

ET 11-3

THE POLITICAL ECONOMY OF THE REPUBLIC
OF KOREA

A proposal for a model framework of an open
economy in the ESCAP-region, with emphasis
on the role of the State.

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The present study aims to contribute to the development of a differentiated model framework to evaluate the impact of international trade on the socio-economic structures of the ESCAP-countries. In a region as heterogenous as the ESCAP-region a great many of development issues prevail in an equally diverse amount of specific socio-economic structures. The nature and causes of main economic and social constraints to development are different in Bangladesh from those in Malaysia and Indian economic and social development differs from South Korean development.

- 1) openness of the economy;
- 2) size of the economy;
- 3) demographic characteristics (such as population density, migration);
- 4) mineral resource richness or dependence on oil imports.

1. large (closed) economies : a) densely populated
b) sparsely populated
2. small (open) economies : a) densely populated
b) sparsely populated.

* I owe special thanks to Mrs. Hermine Weyland, whose knowledge of the broad spectrum of development issues was of great help to me in writing this study. Discussions with Valpy FitzGerald sharpened my views on the role of the state in the process of capital accumulation. I would like to thank Roel Vriezen for his conscientious data compilation, providing basic material for the issues treated in chapter V. Finally, I received valuable critics on an earlier draft of this paper from Pitou van Dijck, Hidde Smit, Roel Vriezen and Hermine Weyland. Of course, I alone, have responsibility for the presented views and remaining errors.

- 1) Smit, Vos and Weyland (1980), Medium- and Long-Term Models for the ESCAP-Region, Paper prepared for the conference 'On Global Modeling', Dubrovnik September 1-5 (revised version, mimeographed, October 1980).

It was analyzed that the macro-economic closures will differ according to the type of economy involved and, additionally, the level of economic development. Analysis was stylized around the agriculture - non-agriculture dualism. The importance of agriculture in the process of accumulation was analysed to be different in economics with high population density and land shortage vis-à-vis economies which are sparsely populated and 'enjoying' relative land abundance. High population density prevails in many Asian countries (such as India, Bangladesh, South Korea) and has generally led to an agrarian structure with small average size of the holdings and a high productivity per hectare. Land abundance in sparsely populated countries, like many in Latin America and few in Asia (Malaysia, The Philippines), has often created large inequalities in the size of the holdings and a duality in the productivity per hectare. These different demographic and technological factors together with institutional characteristics, esp. ownership patterns create different agrarian structures with different conditions with respect to:

- (i) the supply of food;
- (ii) the determination of the level of productive and remunerative employment to the rural labour force, and labour force availability to non-agricultural sectors;
- (iii) the importance of foreign exchange earnings through agrarian exports;
- (iv) the financing of non-agricultural development through transfers of agricultural surpluses.

The importance of international trade (import-, export-structure) will further determine the internal structure and the adjustment processes of the economy. In imperfect market economies, as most LDCs are, the state plays a significant role in the process of structural change of the economy. State policies directly and indirectly influence the real and monetary transfers between different sections (production sectors, socio-economic groups) of the economy. In many Asian economies (also non-centrally planned) the state has become a dominant actor in the economy. Therefore special attention will be paid to the nature and role of the state in the different country types.

It was perceived that the model framework was to be made substantial through the undertaking of various pilot studies. The current study aims to be a first step in that direction. In the first place, the study gives a set-up for a model framework of the South Korean economy. In the second place, the methodology used and the basic features of the proposed model specifications are meant to present an example according to which other (types of) economies can be modelled comparatively.

The emphasis of the study is on the qualitative assessment of the main macro-economic development issues of the South Korean economy, i.e. the economics of the modeling effort is being emphasized. Every modeling effort will have to be clear on the causalities involved, for when models do not show the directions of causality properly, the model conclusions are apt to be perverse when applied to conditions for which they were not invented. Though this may sound quite evident, caution in the model specification is often blurred by econometric enthusiasm.

I.2 The Korean economy

The Republic of Korea (2) has known very rapid economic growth rates during the 1960s and 1970s and has developed to a so-called semi-industrialized country. The successful export-led industrialization strategy has made the economy a member of the "Gang of Four" of rapidly growing Asian economies (with Taiwan, Hong Kong, Singapore).

The economy is characterized by a high population density (358 persons per km² in 1975) (3), a medium-sized (potential) domestic market (total population of 35 million persons in 1975) and poor natural resource endowment. The agrarian structure is characterized by small land holdings and relatively equal land ownership after two land reforms (in 1947 and 1950). Some factors have been of major importance in post-war Korean economic development:

- 1) The high population pressure on the land produced a low wage structure which allowed for 'vertical financing' of industrialization.
- 2) The transition of a mainly agrarian society towards an urban and industrial oriented economy was further financed by high levels of foreign capital inflows (initially mainly U.S. aid). This latter condition allowed for high foreign exchange gaps caused by the high import component of industrial production.
- 3) After the wars (World War II and the Korean-war) the Southern part of the Korean peninsula was left with a rather weak social class formation. Former dominant agricultural elites (feudal land lords) and Japanese colonialists were virtually eliminated due to social breakdown after the war and two land reforms. This created a base for a strong hold by the state over society. The international political context ('threat of communism') 'necessitated' guidance of the Korean state by American international policies. Still, the Korean state has had strong influence on economic development and especially since the 1960s coherent government policies have been another major factor in economic growth performance.

(2) Or South Korea. In this study we will generally simply refer to the country as Korea.

(3) Cf. Japan with 294 persons and The Netherlands with 383 persons per square kilometer.

A periodical breakdown of post-war economic strategies can be made as follows.

- a) 1953-63: Period of economic reconstruction (financed by foreign aid), vast education programs and import substituting industrialization emphasizing on light manufactured and non-durable consumer goods;
- b) 1964-72: The understanding that (i) Korea's natural resource endowment is very poor and (ii) the realization of further opportunities were only to be found in intermediate and durable consumer goods for a (still) limited domestic market, led to a radical redirection of economic policies towards an 'outward looking' strategy based on labour intensive manufactured exports. Foreign exchange gaps remain high, but are increasingly financed out of public and private foreign loans.
- c) 1973-80: The maturing of the industrial sectors and competition from other low cost producing LDC exporters lead to attempts to diversify the export sector towards more skill and capital intensive industries. Some selective import substituting policies have not led to a closure of the foreign exchange gap. An increasing share of foreign capital inflows consists of direct private investments.

It is, however, not the aim of this study to explain the Korean "political economy of success" as such, but to provide the qualitative material for a model framework of an open economy in the ESCAP-region.

I.3 Main issues of the study

The focus of the study is mainly macro-economic. Starting from the internal trade structure, the process of capital accumulation is linked to the structure of production and income distribution. Special emphasis is given to the role of the state as a dominant actor in the economy. Following the sequence of the chapters, the main issues can be summarized as follows:

1. Foreign trade (chapter II):

Exports increased very rapidly from the 1960s onwards, through successful expansion of manufactured export production. As factors underlying this type economic strategy have been mentioned: Korea's poor natural resource endowment, the limited scope for import substituting industrialization, a large labour force available for industrial production with relatively high educational levels and external conditions as external demand for light manufactured exports, foreign aid and other capital inflows.

Imports increased at least proportional to export growth. The import component of the industrialization process has been high due to Korea's poor natural resource endowment and relatively low levels of import substitution in intermediate and capital good sectors. Additionally, significant food imports have remained necessary to feed a rapidly growing urban population and have been due to a relative neglect of the agrarian sector.

Political ties with the U.S. and Japan and high economic growth rates have 'secured' high levels of foreign capital inflows (aid, borrowing and direct investments). Due to sufficient foreign financing and a high velocity of foreign capital into productive investment, the foreign exchange gap has not been a constraint to economic growth. Although trade dependence on the U.S. and Japan has been reduced in the 1970s, these two political allies remain the main suppliers of foreign capital.

2. Capital accumulation and development finance (chapter III):

At the macro-economic level the political economy of growth can be well analyzed by using the accumulation balance of national account aggregates, which specifies the main economic actors at the macro-level. The process of appropriation of surplus, decision-making on investment and savings and transfer mechanisms between surplus and deficit entities in the economy will have to result into ex-post equilibrium of the accumulation equation, which can be derived as follows (4).

Aggregate income : $Y = C + I + E - M$

Income outlay : $Y = C + S$, so that

Accumulation balance : $I = S + (M - E)$.

The accumulation balance defines the ex-post equality between capital formation (investment) and domestic and foreign savings. By introducing an institutional split between households (H), enterprises (E) and the state (G) (the main 'actors' at the aggregate level), the accumulation balance can be reformulated as:

$$(I_G - S_G) = (S_H - I_H) + (S_E - I_E) + (M - E).$$

-
- (4) In which: Y = gross domestic product, equal to gross domestic income;
C = total consumption; I = total investment; E = total exports of goods and services; M = total imports of goods and services; S = total savings.

The process of reconciliation of the ex-ante behaviour of the various institution to an ex-post equilibrium of the above investment and saving gaps, will differ according to type of economy and the political balance of power, mediated through the state (5).

A Kaleckian approach is adopted to analyze the process of development finance, which means that investments are not considered to be constraint by saving, but will be determined rather by profit expectations and structural features of the economy.

The Korean adjustment mechanism towards the ex-post equilibrium of the accumulation balance is characterized by:

- a certain extent of Keynesian effective demand adjustment (income-related savings growth);
- high levels of foreign financing (external dependence);
- increased domestic resource allocation, due to monetary and tax reforms. Households are identified as surplus units transferring funds to the enterprises and the state through the banking sector (financial intermediation);
- 'forced savings' through excess money creation to cover the government deficit ($I_G - S_G$) is the residual determining the closure of the accumulation balance. Excess money printing is still of minor importance in relation to foreign financing. However, the ultimate effect is a downward adjustment through the price mechanism of private consumption to investment requirements (6).

3. Money, credit and inflation (chapter IV):

The flow of funds between non-financial entities has been analyzed more specifically by introducing financial accounts of the domestic banking sector. Korean economic growth has been accompanied by a rapid growth in financial intermediation. This growth has been strictly controlled through a state dominance of the financial sector. The Bank of Korea (central bank) is directly controlled by the Ministry of Finance and monetary policies are inbedded in the whole of government economic policies. Credit expansion of commercial banks is to a large extent controlled through government measures earmarking funds for target industrial sectors. The above mentioned closing mechanism of the accumulation balance is formulated more accurately through the addition of financial accounts.

-
- (5) I.e. the coercive power of the state to tax certain groups, to reallocate resources to productive sectors, etc.
- (6) In Korea, however, this downward adjustment has only been analyzed in terms of a slower growth of consumption compared to total income growth. The major burden will be carried by low income groups.

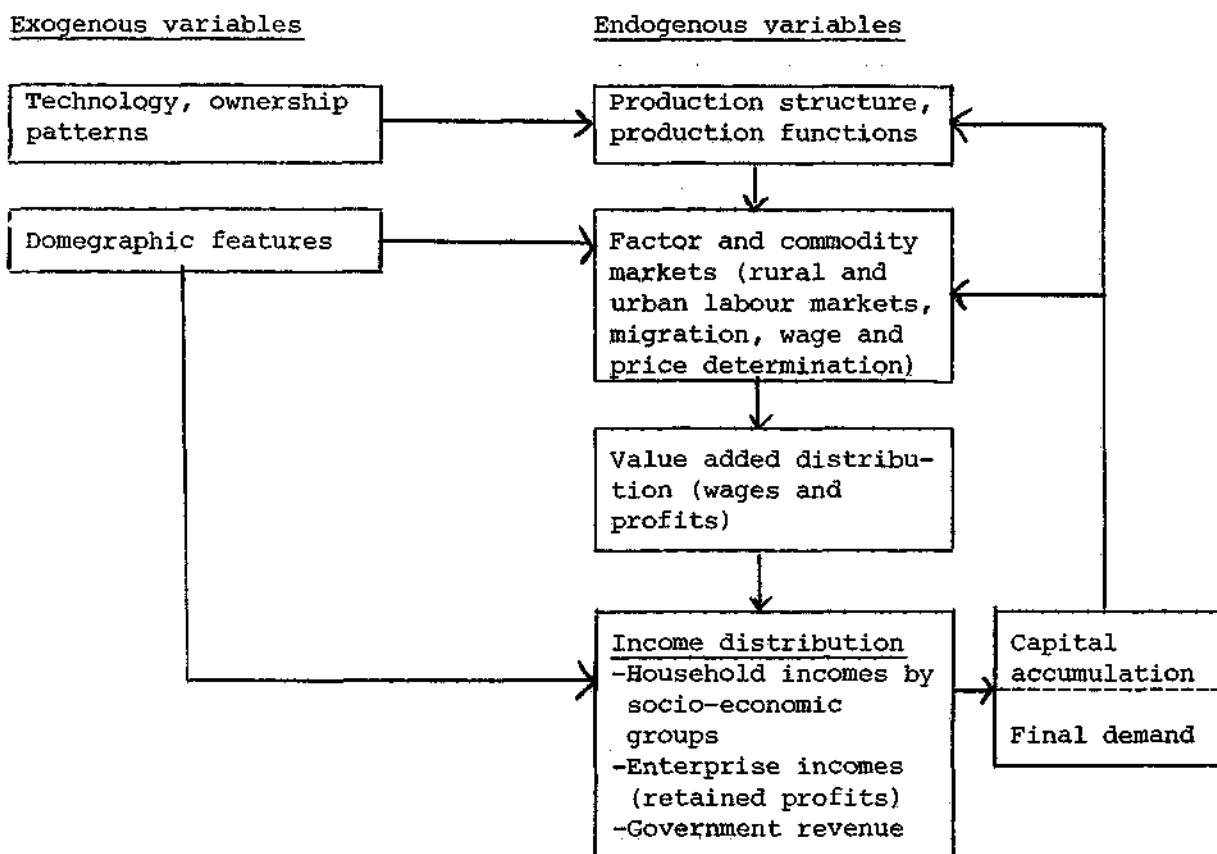
4. Income distribution, productivity and employment (chapter V):

Income distribution in Korea is generally considered to be relatively egalitarian. As major causes of the fairly equal income distribution, one generally refers to:

- equal asset distribution after two post-war land reforms and as a consequence of which only a small amount of landless labourers exist;
- high educational efforts allowing for rapid industrialization;
- labour-intensive manufactured export expansion, creating high absorptive capacity of labour of urban sectors;
- maintenance of the internal terms of trade.

There is no empirical evidence rejecting the above hypothesis. However, income distribution data still suffer from a lack of coherency and consistency. For the model system it will be necessary to link the process of income formation and distribution to the production structure and to the process of capital accumulation. In doing so, chapter V describes the main body of the proposed model system, which can be schematically summarized as:

Table I-1: Scheme of the model system



In order to be able to understand the political-economic workings of Korean society, the composing parts of the model system will have to differentiate between the main actors of the system. The first three chapters allow for a distinction of households, enterprises and the state. In order to identify political leadership, class dominance and social mobility a further distinction has been made:

- within households: 15 socio-economic groups are distinguished according to mode of production (traditional, modern), location (rural, urban), economic status (employer, labourer, self-employed) and education (skilled, unskilled labour);
- within the enterprise sector: enterprises are differentiated according to type of ownership (domestic, foreign), mode of production and size of the firm (traditional, modern; small scale, large scale) and production sector;
- within the state sector: a distinction is being made between general government bodies and public enterprises (in productive activities).

The model specification will be affected accordingly:

- a) production functions differ according to mode of production, industry and type of labour used;
- b) labour market determination: the distinction of different socio-economic groups based upon economic status, location and skill level allows to investigate the specific determinants of labour demand and supply and their interlinkage to changing patterns in the economic structure;
- c) distribution of value added into profits and wages by labour groups and enterprises will follow after allowance for price changes (commodity prices and internal terms of trade);
- d) after allowing for transfer payments and taxation redistributed incomes can be specified according to household incomes by socio-economic group, enterprise incomes (retained profits) and government revenue (taxation);
- e) given income distribution, consumption and saving behaviour can be specified according to socio-economic actors; final demand will further be determined by investment behaviour, export demand and import dependence (through the input-output structure);
- f) the model system is ultimately demand driven (with investment and export demand as main components).

5. Closure of the model and the role of the state (chapter VI):

The closure of the model system needs to describe the process of the economic variables and socio-economic groups which adjust to the behaviour of the dominant actors of the system. As it has already been said above, the Korean state plays a major role in the economic process. A whole range of policy measures have been implemented to stimulate (successfully) economic growth. Traditional Keynesian analysis views the state as a neutral, autonomous economic subject standing above society and correcting economic distortions like a deus ex machina. State intervention then merely becomes a matter of political will and 'good' knowledge of the economic situation. However, not even under political dictatorship such a voluntaristic view can be maintained.

In the Korean case, it can be argued that the state pursues a certain qualitative target, i.e. economic growth as a function to rationalize political dictatorship. Such a target necessarily meets certain constraints in an open and mixed economy:

- from private investment behaviour;
- from the determination of wages; and
- from external conditions (foreign demand and capital).

From this angle, the main components of the adjustment mechanism from the process of capital accumulation are being pieced together once more.

The emphasis of the study is on the qualitative assessment of the main development issues. The formulation of the base relations or equations are still in the preparatory stage. Model specifications as presented at the end of chapters II, III and IV are still of a tentative nature, which statistical significance has not yet been tested. Therefore a chapter VII has been added as a (tentative) working program for the continuation of the project.

II. FOREIGN TRADE

II.1 Foreign exchange gap

In spite of the impressive export growth performance of the Korean economy, a foreign exchange gap has remained persistent. The shift, early 1960s, in economic strategy from inward-looking development (import substitution) towards export-led industrial development has also induced significant growth in import requirements. While exports of goods and non-factor services as a ratio to GDP grew from 3.4 percent in 1960 to 34.0 percent in 1978, there was an import growth from 12.8 percent of GDP in 1960 to 37.1 percent in 1978. The foreign exchange gap in terms of the current account balance of the balance of payments shows a deficit for the 1960-1977 period as well (see table II-2 of statistical annex at the end of the chapter). The size of the foreign exchange gap is considerably lower than the trade gap in the 1960s, due to high inflows of foreign aid, registered as current transfers from abroad. Thus the need for foreign financing (including foreign aid) has remained high. The trade and current account gaps seem to close by the end of the 1970s and in fact do in 1977. However, the gaps increase again in the 1978-80 period as high export growth could only continue by diversifying towards more capital and skill intensive export production. As no significant import substitution policy has accompanied the diversification up to now, high import demand for intermediate input and capital goods has caused continued existence of the external deficit.

Below we will deal with structural changes in both sides of the external balance: exports and imports.

II.2 Export performance

Export growth has been immense since the beginning of the 1960s. In the period 1960-1977 average growth has been 28.7 % annually (see table II-2). Acceleration of export growth has been induced by a radical shift in economic strategy in the early 1960s from inward-looking economic development towards an outward-looking strategy based on exports of manufactures. As major reasons for the policy shift are often mentioned:

- a) Korea's poor natural resource endowment and the reduced demand for primary products of former its colonial ruler Japan;
- b) the by and large completion of import substitution in non-durable consumer goods and the narrowness of domestic markets which put a limit to the scope of import substitution in intermediate products, capital goods and consumer durables;

- c) availability of a large labour force with relatively high education level and relatively low wages, giving a comparative advantage in export markets to light industries using large amounts of low skilled labour.

The successful expansion of export production can be explained additionally by several other factors, which helped Korea in its efforts:

- d) Emerging shortage of unskilled workers in the U.S. and especially Japan led to a sharp rise in labour cost, which stimulated imports demand of these economies for labour intensive products. Rapidly rising wages also reduced Japanese competitiveness on American and European markets, enabling countries like Korea to increase their market share in labour intensive, light manufactures (1).
- e) Enormous inflows of foreign grants and loans contributed considerably to financing a large share of initial domestic investment requirements. Moreover the U.S. Agency for International Development provided a wide range of technical assistance to (export) industries. In the 1970s direct foreign investments (mainly from the United States and Japan) became a significant source of capital inflow and technical assistance as well. Foreign firms dominate in rapidly growing export sectors, like ceramics, metals and products, electrical equipment, and others (see chapter III, table III.4).
- f) In the early 1960s the major share of foreign exchange receipts were earned from military procurement (incl. U.S. off-shore procurement for the Viet-Nam-war) and Won sales to U.N. military personnel, amounting to 53.6 % of total foreign exchange earnings in 1960 however declining to 25.3 % in 1965 and 20.0 % in 1970, to become insignificant by 1975: 2.7 % (2). Most of the earnings were, however, remittances from Koreans stationed in Viet-Nam and revenues from construction and service contracts. Export of goods (both commercial and military) accounted for 8.0 % of total Korean exports mid 1960s (3). These earnings were of some importance, because foreign aid flows from the U.S. begin to decline rapidly from the beginning of the 1960s onwards. However, military earnings were no dominant factor explaining Korea's successful transition towards industrial export production. It therefore seems to be exaggerated to state like Long has done (4) that: "the Viet-Nam war played the same 'locomotive role' for Korea's economy that the Korean war had played for the Japanese economy fifteen years earlier".

(1) Non-economic international factors also helped in some cases. In 1965 a large U.S. market for Korean human hair and wigs opened up when the U.S. government imposed a complete ban on such imports from HongKong for political reasons (S. Watanabe, 1972, p. 516).

(2) Westphal (1978), p. 358.

(3) Cole and Lyman (1971), p. 135.

(4) D. Long (1977), p. 33.

g) The new, outward-looking economic policies were implemented by a military controlled regime, which had taken over power from 1961 onwards. Export-oriented industrial and trade policies contributed in large measure to the economic growth 'success'. Without going into detail, these policies consisted among others of:

- (i) Liberal import policies towards intermediates and capital goods. Unrestricted access to and tariff exemptions on these type of imports were also used for encouragement of foreign investment in the form of 'bonded processing' trade, by which foreign buyers are permitted to supply materials duty free for processing in Korea, i.e. a form of international subcontracting. Export manufacturers then do not pay for raw materials, but receive cost remittances of processing work from foreign buyer (5).
- (ii) Establishment of export industrial estates with low prices for factory sites and the establishment of the Masan Industrial Free Export Zone.
- (iii) Several fiscal incentives like: exemptions of indirect taxes on inputs and direct tax reduction on export incomes; provisions for accelerated depreciation in export sectors; discounts on energy and transportation cost and immediate access to subsidized short- and medium-term credit to finance working capital and fixed investment.
- (iv) Maintenance of a realistic exchange rate: in early 1960s frequent devaluations stimulated export production.

These factors were of major influence to the rapid increase in manufactured exports and economic growth. In 1965 a turning point in industrial growth and export performance can be seen from aggregate data. Manufactured export production contributed largely to the growth in manufactured output, amounting to a compound annual growth of 24 % in the 1965-75 period, compared to 11 % in the period 1955-65. The share of exports in manufactured output rose from 0 % in 1955 to 9.7 % in 1965 and 28.6 % in 1976. The share of manufactured products in the exports of goods and non-factor services increased from 19.2 % in 1960 to 90.7 % in 1978.

Table II-3 shows dominance in the first expansion period of manufactured exports of relatively labour-intensive industrial sectors like clothing (SITC-84), textiles (SITC-65), footwear (SITC-85), wigs and false beards (SITC-89995), which accounted for about 50 % of merchandise exports during second half of the 1960s. In the 1970s there is a continuous shift towards

(5) S. Watanabe (1972), p. 519.

more capital - and skill-intensive products, like machinery and transport equipment (incl. shipbuilding) and also the level of diversification increases, towards a.o. wood products and within miscellaneous all types of electronic equipment and appliances. A similar trend of diversification has set in with regard to penetration of markets. Table II-4 shows that Korea succeeded in reducing dependence on U.S. and Japanese markets. This makes the Korean economy less dependent on political relations with America and Japan and trade policies of these countries. However, as has been noted above, several export sectors are dominated by foreign firms which by and large originate from Korea's 'big brothers', the United States and Japan. Korean export performance will depend in the medium and long-run on diversification efforts as it will be threatened by competition from other 'low wage' LDCs in the region such as Sri Lanka, Thailand and The Philippines (6) and major part of Korea's merchandise export consists of products risking trade discrimination by developed importing countries, i.e. products like textiles, clothing, footwear and electronics.

