

# AGRICULTURE AND THE TURNING-POINTS IN ECONOMIC GROWTH

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## *Introduction*

The purpose of this paper is to describe the changes which have taken place in agriculture in the century of Japan's modern economic growth. For this purpose, the thesis of turning-points will be used. In using this concept, the central problem which confronts us is, I believe, that of finding consistency between "historical" turning-points and "theoretical" turning-points.

The concept of a turning-point in economic growth was first established by Arthur Lewis in his well-known article, "Unlimited Labour: Further Notes" [4]. It is the point at which the economy turns from the first stage of development with an unlimited supply of labour towards the second stage of development with a limited supply of labour. Agriculture was treated as a most important component of the "subsistence sector" (versus the "capitalist sector") in his two-sector model. He discussed the peasant economy in some detail as the source of an unlimited supply of labour during the first stage of economic development.

Since then, not a few authors have followed this line of thought and the concept of a turning-point has become popular in the field of development economics. An outstanding example of the use of this concept is found in the more sophisticated model presented by Fei and Ranis [1]. They developed not only an overall analysis of the economy but also a detailed scrutiny of agriculture. They no doubt contributed much to furthering the theoretical aspects of Lewis' original idea. In my view, however, the thesis of a turning-point seems to be inadequately used in applying their theoretical model to historical realities. This is particularly so with respect to agriculture in discussing the Japanese experience. In their analysis, the turning-point is demarcated at about 1917, implying that at that time Japanese agriculture entered into the process of modernization. One may intuitively cast doubts about this assertion, because from that time to the present the place of

agriculture in the Japanese economy, as most Japanese economists believe, has remained extremely backward, and is far from being completely modernized. This may serve well to illustrate that there are difficulties in treating the changing place of agriculture in terms of the general theory of turning-points.

In a model of this type it is assumed that the turning-point in economic growth *should* coincide with the turning-point in agriculture; during the first stage real wage rates will be equal to the subsistence level which is assumed to be kept unchanged with regard to agriculture, and at the turning-point this mechanism will cease to work and from then on real wage rates will rise in parallel with the trend of increase in the marginal productivity of labour, which must now be equal between agriculture and the non-agricultural sector. This is the simplest statement of what is implied in the theory of this type with regard to a process of equilibrium growth. The turning-point in agriculture is marked by the point at which the marginal principle begins to work: the commercialization point in Fei-Ranis terminology. The problem for us is that this point is assumed in theory to coincide with the point at which real wage rates begin to increase in the industrial sector, and that in reality this assumption is not warranted.

It is interesting to remind ourselves that Lewis himself had a much more flexible attitude in applying his thesis to the historical process of economic growth, and that he rightly admitted the possibility of wage rates rising even before the economy arrives at the turning-point. In fact, with respect to Japan, he suggested the turning-point to be somewhere in the 1950's, despite recognizing an actual increase in real wage rates after World War I. Although he gave no explicit explanation concerning the turning-point in agriculture, Lewis' flexible attitude is suggestive for our approach. In my own view, it seems risky to apply theoretical models directly to the historical realities without "stylizing" them adequately. The *a priori* assumption of a coincidence between the turning-point of agriculture and that of the whole economy, I believe, requires further scrutiny in the light of the Japanese experience.

First, in Section I, I will apply our phasiology in stylizing the historical complexities. Japan presents an Asian example of developed "traditional" countries with a long pre-modern history before its start to modern economic growth. Our operational hypothesis is that an interplay between the modern elements and the traditional elements brought forth basic changes in the growth pattern and economic structure of such a country. When these changes form identifiable and

relatively unified periods, these periods are defined as *growth phases*. The dating, identification, and historical explanation of these phases were the major tasks which Henry Rosovsky and I attempted in a previous joint paper [5]. In it, agriculture was treated as the most important traditional sector. I believe it is useful to begin with the discussions that follow by referring to this phasing.

Second, in Section II, the discussions will be concentrated on agriculture. The possibility of defining a turning-point in this particular sector will be explored in some detail in the light of the historical facts of Japanese agriculture. In so doing, attention will be focussed in particular on three elements of the traditional features of agriculture: production organization, human behaviour, and the type of technological advance.

