DUALISTIC DEVELOPMENT AND PHASES: POSSIBLE RELEVANCE OF THE JAPANESE EXPERIENCE TO CONTEMPORARY LESS-DEVELOPED COUNTRIES

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FOREWORD

Roughly 1.6 billion people, 40 percent of the world's population, live in urban areas today. At the beginning of the last century, the urban population of the world totaled only 25 million. According to recent United Nations estimates, about 3.1 billion people, twice today's urban population, will be living in urban areas by the year 2000.

Scholars and policy makers often disagree when it comes to evaluating the desirability of current rapid rates of urban growth and urbanization in many parts of the globe. Some see this trend as fostering national processes of socioeconomic development, particularly in the poorer and rapidly urbanizing countries of the Third World; whereas others believe the consequences to be largely undesirable and argue that such urban growth should be slowed down.

As a means of analyzing urbanization as well as economic development problems in less-developed countries, Kazushi Ohkawa, a leading economist in Japan, outlines a dualistic model for Japan. The model is intended to describe the historical economic evolution of this country and to illustrate its significance as a long-term development process.

Recent papers in the Population, Resources, and Growth Series are listed at the end of this report.

Andrei Rogers
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ABSTRACT

This paper briefly explains the concept of dualistic development, the coexistance of modern and traditional sectors, as observed in Japanese economic development. Instead of considering the traditional components as residuals of an economy, the author focuses on the active roles that these elements have played and divides the history of Japanese economic development into four phases, distinguished by the different characteristics of these roles. According to the author, the experience of Japan could have relevance to contemporary developing nations.

As an example of application, the author proposes the use of "subjective equilibria" for studying intersectoral migration with the existence of surplus labor in the traditional (or rural) sector.

CONTENTS

DUALISTIC DEVELOPMENT AND PHASES: POSSIBLE RELEVANCE OF THE JAPANESE EXPERIENCE TO CONTEMPORARY LESS-DEVELOPED COUNTRIES

1. INTRODUCTION

This paper intends (i) to explain briefly the concept of "dualistic development" and "phases" which are derived from Japan's historical experience, and (ii) to illustrate its significance in interpreting the long-term development process. I believe that this may have possible relevance to the analysis of the problems of contemporary less-developed countries.

Let us begin with citing a paragraph from the Comparative Analysis (C.A.) Project Report to the Economic Planning Agency (1977)* on a relevant topic.

> The initial phase (Phase I) is characterized by an accelerated growth of the traditional sectors and the dependence of the initial growth of the modern sectors on the traditional economy. An independent growth of the modern sectors characterizes Phase II, which started by the time when the growth potential of the traditional sector faced constraints. Phase

*This Project has been carried out as a group study at the International Development Center of Japan (IDCJ) in the past three years in collaboration with the Economic Growth Center, Yale University. The full title of the reports is *Japan's Historical Development Experience and the Contemporary Developing Countries: Issues for Comparative Analysis*, hereafter referred to as C.A. Project Reports.

> III is distinguished from Phase II in that the modern sectors now become dominant in the entire economy. The traditional components become minor, their development being rather supported by the modern sectors. By these alternating interactions between the traditional and the modern sectors (and components), the three major phases of Japan's development are essentially understood as a historical sequence of segments, each of which being distinguished from the other. The predecessor has a growth mechanism and structure which provide preparation for the follower in a context of dualistic development.

The terms "traditional" (T) and "modern" (M) sectors that appear in the cited paragraph are historical in nature. The contemporary development phenomena are also grasped in the historical sequence from the pre-modern era (the pre-political independence period for most of the contemporary LDCs in the non-Western world), during which the socioeconomic structure was of a traditional nature even with the effects of colonialism. During the quarter-century postwar development since the postwar political independence, the modernization took place at a fast pace with unprecedented scale in the Third World. And yet, the traditional components in these countries still remain dominant, though to a varying degree. The dualistic development in terms of interaction between the traditional and modern components is thus more or less a general phenomenon in a number of LDCs. This is particularly important when the country at issue has its long history and its indigenous sociocultural system historically ingrained as deeply as in Asia. Here we have the reason why the dualistic development is chosen as the basic notion of the model for Japan, and why its development phasing can also have possible relevance to the contemporary developing nations despite a number of dissimilarities that can be found when these countries are compared with the 19th century experience of Japan.*

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*For a detailed description of the role played by the traditional components in Japan's case, see Rosovsky and Ohkawa (1961) and Nakamura (1971).

2. DUALISTIC DEVELOPMENT

It is not intended to provide an overall historical picture of Japan's development which covers over a century. Instead, we aim at forming a development model derived from it. To do so, an art of typifying or stylizing actual historical experience is required in particular because of the big "ad hoc" effects of exogenous and/or external conditions such as wars and international environments. Let us first clarify the conceptual problem involved and weigh its significance in our thesis.

Because of the historical nature of the notion of "traditional vs. modern" we do not have a statistical system which exactly corresponds to this dichotomy in the conventional national accounts. To be operational in empirical studies, therefore, proxies are to be used and these are most efficiently made by use of the conventional national accounts with supplementary statistics such as labor employment and population. Such an inconvenience, however, would be cancelled out by its alternative advantage: that is, its capability of dealing with a development process not unduly separated from noneconomic factors that reflect the indigenous sociocultural system historically built in each country under review.

