

CAPITAL ACCUMULATION AND AGRICULTURE

By SHIGETO KAWANO

Lecturer of Agricultural Economics

I. *Foreword*

Since January 1949 when American President Truman announced his famous "Point Four" policy, the problem of economic development and the modernization of underdeveloped countries has become a matter of world concern. At the same time, the movement towards industrialization has become active in Southeast Asian countries. And in Japan, too, the promotion of a program of industrialization centering on the development of the heavy and chemical industries, though from a somewhat different stand-point, is now being actively pursued to make good the enormous damages caused by the World War II. A notable fact common to all these aspirations is that the term "industrialization" is used as if it is synonymous with "economic development", and can always be the fundamental condition of such development. It is because capital accumulation is so often regarded as the same as industrialization that there arises so much confusion and mistakes in planning and execution of investment. Capital accumulation does not always mean industrialization, and the latter is not always productive. The positive effects of capital accumulation are not self-evident before the fact, and whether it can be regarded as a condition of economic development will depend on various economic factors surrounding it. Consequently, the study of the capital accumulation problem must start from an analysis of its economic meaning and conditions. In this paper, I will try to clarify this point first, and then will study it in relation to agriculture in its theoretical aspects, viz. the significance of capital accumulation in relation to agriculture and that of agriculture in relation to the capital accumulation. Agriculture is a basic industry in the economy of Asia, and it can promote and regulate capital accumulation in a very peculiar form, the understanding of which has an important practical significance.

II. *Concepts of Capital and Capital Accumulation*

What is the meaning of capital accumulation in this case? To answer this question, it is necessary first to make clear what is capital and what is its function. This has been a widely discussed problem in the past, and, in a sense, it can be said that the dispute is still in progress in new forms even at present. Consequently, in so far as the definitions of the concept are concerned, there are many differences not only between the Marxian and non-Marxian economists, but also among the latter. "Produced means of production" defined by E. von Böhm-Bawerk may be one of the most famous interpretations. W. S. Jevons defines capital as "free goods" or "consumers' goods which can be diverted from current consumption", whilst F. A. Hayek, A. C. Pigou, F. H. Knight, etc. hold similar views considering it as "the aggregate of non-permanent services". I. Fisher and others define capital merely as "a certain sum of purchasing power".¹

At a glance, these various opinions concerning the concept of capital seem greatly different from each other, but viewed in detail, they are of a common nature in the following two respects; (1) capital is regarded as a source of interest and profit in some sense and to some degree; (2) it is indivisibly connected with the concept of round-about production—production by produced means of production. Consequently, it may be said that capital is regarded, roughly speaking, as that which makes possible the yield of interest and profit through round-about production, or the economic means by which "productive and profitable round-about production" can be made possible. Almost all scholars, not only those of the Austrian school centering on E. von Böhm-Bawerk but also those of other schools, have stressed the profitability of capital investment on the premise of round-about production² explicitly or implicitly.

¹ As is well known, the doctrine may be generally divided into the two main streams of the Austrian theory of capital and the marginal productivity concept; E. von Böhm-Bawerk, F. A. Hayek, K. Wicksell can be classified as belonging to the former, J. B. Clark, F. H. Knight to the latter; I. Fischer may be mentioned as combining elements from both positions. The classification is not the subject of this paper. As regards the general outline, see, for instance, J. F. Weston, "Capital and Interest" *American Economic Review*, May 1951. The essay by E. M. Hoover on "Capital Accumulation and Progress" in the same issue is also interesting as it illustrates recent American opinions concerning the main subject of this paper. It is however problematical whether the clear distinction between the discussions of capital problem in the 1940s and those of the 1930s is due only to the differences of the social background of the two periods.