II.3 Import structure

Import growth rates (table II-5) have been generally below export growth rates. As the latter were based on lower initial absolute levels, import growth has been significant enough to 'secure' a sustained foreign exchange gap. Only in recent years (1975-1977) by attaining high export growth rates exceeding import growth, Korea succeeded in closing its trade balance (1977 only).

Major share of commodity imports (80 to 90 percent) consists of imports of intermediate goods and capital goods, whereas consumption good imports mainly relate to food imports (table II-6).

Several characteristics of the Korean economy explain such import structure:

- 1) The poor natural resource endowment of the South Korean economy, leaves the country with a high level of minimum import requirements, which can be classified as non-competitive imports (7). A significant domestic

(6) In fact Korean average wages do exceed wages in these countries. Cf. D.C. Rao "The Pattern of Economic Growth, 1961-76", in: Hasan and Rao (eds) (1979), p. 18.

(7) Imported commodities are defined as competitive, when these are close substitutes for commodities domestically produced, whether they are used for further production (intermediates) or for final use. Non-competitive imported commodities are defined as commodities for which there is no domestic counterpart, of which imported raw materials form the most important 'complementary' commodity category. In terms of input-output accounting, non-competitive imports enter the I-0 table as a row in the primary input matrix. Imports classified as competitive enter the I-0 table as final demand with a negative sign. In the latter case intermediate demand flows contain both domestic and imported produce; imports thus influence technical input coefficients. However, for many items the true (see page II-5, below)

natural resource base only exists for silk textiles, cements and ceramics. Oil imports amount to 15.2 percent of total imports on average for the 1972-1978 period.

- 2) Food imports remain necessary as domestic food production remains insufficient to meet consumption requirements. Food demand has increased with rising incomes and the agrarian sector needs to produce an increasing surplus to meet consumer demand of a rapidly growing urban population (see figure II-1). Agricultural productivity has developed rather slowly up to the 1970s. Higher investment efforts in the 1970s under the third development plan did raise productivity increases to about 4 percent annually, but still appear as insufficient to cover supply deficits of especially cereals (wheat, barley) (see figure II-2).
- 3) Economic development in the 1950s has been characterized by import substituting industrialization. In that period import substitution for non-durable consumer goods has been virtually completed. Import substitution policy has not been pervasively extended towards intermediate products, capital goods and consumer durables as domestic demand was considered to be too small. Import substitution only took place in some intermediate sectors (with large public investment funds), such as fertilizers, natural-fiber yarns, steel. Government policy towards imports of consumer durables (8), only created a miniscule contribution to overall growth (9). However, it does explain the low component of non-food consumer good imports in total imports. The share of durable consumer good imports in total did not exceed 2.0 percent in the 1972-78 period.
- 4) Imports of intermediate products and capital goods absorbed the major share of import growth. This part of import growth is narrowly related to industrial export production. It has been estimated that the direct import component of exports roughly reaches a 50 percent level (10).

(7. cont.) separation of input between imported and domestic components by sector is not easily achieved, because in many cases it is simply not known. The same holds for the distinction between competitive and non-competitive imports, because for some items there will be no domestic produce in one stage of economic development, whereas domestic production may have been developed in another stage. As such it presents a problem which has to be handled carefully.

(8) Imports of automobiles, refrigerators and televisions have been largely prohibited. Satisfaction of most domestic demand only was made possible after start of domestic production.

(9) See L. Westphal, "Manufacturing", in: Hasan and Rao (eds) (1979), p. 248.

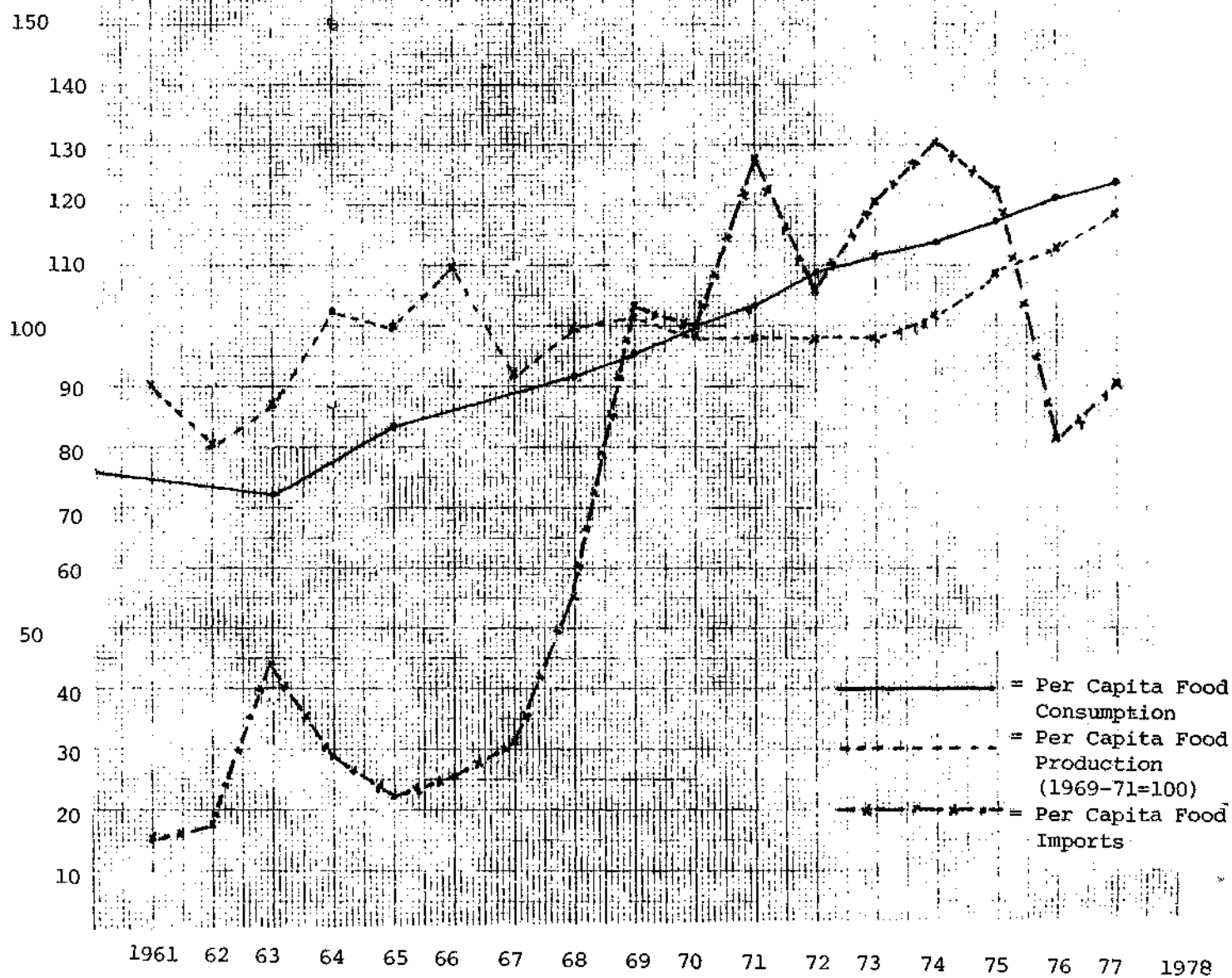
(10) Frank, Kim and Westphal (1975), pp. 81 ff and Westphal (1979), *ibid*, p. 259.

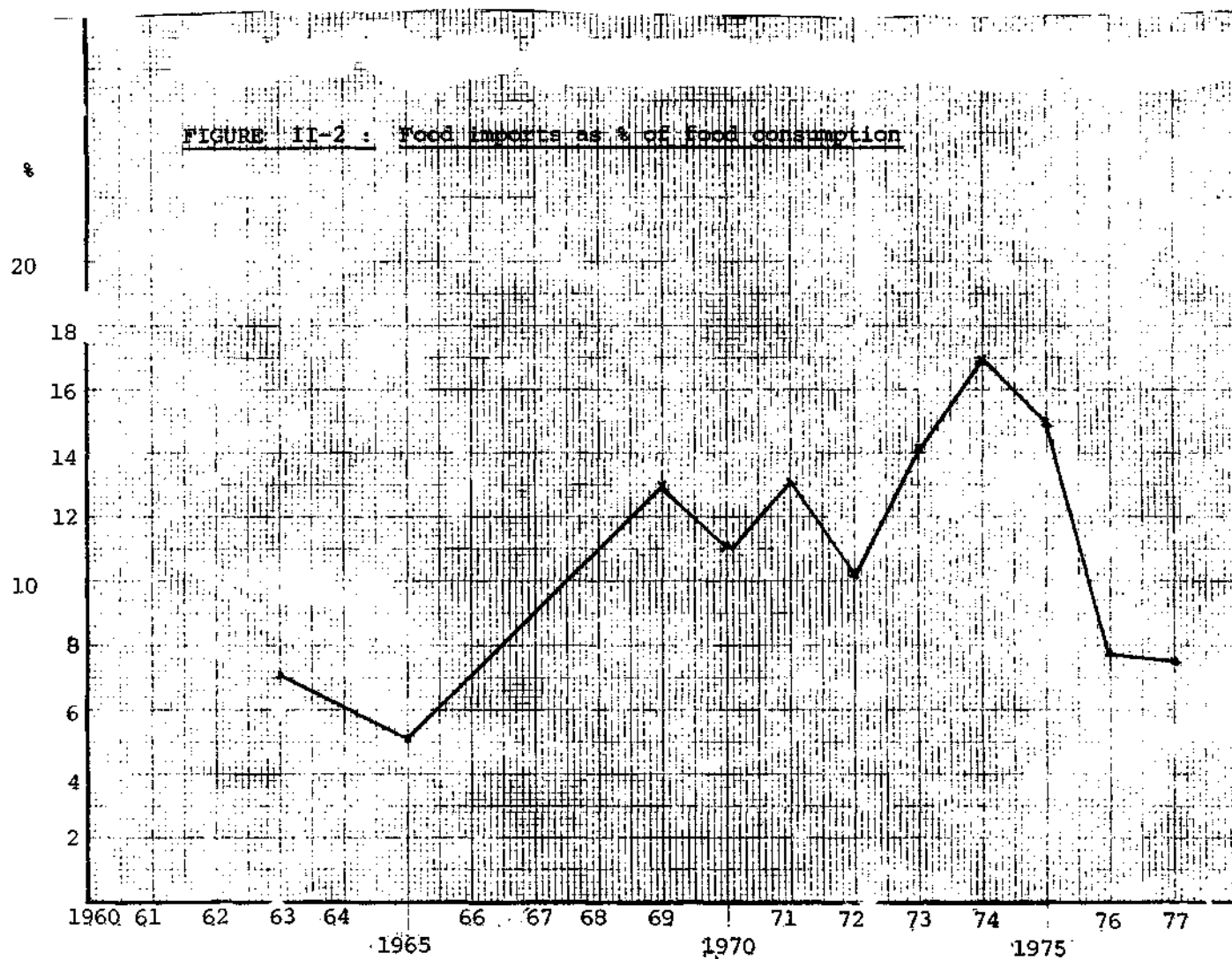
- 5) Import substitution policy has been rather selective from the 1960s onwards and these could be selective as export growth remained high and huge foreign aid and capital inflows filled the throats of hungry Korean investors. These conditions, export growth and no difficulties in attracting foreign capital, release imports to a practically unconstrained level.

Although the trade balance closed in 1977, import growth did not stagnate. On the contrary imports grew significantly in 1976 and 1977 (26.9 and 23.8 percent respectively), and import requirements are expected to rise continuously in the near future as well, as the currently most dynamic industrial sectors are the more capital-intensive sectors like machinery, electrical equipment and transport (esp. shipbuilding).

FIGURE II-1 : Food Demand and Food Supply

Volume
index
(1970=100)





II.4 Model equations foreign tradeModel equationsExports

$$(II-1) \quad E_i = f_i \left(e \cdot p_{e_i}^* ; \frac{(W/VA)_{kor_i}}{(W/VA)_{for_i}} ; Subs_E \cdot E_i, WTR_i \right)$$

$i = 1, \dots, n$; input-output sectors

Imports

$$(II-2) \quad M = M_{food} + M_c + M_{int} + M_{cap} + M_{other}$$

$$(II-3) \quad M_{food_i} = f_i (C_{food_i}, X_{food_i}, \Delta St_{food_i}^*, P_{m_{food_i}}^*)$$

$$(II-4) \quad M_{c_i} = \bar{M}_{c_i}$$

$$(II-5) \quad M_{int_i} = f_i (t_{m_i}, \mu_i X_i)$$

$$(II-6) \quad M_{cap} = f_i (I_{p_i}, I_{g_i})$$

$$(II-7) \quad M_{other} = \bar{M}_{other}$$

Foreign Trade Balance

$$(II-8) \quad F = \sum M_i - \sum E_i$$

List of symbols

E_i = Exports by industry i

e = Exchange rate

$p_{e_i}^*$ = World market export prices of commodity output of industry i

W_{kor_i} = Wage level in Korean industry i

VA_{kor_i} = Value added in Korean industry i

W_{for_i}	= Wage level in competing foreign industry i
VA_{for_i}	= Value added in competing foreign industry i
$Subs_E$	= Export subsidies
WTR_i	= World trade volume by industry-linked commodity
M_i	= Imports by industry (or type of commodity) i
M_{food}	= Food imports
C_{food}	= Food consumption
X_{food}	= Domestic food production
ΔSt_{food}	= Use of food stocks
$P_m^*_{food}$	= Import prices of food items
M_c	= Imports of non-food consumer goods
M_{int}	= Intermediate imports
t_m	= Import tariffs
μ_i	= Input coefficient of output of industry i
X_i	= Output of industry i
M_{cap}	= Imports of capital goods
I_p	= Private investments
I_g	= Public investments
M_{other}	= Other imports

II.4.1 Exports

Exports largely are determined by exogenous factors, by world market prices for each commodity (p_e^*); wage cost differentials per unit of production in Korean export sectors compared to wage levels prevailing in competing economies

$\left(\frac{(W/VA)_{kor_i}}{(W/VA)_{for_i}} \right)$ and world trade volume per sector (WTR_i).

Government policy has been introduced as directed towards influencing prices of export sectors to a competitive level. This can be effectuated by trying to influence the cost structure of export production, i.e. by keeping Korean wages low and by subsidizing export prices in relation to world market prices or changing the exchange rate (e).

It is clear that exports largely are demand oriented. Differences between cost structure of Korean industrial production and that resulting from international market competition will determine foreign demand for Korean products. Export oriented industrialization has been supported by liberal import policies towards intermediate and capital goods. Therefore Korean exports (having no natural resource base) are not considered to be supply oriented or supply constrained.

First entrance towards export specification will be disaggregation by commodities according to SITC-numbers. Disaggregation should be most detailed towards manufacturing products. Linkage of commodity data to input-output sectors will be the following step which is, however, with regard to certain commodities and sectors a very difficult procedure. Some compromises probably will have to be made.

As penetration of developed market economies is important for Korean export performance, disaggregation by bilateral trade flows will have to be included as a final extension. The trade matrix to be constructed must contain international, national and sectoral consistency requirements.

II.4.2 Imports

It is fashionable to distinguish between competitive and non-competitive (complementary) imports. As has been noted above (footnote 7) a problem occurs in defining whether a product or sector output is competitive or not and whether it remains in the same category in the period analyzed. Therefore as a first entrance the distinction is made by type of and use of import goods. Imports are defined to contain imports of food (M_{food}), non-food consumer goods (M_c), intermediate goods (M_{int}), capital goods (M_{cap}) and other commodities and services (M_{other}).

Equation II-3 relates food imports to aggregates of demand for and supply of food. Food demand (C_{food}) will be determined elsewhere in the system, depending on income levels and demand elasticities of food consumption to food prices and incomes. Domestic food supply will consist of domestic food production (X_{food}) and use of grain stocks (ΔSt_{food}). The former variable is determined by the agricultural production function. Grain stocks will depend on government policies in previous periods, as the Korean state organized grain funds and grain stock accumulation as a base for the food price control system. The development of domestic food prices vis-à-vis world market prices of food products (esp. grains), the size of the grain stock and the size of the grain funds (to subsidize food prices) will determine the level of food imports to cover the domestic deficit (see also chapter V, par. 4 on this).

Equation II-4 shows that imports of non-food consumer goods are assumed to be exogenous, or more correctly to be an instrument of government policy (11). Import substitution has been or is being effectuated for these type of commodities through import quota, or even by simply prohibiting imports of certain commodities (see above par. II.3). If policy changes would lead to indirect controls through import tariffs, the equation can be easily transformed into:

$$(II-4a) \quad M_{e_{ij}} = (p_{m_i} - e.p_{m_i}^*) m_{e_i} C_{i,\lambda}^{nf}, \quad \lambda = 1, \dots, k; \text{ socio-economic groups}$$

In which m_{e_i} is the import coefficient by commodity or sector output $C_{i,\lambda}^{nf}$, non-food consumer demand for commodities or sector output by socio-economic group. The import tariff (t_m) equates domestic prices to world market or import prices and is formulated as $(p_{m_i} - e.p_{m_i}^*)$. Consumer demand again will be related to income levels by socio-economic groups and their respective consumption elasticities.

Equation II-5 explains functional relationships of intermediate imports. Intermediate imports (M_{int_i}) relate to input requirements of production (μ_i, X_i , where μ_i are technical input coefficients) and their import component (M_{int_i}). Import tariffs ($p_{m_i} - e.p_{m_i}^*$) form the import substitution policy instrument and will be low (or zero) for export production. Here one might make a split between non-competitive and competitive intermediate imports (raw materials). For competitive imports the price will be determined in the domestic market, and thereby determining the import tariff. In the case of non-competitive imports domestic prices are determined by world prices. Intermediate imports are related to production and not to investments as intermediate imports are part of the supply of working capital to production and will vary proportional to production changes given input and import coefficients.

Equation II-6 relates capital good imports (M_{cap}) to public and private investment efforts (I_p and I_g). The functional relationship can be considered to be quite standard in LDCs, which economies generally lack a significant capital good sector. Import coefficients of private and public investments probably will differ. The import component of public investments is generally lower than that of private investments, as a large share of public investments are in social overhead activities like roads construction which do not have a high import component.

(11) No distinction has been made between consumer durables and non-durables as both contain, also taken together, insignificant importance in the overall import structure.

Equation II-7 assumes the remaining imports (M_{other}) as being autonomous or exogenous.

The foreign trade balance (eq. II-8) defines the foreign capital requirements (F), when leaving aside current transfers from abroad (net) and factor incomes from abroad (net). The latter two categories will be included in the next chapters (III and IV). In fact the trade block closes through the adjustment of foreign financing to import requirements, which are by and large endogenous with the rest of the system (consumption, production and investment). In reality the contribution of import substitution policies in closing the trade gap is small, as imports of consumer goods are insignificant and import tariffs for intermediates are kept low in order to stimulate export production.

STATISTICAL ANNEX TO CHAPTER II

Tables II-1 to II-6.

Table II-1 South-Korea: Foreign exchange gap, 1960-1978

(bln. Won)

	1960	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978
<u>Volume</u>											
Exports of goods & non-factor services	8.2	68.6	381.7	516.9	819.1	1577.7	2071.2	2748.4	4358.5	5966.8	7584.9
Imports of goods & non-factor services	31.0	127.8	643.2	866.6	1015.1	1739.6	2916.4	3612.6	4595.1	5967.4	8264.3
Net current transfers <u>from</u> abroad	18.5	54.0	56.1	58.5	66.9	75.7	90.4	109.7	168.8	107.9	226.5
- Net to government	16.9	35.7	26.5	22.1	19.8	14.0	27.9	32.6	74.0	25.3	18.9
- Net to private sectors	1.5	18.2	29.6	36.4	46.9	61.8	62.4	77.0	94.8	82.5	209.6
Net factor incomes <u>from</u> abroad	1.8	7.7	11.8	- 3.5	- 15.2	- 37.0	- 65.6	-148.9	- 83.8	-101.3	- 49.4
- Compensation of employees	1.5	7.3	23.1	28.6	40.0	31.9	32.6	36.7	66.4	139.2	n.a.
- Property income	0.3	0.4	- 11.3	-32.1	- 55.2	- 68.9	- 98.2	-185.6	-150.2	-240.5	n.a.
Current Account Deficit of Balance of Payments	2.5	- 2.5	193.5	294.7	144.7	123.2	820.5	913.3	151.7	5.9	500.3
<u>Percentage of GDP</u>											
Exports (E)	3.4	8.6	14.3	15.8	20.4	30.1	28.2	28.0	33.2	35.6	34.0
Imports (M)	12.8	16.2	24.1	26.4	25.3	33.2	39.7	36.8	35.0	35.6	37.1
M - E	9.4	7.6	9.8	10.6	4.9	3.1	11.5	8.8	1.8	0.0	3.1
Net current transfers <u>from</u> abroad	7.6	6.8	2.1	1.8	1.7	1.4	1.2	1.1	1.3	0.6	1.0
Net factor incomes <u>from</u> abroad	0.8	1.1	0.4	- 0.2	- 0.4	- 0.7	- 0.9	- 1.6	- 0.7	- 0.6	- 0.1
Current account deficit	1.0	- 0.3	7.3	9.0	3.6	2.4	11.2	9.3	1.2	0.0	2.2

Sources: UN, Yearbook of National Accounts Statistics; IMF, International Financial Statistics.

Table II-2 South-Korea: Export¹⁾ growth, 1960-1977
(annual percentage increase)

<u>Year</u>	<u>growth rate</u>	<u>year</u>	<u>growth rate</u>
1960-63	18.9	1971	20.4
1963-65	29.5	1972	36.9
1966	42.4	1973	55.4
1967	32.7	1974	- 3.1
1968	39.5	1975	16.6
1969	36.1	1976	43.0
1970	19.6	1977	25.7

Source: UN, Yearbook of National Accounts Statistics.