Basically, the dichotomy is made in terms of technology, institutions, and economic behavior (in a narrowly defined sense), so that the sectors, traditional and modern, are a composite of these components. It is useful and convenient to use a notion of "hybrid" in order to categorize an intermediate combination. Particular attention is drawn to the importance of the interrelation between institutions and technology. For example, a notion of dualism, a widely prevailing notion in Japan, is defined usually in terms of differentials of productivity and/or wages between industry and agriculture and/or between large-scale and small-scale firms within industry (especially manufacturing). A dualism defined thus narrowly in only economic terms differs from our historical setting, although between the two there is no inconsistency. The economic dualism is a particular aspect of the dualistic development, which tends to take place in Phase II in our phasing. Furthermore, the interrelation between technology

and institutions, which operates behind such an economic dualism, is rather the major components of the dualistic development (for a detailed discussion see Ohkawa, 1972).

The traditional set of technology and institutions is one of the major initial conditions, given at the initial dates of modern economic growth (MEG). The initial conditions are accumulated results of premodern history. At the time of Meiji Restoration, 1868, the heritage of Tolugawa Era had constituted such a traditional set, reflecting Japan's sociocultural system. In rural districts, for example, such a set did exist and worked with the communal structure consisting of hierarchical (vertical) and mutually supporting (horizontal) elements. Japan's development of agriculture, both in this pattern and mechanism, cannot be fully interpreted without paying due attention to these traditional components. In other Asian countries, likewise, a specific communal structure is present which may have both similarities and dissimilarities to Japan's case. However, the point here is that such a traditional system is initially given to the MEG of each nation and that the pattern of the development path during subsequent MEG will be strongly influenced by these initial conditions.

Much has been said about the economic and noneconomic level of initial conditions of Japan and contemporary developing nations. The C.A. Project has contributed to enriching our knowledge in this regard.* What we would emphasize here is that the traditional components defined above do constitute the major body of the initial conditions so far as the "internal" factors are concerned.

The traditional sociocultural systems have often been thought of as a resistance to or a restraint on meeting MEG's requirements. Modernization is thus conceptualized as a mere process of replacing all the traditional components (technology, institutions, and economic performance) by modern components. From the standpoint of development strategy, we cannot share such a

*In particular, see Chapter 1, "Initial Conditions: Measures of Economic Levels and Structures and Their Implications," C.A. Project Report, March 1976, and Chapter 1, "Initial Conditions: Further Examination - Social Conditions," C.A. Project Report, March 1978.

view. First, for a latecomer nation of non-Western origin, "modern" is to be introduced from abroad and there is no premise for finding a balance and harmony between the conflicting requirements of indigenous vs. modern components. The restraint here may be that the former determines the latter. On the other hand, we must pay attention to the reverse: that is, the latter brings forth "destructive effects" on the former. Second, development is a long process and the modernization strategy needs serious consideration of the time dimension. For a considerable time segment, the role to be played by the traditional components, of course with improvement and modification, continues to be indispensable. Third, and this is most important, a much more positive role which can be played by the traditional components has been rather ignored in the past in development strategy considerations. Viewed from this last point, Japan's historical experience deserves particular attention.

As has been touched upon above, the notion of a dualism has widely prevailed in Japan's intellectual circles. So also has the concept of hierarchical (vertical) structure of the Japanese society, mentioned above. These are conceptualized in comparison with the Western (idealized) model. For example, they say that her dualistic structure is unique to the Japanese economy, being symbolic of her economic backwardness. We would not deny such an aspect in its historical setting. However, it is more important to evaluate such a structure as a reasonable pattern of adaptation that Japan made to her own initial conditions for MEG, which were much more unfavorable as compared to those of Western nations. A detailed explanation of the development of agriculture, based on the family farm, and of medium-small scale industries side-by-side with the growth of modern sectors may not be needed here.* The essential point is that these suggest an efficient allocation and use of resources with respect to growth and employment.

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*In addition to a number of relevant chapters contained in the C.A. Project Report, March 1976-1978, in this regard, see Ohkawa and Tajima (1976) and Akino, Ohkawa, and Yamada (1977).

3. DEVELOPMENT PHASES

In the paper cited above on *phases of development*, we set two primary landmarks, the years 1916-1920, and 1958-1962, in demarcating three major development phases for Japan. Here Phase 0, which covers the year of Meiji Restoration, 1868 and 1885, the years from which Phase I of MEG began, is added. This is defined as the "transition" phase.

Phase 0 is an initial interval during which the institutional reforms and innovations required for MEG are to be carried out based upon securing sociopolitical stability. The year when modernization was set as the national objective is demarcated as the beginning date of MEG in our phasing. This definition is of a sociopolitical rather than an economic nature because even before that date some modern economic components already had been developed in many countries (in Japan's case, towards the end of the Tokugawa Era). The new institutional set-up covers wide fields ranging from administrative and financial to social. Every nation needs this phase before it can really inaugurate the genuine MEG. However, its length may vary widely, due to a different possibility of obtaining sociopolitical stability, and a task of identifying the end of Phase 0 may be more difficult for LDCs than for Japan, which can be placed at the end of the Matsukata deflation. The dating for the entire phase period is:

Phase 0,	from 1868 to around 1885	(around 17 years)
Phase I,	from around 1885 to 1915-1919	(around 32 years)
Phase II,	from 1915-1919 to 1958-1962	(around 43 years)
Phase III,	from 1958-1962 on	

The task of identifying the band of years as the landmark of demarcating phases is of a technical nature. Its discussion has been given in the paper cited above and will not be repeated here. Only the basic criteria are our concern here. They are the conditions and factors responsible for forming the pattern, structure, and mechanism of development, different from one phase to another. This is a general rule applicable to any kind of

phasing. As has been mentioned in the introduction, in our case, the basic criterion is the way of interaction between the traditional and modern components in forming patterns and mechanisms of growth.

