KOREA'S DEVELOPMENT PROSPECTS IN HISTORICAL PERSPECTIVE

-Pattern of Growth and Structural Change(1955-70) -

September, 1972

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PREFACE

This is the final report of the USAID/Korea Trust-Fund Research Project titled "Korea's Development Prospects in Historical Perspective," which was intiated in May, 1976. The research project has been carried out, over the period of past two and one half years, in close co-ordination with Professors Gustav Ranis and John C. H. Fei of Yale University Economic Growth Center who conceived the idea of this trust-fund research project. For the formulation of the analytic framework, the present writer has heavily drawn on the basic concepts and tools recently developed by professors Ranis and Fei. In fact, in every stage of this research work,he has worked closely with these eminent scholars at a series of joint discussions meeting held in Seoul and Taipei alternately in almost every summer and winter in the past two and one half years. The framework of empirical analysis and hypotheses took shape and most basic data were systematically organized within the first 18 months through many stages of the process of interactions between empirical findings and further development of conceptual framework. Though the present writer was deeply involved in this joint research effort , participating in discussions of the formal model, the methods, the data, and the interpretation, his main activities were more or less concerned with the "empirical portions" of the joint research efforts. In essence,

it will be, therefore, appropriate to take the contents of this report as the "Korean portion" of the broader related research project consisting of an integrated analysis of other East Asian "open, dualistic economies" which has been going on under the direction of Professors Ranis and Fei.

This report is not intended to reflect all the aspects of our past research activities, which have been sufficiently reflected in a series of the progress reports previously submitted to USAID/Korea. It is rather analytically organized to summarize major findings from the theoretical and empirical analysis of the growth and structural change of the postwar Korean economy (1955-70) within the analytic framework of the Ranis-Fei model of "open, dualistic labor surplus economy." This study is more or less designed to help answer the fundamental questions: (1) what are the long-run requirements of attaining balanced self-sustaining growth? and what should be the policy mix, corresponding to each stage or "sub-phase" of development, required to achieve this long-run objective? The present report has attempted to analyze and trace and the growth pattern and structural change of the postwar Korean economy and to provide, based on this analysis, alternative policy directions for Korea's smooth transition toward economic maturity.

I am greatly indebted to Messrs. Thomas F. Olmsted and Frank Maresca of AID/Washington who rendered all the necessary supports in the early phase of this study during their stay at USAID/Korea.

I would like in particular to express my sincere gratitude to Dr. Roger A. Sedjo of USAID/Korea, who is on leave from his teaching post at Utah State University, for his encouragment, helpful suggestions and efficient administrative support in many stages of this study.

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C O N T E N T S

INTRODUCTION

The objective of this study is to analyze the growth and structural change of the postwar Korean economy (1955-70) in the context of the analytic framework of Ranis-Fei's extended model of "open, dualistic, labor-surplus economy", and to present a set of implications of our analysis for development policy and strategies for meeting current and future growth problems.

From a long-run historical perspective, the postwar growth of the Korean economy and of many other developing countries in Southeast Asia represents a unique growth process, which is often referred to as "transition growth", implying a transition from an end of colonial economic system to the national efforts to enter an era of "modern economic growth".[1] Before the World War II, Korea shared with most developing countries a common heritage of colonial economic system i.e. a predominantly agricultural economy with an "enclave" devoted to the exports of primary (or land-based) products. The conclusion of the World War II has led to the new national efforts in many developing countries with varying degrees of success toward the entry of a new epoch of modern economic growth. The period of postwar growth in many developing countries is a unique historical experience of "transition" from the colonial epoch to the epoch of modern economic growth.

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[1] As defined by Simon Kuznets in Modern Economic Growth: Rate, Structure and Spread, New Haven: Yale University Press, 1966; and also John C. H. Fei and Gustav Ranis, "Economic Development in Historical Perspective," American Economic Review, May 1969.

In Korea, however, the initiation of all-out national efforts toward transition and growth, after more than a generation of Japanese colonial rule, was delayed by disruptive effects of Partition and Korean War. Neglecting these effects, and partly due to lack of available data, we shall take the initial period of transition as 1955-57 and the terminal period for which latest data are available is 1967-69. Furthermore, Korea's growth experience represents transition growth of a particular type: an open dualistic economy of a labor-surplus type. Openness refers to the importance of foreign trade as an aspect of growth: Korea is small in size calling for a strategically important role of foreign trade. Dualism refers to the coexistence of traditional agricultural and modern non-agricultural sectors: Korea has inherited a large subsistence agricultural sector relative to a commercialized non-agricultural sector in her economy. Labor-surplus means the presence of high population pressure on land at the initial point of transition: the post-war transition was started with an unfavorable natural resource endowment relative to the size of population and labor force. In addition, as compared with other members of the open dualistic labor surplus family of developing countries (like Taiwan, Thailand, etc.), Korea inherited a much less favorable agricultural infrastructure at the outset, while she has a relatively strong human resource base, including the level of general education and skills.

The essential problem of transition and growth in this type of an economy in general and in Korea in particular is how to successfully reallocate unemployed and underemployed labor force from the subsistence agricultural to the commercialized non-agricultural sector in order to 1) provide efficient employment for labor force — the most abundant factor of production and to 2) increase the national product in the course of the very same process of intersectoral labor reallocation. With the foreign trade sector as an important aspect of growth, such an economy like Korea is bound to move gradually from traditional land-based growth and export to non-traditional labor-based growth and export. Based on the central notion that in an open dualistic labor surplus economy like Korea growth and employment will be generated in a fully complementary way, the model which will be applied to the growth experience of Korea will establish a set of the idealized rules of growth and policy mix for attaining growth and employment in the different phases of transition growth process. The characteristic pattern of growth and structural change of the postwar Korean economy during the transition period (1955-70) will be brought into a much sharper focus, when our attention is concentrated into analyzing the divergencies of the Korean experience from the idealized growth path shown in the model. In this connection, it will be also useful to contrast, whenever appropriate, Korea's actual growth performance with that of Taiwan which shares with Korea a common Japanese colonial

heritage as well as many other characteristics of the initial structures (initial conditions) of open dualistic labor-surplus economy.

In Section I, a comparative static model will be presented which will permit us to analyze structural change between the initial and terminal years. In Section II, dynamic aspects of the growth path will be briefly dealed with by an attempt to identify several important turning points which may have emerged in the course of the transition process in Korea. In Section III, the conclusions and policy implications from our analysis will be presented.

I. COMPARATIVE STATIC ANALYSIS

Our comparative analysis presented below is intended to identify the structural change in the postwar Korean economy between the initial (1955/57) and terminal (1967/69) years. The characteristic structure of an open dualistic labor surplus economy can be described by a set of basic indices such as shown in Table I, that can be grouped into production, consumption, saving, investment, foreign trade, & labor allocation. Each of these indices will find its place in the comparative static model to be presented below. This model well be developed under the following six headings for analysis of transition and growth 1) agricultural sector, 2) real wage and consumption,

TABLE 1.: COMPARATIVE STATIC ANALYSIS

	INITIAL PERIOD			TERMINAL PERIOD		
	TAIWAN 1952-54	KOREA 1955-57	PARITY	TAIWAN 1967-69	KOREA 1967-69	PARITY
	a	b	b/a	c	d	d/c
1. V (agricultural labor productivity)	$272.6	198.5	.73	658.0	348.7	.53
2. Q (labor allocation ratio)	42.3%	32.0	.76	58.0	49.0	.84
3. Ea^{Δ} (per capita agricultural net exports)	$ 19.30	-8.3	-	13.6	-25.3	-
4. Ca^{Δ} (per capita consumption of agricultural goods)	$138.5	142.4	1.04	263.2	202.9	.77
4a. GDP/X (per capita GDP)	$131.3	83.4	.64	276.8	136.4	.49
5. Wa (agricultural real wage)	$303.5	195.0	.64	472.0	298.0	.63
6. Wi (industrial real wage)	$313.8	231.4	.73	529.0	292.1	.55
7. τ (internal terms of trade: Pa/Pi)	97.7%	96.1	.98	96.8	110.5	1.18
8. Ci^{Δ} (per capita consumption of industrial goods)	$221.2	139.5	.63	416.5	226.2	.54
9. K* = K/W (industrial capital labor ratio)	$2,651	4,809	1.81	3,541	2,948	.83
10. q = Y/W (industrial labor productivity)	$659.5	541.3	.82	1,442.8	814.3	.56
11. Y^{Δ} = Y/P (per capita industrial output)	$278.7	169.9	.61	837.3	399.7	.48
12. Ei^{Δ} (per capita industrial exports)	$ 16.0	6.8	.43	225.0	89.4	.40
13. E/GDP (export ratio)	11.2%	4.1	.37	27.9	22.4	.80
14. E^{Δ} (per capita exports)	$ 43.7	11.0	.25	252.8	98.4	.39
15. Ei/E (industrial share of exports)	36.5%	61.6	1.69	88.8	90.3	1.02
16. Ea/Q (agricultural export ratio)	17.6%	3.1	.18	11.9	5.1	.43
17. Mc/Cd (import substitution potential index)	8.3%	6.5	.78	10.4	4.7	.45
18. Mc/M (industrial consumer goods share of imports)	26.5%	13.3	.50	19.4	6.3	.32
19. Ma/(Ma+Q) (agricultural import fraction)	6.1%	5.6	.92	7.3	9.2	1.26
20. (Sa+Si)/GDP (domestic saving rate)	10.0%	-4.1		34.5	17.0	
21. I/GDP (investment rate)	17.0%	15.4		33.1	32.6	
22. Sa/I (agricultural saving contribution)	16.7%	15.2		24.8	0.9	
23. Si/I (industrial saving contribution)	41.6%	-43.5		79.5	51.1	
24. Sf/I (foreign saving contribution)	41.7%	128.31		-4.4	48.0	
25. X (population)	8,438mil	22,263mil		13,313mil	30,741mil	
26. P (labor force)	2,828mil	6,924mil		4,926mil	9,639mil	

Cumulative Contribution to Investment During Transition		TAIWAN	KOREA
agricultural saving	$\Sigma Sa/\Sigma I$	25.9%	9.6%
industrial saving	$\Sigma Si/\Sigma I$	68.6%	25.7%
foreign saving	$\Sigma Sf/\Sigma I$	5.5%	64.8%

3) non-agricultural sector, 4) foreign trade sector, 5) investment and saving, and 6) structural change during transition period.

(1) Agricultural Sector

As the structural characteristic of the Korean economy at the initial point was predominantly agricultural, we shall proceed with the structure of agricultural sector, focusing on agricultural productivity, the allocation of labor between agricultural and non-agricultural sectors and foreign trade in agricultural goods.

Let us divide the total labor force (P) into an agricultural labor force (W) and a non-agricultural population (L): $P = W + L$. Let us denote $\theta = W/P$ as the fraction of the total labor force in the non-agricultural sector. Then $1 - \theta = L/P$ is the fraction of the total labor force in the agricultural sector. Denoting Q as the total output of agricultural goods and $v = Q/L$ as the average productivity of agricultural labor, the demand and supply of agricultural goods is:

$$(1)\quad \underset{\text{(supply)}}{Lv = Q} = \underset{\text{(demand)}}{C_a + E_a}$$

where the demand for agricultural goods is both for domestic consumption (C_a) and for export (E_a), reflecting a typical pattern of colonial pattern of land-based production. Denoting Δ as per capita quantity for any variable, that is, any variable divided by the total labor force(P), and then dividing the relation (1) by the total labor

force, we have:[1)]

$$(2)\quad v = (E_a^{\Delta} + C_a^{\Delta})/(1-\theta).$$

The relation(2) shows that a higher agricultural productivity(v) can lead to a combination of (i) a higher per capita consumption standard (C_a^{Δ}), (ii) a higher per capita export level(E_a^{Δ}), or (iii) a higher fraction of labor force already allocated to non-agriculture(θ).

In diagram (a), the total productivity of agricultural labor is represented by Q-curve, assuming the supply of land being fixed, and the total labor force is measure by a point P on horizontal axis. The initial agricultural labor force is OL, as measured from the origin to the left, and the industrial force is PL. The initial agricultural labor productivity(v) is then represented by the slope of a straight line Oa_1. In diagram (b), with the same fixed initial population P and the same labor allocation point (L) on the horizontal axis, the per capita agricultural output is represented by the Q -curve, that is, $Q^{\Delta} = Q/P$.