² On this subject, there is, for example, the view of "Capital accumulation as an increase in the stock of investment goods in the economy". (O. Lange, *Price Flexibility and Employment*, 1944. p. 67)

What is "profitable round-about production" and what is the substance of "productivity of round-about production" above mentioned? Why is round-about production more profitable than otherwise? This is the core of the capital problem, so long as it is regarded as an essential part of the function of capital. But, in E. von Böhm-Bawerk's opinion, it is only postulated as such. He understood round-about production as the source or medium of enabling interest to be yielded—because according to him, a general basis for this yield of interest is provided by preference of the value of present goods or services to future goods and services, and the benefits of capitalistic round-about production are considered only as a factor making this possible,³—but he did not make clear the source of "benefits" or "profits" themselves. He assumed that the productivity of productive services—for instance, the labour force—is a function of the round-about production period, but did not explain why this can be assumed, nor why the time element can be regarded as the source of productivity. He only vaguely explained that "production methods requiring time are more productive", "benefits of technique will increase with longer periods of production". Similar ideas are found among other scholars, in particular those of the Austrian School. An exceptional example is F. A. Hayek's "*Pure Theory of Capital*, 1941".

F. A. Hayek is one of the few scholars who have taken up this problem in its full extent. His explanation is as follows: the function of round-about production is (a) firstly, to make possible the profitable exploitation of useful but unused resources, and (b) secondly, to make possible this exploitation in cooperation with other resource which yield a return immediately or in the near future; the source of profit consists solely in the fact that the current use and exploitation of resources indicated in (a) will be made possible through the medium of (b). In short, in his opinion, the profitability of transferring the resources from current use will be derived from the existence of the potential but unused resources indicated in (a) combined with the use of these resources.⁴ But, at the same time, he warned that round-about production and long-term investments are not always profitable, stating that "it is of course by no means a priori necessary that the product obtained in this time-consuming way shall be greater than that which would have been obtained from the direct use of the complementary resources. All that we can say in general is that men will take the trouble to use the services of additional resources only if, as a result, the product not only becomes different but is also preferable to what it would otherwise have been."⁵ Thus, according to his opinion,

³ Cf. E. von Böhm-Bawerk, *Positive Theorie des Kapitaless*. I Bd., 1921, p. 353.

⁴ F. A. Hayek, *The Pure Theory of Capital*, 1941, p. 60.

⁵ *Ibid.*, p. 62.

round-about production itself cannot always be a priori profitable, and round-about production and the prolongation of investment period are only undertaken because of the "general and experienced fact"⁶ that there seem to be "possibilities" of greater yield.

He said "Why should the more time-consuming methods of production yield a greater return?Nor is it certain that there is any single explanation that will necessarily fit all cases. There is, however, one general fact which makes it appear probable that it will always be possible to increase the amount of final services which can be obtained from given resources if more time is allowed to elapse between the time when the resources are applied and the time when their final product emerges. And this is of course all that is required. This general fact is, briefly, that there will almost always exist potential but unused resources which could be made to yield a useful return, but only after some time and not immediately; and that the exploitation of such resources will usually require that other resources, which could yield a return immediately or in the near future, have to be used in order to make these other resources yield any return at all. This simple fact fully suffices to explain why there will nearly always be possibilities of increasing the output obtained from the available resources by investing some of them for longer periods.All that is important is that, so long as there are possibilities of increasing the product by investing for a longer period, only such prolongations of investment periods will be chosen as will actually give a greater product."⁷

This statement promotes the analysis of our problem considerably by clarifying that (a) long-term investment and round-about production are neither always profitable nor productive, and that (b) the reason why, nevertheless, long-term investments are chosen as actually profitable is the fact that there exist "general possibilities" and "experienced facts" suggesting that it will be true. In denying the absoluteness of productivity or profitability involved in round-about production or long-term investment, this is consistent with our experiences, for we often observe failures in such cases, although we are empirically aware of the probability of their success.⁸

⁶ *Ibid.*, p. 60.

⁷ F. A. Hayek, *The Pure Theory of Capital*, 1941, p. 60.

⁸ In his criticism of E. von Böhm-Bawerk, A. Marshall stated that "There are however innumerable processes which take a long time and are round-about; but are not productive and therefore are not used;.....because interest has to be paid for, and can be gained by the use of capital; therefore those long and round-about methods, which involve much locking up of capital, are avoided unless they are more productive than others." (A. Marshall, *Principles of Economics*, 8th ed. p. 583). J. M. Keynes opines that "lengthy processes are not physically efficient because they are long. Some, probably most, lengthy processes would be physically very inefficient, for there are such things as spoiling or wasting with time." (J. M. Keynes, *The General Theory of Employment, Interest and Money*, 1936, p. 214). We completely agree with these two opinions which appear to us to approach the problem correctly.