In order to "translate" the T = M thesis of a historical nature into an analytical frame, quantifiable indicators are required. The pace of capital accumulation in the modern sectors and the change in the labor supply (to the modern sectors) situation of the traditional sectors, we believe, are the essential phenomena in selecting these indicators. The pace of capital accumulation is basic to MEG and is indicative of rate of changes in the demand for labor, while changes in the labor supply situation is basic to the traditional sector development and indicative of improving the standard of living of the majority of people there. A measurable indicator is capital formation for the former and real wages of unskilled labor for the latter.

Application of such a frame to Japan's case is briefly summarized as follows. First, the long-swings demarcated by the over-time pattern of the rate of growth of gross fixed capital investment in the nonagricultural sector have two peaks distinctly identified in around 1917 and 1960 (also in 1897 but much less distinct) in terms of a smoothed series of seven-year moving averages.* The proportion of gross fixed capital investment to GNP is another supportive indicator, which is given in seven-year (postwar, five-year) moving averages for selected years (Table 1).

The average rate of change of real wages in Japan is also of interest (Table 2). It is clear that (1) during the early years, real wages increased little in both agriculture and industry, (2) in subsequent prewar years they increased slightly in agriculture but substantially in industry, and (3) in the postwar period in both sectors they increased a great deal, but in contrast to the prewar pattern, real wages in agriculture increased faster than in industry.

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*See Ohkawa and Rosovsky (1973) Chapter 2, Table 2.3.

Table 1. The proportion of gross fixed capital investment to GNP.

Year	%	Year	%
1887	11.1	1919	14.5
1897	12.6	1938	14.8
1904	10.0	1962	23.7

Source: Ohkawa and Shinohara eds. (1979) Chapter 1, Table 1.5.

Table 2. Average rate[a] of annual changes in the real wages for selected years in percent.

Year	Agriculture	Manufacturing and Mining
1883-1910	0.27	0.11
1910-1937	0.69	2.39
1955-1965	6.02	4.18

[a] The figures are an average of the original figures calculated for shorter periods. Among the several kinds of series presented for simplicity, the figures in the text are for both male and female deflated by aggregate consumer price index.

Source: Minami and Ono, Wages, Chapter 13, Table 13.5 in Ohkawa and Shinohara eds. (1979).

These three patterns of real wage performance are broadly recognized without doubt by almost all scholars. However, there is a controversy over a problem of identifying the landmark point from which the real wages of unskilled workers turned to increase continuously. Around 1917 is one view and the postwar period is the other: around the end of the 1950s or the beginning of the 1960s. From the standpoint of typifying the Japanese experience, we think it is appropriate to recognize two landmark points, instead of intending to identify just one. As a matter of fact, real wages in agriculture, taken as a representative of unskilled worker's wages in this case, did increase distinctly during 1910-1920 for the first time [average annual rate of increase 2.7 percent (Ohkawa and Shinohara, 1979)]. The effects of World War I are involved in this trend. During the 1920-1930 period, however, these real wages tend to decrease (average annual rate is minus 0.7 percent) due to the effects of the Great Depression.

Combining the two indicators consistently, capital formation and real wage performance, the two landmark (band of) years are adopted in our phasing. The distinguishing characteristics of such phases are briefly described as follows:

Phase I. This is the initial phase of MEG and is characterized by a sustained dependence of the initial growth of the modern sectors, centering to the so-called industrialization, upon the development of the traditional sectors, the major representatives of which are agriculture and small-scale industries. The inauguration of genuine MEG is usually identified *á la* Kuznets by macro-performance of growth acceleration such as population, output, and changes in industrial structure and international contact. Our dualistic approach has, of course, no inconsistency with such a macro approach. With respect to the dependency of modern sectors upon the traditional sectors, Japan's case does present remarkable examples such as financial sources for government revenues and private investment (land taxes and domestic traditional savings), foreign payments sources (traditional goods exports),

as well as food and labor supplies*—all these stem from the development of the traditional sectors based on the fuller use of improved technology and institutions of the indigenous type, with an almost unchanged level and way of life for the mass of the people.

Phase II. The subsequent period is Phase II, in which further growth of modern sectors could take place "independently" from the traditional sectors, essentially in terms of the various sources mentioned above except unskilled labor supply. "Independently" should be interpreted in a relative sense as the traditional sector (now with many hybrids) continues to play its role although it becomes less important. The pace of industrialization and of a macro growth rate of the economy is thus accelerated during this phase. Japan's case gives a distinct demarcation between Phases I and II by the first "investment spurt" in the Gerschenkron's sense. The modern sector's growth began to bring forth its effect materially on the traditional sector, while it was very minor during Phase I. This is most vividly illustrated by a decrease in the agricultural labor force caused by an increased power of labor absorption of the modern sectors, accompanying a trend of increase in the real wage of unskilled labor as previously discussed.**

Another important feature of Phase II is found in a problem of unbalanced growth such as sectoral differentials of productivity and wages between the two sectors—the dualism previously discussed. A tendency toward a growing gap or differential of this kind in Japan's case became sharper around the 1930s. We

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*A number of chapters of the C.A. Project Reports are relevant to these facts of resource dependency, in particular see Chapters 3, 4, and 5, Report, March 1976 (foreign payments sources investment-savings and taxes) and Chapter 2, Report, March 1977 (wage performance).