From Table 1, diagrams (a) and (b) and the relation(2), we can see a realistic picture of the initial agricultural conditions in Korea. The poor natural conditions and unfavorable initial agricultural infrastructure in Korea is reflected in a much lower agricultural labor productivity which was only about 70 percent of that of Taiwan at the

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1) All references to "per capita" in Table 1 and the text indicates per capita of total labor force(P), except per capita GDP, which refers to GDP per capita of total population(X).

beginning of the transition period (See row 1 in Table 1). However, as row 2 of Table 1 shows, Korea's per capita consumption level of agricultural goods at the initial period was about the same as, or even slightly higher than, that of Taiwan, inspite of the much higher level of labor productivity in Taiwan. From the relation (2), we can see that Taiwan used this differential between higher labor productivity and relatively lower consumption level (agricultural surplus) both to allocate a higher fraction of labor to non-agricultural sector and to export a higher portion of its agricultural goods on per capita basis, thus financing the industrial sector through increasing the foreign exchange capacity to import capital goods. Row 2 and 3 clearly indicate this point. Taiwan had already allocated 42 percent of her labor force to non-agriculture, as against Korea's 32 percent. While the initial point Taiwan was exporting agricultural goods at the rate of US$19 per capita, Korea was already a net importer of agricultural goods (about US$8 per capita).

Such a sharp contrast as to initial conditions in agricultural productivity clearly suggests itself the different roles played by the two agricultural sectors in the course of transition. In the case of Taiwan, the initial expertable agricultural surplus provided the capacity to import capital goods and raw materials for industrial growth in the non-agricultural sector. Furthermore, the favorable agricultural infrastructure provided a strong base for continued

expansion of agricultural productivity, thus fulfilling the historical role of agriculture in the course of transition. In the case of Korea, the agricultural sector provided no exportable surplus from the beginning point, and remained relatively stagnant throughout the period, leading to ever-increasing food imports. As will be pointed out later, Korea's agricultural sector, instead of contributing to import capacity and domestic savings, put a heavy burden on her industrial sector and permitted foreign savings to play a major role in financing her industrialization efforts.

(2) Real Wages and Consumption

In diagram (c), a typical worker's price-consumption curve and budget line are drawn. As we are dealing with two kinds of commodities (agricultural goods, measured on the vertical axis, and non-agricultural goods, measured on the horizontal axis), the level of the individual worker's real wage can be represented in two ways: the real wage in terms of agricultural goods, (let us call this wage "agricultural real wage"), measured by OB on the vertical axis at the initial point, and the real wage in terms of non-agricultural goods, measured by OD on the horizontal axis. The slope of the budget line connecting the two points, B and D, represents the initial terms of trade between the agricultural and non-agricultural sectors.

In the context of a labor surplus dualistic economy, the real wage in terms of agricultural goods (OB in diagram c) may be considered as the "institutional" real wages (IRW) which is usually determined by institutional forces prevailing in the traditional agricultural sector. In the labor surplus condition, the institutional real wage is likely to be above the marginal physical product (MPP_L) of labor in the agricultural sector. In the course of the transition process, the institutional real wage is likely to increase moderately as long as $IRW > MPP_L$. But once labor becomes scarce, $IRW = MPP_L$ and the wage is expected to follow MPP_L thereafter.

In diagram (c), the price-consumption-curve PC is shown and the typical worker's budget line BD is given at the fixed level (OB) of IRW. At the point of e where the the price-consumption curve intersects the budget line, there locates the initial consumption equilibrium point, indicating the worker's purchase of OC units of agricultural goods and OG units of non-agricultural goods. Judging from Table 1, there exists a need for food imports (food gap) at the outset (See bd in diagram (b) and row 3 in Table 1). In comparison with the case of Taiwan, Korea's budget line must be lower than Taiwan's, as reflected in lower real wage levels, and lower per capita income (rows 4a. 5. and 6 in Table 1). However, the per capita consumption of agricultural goods are about same as shown in row 4 in Table 1. These two facts imply that Korea's workers, mostly farmers

at the initial point, consume substantially less non-agricultural goods on per capita basis. This is confirmed by the data in row C in Table 1.

(3) Non-Agricultural Sector

The non-agricultural (or industrial) sector differs from the agricultural sector in the two respects: i) primary factors of production are now labor(W) and capital(K); and ii) the non-agricultural sector is "commercialized" in the sense that the real wage in terms of non-agricultural goods may now be equated with the marginal physical productivity of labor (MPP_W). In diagram(f), the "industrial" production map for the initial point is represented by Y, with labor(W) being measured on the vertical axis and capital(K) measured on the horizontal axis. With a given capital stock at the initial point, the MPP_W-curve is represented by M-curve in diagram (e), next to (f). The initial industrial labor force PL in diagram (b) is now projected as OW on the vertical axis in diagram (e), with the aid of a 45-degree transformation line PP drawn in diagram (d). As the initial non-agricultural real wage (in terms of non-agricultural goods) is OD in diagrams (c) and (e), the point h at which M-curve passes through is an employment equilibrium point, indicating that OW units of workers are demanded at the non-agricultural real wage OD.

Now, turning to Table 1, the industrial wage is substantially higher in Taiwan (US$313) than in Korea (US$231) in the initial period, showing the parity of 73% (see row 6). If the initial production functions of the two economies are assumed to have been the same, the higher industrial real wage in Taiwan would imply a higher capital-labor ratio and also a higher average industrial labor productivity in Taiwan. The empirical evidence, however, shows that Korea had a higher capital intensity (a higher capital-labor ratio) with somewhat lower industrial labor productivity. Row 9 shows that, while industrial capital labor ratio in Taiwan was US$2,650, that in Korea was US$4,800 in the initial period and row 10 shows that industrial labor productivity in Taiwan (US$659) was somewhat higher than that in Korea (US$541) in the initial period. The combination of higher capital intensity with lower industrial labor productivity can imply that i) Korea's industrial sector is using a capital-using technology with respect to input mix and output mix than Taiwan's industrial sector from the beginning and that ii) the efficiency of Korea's industrial sector is initially lower. Some probable causes of this difference may be traced partly to the Japanese colonial policy which had placed heavy emphasis on agricultural development in Taiwan and on war-related industrialization in Korea and partly to the more recent post-Korean war origin in terms of the initial industrial development policies which led rapidly to the capital-using and import- dependent structure of industrial production.

The demand and supply of non-agricultural goods can be shown in the following relation which is a straightforward symmetry to the relation (2):

$$(3)\quad \underset{\text{(supply)}}{\theta \cdot q = Y^{\Delta}} = \underset{\text{(demand)}}{C_i^{\Delta} + E_i^{\Delta}}$$

where $Y^{\Delta} = (Y/P)$ is the per capita output of non-agricultural goods and q is non-agricultural labor productivity.

From row 11 (Table 1), we find that the initial per capital industrial output was lower in Korea (US$170) than in Taiwan (US$278), as reflected in the interrelated difference in level of industrial labor productivity and in fraction of labor force allocated to non-agricultural sector in the initial period.

On the demand side, a larger fraction (61%) of Korea's industrial output was exported from the initial period as compared with Taiwan's initial industrial export ratio (36%), presumably because of Korea's limited scope for domestic market outlet for industrial consumer goods as reflected in lower per capita GDP and in lower real wages, particularly far low agricultural real wage.

(4) Foreign Trade

With respect to the volume of trade, Korea's total exports as a fraction of GDP at the initial point, which indicates her external orientation is only 4.1%, whereas that of Taiwan is 11.2% (row 13 in Table 1). The higher degree of external orientation in Taiwan at the

initial point can be traced to the initially higher industrial real wage and per capita GDP in Taiwan, if we assume the initial similarity in the basic natural resource endowment.

With respect to the structure of trade, Korea's small volume of exports ($11 per capita) was, from the very beginning, dominated by non-agricultural commodities (62%), whereas the exports of Taiwan were dominated by traditional agricultural goods (63.5%), as shown in row 15.

For the analysis of the import demand during the period of transition growth, it is useful to break down total imports(M) into industrial consumer goods imports(M_i) and producers' goods imports(M_p), which includes capital goods and raw materials to be used as inputs in the industrial sector($M = M_i + M_p$). This breakdown is quite useful for the analysis of the phenomenon of "import-substitution(I-S) growth"which characterizes the initial phase of transition growth of developing countries. By import-substitution growth we mean an early sub-phase of the transitional growth dominated by the development of the indigenous consumer-goods industry with traditional consumer goods imports(M_i) gradually being domestically replaced. In the process of import-substitution growth, the import demand for capital goods and raw materials(M_p) is rapidly increasing. Rows 17 and 18 are intended to describe the potential for import-substitution growth at the initial point. Row 17 indicates that Korea imported only 6.5% of her total demand for industrial consumer goods, the corresponding fraction for

Taiwan began 8.3%. Row 18 indicates that the imports of Korea were dominated, from the beginning, by capital goods and raw materials for industrial use (about 66%), while the share of industrial consumer goods in total imports was only 13.3%. Both rows 17 and 18 show that the industrial consumer goods import as a fraction of total imports and as a fraction of total industrial demand was much less important in Korea than in Taiwan. Together with Korea's lower per capita GDP and neglegible foreign exchange earnings from her agricultural exports, this means that the scope of import substitution of consumer goods to follow in Korea from the initial point on, in terms of both domestic market and import capacity, was much limited, as compared with the case of Taiwan.

From the early phase of import substitution in the transition growth, Taiwan's agricultural sector produced an exported surplus which provided the import capacity for industrial goods including both consumer goods and producer's goods. Furthermore, the increased income generated in the agricultural sector by the increased agricultural exports provided an expanding domestic market for industrial consumer goods which had been initially imported and later produced at home as the import substitution capacity was being built up. In the case of Korea, however, as the agricultural sector remained stagnant, the process of industrialization, from the beginning, was characterized by a "bilateral" interaction between industrial sector

and foreign sector. From the early phase of transition, Korea became a net importer of food and obtained foreign exchange resources, for its industrialization efforts, from foreign savings and industrial exports.

Such a situation can be also shown in diagram (e). The initial Y^{Δ}-curve leads to an initial per capita output of Wj units. This output is in fact higher than domestic demand WC_i, indicating that Korea's industrial sector is already producing an exportable surplus, to partly finance its own import needs. The agricultural sector is not involved in the process of import financing via trade. To the extent there is in fact a food deficit, it is already drawing on the import capacity provided by industrial exports and foreign capital inflow.

In consequence, the industrial sector, not the agricultural sector, has been forced to produce an exportable surplus. Industrial exports together with foreign savings have been used to finance the import of capital goods and raw materials required in the process of import-substitution growth. As the food gap becomes ever widened, the industrial sector is burdened with the responsibility of diverting a part of its import capacity to finance the import of foreign grains. This can be seen by looking into rows 3 and 12. That is, net food imports on a per capita basis increased from US$8.3 in the initial year to US$25.3 toward the terminal year,

whereas per capita industrial export increased from US$6.8 to US$89.4 during the same period.

(5) Investment and Saving

In our attempt to analyze the marked structural change observed between the initial and terminal points, let us first turn to investment and saving. The total saving fund variable to investment is composed of three sources: foreign capital inflow (S_f), the reinvestment of industrial profits (S_i), and agricultural savings(S_a):

(4) $I = S_f + S_i + S_a$

The relative proportions of these contributions may depend on the distribution of income, the rules governing the intersectoral terms of trade, and other socio-economic variables. The total output of agricultural sector may be allocated into the following three components: consumption by agricultural workers; agricultural exports; and that portion which is shipped to non-agricultural sector for consumption by industrial workers. The latter two types of shipments represent the contribution that agricultural sector makes to "industrial development" in non-agricultural sector, by providing (i) import capacity (agricultural exports) and (ii) food for industrial workers (intersectoral finance). The total industrial output can be grouped into the two parts: the wage share and the profit share. The wage share can be further divided into the three components: industrial consumption by industrial workers, industrial consumer goods exchanged

for agricultural goods delivered by agricultural workers, and domestic investment goods exchanged for agricultural savings. Thus, investment goods (I) in non-agricultural sector may be financed domestically from the three sources: industrial profits (S_i), agricultural savings (S_{a1}) and agricultural exports (S_{a2}). With the inflow of foreign capital (S_f), the total domestic investment is financed in the way defined in the relation (4): $I = S_i + S_a(=S_{a1} + S_{a2}) + S_f$

In rows 22-24 of Table 1, the relative contribution to the total investment funds of the three sources of saving during period of transition process is presented for Korea and Taiwan. While agricultural saving contributed a substantial positive portion (15.4%) to an overall negative domestic saving (-4.1%) in Korea in the initial year, this fell to 0.9% by the terminal year. The relative agricultural stagnation, or lower level of agricultural productivity, throughout the transition period has led to a heavy reliance on foreign saving and industrial saving for capital accumulation. Toward the terminal year, while agricultural saving rapidly reduced to less than one percent, foreign saving contributed about 48%, and industrial saving about 51%, respectively, to the total capital formation in Korea. In the case of Taiwan, both agricultural and industrial saving expanded steadily, replacing the share of foreign saving from 42% in the initial year to the point of net capital outflow (4.4%).