Finally, in Section III, what has taken place in the non-agricultural sector will be observed in a most simplified manner, and the relation between the possible turning-point in general economic growth and that of agriculture will be discussed. In so doing, instead of treating the non-agricultural sector as a homogeneous modern sector, a division of this sector into two sub-sectors seems useful: the genuinely modern sector and the semi-modern sector. Along this line of thought, there will be suggested in conclusion the possibility of a coincidence between the historical turning-point and the theoretical turning-point, with both agriculture and non-agriculture consistently included.

## I. GROWTH PHASES AND DISCONTINUITY

The growth phases were identified historically in a previous paper written with Rosovsky as follows: [5]

- A. The First Phase of Modern Economic Growth, 1868–1905
  - I. Transition, 1868–1885
  - II. Initial Modern Economic Growth, 1886–1905
- B. The Second Phase of Modern Economic Growth, 1906–1952
  - III. Differential Structure: Creation, 1906–1930
  - IV. Differential Structure: Economic and Political Consequences, 1931–1952
- C. The Third Phase of Modern Economic Growth, 1953–?
  - V. Post-war Growth, 1953–present

A growth phase is not an arbitrarily selected interval of years; it must conform to certain analytical principles. Following Simon Kuznets' concept of modern economic growth with his criteria for identifying it,

we tried to apply what he has called the minimum requirements for a "stage theory" [7]. In brief, what we have done can be stated as follows:

The years between 1868, the Meiji Restoration, and 1885, the end of the Matsukata Deflation, form the transition. It seemed to us that in 1868 modern economic growth became a national objective and that the actual beginning of such growth took place in 1886. Thus the transition is defined as an interval of a lag between the adoption of a national objective and the beginning of its achievement. Leaving out discussion of the transition period, three major growth phases are relevant here. The first, lasting from 1886 to 1905, the end of the Russo-Japanese War, is characterized by the simultaneous growth of the modern and traditional sectors. The modern growth was largely dependent upon the growth of the traditional sector, and agriculture constituted the core of the traditional economy. The second growth phase, lasting from 1906 to 1952, including the war and the subsequent post-war rehabilitation period, is characterized by the independent and vigorous growth of the modern sector, concentrating on light industries, while development in the traditional sectors lagged. Rapidly growing modern sectors and lagging traditional sectors created what we have called the "differential structure" and its first sub-phase (III) is identified as belonging to the years 1906-1930: around 1931 artificial heavy industrialization due to military mobilization began, and the subsequent years until around 1952 are demarcated as the second sub-phase of abnormal nature. The Japanese economy made a fresh start after World War II and the third growth phase began in about 1953, and will last for some years to come. It is characterized by a further expansion of the modern economy centring on heavy industries. A possibility was suggested in this previous paper that during the third phase the traditional elements will be dissolved if the economy succeeds in growing further.

What concerns us most is an implicit recognition of a sort of "turning-point" from one phase to another in the years of 1885-1886, 1905-1906, 1930-1931, and 1952-1953. These I would like to call the *historical* turning-points in terms of growth phases, as distinguished from turning-points theoretically defined. In the previous paper, the dating of these historical turning-points was first given from the broad historical aspect and then endorsed statistically in terms of the troughs which were identified with respect to the long-swings in the rate of output growth. If one agrees with us in recognizing that all these phases are distinctive

enough in their characteristics and that they bear certain historical relationships between the preceding phase and the succeeding phase, then these historical turning-points will have proper meaning. It is beyond the scope of this paper to describe these in enough detail to clarify the historical meaning of each turning-point. However, I think it is desirable at least to answer the question of why these turning-points can actually be distinctly identified.