**Here again the effect of long-swings is involved. Following the first turn to decline of the agricultural labor force, again a slight increase took place towards the beginning of the 1930s. Since the end of the 1950s, of course, its decline became significant. This is relevant to the controversy mentioned previously with respect to wages. This paper recognizes the significance of the first landmark of decline as well as the second one.

call this a "differential structure." Its concurrent occurrence with the sociopolitical instability deserves particular attention. Actually, two kinds of measures of income distribution (by size and shares) indicate its tendency of worsening toward this period.*

With respect to the wage differentials, simple indicators have previously been shown. Sectoral productivity differentials are illustrated (Table 3) by the ratio of agriculture to industry (in percent) for selected years in five-year averages for constant price series.

Table 3. Ratio of wage index[a] of agriculture to industry for selected years.

Year	Ratio	(Current price series)
1885-1889	63.3	(41.7)
1901-1907	44.3	(35.7)
1915-1922	32.5	(32.0)
1936-1940	20.8	(23.6)
1955-1960	22.5	(28.9)
1960-1965	19.1	(28.7)

[a] Base period of price index is 1934-1936.

Source: Ohkawa et al. (1974) Table 3.5.

Phase III. A long process of dualistic development will eventually be completed by modernizing the traditional sectors. Japan's case has drastically been disturbed by World War II. Its typified pattern, however, can broadly be described by demarcating the beginning year around 1960 towards Phase III. The mechanism of economic development can essentially be understood through a macro approach, despite the fact that backward sectors such as agriculture and services still remain in the economy as a social problem.

*See Chapter 1, C.A. Project Report, March 1977 and Chapters 5 and 6, C.A. Project Report, March 1978.

An accelerated increase in real wages of unskilled labor, particularly in comparison with those of skilled labor, and a tendency of equalizing income distribution characterize this phase. No further discussion may be needed as this phase is less relevant to the objective of this chapter, with the exception of one point: the point from which the economy turns to a deceleration after a long process of trend acceleration in terms of a macro growth rate. This actually took place around the beginning of the seventies.*

4. "SURPLUS LABOR" AND INTERSECTORAL MIGRATION

As an illustration of the application of the basic conceptual frame to various important aspects of development, the problems of "surplus labor" and intersectoral migration are taken up. There has been a controversy between the so-called "classical" and "neoclassical" approach in this study area. The crucial point left for clarification is to find a possibility of simultaneous occurrance of wage (w) increase and a sustained situation of $MP_2 < w$ (a lower marginal value product of labor in Sector II, the traditional sector, represented by the family farm, than the prevailing wages) at the first turning point (and continuing during Phase II).

My idea is simple. To maximize utility of the household, MP_2^* such as $MP_2^* < w$ is assumed to be an equilibrium value. At this point of family labor input, an indifference exists between staying on the family farm or going out to Sector I (modern sector). In Phase I of the so-called "unlimited supply of labor," the actual marginal value product of labor (MP_2) remains lower than MP_2^*, so that labor tends to migrate to Sector I. This will be realized when labor demand increases at the given unchanged wage rate. The first turning point will be reached when $MP_2 = MP_2^*$ is realized. This process would require no increase in real wages. It is simply a process of the narrowing tendency of the gap between MP_2 and MP_2^*, which is realized by a decrease of

*For a detailed interpretation, see Ohkawa and Rosovsky (1973) Chapter 9. The oil crisis had just accelerated this basic tendency.

labor input in agriculture at the given wage rates. Thus "surplus labor" is identified by the gap (MP_2^* - MP_2), the existence of which characterizes Phase I.

In order to increase labor supply from Sector II to meet further increases in the demand for labor in Sector I as the capital accumulation goes on, real wage should increase, because immediately before arriving at the turning point, the initial "surplus labor" is exhausted. Special attention should be drawn to the fact that this is defined by the continued existence of $MP_2 < w$. Thus the economy enters a new phase (Phase II), which is characterized by an increase in real wages of unskilled labor. If the situation goes on, not being interrupted by basic changes in the relevant conditions, a trend of increase in real wages will be sustained as the labor demand in Sector I goes up and "surplus labor" will not be reproduced.

The problem at issue, however, comes from historical experience in prewar Japan. The over-time performance of real wages of unskilled labor, both in agriculture and nonagriculture, did not meet the expectation theoretically made above. It did even decline towards the beginning of the thirties. This fact brought forth a controversy in phasing among scholars. I would propose a "stylized" pattern of Phase II in terms of long-swings in the rate of output growth in Sector I, which is relevant to the swings of the rate of shift in the labor demand curve. In the upswings the situation will go on as described above (MP_2^* will rise, affected by wage increases) because of the sustained increase in the labor demand in Sector I. However, in the downswing it does not because of the decelerated tendency of labor demand increase despite a continued increase of the labor force. Thus "surplus labor" in the sense of $MP_2^* > MP_2$ will be reproduced as MP_2 becomes much lower, even though MP_2^* may be affected in the same direction. Actually for the thirties a very flexible supply of labor appears to have taken place. Thus, a possibility of reproducing "surplus labor," a stylized concept of Phase II, seems to be more naturally involved than rejecting flatly such a possibility.