In terms of the cumulative contribution to the total investment of the three sources of saving over the whole period, the contrast in saving performance between the two economies is more dramatic. As shown at bottom of Table 1, Korea's agricultural saving contributed 9.6%, whereas the corresponding figure was 26% in Taiwan. Foreign saving financed 65% of total capital formation in Korea as against 5.5% in Taiwan. While industrial saving is a major source (67%) of investment funds in Taiwan, it has contributed only 26% in Korea. In short, the marked difference of saving performance between Korea and Taiwan can be traced to the following: (i) the agricultural saving contribution in Korea is much lower because of the low level of agricultural productivity; (ii) agricultural sector's contribution to industrial finance in Korea is made mainly through the "domestic route" of intersectoral finance (the terms of trade and taxation); and (iii) foreign capital plays a much larger role in the financing of domestic capital formation.

(6) Structural Change During the Transition Period

Marked structural change of the Korean economy in the course of the transition process between the initial and terminal years will be briefly characterized below.

a. Reallocation of Labor Force

Despite substantial population growth, the non-agricultural sector in Korea, as in Taiwan, has grown rapidly as reflected in a

marked shift of labor allocation from the agricultural to the non-agricultural sector. In diagram (d) the growth of population is represented by the parallel and outward shift of the population lines PP to P'P'. The allocation points "h" have shifted from L to L', signifying an increase in θ. Rows 25 and 26 show annual rate of growth, between the initial and terminal years, of 2.3 percent in population and 3.1 percent in labor force in Korea, whereas the same figures for Taiwan are 2.9 percent and 3.7 percent, respectively. As we can see from row 2, the ratio of labor force in non-agriculture (θ) increased from 32 percent in the initial year to 49 percent in the terminal year in Korea. The labor reallocation in excess of labor-force growth rate and an absolute decline in agricultural population demonstrates the rapid pace of Korea's industrialization.

b. The Role of Agriculture

The initially unfavorable agricultural infra-structure and the relative government neglect of agricultural development in subsequent years have led to a situation of relative agricultural stagnation in Korea during the transition period under observation. As row 1 in Table 1 shows, the annual average gain in agricultural labor productivity in Korea has been only 4.7 percent, much lower than Taiwan's more than 7.3 percent growth. Together with rapid industrialization and continuing labor reallocation, the lagging agriculture in Korea has led to food deficit problems which have been worsening over

time. Increasing volumes of food imports have been required to provide a modest increase in the agricultural consumption standard (row 4). In diagrams (a) and (b), this stagnant agriculture is depicted by the very small upward shift of the Q-curve and of the Q^{Δ}-curve. The growing requirement for food imports is also indicated by the large margin of $-E_a^{\Delta}$ (minus export) in diagram (b). Korea's worsening problem of food deficit is quite a contrast to the case of Taiwan which has been exporting food during the entire transition period. Diagram(2) shows food imports as a percentage of total food consumption in Korea and food exports as a percentage of total food consumption in Taiwan. In the case of Taiwan, continuous gains in agricultural productivity, which led to large import capacity through agricultural exports, financed in considerable part rapid growth, industrialization and labor reallocation. In the case of Korea, however, rapid industrialization, growth and labor reallocation were financed in considerable part by the inflow of foreign capital. Thus, it is the essential difference between Korean and Taiwan in the industrialization process that Korea's agricultural sector was "pulled along" by a dynamic industrial sector rather than providing a strong "push" for industrialization, as in the case of Taiwan. As will be discussed later, Korea's agriculture, instead of making contribution to industrialization, has gradually become an important constraint on further industrial expansion.

c. Real Wages and Per Capita Consumption

Looking into the trends in real wages and per capita consumption standards over time, real wages in both agricultural and industrial sectors show a marked rise only in recent years after relatively stable trend throughout the first half of 1960's, and the consumption per head of foods, instead of agricultural goods in general, did not increase much. Hence, the increase in real wages from the mid-1960's (since 1965/66) has been reflected largely in an increase in the consumption per head of industrial goods.

As to the trends in the intersectoral terms of trade, it is noted that the industrial sector's terms of trade began to worsen since 1963 and increasingly so in recent years, reflecting the lagging performance of agriculture which has led to increasing food imports.

With the existence of underemployed labor conditions, it may be expected that increase in labor productivity will be followed by moderate increase in real wage. This point seems to be confirmed in the case of Korea. While agricultural labor productivity has increased at an annual average rate of 4.7 percent, yielding an increase of 176 percent over the entire period, the agricultural real wage has increased at an annual average rate of 3.5 percent, yielding an increase of 153 percent over the same period. The same lagging trend in real wage relative to labor productivity is also noted in the industrial sector.

While industrial labor productivity has increased only by 3.4 percent annually or by 150 percent over the period as a whole, the industrial real wage has increased at an annual average rate of 2.0 percent or by 147 percent over the period. The lagging trend of real wage behind labor productivity is also noted in the case of Taiwan.

Such a trend in real wage relative to labor productivity has a direct consequence for income distribution and saving capacity. As the increase in real wages in both sectors lags behind productivity gains, the distribution of income favors the property class in both sectors. Together with this trend, accelerated industrial growth in Korea has contributed to rapid increase in the economy's saving capacity. As already indicated, a sharp increase in <u>domestic</u> savings from negative to a satisfactory saving ratio of 17 percent in Korea has been almost wholly based on the increasing contribution from the non-agricultural sector's profits.

Once again, the relative stagnation of Korea's agriculture and the resulting food imports have had obvious consequences for consumption standard, saving capacity and real wages. First, through food import, Korea had avoided otherwise marked increase in food prices, hence otherwise much worsening terms of trade against the industrial sector as well as otherwise much more severe decline in consumption standard and otherwise much sharper increase in industrial real wage. Second, the relative agricultural stagnation has produced negligible

saving contributions. Over the period under observation, the agricultural saving contribution has amounted to 9.6 percent of total savings, showing a sharp decline from 17 percent in the initial year to 0.9 percent in the terminal year. The saving gap left by the failure of agriculture's contribution had to be filled by foreign savings which still occupies 40 percent of the total investment funds in the terminal year.

d. Performance of Industrial Growth and Trade

Now returning to the relation (3), we can see that a dramatic increase in the proportion of the population in the commercialized non-agricultural sector (θ) and in productivity of non-agricultural labor (q) would lead to a large increase in the per capita industrial goods Y_i^A.

As rows 1 and 10 show, a rapid increase in the reallocation of labor from inefficient agricultural to non-agricultural sector and a rapid increase in non-agricultural labor productivity (from US$541 to US$814) in Korea during the transition period led to a substantial increase in the per capita output of industrial goods (from US$169.9 to US$399.7), which, in turn, resulted in the rapid growth of industrial export and industrial output per capita. Industrial output per head has increased at the annual rate of 7.1 percent, yielding an increase of 235 percent during the transition period, and the dramatic change in the extent of external orientation of the industrial sector is reflected in the increasing share of industrial goods in experts,

which has increased from 36.5 percent in the initial year to 90.3 percent in the terminal year.

In the course of import substitution process in early years, whereas Taiwan continued to employ more labor intensive technology from the beginning, Korea used initially more capital-intensive technology, as shown in row 9. The capital labor ratio in the initial period for Taiwan was US$2,650, and that for Korea was US$4,800. A convergence of capital-labor ratios for the two countries in the course of export substitution process is noted. While Taiwan's ratio has gradually increased, Korea's ratio has steadily decreased. The aggregate capital-labor ratio, if considered as a crude index for factor intensity at all, in the case of Korea, steadily decreased from US$4,800 in 1955/57 to US$2,890 in 1967/68 and since 1968 steadily increased again, indicating the recent shift from earlier liberalization policies and labor-intensive exports toward more capital-intensive backward-linkage types of import substitution and export promotion.

In Korea, as there was relatively less scope for consumer goods import substitution from the beginning, as reflected in lower per capita GDP and lower agricultural productivity, the shift toward export substitution was not so much from "land-based" agricultural export to "labor-based" industrial goods. Moreover, as capital resources for industrialization efforts came more from foreign capital

and industrial sector than from agricultural sector, the acceleration of industrial export came from the shift toward non-traditional industrial export from traditional non-agricultural export. The absence of agricultural contribution to the process of industrial growth through agricultural export placed constraint on the import capacity and the resulting problems of balance of payments have become more severe in recent years.

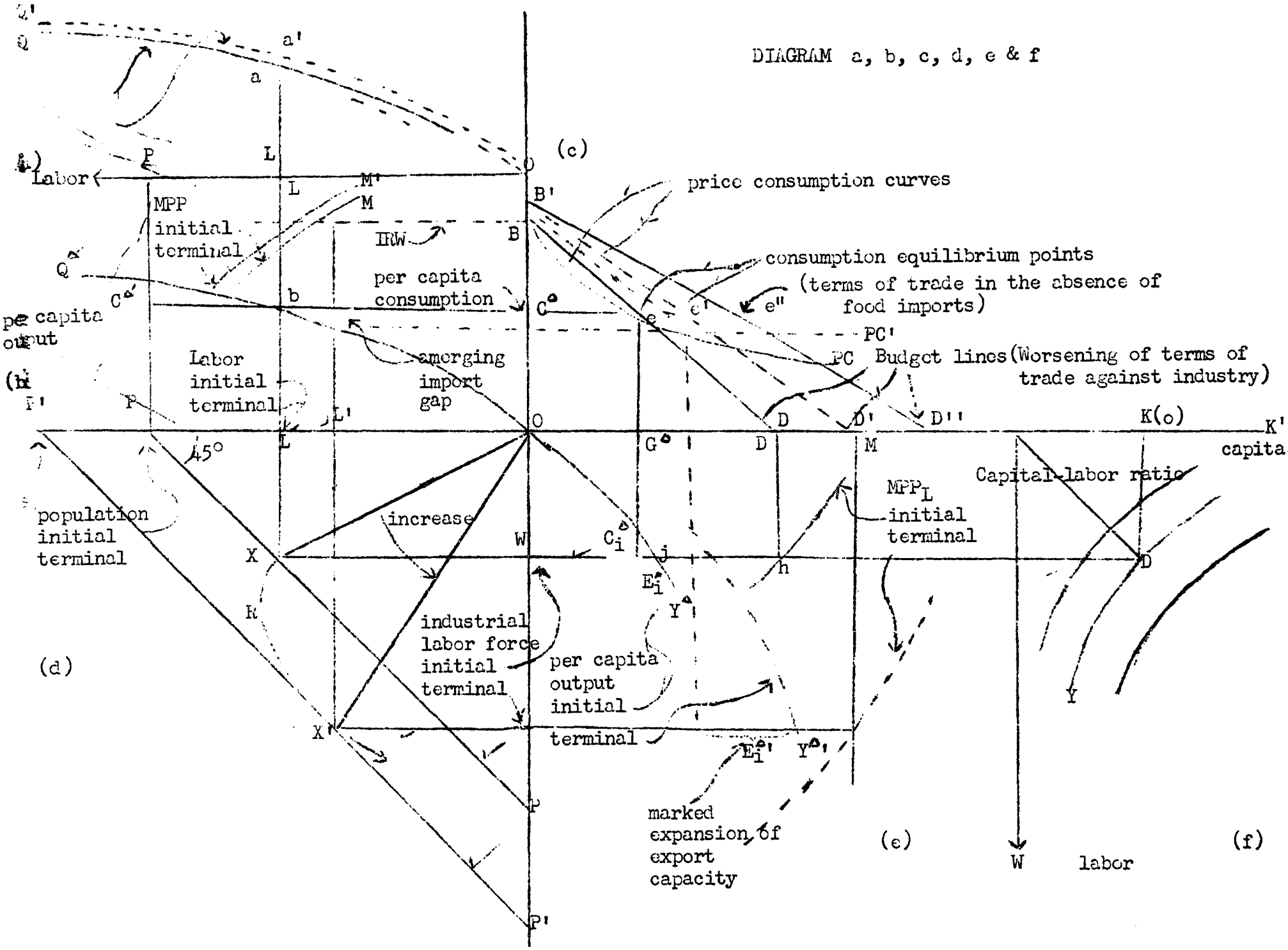
DIAGRAM a, b, c, d, e & f
(a)
Labor
MPP
initial
terminal
per capita
output
(b)
Labor
initial
terminal
45°
population
initial
terminal
increase
industrial
labor force
initial
terminal
per capita
output
initial
terminal
(c)
price consumption curves
consumption equilibrium points
(terms of trade in the absence of
food imports)
per capita
consumption
emerging
import
gap
Budget lines (Worsening of terms of
trade against industry)
(d)
marked
expansion of
export
capacity
(e)
MPP_L
initial
terminal
Capital-labor ratio
capital
labor
(f)