1) Exports of goods and non-factor services in constant prices (1970 = 100)

Table II-3 South Korea: Major Merchandise Exports and Export Shares
(min. US \$, percentage of total merchandise exports)

SITC code	Category	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
0-4	Primary exports ¹⁾	80.6	54.3	51.1	38.9	38.4	31.9	25.5	22.5	21.7	16.5	14.0	12.6	12.4	16.3	10.1	12.5	9.0
0	Food and related products ²⁾	39.8	20.5	22.2	16.1	16.5	11.8	9.6	7.6	7.0	5.2	5.0	5.6	5.1	10.2	5.1	7.8	5.8
1	Tobacco	0.2	0.3	0.3	0.5	2.8	2.2	1.9	2.4	1.8	1.4	0.9	0.7	1.1	1.3	1.1	1.1	0.9
2	Crude materials, excl. fuels ³⁾	35.4	30.4	26.4	21.1	18.5	17.3	13.5	11.7	11.9	8.8	7.0	5.2	3.8	2.7	2.0	2.4	2.0
3	Mineral fuels	5.0	3.0	2.1	1.1	0.6	0.6	0.5	0.8	1.0	1.1	1.1	1.1	2.4	2.1	1.9	1.2	0.3
4	Animal and vegetable fats	0.2	0.1	0.1	0.1	-	-	-	-	-	-	-	-	0.0	0.0	0.0	-	-
5-8	Manufactured exports ⁴⁾	19.2	45.4	48.7	60.9	61.4	68.0	74.5	77.5	78.3	83.5	85.9	87.2	87.2	83.5	89.6	87.5	90.7
5	Chemicals	1.8	1.0	0.5	0.2	0.3	0.7	0.7	1.6	1.4	1.4	2.2	1.5	2.1	1.5	1.5	2.3	2.7
6	Basic Manufactures ⁵⁾	11.3	32.4	35.3	37.9	33.7	32.5	31.5	28.0	26.4	30.9	32.0	35.1	33.7	29.5	30.7	30.7	30.7
62	Rubber manufactures	(0.2)	(0.6)	(0.8)	(0.6)	(0.6)	(0.1)	(0.5)	(0.4)	(0.4)	(0.4)	(0.7)	(0.6)	(1.5)	(1.8)	(1.8)	(1.6)	(1.8)
63	Wood products ⁵⁾	(4.2)	(7.3)	(9.7)	(10.4)	(12.3)	(12.2)	(14.5)	(13.0)	(11.2)	(12.1)	(10.8)	(9.2)	(5.1)	(4.8)	(5.2)	(4.8)	(4.2)
65	Textiles	(0.4)	(9.0)	(16.5)	(15.0)	(13.8)	(15.3)	(13.4)	(10.6)	(10.2)	(12.9)	(10.9)	(13.5)	(11.0)	(12.8)	(12.4)	(10.8)	(12.1)
67	Iron and steel	(1.1)	(13.5)	(3.8)	(7.2)	(3.2)	(0.6)	(0.3)	(0.8)	(1.6)	(2.3)	(5.7)	(5.9)	(10.1)	(4.6)	(4.8)	(3.9)	(4.5)
7	Machinery and transport equipment	2.6	4.7	1.8	3.1	3.8	4.4	5.4	8.5	7.4	8.2	10.6	12.3	15.1	13.8	16.6	17.5	20.4
8	Miscellaneous ⁶⁾	3.5	7.3	11.1	19.7	23.7	30.4	36.9	39.4	43.1	42.0	41.1	38.3	36.3	38.7	40.8	37.0	37.2
84	Clothing	(2.2)	(5.3)	(5.5)	(11.8)	(13.3)	(18.5)	(24.6)	(25.8)	(25.6)	(28.5)	(27.2)	(23.3)	(21.5)	(22.6)	(23.9)	(20.6)	(20.3)
85	Footwear	(0.5)	(0.8)	(7.6)	(2.3)	(2.2)	(2.5)	(2.4)	(1.7)	(2.1)	(3.5)	(3.4)	(3.3)	(4.0)	(3.8)	(5.2)	(4.9)	(5.4)
89995	Wigs and false beards, etc.	(-)	(0.0)	(0.2)	(1.3)	(4.8)	(7.1)	(7.7)	(9.7)	(12.1)	(6.5)	(4.5)	(2.5)	(1.6)	(1.5)	(1.0)	(0.8)	(0.7)
9	Unclassified	0.2	0.1	0.2	0.2	0.1	0.1	0.0	-	0.0	0.0	0.0	0.2	0.4	0.2	0.3	-	0.3
0-9	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Volume index of merchandise exports (1970=100)		43	17	25	32	39		54	78	100	129	193	306	333	410	623	675	771
Merchandise export to GDP (%)		2.0	2.3	3.6	5.9	6.6	6.8	7.7	8.4	9.8	11.4	15.9	24.5	24.7	25.1	28.4	29.0	27.6
Exports of goods and services to GDP (%)		5.2	4.9	6.1	8.6	10.5	11.6	13.3	13.5	14.3	15.8	20.4	30.1	28.2	28.0	33.2	35.6	34.0
Manufactured exports to gross manufactured output (%)		n.a.	3.1	n.a.	9.7	10.0	10.9	12.5	14.1	15.5	19.9	24.8	30.2	33.0	25.1	28.6	n.a.	n.a.
Manufactured exports to GDP (%)		0.4	1.0	2.1	3.6	4.1	4.7	5.9	6.9	7.8	10.1	13.9	21.3	25.6	20.9	25.5	25.3	25.0

Sources: UN, International Trade Statistics; UN, Yearbook of National Accounts Statistics; IMF, International Financial Statistics.

General note: The definition of manufactured exports has been based on that given by Van Dijk and Verbruggen (1978)

Notes: 1) excluding SITC-032, 055, 099 and 243.

2) excluding SITC-032, 055 and 099, i.e. processed fish products, processed vegetables and other processed food respectively.

3) excluding SITC-243, i.e. shaped wood products.

4) including SITC-numbers 032, 055, 099 and 243

5) including SITC-243

6) including SITC-032, 055 and 099.

Table II-4 South Korea: Origin of Merchandise Imports and Destination of Merchandise Exports
(percentage shares)

	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
<u>Imports</u>				
United States	n.a.	39.3	29.5	25.8
Japan	n.a.	36.0	40.8	33.4
Others	n.a.	24.7	29.7	40.8
<u>Exports</u>				
United States	6.7	35.2	47.3	30.2
Japan	63.4	25.1	28.0	25.4
Europe	14.1	12.2	9.1	18.4
Other Asia	11.6	23.9	9.8	14.9
Rest of world	4.3	3.6	5.7	10.9

Sources: D. Long (1977), p. 31 and L. Westphal (1978), p. 361.

Table II-5 South Korea: Import¹⁾ growth, 1960 - 1977
(annual percentage increase)

<u>year</u>	<u>growth rate</u>	<u>year</u>	<u>growth rate</u>
1960-63	17.3	1971	21.1
1963-65	- 7.6	1972	1.2
1966	56.2	1973	36.9
1967	30.8	1974	16.7
1968	43.6	1975	0.2
1969	26.6	1976	26.9
1970	8.0	1977	23.8

Source: UN, Yearbook of National Accounts Statistics.

Note : 1) Imports of goods and non-factor services in constant prices (1970=100).

Table II-6 South Korea: Major Merchandise Imports and Import Shares
(mln. US \$, percentage shares)

Category	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Consumption goods	23.0	16.0	25.6	20.3	17.4	12.8	14.9	17.5	22.2	22.9	23.8	21.0	21.5	17.6	18.7	14.8	12.7	11.6
- Food products	12.7	11.5	21.5	16.9	13.7	10.1	9.4	11.4	16.6	16.1	16.7	14.2	13.4	11.9	13.1	7.1	6.6	6.2
- Others	10.3	4.5	4.1	3.4	3.7	2.7	5.5	6.1	5.6	6.8	7.1	6.8	8.1	5.7	5.6	7.7	6.1	5.4
Intermediate goods	55.6	60.5	47.2	57.3	58.8	52.0	45.9	40.9	39.3	42.4	42.4	44.2	47.2	51.2	50.8	53.1	54.3	48.3
- For consumption goods	44.8	50.5	37.1	50.4	53.6	41.3	39.0	34.3	32.2	34.7	35.2	36.0	36.8	40.4	43.5	45.3	45.3	39.7
- For capital goods	10.8	10.0	10.1	6.9	5.2	10.7	6.9	6.6	7.1	7.7	7.2	8.2	10.4	10.8	7.3	7.8	9.0	8.6
Capital goods	16.3	23.3	27.1	20.5	18.7	29.6	38.3	41.6	37.9	34.7	33.7	34.8	31.2	31.2	30.4	32.0	32.9	39.2
Goods n.e.c.	5.1	0.1	0.1	1.9	5.1	5.6	0.9	0.0	0.6	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.9
Total commodity imports																		
(percentage share) ²⁾	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(value in mln. US \$) ¹⁾	299.8	421.5	559.9	396.5	439.8	675.6	986.7	1471.6	1810.7	1983.4	2390.4	2522.0	4236.6	6864.5	7270.5	8767.5	10803.0	14950.8
(value in mln. US \$) ²⁾	316.1	421.8	560.3	404.4	463.4	716.4	996.2	1462.5	1822.8	1983.3	2393.6	2522.0	4240.3	6851.8	7274.4	8773.6	10810.5	15074.4
Import ³⁾ ratio to GDP	14.9	17.0	16.4	13.9	16.2	20.4	22.4	26.5	25.4	24.1	26.4	25.3	33.2	39.7	36.8	35.0	35.6	37.1
Terms of trade (p_e/p_m) (1970=100)			82.9	83.8	84.9	95.3	100.0	103.4	198.9	100.0	99.1	98.4	93.0	76.3	68.5	79.5	85.3	89.0
Per capita food imports index (1970=100)	15.9	18.1	44.8	29.5	22.5	25.1	31.7	55.9	103.2	100.0	128.3	105.8	120.6	131.4	123.8	81.6	90.5	n.a.

Sources: UN ESCAP, Statistical Yearbook for Asia and the Pacific; UN, Yearbook of National Accounts Statistics; IMF, International Finance Statistics.

Notes: 1) Total of classified items.

2) Data consistent with other international sources; the category "goods not elsewhere classified" becoming a residual as well.

3) Imports of goods and non-factor services.

III. CAPITAL ACCUMULATION AND DEVELOPMENT FINANCE

Economic growth is still highly correlated to capital accumulation, i.e. investment. Korea's impressive economic growth rates are reflected in an equally impressive increase in investment efforts since 1960. Table III-1 indicates, gross investment increased from 10.9 % of gross domestic product in 1960 to 28.4 % on average for the 1974-1977 period.

Though the relation between capital accumulation and economic growth is generally acknowledged, this is not to say that the relationship is unilinear. The closeness of the relation between investment and economic growth will depend on:

- the distribution of investment over sectors, as there will exist productivity differences between sectors;
- the gestation-lag of investments may be large and result to a time-lagged effect on economic growth;
- investments may lead to an increase in domestic production (capacity), but may meet inadequate demand (domestic or foreign), thus creating excess productive capacity;
- learning by doing effects and other externalities, which may result to economic growth without corresponding investment increases.

However, the suggested mutuality of investment growth and economic growth does not mean that the relationship is automatic or the mere result of the working of the market mechanism. Especially when dealing with less developed economies structural disequilibria from institutional rigidities and sectoral discrepancies may hamper the occurrence of Keynesian multiplier or accelerator effects. Public investments then may become important to remove supply bottlenecks (1).

In line with the above argument, it can be argued from a 'structuralist' stand that development finance (savings) is no major constraint to investment. The argument may hold the more for open economies, in which case export surpluses or capital inflows will allow for the closure of the accumulation balance, i.e. investments equalling savings ex post.

This chapter will deal with the above issues within the context of Korean economic development, for the sake of identifying the basic relations between investment and savings and the mechanism underlying the closure of the accumulation balance.

(1) A global treatment of some issues in state intervention in industrializing LDCs can be found in A.M. Choksi (1979) and also Vos (1980).

III.1 Sectoral investment behaviour and investment decision-making

Annual growth of real gross fixed capital formation averaged to about 18 % for the 1960-1977 period. Major share of investments has been absorbed by manufacturing sectors and social overhead capital development (exceeding 50 % of total fixed investment). As table III-2 indicates, investment in the form of social overhead capital (esp. electricity, gas and water, transport and communication) exceeds investment in manufacturing. It has been pointed out, furthermore, that investment growth both in infrastructure and manufacturing has been closely linked with export expansion (2). Of course, in the Korean case this does not sound like a very surprising conclusion. However, for the model system the information is important for the formalization of investment behaviour:

- a) to a large extent investment behaviour in manufacturing will be linked to export demand and additionally by state policy towards stimulating export production and influencing wages;
- b) direct government influence on investment behaviour is significant as public enterprises dominate social overhead sectors (two-thirds of electricity, etc.; one third transport and communication) (3).

III.1.1 Private investment behaviour: manufacturing

Investment growth has been predominant in manufacturing sectors, and more in specific in manufacturing export sectors. The Korean economy is, however, not a very small one (regarding the size of the population) and there exists a considerable (potential) domestic market. Therefore one may allow for two types of investment functions, i.e. one for domestic market production and one for export markets. Continuous growth of Korean investments and related economic growth allows for a predominantly demand-oriented investment function. Domestic demand will be determinant of profit expectations of investors in domestic market sectors. To private investors for export production, of course, trends in export demand will have an important impact on profit expectations. Parameters for investment behaviour by sector and market orientation will have to be estimated with the help of sectoral production statistics.

(2) D.C. Rao, "The Pattern of Economic Growth, 1961-1976", in: Hasan and Rao (eds) (1979), Ch. 1.

(3) For a thorough analysis of public enterprise impact on the Korean economy, see L.P. Jones (1975).

The elasticity of real wages to productivity changes does not prove to be a major explaining variable of profit expectations in recent years. As will follow from analysis in chapter V real wages have grown - on average - in line with productivity increases; in several years real wage increases even exceeded productivity growth. The development of real wages to productivity changes as such then will not explain investment behaviour, but rather wage costs comparative to wage costs in competing industrial export countries. It has been indicated (4), that Korean wage costs remained internationally competitive as these were lower than those in HongKong, Singapore and Taiwan and were about one fifth of wage rates in Japan. However, industrial wage costs were higher than in The Philippines, Malaysia and Thailand. Avoidance of meeting high competition from the latter economies will have to be done by export diversification or shifts in sectoral specialization. As we have seen in chapter II Korea succeeded in changing its export structure towards more skill-intensive sectors like electronics, machinery and shipbuilding.

III.1.2 Public sector investment: basic industries and social overhead

The direct influence of the Korean State on investment is heavily underestimated by the figures supplied in tables III-1 and III-2. Public investments as indicated in the tables only refer to general government investment efforts. Direct investment by the state through a public enterprise 'sector' is far more significant to Korean development than it is often suggested. The underestimation of direct public sector intervention in production in Korea is probably due to the fact that, unlike many LDCs, the Korean state's reliance on public enterprises is not a function of ideological or rethorical imperatives. In most cases public enterprises operate as a rather pragmatic response to the deficiencies and imperfections of the market (5). Or put in other words, they operate in order to remove supply 'bottle-necks'. As in many LDCs, most public enterprises in Korea are in the very capital-intensive sectors characterized by large indivisibilities and strong economies of scale. They operate in highly imperfect product markets and dominate the most concentrated sectors of the economy such as petroleum refining, fertilizers production, tobacco manufactures and non-ferrous ore-mining. The (Gini-)concentration ratio's in each of the above industries in 1972 were 0.98, 0.70, 0.77 and 0.92 respectively (Jones, 1975). From 1963 to 1972,

(4) Rao, *ibid*

(5) Cf. L.P. Jones (1975), pp. 129 ff.

the output of public enterprise sector grew at a real average rate of 14.5 % per year, while the economy as a whole grew at about 9.5 % annually and the non-agricultural economy at 12.2 % (Jones, 1975, p. 74). During the same period Jones's estimates show that about 30 percent of gross investment was absorbed by public enterprises. Its investment share even amounted to 42 % of total investment in 1972.

Developmental motives have dominated the expansion of public enterprise activities over other motives as revenue requirements of the central government (holds only for the historically established cigaretted monopoly) or a state ideology to gain economic power and control. Public enterprise activities have been directed towards creating externalities for the private sector. This makes a functional relation between public investment and private sector behaviour plausible, as it will be suggested in par. III.4. Major share of public enterprise activities have been in import substituting sectors. However, due to the capital-intensive and large scale nature of P.E. production (petroleum refining, mining, transport) and Korea's poor natural resource endowment, public enterprises contributed to an increase of the nation's current account deficit rather than reducing it. In 1971, the public enterprise sector as a whole induced direct and indirect imports that exceeded the sector's total exports, resulting in a 11.6 percent sectoral trade deficit. However, pecuniary externalities of public sector activities towards the private sector are considered to be significant. Import cost of private production might have been considerably higher (given the same economic growth rates) without direct state involvement in production (6).

III.1.3 Investments in other sectors and household investment

Investment in agriculture is predominantly government financed as well. Investments in this sector have been directed towards improving rural infrastructure (irrigation, etc.). Absolute investment levels have increased significantly in the 1970s, maintaining a constant share of 9 to 10 percent of total fixed investment. The major effect of increased agricultural investment effort has been an increase of agricultural productivity to an average of 4 % for the 1970-77 period. Korean agricultural productivity has long been relatively stagnant. Recent investment efforts can be seen as making up for long lived relative neglect of agriculture. Agricultural productivity growth thus depends predominantly on government intervention (through rural public investments and large subsidies on fertilizers).

(6) Jones (1975) has estimated that Korea's current account deficit would have been 25 percent larger in the absence of the import substituting public enterprises.

Investment in the private services sector may be seen as a function of industrial activity or domestic demand, depending on the type of service activity. Except for one major component: household investment in owner-occupied dwellings. Major part of investment by households consist of this type of real estate investment. The level of household investment will presumably be positively correlated to household incomes.

III.1.4 Direct foreign investment

Three decision-making entities on an aggregated level have been mentioned thus far: private enterprises, the state (and its public enterprises) and households. A more realistic picture of the political economy of Korea can be obtained by identifying the significance of foreign investment behaviour. Foreign productive investment can be analyzed in two respects: (i) direct foreign investment reflected as a capital flow on the balance of payments; (ii) total investment by foreign owned enterprises. The former will be dealt with below in the context of total investment financing. The amount and relative importance of direct foreign investment inflows can be easily calculated from the balance of payments data. The latter related to the ownership structure of production. Investment behaviour of foreign investors will differ from that of domestic investors.

Data on foreign ownership of productive assets are often hard to obtain. In the case of Korea one may rely on the excellent study by S.H. Jo (1977), although data from this study are not completely consistent with the data given here (as far as these are related to macro-economic totals). The relative macro-economic impact has been estimated not to be very significant: amounting to 3.1 % of domestic fixed capital formation in 1974; its share in manufacturing fixed investment amounted to 4.5 % in 1974. However, the significance of foreign controlled investment has been dominant in some sectors. In the period 1962-68 US-investors were predominant (81.7 % of total foreign productive investment), whereas Japanese investors 'took over' in the 1968-74 period (72.3 % of foreign investment in the period from 1968 to 1974). The shift in nationality of investors coincides with a shift in destination by sector of foreign investments. Whereas foreign investment in import substituting industries (domestic market production) predominates in the 1962-68 period, thereafter from 1968 to 1974 (and presumably today) foreign investors have been attracted to export oriented industries. By industry branch within the manufacturing sector the major shift is from chemicals and petroleum to export sectors like clay (ceramics), metals, machinery, electronics and transport. Except for the transport equipment sector, foreign firms have dominated total exports of these sectors. These trends are indicated in tables III-3 and III-4.

III.1.5 Investment demand: conclusion

Four major investing entities have been distinguished: three private institutions: domestically owned enterprises, households and foreign investors and one public institution: the state. Enterprise investment (local and foreign) in manufacturing results into two behavioural equations: one for enterprise investment in sectors producing predominantly for domestic markets and one for investment in export sectors. Investment behaviour will be linked to domestic demand and domestic market protection (import substitution) and export demand and international wage differences respectively. Sectoral disaggregation, shares of local and foreign ownership and parameter estimates are to be obtained from production censuses. If these do not supply the wanted disaggregation level, the above cited studies may supply hypotheses on sector shares and ownership shares. Household investment will be related to household incomes.

Public sector investment is determined as an instrument of government policy having on the one hand an autonomous component and on the other hand will be determined with a year's time-lag to supply bottlenecks of domestic production (reflected in private investment levels in sectors like agriculture and social overhead in relation to economic growth rates).

Public enterprise investments are to be included in investment by the state, as these are closely linked to general government policy. Data-sources, however, seldomly categorize public enterprise investments, but rather include these in enterprise investment. However, the studies by Jones and by the Bank of Korea (flow of funds analysis) will supply sufficient data for Korea.

III.2 Saving behaviour

III.2.1 Mobilization of financial resources

Korean domestic savings ratio (gross savings to GDP) increased enormously in the 1960-1977 period: from 0.3 % in 1960 to 26.2 % in 1977. The estimate for 1960 is considerably lower than figures generally given in the literature as it excludes high levels of foreign aid supplied to the Korean government (7.1 % of GDP in 1960). This increase in domestic resource mobilization especially reflects an increase in household savings and public savings. In September 1965 the government announced an interest rate reform, raising substantially interest rates on both commercial bank time and savings deposits and loans. Improved fiscal policy through several tax laws (7), decreased

(7) See a.o. Frank, Kim and Westphal (1975), p. 27.

state's reliance on Central Bank finance (money creation) and control of the money supply and inflation was increased. As inflation decreased and nominal interest rates on time and savings deposits rose, real interest rates increased in the mid-1960s at approximately 10 % per annum on average. These developments are reflected in table III-5.

Enterprise savings (retained profits) increased as well, but remained a deficit sector, financing approximately 50 percent of its investments out of own savings, therefore requiring additional finance from credit expansion to make up for the other half of investment finance. The rapid rise in bank intermediation from the 1960s onwards, relieved bottlenecks associated in the past with a scarcity of working capital, plaguing the economy. Entrepreneurs found new access to bank finance, creating opportunities embarking on profitable ventures of investments of higher productivity.

South-Korean reconstruction after the Korea-war was financed largely from U.S. foreign aid flows. These remained significant until mid-1960s as follows from table III-6. After 1966 South Korea's foreign exchange holdings continued to accumulate rapidly, mainly as a consequence of both short-term and long-term foreign loans. The trade balance continues to show deficits, needing foreign financing. Policy reforms implemented in the early 1960s - like the changes in the exchange rate system moving to a unified rate of 270 Won to one U.S. dollar in 1965 (from 130 Won per dollar in 1963) and the increase of the nominal interest rates - these reforms, together with rapid export expansion, created high incentives to foreign loans flowing to the Republic. The high domestic nominal interest rates looked like high real rates to foreigners, who had the option of repatriating short-term financial investments at a stable exchange rate parity. Preferential policies towards foreign investors, including a package of tax concessions for direct foreign investments, were established simultaneously to stimulate the inflow of direct foreign investments and technology. Conditions to private foreign investors were made very favourable as the limits on equity investment and profit remittances were completely removed in 1966 (8). Around 1970 measures were taken to reduce dependence on foreign capital flows, by devaluating the Won and relieving credit expansion by changing bank reserve requirements and compulsory deposits. The creation of Export Processing Free Zones to stimulate exports decreased dependence on accommodating financial capital flows, but increased dependence on autonomous direct foreign investment inflows. These trends are reflected in table III-7.

(8) Westphal (1978), p. 380 note 27.

However, as investment rates increased significantly an investment-saving gap continues to exist. It follows from table III-5 that the enterprise sector and the general government are to be considered as deficit entities, whereas households are to be considered as a surplus entity. Dependence on foreign financing remains. There is, however, no reason to assume that investments are constrained by savings. Investment decisions are assumed to be taken in the light of domestic and export demand, wage cost and investment incentives, hence decision-making to save and to invest appears to be independent rather than interdependent.

The idea that accumulation of savings should precede additional investment seems to be characteristic in a 'primitive' economy in which savers and users of savers are invariably the same. At the level of the firm it can be argued, however, that in LDCs due to an inadequately functioning capital market and monopolistic market conditions, enterprise investments are by and large financed from retained profits (9). However, it has been emphasized (10), this is not the same as to say that investment will be savings constrained. It rather explains that firms are able to finance their own investments and that low investment levels in LDCs will be caused by supply bottlenecks on the one hand, and by political constraints on mobilizing savings from other parts of the economy on the other; rather than by a lack of saving potential.

In the Korean case a few features reject a 'prior to savings'-approach:

- 1) Though investment rates have been high, agricultural surplus and savings have been relatively low due to rather low productivity levels (relative to other sectors) and labour-intensive small size agricultural land-holdings. Moreover, agriculture did not produce significant export crops, thus has not been able to raise import capacity. On the contrary food production does not even meet food consumption requirements, and thereby raises the need for foreign financing.
- 2) Increase in domestic savings has been linked to industrial growth, leading to an increase in incomes and consequently to increases of savings and tax potential. Enterprises have been deficit entities, but credit expansion allowed for the adjustment of the deficit. Here one qualification to the above statements must be made. That is that domestic entrepreneurs will react in their investment behaviour to credit availability from the banks in the previous decision-making period.

(9) The argument can be found in Kalecki (1954) "The Problem of Financing Economic Development", in: Kalecki (1976), McKinnon (1973), FitzGerald (1978; 1980) and Bhatt and Roe (1979).

(10) Explicitly by Kalecki and FitzGerald.

- 3) Economic growth, and especially export growth have allowed for sustained foreign financing to cover investment requirements.
- 4) There is no reason to adopt any form of 'crowding-out' hypothesis, that government claims on financial resources to finance public investment will reduce availability of investment finance to the private sector.

This hypothesis is empirically rejected by:

- (i) the development of the Korean banking system, i.e. enormous credit expansion to the private sector in spite of increasing public investments, and
- (ii) the direction of public investments towards creating externalities and reducing supply bottlenecks, thereby stimulating private investments rather than reducing them.

III.2.2 Flow of funds

Table III-5 shows the relationship between net deficit institutions (enterprises and government) and surplus institution (households). Ex-post the accumulation equation needs to balance, i.e.:

$$(I_G - S_G) = (S_E - I_E) + (S_H - I_H) + (M - E)$$

Ex-post equilibrium will be established through:

- foreign financing, i.e. capital inflows covering the current account of balance of payments deficit;
- the financial system: financial intermediation through the banking system and money creation by the Central Bank (i.e. 'forced savings').