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*For simplicity, technological progress, changes in output prices, etc., are not discussed.

Aspects of theory and history should particularly be distinguished in discussing Phase III. In theory it is natural to assume simply another turning point, from where inequality, $MP_2^* < w$, disappears into a homogenous structure of the economy where $MP_2^* = w$. The postwar historical process is complex, however, being strongly influenced by the effects of World War II. Elsewhere we have characterized its postwar turning point as twofold in nature: on the one hand, it is a repetition of the prewar one but has its proper nature of shifting the economy to Phase III on the other. No words would be needed for the former except the effects of the Land Reform, which brought forth the dominance of the self-owned cultivators. As for the latter, the theoretical aspect mentioned above would be essentially valid.

A schematic presentation for Phase I is given by Figure 1. I, II, etc. are marginal productivity (demand) curves. For simplicity $w_2 = w_1$ in real terms. Starting from point 0, MP_2 increases towards MP_2^* which is realized at point E. The initial surplus labor is SU. Point E' is not realized.

We intend to add some statistical background; however, an econometric treatment of what has been suggested above would be a laborious task, for which the data required are limited. For example, with respect to the measurement of marginal productivity of labor in agriculture, which is assumed to be lower than the prevailing wages, we do have some evidence derived from production function measurements. These data cannot be used for our discussion, however, because they are not exactly comparable over-time to show changes in relation to wage performance. Another example may be the data of output and factor input used in growth accounting approaches. These are continuous in the time dimension, showing a gap between the sum of factor inputs evaluated by market prices and output values (the former is greater than the latter). Use of them for our specific purpose of comparing MP_2 with wages, however, would need further scrutiny with the appropriate specification.

What is tried below is the simplest approach using the most reliable primary (not processed) data of output, labor, and wages for agriculture in Japan, the achievement of LTES (Long-Term

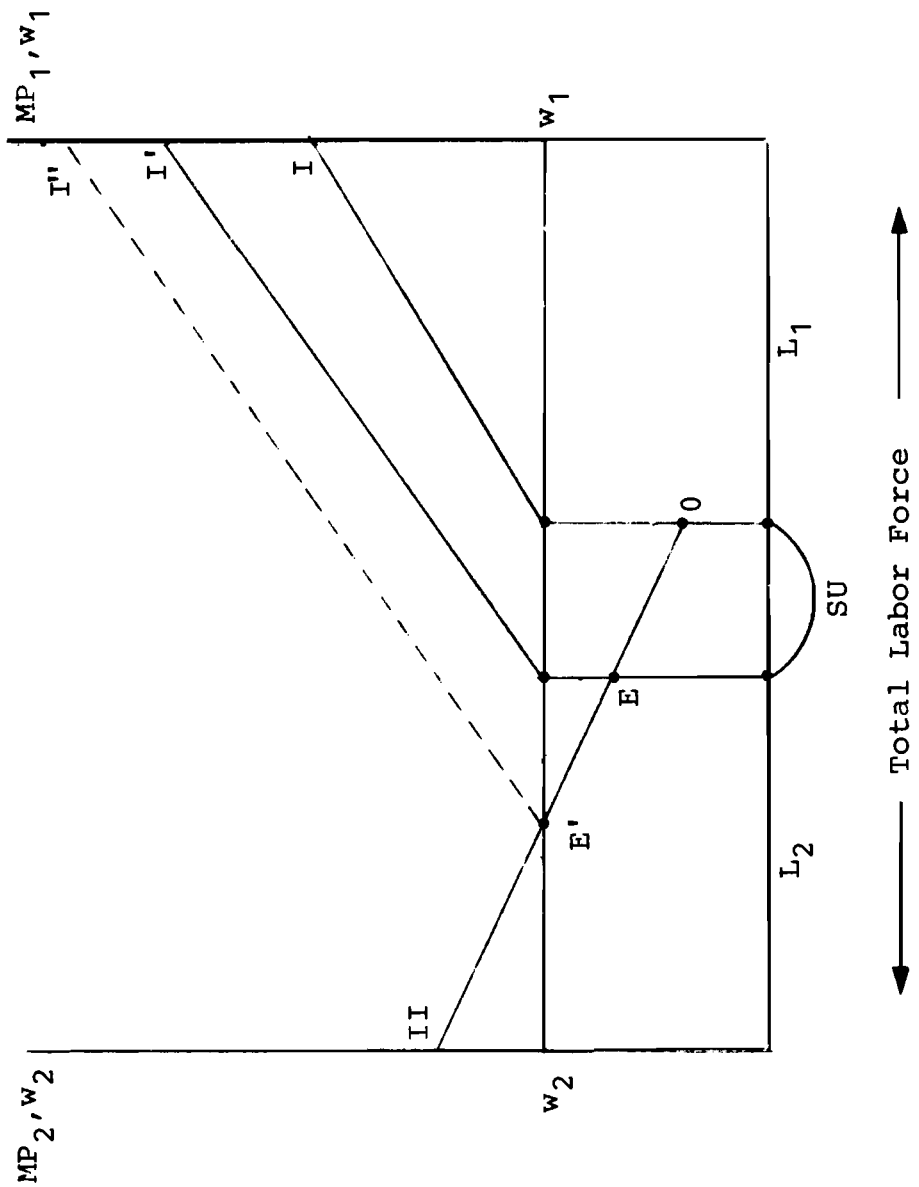

Figure 1. A schematic presentation for Phase I.