The endogenous relationships between the modern and the traditional sectors cannot necessarily be assumed to change in a discontinuous manner. If they appeared in a continuous way without making breaks over time, there could be no means of identifying the turning-points. In the Japanese case of modern economic growth, however, there actually is discontinuity and it is statistically reflected by the output pattern of long-swings. What are the underlying mechanisms which create alternations of upswings and downswings? This is a question very difficult to answer in full. But a central driving force is, I believe, the changes in the rate of capital formation. Statistical evidence is not lacking. The proportion of gross domestic fixed investment in GNP is a most convenient indicator for this. During the initial phase from 1890-1905 (no data are available for the years before 1890), this proportion was kept almost unchanged at a level of 14-15%. In 1905-1906 it began to rise rapidly for the first time and reached some 19% in 1911. During the second phase the proportion fluctuated up and down, but not much, and it never substantially exceeded a level of 20% until the next turning-point in 1930-1931. From then on it again rose sharply, reaching 30% in 1938, the peak year. In the post-war phase it again started to increase from 25% in 1953, rose very sharply, and arrived at a record high of some 40% in 1960-1961. [These datings and figures all refer to the smoothed series of seven-year (five-year for post-war years) moving averages based on [9].] The intervals during which the rate of capital formation rises sharply are called investment spurts. Except for the first one in 1885-1886, all the historical turning-points mentioned above were the starting-points for each investment spurt.

Now, in the light of the historical pattern of economic growth described above, let us consider the problem of applying the theoretical concept of a turning-point to reality.

First, the theoretical models of long-term economic growth generally treat the time-path as a *continuous* process, so that the point of exhausting the unlimited supplies of labour is given on a uniform line of growth trend; there is assured no possibility of identifying such a point

distinctly. The discontinuity to be found historically is therefore a prerequisite for providing such a possibility. This prerequisite cannot always be assumed to exist. The historical turning-points stated above are accordingly of great significance in suggesting that such a possibility can be expected in Japan's case.

Second, however, we have to note that the historical turning-point does not necessarily coincide with the theoretical one. Moreover, there is a risk of confusing the two. For example, the first investment spurt which marked the beginning of the second growth phase was followed by the World War I boom. During this period a shortage in the labour supply was felt temporarily; a shift in the labour force from agriculture to the rest of the economy was accelerated; and money wage rates tended to rise. The real rates thus showed a rise later on due to the downward rigidity, as commodity prices turned to fall after the end of the war. The turning-point around 1917 suggested by Fei-Ranis, in my view, seems to be derived from these *swing* phenomena. Actually, in each growth phase, the rate of increase in the demand for labour generally tends to be accelerated during the upswings, while it is decelerated during the downswings. The real difficulty therefore lies in the task of distinguishing the *trend* phenomena from the swing phenomena. We refer to these facts as trend phenomena, meaning thereby the lasting structural changes which transcend the swing phenomena.

## II. THE TURNING-POINT IN AGRICULTURAL DEVELOPMENT

Among the historical turning-points mentioned above with respect to growth phases, let us pay particular attention to the post-war one. The reason for this is that from around 1952-1953 there began a distinct and sustained decrease in the labour force engaged in agriculture and such a phenomenon was never noticed in the preceding three turning-points. One may doubt whether the post-war change will be sustained even after the end of the spurt, because, as has previously been suggested, in a spurt period of the economy the rate of labour shift tends to be accelerated. In my view, based on an observation of trends, however, the recent decrease in the agricultural labour force will continue in the future as a basic tendency, though of course the tempo may fluctuate according to the possible swings of the economy.

The historical turning-point in agriculture can be defined in various ways according to different conceptual frames. In the light of the above-mentioned experience in Japan, I believe it is most reasonable to

define this turning-point in terms of the labour force performance. I would like to identify it by the point from which the labour force engaged in agriculture begins to decline as a trend phenomenon. This implies that the growth of the non-agricultural sector arrives at a point at which the demand for labour in this sector can only be fully met by a labour shift out of agriculture. What is its significance with respect to the structural changes within agriculture? To answer this question is the major aim of this section.

First, let us "describe" the basic historical facts which Japanese agriculture manifested before arriving at a turning-point. They can be stated as follows:

(1) The numbers of the labour force engaged in agriculture were kept more or less unchanged (except for the abnormal period immediately following the late war).

(2) The acreage of arable land was maintained almost unchanged (except in Hokkaidō where a considerable amount of reclamation took place), so that the factor-proportion with regard to land stock and labour remained almost constant in the aggregate.

(3) Within agriculture, the distribution pattern of farm size changed little. No sizeable shift from smaller to larger farms was witnessed; instead, a tendency of concentrating towards medium-size farms was seen to a certain extent.

(4) Owner farmers remained the core of the land system, although tenancy extended to a considerable extent under the traditional land-lordism.