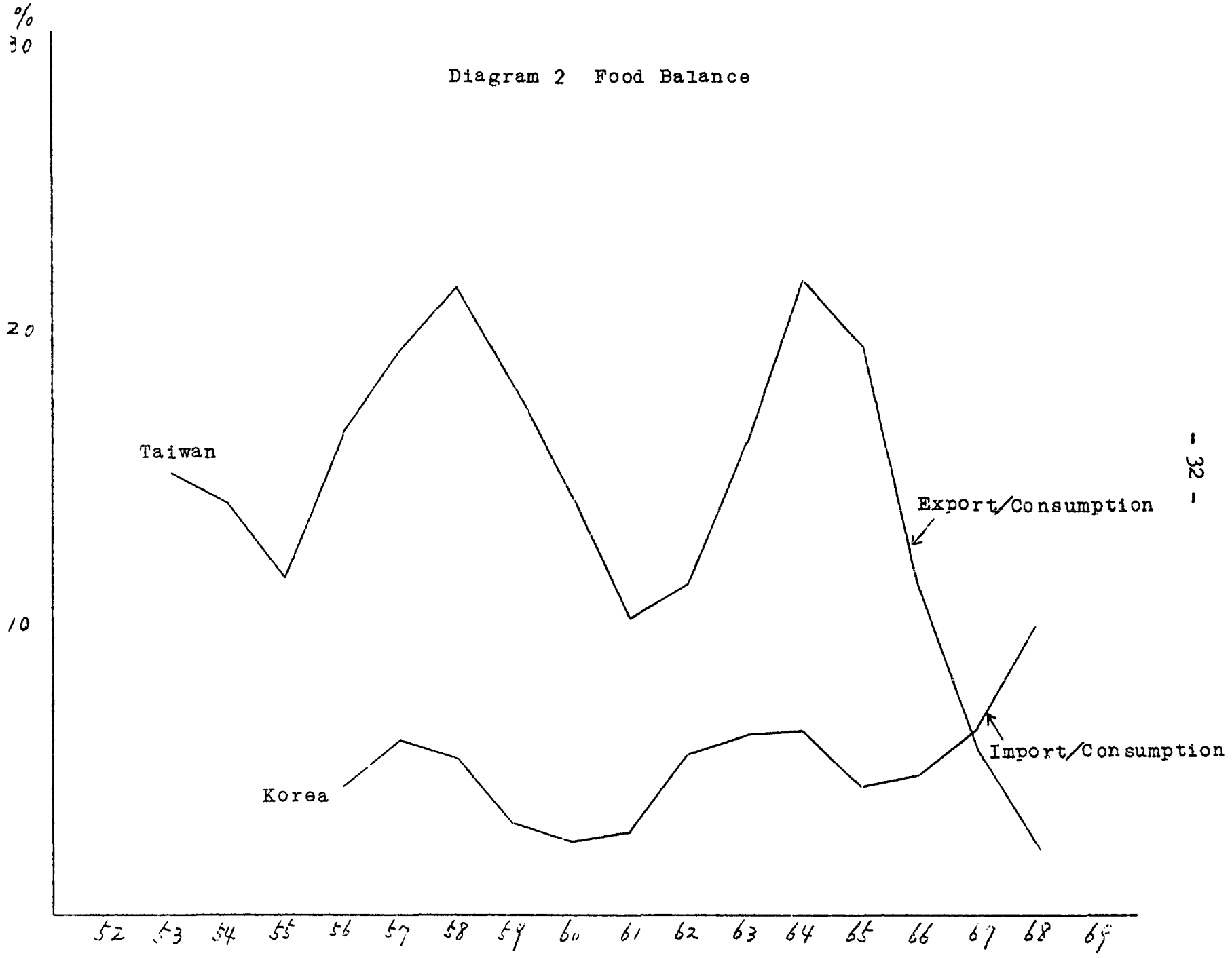

Diagram 2 Food Balance

II. DYNAMIC ASPECTS OF THE GROWTH PATH: TURNING POINTS

In this section, an attempt will be made to briefly describe the process of continuous change over the transition period under observation by identifying the turning points by which the various sub-phase of the transition process can be marked off. So far the four turning points have been identified, namely, the export substitution point, reversal point, commercialization point, and switching point. The time-series data on import-export, GNP, labor force, labor allocation, wage rate and other relevant data are organized under the four headings, trade, aggregate, labor force and real wage. These time series are plotted in diagram 3 to portray the actual pattern of the transition growth of the Korean economy.

From the trade-related data in Table 2, we can identify the export substitution point (around 1964) which marks off the import substitution phase (before 1964) and the export substitution phase (after 1964). In the import substitution phase, the dominant growth-propelling force is "import substitution" as can be inferred from curves (1) and (2). First, the importation of industrial consumer goods decreases relative to that of producer goods (capital goods and industrial raw materials), as reflected in the fast declining ratio of industrial consumer goods imports to total

industrial goods imports curve (1). Second, the imported capital goods and raw materials are used for the building up of domestic productive capacity which will substitute the previously imported goods for the domestically produced goods, thereby decreasing a fraction of consumer goods imports in the total consumption of industrial consumer goods as shown in curve (2). The fact that both curves (1) and (2) turn up around 1964 indicates that the import substitution process has terminated, or accurately, the import substitution is no longer the growth-propelling force, and that a new growth phase propelled by industrial exports is entered.

During the export substitution phase, the ratio of industrial (non-agricultural) exports to the total exports is rapidly increasing as shown in curve (3). Korea started with high ratio of non-agricultural exports to total exports from the beginning as a consequence of her economy's relatively weak agricultural base. In the case of Taiwan, industrial exports became dominant for the first time at the export substitution point (around 1959), rapidly replacing the agricultural exports which had previously dominated her export trade. In the case of Korea, export substitution means, in a large sense, a shift from traditional non-agricultural primary goods exports (e.g. mining) to non-traditional non-agricultural exports (e.g. labor intensive manufactured goods). In any case, export substitution that the country has, for the first time, has

developed the capacity to export the labor-based industrial goods substituting the land-based primary goods export.

We may consider two important factors that led to the occurance of such an export substitution point: one is the maturation of entrepreneural capability during the previous import substitution phase and the shift in government policies from direct controls to a more market- and export-oriented system. Such a policy shift was in fact achieved by a set of devaluation, import liberalization and interest rate reforms adopted around 1964 in both Korea and Taiwan. Entrepreneurs who emerged under the protective policy for import substitution and who were later able to survive the competitive environment were now in a position to take advantage of the abundant supply of cheap labor for production and export of labor-intensive industrial goods. In the course of the shift from land-based production and export to labor-based production and export, the rate of growth of GDP show a definite tedency for acceleration, whereas the rate of growth of GDP tended to somewhat decline as the growth propelling force of import substitution was exhausted, as reflected in curve (5). The fast growth of GDP was directly accompanied by the fast rise in the export ratio (indicating external orientation). In the condition of initial labor surplus and underutilized labor force, more output (growth) was made possible by more utilization of labor force (employment), which was made

utilization of labor is successfully persued, it is natural to expect the arrival of the exhaustion surplus labor or underemployed labor at some point in the transition process. From this point on, with labor now becoming a scarce factor, real wages are expected to rise sharply in both industrial and agricultural sectors more or less in line with the marginal productivity of labor. Therefore, the accepted rule of empirical verification of the commercialization point is to look into a marked turning point in the trend of real wage rates. It is expected that annual rate of increase in real wage is moderate before the commercialization point and starts to accelerate after the commercial point. In the case of Taiwan, it appear that the commercialization point may have been reached toward the end of the 1960's. In the case of Korea, the movement of real wage rates shows rather a confusing picture. As depicted in curves (9), (9-a) and (9-2), the weighted average real wages for the economy as a whole started upward creep from the 1964 on ward. This implies that the commercialization point was started simultaneously with the expert substitution point. However, the movement of individual series of agricultural and non-agricultural wage rates indicates different points of time for upward creep of real wages. That Korea entered the state of labor shortage at the time of the export substitution point (around 1964) cannot be simply acceptable. The upward creep of real wages from the mid 1960's on

may be traced to sharp increase in food prices which began approximately at the same point of time. The sharp upward shift in grain prices may be, in turn, traced to set of factors, such as food shortage caused by crop failures and stagnant agriculture, and government grain price policy for continuous increase in grain purchase prices. At any rate, the import of foreign grains could no longer completely avoid some sign of food shortage.

Another turning point which should be referred to is the switching point at which an open dualistic labor surplus economy with a poor natural resource base will become sooner or later a net importer of food. Korea had become already a net importer of food from the initial point on long before her economy reached the export substitution point. One the other hand, Taiwan still remains a net exporter, extending her agricultural productivity long after the export-substitution point occurred around 1959. Inspite of its superior performance, Taiwan's agricultural sector is reaching its natural limits, evidenced by the declining rate of growth of agricultural production and the decling level of per capita agricultural exports.

The fact that the postwar Korean economy started with a net importer from the beginning (the switching point had already occurred in 1950's), the early occurrance of the reversal point at the time of export substitution (around 1964), and the upward

trend in real wage rate started from 1965 on are all symptoms of the poor performance of agriculture in Korea. It is precisely this difference in the performance of the agricultural sector that the growth pattern of the Korean economy differs from that of the Taiwanese economy in a fundamental sense, despite many apparent similarities in other initial structural characteristics between the two economies.

TABLE 2. DIANAMIC ASPECTS OF GROWTH PATH

Year	(1) Import of Industrial Consumer Goods/ Imports of Industrial Goods	(2) Import of Industrial Consumer Goods/Total Domestic Consumption of Industrial Consumer Goods	(3) Industrial Labor Force/ Total Labor Force	(4) Export/ G.D.P.	(5) Rate of Growth of GDP	(6) Total Labor Force (thous.)
1956	0.17400	0.06123	0.61990	0.04226		6,924
1957	0.20059	0.06901	0.64703	0.04424	0.05240	7,027
1958	0.19204	0.05723	0.67370	0.04845	0.06266	7,240
1959	0.11845	0.03170	0.67632	0.05188	0.07069	7,606
1960	0.07893	0.01924	0.67216	0.05854	0.03678	7,855
1961	0.07171	0.01802	0.68968	0.06592	0.03267	8,119
1962	0.07308	0.02042	0.73149	0.07096	0.05597	8,288
1963	0.06603	0.01855	0.76763	0.07526	0.06928	8,567
1964	0.06376	0.01706	0.79709	0.08553	0.08316	8,848
1965	0.06625	0.02062	0.81981	0.11027	0.09486	9,058
1966	0.06563	0.02551	0.84911	0.14687	0.09047	9,243
1967	0.07547	0.03851	0.88279	0.18855	0.11058	9,445
1968	0.08088	0.04775	0.90811	0.22674	0.12147	9,639

TABLE 2. Continued

Year	(7) Agricultural Labor Force(thous.)	(8) Industrial Labor Force/ Total Labor Force	(9) Real Wage (won)	(9a) Industrial Real Wage	(9b) Agricultural Real Wage	(10) Rate of Growth of Agricultural Export
1956	4,710	0.31990	51,423	54,312	48,531	
1957	4,519	0.35705	52,114	55,828	48,728	
1958	4,570	0.36892	61,677	57,672	57,014	0.39372
1959	4,814	0.36707	69,592	58,096	65,694	2.71370
1960	4,912	0.37466	70,211	57,396	66,484	0.28311
1961	4,911	0.39512	63,590	56,932	60,762	2.81842
1962	4,903	0.40842	58,540	58,340	58,592	-1.46722
1963	4,965	0.42045	55,084	58,420	54,646	-0.40473
1964	5,032	0.43126	54,827	58,728	54,844	-0.37515
1965	5,023	0.44546	59,076	59,840	59,578	6.04610
1966	4,965	0.46381	64,411	64,464	64,510	-0.60945
1967	4,947	0.47623	69,166	71,316	69,442	-3.10213
1968	4,915	0.49009	73,260	80,320	73,980	-1.67683