Ex post closure of the accumulation balance also follows from table III-5, however, financial sector flows have been consolidated. Transfers between enterprises, households and government will, however, be largely channeled through the financial system. Also, foreign financing will enter the economy through the Central Bank. The functioning of the financial sector will be analyzed extensively in the next chapter (chapter IV).

Financial transactions can be assumed to be 'neutral' towards non-financial sectors as far as inflows and outflows of the financial system will weigh out. Financial sector behaviour will be 'non-neutral' to the rest of the system to the extent that inflation leads to relative price changes that will affect 'real' sector behaviour (adjustment of private consumption, declining saving propensities as real interest rates will decline, etc.).

Consistency of total inflows and outflows of financial resources can be derived from a flow of funds matrix. Scheme III-1 gives a consolidated flow of fund matrix of the Korean economy in 1976, representing net flows between non-financial sectors, the rest of the world and the financial system. The columns of the table represent net inflows or receipts by sector, whereas the rows show net outflows or expenditure by sector. The data are percentages of GDP and are derived from table III-5.

SCHEME III-1: Consolidated Flow of Funds Matrix for Korea: 1976
(percentages of GDP)

expenditure (outflow) ↓ (inflow) receipts →	1	2	3	4	5	6	7
	Households	Enterprises	Government	External sector	Financial System Total transfers = Aggregate Borrowing	'Own' Savings	Aggregate Financial Resources
1. Households		Household borrowing from enterprises	Household borrowing from government		Total borrowing by households	Household savings (gross) 9.2	Acquisition of funds by households 9.2
2. Enterprises	Enterprise borrowing from households 3.2		Enterprise borrowing from government (incl. on lending of public external resources) 1.8	Short-term capital inflow to enterprises and direct foreign investments 1.3	Total borrowing by enterprises 6.3	Retained profits of enterprises after taxes (gross) 8.4	Acquisition of funds by enterprises 14.7
3. Government	government borrowing from households	government borrowing from enterprises		Long-term capital inflow to government (excl. on lending to enterprises) 0.6	Total borrowing by government 0.6	Government current account savings (gross) 6.2	Acquisition of funds by government 6.8
4. External sector						Foreign savings (= balance of payments current account deficit) 1.8	Acquisition of foreign funds 1.8
5. Financial System: Total transfers = Aggregate Lending	Total lending from households 3.2	Total lending from enterprises	Total lending from government 1.8	Total lending from external sector (foreign financing) 1.9	Aggregate borrowing = Aggregate lending 6.9		Aggregate lending 6.9
6. Gross Capital Formation (Investment)	Investment by households 6.0	Investment by enterprises 14.7	Investment by government 5.0			Total savings = Total investment 25.7 ¹⁾	Total investment 25.7
7. Increase in total assets (flow)	Increase in assets of households 9.2	Increase in assets of enterprises 14.7	Increase in assets of government 6.8	Increase in assets of external sector 1.9	Aggregate borrowing 6.9	Total savings 25.7	Increase in total ²⁾ assets 32.6 ²⁾

Source: Table III-5.

Notes: 1) Statistical discrepancy is 0.1 % of GDP

2) Increase in total assets: the figure represents only the transfers between non-financial sector through the monetary system. According to Bank of Korea data (Economic Statistics Yearbook, 1977) total increase in financial transactions amounted to 6,845.7 bln. Won in 1976 or 52.2 % of GDP (see table III-8).

III.2.3 Saving behaviour and income distribution

Traditional models on economic growth basically represent a conflict between equity and economic growth, such as the Harrod-Domar or Solow neo-classical aggregate growth model. The conflict between income equality and economic growth is, however, seldom made explicit when the assertion of a conflict is made. The initial effort to make the conflict explicit was made by Kaldor (11). This was done simply by dividing society into two classes (capitalists and workers) which possess different saving propensities so as to bring income distribution into the model. In the model thus formed, output is limited only by fixed capital formation which, in turn, cannot exceed domestic savings since the model is closed. The aggregate marginal propensity to save is simply the sum of the class marginal propensities to save weighted by the class income shares. Thus we may formulate:

$$S = s_r \Pi + s_w W$$

$$I = S \quad (12)$$

Since empirical observation seem to confirm that high-income groups are the higher marginal savers ($s_r > s_w$), it follows 'logically' that redistribution of income in favour of the workers' share will result in a diminished level of economic growth. However, the model abstains from government intervention, and foreign financing. Public savings mobilized through taxation can be directed towards productive investment. Foreign capital flows may finance increased investment efforts as well.

The model can be extended in several directions:

- introduction of a corporate sector, i.e. identifying retained profits as a form of self-finance of enterprise investment (13);
- to build in government instruments, such as tax rates on enterprise incomes (profits) and household incomes (redistributed profits, wages) and, of course, public investment;
- to allow for foreign capital flows;
- to introduce an increased number of income groups or distinguish more socio-economic groups.

(11) N. Kaldor, "Alternative Theories of Distribution", Review of Economic Studies 1956.

(12) Where: I = investment W = wages
 S = total savings s_r = capitalist savings rate
 Π = profits s_w = workers savings rate

(13) Cf. the Kaleckian approach of development finance: Kalecki (1976) and Asimakopoulou (1977).

In fact the first three elements have already been included in the description of the development of Korean savings- and investment effort. To build in the fourth element is most important with regard to specifying income distribution and distributive policy issues, however, it is the most difficult aspect as well, especially with regard to data gathering. In a growth oriented economy government policy will also depend on the view on the relation between growth and equity which dominates within the state. The general idea is that high income groups save a higher porportion of their incomes than do low income groups. However, what is often neglected is the effect of - say - an income redistribution in favour of low income groups on effective demand, i.e. the effect on economic growth of a change in demand pattern and (possibly) growth of consumption and the import component of such changes. To analyse such it will require a further study of demand composition effects of income redistribution. Therefore one needs to establish a linkage between commodity categories (demand pattern), household budget surveys (income or socio-economic group categories) and the industrial sectors of the input-output table (to derive the employment effect). Then it will become possible to estimate the relevant elasticities and the consumption, labour and import coefficients. Three studies (14) have extended the Kaldor-type model by introducing a larger number of income classes. The studies conclude that a change in income distribution in favour of low income classes (through progressive taxation):

- only has a mild effect on savings mobilization (a slight decrease);
- will effect a rise in non-competitive imports (such as 'industrial' food crops and non-metallic minerals);
- changes the demand pattern towards an increase of consumption of labour intensive products (esp. cereals) and a decline in demand for capital intensive products (esp. real estate).

Though these studies acknowledge deficiencies in data sources, they conclude that there is no argument in favour of inequity in economic growth.

Another study, that by Adelman and Robinson (1978), has built in income distribution by distinguishing 15 socio-economic groups (7 groups of wage earners by skill, 2 groups of self-employed, 5 groups of agricultural income earners by farm size and land-ownership and 1 group of rentiers). As such the study presents a better political-economic framework to study the relationship between economic growth and income distribution. The savings behaviour by socio-economic groups thus can be analyzed.

(14) J. Skolka and M. Garzuel (1977); S.M. Suh (1974) and UN, ECAFE (1972).

There is, however, one major difference between the Adelman-Robinson study and our approach: investments are assumed to be savings constrained. Also as a consequence of general equilibrium type modelling, this leads to different interpretations of the closing mechanism of the model.

III.3 The closure of the accumulation balance

In a growing economy like Korea, it is not easy to disentangle the closing mechanism of the accumulation balance.

Investment sources directed towards export production (directly or indirectly) still predominantly 'feed' the economic growth engine. A certain economic growth target based on export growth expectations will require a certain level of private investment and complementary public investments (to remove infrastructural and supply bottlenecks). To meet a growing investment effort more savings are to be mobilized. The following steps can be distinguished in the Korean adjustment mechanism towards ex-post equilibrium of the accumulation balance:

- 1) There will be some Keynesian effective demand adjustment. Investment growth will induce income growth and an income-related growth of aggregate savings. The mere income effect presumably will not be sufficient to cover demand for investment funds, as leakages (the import coefficient!) will be large.
- 2) Fiscal policy instruments have been implemented to influence savings behaviour and increase domestic savings: household savings have been increased considerably under influence of rigorous monetary reforms (changing the interest rate) and several tax reforms have increased public savings. These measures certainly have had considerable impact on savings in the mid 1960s, though only related to the structural changes in the economy. No major adjustment effect from fiscal and monetary policies is currently present as financial intermediation is at a stage of only allowing for 'fine-tuning' policies and tax revenues being exempted by export subsidies and tax facilities.
- 3) Import growth is proportional to investment and output growth, because of poor natural resource endowment and only mild import substituting policies. The foreign trade gap still does not close, thus dependence on foreign capital ('savings') remains. Foreign aid dominated capital inflows from abroad until the mid 1960s, thereafter long-term and short-term borrowing (increasingly from U.S. and Japanese commercial banks) largely covered the foreign exchange gap. In recent years autonomous capital inflows in the form of private direct investments have become a significant source of foreign finance as well.

- 4) 'Real' economy imbalances increasingly find equilibrating adjustments in money-holding behaviour, as the financial system has become a major mediator of flows of funds. Money-holding behaviour can be influenced as mentioned above by changing interest and tax rates (increasing household savings and government savings). If these Keynesian fiscal policy instruments prove to be insufficient, money-creation may induce Pigouvian cash balance effects. Or, in our own terminology, 'forced savings' are created through price increases. In that case private consumption will be the ultimate adjusting variable.

The latter adjustment mechanism will be elaborated more in the next chapter on the monetary sector. Our findings on the Korean economy conclude to an endogenous adjustment of the accumulation balance by foreign financing (imports still exceed exports) and that money creation is a residual source of finance after foreign capital inflows. Apparently unconstrained inflows of foreign capital characterizes the dependent nature of the Korean economy. Reliance on foreign investors, banks and governments on the one hand has allowed for avoidance of radical domestic adjustments in the financial sphere, but on the other hand has created significant political influence of the major suppliers of foreign resources, i.e. the U.S. and Japan.

Dynamic adjustments of the real variables are induced through the price system: imported inflation and money creation related inflation, affecting incomes and consumption behaviour. Income redistributive effects are to be analyzed from the whole model system, which will need to allow for specification of consumption and savings behaviour by different socio-economic groups.

III.4 Investment and savings: model equationsModel equationsa. INVESTMENT BEHAVIOUR

$$(III-1) \quad \Sigma I_{ij,\lambda} = \Sigma I_{Eij}^{dom} + \Sigma I_{Eij}^{for} + \Sigma I_{H\lambda,j} + \Sigma I_{Gj}$$

in which $i = 1, 2$

1 = domestic market
production sectors
2 = export sectors
input-output sectors
socio-economic groups

$j = 1, \dots, n$;

$\lambda = 1, \dots, k$;

1. Households

$$(III-2) \quad I_{H\lambda,j} = f(HOI_{\lambda}, \bar{i}/p)$$

2. Enterprises

$$(III-3) \quad I_{E1j}^{dom} = f_{1j}([GDY], (p - e.p_m^*) M, I_{G-1}, \Delta L_{E-1})$$

$$(III-4) \quad I_{E1j}^{for} = f_{1j}([GDY], (p - e.p_m^*) M, I_{G-1}, \frac{(W/VA)_{kor1j}}{(W/VA)_{for1j}})$$

$$(III-5) \quad I_{E2j}^{dom} = f_{2j}(E, (p - e.p_e^*) E, I_{G-1}, \Delta L_{E-1})$$

$$(III-6) \quad I_{E2j}^{for} = f_{2j}(E, (p - e.p_e^*) E, I_{G-1}, \frac{(W/VA)_{kor2j}}{(W/VA)_{for2j}})$$

$$(III-7) \quad I_p = I_H + I_E$$

3. Public sector

$$(III-8) \quad I_{Gj} = A_j + a I_{pij-1}$$

b. SAVING BEHAVIOUR

$$(III-9) \quad \Sigma S_{ij,\lambda} = \Sigma S_{H\lambda} + \Sigma S_{Eij} + S_G + F$$

1. Households

$$(III-10) \quad c_{h\lambda} = f(HOI_{\lambda}, p, \bar{i}_1/p)$$

$$(III-10a) \quad c_{h\lambda} = c_{h\lambda}(1 - t_{h\lambda}) HOI_{\lambda}$$

$$(III-11) \quad s_{h\lambda} = s_{h\lambda}(1 - t_{h\lambda}) HOI_{\lambda}$$

1. Households (cont.)

$$(III-12) \alpha_{\lambda} = f(HOI_{\lambda})$$

$$(III-12a) q_{\lambda} = f(\bar{i}_1/p)$$

$$(III-12b) I_{H\lambda} = (\alpha_{\lambda} + q_{\lambda}) S_{H\lambda}$$

$$(III-13) \Delta Q_{\lambda} = (1 - \alpha_{\lambda} - q_{\lambda}) S_{H\lambda}$$

2. Enterprises

$$(III-14) S_{Eij} = s_{eij} (1 - t_{eij}) \Pi_{ij}$$

$$(III-15) I_{Eij} = S_{Eij} + \Delta I_{Fij} + \Delta L_{Eij}$$

3. Public sector

$$(III-16) GR = (t_h HOI + t_e \Pi) + [t_c C_H + t_x X + (p - e.p_m^*) \bar{M}] + GR_{other}$$

$$(III-17) GE = C_G + I_G + (p - e.p_e^*) E + Subs_{Eij}$$

$$(III-18) C_G = C_{G-1} + c_g \left(\frac{GDY - GDY-1}{GDY-1} \right)$$

$$(III-19) S_G = GR - (GE - I_G)$$

$$(III-20) I_G = S_G + \Delta F_G + \Delta Cur$$

4. Rest of the world

$$(III-21) F = M - E$$

$$(III-22) F = \Delta F_G + \Delta F_E + \Delta I_F + \Delta R$$

List of symbols

$I_{ij,\lambda}$	= Investments by market orientation (i), sectors (j) and socio-economic groups (λ).
I_E^{dom}	= Private investments of domestically owned enterprises.
I_E^{for}	= Private investments of foreign-owned enterprises.
$I_{H,\lambda}$	= Household investments by socio-economic groups.
I_g	= Public investments by general government and public enterprises.
HOI_λ	= Household incomes by socio-economic group.
GDY	= Gross domestic income.
p	= Domestic price level.
e	= Exchange rate.
p_m^*	= Import prices in terms of foreign exchange.
M	= Imports
W_{kor}	= Wage level in Korean industry.
VA_{kor}	= Value added in Korean industry.
W_{for}	= Wage level in competing foreign industry.
VA_{for}	= Value added in competing foreign industry.
E	= Exports.
p_e^*	= World market export prices in terms of foreign exchange.
ΔL_{E-1}	= Credit supply of commercial banks to enterprises in previous period.
I_p	= Private investments.
$S_{ij,\lambda}$	= Savings by sector and socio-economic group.
$S_{H,\lambda}$	= Household savings by socio-economic group.
S_E	= Enterprise savings or retained profits.
S_G	= Public savings
F	= Foreign financing.
$C_{H\lambda}$	= Household consumption by socio-economic groups
$c_{h\lambda}$	= Marginal propensity to consume of households
$t_{h\lambda}$	= Marginal tax rate on household incomes
α_λ	= Parameter of income related household investment.
q_λ	= Parameter of real interest related household investment.

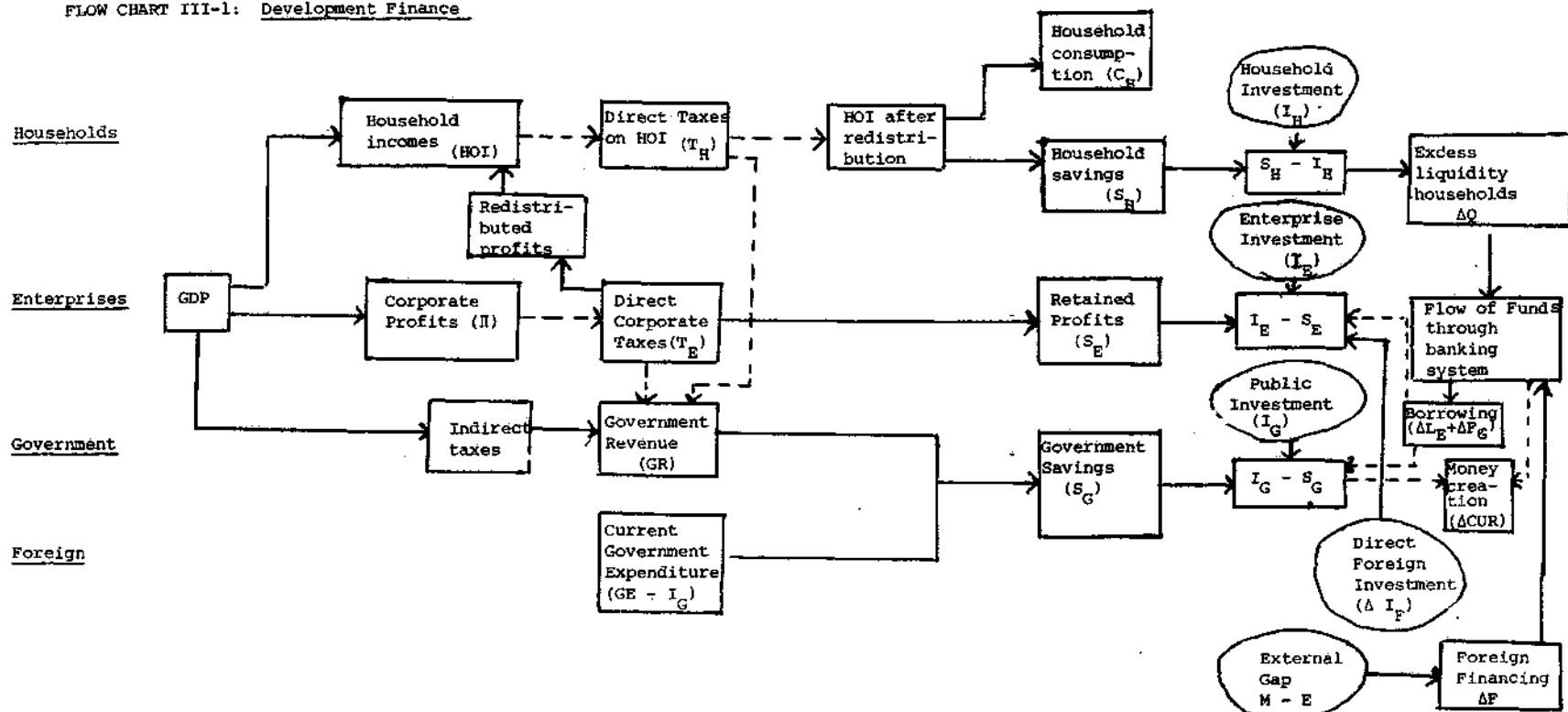
ΔQ_λ	= Increase in demand and time and savings bank deposits of households.
i_1	= Nominal interest rate on time and savings deposits.
s_e	= Marginal savings rate of enterprises.
t_e	= Marginal tax rate on enterprise profits.
ΔI_F	= Direct foreign investment inflow.
ΔL_E	= Credit supply of commercial banks to enterprises
Π	= Enterprise profits.
GR	= Government revenue.
t_r	= Marginal tax rate on consumption.
t_x	= Marginal excise tax rate on production
X	= Gross domestic product.
GR_{other}	= Other government revenue.
GE	= Government expenditure.
C_G	= Government consumption (current government expenditure).
$Subs_E$	= Government subsidies to enterprises.
c_g	= Parameter of government consumption to income growth.
ΔF_g	= Increase in foreign aid and borrowing to government.
ΔCur	= Money creation (change in money supply).
ΔF_E	= Increase in foreign borrowing by commercial banks.
ΔR	= Use of foreign exchange reserves.

All aggregates are in nominal values, so that to get hold of real values aggregates are to be divided by their respective price deflators.

To get the complete flow of funds one will have to add the model equations of the monetary sector given at the end of the next chapter. Consistency between financial and non-financial sectors is shown there.

Disaggregation has been made according to market orientation, type of ownership, input-output industries and socio-economic groups. The first two disaggregation criteria are important for specification of enterprise and public sector investments. The latter distinction of households into socio-economic groups allow for a detailed analysis of income distribution in relation to savings- and investment behaviour.

FLOW CHART III-1: Development Finance



Primary Incomes $\rightarrow$ Transfers $\rightarrow$ Disposable Incomes (consumption, saving and investment) $\rightarrow$ Investment-Savings $\leftrightarrow$ Financial Flows gaps

III.4.1 Households

Households consist of various socio-economic groups, classified according to location (rural and urban), economic status (enterprise owner, self-employed, worker), skill and size of the firm. The distinction will be elaborated in chapter V.

Equation III-10 relates the marginal propensity to consume to household incomes, domestic prices and the real interest rate on time and savings deposits. Consequently consumption (III-10a) and savings (III-11) are determined as well (15). The relation between the propensity to consumption and the real interest rate, or in other words the decision of households whether or not to put more money in the banks instead of using that money for present consumption, will probably be more significant the higher the income level. For instance, households around or under a line of absolute poverty (landless agrarian workers, urban poor and unemployed) will approach a zero savings rate (16) and will react on price increases by eating into their capital stock first to maintain consumption levels as far as possible. Also middle and upper class consumption and savings behaviour may differ. It has been analyzed, that some demonstration effect seems to 'bother' certain middle income groups as they try to copy living standards of high income groups. At first sight income increases accruing to these groups appear to induce a higher marginal propensity to consume (17).

Household savings are directed towards either household investment (I_H) or time and savings deposits in the banks (ΔQ). Household investment behaviour, mainly in owner-occupied dwellings (land, housing) has been related to household incomes and the real interest rate. Price changes and changes in nominal interest rates will change the relative attractiveness of physical investments (I_H) vis-à-vis financial investments (ΔQ) (eq. III-12b and III-13). Again the relations will differ according to socio-economic group.

Households as a whole are assumed to be units with financial surpluses. Investments therefore are assumed to be 'self-financed' and 'excess savings' are deposited in the banks ($S_{HA} = I_{HA} + \Delta Q$).

(15) Savings thus are specified as a residual after consumption. If both savings and consumption behaviour would have been specified independently, the system would be overdetermined.

(16) Cf. J. Skolka and M. Garzuel (1977), Appendix C.2.

(17) Analyzed in S.M. Suh (1974).

III.4.2 Enterprises

Four equations have been made to formalize enterprise investment behaviour. Disaggregation has been made towards market orientation (local and world markets) and ownership (domestic and foreign).

Further disaggregation is according to input-output sectors.

Equations III-3 and III-4 show investment for local market production by local (I_{E1j}^{dom}) and foreign-owned (I_{E2j}^{for}) enterprises. Both react on the size of the domestic market (GDY), protection by import tariffs ($[p - e.p_m^*]$), and infrastructural investment by the government (I_{G-1}). Domestic entrepreneurs are assumed to take credit availability from the banks in the previous decision-making period (ΔL_{E-1}) into account. Foreign-owned enterprises will not necessarily see constraints in domestic credit supplies as these will have more easy access to international capital markets or can rely on capital powerful 'mother' companies. Foreign-owned enterprises will reinvest, or otherwise, remit profits to abroad considering the profit advantage of low wages. Such behaviour includes direct foreign investment, i.e. establishment of new foreign holdings or foreign capital supply to already foreign-owned enterprises. U.S. and Japanese foreign investors will decide to invest in Korea if infrastructure, export subsidies and wage cost per unit product are favourable compared to their own economies and those of other 'low-wage' countries (eq. III-4 and III-6). Equations III-5 and III-6 present comparable equations for investment in export sectors like those for investment for domestic market production, except that export demand (E) and export subsidies ($[p - e.p_e^*]E$) replace domestic demand and import tariffs.

Enterprise savings, i.e. retained profits (S_E) have been related to enterprise income, i.e. profits (Π) after corporate taxes (eq. III-14).

Equilibrium of demand and supply of investment funds for enterprises are given in equation III-15. Part of investments is financed from retained profits or is 'self-financed', part is covered by direct foreign capital inflows (ΔI_F) and the remaining deficit will be covered by credits from the banking system (ΔL_E). As will follow in the next chapter, credit creation for enterprise investment will be an adjusting variable to investment needs. Korean experience seems to prove that liquidity shortages of the banking system do not immediately lead to credit restrictions, but rather are covered by foreign borrowing of commercial banks.