(5) Inputs of working and fixed capital increased considerably accompanying an increase in output and labour-productivity under the sustained production organization of the traditional type characterized by (3) and (4) above.

These five characteristics have been discussed in much detail and the reader is requested to refer to sources [3] and [6] if necessary. Here I want to discuss these characteristics in their relevance to the pattern of technological advance and human behaviour. In brief, the type of technological progress in Japan's agriculture can basically be characterized by its *neutrality to scale of farming*, meaning thereby that the productivity of input differs little among farms of various scales, small and large. This type is naturally supposed to take place where and when the major input is of a perfectly divisible nature.

In terms of the growth phases stated in the previous section, the place of agriculture changed basically between the initial phase and the

second phase. From the standpoint of technology in particular, the initial phase was characterized by a nation-wide diffusion of the traditional technology selected from the backlog inherited from the pre-modern Tokugawa period, while from the beginning of the second phase a new application of modern science appeared to have been effective in establishing a system of technology appropriate to Japanese agriculture. What concerns us here, however, is not the distinction as such between the two phases, but rather their similarities. It goes without saying that a renewed diffusion of the traditional technology was effective because it met the requirement of the unchanged production organization inherited from the pre-modern period. The later development of applying modern science was directed not along new lines but towards improving agricultural technology of the traditional nature—better methods of cultivation, improvements of seeds and fertilizers, etc., all of which were designed to fit the traditional farming system. Thus, from the present point of view, Japan's agricultural technology up to the turning-point can be basically characterized by its perfect adaptation to the production organization of the traditional type.

The traditional production organization has often been called a remarkable example of the land-saving type. This is true. However, if we turn our eyes to the relation between the type of technology and the organization of production, the aspect in which it differs should, I believe, be emphasized. The previously-mentioned nature of scale-neutrality appears to be of most importance. The effect of inputs such as fertilizers, improved seeds, insecticides, etc., is supposed to bring forth no distinction between small-scale farming and large-scale, because these have almost perfect divisibility in their technical nature. Statistical evidence is not lacking. Measurements of production functions of the Cobb-Douglas type applied to such basic crops as rice, wheat, and barley for several years in the 1930's show almost without exception that the sum of production elasticities is very close to unity; that is, a prevalence of a production situation approximately equal to a constant return to scale [8].

Important is the interrelationship which is supposed to have been obtained between the traditional organization of production and the agricultural technology of this type. Almost the entire increase (but no more than this increase) in the agricultural labour force was absorbed by the development of the non-agricultural sector. With this given condition, technological advances of the neutral type in agriculture contributed to all classes of farmers almost uniformly with the effect



that the traditional organization faced no substantial dissolving forces from technological innovations; owner-cultivated family farms—the core of Japan's land system—contributed much towards implementing and diffusing the advanced technology of this type, and thus maintained and even developed traditional small-scale farming.

Under such conditions, the attitude and behaviour of the people must have been characterized by tradition. Even confining comments to the topics relevant to economics, there are too many to be discussed here. For the specific purpose of this paper, the points that follow are most important.

(1) The traditional household system under a system of primogeniture was maintained almost unchanged within the realm of the traditional community; the head of the household and the dependent family members were clearly distinguished in status.

(2) The pattern and level of living was kept traditionally within this household system, and this constituted the means by which the "agrarian" basis of Japan's social structure was maintained.

(3) There was a social basis for accepting the "agrarian principle" as distinguished from the general economic principle in the popular mind and in Government policy: the law of technological advance must be different in agriculture from that of industry, small-scale family farming is the best form of organization for agriculture, etc.

The basic condition which maintained these behaviours and attitudes is, I believe, highly relevant to that which sustained the traditional production organization. In my view, this condition is the constancy of factor-proportion with respect to the land stock per unit of labour force as was provided to agriculture in a sustained manner in Japan's modern economic growth.

Our second topic concerns the post-war experience. Much has been said about the Land Reform which was carried out during the Occupation period. Traditional landlordism was dissolved with the effect that the status of owner farmers was greatly strengthened. It is also important to note that the traditional household system was legally and socially revised, together with the abolition of primogeniture. I am ready full to recognize the important effects which these institutional and social reforms brought forth in changing the place of post-war agriculture. However, what is more important for the present purpose is the fact that all these resulted to a considerable extent in sustaining small-scale farming. Up to the present, the aggregate decrease in the agricultural labour force seems to have accompanied only a slight sign

of change in the distribution of farm size in favour of larger farms.