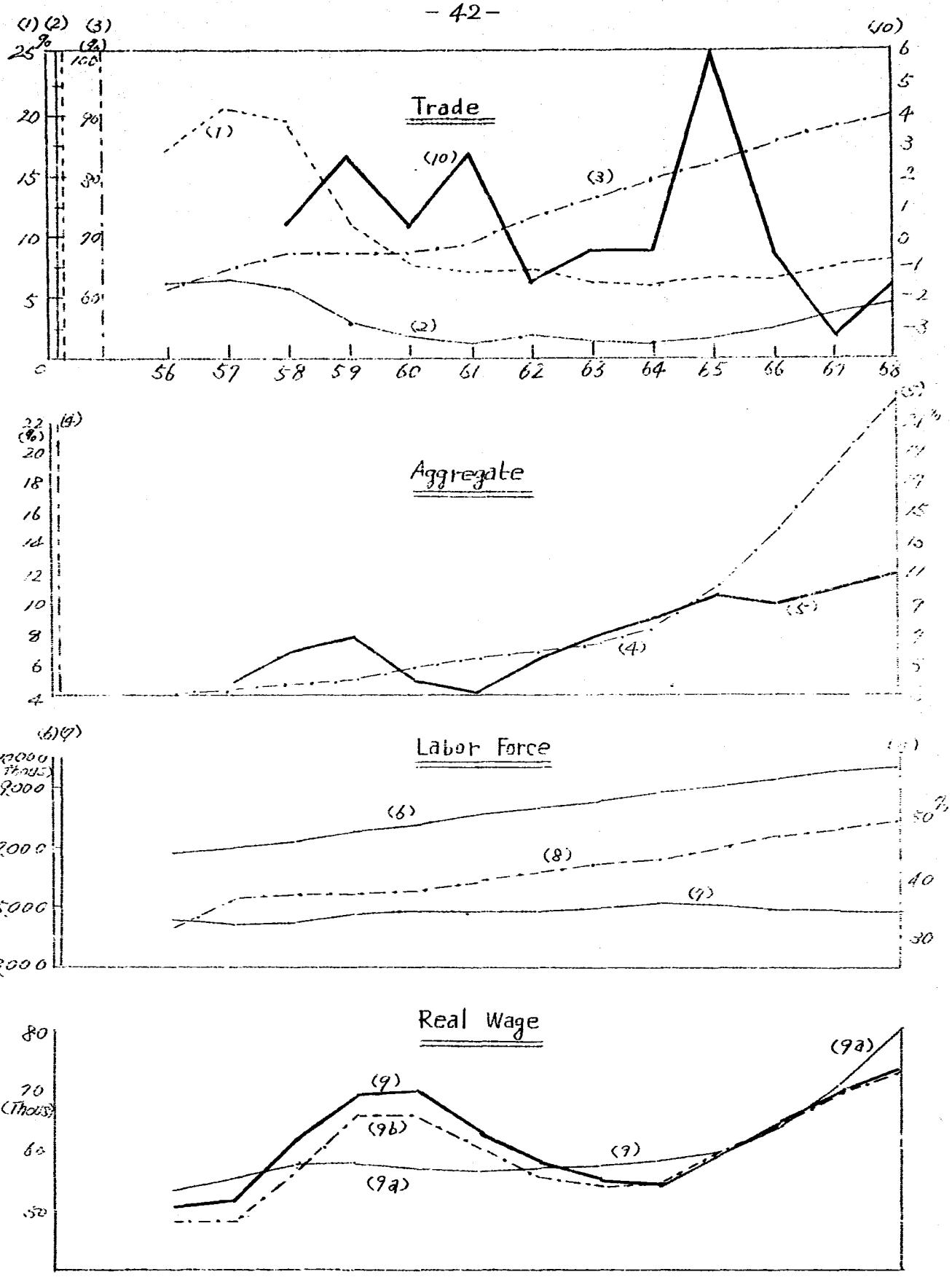

DIAGRAM 3

III. Conclusions and Policy Implications

(1) Growth Pattern and Policy Rules in Different Subphase of Transition Growth

In the course of our analysis of the process of transition growth in on economy like Korea in the previous two sections, we have shown that there exists an "idealized" development path which will permit the continuous generation of employment and growth as the same process of transition. In the course of the "ideal" path, we attempted to identify four meaningful turning points which will mark off the various subphases of transition growth. Development policies and strategies must be designed to be relevant and sensitive to the particular stage (or subphase) in which a country finds herself at a particular time. The pattern of resources endowment and particular subphase and its relevant policy rules will be outlined below:

1) The first important turning point which marks off the different subphases is the export substitution point. At this point, gradual changes in the economy's resource endowment and the government's package of policies during the subphase of import substitution, fuelled mainly by traditional land-based exports, now permits a shift to the subphase of export substitution, fuelled by non-traditional labor-intensive exports. Once the export substitution point is reached, the outlet for abundant surplus labor is found through industrial

export trade, and the problem of efficient utilization of labor in the industrial sector becomes increasingly important. A package of government policy measures, including high protective tariffs, exchange controls, low interest rates, overvalued domestic currencies, direct subsidies and price inflation, adopted to facilitate the process of import-substitution growth need to be changed at the turning point of export substitution. The basic development strategy in facilitating the natural transition toward export substitution calls for the following two policy prerequisities:

(i) A set of liberalization policies, or the dismantling of the various existing direct control measures adopted during the import-substitution subphase so as to create a market-oriented system which will reflect the relative price structure corresponding to the factor proportions endowed in the economy. This condition must be fulfilled, for it is the market-oriented system that is most conducive to the rational choice of domestic entrepreneurs in seeking efficient utilization of labor force in technology and output-mix.

(ii) More positive government policies must be centered on the modernization of agricultural sector, so as to permit Korea's agricultural sector to generate agricultural savings and export earnings and to release labor force to the

export trade, and the problem of efficient utilization of labor in the industrial sector becomes increasingly important. A package of government policy measures, including high protective tariffs, exchange controls, low interest rates, overvalued domestic currencies, direct subsidies and price inflation, adopted to facilitate the process of import-substitution growth need to be changed at the turning point of export substitution. The basic development strategy in facilitating the natural transition toward export substitution calls for the following two policy prerequisities:

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(ii) More positive government policies must be centered on the modernization of agricultural sector, so as to permit Korea's agricultural sector to generate agricultural savings and export earnings and to release labor force to the

industrial sector. As shown in Section II, the export substitution point is reached around 1964. This was confirmed by the movement of the time series of major growth-relevant variables which show a definite shift around 1964 and also by the major shift toward a set of liberalization policies which took effect around 1963/64.

2) There is the most important turning point, that is, the commercialization point which signifies the end of the labor surplus condition which has been inherited from the pre-modern epoch. When this point is reached, the economy is said to have solved its unemployment problem in the course toward economic maturity. From the commercialization point on, a most observable phenomenon is a sustained increase in the real wage accompanied by relative reduction in the saving rate and a relative decline in the importance of foreign trade for growth. At this point, a large number of efficiency-oriented entrepreneurs will seek a more skill- and capital-intensive technology and output mix. Relevant government policy package is to put a heavy emphasis on education and human capital development to provide an adequate supply of high-quality manpower.

3) Another turning point is what is called switching point at which a small open dualistic labor surplus economy with poor agricultural base is likely to move from the successful exploitation of its agricultural potential to its natural long term position as a

net importer of foods. The switching point signifies that the economy will ultimately have to accelerate its industrial exports to import the needed food and agricultural raw materials. Once this point occurs, the economy must develop a higher foreign exchange earning capacity through development of more human skills and capital. The simple exportation of labor services alone will no longer suffice to increase high per capita foreign exchange earning capacity. The relevant policy requirement is to place a greater emphasis on labor quality through manpower development (education and training), as in the case of the commercialization point.

4) In the process of transition growth, the <u>reversal point</u> is likely to occur at which the size of the agricultural labor force begins an absolute decline. When this point occurs, the crucial policy question is an assessment of the likely duration of the export substitution phase, that is, the duration of continuous reliance on labor intensive exports to provide the major source of generation and growth of employment and output. If commercialization point has already occurred, it may be necessary to prolong the duration of the export substitution sub-phase through the modernization of agriculture which will provide additional supply of relatively cheap labor. In this case, the relevant policy focus may shift to labor-saving techniques in agriculture in order to prolong labor-using techniques in industry, which is indeed becoming the policy issue in Taiwan at present.

(2) The Case of Korean Growth Experience

We have so far attempted to summarize a set of "idealized" growth rules and relevant policy shifts in various subphases of transition growth. Now it will be most meaningful and instructive to compare and contrast Korea's actual performance to the aforementioned "idealized" growth pattern and policy shifts. In the case of Korea, as we have seen in Section II, export substitution point was reached around 1964, a few years after Taiwan had reached that point around 1960. Whereas the commercialization point seems clearly to have already reached in Taiwan, it is doubtful or at least debatable in the case of Korea whether or not the beginning of marked real wage increases occurred around the mid- 1960's have led to the "commercialization point" marking the end of her labor surplus condition. Sharp increases in real wages in both agricultural and non-agricultural sectors in Korea in recent years may signify the "premature" shortage of labor which has much to do with the lagging performance of her agricultural sector. As to the switching point, Korea became a net food importer from the beginning of the transition period under observation, whereas Taiwan remains a net exporter of food to date, still extending her agricultural productivity long after the export-substitution point occurred around 1960. The reversal point was reached in Korean around 1965-66 when real wages began to rise rather sharply. In Taiwan

the reversal point was reached a few years ahead of the commercialization point.

Despite or behind the apparent similarities between Korea and Taiwan which seem to be on an "idealized" path of transition growth, there is the most fundamental difference in the growth pattern of the countries, which has in fact led to a marked deviation of the Korean path from the idealized pattern of growth stated above. That fundamental difference lies in the performance of the agricultural sector. In the case of Korea, the agricultural sector has not yet fulfilled its "historical" mission. As a result, throughout the import substitution subphase which permitted the maturation of indigenous industrial entrepreneurs, the potential sources of industrial growth were not much generated from the agricultural side. After the export substitution pointed was reached, continuous rapid industrial growth was largely fuelled by foreign capital rather than agricultural surplus. The relatively stagnant agricultural sector failed to permit the industrial sector at fairly stable real wages for labor intensive industrial production and export. In the absense of agricultural contribution to the continued industrial expansion, it was the industrial sector which not only had to pay for its own continued expansion, but also for the food imports which was ever-increasing. In other words, in a sharp contrast to the idealized growth pattern depicted above,the industrial sector has

to "pull" a dragging agricultural sector along with it, rather than getting the benefit of "push" from it.

Such a heavy burden placed on the industrial sector, due to failure of agricultural sector's "push", has in turn brought about distortions in the pattern of industrial growth. First, the industrial export drive has been pushed far beyond the point of efficiency, as evidenced by negative value added culminated in certain export industries. Second, the imported raw material component and capital intensity of exports have been rising, together with the expansion of backward linkage type of import substitution in the areas of consumer durables, and intermediate goods. It is important to note that the industrial export promotion and the expansion of import-substitution industries in consumer durables and intermediate goods have been pursued under the same policy package which establishes a number of subsidies and incentives, including tariff reductions and exemptions for raw materials and capital goods, tax reduction and exemptions, preferential interest rates, raw material import wastage allowance and other direct subsidies.

In sum, the agricultural sector's failure to fulfill its historical role in Korea has affected the pattern of the growth of the industrial sector. Instead of moving first to labor-intensive, then to skill-intensive, and finally to capital intensive production

and exports, in the sequential order of various subphases of transition growth presented in the previous sections, Korea has attempted to move into some fairly technology- and capital-intensive industries, while continuous growth of labor intensive export will provide the major source of employment generation and output growth for years to come. Furthermore, to keep the process going, Korea has been forced to secure an increasing inflow of foreign loans and private foreign investments. The increasing import intensity of industrial production and exports, the heavy foreign debt structure and the growing food gap are all symptoms of difficulties ahead and of a marked deviation of the Korean growth pattern from the idealized growth pattern depicted in the open dualistic model presented in the text.

(3) Baaic Policy Directions

Development policy and strategy in the context of the Korean economy must be sensitive and relevant to the export-substitution subphase in which the Korean economy has found itself since the mid-1960's. The basic policy direction must be focused on the creation of a set of policy conditions conducive to continued expansion of labor-intensive industrial production and exports which provides the major source of employment generation and output growth for the years to come. Efficient import substitution policy package must be designed to stimulate industrial entrepreneurs to seek, utilize and extend

labor-using technology and output-mix and to enable the agricultural sector to play out its historical role in order to keep the actural pattern of industrial growth in tune with the economy's changing resource endowment and along the ideal path of export-substitution growth as suggested in our analysis. Our critical analysis of the Korea's growth experience suggests the following policy directions which are relevant to Korea's expert-substitution subphase and which have to be given top priority for development policy and strategy.