Economic Statistics Project) with my own speculative judgement. For this purpose, the wage-productivity ratio (in current prices) in a nationwide average is used. This is labor's relative share, if labor is appropriately defined, in the conventional economic analysis. Because of our presumption of inequality between MP_2 and wages in this case, the ratio is of a different nature. Without dealing with internal differentials of productivity, etc. in agriculture, our approach simply relies on a sort of "representative" family farm, and statistically the nationwide average is used here as proxy.

The wage-productivity ratio in prewar Japan is shown in Figure 2. First, the level of the wage-value productivity ratio (w/y) was much higher (almost unity) than was usually supposed in the years before the turn of the century. It appears to have declined as a long-term trend but not smoothly: a distinct upturn brought it back to a higher level again in the twenties (unity again in 1929). The lowest level, reached in 1938, is slighly lower than that of 1918. The output elasticity with respect to labor by production function measurements and labor's share in the accounting approach, suggests that its probable maximum may be 0.4 (often less than that). For the average (representative) farm the equality between MP_2 and w has never been realized (although for higher strata of farms it could be). Second, the long-term swing performance of w/y is not only distinct but also almost perfectly consistent with the long-swings demarcated for the nonagricultural sector in terms of output growth rates. The rate of the shift of the labor demand curve (although nobody has given a satisfactory measurement of it) should be greater during upswings and smaller during downswings. This is speculated by observing the LTES data and estimates by Umemura on the labor flow from agriculture to the nonagricultural sector are found in Chapter 14 of Ohkawa and Shinohara (1979).

Can a performance of w/y over a time period such as described above, endorse, furthermore, the way of interpretation of economic development in terms of phasing? In responding to this question, first let us note that the initial phase (Phase I) in its typical form is characterized by the unchanged real wages of unskilled

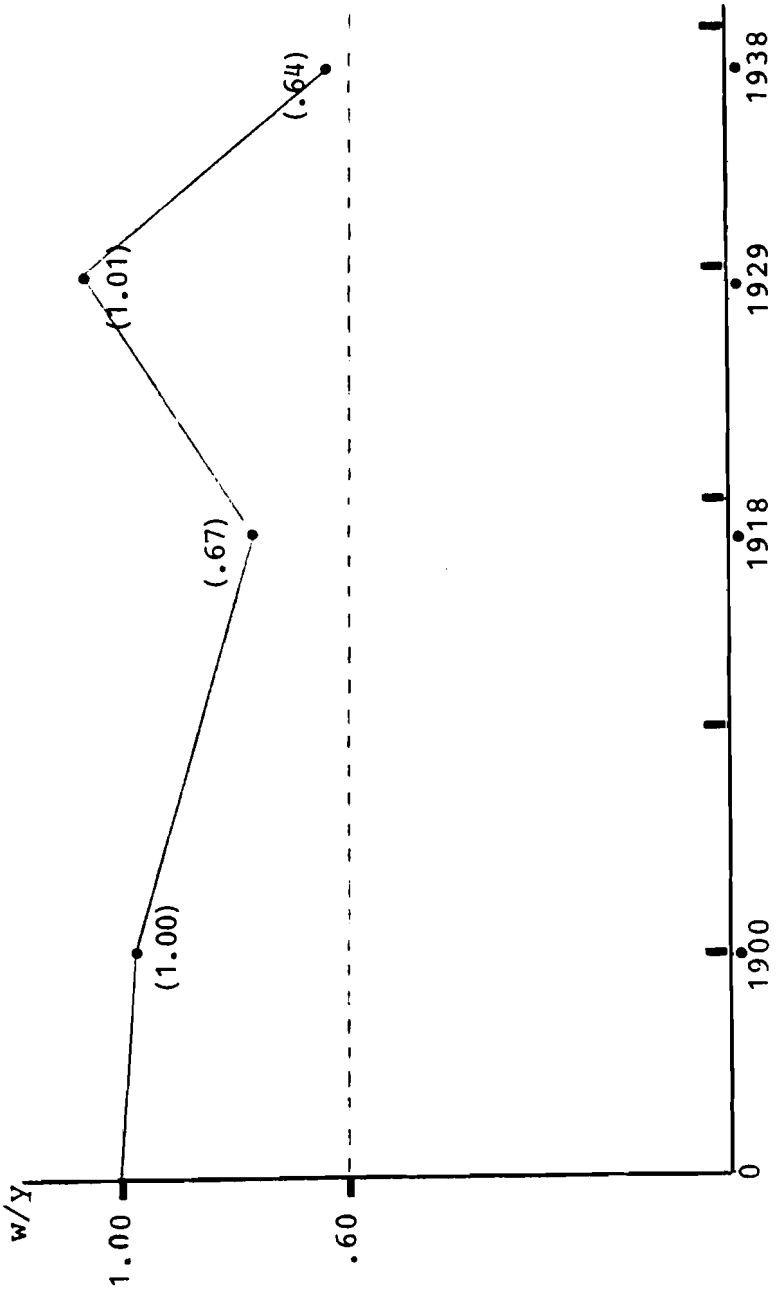

Figure 2. The wage-productivity ratio in prewar Japan.

