hansen, Fiscal Policy and Business Cycles, p. 402.

41. Robbins, op. cit., p. 257.

42. Charles Gide, op. cit., p. 211.

43. Put in another way, what is nominally public business is in reality private business with all the privileges that go with public business.

44. During the years of most severe depression, in the 1930's, approximately 85 percent of the unemployment in manufacturing was in the durable goods industries. Factory output of durable goods including iron, steel and other metals, transportation equipment, lumber, cement, stone and glass, dropped in 1932 to about 25 per cent of the 1923 to 1925 figure. Factory production of non-durable goods was at no time during the depression below 80 per cent of the 1923 to 1925 figure. The drop of national income in the United States, which was about 30 per cent from 1929 to 1932, may be said to have been caused in large measure by the producers' goods industries. Cf. Machinery and Allied Products Institute, Capital Goods and American Progress.

45. Hansen, op. cit., p. 403.

46. Hayek, The Road to Serfdom, pp. 73-74.

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See footnotes at the end of each chapter.