(i) The highest order of priority should be given to the modernization of agriculture. Korea is still faced with the problem of building up the infra-structure in her agricultural sector and utilizing the relatively unexplored agricultural productivity reserves. By infrastructure is meant not only irrigation, roadnetwork and other physical investments but also the creation of a total institutional milieu conducive to agricultural productivity increase. If the prevailing view that there exists a substantial potential for further agricultural productivity increase through seed/fertilizer revolution without the need for extensive mechanization is not off the mark, the feasible approach toward activating the agricultural productivity reserves would certainly not call for

capital-intensive measures. Agricultural development mainly through labor-intensive measures and seed/fertilizers revolutions will contribute to increased domestic saving, release balance of payment pressures through reduction in import demand for food, and, most importantly, provide additional supply of relatively cheap labor for years to come.

(ii) Efficient export-substitution policy package calls for dismantling the existing system of direct controls, subsidies and incentives adopted during the import-substitution subphase and retained for export promotion. A set of liberalization measures in the areas of foreign exchange rates, interest rates, prices and wages and import trade would tend to correct the distortions in the industrial sector and would create a more market-oriented institutional milieu conducive to the rational choice of labor intensive technology and output-mix which is called for by the economy's true picture of resource endowment.

(iii) In view of Korea's urban-oriented industrial sector, which has had very little "connectivity" with the rural sector, policy emphasis should be also placed on a set of measures to increase the contacts between two sectors and between large-scale and small-medium industries. Regional dispersion of industrial bases and promotion of sub-contracting

system between urban-oriented large industries and small and medium industries reaching out into the country side would not only help reducing industrial capital intensity but also increase farmers' perception of investment opportunities outside of agriculture and their incentives to accept new technology.

(iv) While efficient export-substitution policy package should be pursued with a view to maintaining the continued growth based on labor-intensive exports, the policy of labor utilization will have to be gradually directed toward development of human skills and training to provide adequate supply of skilled manpower in an effort to extend the duration of export-substitution growth phase.

STATISTICAL APPENDIX

Note: Basic data for this study are collected and tabulated in accordance with the framework of "open dualistic" economy-type national income accounting. From these tables of national income accounting and other available information, all the indices presented in Basic Data Sheets and Indicators Sheets are constructed. Basic data can be aggregated into the following eight sectors which can be also expressed in terms of 3-digit SITC system:

i. agriculture, forestry, fishery, mining and energies
ii. a) the agricultural portion(materials)and b) industrial portion (value added) of processed food, tobacco & beverage
iii. raw materials
iv. non-durable consumer goods
v. durable consumer goods
vi. services
vii. capital goods
viii. construction materials

agricultural sector defined as primary-products producing (or land-based) sector in this study covers the sectors i and iia, whereas non-agricultural sector (or industrial sector) is then to cover all the remaining sectors from iib through viii.

INDICATOR SHEET (I)

Year	i Industrial Labor Allocation Ratio Q = W/P (%)		ii Agricultural Labor Allocation Ratio 1 - Q = L/P (%)		iii Agricultural Labor Productivity r = Q/L won (US$)		iv Per Capita Net Agricultural Exports $\hat{Ea'} - Ea'/P$ Won (US$)	
1955	25.52		74.48		44,538(179)		2(0.01)	
1956	32.18	31.96	67.82	68.04	47,599(192)	49,281(198)	-1,333(-5.37)	-2,060(-8.30)
1957	38.18	35.66	61.82	64.34	55,707(224)	53,179(214)	-4,849(-19.53)	-2,928(-11.79)
1958	36.61	36.91	63.39	63.09	56,231(226)	55,242(222)	-2,601(-10.48)	-2,558(-10.30)
1959	35.93	36.68	64.07	63.32	53,788(217)	53,711(216)	-225(-0.91)	-1,513(-6.09)
1960	37.50	37.43	62.50	62.57	51,115(206)	54,550(220)	-1,713(-6.90)	-1,194(-4.81)
1961	38.86	39.50	61.14	60.50	58,746(237)	55,915(225)	-1,644(-6.62)	-1,835(-7.39)
1962	42.13	40.81	57.87	59.19	57,883(233)	58,803(237)	-2,149(-8.65)	-2,713(-10.93)
1963	41.45	42.04	58.55	57.96	59,779(241)	62,533(252)	-4,347(-17.51)	-3,022(-12.17)
1964	42.55	43.09	57.45	56.91	69,937(282)	67,908(273)	-2,569(-10.35)	-3,086(-12.43)
1965	45.27	44.52	54.73	55.48	74,009(298)	75,212(303)	-2,343(-9.44)	-2,208(-8.89)
1966	45.73	46.27	54.27	53.73	81,690(329)	79,087(319)	-1,711(-6.89)	-2,625(-10.57)
1967	47.81	47.59	52.19	52.41	81,561(328)	82,247(331)	-3,822(-15.39)	-3,981(-16.03)
1968	49.24	48.99	50.76	51.01	83,491(336)	86,577(349)	-6,410(-25.82)	-6,274(-25.27)
1969	49.93		50.07		94,680(381)		-8,589(-34.59)	

Note: 1965 constant won prices
1965 constant dollar prices

INDICATOR SHEET (II)

Year	v Per Capita Consumption of Agricultural goods $Ca^{\Delta} = Ca/P$ won(US$)		va Per Capita Consumption of Staples $Cf^{\Delta} = Cf/P$ won (US$)		vi Per Capital Consumption of Industrial Goods $Ci^{\Delta} = Ci/P$ won (US$)		vii Per Capita G.D.P. $GDP^{\Delta} = GDP/x$ won (US$)	
1955	33,171(134)		32,787(132)		32,093(129)		20,681(83)	
1956	33,616(135)	35,357(142)	30,803(124)	32,860(132)	37,313(150)	34,638(140)	20,164(81)	20,715(83)
1957	39,285(158)	37,049(149)	34,989(141)	33,508(135)	34,507(139)	36,051(145)	21,300(86)	21,105(85)
1958	38,245(154)	37,405(151)	34,733(140)	34,172(138)	36,333(146)	37,230(150)	21,850(88)	21,751(88)
1959	34,685(140)	35,530(143)	32,794(132)	32,441(131)	40,849(165)	38,370(155)	22,102(89)	21,969(88)
1960	33,659(136)	35,332(142)	29,795(120)	32,271(130)	37,928(153)	38,233(154)	21,955(88)	22,142(89)
1961	37,652(152)	35,651(144)	34,225(138)	31,651(127)	35,923(145)	37,951(153)	22,368(90)	22,229(90)
1962	35,643(144)	37,548(151)	30,934(125)	32,887(132)	40,002(161)	37,747(152)	22,365(90)	22,825(92)
1963	39,349(158)	39,247(158)	33,501(135)	33,844)136)	37,317(150)	38,375(155)	23,742(96)	23,739(96)
1964	42,748(172)	41,647(164)	37,096(149)	35,383(143)	37,807(152)	39,362(159)	25,110(101)	25,017(101)
1965	42,844(173)	43,879(177)	35,553(143)	37,135(150)	42,963(173)	40,793(164)	26,200(106)	26,763(108)
1966	46,045(185)	45,091(182)	38,756(156)	37,003(149)	41,608(168)	45,312(182)	28,980(117)	28,477(115)
1967	46,385(187)	47,074(190)	36,700(148)	37,498(151)	51,364(207)	49,875(201)	30,251(122)	30,889(124)
1968	48,792(197)	50,391(203)	37,037(149)	39,194(158)	56,653(228)	56,172(226)	33,436(135)	33,880(136)
1969	55,996(226)		43,846(177)		60,500(244)		37,953(153)	

INDICATOR SHEET (III)

Year	viii Internal Terms of Trade $\tau = Pa/Pi$ (1965=100)(%)		ix Industrial Wage in Terms of Agricultural Goods $W' = Wi/\tau$ won (US$)		x Wage Gap $g = W' - Wa$ won (US$)		xa Wage Differential W'/Wa times	
1955	80.31		68,644(276)		11,027(48)		1.21	
1956	104.85	96.07	51,617(208)	57,452(231)	719(3)	6,921(36)	1.01	1.20
1957	103.06	97.84	52,074(210)	57,803(233)	4,216(57)	9,075(37)	1.38	1.20
1958	85.62	85.73	69,699(281)	69,617(280)	12,291(50)	12,603(51)	1.21	1.25
1959	68.52	76.73	87,058(351)	76,342(307)	11,302(46)	10,647(43)	1.15	1.16
1960	76.05	75.59	72,268(291)	76,457(308)	6,349(34)	9,973(40)	1.13	1.15
1961	82.20	80.83	70,044(282)	68,046(274)	10,268(41)	7,284(29)	1.17	1.12
1962	94.23	92.48	61,827(249)	61,728(249)	3,235(13)	5,306(21)	1.06	1.09
1963	111.01	102.16	53,314(215)	55,705(224)	2,416(10)	3,176(13)	1.05	1.02
1964	111.24	107.42	51,974(209)	54,824(221)	-2,475(-10)	-20(-0.1)	0.95	1.00
1965	100.00	102.92	59,184(238)	58,423(235)	0(0)	-1,156(-5)	1.00	0.98
1966	97.52	100.19	64,110(258)	64,287(259)	-992(-4)	-224(-1)	0.98	0.99
1967	103.05	103.32	69,566(280)	68,859(277)	321(1)	-583(-2)	1.00	0.99
1968	109.38	110.53	72,902(294)	72,537(292)	-1,078(-4)	-1,443(-6)	0.99	0.98
1969	119.15		75,142(303)		-3,573(-14)		0.95	

INDICATOR SHEET (IV)

Year	xi Weighted Wage $\overline{W} = QW' + (1-Q)Wa$ $\overline{W}$on (US$)		xii Industrial Capital-Labor Ratio $K^* = K/W$ thou. won (US$)		xii-a Industrial Capital-output Ratio K/Y times		xiii Industrial Labor Productivity q = Y/W won (US$)	
1955	59,835(241)		1,440(5,799)		9.49		151,730(611)	
1956	51,129(206)	51,423(207)	1,171(4,716)	1,194(4,809)	8.61	8.83	135,976(548)	134,408(541)
1957	43,350(174)	52,114(210)	970(3,907)	1,045(4,209)	8.40	8.30	115,518(465)	125,853(507)
1958	61,908(249)	61,677(248)	993(3,999)	985(3,967)	7.88	7.85	126,065(508)	125,970(507)
1959	79,817(321)	69,592(280)	991(3,991)	956(3,850)	7.27	7.43	136,326(549)	128,740(518)
1960	67,050(270)	70,211(283)	884(3,560)	917(3,693)	7.14	7.26	123,830(499)	126,356(509)
1961	63,766(257)	63,590(256)	876(3,528)	852(3,431)	7.37	7.06	118,911(479)	120,765(486)
1962	59,955(241)	58,540(236)	796(3,206)	821(3,306)	6.66	6.71	119,554(481)	122,697(494)
1963	51,900(209)	55,084(222)	791(3,186)	784(3,157)	6.10	6.29	129,626(522)	124,811(503)
1964	53,396(215)	54,827(221)	765(3,081)	756(3,045)	6.11	5.85	125,252(504)	129,527(522)
1965	59,184(238)	59,076(238)	712(2,868)	733(2,952)	5.33	5.38	133,702(538)	137,618(554)
1966	64,649(260)	64,411(259)	722(2,908)	716(2,884)	4.69	4.70	153,900(620)	154,078(621)
1967	69,399(279)	69,166(279)	715(2,880)	719(2,896)	4.09	4.13	174,632(703)	176,168(709)
1968	73,449(296)	73,260(295)	720(2,900)	732(2,948)	3.60	3.66	199,972(805)	202,185(814)
1969	76,931(310)		760(3,061)		3.28		231,951(934)	

INDICATOR SHEET (V)