On the other hand, significant changes have taken place in the type of technological advance in post-war agriculture. There is empirical evidence for contending that a scale economy appeared in recent years; productivity of input tends to be larger as the size of farm increases. This must be highly relevant to the mechanization and diversification of post-war farming. Japan's agricultural machines are of a very small scale by international standards, but once they are effectively introduced into the system of farming technology, a distinct economy of scale appears. Diversification towards livestock farming presents another factor which leads to producing an economy of scale. Again statistical evidence is not lacking: the annual *Survey of Farm Households* compiled by the Ministry of Agriculture and Forestry can in general be used for this purpose. In a more sophisticated way, the measurement of agricultural production functions broadly indicates a possibility of increasing return to scale [8]. Such a change in the type of technology is, I think, the most decisive factor in transforming Japanese agriculture for the future.

Can we give a reasonable explanation for a concurrent occurrence of such a change in technology and of the decline in the agricultural labour force? At first glance, it seems very easy to say "yes" in terms of the substitution of labour by capital. Actually, however, it is not so simple. The heavy industrialization of the Japanese economy, accompanied by a rapid rise in the income level of the people, no doubt brought in "induced effects" on agriculture in terms of technology and demand for output. With the unchanged scale of farming, therefore, mechanization and diversification did begin to take place as a path-breaking force. These cannot simply be interpreted as the direct result of a labour shortage, although an accelerated outflow of the agricultural working force, especially among young workers, certainly encouraged the diffusion of mechanized farming.

A trend of decrease in the agricultural labour force has undoubtedly been caused by a rapid increase in the demand for labour in the non-agricultural sector. But it has certainly been encouraged by a reduced social rigidity in the new social environment of post-war Japan. In general, people's behaviour in the rural community tended to change the long-sustained traditional patterns; their confidence in the agrarian principle seems to be fading away. The production organization based on traditional family farming began to show signs of transformation towards modernization, although with difficulties in adapting to the new situation due to institutional lags. A further change in the factor-

proportion with respect to the man-land ratio, together with a further change in the type of farming technology which is already oriented towards enlarging the farm-size, will encourage farmers towards modernizing Japanese agriculture.

The shift performance of the labour force has previously been adopted in identifying the turning-point in agriculture. It is now clear that it implies for the most part the associated changes in the basic structure of agriculture concerning the production organization, human behaviour and, in particular, the type of farming technology. During the first long phase before the turning-point, the technological advance characterized by scale neutrality was dominant and the second long phase which just recently started will be dominated by farming technology which advances scale economy.

### III. TURNING-POINTS: HISTORICAL AND THEORETICAL

The turning-point previously defined with respect to agriculture is of a historical nature. Does it coincide with the theoretical one? The latter is the point at which agriculture ceases to be the source of an unlimited supply of labour. Up to that point the supply price of labour is determined by the subsistence level prevailing in this sector, but now the increased marginal productivity of labour (due to a decrease in the labour force, assuming a production function of decreasing return) becomes equal to the subsistence level. From that point on the wage rates will be seen to be equal to the marginal productivity of labour within the whole economic system. The peculiar place of agriculture will disappear because the marginal productivity of labour in agriculture will be equal in equilibrium to that of the non-agricultural sector. Considering these properties of the theoretical turning-point, one will intuitively decline to identify its coincidence with the historical one simply because of the previously recognized fact that the traditional organization of production changed little in the post-war years, even after the historical turning-point occurred. In my view, however, such a negative attitude can be altered if one is more deliberate in considering the problem. How can we form a bridge between the two?

The answer will be found in the fact that the non-agricultural sector is not homogeneously modern but rather heterogeneous, in containing both modern and traditional elements. There is ample evidence for this, both historical and current. The problem is therefore how one can modify the theoretical frame in order to fit Japanese reality.