And it is also very clear that the carrying out of investment is often impeded on this account and this is the most practical and fundamental factor limiting investments.

But, at the same time, there remains a question. Why is round-about production regarded as involving "general possibilities of profitability" despite the fact that "it is not always profitable"? The fact that "it is not always profitable", strictly speaking, means that "it cannot be decided either to be profitable or non-profitable offhand". Nevertheless, it is regarded as such. This is clearly a logical contradiction.

To solve this contradiction, it will be useful to consider the problem as follows: the origin of profitability or productivity itself consists in the rational and efficient combination of productive services, and the round-about methods of production are only the means of enabling the benefits gained to be guaranteed to a specified enterprise as a business profit. For the fact that round-about production proves sometimes successful and sometimes unsuccessful means nothing but that the round-aboutness itself is not fundamental for the promotion of productivity. Therefore, the only thing that can be theoretically said is that the most essential condition is the "new combination of productive services". The so-called "innovation in production" or "new combination" of J. Schumpeter is the essential condition in promoting productivity and in yielding surplus value, while the round-aboutness itself is only the means of guaranteeing this as a business profit by limiting competition, when connected with successful innovation.⁹ So long as the fundamental principle of the capitalistic economy is the pursuance of this "business profit", it will be natural that such round-about production or prolongation of production period will be regarded as an actual criterion of investment.

Thus, we find that round-about methods of production are neither necessary nor sufficient factors in the elevation of productivity, but only a condition guaranteeing surplus value as business profit in case of success, and such profit is merely a capitalistic form of surplus value, without which investment could not be expected under the capitalistic system. In other words, (a) the form of profitable and productive investment can never be decided *ex ante* and its essential nature rests on the fact that it means "new combination" of productive services or "innovation in production";

⁹ J. M. Keynes emphasized the theory of scarcity concerning capital, making a distinction between productivity and scarcity as follows: "It is much preferable to speak of capital as having a yield over the course of its life in excess of its original cost than as being productive. For the only reason why an asset offers a prospect of yielding during its life services having an aggregate value greater than its initial supply price is because it is scarce;.....If capital becomes less scarce, the excess yield will diminish, without its having become less productive at least in the physical sense." (J. M. Keynes, *The General Theory of Employment, Interest and Money*, 1936, p. 213).

whether it means "new" or not will be decided *ex post* through the process of trial and error; it is not necessarily connected with round-aboutness of production; even if it should be chosen, it must be at first decided "what kind of round-aboutness" is to be adopted. At the same time, (b) the pursuance of private business profit as a basis for investment is only of a capitalistic character; therefore, the pursuance of such a non-monopolistic surplus as will be rapidly dispersed among the general public in the form of reduction of prices, as the result of prevalence of competition, is out of the question under such a system. Inversely speaking, it means that investments based on private profit are not the only possible ones.

III. *Capital Accumulation and Agriculture*

Since we have made a brief sketch of the concept of capital and investment, as well as several problems concerned, let us now consider the problem of "Capital Accumulation and Agriculture". As the nature of investment is not "round-aboutness of production" but a "new combination" of productive services, we can not define them in a form applicable in every case. Since "new" means absolutely "new", it can not, in the nature of the case, be defined; it can equally take the form of "prolongation of production period" or "shortening" of it. Therefore, I will limit the subject to a discussion based on the experienced facts of "what is the relation between round-about production and agriculture?"

For, as above stated, round-aboutness of production itself is not, of course, a necessary and sufficient condition in yielding surplus value; but it is also an undeniable fact that this is usually chosen as the actual form of investment enabling the surplus value to be secured as business profit. And the significance of this fact itself for agriculture also must not be neglected.