III.4.3 Public sector

Equation III-8 relates public investment behaviour to private investments (in certain sectors) of the previous period, the latter being an indicator of supply

bottlenecks. This is where the role of the state is directly linked to trends in private capital accumulation. One might refine the relation by introducing import capacity as well as a determinant of public investment behaviour. Import substitution policy would then be seen as a form of direct state intervention. In some cases this certainly reflects Korean reality (such as chemicals and fertilizers production). However, it might as well be argued that in most cases public investments have been related to an export oriented strategy. The autonomous component (A_j) relates to targets of investment growth. Public investments in import substituting sectors are assumed to fit a growth target, rather than to serve a systematic policy to close the trade balance. Moreover, public investments have been rather import augmenting than import reducing.

Public finance is accumulated in the form of various forms of taxation.

Direct taxation: income and property taxes on households (tax rate: t_h), and corporate profit tax (t_e). Indirect taxation includes taxes on consumption (t_c), excise taxes (t_x) and import tariffs.

Government revenue (GR), as formalized in equation III-16, will consist additionally of operating surpluses of public enterprises included in the residual category (GR other) (18).

Government expenditure (GE, eq. III-17) consists of current expenditures excluding transfers, (C_G), public investments (I_G) and current transfers: export subsidies and other subsidies to private enterprises ($Subs_E$). Current expenditure to maintain and expand the state apparatus is a function of previous levels of current state expenditure (C_{G-1}) and GDP growth (eq. III-18). Current government expenditure is not seen as a policy instrument, as cut-backs will be hard to implement, presumably as a result of the self-interest of state bureaucracy and the dictatorship in maintaining expenditures (salaries, military expenditure). The same factors may tend to drive in the expansion of public administration and defense. Rapid GDP growth will allow for satisfaction of such authoritarian state 'basic needs' without real financing constraints.

Export and other subsidies, as well as tax rates are considered to be policy instruments.

Public savings (S_G) are defined as current revenue minus current expenditure (equation III-19).

(18) These are not included in the data presented in the previous sections and the statistical annex. These can be obtained, however, by using Bank of Korea flow of funds data.

The government budget (incl. public enterprises) is 'closed' by public savings, foreign aid and lending to the government (ΔF_G) and money creation (ΔCur). ΔF_G is considered to be exogenous, leaving money creation as residual (eq. III-20).

III.4.4 Rest of the world account

Behavioural equations of foreign financing (predominantly exogenous) are introduced in the next chapter on the financial sector. Only definitional equations are introduced here: the balance of payments (III-21), i.e. capital inflows (ΔF) covering the current account deficit ($M - E$). Capital inflows consist of foreign capital flows to government (ΔF_G), foreign borrowing by the banking sector (ΔF_E), direct foreign investment (ΔI_F) and the resulting change in foreign exchange reserve positions (ΔR) (eq. III-22).

STATISTICAL ANNEX TO CHAPTER III

Tables III-1 to III-8.

Table III-1 Korea: Gross Capital Formation (Investment), 1960-1977

	1960	1963	1965	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Total gross investment (as % of GDP)	10.9	18.2	15.1	22.5	27.2	29.1	27.0	25.4	21.8	25.7	31.0	29.3	25.7	27.7
Private investment (% of GDP) ¹⁾	7.6	14.7	11.2	17.5	20.4	21.2	20.6	19.5	16.3	20.5	27.0	22.9	20.7	21.5
Public investment (% of GDP) ²⁾	3.3	3.5	3.9	5.0	6.8	7.9	6.4	5.9	5.5	5.2	4.0	6.4	5.0	6.2
Volume gross investment ³⁾ (index 1970=100)	13.7	31.9	28.0	52.4	72.2	101.3	100.0	106.3	94.8	130.5	154.8	156.3	179.3	228.2
Private investment ⁴⁾ (index 1970=100)	12.5	34.1	27.2	53.8	70.9	97.3	100.0	107.6	110.6	136.1	176.7	172.7	187.0	234.1
Public investment ⁵⁾ (index 1970=100)	18.3	27.1	32.2	51.1	80.7	119.7	100.0	107.7	110.4	121.0	96.2	173.8	166.3	223.5

Source: UN, Yearbook of National Accounts Statistics.

1) Includes investments by households, public enterprise investment and foreign investment.

2) Investments by general government only.

3) Deflated by weighted implicit price deflator of gross fixed capital formation in all industries.

4) Deflated by weighted implicit price deflator of gross fixed capital formation in all industries except ISIC sectors 8-9 (including public sector services).

5) Deflated by weighted implicit price deflator of gross fixed capital formation in ISIC sectors 8-9 (including public sector and other services).

Table III-2 Korea: Gross Fixed Capital Formation by Industry, 1960-77
(percentage distribution)

	1960	1963	1965	1969	1970	1971	1972	1973	1974	1975	1976	1977
Gross fixed capital formation (total, bln Won)	26.5	68.0	119.0	355.8	654.1	742.4	828.5	1255.6	1870.6	2544.0	3152.4	4420.9
<u>Sectoral shares:</u>												
1. Agriculture, hunting, forestry and fishing	12.8	10.3	11.5	6.3	8.0	8.1	10.5	9.7	11.8	9.0	9.4	9.1
2. Mining & quarrying	1.5	1.3	1.3	0.7	0.6	0.7	0.7	0.7	0.9	1.2	1.2	0.8
3. Manufacturing	20.0	22.4	26.6	20.6	19.6	19.4	19.4	29.5	22.9	21.1	22.7	20.9
4. Social overhead capital	28.3	40.8	29.4	43.7	40.3	39.7	42.2	30.0	32.5	37.4	36.7	35.4
- Electricity, gas & water	4.2	12.6	5.9	11.6	11.2	8.2	5.3	4.5	6.7	6.8	10.5	9.5
- Construction	1.1	2.1	1.5	2.2	1.2	1.1	1.4	1.8	1.0	1.4	1.2	1.8
- Transport & communication	19.2	24.0	20.3	30.0	25.9	27.0	32.0	21.6	23.2	27.6	23.1	22.0
- Government services	3.8	2.1	1.7	1.9	2.0	3.4	3.5	2.1	1.6	1.6	1.9	2.1
5. Trade and other services	37.8	25.5	31.2	26.6	31.5	32.2	27.3	30.1	32.4	31.3	29.9	33.8
- Whole sale & retail trade, hotels & restaurants	8.3	6.8	9.7	8.0	8.5	8.9	6.7	7.7	7.6	7.0	7.8	9.5
- Finance, insurance & real estate	20.8	10.6	12.3	11.3	15.2	15.5	14.4	14.7	18.6	19.0	15.7	17.2
of which: owner-occupied dwellings	(20.0)	(10.1)	(11.4)	(10.0)	(13.7)	(14.3)	(13.3)	(13.8)	(17.5)	(17.5)	(14.4)	(16.4)
- Community and personal services	8.7	8.1	9.2	7.3	7.8	7.8	6.2	7.7	6.2	5.3	6.4	7.1

Source: UN, Yearbook of National Accounts Statistics.

Note: Figures do not always add to a 100 % total, due to rounding differences.

Table III-3 Korea: Types of Foreign Private Investment Projects by Market Orientation

	I Agriculture and Mining	II Import substituting industries	III Export-oriented industries	Total
<u>Total foreign investment</u> <u>approved (000 \$)</u>				
1962-68 (% share)	528.0 (0.29)	99,366.0 (54.22)	83,378.0 (45.49)	183,272 (100)
1969-74 (% share)	2,509.0 (0.39)	349,831.5 (48.58)	346,593.5 (51.04)	515,662 (100)
<u>Number of firms</u>				
1962-68 (% share)	6 (9.09)	33 (50.00)	27 (40.91)	66 (100)
1969-74 (% share)	3 (0.39)	93 (12.16)	669 (87.45)	765 (100)

Source: S.H. Jo (1977), table I-4, p. 12.

Note: One may translate the sectors into motives of foreign investors, i.e.

- I. exploitation of primary products
- II. penetration of protected markets
- III. exploitation of cheap labour.

Table III-4 Foreign Private Investments Approved by Industry and Foreign Firms Contribution to Output and Exports
(percentage share)

Industry	Composition of foreign investment by industry		Exports by foreign firms to total exports by industry	Output of foreign firms to total output
	1962-68	1968-74	1974	1974
Agriculture, Forestry and Fishery	0.2	2.2	9.2	n.a.
Mining	-	0.4	0.3	0.3
Manufacturing	87.7	72.7	31.4	11.0
Foods	0.7	1.2	8.6	1.5
Textiles & Apparels	21.4	19.4	12.2	5.0
Lumber & Wood Products	-	0.5	2.1	0.7
Chemicals	21.4	6.4	57.3 ³⁾	15.0 ³⁾
Petroleum & Products	23.0	1.6	56.2	100.0
Clay & Products	0.0	3.5	73.9	28.6
Metals & Products	3.2	7.3	84.2	37.0
Machinery & Parts	1.4	5.2	93.4	19.0
Electric Machinery	14.0	16.8	88.6	44.0
Transport Equipment	0.0	6.8	0.7	1.2
Others	2.6	4.0	12.6	10.4
Social Overhead Capital & Services	12.0	24.8	0.1	n.a.
Money & Banking	2.8	0.4	-	-
Construction & Related Services	0.4	1.3	0.1	-
Electric Power	5.8	1.5	-	-
Transport & Storage	-	0.6	-	-
Hotel & Tourism	0.3	21.0	-	-
Total	100.0	100.0	22.8 ¹⁾	10.0 ²⁾

Source: S.H. Jo, tables I-5, III-3 and III-17.

Note: Figures do not always add to 100 % total, due to roundings.

1) Average of total exports by foreign firms to total exports

2) Average of total output by foreign firms to total output (mining and manufacturing sectors only).

3) At first sight there seems to be an inconsistency, in that the foreign firm share in output of the petroleum sector is 100 %, whereas the export share amounts to only 56.2 %. The difference may be explained by different data sources used by Jo, or, what might be more plausible, by a large government control of marketing of petroleum products.

Table III-5 South Korea: Savings and Investment Ratios, 1960-1977
(% of GDP, billions of Wons, current prices)

	1960	1963	1965	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Total Gross Fixed Capital Formation (GFCF)	10.9	13.6	14.9	21.9	26.2	26.1	24.6	22.6	20.6	24.0	25.5	26.0	24.0	26.4
Increase in Stocks	0.0	4.6	0.2	0.6	1.0	3.1	2.4	2.8	1.2	1.7	5.5	3.3	1.7	1.3
Total Gross Capital Formation (GCF)	10.9	18.2	15.1	22.5	27.2	29.1	27.0	25.4	21.8	25.7	31.0	29.3	25.7	27.7
<u>Financing Gross Capital Formation</u>														
<u>Private Sector</u>														
<u>Enterprises:</u>														
- GCF	7.6	10.5	10.4	15.9	17.2	15.1	14.8	15.0	12.4	15.1	19.4	17.3	14.7	15.3
- Savings (net of depreciation)	1.1	2.5	2.6	2.4	1.9	1.9	1.6	1.7	2.2	3.4	3.7	3.7	3.5	3.3
- Depreciation	4.3	2.5	2.8	1.8	3.0	3.8	3.7	3.7	4.2	5.2	5.4	5.0	4.9	5.2
(Savings - Investment gap) _E	(-2.2)	(-5.5)	(-5.0)	(-11.7)	(-12.3)	(-9.4)	(-9.5)	(-9.6)	(-6.0)	(-6.5)	(-10.3)	(-8.6)	(-6.3)	(-6.8)
<u>Households:¹⁾</u>														
- GCF	n.a.	4.2	0.8	1.6	3.2	6.1	5.8	4.5	3.9	5.4	7.6	5.6	6.0	6.2
- Savings (net of depreciation)	-1.9	3.4	0.2	2.0	1.5	7.2	4.5	3.6	4.2	9.1	7.0	4.1	6.6	9.2
- Depreciation	n.a.	2.1	2.4	3.8	3.1	2.1	2.2	2.2	2.7	2.8	3.0	2.6	2.6	2.6
(Savings - Investment gap) _H	n.a.	(+1.3)	(+1.8)	(+4.2)	(+1.4)	(+3.2)	(+0.9)	(+1.3)	(+3.0)	(+6.5)	(+2.4)	(+1.1)	(+3.2)	(+5.6)
Savings - Investment gap of private sector	-4.1	-4.2	-3.2	-7.5	-10.9	-6.2	-8.6	-8.3	-3.0	-	-7.9	-7.5	-3.1	-1.2
Foreign savings to private sector	2.5	2.9	0.9	5.4	9.2	6.7	7.4	8.1	4.4	-	9.3	9.2	1.3	1.3
Net transfer from public to private sector	1.6	1.3	2.3	2.1	1.7	-0.5	1.2	0.2	-1.4	-	-1.4	-1.7	1.8	-0.1
<u>Public sector</u>														
- GCF	3.3	3.5	3.9	5.0	6.8	7.9	6.4	5.9	5.5	5.2	4.0	6.4	5.0	6.2
- Savings (net of depreciation) ²⁾	-3.0	-1.1	1.2	3.7	5.9	5.5	6.1	5.0	3.2	3.7	1.8	3.9	5.7	5.4
- Depreciation	0.8	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5
Foreign Savings to public sector ³⁾	7.1	5.2	4.5	2.9	2.1	1.4	1.0	0.6	0.5	1.1	0.4	0.3	0.6	0.2
Net transfer to private sector	-1.6	-1.3	-2.3	-2.1	-1.7	+0.5	-1.2	-0.2	+1.4	-	+1.4	+1.7	-1.8	+0.1
Domestic Financing ⁴⁾	1.3	10.1	9.7	14.2	15.9	21.0	18.6	16.7	16.9	24.6	21.3	19.8	23.8	26.2
Foreign Financing (M - X)	9.4	11.1	7.4	10.8	13.2	11.9	9.8	10.6	4.9	3.1	11.5	9.4	1.8	0.0
Statistical Discrepancy	0.2	-3.0	-2.0	-2.5	-1.9	-3.8	-1.4	-1.9	-	-2.0	-1.8	0.1	0.1	1.5

Source: UN National Accounts Statistics

General note to the table: The inflows of foreign savings to private and public sector may be generally underestimated as these flows are corrected for the statistical discrepancy.

Notes: 1) Includes "Private non-profit institutions, serving households".

2) Defined as general government current revenue minus current expenditure; excluding net current transfers n.e.c. from the rest of the world.

3) Equals net current transfers to government n.e.c. from the rest of the world.

4) Equals external resource gap.

Table III-6 South Korea: Current Transfers to Government from Abroad
(% of GDP)

1960	7.1	1970	1.0	1976	0.6
1963	5.3	1971	0.7	1977	0.2
1965	4.5	1972	0.5	1978	0.1
1967	3.0	1973	0.3		
1968	2.2	1974	0.4		
1969	1.5	1975	0.3		

Source: UN, Yearbook of National Accounts Statistics.

Table III-7 South Korea: Trend in Foreign Capital Inflow and its Share in Domestic Fixed Capital Formation

	1959-66	1967	1968	1969	1970	1971	1972	1973	1974	Total
Loans	325.0 (7.89)	229.6 (23.62)	338.6 (24.42)	547.6 (30.11)	482.0 (23.43)	648.6 (33.15)	650.9 (33.20)	712.9 (24.26)	932.7 (21.54)	4,867.8 (21.49)
Public loans	140.8 (3.42)	105.6 (10.41)	70.2 (4.79)	138.9 (7.64)	115.3 (5.60)	303.4 (15.51)	324.4 (16.55)	368.5 (12.54)	316.7 (7.32)	1,883.9 (8.32)
Commercial loans	184.1 (4.47)	124.0 (12.22)	268.4 (18.32)	408.7 (22.47)	366.7 (17.83)	345.2 (17.64)	326.4 (16.65)	344.4 (11.72)	616.0 (14.22)	2,983.9 (13.17)
Foreign Private Investment	23.8 (0.57)	7.6 (0.74)	19.2 (1.31)	12.7 (0.69)	66.1 (3.21)	42.8 (2.19)	78.8 (4.01)	143.3 (4.87)	124.1 (2.87)	518.0 (2.29)
Total	347.8 (8.45)	237.2 (23.37)	357.8 (24.42)	560.3 (30.80)	548.1 (26.44)	691.4 (35.34)	729.6 (37.21)	856.2 (29.13)	1,056.8 (24.41)	5,386.5 (23.78)
Domestic Fixed Capital Formation	4,114.8 (100%)	1,014.7 (100%)	1,464.9 (100%)	1,818.9 (100%)	2,057.6 (100%)	1,956.4 (100%)	1,960.4 (100%)	2,938.3 (100%)	4,329.1 (100%)	22,655.1 (100%)

Notes: Figures in parentheses are the percentage share of the respective foreign capital in domestic fixed capital formation.

Sources: Economic Planning Board: "The Current State of Foreign Private Investment Projects (as of the end of 1974)",
The Bank of Korea: Economic Statistics Yearbook, 1975
Taken from: S.H. Jo, table A-2, p. 100.

Table III-8 South Korea: Financial sector development, 1971 and 1976
(thousand bln. of Won, current prices)

	1971		1976	
	Won	% of GDP	Won	% of GDP
Total financial transactions	1.29	39.4	6.85	52.2
- Transactions between financial institutions	0.40	12.2	2.56	19.5
of which: - Commercial Banks	(0.29)	(8.7)	(1.43)	(10.9)
- Bank of Korea	(0.01)	(0.1)	(0.74)	(4.3)
- Other Financial Institutions	(0.11)	(3.4)	(0.76)	(4.3)
- Transfers between non-financial institutions through the financial system	0.89	17.2	4.29	32.7

Source: BOK, Economic Statistics Yearbook 1976.

IV. MONEY, CREDIT AND INFLATION

IV.1 Introduction

Korea's post-war development has been characterized by a rapid monetary expansion. This development has been both cause and effect of rapid economic growth. This can be said without making any preassumptions on the role of the money supply in economic development on basis of neo-classical, Keynesian or monetarist theories. Also in LDCs money plays an increasing role in accompanying the 'real' (in terms of commodity supplies) economic process. Adequate supply of money is a necessary requirement to pay for the transactions of the actors in the economy and to finance investment requirements. However, the function of money and monetary expansion cannot be considered as completely 'neutral' to the economic process, as it was assumed in neo-classical (or rather Walrasian) general equilibrium theory. Price increases, inflationary pressures can be induced by monetary expansion and will affect the real variables of the economic process. In reality the rate of inflation (and its changes) affects the relative real incomes of various socio-economic groups: wage income versus profits, wages versus farm incomes, private incomes versus government revenues and so on. A model system which only deals with real aggregates cannot capture these effects.

To evaluate the expansion of the monetary system, some monetary variables are of crucial importance in determining the money supply.

First, of course, there is currency. The amount of currency brought into circulation will reflect, formulated in the standard terminology of monetary theory, the preferences of the 'public' to hold currency as opposed to bank deposits and the requirements of the government to finance its deficits. Enterprises will hold cash balances to meet direct payments of their working capital (raw materials, wages). Households need cash balances in order to pay for their (consumptive) transactions.

Second, bank reserves which form an established rate of the liabilities of the banking system. The liabilities of the banking system consist of the total demand and time and savings deposits held by the 'public'. The domestic money supply is a multiple of the reserve or money base, often called 'high-powered' money (B), which consists of currency in circulation (Cur) and bank reserves for demand deposits (q_1) and bank reserves for time and savings deposits or near money (q_2).

The money base is defined as:

$$(1) \quad B = \text{Cur} + q_1 + q_2$$

If Q is the total of deposits of the public in the banking system, with Q_1 being total demand deposits and Q_2 total deposits of near money, then the money supply (H) becomes,

$$(2) \quad H = \text{Cur} + Q_1 + Q_2 \quad (1)$$

Expressing the money supply as a function of the money base we get

$$(3) \quad \frac{H}{B} = \frac{\text{Cur} + Q_1 + Q_2}{\text{Cur} + q_1 + q_2}$$

From equation (3) we may define $c = \text{Cur}/(Q_1 + Q_2)$, the currency-deposit ratio and $r = (q_1 + q_2)/(Q_1 + Q_2)$, the reserve-deposit ratio.

Equation (3) may then be expressed as,

$$(4) \quad H = \frac{c + 1}{c + r} \cdot B = m \cdot B,$$

which expresses money supply as a multiple, m , of the money base. Reserves are always a fraction of total deposits, thus $r < 1$ and m will exceed unity, so that $H > B$. The difference quantifies the credit creation of the banking system

$$[L = (Q_1 + Q_2 + \text{Cur}) - (q_1 + q_2 + \text{Cur}) = H - B] \quad (2).$$

Thirdly, the monetary system can be 'fed' by foreign financing. Capital inflows result from a current account balance of payments deficit. It could be 'financed' by a rundown of the international reserves of the Central Bank, or else by an increase in foreign lending to the commercial banks or to the government. Since foreign borrowing is usually tightly controlled in LDCs, current account deficits of balance of payments will be linked to changes in the asset position of the Central Bank. To the extent that foreign financing covers domestic deficits (of private and public sectors), it leads to money creation without inflationary processes.

Below, the expansion of the Korean financial system will be described first (sections 2 and 3). Then it has been attempted to formalize the findings into model equations, composing the monetary block of the model system (section 4).

(1) A distinction is often being made between the 'narrow' money supply ($H_1 = \text{Cur} + Q_1$) and 'broad' money supply ($H_2 = \text{Cur} + Q_1 + Q_2$).

(2) The formulations of the above equations fit into consistent monetary balance accounting, as can be found in e.g. Taylor (1979), Ch. 2.

IV.2 Growth of the Financial System

Financial intermediation can be described as the process of reconciling the financial deficits and surpluses of the various sectors and institutions in the economy. In Korea as we have seen in the previous chapter, the household sector counts as a surplus unit, whereas the enterprise sector and - on average - the public sector are deficit entities. Domestic funds appear as insufficient to cover investment requirements and need to be supplemented by large amounts of foreign finance.

In many LDCs financial intermediation has been insufficiently developed to allow for a smooth 'flow of funds' process, allocating funds to productive deficit units. A low degree of monetization of the economy, the non-existence of a domestic capital market and the fragmented character of the economy, all are factors hampering adequate financial intermediation and the development of a well-functioning banking sector (whether privately or publicly owned). I will not discuss the generality of the problem (3), but deal with the Korean case only, which also with regard to development of the financial system as such has often been described as a 'success story'. Again, the character of the Korean state is an important explanatory factor here. Government control over the monetary system has been very strict and pervasive since the early 1960s and the development of the monetary system has well-fitted into overall economic policies of the State.

The profound government control over the monetary system cannot be read immediately from quantitative institutional setting of Korea's financial sector. At the end of 1975 the Central Bank, Bank of Korea (BOK), accounted for about 16 percent of total financial assets, whereas the commercial banking system took a share of about 61 percent (4).

These data do not reveal actual state influence on the financial system for four reasons:

- 1) The BOK functions under tight control of the Ministry of Finance. The Central Bank is thus no 'independent' lender of last resort, but monetary development has been directly integrated into the State's economic policy.
- 2) The commercial banks are used by the government as tools of national economic policy as well. These function as mediators of a system of selective credit to channel financial surpluses or newly created funds to

(3) Introductory texts are that by McKinnon (1973) and Bhatt and Roe (1979).

(4) A.V. Que, "Financial System", in: Hasan and Rao (1979), p. 366.
The remaining 23 percent is made up for by non-financial institutions like trust accounts, development banks, insurance companies, etc.

sectors to be stimulated according to National Plans, i.e. export sectors. These selective credit schemes amounted to 31 % of the credit expansion to industry in the period 1965-71 and 43 percent in 1971-75 (5). For that part the commercial banking system has been no more than a deposit box, as according to Que. "... enterprises needed only to maintain relationships with their primary banks to apply for and receive earmarked funds" (6).

- 3) A large part of the specialized commercial banks, such as the Korean Exchange Bank (KEB), the Korean Housing Bank (KHB), Korean Development Bank (KDB), etc., (have) know(n) significant degrees of government ownership and have been established under government control (7).
- 4) In spite of large foreign capital inflows, foreign owned banks or holdings are of minor importance. Foreign aid and loans are put under government control.