To begin with the empirical facts, let us remind ourselves of what has been previously described in Section II in discussing the growth phases. The dichotomy used there (traditional versus modern sectors) now deserves further consideration. For the initial phase of the simultaneous growth of the modern and traditional sectors, the dependence of the modern sector upon the traditional economy was pointed out. This implies historical complexities which cannot be fully explained here. But what is essential in the present context is that the "modern" sector was actually composed of both the modern and traditional elements and was not genuinely modern. It depended upon a labour force, mostly young and single, unseparated from rural households. Technology was not fully mechanized, often depending much on material supplies from agriculture. Organization of production was close to that of the factory system but on a small scale, and capital intensity was not much higher than the traditional level. These properties can be categorically distinguished from the genuinely modern ones. For lack of adequate terminology, I would like to call them "semi-modern." As a matter of fact, the genuinely modern sector was merely an enclave, and the semi-modern sector was dominant during the initial growth phase. With respect to the relation between the traditional sector and the semi-modern sector, the notion of unlimited supplies of labour can be applied to the initial phase. Statistical evidence is not lacking; real wage rates increased at a very slow pace until around the time of the turning-point in 1905-1906.

The rate of increase of capital intensity—a basic indicator of modernization—marks a turn just around this time; although it rose at a very slow pace during the first phase from this date it began to show a sharp rising trend corresponding in time to the first investment spurt mentioned in Section I. In that section the second growth phase was characterized by a differential structure, meaning thereby the independent and vigorous growth of the modern sector with the traditional sector lagging rather far behind. Now, in our new framework, the *independent* growth is to be exclusively applied to the genuinely modern sector. Again the historical realities are complex, but it may be categorically allowable to characterize this sector by certain properties such as mechanized technology, a larger scale of production organization, dependence on the modern working force (including skilled labour) separated from the traditional household economy, and above all, a greater intensity of capital. Historically, the first investment spurt seems to imply a real inauguration of such a modern sector. In this sense, it marks a turning-

point of great significance to Japan's modern economic growth. Following his original notion of the "initial big spurt," I would like to call it the "Gerschenkron point" [2], although his notion is not exactly same as ours.

What concerns us further is the fact that the unlimited supply of labour did not cease at this point but rather continued to exist substantially in the subsequent years. The semi-modern sector developed further during this second phase, still depending much upon the traditional sector. In the twenties and thirties a major part of non-agricultural employment was provided by the semi-modern sector, a close tie between agriculture and this sector was sustained and sometimes even strengthened, the retardation of agricultural growth was aggravated by increased food imports from Korea and Taiwan due to Japan's imperialistic expansion, and a further capital intensification in the modern sector, particularly in factory manufacturing, put pressure on the labour market, which showed almost no increase in employment during the twenties. These phenomena may be enough to give a broad picture of what we previously called the differential structure. This was after all created and sustained by the condition of an unlimited supply of labour.

Categorically, the differential structure thus implies a coexistence of three sectors: modern, semi-modern and traditional. An equilibrium analysis of the growth process of such an economy seems extremely difficult and no attempt will be made here to present it. The description that follows is intended to merely give an idea as to the background for formulating a model for such an analysis. First, there seems to exist no difficulty in applying the conventional notion of an unlimited supply of labour to the part of the economy which is supposed to be composed of the two sectors: traditional and semi-modern. Secondly, the real difficulty lies in dealing with the genuinely modern sector. For the sake of simplicity, let us typify its nature by the type of technology embodied in its higher capital intensity. What concerns us most here is its creation of a higher wage rate which is independent of the traditional subsistence level. It goes without saying that for a "follower" country like Japan, the formation of the modern sector used to depend heavily on the so-called borrowed technologies from advanced countries. Adoption of such a technology usually requires a higher capital intensity and realizes a higher labour productivity as compared with the domestic level. A possibility of raising the wage rate for the labour employed in this sector is thus introduced. So far as the labour thus employed cannot be replaced easily by the labour force at large, an independent

level of *modern* wage rates is established. Given severe international competition, the late-comers are always pressed to increase industrial productivity and the process of catching-up necessarily tends to adopt such increases in the wage rates as a *result* of the increased productivity. Needless to say, during the second phase of Japan's modern economic growth, a force of this kind was at work to a considerable extent. Accordingly, the demands for the labour force were, so to speak, dualistic: one modern and the other semi-modern; in theory the latter is supposed to expand its production to the point where its marginal productivity equals the wage rate determined by the traditional level of subsistence most prevalent in agriculture. Up until the time the post-war spurt took place, such a structure seems to have been basically maintained.