labor. Broadly this conforms with the actual wage behavior, even though sometimes these wages slightly increased for the early years before 1918 (the landmark point in w/y performance) coinciding with the turning point mentioned in the previous phasing. However, two subphases are indicated by the w/y performance, demarcated as around the turn of the century. I think this was brought forth mainly by the changes in technological progress and output prices in relation to wages, which were not treated in our simple approach. If β, the output elasticity with respect to labor, could be assumed to change little (a neutral type) in Phase I, MP_2 should increase due to these effects, instead of being unchanged. I speculate that in the subphase around 1900-1918, this must have taken place, while in the first subphase the effects were negligible. Nevertheless, through these two subphases, MP_2* and MP_2 had narrowed at an accelerated pace in the second subphase to arrive at the point of indifference (actually around 1918). Umemura data of labor's sectoral migration appears to support this conjecture.

The data pertain only to the prewar part of Phase II and the postwar part will be discussed on another occasion. Here again two subphases are indicated, 1929 being the demarcating point. This corresponds almost exactly to the swings which took place in the nonagricultural sector, as has generally been suggested before. During the first subphase, real wages did increase distinctly and according to our hypothesis MP_2* is assumed to turn upward.* A retarded pace of technological progress, together with a less favorable performance of farm-output prices, was an important feature of this subphase and the age/productivity ratio increased to a very high level close to the initial unity. This suggests that MP_2 might become lower in relation to the wage level (again assuming almost unchanged β), although we have to examine further the performance of actual MP_2. The conjecture

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In view of the significant influence of the changes in the prices of farm-products in relation to wages, it might be better to define MP_2 directly in relation to nominal wages in terms of w/y. In this case the actual value of MP_2 corresponding to w/y at the peak year, can be used as the indicator of MP_2* under an assumption of unchanged β.

I can make at this stage of our empirical knowledge is that the gap between MP_2* and MP_2 would have widened. This implies a reproduction of "surplus labor" at the increased level of real wages. Actually this should be considered in association with a declined pace of labor outflow from agriculture which suggests a slowdown of the shifting labor demand curve in the nonagricultural sector during its downswing. During the second subphase of the upswing, a decline of the wage-productivity ratio took place again with a very reluctant increase in real wages. Although less typical than the second subphase in Phase I, a renewed greater outflow of labor from agriculture as has previously been suggested, can be interpreted to be essentially of the same nature. As has been crudely measured elsewhere, elasticity of labor supply is exceptionally high for this subphase, although it is not specified for unskilled labor. In 1938, the value of w/y arrived at the prewar lowest level and yet an equality, MP_2* = w, was not attained.

What has been stated above is an illustration of the T = M approach in a very simplified setting. To be a bit more realistic in linking this with historical concepts and facts, at least three points would need brief explanation.

The first point is the historical nature of the initial "surplus labor." "Surplus labor" was held in the traditional sector which was characterized by the agrarian structure: an institutional setup formed in the process of inaugurating MEG. The capacity for holding working people, whose marginal value productivity was involuntarily lower than the prevailing wages, did exist in the traditional communal structure, and was characterized by hierarchical and mutually supporting human relationships. The "representative" average family farm is of a highly simplified nature in this respect. When we say "reproduction of surplus labor" for the subsequent years, it is tacitly assumed that such traditional institutional systems are still essentially sustained.

Surplus labor in the nonagricultural sector is the second point. For simplicity this aspect has been neglected in the preceding discussion (Sector 1 is assumed modern). The household unit of economic activities is of a similar traditional nature

even in urban districts. Its economic features can particularly be identified for the service sector. For example, the labor employment statistics show us that the swing pattern of the service sector is essentially the same as that of agriculture: in upswings it decreases, while it increases in downswings—a pattern reverse to that of the modern sector.

In considering this, together with the other findings, I presume that what has been described above for agriculture can essentially be applied to the traditional subsectors actually involved in Sector 1.

The third point is the change in the shift of the labor demand curve. The statistical data available suggest that the performance of the shift of this curve may be significantly relevant to the time pattern of labor's intersectoral migration. No doubt the pace of capital accumulation and technological-institutional progress (and type) in the modern sector pertains essentially to the interpretation of this important phenomenon. Further research on these factors, I hope, will clarify the relationships involved.

Finally, I want to add a few words on the possible relevance of "stylized" Japanese experience to the contemporary LDCs, especially in Asia. With respect to the "supply side" of labor, traditional components (institutions, human behavior, and technology) that are historically inherited and modified during the MEG process in each country, may have great influence. In these cases we must allow for possible dissimilarities between Japan and the countries in question. We must also be aware of the fact that intersectoral migration of labor may show a different pattern. Despite these dissimilarities, however, seemingly common phenomena are also discernible: for example, with regard to the performance of real wages for unskilled labor. Until recently, the same phenomenon of unchanged level of wages was broadly identified for a number of Asian countries, both in agriculture and in industry. This indicates that the surplus labor continues to exist in these countries, implying a basically similar structure and mechanism of developed as observed in Phase I in Japan. Further in some cases (for example, in Taiwan and South Korea), real

wages of unskilled labor did begin to increase around the mid-1960s, suggesting their shift to Phase II. The investment spurt and pace of technological progress have been much more impressive in these cases than in Japan, suggesting again that their faster pace of shifting labor demand curve may be responsible for their speedy rate of intersectoral labor migration.