Year	xiv Per Capital Industrial Output $Y^{\wedge} = Y/P$ won (US$)		xv Per Capita Industrial Exports $Ei^{\wedge} = Ei/P$ won (US$)		xvi Export Ratio E/GDP (%)		xvii Per Capital Exports $E^{\wedge} = E/P$ won (US$)	
1955	38,721(156)		1,738(7.00)		4.21		2,703(10.89)	
1956	43,751(176)	42,194(170)	1,366(5.50)	1,692(6.81)	3.82	4.10	2,516(10.13)	2,732(11.00)
1957	44,109(178)	44,671(180)	1,973(7.95)	1,910(7.69)	4.27	4.28	2,977(11.99)	2,960(11.92)
1958	46,153(186)	46,416(187)	2,392(9.63)	2,301(9.27)	4.75	4.71	3,386(13.64)	3,349(13.49)
1959	48,985(197)	47,191(190)	2,539(10.23)	2,462(9.92)	5.12	5.18	3,683(14.83)	3,633(14.63)
1960	46,436(187)	47,209(190)	2,456(9.89)	2,769(11.15)	5.66	5.83	3,831(15.43)	4,117(16.58)
1961	46,207(186)	47,672(192)	3,313(13.34)	3,198(12.88)	6.72	6.57	4,837(19.48)	4,638(18.68)
1962	50,373(203)	50,102(202)	3,824(15.40)	3,771(15.19)	7.33	7.09	5,246(21.13)	5,163(20.79)
1963	53,727(216)	52,465(211)	4,176(16.82)	4,345(17.50)	7.22	7.51	5,405(21.77)	5,666(22.82)
1964	53,294(215)	55,851(225)	5,035(20.28)	5,365(21.61)	7.98	8.48	6,346(25.56)	6,735(27.12)
1965	60,533(244)	61,401(247)	6,885(27.73)	7,607(30.64)	10.24	10.83	8,453(34.04)	9,283(37.39)
1966	70,377(283)	71,470(288)	10,901(43.90)	11,231(45.23)	14.26	14.42	13,049(52.55)	13,231(53.29)
1967	83,499(336)	84,112(339)	15,906(64.06)	16,263(65.50)	18.76	18.58	18,191(73.26)	18,435(74.24)
1968	98,461(397)	99,257(400)	21,982(88.53)	22,187(89.36)	22.73	22.37	24,066(96.92)	24,442(98.44)
1969	115,810(466)		28,673(115.48)		25.62		31,068(125.12)	

INDICATOR SHEET (VI)

Year	xviii Industrial Share of Exports Ei/E (%)		xix Agricultural Export Ratio Ea/Q (%)		xx I.S. Potential Index Mc/Cd (%)		xxi Industrial Consumer Good Share of Imports Mc/M (%)	
1955	64.28		2.91		3.69		8.84	
1956	54.31	61.62	3.56	3.13	5.36	6.55	12.32	13.31
1957	66.27	63.74	2.92	3.09	10.60	7.51	18.78	15.44
1958	70.64	68.61	2.79	3.01	6.57	6.48	15.23	13.92
1959	68.93	67.89	3.32	3.47	2.27	3.46	7.74	9.19
1960	64.11	67.18	4.30	3.95	1.53	1.96	4.61	6.26
1961	68.49	68.49	4.24	4.26	2.07	1.84	6.42	5.38
1962	72.88	72.88	4.25	4.00	1.91	2.08	5.12	5.40
1963	77.26	76.50	3.51	3.67	2.27	1.90	4.65	4.70
1964	79.35	79.35	3.26	3.55	1.51	1.76	4.33	4.47
1965	81.45	81.45	3.87	3.99	1.50	2.09	4.43	4.88
1966	83.54	84.14	4.85	4.70	3.26	2.58	5.89	5.12
1967	87.44	87.44	5.37	5.05	2.99	3.83	5.04	5.93
1968	91.34	90.36	4.92	5.11	5.23	4.75	6.87	6.25
1969	92.29		5.05		6.02		6.83	

INDICATOR SHEET (VII)

Year	xxii Agricultural Import Fraction Ma/(Q + Ma) (%)		xxii-a Net Staple Export Fraction Ef/Cf (%)		xxiii Agricultural Savings Contribution Sa/I (%)		xxiv Industrial Saving Contribution Si/I (%)	
1955	-0.01		0.71		22.09		-37.48	
1956	4.66	5.62	3.88	4.56	-7.99	15.22	-44.57	-43.53
1957	12.20	7.71	9.10	6.11	31.56	16.64	-48.54	-41.92
1958	6.26	6.20	5.36	5.50	26.36	23.26	-32.64	-32.48
1959	0.13	3.83	2.03	3.24	11.85	16.34	-16.26	-23.68
1960	5.09	3.02	2.34	2.47	10.82	15.46	-22.15	-11.44
1961	3.83	5.18	3.03	3.19	23.71	12.99	4.10	-7.07
1962	6.63	7.17	4.20	5.58	4.43	17.96	-3.17	-0.90
1963	11.05	7.80	9.52	6.18	25.73	19.42	-3.64	4.58
1964	5.72	7.54	4.81	6.23	28.09	21.78	20.55	20.32
1965	5.86	5.10	4.36	4.59	11.51	17.27	44.04	37.01
1966	3.72	5.47	4.60	4.95	12.22	7.96	46.44	48.18
1967	6.82	6.73	5.88	6.57	0.15	4.58	54.05	49.25
1968	9.66	9.17	9.22	10.01	1.36	0.90	47.25	51.14
1969	11.02		14.93		1.18		52.12	

INDICATOR SHEET (VIII)

Year	xxv Foreign Saving Contribution S_f/I (%)		xxvi Domestic Saving Rate (Sa+Si)/GDP (%)		xxvii Investment Rate I/GDP (%)		xxviii Cumulative Agricultural Saving Contribution	xxix Cumulative Industrial Saving Contribution	xxx Cumulative Foreign Saving Contribution
1955	115.39		-2.12		13.77		$\Sigma Sa/\Sigma I$ =9.60%	$\Sigma Si/\Sigma I$=25.63%	$\Sigma Sf/\Sigma I$=64.77%
1956	152.56	128.31	-5.69	-4.05	12.74	15.37			
1957	116.98	125.27	-3.33	-3.66	19.59	15.80			
1958	106.28	109.22	-0.95	-1.58	15.06	15.14			
1959	104.41	107.34	-0.47	-0.90	10.77	12.41			
1960	111.33	95.98	-1.29	-0.59	11.39	11.62			
1961	72.19	94.09	3.53	0.80	12.69	12.42			
1962	98.74	82.95	0.17	2.80	13.19	15.72			
1963	77.91	76.00	4.70	4.27	21.27	16.92			
1964	51.36	57.91	7.93	7.13	16.30	17.78			
1965	44.45	45.72	8.76	10.35	15.77	18.86			
1966	41.34	43.86	14.37	12.51	24.50	22.28			
1967	45.79	46.17	14.41	15.02	26.58	28.18			
1968	51.39	47.95	16.27	16.96	33.47	32.64			
1969	46.70		20.19		37.87				

BASIC DATA SHEET (I)

Year	(1) Total Labor Force P (b) thou persons		(2) Agricultural Labor Force L (b) thou persons		(3) Industrial Labor Force W (b) thou persons		(4) Industrial Output Y (a, e) mil won (mil US$)	
1955	6,932		5,163		1,769		268,411(1,081)	
1956	6,825	6,924	4,629	4,710	2,196	2,215	298,603(1,203)	292,162(1,177)
1957	7,016	7,027	4,337	4,519	2,679	2,509	309,472(1,246)	314,091(1,265)
1958	7,241	7,240	4,590	4,570	2,651	2,671	334,197(1,346)	336,431(1,355)
1959	7,464	7,606	4,782	4,814	2,682	2,792	365,625(1,473)	358,838(1,445)
1960	8,112	7,855	5,070	4,912	3,042	2,943	376,691(1,487)	370,472(1,492)
1961	7,988	8,119	4,884	4,911	3,104	3,208	369,099(1,487)	387,239(1,560)
1962	8,257	8,288	4,778	4,903	3,479	3,385	415,927(1,675)	416,016(1,675)
1963	8,618)	8,567	5,046	4,965	3,572	3,602	463,023(1,865)	449,757(1,811)
1964	8,825	8,848	5,070	5,032	3,755	3,816	470,321(1,894)	494,733(1,992)
1965	9,100	9,058	4,980	5,023	4,120	4,035	550,854(2,219)	557,339(2,245)
1966	9,248	9,243	5,019	4,965	4,229	4,278	650,843(2,621)	661,641(2,665)
1967	9,380	9,445	4,895	4,947	4,485	4,498	783,225(3,154)	796,644(3,208)
1968	9,608	9,639	4,928	4,915	4,780	4,724	955,864(3,850)	959,169(3,863)
1969	9,830		4,922		4,908		1,138,417(4,585)	

Note: 1965 constant won prices
1965 constant dollar prices

BASIC DATA SHEET (II)

Year	(5) Industrial Exports E_i (a,c,d,e,i) mil won(mil US$)		(6) Domestically Used Industrial Output Y_d (a,c,d,e,i) mil won(mil US$)		(7) Domestically Consumed Industrial Output C_d (a,c,d,e,i) mil won(mil US$)	
1955	12,046(49)		256,365(1,032)		214,553(864)	
1956	9,325(38)	11,738(47)	269,278(1,165)	280,424(1,129)	241,783(974)	225,064(906)
1957	13,844(56)	13,497(54)	295,628(1,191)	300,522(1,210)	218,856(881)	235,732(949)
1958	17,321(70)	16,371(66)	316,876(1,276)	320,060(1,289)	246,774(994)	254,909(1,027)
1959	18,949(76)	18,732(75)	346,676(1,396)	340,106(1,370)	298,097(1,201)	282,636(1,138)
1960	19,925(80)	21,780(88)	356,766(1,437)	348,692(1,404)	303,036(1,220)	294,075(1,184)
1961	26,465(107)	25,987(105)	342,634(1,380)	361,252(1,455)	281,091(1,132)	302,754(1,219)
1962	31,572(127)	31,342(126)	384,355(1,548)	384,674(1,549)	324,134(1,305)	306,560(1,235)
1963	35,988(145)	37,332(150)	427,035(1,720)	412,425(1,661)	314,456(1,266)	322,423(1,299)
1964	44,436(179)	47,692(192)	425,885(1,715)	447,041(1,800)	328,678(1,324)	342,785(1,381)
1965	62,651(252)	69,301(279)	488,203(1,966)	488,038(1,966)	385,222(1,551)	362,176(1,459)
1966	100,816(406)	104,222(420)	550,027(2,215)	557,419(2,245)	372,628(1,501)	408,489(1,645)
1967	149,199(601)	154,471(622)	634,026(2,553)	642,173(2,586)	467,615(1,883)	454,005(1,828)
1968	213,398(859)	214,817(865)	742,466(2,990)	744,352(2,998)	521,773(2,101)	516,274(2,079)
1969	281,854(1,135)		856,563(3,450)		559,432(2,253)	

BASIC DATA SHEET (III)

Year	(8) Industrial Investment Goods I_d (a) mil won(mil US$)		(9) Agricultural Output Q (a,e) mil won(mil US$)		(10) Net Agricultural Exports E'_a (a,c,d,e,i) mil won(mil US$)	
1955	41,812(168)		229,952(926)		11(0)	
1956	47,493(191)	55,360(223)	220,336(887)	230,630(929)	-9,095(-37)	-14,369(-58)
1957	76,772(309)	64,790(261)	241,601(973)	240,012(967)	-34,024(-137)	-20,650(-83)
1958	70,102(282)	65,151(262)	258,098(1,039)	252,304(1,016)	-18,831(-76)	-18,177(-73)
1959	48,579(196)	57,470(231)	257,214(1,036)	258,155(1,040)	-1,676(-7)	-11,466(-46)
1960	53,730(216)	54,617(220)	259,152(1,044)	267,761(1,078)	-13,892(-56)	-9,566(-39)
1961	61,543(248)	58,498(236)	286,917(1,156)	274,211(1,104)	-13,129(-53)	-14,921(-60)
1962	60,221(243)	78,114(315)	276,565(1,114)	288,376(1,161)	-17,741(-71)	-22,778(-92)
1963	112,579(453)	90,002(362)	301,647(1,215)	310,931(1,252)	-37,465(-151)	-25,958(-105)
1964	97,207(391)	104,256(420)	354,580(1,428)	341,597(1,376)	-22,669(-91)	-27,151(-109)
1965	102,981(415)	125,862(507)	368,563(1,484)	377,715(1,521)	-21,320(-86)	-19,938(-80)
1966	177,399(714)	148,930(600)	410,001(1,651)	392,601(1,581)	-15,826(-64)	-24,334(-98)
1967	166,411(670)	188,168(758)	399,240(1,608)	406,895(1,639)	-35,855(-144)	-37,971(-153)
1968	220,693(889)	228,078(919)	411,444(1,657)	425,567(1,714)	-62,233(-251)	-60,838(-245)
1969	297,131(1,197)		466,016(1,877)		-84,425(-340)	

BASIC DATA SHEET (IV)