The government's effective use of the monetary system reflects policies from the mid 1960s onwards. Before the 1960s the expansion of the monetary system is explained mainly by government borrowing from the BOK, i.e. inflationary financing, and by direct foreign aid (from the U.S.) to the government. Inflation rates are high in the period, averaging from 1953 to 64 about 24 percent per year. With the shift in economic strategy towards industrial export promotion, the government did choose to follow an 'intermediation-led' model of price stabilization. No deflationary policies were issued of restricting bank lending directly but the demand for money was being stimulated by significant increases of the real interest rate. The idea behind this 'unorthodox' monetary approach was that by increasing the real rate of return on money, individuals would switch from keeping commodities in stock to holding real money balances in the banks, thus entrepreneurs would be stimulated to invest because of a larger availability of bank credit.

The banking reform of 1964-65 included a significant increase of the official ceiling on the nominal interest rate on time and savings deposits. The ceiling was raised from 15 to 30 %. The weighted nominal interest was in 1966 24 %, the real interest rate becoming about 10 %.

The monetary reform aimed at three effects:

- increasing private savings;
- attracting foreign capital (8);

(5) Ibid., p. 389.

(6) Ibid., p. 367.

(7) See L.P. Jones (1975). For a description of the principle functions of these banks, see Que, *ibid*, p. 368-369.

(8) The high domestic nominal interest rates looked like high real rates to foreigners, who had the option of repatriating short-term financial investments at a stable exchange rate parity.

- drawing private capital of the 'unorganized', curb market, into the 'organized' financial system.

Private savings and foreign capital inflows have increased significantly indeed, though the monetary reform cannot be seen as the only cause (9). Curb market flows were drawn into the official system. However, the high investment growth from the mid 1960s onwards caused the continued existence of a still significant curb market. The curb market has not been effectively minimized until the measures issued by the 1972 Presidential Decree, freezing all loans and obliging to report all curb market borrowing to the government for all licensed business enterprises. The curb market has been pushed back further by the establishment of short-term finance companies under the Korea Investment and Finance Corporation (KIFC).

The growth of the financial institutions by source since the 1960s is given in table IV-1. Most important source of growth has been the increase in time and savings deposits. The enormous growth of this form of near money since the interest rate reform of 1964-65 can be read from table IV-2. The overall growth of the monetary system can be measured by relating the monetary expansion to gross domestic product. Figures can be found in table IV-3, where it shows that total money supply increased from 10.4 % of GDP in 1960 to about 34 % on average in the period 1972-1977. Domestic credit expanded in the same period from 9.1 % to 40.1 % of GDP.

The large increase in foreign loans in the period from 1967 onwards is also clearly demonstrated in the tables IV-1 and IV-2. This increase in foreign borrowing coincides with the decline in direct foreign aid supplies. Sources and composition of foreign borrowing are reflected in tables IV-6 and IV-7.

The end of the 1960s and the 1970s show a significant increase in external indebtedness, as total debt outstanding (publicly guaranteed) as a ratio to GDP increased from 13.8 % in 1967 to around 28 % in the mid 1970s (10). Also the debt service ratio increased to very high levels in the period 1968-72. Accelerating export performance has led to a significant decline in the debt service ratio from 1973 onwards. The debt burden, however, does not seem to be a real burden on the economy. Foreign saving requirements to cover the internal savings gap averaged in the period 1967-75 to about 6.5 % of GDP per annum, whereas the growth of debt outstanding to GDP averaged to only

(9) The interpretation of these effects will also depend on the view on bias on the relation between investment and savings, or in other words, whether investments are savings constrained or not. See chapter III.

(10) Private, unguaranteed debt is of minor importance: about 8 % of total debt outstanding (incl. unguaranteed debts).

1.8 % a year. Even after discounting for direct foreign investments, this indicates at a high velocity of foreign savings. Some shifts in the origin of foreign loans can be read from table IV-7. Firstly, within the category of private creditors there has been a considerable shift towards lending from private international banks, whereas the share of suppliers credits in total external public debt decreased (from 57.1 % in 1967 to 18.4 % in 1977). This can be explained by the fact that Korean entrepreneurs apply to the commercial banking system to cover their financial deficits, as subsidized credits can be obtained through the private banks. Industrial growth and simultaneously increased demand for investment funds have led to the situation that private banks are continuously 'loaned up', i.e. credit expansion from the domestically supplied reserve base appears to be insufficient to meet credit requirements (11). Long-term private borrowing by the commercial banks then has come up to cover their financial deficits.

Lending from private international banks has been highly concentrated by country of origin. Again the USA and Japan appear as the 'care-takers' of Korea's needs; estimates show that U.S. banks supplied 83.5 % to total commercial loans to South Korea by August 1975 and that Japan provided 5.6 % (12). Secondly, the growth of borrowing from international private banks did not lead to a decline of the share of official lenders as a source of total external debt. World Bank assistance to the Korean development strategy has been a major source of the growth of lending by multilateral organizations.

From the above findings one might be inclined to conclude to a rather 'voluntarist' view of the role of the state in the development of the financial sector. The significant state influence is evident, but certain factors tend towards adopting a less 'voluntaristic' view:

- a) First of all, the growth of the financial sector has been a reflection of economic growth raising demand for and supply of financial assets.
- b) In spite of the rapid expansions of domestic credit, dependence on foreign finance has not been reduced significantly.

(11) This is enforced by the development of a government security market, by which the government allocates directly savings from households and consequently implies that households invest a declining share of their incomes in time and savings deposits of the commercial banks. See table IV-5.

(12) Long (1977), p. 30.

- c) Money creation by the state, i.e. currency issues by the Central Bank, appears to be the residual or closing variable of the financial system. Or put otherwise, foreign financing compensates for inflationary financing. This can also be read from table IV-3, where it holds most significantly for the 1970s, that money growth (H_1) is inversely related to foreign financing ($M - E$).

IV.3 Money creation and inflation

As money creation is considered as a closing variable it is important to analyze its effects. From the simple quantity of money equation: $Y.P = H.V$ it can be easily seen that, if total economic transactions (Y) are given and the income velocity of money (V) is fixed, a change in the money supply (H) by currency issues will lead to an increase in the price level (P). Or put in other words, prices will have to rise adequately to establish the ex-post equilibrium between the demand for money and the money supply. Excessive money creation thus appears as a type of 'forced savings', which will affect the non-financial sectors of the economy (13):

1. Inflationary financing will be required to cover a government budget deficit, which may result from high levels of public investment. The macro-economic effect of the increase in public investments will probably be an increase in the real economic growth rate (assuming that it leads to higher capital efficiency or profitability and thus higher capital information) and an increase in the rate of inflation (a more rapid monetary expansion to finance the government deficit). The rate of inflation may exceed the increase of nominal household incomes from economic growth, thus real household incomes will decline (14). This in turn will lead to a downward adjustment in private consumption and household saving. The net effect being a transfer of resources from households to the state. Decreasing household savings may further lead to a liquidity shortage of the private banking system (which in turn will need to be financed either from borrowing from the Central Bank, or by foreign borrowing).

(13) Theoretical foundations of (some of) the effects mentioned are explained in Cardoso and Taylor (1979), Taylor (1979), ch. 9; FitzGerald (1980); Von Fürstenberg and Malkiel (1977).

(14) It is assumed that enterprises are able to pass on price increases into domestic consumer prices and/or that nominal wage adjustments will be determined by productivity levels rather than by price increases (which seems a plausible assumption under a 'low wage regime', with trade unions being effectively repressed).

2. If price increases exceed nominal wage adjustments (cf. note 14), real wages will decline, meaning a shift in the functional income distribution towards profit incomes. A tendency towards more income inequality within the personal income distribution may follow from declining wage incomes, The tendency may be enforced as a consequence of the higher propensity to consume among low income groups.
3. The above mentioned effects can be blurred in at least two ways:
 - (i) Economic growth from increased investment efforts may increase employment and income levels so that the monetary equilibrium will be established without high inflation.
 - (ii) The effectiveness of money creation to finance a government deficit can be choked off as high inflation will induce households to hold less cash balances, as the value of money is going down all the time. An increase in the income velocity of money (V) will be the result and induce more inflation as the money supply then will exceed money demand even more. The effects mentioned under 1 and 2 will thus be enforced.

Observations from recent development in the Korean economy can be summed as follows:

- Foreign finance is still significant and appears to compensate for inflationary financing. Government deficits have long been covered reduced by direct foreign (U.S.) aid flows to the government. In the 1970s net government claims on domestic credit supply increases significantly (table IV-3) as direct foreign aid flows have been reduced to insignificant levels and government savings are declining (15).
- Still, inflation rates have remained high. The average annual change in the general price level amounted to 14.8 % in the 1970-77 period. These high rates are explained by two causes: (i) significant imported inflation especially due to increased oil prices and the accompanied boom in raw material prices (the 1973 and 1974 inflation rates were 21.2 and 30.3 % respectively); (ii) rapid monetary expansion to meet government financing requirements.
- Inflation rates have been accompanied by sustained high growth levels, i.e. 9.8 % on average per annum in the 1970-77 period.

These observations tend to the following conclusions considering the significance of 'forced savings':

- a) Money creation to cover the governments liquidity shortages appears to be a minor, though increasing, residual after foreign borrowing (replacing foreign aid).

(15) The latter mainly due to the 1972 policy changes with renewed high tax exemptions and export subsidies.

- b) The inflationary impact of money creation added to the level of imported inflation did not lead to a stagnation in economic growth, nor of declining real household incomes (table IV-4, column 4). There was only a slow down of growth in the latter during 1974 and 1975.
- c) Real wage income also has increased steadily (table IV-4, column 5). The rising inequality in incomes (see income distribution section, chapter 1) has been caused by sectoral differences in productivity increases rather than by a process of 'forced savings'.
- d) The inflationary impact appears to have had most significant impact on private consumption. During the 1970s real private consumption declined at an accelerated speed as a share of GDP: from 70.7 % in 1971 to 55.6 % in 1977 (see table IV-4, column 6). The preference of households to hold money balances has significantly declined, but households tend to hold more financial assets in the form of (government) securities (table IV-5). The gross acquisition of financial assets in real terms only slowed down in 1974 and 1975 as real growth of incomes slowed down as well. Thus the inflationary impact on household behaviour seems to have been a decline in consumption expenditure and a shift towards holding near money. Changes in the income velocity of money seem to have been negligible.

IV.4 The monetary equations

The previous paragraphs have indicated that the financial structure is such that the liabilities of the Central Bank plus commercial banks account for a high percentage of all claims on intermediary financial institutions (including the curb market) that are held by the public. The monetary sector therefore has been consolidated into two banking entities, i.e. the Central Bank (BOK) and the Commercial Banks.

As a basis for flow of funds analysis the financial sector has been made consistent with investment and savings patterns. Thus the monetary system has been made an integral part of the total economic system. The socio-economic groups having assets and claims against the financial sector are the same as in the rest of the model system and again have been consolidated into households, enterprises and government. The system is completed by the foreign sector.

Below, schema IV-1, represents a consolidated balance sheet for the monetary system in such a way that it is linked to the flow of funds of the non-financial sectors. On the left are the assets of the various entities, i.e. their claims

on stores of wealth in the form of the various financial variables listed. On the right side are their liabilities, or the financial claims on the various entities by others. Economic actors will try to equal assets against claims as long as assets include net worth. However, reality shows that entities may show net deficit or surplus positions (assets exceeding liabilities, or the other way around); in fact this is the basis of the whole system. The net deficit or surplus positions in Korean reality have been made clear in the balance sheet:

- households are considered to be in a surplus position, depositing their financial surplus in the commercial banking system (ΔQ);
- enterprises are a deficit entity, covering their deficit by borrowing from the commercial banks (ΔL_E);
- commercial banks show up with a liquidity shortage as these have been 'loaned up' by the enterprise sector; the deficit is covered by foreign borrowing (ΔF_E);
- the Central Bank covers its deficit by money creation (ΔCur), for most making the government a net debtor to the rest of the system as the government in its function of executive of fiat money can cover its budget deficit (D) ultimately simply by printing extra money;
- the foreign sector appears as a net creditor to the system through foreign lending and direct foreign investments 'financing' the current account deficit of the balance of payments.

To allow for consistent accounting assets have to be equal to liabilities (16). For the household sector we have:

$$(IV-1) \quad I_H + \Delta Q_1 + \Delta Q_2 + \Delta Cur_H = S_H$$

The enterprise identity holds if:

$$(IV-2) \quad I_E + \Delta Cur_E = S_E + \Delta L_E$$

(N.B. I_E includes direct foreign investment ΔI_F ; S_E is net of profit remittances to abroad, P_F).

Commercial banks find an equilibrium at:

$$(IV-3) \quad \Delta q_1 + \Delta q_2 + \Delta L_E + DS_P = \Delta Q_1 + \Delta Q_2 + \Delta F_E$$

The Central Bank identity is:

$$(IV-4) \quad \Delta R + D = \Delta q_1 + \Delta q_2 + \Delta Cur$$

For the government we have:

$$(IV-5) \quad I_G + DS_G = S_G + \Delta F_G + D$$

(16) Equations IV-1 to IV-6 represent identities. The balance between left and right of the equation sign is identical to the balance of scheme IV-1.

Finally the foreign account closes as:

$$(IV-5a) \quad E + \Delta F_G + \Delta F_E + \Delta I_F = M + DS_P + DS_G + P_F + \Delta R$$

The monetary equations have to be consistent with the rest of the economic system through the capital account:

$$(IV-6) \quad S_H + S_E + S_G + (M - E) = I_H + I_E + I_G$$

Thus all variables appear on both sides of the equation sign.

SCHEME IV-1: Monetary and Real Balances: Consolidated Balance Sheet

Liabilities		1. Households		Assets
Investment by households	I_H		Household Saving	S_H
Demand Deposits	ΔQ_1			
Near Money	ΔQ_2			
Cash Balances	ΔCur_H			
		2. Enterprises		
Investments by enterprises (incl. ΔI_P)	I_E		Retained Profits (net of P_F)	S_E
Cash Balances	ΔCur_E		Credit from Banking Sector	ΔL_E
		3. Commercial Banks		
Reserves for Demand Deposits	Δq_1		Demand Deposits	ΔQ_1
Reserves for Near Money	Δq_2		Near Money	ΔQ_2
Lending to Enterprises	ΔL_E		Liquidity shortage financed	
Debt Service for borrowing	DS_P		by Private Foreign Borrowing	ΔF_E
		4. Central Bank		
Net Foreign Reserves	ΔR		Reserves for demand deposits	Δq_1
Credit to Government	D		Reserves for near money	Δq_2
			Currency and coins (money printing)	ΔCur
		5. Government		
Public Investment	I_G		Public Savings	S_G
Debt Service for borrowing	DS_G		Foreign aid and borrowing	ΔF_G
			Excess Budget Deficit	D
		6. Foreign Sector		
Exports	E		Imports	M
Foreign aid and lending to government	ΔF_G		Debt service public for loans	DS_G
Foreign lending to private	ΔF_E		Debt Service private for loans	DS_P
Direct Foreign Investment	ΔI_F		Profit Remittances to abroad	P_F
			Net Foreign Reserves	ΔR
		7. Capital Account		
Domestic Saving	S_H, S_E, S_G		Domestic Investment	I_H, I_E, I_G
Foreign Saving	$M - E$			

List of symbols to monetary equationsHousehold sector

I_H	= Household investment
S_H	= Household savings
HOI	= Household income
i_1	= Nominal interest rate on time and savings deposits
p	= Domestic price level
ΔCur_H	= Household demand for cash balances (currency)

Enterprise sector

I_E	= Investments by private enterprises
S_E	= Retained profits or savings of private enterprises
W	= Wages
VA_{int}	= Production inputs of private enterprise sector
ΔCur_E	= Enterprise demand for cash balances (currency)
ΔL_E	= Credit supply to private enterprises

Commercial banks

Q_1	= Total demand deposits
Q_2	= Total time and savings deposits
q_1	= Reserves for demand deposits
q_2	= Reserves for time and savings deposits
r	= Reserve-deposit ratio
ΔL	= Potential credit expansion of banking sector
ΔL_E	= Credit supply to private enterprises
ΔF_E	= Private foreign borrowing by commercial banks
DS_p	= Debt service on private foreign loans
i^*	= Interest rate on foreign loans
i_2	= Interest rate on credits to the private sector

Central Bank

Δq_1	= Reserves for demand deposits deposited by commercial banks
Δq_2	= Reserves for time and savings deposits deposited by commercial banks
ΔR	= Net use of international reserves
D	= Credit to government
ΔCur	= Money creation

Government

I_G	= Public investments
S_G	= Public savings
F_G	= Outstanding public external debt
ΔF_G	= Foreign aid and lending to government
DS_G	= Debt service on foreign loans for government
i^*	= Interest rate on foreign loans
D	= 'Excess' deficit on government account

Foreign sector

M	= Imports of goods and services
E	= Exports of goods and services
ΔF_G	= Foreign aid and lending to government
ΔF_E	= Foreign lending to commercial banks
ΔI_F	= Direct private foreign investments
DS_G	= Debt service on foreign loans to government
DS_P	= Debt service on private foreign loans
P_F	= Profit remittances to abroad
ΔR	= Net use of international reserves

IV.4.1 Household financial transactions

Behavioural equations of the financial transactions of households are treated below.

Household investments (I_H) and household savings (S_H) have already been determined in the savings and investment block (equations III-2 and III-10). Demand for near money is determined by the level of household incomes (HOI) and the real interest rate on time and savings deposits (i_1/p). The latter is considered to be a government instrument and positively related to household demand for bank deposits.

$$(IV-7) \quad \Delta Q = \Delta Q_1 + \Delta Q_2 = f(HOI, \overline{i_1/p})$$

The same variables are assumed to determine the demand for cash balances (ΔCur_H) as this demand can be formulated also as the preference of households to hold currency vis-à-vis bank deposits. Thus:

$$(IV-8) \quad \Delta Cur_H = f(HOI, \overline{i_1/p}).$$

As the equilibrium of the household sector was formulated as:

$$(IV-1) \quad I_H + \Delta Q_1 + \Delta Q_2 + \Delta Cur_H = S_H$$

The system seems to be overdetermined: ΔCur_H appears to be determined, both behavioural and as the residual of the household sector. This apparent overdetermination is a consequence of the consolidation of the whole system, in which money creation by the Central Bank (ΔCur) has to be made consistent with money demand of households and enterprises ($\Delta Cur_H + \Delta Cur_E$). However, because prices are not determined yet there is no real overdetermination. The system then may close through price changes and consequently the process of 'forced saving' (passed on to the household sector) as described in paragraph IV.3 has thus been included in the model.

IV.4.2 Enterprises

Again enterprise investments (I_E) and savings (S_E) have already been determined in the investment and savings block (eq. III-3 to 6 and III-14). Enterprise demand for cash balances will depend, firstly, on the immediate payment requirements of wages and bills of supplied inputs (i.e. the working capital ($W + VA_{int}$)) and secondly, on the price level. Thus:

$$(IV-9) \quad \Delta Cur_E = f([W + VA_{int}], p)$$

Enterprises are a deficit entity and investment requirements are to be covered by credit from the banking sector (ΔL_E) (17). So that ΔL_E is calculated as a residual:

$$(IV-10) \quad \Delta L_E = I_E + \Delta Cur_E - S_E.$$

IV.4.3 Commercial banks

Households deposit their financial savings (ΔQ) in the banks, which in turn are obliged to ensure a minimum reserve position (Δq) required by and deposited in the Central Bank. The reserve-deposit ratio (r) will be considered as an instrument of monetary policy and is defined as:

$$(IV-11) \quad \bar{r} = \frac{q_1 + q_2}{Q_1 + Q_2}$$

The necessary change in the reserve position of the banks, thus will depend on the change in demand and savings deposits and the reserve-deposit ratio, i.e.:

$$(IV-12) \quad \Delta q_1 + \Delta q_2 = r (\Delta Q_1 + \Delta Q_2)$$

Potential credit expansion of the banking sector is determined by total deposits minus the banking sector's reserve position:

$$(IV-13) \quad \Delta L = Q - q.$$

It has been assumed that the commercial banking sector is a net supplier of funds to the enterprise sector only (ΔL_E). Furthermore it follows from Korean reality that the private sector as a whole (households and enterprises) suffers from a lack of funds. Household financial surpluses are insufficient to cover credit requirements of the enterprise sector ($\Delta L_E > \Delta L$). Korea's export performance and the open character of the economy allows for foreign financing, thus a monetary or credit constraint on private investment can be avoided through coverage of the liquidity shortage of the banking sector by private external borrowing. As we have seen, funds from this source have increased significantly in Korea over the past decade. Debt services (interest and repayments) on private foreign loans (DS_P) then will have to be included in the model and will increase the domestic liquidity shortage of the private banking system. Private external borrowing will be modelled as a residual in equation (IV-14):

$$(IV-14) \quad \Delta F_E = \Delta L_E + DS_P - \Delta L$$

(17) The degree of self-finance of the enterprise sector as a whole averaged to 41.5 % of total investment of enterprises (incl. public enterprises) in the 1970-77 period.

Debt service on private foreign loans is a function of foreign interest (i^*) and repayment requirements as a share of outstanding foreign debt:

$$(IV-15) \quad DS_P = \bar{i}^* \cdot F_E + \Delta F_E$$

$$(IV-16) \quad F_E = F_{E-1} + \Delta F_E$$

The liquidity shortage of the private banking sector will determine the interest rate on credits to the private sector (i_2). A liquidity shortage will drive up the interest rate and therefore will also allow for the coverage of the shortage by expensive private external borrowing:

$$(IV-17) \quad i_2 = f[(\Delta L_E + DS_P - \Delta L), \bar{i}^*]$$

The liquidity shortage and the cost of lending from the banking sector will influence - with a time lag - private investment levels, because the enterprise sector, especially enterprises owned by local entrepreneurs, is ultimately dependent on sufficient credit creation to finance its investments (cf. the investment-savings block, equation III-3 and III-5).

IV.4.4 Central Bank

No behavioural equations result from the Central Banking activities. The activities of the Central Bank reflect the requirements of all other actors in the system (money demand, government deficit, current account deficit of balance of payments).

Reserves of the private banking sector are deposited in the Central Bank. Fiscal authorities are assumed to operate through the Central Bank and do not issue obligations directly to the private sector; it is assumed that there is no market for government bonds (18). The major implication is that government deficits can be met only through borrowing by the Finance Ministry from the Central Bank (D). Government savings and dissavings are directly linked to changes in the Central Bank's holdings of government debt. In the same way, a current account deficit of the balance of payments has to be

(18) This is a simplification of Korean reality as from 1974 onwards a comprehensive capital-market development plan resulted in an important growth of the security market. See Que, (1979), p. 376 ff. Further investigation may conclude to expand the monetary block with the inclusion of Development Finance Corporations (like KIFC and KIC) for a more adequate description of the Korean monetary system.

'financed' by a rundown of the Central Bank's foreign reserves (ΔR), after allowing for an increase in private foreign lending, foreign capital inflows to the government sector and direct private foreign investments.

The Central Bank deficit resulting from these financing requirements then needs to be covered by money creation (ΔCur).

The identity equation for the Central Bank holds as:

$$(IV-4) \quad \Delta R + D = (\Delta q_1 + \Delta q_2) + \Delta \text{Cur}$$

or formulated as a residual:

$$(IV-18) \quad \Delta \text{Cur} = \Delta R + D - (\Delta q_1 + \Delta q_2).$$

IV.4.5 Government

The government sector is assumed to run into a deficit as public investment requirements are assumed to exceed public savings from the current account of the government budget. Foreign aid and public external borrowing (ΔF_G) may cover part of the deficit. The remaining 'excess' deficit (D) needs to be financed from inflation, i.e. government borrowing from the Central Bank. Public investments (I_G) and public savings (S_G) are determined elsewhere in the system (eq. III-8 and III-19). Foreign aid and lending to government (ΔF_G) is assumed to be autonomous and to result from political ties with allied countries (U.S., Japan). Debt Service on public foreign debt (DS_G) is modelled in a similar way as private debt service requirements. The following monetary equations result for the government sector:

$$(IV-19) \quad \Delta F_G = \Delta \bar{F}_G$$

$$(IV-20) \quad DS_G = \bar{i}^* \cdot F_G + \beta \cdot F_G$$

$$(IV-21) \quad F_G = F_{G-1} + \Delta \bar{F}_G$$

The balancing equation can be formulated as:

$$(IV-22) \quad D = I_G + DS_G - S_G - F_G \quad (19).$$

IV.4.6 Foreign sector

The foreign sector account consolidates the balance of payments.