ANNEX: COMMENTS ON "SUBJECTIVE EQUILIBRIUM THEORY" OF FAMILY FARMS

In *Issues in Policy Analysis of Agricultural Development and Internal Migration*, Kaneda (1979) discusses the subjective theory of family labor farms. It consists of two basic presumptions: (1) marginal valuation of family labor equals marginal product of family labor, and (2) the latter would be smaller than the prevailing wages, if off-farm job opportunities for these farm-house members were limited. These two are the points of link with which this theory would be incorporated into a two-sector model.

This theory treats the behavior of marginal valuation of family labor independently from the market. However, it can be assumed that it has an association with the performance of real wages which prevail in the market. This is a modification I would like to make in order to find out a possibility of assuming MP_2^* performance previously mentioned. The empirical fact we have identified is that at a certain point of time the level of real wages did turn to increase both in Japan and Korea. This indicates that under the previous level of subsistence wages, historically given, family farms were not willing to continue to supply family labor more to Sector 1 at that point of time. Therefore, it may be possible to assume a concept of MP_2^* analytically at the point of indifference. Before arriving at this turning point, an inequality, $MP_2 < MP_2^*$ could be assumed to have been sustained.

Such an attempt of setting an "equilibrium" nature of the marginal product of family labor is relevant to one's attitude of defining the "marginal valuation of family labor" for farm households. If one wants to maintain a genuinely "subjective" one, no link can be attained to the market mechanism. If it is intended to make an associated behavior with the operation of market forces, a laborious scrutiny would be required both in theory and in forming its empirical background. An association with changes in wages is the simplest trial.

Actually the theory states that $MP_2 < w$ does exist if off-farm job opportunities are limited and this is its link with the market—actually the labor demand performance in Sector 1. An introduction of a concept of MP_2^* appears to be inconsistent with this proposition. Actually it is not. The theory implies that if the degree of job opportunity limitation becomes smaller at the given wage level, MP_2 will increase towards the prevailing wage level, and that in the extreme case of no limitation of job opportunity, $MP_2 = w$ will be attained. The introduction of MP_2^* into this system means that at the point of indifference the condition of "job opportunity limitation" would not be needed. Even if job demand does exist at the given wage rates, family labor at issue will not be supplied to meet it. In order to maintain consistency between the two, therefore, only this modification seems to qualify the concept of "the job opportunity limit" in the theory with the concerned wage level.

Finally, an inequality $MP_2^* < w$ should not mean that all labor engagements in the form of family farm is of an involuntary nature. "Involuntary" should be applied to only the self-employed family labor for which the gap, $MP_2^* - MP_2$ is positive. However, a quantitative discussion on this aspect would need more empirical knowledge for the range of differentials of MP_2 in relation to prevailing wages in Sector II.

REFERENCES

Akino, M., K. Ohkawa, and S. Yamada (1977) *Family Farms in Rural Development: A Comparative Study of Japan and Developing Countries in Asia.* International Development Center of Japan Working Paper Series A-04.

Comparative Analysis Project Report (1976) to the Economic Planning Agency and the Japanese Government, for the project *Japan's Historical Development Experience and the Contemporary Developing Countries: Issues for Comparative Analysis.*

Comparative Analysis Project Report (1977) to the Economic Planning Agency and the Japanese Government, for the project *Japan's Historical Development Experience and the Contemporary Developing Countries: Issues for Comparative Analysis.*

Comparative Analysis Project Report (1978) to the Economic Planning Agency and the Japanese Government, for the project *Japan's Historical Development Experience and the Contemporary Developing Countries: Issues for Comparative Analysis.*

Kaneda, H. (1979) *Issues in Policy Analysis of Agricultural Development and Internal Migration.* WP-79-109. Laxenburg, Austria: International Institute for Applied Systems Analysis.

Minami, R., and A. Ono (1979) Wages, in *Patterns of Japanese Development: A Quantitative Appraisal* edited by K. Ohkawa and M. Shinohara with L. Meissner. New Haven, Connecticut: Yale University Press.

Nakamura, T. (1971) Senzenki Nihon Keizaiseicho no Bunsek *(Analysis of Prewar Japanese Economy)*. Tokyo: Iwanamishoten.

Ohkawa, K. (1972) *Differential Structure and Agriculture: Essays on Dualistic Growth*. Tokyo: Kinokuniya Bookstore Co.

Ohkawa, K. (1978) Phases of Development. Part V in *Japan's Historical Development Experiences and Contemporary Developing Countries: Issues for Comparative Analysis*. Comparative Analysis Project Report to the Economic Planning Agency and the Japanese Government.

Ohkawa, K., and H. Rosovsky (1973) *Japanese Economic Growth—Trend Acceleration in the Twentieth Century*. Stanford, California: Stanford University Press.

Ohkawa, K., and M. Shinohara eds. (1979) *Patterns of Japanese Development: A Quantitative Appraisal*. New Haven, Connecticut: Yale University Press.

Ohkawa, K., and M. Tajima (1976) *Small-Medium Scale Manufacturing Industry; A Comparative Study of Japan and Developing Nations*. International Development Center of Japan Working Paper Series A-20.

Ohkawa, K., et al. (1974) Kokuminshotoku *(National Income)*. Tokyo: Keizai Shinpo-sha, Part I.

Rosovsky, H., and K. Ohkawa (1961) The Indigenous Components of the Modern Japanese Economy. *Economic Development and Cultural Change* IX(3).

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