From this point of view, the problem can be divided into two parts: firstly, to examine the characteristics of agriculture as an object of investment in this sense; secondly, to analyse the economic meaning of investment of this kind for agriculture. As regards the first point, it can be easily deduced from the preceding chapter that agriculture can hardly become an object of voluntary investment, when left free, but that it is not because of its inherent unproductivity but chiefly because of its low level of profitability as the result of its competitive structure. As is well known, the rapid spread of advances in agricultural technology very often results, through competition, in benefits for consumers in the form of reduction of prices rather than benefits for producers.¹⁰

Conversely this means that the opinion that agricultural investment is essentially non-productive is completely mistaken, and if it is in the interest of consumers, such investment should be promoted as a part of public policy, even if it may be negative as a private enterprise.

Of course, the appraisal of its effects from the point of view of consumers' benefits is, in reality, not easy, and there are various problems theoretically unsolved yet. But, at any rate, the presentday general opinions which denies the productivity of agricultural investment based on the ground that it can hardly be expected as a voluntary process, should be reexamined in the light of the above considerations.¹¹

As regards the second point, the actual process of round-about production must first be clarified. As incentives to investment, there are generally enumerated various conditions within and outside the economy, such as the invention of new techniques, development of new markets, discovery of new resources, etc. But, in any case, it can be said that this includes two processes, (a) the tranference of productive services from existing use, (b) the prolongation of production period, and this will logically be completed when final products are achieved. However, this entire process is not simple; the disparity between saving and investment induces the so-called "business-cycle" as an alternating process of prosperity and depression, vigorously promoting a cumulative expansion of investment for a certain period and then bringing about a sudden suspension of it. Consequently, the analysis of this problem can be varied according to whether we take up the problem from the stand point of either a short-term or long-term period. In this paper, however, the problem will be limited to the former, especially to the relationship between agriculture and non-agriculture in the course of this investment.

The significance for agriculture of the progress of investment and capital accumulation will consist, roughly speaking, in the withdrawal of capital from the latter. But this process is neither simple nor uniform, but has distinguishing features derived from the structural characteristics of

¹⁰ T. W. Schultz has stressed the public nature of agricultural research. This idea, however, will be applied to a large extent to the investment as a whole for the development of agriculture. He states "It is commonly thought that the public appropriations for agricultural research benefit farm people primarily. This is far from true ;.....farmers benefit, when they do, in their capacity as consumers. They do not, as a rule, benefit as producers except that those who first introduce the new technique benefit until the price of the product falls as a result of the expanded output." (T. W. Schultz, *Agriculture in an Unstable Economy*, 1945, p. 76).

¹¹ It is very interesting that this opinion of the uneconomic character of agricultural investment is in complete contrast with physiocratism advocated by Quesnay, Turgot, etc. If physiocratism had at that time any objective factors supporting it, these should also prove to be true at present under certain conditions. However, for this purpose, it must be made clear under what conditions investment will become either economic or uneconomic.

agriculture. And the core of this problem is that the process of investment as a whole is accelerated in some sense and restricted in another sense. We shall explain this below.

Firstly, the existence of a surplus population in agriculture, (such as an unemployed population, employment at low income, etc.), will smoothen the expansion of credit and the progress of accumulation without raising the wage level at the early stage of investment.¹² This is because the elasticity of labour supply will be infinitely large, in so far as there is over-population and especially when the labour is capable of meeting the new demand technically. Of course the type of labour required, in reality, cannot be perfectly satisfied by that available in rural villages, and this problem will become more serious when a special type of skilled labour is required following the higher development of industry. However, when we consider the present conditions of the agricultural villages, it seems that the problem will not arise for some time, for the villages are generally obliged to maintain an unemployed population which includes skilled labour, even though the latter may be present only temporarily. Thus the existence of a surplus population in agriculture will be a factor promoting rapid investment by lessening the wage burden at the commencement stage.

Secondly, a similar effect can be noticed as the result of the peculiar character of the farmers' propensity to consume at this stage. For, although the income distribution becomes favourable for agriculture at this period, the surplus income is always directed neither to consumption nor to agricultural investment.