Year	(11) Domestically Used Agricultural Exports $C_a = Q - E'_a$ (a,c,d,e,i) mil won(mil US$)		(11.a) Net Staple Exports E'_f (a,c,d,i) mil won(mil US$)		(12) Total Exports E (a) mil won(mil US$)	
1955	229,941(926)		-1,620(-6.52)		18,740(75)	
1956	229,431(924)	244,999(987)	-8,151(-32.83)	-10,703(-43)	17,170(69)	18,933(76)
1957	275,625(1,110)	260,662(1,050)	-22,337(-89.96)	-14,657(-59)	20,890(84)	20,860(84)
1958	276,929(1,115)	270,481(1,089)	-13,482(-54.30)	-13,594(-55)	24,520(99)	24,300(98)
1959	258,890(1,043)	269,621(1,086)	-4,962(-19.98)	-8,030(-32)	27,490(111)	27,697(112)
1960	273,044(1,100)	277,327(1,117)	-5,646(-22.74)	-6.299(-25)	31.000(125)	32,403(130)
1961	300,046(1,208)	289,132(1,164)	-8,288(-33.38)	-8,323(-34)	38,640(156)	37,680(152)
1962	294,306(1,185)	311,155(1,253)	-10,734(-43.23)	-15,499(-62)	43,320(174)	42,847(173)
1963	339,112(1,366)	336,889(1,357)	-27,476(-110.66)	-17,981(-72)	46,500(188)	48,633(196)
1964	377,249(1,519)	368,748(1,485)	-15,732(-63.36)	-19,107(-72)	56,000(226)	59,833(241)
1965	389,883(1,570)	397,653(1,602)	-14,114(-56.84)	-15,449(-62)	76,920(310)	84,533(340)
1966	425,827(1,715)	416,935(1,679)	-16,501(-66.46)	-16,958(-68)	120,680(486)	122,743(494)
1967	435,095(1,752)	444,866(1,792)	-20,258(-81.59)	-24,304(-98)	170,630(687)	174,980(705)
1968	473,677(1,908)	486,404(1,959)	-33,152(-133.52)	-39,256(-158)	233,630(941)	236,553(953)
1969	550,441(2,217)		-64,358(-259.19)		305,400(1,230)	

BASIC DATA SHEET (V)

Year	(13) Capital Inflow S_f (a) mil won(mil US$)		(14) Total Imports M (a) mil won(mil US$)		(15) Capital Goods Imports M_k (a,c,d,e,i) mil won(mil US$)	
1955	70,780(285)		89,520(361)		19,528(79)	
1956	87,400(352)	87,007(350)	104,570(421)	105,940(427)	9,795(39)	13,487(54)
1957	102,840(414)	90,947(366)	123,730(498)	111,807(450)	11,138(45)	9,517(38)
1958	82,600(333)	81,940(330)	107,120(431)	106,240(428)	7,618(31)	9,336(38)
1959	60,380(243)	70,847(285)	87,870(354)	98,543(397)	9,251(37)	8,540(34)
1960	69,560(280)	60,867(245)	100,640(405)	93,270(376)	8,750(35)	9,803(39)
1961	52,660(212)	66,410(267)	91,300(368)	104,090(419)	11,407(46)	12,642(51)
1962	77,010(310)	78,877(318)	120,330(485)	121,723(490)	17,769(72)	17,956(72)
1963	106,960(431)	80,910(326)	153,540(618)	129,543(522)	24,691(99)	19,888(80)
1964	58,760(237)	72,797(293)	114,760(462)	132,630(534)	17,203(69)	19,131(77)
1965	52,670(212)	65,720(265)	129,590(522)	150,253(605)	15,499(62)	30,894(124)
1966	85,730(345)	83,030(334)	206,410(831)	205,773(829)	59,981(242)	50,263(202)
1967	110,690(446)	124,427(501)	281,320(1,133)	299,407(1,206)	75,309(303)	86,239(347)
1968	176,860(712)	166,127(669)	410,490(1,653)	402,680(1,622)	123,427(497)	117,692(474)
1969	210,830(849)		516,230(2,079)		154,339(622)	

BASIC DATA SHEET (VI)

Year	(16) Raw Material Imports M_r (a,c,d,e,i) mil won(mil US$)		(17) Industrial Consumer Goods Imports M_c (a,c,d,e,i) mil won(mil US$)		(17a) Food Imports M_a (c,d,i) mil won(mil US$)	
1955	55,368(223)		7,918(32)		6,705(27)	
1956	64,955(262)	56,201(226)	12,880(52)	14,680(59)	16,940(68)	21,572(87)
1957	48,280(194)	56,797(229)	23,242(94)	17,479(70)	41,070(165)	28,013(113)
1958	57,156(230)	55,679(224)	16,316(66)	15,453(62)	26,030(105)	25,772(104)
1959	61,600(248)	60,320(243)	6,802(27)	9,252(37)	10,217(41)	20,431(82)
1960	62,204(251)	57,510(232)	4,639(19)	5,768(23)	25,047(101)	20,189(81)
1961	48,726(196)	59,279(239)	5,863(24)	5,556(22)	25,304(102)	26,613(107)
1962	66,906(269)	63,094(254)	6,166(25)	6,390(26)	29,489(119)	34,283(138)
1963	73,651(297)	66,303(267)	7,141(29)	6,093(25)	48,057(194)	37,260(150)
1964	58,352(235)	68,255(275)	4,972(20)	5,951(24)	34,233(138)	39,293(158)
1965	72,762(293)	75,564(308)	5,740(23)	7,624(31)	35,589(143)	35,171(142)
1966	98,579(397)	101,964(411)	12,160(49)	10,692(43)	35,690(144)	42,855(173)
1967	134,550(542)	136,504(550)	14,175(57)	18,183(73)	57,286(231)	58,480(236)
1968	176,383(710)	176,524(711)	28,215(114)	25,891(104)	82,465(332)	82,574(333)
1969	218,638(881)		35,282(142)		107,971(435)	

BASIC DATA SHEET (VII)

Year	(18) Total Investment I (a) mil won(mil US$)		(19) Industrial Goods Consumption $C_i = [(7) + (17)]$ (a,c,d,e,i) mil won(mil US$)		(20) C_f (a,c,d,e,i) mil won(mil US$)	
1955	61,340(247)		222,471(896)		227,279(915)	
1956	57,290(231)	68,647(277)	254,663(1,026)	239,744(966)	210,232(847)	227,665(917)
1957	87,910(354)	74,307(299)	242,098(975)	253,284(1,020)	245,484(989)	235,740(949)
1958	77,720(313)	74,487(300)	263,090(1,060)	270,029(1,088)	251,505(1,013)	247,256(996)
1959	57,830(233)	66,010(266)	304,899(1,228)	291,588(1,176)	244,778(986)	245,993(991)
1960	62,480(252)	64,420(259)	307,675(1,239)	299,843(1,208)	241,696(973)	253,287(1,020)
1961	72,950(294)	71,140(287)	286,954(1,156)	308,310(1,242)	273,388(1,101)	256,835(1,034)
1962	77,990(314)	96,070(387)	330,300(1,330)	312,950(1,260)	255,422(1,029)	272,508(1,097)
1963	137,270(553)	109,890(443)	321,597(1,295)	328,516(1,323)	288,713(1,163)	290,503(1,170)
1964	114,410(461)	123,387(497)	333,650(1,344)	348,736(1,404)	327,374(1,318)	313,208(1,261)
1965	118,480(477)	146,757(591)	390,962(1,575)	369,800(1,489)	323,536(1,303)	336,443(1,355)
1966	207,380(835)	189,193(762)	384,788(1,550)	419,180(1,688)	358,420(1,443)	342,068(1,378)
1967	241,720(973)	264,407(1,065)	481,790(1,940)	472,189(1,902)	344,247(1,386)	354,073(1,426)
1968	344,120(1,386)	345,770(1,393)	549,988(2,215)	542,164(2,184)	359,553(1,448)	378,267(1,523)
1969	451,470(1,818)		594,714(2,395)		431,001(1,736)	

BASIC DATA SHEET (VIII)

Year	(21) Total Population X (b) thou persons	(22) GDP (a) mil won(mil US$)		(23) Industrial Real Wage Wi (b,f,j) won (US$)	
1955	21,532	445,310(1,793)		55,128(222)	
1956	22,307	449,800(1,812)	447,973(1,804)	54,120(218)	54,312(219)
1957	22,949	448,810(1,808)	471,507(1,899)	53,608(216)	55,828(225)
1958	23,611	515,910(2,078)	500,537(2,016)	59,676(240)	57,672(232)
1959	24,291	536,890(2,162)	533,813(2,150)	59,652(240)	58,096(234)
1960	24,989	548,640(2,210)	553,463(2,229)	54,960(221)	57,396(231)
1961	25,700	574,860(2,315)	571,547(2,302)	57,576(232)	56,932(229)
1962	26,432	591,140(2,381)	603,900(2,432)	58,260(235)	58,340(235)
1963	27,184	645,400(2,599)	646,167(2,602)	59,184(238)	58,420(235)
1964	27,958	702,020(2,827)	699,520(2,817)	57,816(233)	58,720(237)
1965	28,670	751,140(3,025)	766,537(3,087)	59,184(238)	59,840(241)
1966	29,208	846,450(3,409)	835,713(3,366)	62,520(252)	64,464(260)
1967	30,067	909,550(3,663)	928,020(3,737)	71,688(289)	71,316(287)
1968	30,747	1,028,060(4,140)	1,043,237(4,202)	79,740(321)	80,320(323)
1969	31,410	1,192,100(4,801)		89,532(361)	

BASIC DATA SHEET (IX)

Year	(24) Agricultural Real Wage W_a (f,g,k) won(US$)		(25) Price of Agricultural Goods P_a (1965 = 100) (f,k) %		(26) Price of Industrial Goods P_i (1965 = 100) (f,j) %		(27) Industrial Capital Stock K (a,l) mil won, mil US$	
1955	56,817(229)		25.7		32.0		2,547,010	10,258
1956	50,898(205)	48,531(195)	41.1	38.0	39.2	39.0	2,571,280	10,356
1957	37,878(152)	48,728(196)	47.2	42.3	45.8	43.4	2,596,940	10,467
1958	57,408(231)	57,014(230)	38.7	39.7	45.2	46.5	2,632,570	10,602
1959	75,756(305)	65,694(265)	33.3	37.3	48.6	38.8	2,658,820	10,708
1960	63,919(257)	66,484(268)	40.0	40.1	52.6	52.8	2,688,210	10,826
1961	59,776(241)	60,762(245)	47.1	46.3	57.3	57.1	2,720,550	10,957
1962	58,592(236)	56,422(227)	51.8	58.5	61.5	62.6	2,768,780	11,151
1963	50,898(205)	54,646(220)	76.6	74.8	69.0	72.3	2,826,480	11,383
1964	54,449(219)	54,844(221)	96.0	90.9	86.3	85.1	2,871,310	11,564
1965	59,184(238)	59,578(240)	100.0	100.7	100.0	98.4	2,933,820	11,816
1966	65,102(262)	64,510(260)	106.1	109.4	108.8	108.9	3,052,860	12,295
1967	69,245(279)	69,442(280)	121.5	123.3	117.9	118.9	3,206,950	12,916
1968	73,980(298)	73,980(298)	142.3	142.1	130.1	128.1	3,442,970	13,866
1969	78,715(317)		162.4		136.3		3,730,920	15,026

BASIC DATA SHEET (X)

Year	(28) Agricultural Savings S_{a} (a,1) mil won		(29) Industrial Savings S_{i} (a) mil won		(30) Total Savings S (a) mil won	
1955	13,551(55)		-22,991(-93)		61,340(247)	
1956	-4,577(-18)	12,238(49)	-25,533(-103)	-30,398(-122)	57,290(231)	68,847(277)
1957	27,741(112)	14,550(59)	-42,671(-172)	-31,196(-126)	87,910(354)	74,307(299)
1958	20,405(83)	18,360(74)	-25,365(-102)	-25,814(-104)	77,720(313)	74,487(300)
1959	6,855(28)	11,366(46)	-9,405(-38)	-16,203(-65)	57,830(233)	66,010(266)
1960	6,759(27)	10,304(41)	-13,839(-56)	-6,751(-27)	62,480(252)	64,420(259)
1961	17,299(70)	9,171(37)	2,991(12)	-4,441(-18)	72,950(294)	71,140(287)
1962	3,454(14)	18,689(75)	-2,474(-10)	-1,495(-6)	77,990(314)	96,070(387)
1963	35,313(142)	23,637(95)	-5,003(-20)	5,343(22)	137,270(553)	109,890(443)
1964	32,144(129)	27,030(109)	23,506(95)	23,560(95)	114,410(461)	123,387(497)
1965	13,633(55)	23,704(95)	52,177(210)	57,332(231)	118,480(477)	146,757(591)
1966	25,336(102)	13,113(53)	96,314(388)	93,050(375)	207,380(835)	189,193(762)
1967	370(1)	10,124(41)	130,660(526)	129,856(523)	241,720(973)	264,407(1,065)
1968	4,666(19)	3,454(14)	162,594(655)	176,190(710)	344,120(1,386)	345,770(1,393)
1969	5,325(21)		235,315(948)		451,470(1,818)	

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