The current account deficit will be financed by capital inflows from various

(19) However, most statistical sources will already have included DS_G in current government expenditure and thus S_G is already net of DS_G .

sources: foreign aid and lending to government, foreign lending to the private sector and direct foreign investments. Foreign lending to the private sector (ΔF_E) is determined as a residual by the liquidity shortage of the private banking sector (eq. IV-14). Direct foreign investments are autonomous capital inflows (ΔI_F) and have already been included in private enterprise investments (determined by eq. III-4 and III-6). Foreign aid and borrowing (ΔF_G) is considered to be autonomous (eq. IV-19). After allowing for debt service payments, the foreign balance closes over the change in the foreign reserve position (ΔR).

$$(IV-23) \quad \Delta R = M + DS_P + DS_G + P_F - E - \Delta F_G - \Delta F_E - \Delta I_F$$

M and E are determined in the external block of the model system.

STATISTICAL ANNEX TO CHAPTER IV

Tables IV-1 to IV-7.

Table IV-1 Sources of Growth of Financial Institutions, 1963-75
(current prices)

Instruments	Change in Outstanding Stock					
	1963-67		1967-71		1971-75	
	bln.	% of	bln.	% of	bln.	% of
	Won	total	Won	total	Won	total
Money (H ₁)	78.6	22.1	240.8	15.5	820.9	18.0
Time and Savings Deposits	121.8	34.2	585.2	37.7	1,401.9	30.8
Insurance and Trust	32.3	9.1	126.0	8.1	130.0	2.9
Securities	10.1	2.8	65.3	4.2	243.6	5.3
Equities other than Stocks	6.4	1.8	42.7	2.8	260.3	5.7
Government Loans	31.8	8.9	109.8	7.1	333.4	7.3
Foreign claims and debts	3.0	0.8	173.3	11.2	776.7 ^{a)}	17.1
Other ^{b)}	71.8	20.2	207.5	13.4	586.5	12.9
Total	355.8	100.0	1,550.6	100.0	4,553.3	100.0

Sources: Hasan and Rao (eds) (1979), p. 375; originally Bank of Korea, Flows of Funds in Korea and Economic Statistics Yearbook

a) Estimated on the basis of outstanding indebtedness of Bank of Korea, Korean Development Bank and commercial and specialized banks at the end of 1975.

b) Calculated as a residual.

Table IV-2 Korea: Monetary Survey: 1960-1977
(bln. of Won, current prices)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Domestic Credit	22.1	50.3	71.2	83.4	90.4	118.7	153.3	260.6	468.6	751.0	962.4	1239.7	1600.1	2073.8	3164.4	4160.5	5074.2	6260.0
- Claims on government (net)	7.8	12.8	24.2	26.1	23.0	21.3	16.0	19.5	9.0	12.7	13.0	6.5	103.1	130.9	281.9	529.5	582.8	570.4
- Claims on official entities	-	0.2	0.5	2.6	2.1	12.3	18.5	20.1	27.9	32.0	30.0	32.0	34.0	43.0	20.0	110.0	110.0	210.0
- Claims on private sector a)	14.3	36.3	46.5	54.7	65.3	85.1	118.8	221.0	431.7	706.3	919.4	1201.2	1463.0	1899.9	2862.5	3521.0	4381.4	5479.6
Foreign Assets	10.4	27.5	23.0	17.9	33.9	40.0	67.6	96.4	106.6	167.2	195.8	190.6	292.8	461.1	503.2	753.1	1432.8	2318.6
- Foreign assets in BOK	10.4	27.5	22.3	17.5	33.4	38.7	65.3	69.0	104.5	148.8	170.5	146.5	130.2	166.1	102.2	366.9	927.3	1513.6
- Foreign assets in commercial banks	-	-	0.7	0.4	0.5	1.3	2.3	27.4	2.1	18.4	25.3	44.1	162.6	195.0	401.0	386.2	495.5	805.0
Other assets f)	2.1	5.8	11.0	8.1	6.5	14.6	36.2	49.5	79.4	107.1	167.6	127.8	210.3	336.7	417.3	840.8	1081.5	1681.1
Total Assets b)	34.6	83.6	105.2	109.4	130.8	173.3	257.1	406.5	654.6	1025.3	1325.8	1558.1	2103.2	2871.6	4084.9	5754.4	7588.5	10259.7
Money (M ₁) c)	22.8	35.8	39.4	41.9	48.8	65.6	85.1	123.0	177.7	252.0	307.6	358.0	519.4	730.3	945.7	1181.8	1544.1	2172.6
Near Money d)	3.0	5.5	12.3	13.5	14.7	31.5	71.9	130.8	258.8	452.6	500.2	726.9	932.4	1243.3	1489.6	1935.2	2588.4	3582.2
Foreign Liabilities	4.0	8.7	11.2	13.6	22.1	21.4	15.8	16.0	21.1	59.3	83.0	148.6	183.3	154.1	613.1	920.0	1114.7	1344.4
- Foreign liabilities in BOK	4.0	8.7	11.2	13.6	22.1	21.4	15.8	3.1	2.5	10.6	9.2	4.1	4.6	4.5	93.7	187.2	272.2	233.3
- Foreign liabilities in commercial banks	-	-	-	-	-	-	-	12.9	18.6	48.7	73.8	144.5	178.6	149.6	519.4	732.8	842.5	1111.1
Other Liabilities e)	4.8	33.6	43.7	40.4	45.2	54.8	84.3	136.7	197.0	261.4	345.0	324.6	468.1	743.9	1036.5	1717.4	2341.3	3160.5
Total Liabilities b)	34.6	83.6	105.2	109.4	130.8	173.3	257.1	406.5	654.6	1025.3	1325.8	1558.1	2103.2	2871.6	4084.9	5754.4	7588.5	10259.7

Source: IMF, International Finance Statistics.

General note: Table covers Bank of Korea and Commercial Banking Sector balance sheets only, which amounts to about 80 % of total assets of organized financial system.

- a) Includes loans and discounts, securities, loans in foreign currency and claims on KDB.
b) Total assets and liabilities are slightly underestimated due to net character of claims on government.
c) Includes currency in circulation and demand deposits.
d) Includes time and savings deposits and resident's deposits in foreign currency.
e) Includes bonds and debentures, guarantees and other.
f) Includes reserves and restricted import deposits.

Table IV-3 Korea: Monetary Growth, 1960-1977

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
<u>Annual Percentage Growth Rates</u>																		
Money (H_1)	8.1	57.0	10.1	6.3	16.5	34.4	29.7	44.5	44.5	41.8	22.0	16.3	45.0	40.6	29.5	24.9	30.7	40.7
Near Money	n.a.	116.0 ¹⁾	125.9 ¹⁾	5.7	12.7	113.1	127.2	86.3	97.6	74.8	30.2	23.0	28.1	33.3	19.9	30.1	23.0	38.3
Domestic Credit	n.a.	127.6	41.6	17.1	8.4	31.3	29.1	70.0	79.8	60.3	28.1	28.8	29.1	29.6	52.6	31.5	22.0	23.4
GDP (nominal)	11.4	19.9	20.9	41.8	42.3	12.2	28.3	23.1	29.4	30.7	25.0	23.1	22.5	30.3	40.3	33.5	34.0	27.5
GDP (real, 1970 = 100)	n.a.	-2.6	6.1	10.1	7.7	11.3	12.2	5.9	11.3	13.8	8.5	9.5	6.1	15.1	7.8	8.0	13.0	10.3
<u>Percentage of GDP</u>																		
Money Supply (H_2) ²⁾	10.4	14.1	14.6	11.0	8.9	12.1	15.2	20.2	26.8	33.1	33.7	33.0	36.0	37.6	33.1	31.8	31.5	34.3
Domestic Credit	9.1	17.3	20.2	16.7	12.7	14.9	15.0	20.7	28.8	35.3	36.1	37.8	39.8	39.6	43.1	42.4	38.6	37.4
- Claims on government (net)	3.2	4.7	6.9	5.2	3.2	2.7	1.6	1.5	0.6	0.6	0.5	0.2	2.6	2.5	3.8	5.4	4.4	3.4
- Claims on other official entities	-	0.1	0.1	0.5	0.3	1.5	1.8	1.6	1.7	1.5	1.1	1.0	0.8	0.8	0.3	1.1	0.8	1.3
- Claims on private sector	5.9	12.5	13.2	11.0	9.2	10.7	11.6	17.6	26.5	33.2	34.5	36.6	36.4	36.3	39.0	35.9	33.4	33.7
Government Deficit ($I_G - S_G$) ³⁾	5.5			3.9		2.2		0.8	0.4	1.9	-0.2	0.4	1.9	1.0	1.8	2.0	-1.2	0.3
Import-Export gap (M - E)	9.4			11.1		7.4		10.8	13.2	11.9	9.8	10.6	4.9	3.1	11.5	9.4	1.8	0.0

Sources: IMF, International Finance Statistics, various issues; UN, Yearbook of National Accounts Statistics, various issues.

General note: Percentages are calculated from data in current prices (bln. Won), unless otherwise indicated.

1) Increases from very low levels.

2) Equals Money, H_1 , (currency and coins plus demand deposits) plus near money (time and savings deposits, a.o.).

3) General Government deficit, excluding public enterprises.

Table IV-4 Korea: Rates of Inflation and Trends in Real Incomes, 1960-1977
(indices, 1970 = 100)

	1	2	3	4	5	6
	GDP deflator	Wholesale price index	Consumer price index ¹⁾	Real disposable household income ²⁾ (bln. Won)	Real wage income ²⁾ (bln. Won)	Real private consumption (% of GDP)
1960	21.8	31	27	751.5	296.3	78.7
1961	25.0	35	30			
1962	28.5	38	32			
1963	36.7	46	38	1108.7	360.8	77.5
1964	48.5	62	49			
1965	52.5	69	56	1201.8	404.5	73.6
1966	59.8	75	62			
1967	68.3	79	69			
1968	76.4	86	77	1594.0		72.1
1969	86.6	92	86	1954.8	818.1	71.8
1970	100.0	100	100	2050.1	890.7	69.5
1971	111.5	109	114	2224.0	965.0	70.7
1972	127.7	124	127	2440.7	1053.1	71.4
1973	139.7	132	131	3024.0	1241.5	67.4
1974	177.2	188	163	3401.7	1372.3	66.0
1975	220.9	238	204	3530.0	1485.2	64.7
1976	255.3	267	235	3991.7	1832.2	51.7
1977	303.1	291	259	4609.7	2256.8	55.6

Sources: - UN, Yearbook of National Accounts Statistics
 - IMF, International Finance Statistics.
 - UN ESCAP, Statistical Yearbook of Asia and the Pacific.

1) The consumer price index is for urban non-agricultural households in all cities.

2) Deflated by the consumer price index.

Table IV-5 Composition of Gross Financial Investments of Households, 1963-76
(percentages)

	1963-66	1967-71	1972-75	1976 ^{a)}
Money (H ₁)	30.9	22.1	19.9	14.7
Time and Savings Deposits	40.9	49.5	35.2	33.4
Other Deposits and Loans	13.3	11.8	6.1	13.1
Insurance and Trust	10.3	13.1	5.6	8.0
Securities ^{b)}	8.9	15.9	33.5	29.7
Miscellaneous	-4.3	-12.4	-0.3	1.0
Total ^{c)} (bln. Won in current prices)	130.3	920.2	2011.5	1180.5

Sources: Taken from A.V. Que, "Financial System", in: Hasan and Rao (eds) (1979), table 12.9, p. 382; original data from Bank of Korea (BOK), Flow of Funds in Korea, 1963-70 and BOK, Economic Statistics Yearbook 1973 and 1976.

a) Preliminary.

b) Includes equities other than stocks.

c) Cumulated over the period.

Table IV-6 Sources and Uses of External Capital, 1966-76
(millions of dollars in current prices)

Item	1966-71	1972	1973	1974	1975	1976
Sources	658	802	999	2,452	2,776	2,332
Capital grants	119	87	61	64	...	...
Private direct investment (net) ^{a)}	36	74	137	103	53	76
Medium and long-term capital (gross) ^{b)}	472	784	828	1,329	1,773	1,816
Short-term capital (net) ^{c)}	137	-16	84	-45	680	602
International Monetary Fund	1	-1	-18	156	130	97
Bank borrowing (less than one year)	34	-53	-95	580	180	-131
Other ^{d)}	-141	-73	2	265	-40	-128
Uses	-658	-802	-999	-2,452	-2,776	-2,332
Goods and services balance	-670	-541	-499	-2,245	-2,113	-662
Current transfers (net)	175	170	190	222	226	349
Amortization	-116	-272	-350	-414	-396	-599
Increase in reserves	-47	-159	-340	-15	-493	-1,419

... Zero or negligible.

Sources: Data supplied by BOK and EPB. Taken from Hasan and Rao (1979), p. 444.

a) Excludes interoffice flows of foreign banks.

b) Includes bank borrowing for more than one year.

c) Includes short-term trade credit (net), export on credit (net), and export prepayments.

d) Includes interoffice flows of foreign and domestic banks, overdraft, non-resident deposits, and other.

Table IV-7 South Korea: External Public Debt¹⁾
(mln. of US \$)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
<u>Total Outstanding, incl. Disbursed</u>	632.6	955.5	1542.7	1797.2	2334.9	2863.6	3476.0	4297.6	5463.2	6696.3	8472.3
- Private creditors (% of total)	62.5	67.8	69.3	65.8	59.6	52.4	48.8	50.1	52.2	51.0	50.5
of which:											
(suppliers credits)	(57.1)	(63.1)	(62.0)	(55.6)	(45.6)	(38.7)	(32.2)	(25.7)	(23.3)	(19.6)	(18.4)
(private financial institutions)	(5.5)	(4.8)	(7.3)	(10.2)	(14.0)	(13.6)	(16.2)	(23.8)	(28.5)	(29.9)	(30.2)
- Official lenders (% of total)	37.4	32.1	30.6	34.2	40.2	47.6	51.5	49.8	47.8	49.0	49.4
of which:											
(multilateral)	(2.2)	(2.3)	(2.1)	(2.6)	(4.3)	(6.1)	(7.7)	(9.6)	(12.7)	(15.6)	(15.0)
(IBRD)					(1.7)	(3.3)	(4.0)	(5.2)	(7.3)	(10.1)	(9.8)
(IDA)					(1.7)	(1.6)	(1.7)	(1.8)	(1.7)	(1.5)	(1.3)
(bilateral)	(35.2)	(29.8)	(28.5)	(31.6)	(35.9)	(41.5)	(43.8)	(40.2)	(35.1)	(33.4)	(34.4)
Debt Service Ratio	7.0	9.2	14.1	22.3	22.5	19.5	15.4	12.3	10.8	9.2	n.a.
Debt Outstanding to GDP ratio	13.8	17.1	21.1	21.2	27.6	29.5	27.9	30.4	28.6	26.1	26.7

Source: IBRD, World Debt Tables, Volumes 1975 to 1978 and supplements.

1) Means publicly guaranteed debt. 'Private', unguaranteed debt amounts to about 8 % of total external debt.

V. INCOME DISTRIBUTION, PRODUCTIVITY AND EMPLOYMENT*)

The relation between economic growth and income distribution is generally accepted as the key issue in economic development(1). Real world experience has led to a disenchantment with the traditional 'trickle down approach' that economic growth and social modernization would take care of poverty and improve income equality among the Third World population. Post-war economic development in LDC's has been characterized by an overall rapid economic growth, but as well by growth of malnutrition, rural and urban poverty. Advocates of "redistribution policies first" have gained much more influence and at least economic development theory has been subject to a great deal of rethinking (2). Economic growth has not become a forgotten issue, but shall be given better way after firm redistribution policies. Such policies have been advocated even while accepting given socio-political systems and have not been necessarily related to socialist strategies. Whatever the underlying ideology the issue opens up the question of the nature and power of the State willing or even being capable to pursue such policies. This question will be dealt with in chapter VI. This chapter attempts to analyze the determinants of income distribution in Korea. To answer such a question many issues are involved and which will relate to the functioning of the whole political-economic system.

As it has been said in a previous project paper (3), three general questions are of importance:

- how is income distribution measured;
- which variables influence income distribution;
- what is the role of income distribution towards other variables.

Most studies measure income distribution as size income distribution related to the size distribution of the population and a division of households into income groups. The question how to measure income distribution is highly related to the desired level of disaggregation of the population into identifiable groups. It is our aim to identify various groups on basis of socio-economic criteria (such as employment, ownership, economic status, etc.) rather than by income levels. Relating income distribution to socio-economic

*) This chapter was prepared with assistance of Roel Vriezen.

(1) A good survey of (fairly) recent literature on distribution and development has been given by Cline (1975).

(2) This 'redistribution with growth' proposition has been advocated by a.o. Chenery, et.al. (1974) and Adelman (1979).

(3) Smit, Weyland and Vos (1980), p. 44.

groups will give a better insight in the functioning of the political-economic mechanisms of the countries studied. Moreover, studies have shown that the size distribution of income is rather stable over time and that the relative position of socio-economic groups is more sensitive to policy changes than the overall distribution (4).

The determinants of income distribution are to be found in the interrelations between production structure, asset distribution, labour mobility and final demand composition. The full analysis has not yet been undertaken, but can be discussed within the context of the complete country model system. The linkage of these issues towards social groups disaggregation could not be made as adequate household budget surveys were not yet available. Analysis of Korean empirical evidence is still related to rather aggregate variables such as wages, prices, productivity and sectoral labour supply and demand.

The effects of income redistribution will have to be analyzed in detail from the total model system, but such analysis will depend on the availability of adequate disaggregated data on final demand composition and production. E.g. data which reveal consumption demand composition by social group, import content of demand and labour content of commodities produced.

First step in this chapter will be to clarify criteria to identify socio-economic groups. Then a classification of socio-economic groups will be suggested for the Korea-model (par. V.1). Mobility of socio-economic groups will be related to changes in the structure of production (par. V.2) and the structure of employment through the functioning of rural and urban labour markets (par. V.3). Internal terms of trade between agricultural and non-agricultural production sectors will be an important determinant of the rural-urban income balance (par. V.4). Finally some notes on the modeling of income distribution by socio-economic groups and institutions (households, enterprises and government) are added (par. V.5).

V.1 Socio-economic actors

V.1.1 Identification and classification of socio-economic groups

To construct realistic models of economic development, it is necessary to define and identify the actors of the (socio-)economic system. Economic mechanisms essentially refer to social relations. Restricting analysis to a description of relations between economic aggregates (national income, investment, prices, etc.) can be a nice exercise for the economic advisors

(4) Adelman, Hopkins, et.al. (1979).

of Robinson Crusoe, but one will want to deal with the real world.

One may identify the actors of the economic system on various levels of abstraction and aggregation. I will distinguish three levels:

- institutions;
- social groups;
- individuals.

At the micro-level, the behaviour of individuals (within the context of the social system) will have significant importance. In the analysis, which deals with a full economy, individual behaviour can be reasonably generalized into social groups behaviour. Even in extreme cases of personal power hierarchies (the Somozas and Khomeinys) it is important to analyse social group structures underlying the socio-economic system.

It is rather conventional to distinguish between 3 types of institutions in the economic process, i.e. between households, enterprises and the State. National accounting systems use the distinction as well and for the non-closed economy one will want to include 'the rest of the world' (external accounts) as a semi-institution as well. There are no severe objections to such a distinction and it would be unwise - from a statistical point of view - to reject it. However, further disaggregation is desirable, as not all households and enterprises will behave similarly, nor will each of them have the same impact on the economy.

Enterprises will differ according to type of ownership (domestic and foreign), size of the firm (large and small scale), technological dualism (modern and traditional), and type of activity (agriculture and non-agriculture). The four criteria will identify the production structure of the economy. The State or public sector can be split up into various bodies of government (central, municipal, etc.) and various types of government-owned enterprises. To our type of analysis it will suffice to distinguish between general government (influencing the economic system through tax and expenditure policies) and public enterprises (which often are autonomous bodies, but differ from private enterprise behaviour).

Households will differ according to size, number of income earners, type of activities, economic status, etc. Many income distribution focussed studies group households according to the level of their incomes. Such a distinction is not tailored to make a linkage between incomes and employment and production structure.

The relevance of introducing socio-economic groups into economic models and criteria to define them, have been excellently analyzed by Cohen (1980). Cohen mentions several general conditions of socio-economic groups. These contain

among others that a social group will be an aggregate of individuals with:

- (i) common conditions of existence and living;
- (ii) the consciousness and realization of these conditions in common social behaviour (5).

The distinction covers the marxian terms of "Klasse an sich" and "Klasse für sich". Although the socio-economic group will be more cohesive and be a more active actor in the economic process when both conditions are present, yet the former condition may identify suitable analytical units. As Cohen states, socio-economic groups identified under the first condition are only "passive" actors.

Many criteria may underlie "common conditions of existence and living", such as mode of production (type of ownership, e.g.), type of activity (economic sectors), location, occupation, education, age, sex, ethnicity, income, etc. To establish the interlinkage between income distribution and employment and production structure one will have to take account of the following factors:

- mode of production, which may give a distinction between: 1. modern sector employers; 2. traditional sector self-employed; 3. modern wage labour; 4. traditional sector workers;
- sector: 1. agriculture; 2. modern manufacturing; 3. traditional manufacturing; 4. modern services; 5. traditional services;
- location: 1. rural; 2. urban.

Reality, of course, will be more complex, as households may consist of various income earners occupied in more than one sector. Equality and similarity of occupational structure and household structure will never be inconclusive.

Education will be a positive function of industrialization and will require a distinction between various types of wage labour (skilled and unskilled).

Societies with significant ethnical differences may require that socio-economic groups are differentiated by their cultural background as well. This will be especially the case if ethnic or racial differences determine economic policies, such as in Malaysia. The Malayan economy has a segmented structure, which also reflects the ethnical stratification: Malays are predominantly active in small scale farming (rubber small holdings and subsistence) and in public utilities and administration; Indians are wage labourers on large rural estates (rubber and palm oil) and are often self-employed in the urban services sectors; Chinese dominate as entrepreneurs in rubber-estates, mining, manufacturing, construction and commerce. A model system of Malaysia should allow for analyzing social mobility and changes in income structures from the interlinkage between structural change in production and political dominance of a particular ethnical group (the Malays).

(5) Cohen (1980), p. 10.

In many cases the classification will coincide with a hierarchy in income groups. For instance, small landowners, rural poor and urban traditional service workers will make up for the lower parts of the decile distribution. However, the socio-economic group classification as such will not reveal the hierarchy of income levels. Income differentials can be caused as much by sectoral productivity differences, differences in age and sex (male, female), labour market distortions, etc. To analyse intragroup income differentials one needs to include such factors as well.

V.1.2 Korean actors

Next to a set of traditional macro and sectoral models, there exist already at least two models on the Korean economy which identify socio-economic groups. One has been made by Cohen (1977) and which has been constructed to serve for medium-term manpower planning. The model introduces wage earners, salary-earners, non-earners and unemployed. The second model is more comprehensive and has been constructed by Adelman and Robinson (1978). The model focuses on income distribution and identifies 15 social groups in terms of occupational structure which configures to 15 household groups. Intragroup income differentials are simulated as well. The Adelman-Robinson classification seems fairly adequate and is close to the classification proposed below.

SCHEME V-1: Korea : Socio-economic actors

				SECTORS					
INSTITUTIONS	LOCATION	MODE OF PRODUCTION	SOCIO-ECONOMIC GROUPS	Agriculture ¹⁾	Manufacturing Modern ²⁾	Manufacturing Traditional	Services Modern	Services Traditional	
Households	RURAL	Land-owners	1. 'Large'	x					
			2. 'Middle'	x					
			3. 'Small'	x					
		Landless labourers		x					
	URBAN	Large scale (modern) sector	1. Employers, professionals		x		x		
			2. Skilled workers		x		x		
			3. Unskilled workers		x		x		
			4. Government employees				x		
		Small scale (traditional) sector	1. Self-employed				x		x
			2. Traditional workers				x		x
Enterprises	Domestically owned			x	x	x	x	x	
	Foreign owned				x				
Government	General Government						x		
	Public Enterprises				x		x		

Notes: 1) Includes fishing and forestry

2) Includes mining.