At the commencement period of investment or during a period of rising business activity, prices for agricultural products and agricultural income may hold up well because of the lack of elasticity in supply and to the fixed and rigid nature of cost factors. In this case, prices of agricultural products will advance before those of the cost factors such as consumers' goods, agricultural requisites, etc. This results from the fact that the supply of agricultural products can not meet the increased demand, whilst the prices of cost factors will experience no advance or a delayed advance, if any. The increase of demand is naturally caused by an increase of wage payment due to increased employment outside agriculture. As the demand for agricultural products is more elastic, when the wage level is low, than otherwise, the increase of employment of this kind will bring about a considerable expansion of it. However, the inelasticity of its supply will

¹² There is a difference of opinion between F. A. Hayek and G. V. Haberler as to whether the analysis of business cycles is to be started from the conditions of imperfect employment or not. (Refer to G. V. Haberler, *Prosperity and Depression*, 1939, p. 284). However, this will depend on the precise nature of the assumptions made, but it is not merely a theoretical problem as Haberler states.

be attributed to the following reasons: (a) the characteristic structure of production in agriculture where a rapid extension of production is very difficult on account of the lack of idle resources other than labour; (b) the tendency for farmers to refrain from investment, as will be mentioned later. At any rate, the general rigidity of production is to be recognized in contrast to the advance in prices. Finally, as regards the rigidity or delayed advance in prices of cost factors, the following may be pointed out; (a) prompt adjustment is difficult in the case of interest, taxes and other public burdens having the nature of long-term contracts or those of an institutional character; (b) prices of other consumers' goods and agricultural requisites cannot show the same advance as those of agricultural products, in so far as they are products of elastic supply, being those of manufacturing industries which have usually surplus production capacity—surplus equipment and production facilities,¹³ (c) inelastic prices of productive factors, wages, etc., will reduce the price advance of consumers' goods and production materials. The above facts are, of course, only true of the products of not so highly monopolized industries or those of industries which stand in no direct competition with those to which investment is applied. It is, however, sure that the rigidity or time lag in the price movement of cost factors relatively favours agriculture throughout the process.¹⁴ It is also undeniable that the extension of employment opportunity will greatly benefit agriculture especially in countries such as Japan and Southeast Asian countries where rural over-population is so great.

Agricultural income will show a considerable increase throughout this process and the household economy of farmers will register favourable balance. However, increased income is not always directed to consumption and agricultural investment as above stated, but to saving.¹⁵ The

¹³ In manufacturing industries which are monopolistic, conditions are different from those in competitive agriculture. The former usually have surplus production equipment and idle facilities which are ready to increase production when warranted by demand, and this will stabilize prices to a large extent. In case of a decline in demand, idle facilities will check a price decline through production curtailment.

¹⁴ The fact that farmers are often regarded as inflationist in the meaning that they welcome inflation may be attributed to this. As regards analysis of American conditions, refer to G. F. Warren and F. A. Pearson, *Price* 1933, T. W. Schulz, *Agriculture in an Unstable Economy*, 1945. etc. The ratio of exchange of agricultural products to commodities purchased by farmers was very favourable to the former during the period 1915—19 and 1940—44. On the other hand, wages in agriculture advanced sooner than those in manufacturing industries, and approached the latter, partly due to the above relation and partly to the increase of employment in non-agricultural industries. The same situation can also be found in Japan during the period 1914—19 and 1940—47.

following reasons may be pointed out : as regards consumption, the fixed low consumption propensity resulting from traditional living conditions ; as regards agricultural investment, lack of enterprise in agriculture, reluctance to assume risks, lack of technical and economic knowledge necessary for investment, shortage of funds, etc. Thus, the important point in the role of agriculture in relation to investment in industry is that it performs an accelerating function in an efficient manner. It can be said that, at least as far as the former suppresses the motivation of expanded purchasing power, controlling the price advance of cost factors, to that extent the former has the function of promoting the latter rapidly.

However, when once full employment is realized and the demand for consumers' goods shows a rapid increase, this suddenly becomes a restricting factor for capital accumulation. This constitutes the third problem.