Now, the post-war spurt for the first time brought forth a relative shortage of labour in the Japanese economy. It is interesting to note that this is reflected most distinctly by a phenomenon of narrowing the range of wage differentials which had previously existed between the vigorous young workers and the aged adult workers, and between small-scale enterprises and large-scale enterprises. This can be interpreted in terms of our categories as follows: a drastic change has taken place in the part of the economy in which a condition of an unlimited supply of labour had prevailed. The wage rates relevant to that part have increased relatively compared to those of the modern sector. This provides good evidence in retrospect for the fact that during the second growth phase the existence of surplus labour in this part of the economy was a major cause of its low wage level.

Our final problem is how to link this fact to what was said about agriculture in Section II. What we know empirically up to the present is limited to what has taken place during the post-war spurt period. And something must be said about the coming long phase which is supposed to follow the end of the spurt. This difficulty much discourages me. I am inclined, with some hesitation, to say the following which is much simplified. The coming third phase might be adequately characterized as a possible process of dissolving the traditional organization of agriculture *together with* the traditional elements involved in the semi-modern sector. If this suggestion is accepted, an important proposition can be presented. The long phase of an unlimited supply of labour can be supposed to have ceased at the post-war turning-point of general economic growth, which broadly coincides with the turning-point previously defined with respect to agriculture. This I would like to call the *first* Lewis turning-point. This point, however, does not

mean directly the turn towards the maturity of modern economic growth, because traditional elements still remain in the economy for the subsequent years. This is why it is specifically called "the first" turning-point with expectations for a second to follow.

In order to give a more explicit bridge between the historical and the theoretical concepts, a few words will be needed. In this long phase to come, the marginal principle will work even in agriculture as a basic behaviour, and in this sense, this sector will become similar in nature to the semi-modern sector; in principle, competitive forces will work between them, implying that the semi-modern sector will be able to increase its employment by raising its demand price for labour. On the other hand, as a part of this sector becomes more modernized, it will become similar in nature to the modern sector, and an increased demand for the working force in the modern sector will be met by raising the level of wage rates. Thus as a whole, the labour supply will be limited to a certain extent, but not perfectly, so long as the possibility of shifting the labour force from the sector of lower productivity to the sector of higher productivity exists. In this sense, this might be labelled the phase of *semi-limited* supplies of labour as distinguished from the phase of a limited supply as well as the phase of an unlimited supply of labour. A complete modernization of agriculture is expected in theory to come after the economy passes through another turning-point which will demarcate the phase of semi-limited supplies of labour and the phase of limited supplies of labour: the point which was originally established by Lewis. I would like to call this the *second* Lewis turning-point.

By way of conclusion, I would like to summarize the following major propositions and implications presented in the main text:

(1) In the light of Japan's record of modern economic growth, the changing place of agriculture can basically be grasped by the thesis of the turning-point, if the theoretical notion can be interpreted consistently with the historical turning-points.

(2) Several historical turning-points can actually be identified with regard to growth phases. Among them, the following are specifically noted:

(i) What we call Gerschenkron's point is identified at around 1905-1906. This is the turning-point towards a genuine inauguration of the modern sector but has nothing to do with the inner structural changes in agriculture. The turning-point of agriculture is defined as the point at which the numbers of the agricultural labour force begin

a sustained decrease. This is identified at around 1952–1953, which coincides with what we call the first Lewis turning-point.

(ii) Until the Japanese economy arrived at that turning-point, agriculture had maintained its traditional elements almost *in toto* and after that it began, for the first time, the process of modernization. This process is expected to continue during the coming long phase of a semi-limited supply of labour, until the economy is able to reach what we call the second Lewis turning-point.

(3) The implication for the economies of other Asian countries with surplus labour in agriculture is that the formation of a differential structure is unavoidable if the modern sector grows “successfully,” and that it is highly desirable to make a sharp distinction between Gerschenkron’s turning-point and first Lewis turning-point. And I want to suggest that the social implications of what a differential structure would bring forth in these countries might deserve much more attention than has usually been paid.

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