At this stage, the advancement of investment necessitates the redistribution of labour already employed, but it makes it inevitable to advance the wage level accompanied by a remarkable expansion of purchasing power, whilst the production of consumers' goods to meet this expanded demand remains stationary or almost suspended. Thus the prices of consumers' goods will show an abrupt advance, especially those of agricultural products will make a jump as a result of retarded production caused by the restrained investment in agriculture.¹⁵ That is, this requires a sudden change of production method from a prolonged one to a shorter one. This process is, of course, too complicated to be treated here, being a problem of business fluctuations involving many unsolved problems. However, it can be said that the restriction of agricultural investment becomes, in its turn, a sudden checking factor of round-about production. While it is true that the peculiar characteristics of agriculture, as above mentioned, produce a remarkable

¹⁵ In periods of inflation, there is a tendency for a plenty of funds to be available in agriculture. Agricultural finance is different from industrial finance in direction and nature in that when the demand for funds from industry is active, that for agriculture declines relatively ; the former is a positive financing for production increase, whilst the latter is more in the nature of relief in periods of depression. Needless to say, the above fact does not deny the possibility of agricultural investment : for instance, J. H. Kirk maintained that the increase of agricultural income will increase fixed agricultural investments in agricultural countries, giving examples in the United States, Canada, Australia, Argentine, India, etc. during the period 1921—30 (J. H. Kirk, *Agriculture and Trade Cycle*, 1933) ; practically the similar situation can be observed in Japan. The only problem is that an increase of income through the favourable development of prices of agricultural products does not necessarily bring about the advancement of investment in this industry. Examples of agricultural investments promoted by an increase of agricultural income in Japan will be found in the increased acreage of fruit trees and gardening and an increase of domestic animals, cattle and pigs during the World War I, and an increase of machinery after the World War II.

¹⁶ The rice riots which occurred in Japanese fishing villages in 1918 can be regarded as an instance of this conflict between unbalanced supply and demand of agricultural products in the areas where resistance to capital was most weak.

acceleration in investment and round-about production for a certain period, it can be, after all, observed that agriculture, in promoting capital accumulation in an extremely unbalanced form, acts as an unstable factor.

When business activity recedes, a contrary relation will develop. The demand for labour in branches other than agriculture, particularly in industries as the object of investment, will decline markedly, and discharged workers will return to rural villages, relying on the ties of the family system. A decline in the demand for agricultural products will cause a rapid decline in prices due to the competitive structure of agriculture. On the other hand, a decline in prices of cost factors—taxes, public imposts, wages, consumers' goods, agricultural requisites, etc.—will not follow, the result being a decline of agricultural income, both nominal and real. This process will become more serious through the peculiar character of farmers who are prone to cover a price decline by an increase of output.

Here, the problem will become: what will be the production structure after the whole process of investment is completed. ? ; how will employment other than in agriculture be enlarged and maintained ? ; what kind of market for agricultural products can be created and maintained ? ” how can new conditions be established for the improvement of agricultural productivity ? In other words, the problem will be at what level and in what form agricultural income can be maintained. These will be the final conditions determining the significance of capital accumulation in relation to agriculture.

As already mentioned, the benefit of round-about production is never self-evident *ex ante*. Its benefit cannot be measured merely by the existence of business profit. If investment and capital accumulation are carried out only in pursuit of business profit, and this prevents agricultural investment in the way described above, bringing about instability in the accumulation process as a whole, it will naturally be open to criticism as a general matter of social organization. Here, the problem of “socialization” will appear, and with it the idea of “investment through government funds” or “public investment” will originate, although the latter will be somewhat different in approach from the former,

What changes in inner structure agriculture is subjected to during various processes of those business cycles is another important problem. I have mentioned several points of this problem in footnotes. Roughly speaking, during the period when investment progresses and business activities show an upward trend, there develop large enterprises, land speculation and acquisition of land on a large scale ; during the period when investments are suspended and business activities decline, the above tendencies will recede or disappear.¹⁷ Actual conditions will, of course, be different

according to the countries in which it is applied and their stage of development.

¹⁷ H. Levy, *Large and Small Holdings*, 1911, which describes the historical development of large and small holdings principally in England, is very interesting from this point of view.