Scheme V-1 presents the proposed social-group classification for the South Korea-model. The major actors are classified according to institution, location, mode of production and sectoral activity.

The household sector has first been divided into rural and urban households. The distinction between rural and urban populations is important as village and city represent different economic and social systems. In Korea, the distinction by and large coincides with the division between agricultural and non-agricultural sectors. Off-farm rural activities still are rather insignificant source of rural incomes (6).

The rural population is stylized into four socio-economic groups: landless labourers and small, middle and large landowners. The distribution of land-ownership is fairly equal in Korea after a 'two-staged' land reform: the first in 1947 under American auspices and the second in 1950 which was a domestically controlled land reform. Most of the farms are quite small, as can be seen in table V-1. The use of the words 'large', 'middle' and 'small' landholdings is thus purely relative. The marginal size of holding is probably 0.5 ha. Rural migrants to urban areas will probably be recruited from landless households and peasant households owning less than 0.5 ha. land. Economic behaviour of all three types of land-owners will be output maximization, rather than profit maximization as input and price subsidies of the government are in essence production subsidies.(7)

Table V-1 South Korea: distribution of farms by size
(percentage shares)

Farm size	% of farm households		% of cultivated area 1974
	1968	1974	
Landless	2.2	4.7	-
1. 'Small': under 0.5 ha.	33.2	28.3	10.6
2. 'Middle': 0.5-2.0 ha.	57.8	60.5	68.9
3. 'Large' : 2.0 ha. and more	<u>6.8</u>	<u>6.5</u>	<u>21.5</u>
	100.0	100.0	100.0

Sources: Rao (1978), table 1 and Hasan and Rao (eds) (1979), table 7.1.

- (6) In 1970: off-farm rural employment amounted to 19 % of total primary employment (the figure includes the relatively small Korean mining sector).
(7) Cf. Rao (1978), who concludes that there will be a tendency towards increasing rural inequality as a consequence of subsidy policies of the Korean government.

Urban households are divided first into modern and traditional sector occupations. For reasons of data availability it will be more convenient to indicate modern and traditional activities by size of firm.

Production census data are to supply the demarcation-line (say at 5 workers engaged). It is acknowledged, of course, that this is only a very crude proxy for dividing modern and traditional activities.

There are two classes of owners: modern sector employers and professionals and traditional sector self-employed. There is no reason to suppose a different 'rationality' of modern capitalists vis-à-vis traditional capitalists. Both groups will be profit maximizing actors. However, their behaviour will be reflected in enterprise behaviour. Within the household sector they are 'only' income receivers (receiving redistributed profits). There are four urban working classes: skilled workers, unskilled workers and government employees in modern sectors and traditional (non-family) workers in small scale activities. As serious trade union action is effectively suppressed by the State, worker groups are assumed to be passive, dependent on labour market conditions. This is not the same as to say that there will be no social mobility within and between working classes. Only power and group behaviour of working classes is assumed to be weak.

The corporate sector (enterprises) will be divided according to nationality of ownership (see chapter III on investment behaviour), technological dualism (modern vs traditional, i.e. size of the firm) and sectoral activity. The current state of industrial development in many LDCs, and certainly in Korea, makes it essential to identify a corporate sector where most investment decisions take place. Enterprise incomes (profits) then are increasingly separated from household incomes. Most direct links will remain between rural household incomes and agricultural enterprise profits, and between traditional service enterprise profits and self-employed incomes.

Foreign ownership is of increasing importance, especially in the dynamic export-oriented manufacturing sectors (cf. chapter III, table III-4). The importance of foreign ownership is rather insignificant in the service sector. Identification of foreign investors as a social group, thus may be restricted to their influence in manufacturing sectors. Their behaviour will be determined by profit maximization as well. However, the specific determinants of the behaviour will differ from domestic investors, as foreign entrepreneurs may choose to repatriate profits, invest in other low cost countries, etc. (cf. investment behaviour specification in chapter III).

The public sector has been divided into two bodies: general government (the sum of central and decentral government institutions) and public enterprises (8). General government influences the flows of economic system by its revenue and expenditure policies. Public enterprise behaviour differs from private enterprise behaviour in terms of: (i) pricing policy, determined by social cost-benefit weighing; (ii) choice of activities which are complementary of nature and often characterized by large indivisibilities (e.g. infrastructure) or which are undertaken with infant industry arguments. In Korea public enterprises are more or less an integral part of government policies and in most cases controlled by one of the ministries (9).

State action is thus identified both in (re)distribution (taxation and government expenditure) and production. State behaviour will be related to the accumulation process (endogenous) but will contain a certain degree of relative autonomy as well (exogenous). The issue is treated a bit more in detail in chapter VI.

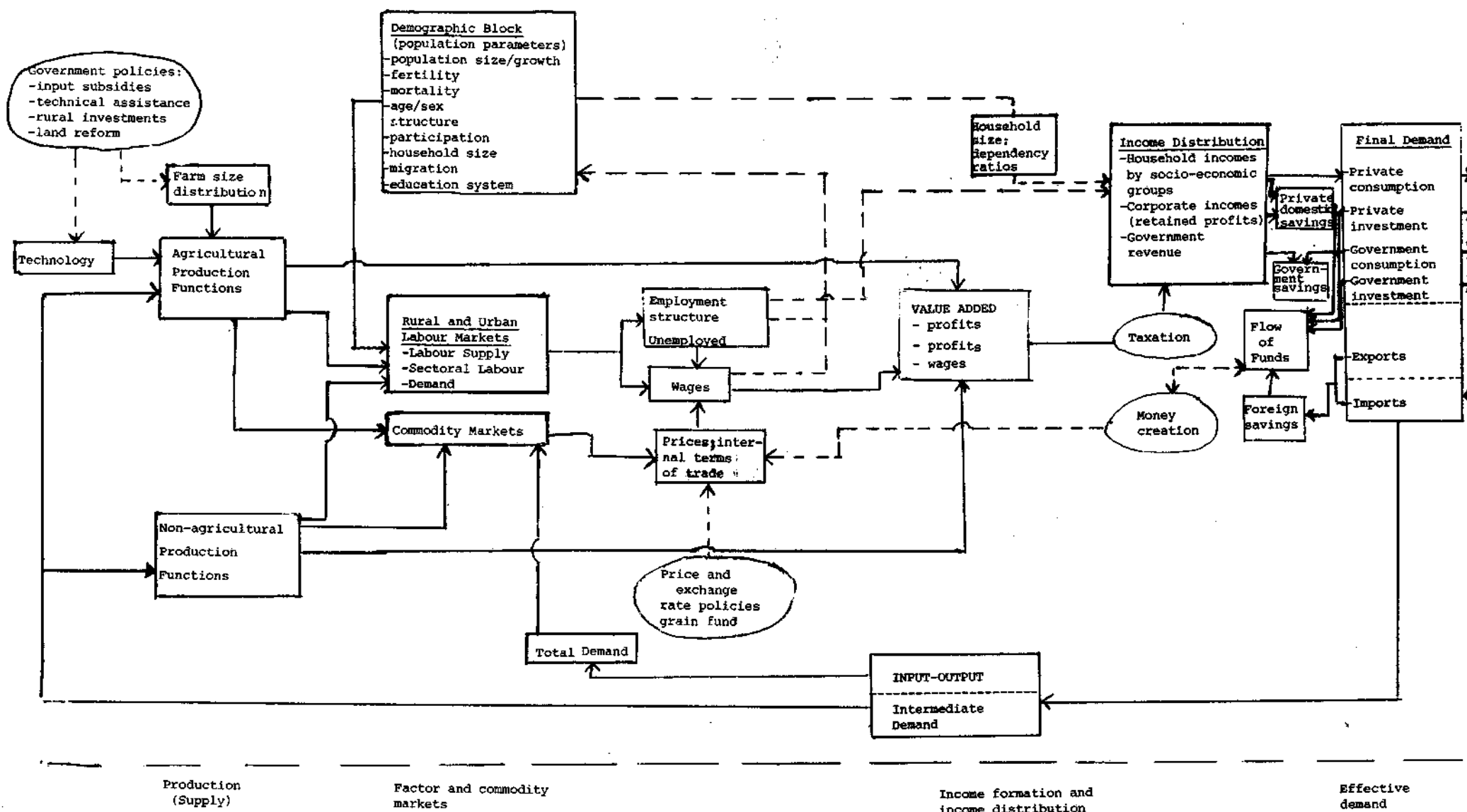
Specification of institutions and economic groups should be allowed for in the following composing parts of the model system:

- a) production: production functions will differ according to size of the firm, mode of production (modern vs traditional) and technology;
- b) labour market determination: the distinction between different socio-economic groups based upon occupation, location and skill level allows to investigate the specific determinants of labour demand and supply and their inter-linkage to changing patterns in the economic structure and changing patterns in the distribution of value added among profit earners and workers of various skills;
- c) determination of wages and income distribution by socio-economic group then follows from (a) and (b) with allowance for price changes (commodity prices and internal terms of trade);
- d) given income distribution, consumption and savings behaviour according to socio-economic actors can be specified; final demand will be further determined by investment behaviour and import demand (from the input-output structure).

-
- (8) Public enterprises can be defined as production units which are owned and/or controlled by public authorities and the production of which is marketed. See L.P. Jones (1975), p. 22. To have government control of an enterprise, it will not be a necessary condition that the state owns 50 percent or more of the stocks. The set of definitional criteria given by Jones (1975) adequately demarcates the Korean public enterprise sector.
 - (9) Even the Central Bank, the Bank of Korea, is directly subjected to the Ministry of Finance.

The framework of analysis is globally specified in the flow chart of scheme V-2. The following sections of this chapter will supply the material from Korean evidence for the specification of the production side, labour market, and wage determination. The final demand components investments, imports and exports as well as savings have been tentatively analyzed in the previous chapters. Specification of consumer expenditure is to be analyzed in additional studies.

SCHEME V-2 : Flow chart model system



V.2 Production structure

The country typology, tentatively developed in a previous project paper (9a), emphasized the importance of population density, land availability and natural resource endowment in the development of the structure of production. Analysis was stylized around the agriculture - non-agriculture dualism. The importance of agriculture in the process of accumulation was analyzed to be different in economies with high population density and land shortage vis-à-vis economies which are sparsely populated and 'enjoying' relative land abundance. High population density as prevails in many Asian countries, has generally led to an agrarian structure with small average size of the holdings and a high productivity per hectare. Land abundance in sparsely populated countries, like many in Latin America, has often created large inequalities in the size of the holdings and a duality in the productivity per hectare. These different agrarian structures create different conditions with respect to (i) the supply of food; (ii) the conditions determining the level of productive and remunerative employment to the rural labour force, and labour force availability to non-agricultural sectors; (iii) foreign exchange earnings through agrarian exports; and (iv) financing of non-agricultural development through transfers of agrarian surpluses. These are the initial conditions to the type and timing of structural changes taking place in the course of economic development. The agriculture - non-agriculture dichotomy has also been used as a starting point in the flow chart of scheme V-2.

In Korean reality the division between agricultural and non-agricultural sectors by and large covers the rural-urban dichotomy. Non-farm rural activities are still of minor importance and industries are concentrated in few urban centers (Seoul, Pusan) which absorb the bulk of the urban population. Korea is a country characterized by high population density (358 persons per square kilometer in 1975. (9b) Korean agricultural development has been characterized by:

- Relatively equal distribution of land attained by two post-war land reforms. The size of the holdings is small (see table V-1 above).
- Agricultural productivity only steadily increased, but productivity increases remained far behind development of non-agricultural sectors. Labour productivity changes in agriculture have proved to be dependent on government policies with respect to investments in rural infrastructure (irrigation, etc.), input subsidies, technical assistance, etc. Only under the Third and Fourth

(9a) Smit, Weyland and Vos (1980).

(9b) In 1975 population density of Japan was 294 persons per square kilometer; that of the Netherlands 333. Densities of Japan and Korea will even be significantly higher if population is related to accessible land (excl. mountains, etc.) only.

Development Plans agricultural development gained significant priority. Increased state effort to improve agricultural conditions led to average agricultural productivity changes of 4 % per annum in the 1970s.

- Food production has remained insufficient to feed a rapidly growing urban population. Food imports need to cover the deficit.
- Still a large part of the rural population could be 'set free' to meet urban wage labour demands.

These factors lead to some conclusions on the importance of agriculture in the process of accumulation:

- (i) equal asset distribution and relatively stagnant agricultural production conditioned to only a relatively small rent or agricultural surplus;
- (ii) the rural sector supplied a large army of wage labourers for urban sectors, but as a 'pull' process by rapidly increasing industrial labour demand, rather than as a 'push' by a rise of agricultural productivity;
- (iii) agricultural exports could supply funds (foreign exchange earnings) for financing non-agricultural development; food import requirements rather created foreign exchange deficits.

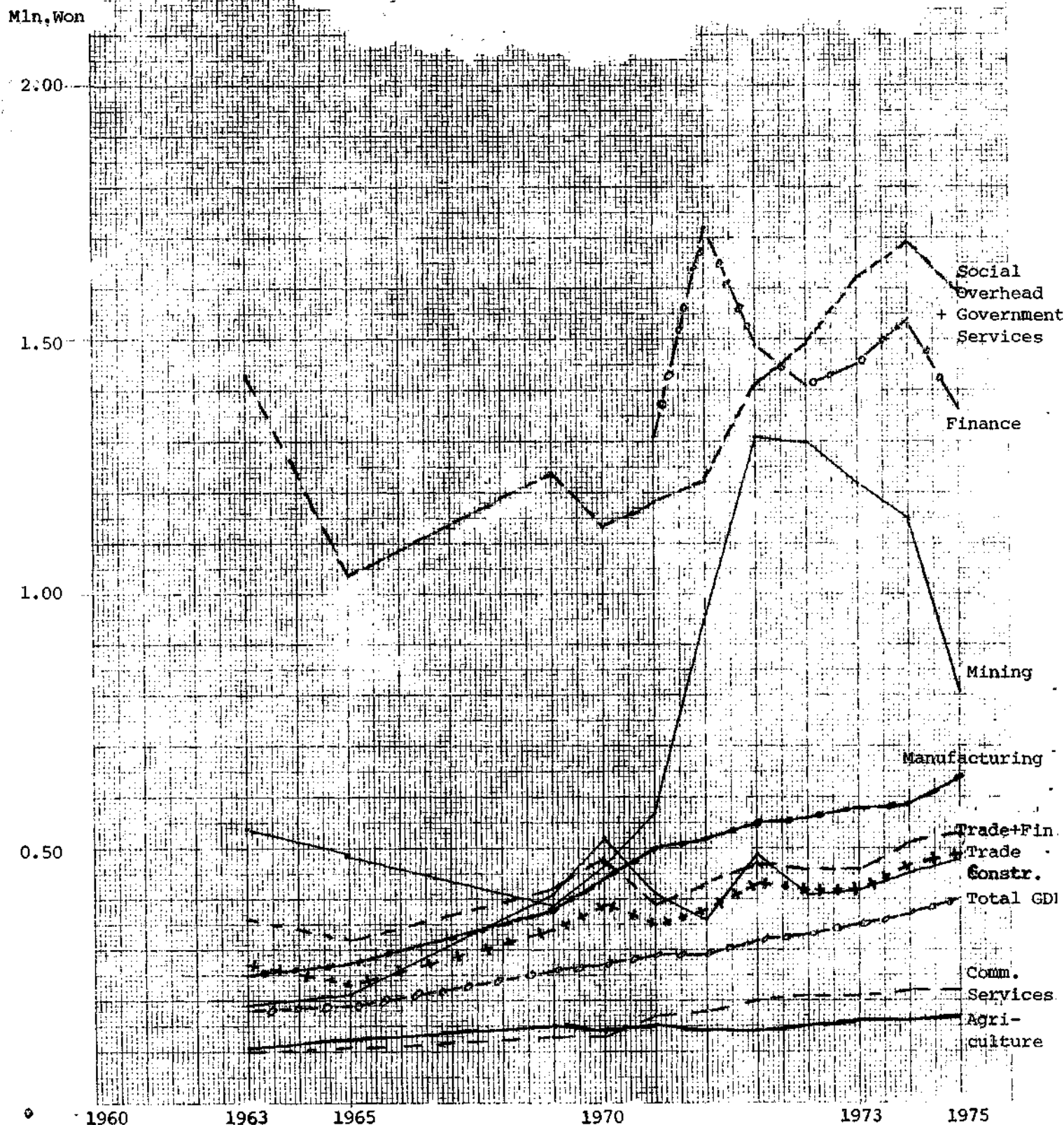
Concluding, agricultural development has been 'pulled' along with dynamics of non-agricultural sectors, rather than that there was an agrarian 'push' for industrial development. (10)

Table V-1 shows the rapid decline of the share of agricultural production in total GDP. It declined from 44.2 percent in 1955 to 21.4 percent in 1977. Agricultural employment as a share of total employment declined as well, however, not as rapid as the production share: the production share declined to half of its 1955 level, whereas the employment share declined less: from 63.2 percent in 1963 to 41.8 percent in 1977. Absolute decline of the employed population in agriculture has only been observed from 1976 onwards.

Most significant structural change in production has been the - expected - increase of the manufacturing share in production and employment. Both shares increased almost equally rapid: share in GDP from 9.7 percent in 1955 to 27.4 percent in 1977 and employment share from 7.9 percent in 1963 to 21.6 percent in 1977. Most productive sectors are in social overhead and finance, as has been visualized in figure V-1. At the same time, these sectors are relatively unimportant employers. The total services sector managed to maintain its share in total GDP. The trade sector increased most significantly both as producer

(10) For instance, the opposite holds for economic development in Taiwan, even though it has a similar economic history. See Fei and Ranis (1975).

(Value added at 1970 constant prices divided by total sectoral employment)



and employer. Part of the trade sector will consist of traditional, informal and/or small scale activities, which will have different productivity from modern trade. The available classification of industries does not allow for making a precise distinction between modern and traditional services.

The structure of production will be reflected in the income distribution. Figure V-2 relates the size distribution of income to sectoral productivity differences for 1971. Only very tentative conclusions can be drawn from the graph. Sectoral productivity is defined as value added per sector divided by total sectoral employment. Sectoral productivities have been related to the decile distribution of household incomes (urban and rural). Both indicators have been made comparable by recalculating corresponding income deciles. First, average disposable household income (UN, National Accounts data) per employed was calculated. Then, the figure was multiplied by the decile income shares from the household survey (11). The result is given in table V-2 and is the estimate of the decile average disposable income per employed (12). The thus obtained income estimates assume log normal distribution for each decile and also assume that all households are equally large. Sectoral productivity levels have been brought into the figure by taking the lowest productivity sector (agriculture) first and relating its productivity level to the percentage share of people employed in agriculture. Then the other sectors follow. Reality is stylized, firstly, because only average sectoral productivities are taken and, secondly, because by putting sectors in sequence one ignores intra-sectoral differences e.g. productivity in part of the traditional services sector may be below that of large farms in agriculture. The figure only relates to 1971 data, so no conclusions can be drawn about tendencies in the distribution of income towards more or less inequality.

(11) I.e., that given by S. Jain (1975) for 1971.

(12) If disposable household income is Y_d , total employed is L , then the absolute income share per employed for the first decile (10 percent of population) is obtained by

$$\left[\frac{Y_d}{10} \cdot \left(\frac{253.54 \text{ bln.W}}{10} \right) : \frac{L}{10} \cdot \left(\frac{10.066 \times 10^3}{10} \right) \right] \times \text{income share } \left(\frac{2.9}{100} \right) = 73.0.$$

Figure V-2: South Korea: Sectoral Productivity and Size Distribution of Income, 1971

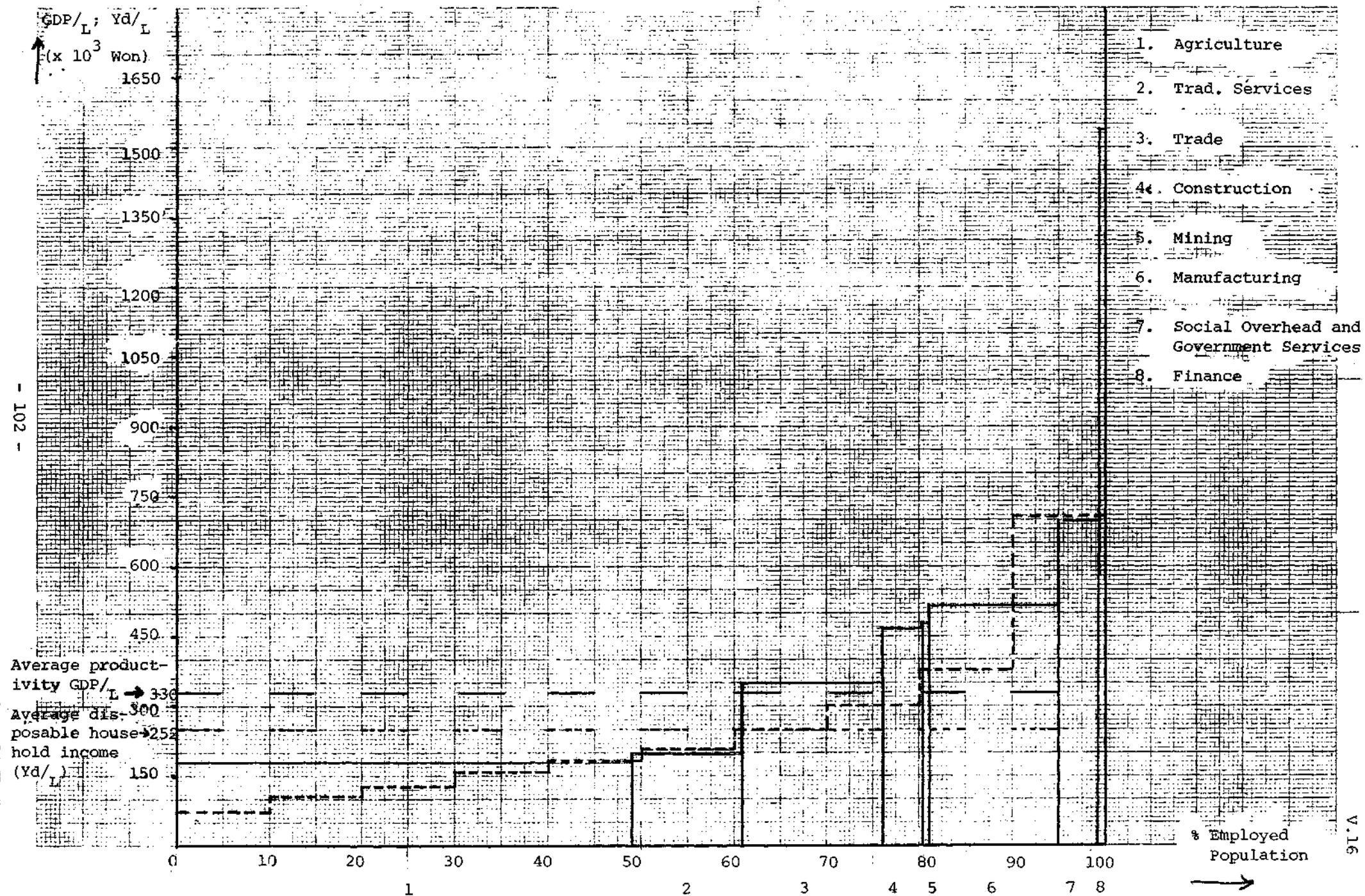


Figure V-2 shows that about 70 % of the employed population earns an income equal to or below average disposable income per worker. Major part of the lowest income earners is suggested to be employed in sectors with lowest average productivity, which would mean that low income groups are to be found in agriculture, 'traditional' services (i.e. domestic and community services) and a large share of the trade sector (which probably refers to small scale retail trade). Highest income groups are suggested to be active in public utilities (social overhead and government services) and finance. Since a large share of the working population is still active in agriculture, it can be suggested from the point of view of dualism theories (13) that a labour surplus situation is still existent. Agriculture would then, according to theory, determine the institutional real wage level. It could be concluded that this may hold at least for wage rates in traditional services. As will be argued below, still a wage differential between rural and traditional urban sector wages needs to be explained. Also industrial wages are rather determined by factors like industrial productivity and demand and supply of skilled labour. This could also be concluded from the observation that labour supply in urban sectors is rather 'pulled' by industrial labour demand than 'pushed' by rural labour surplus.

Thus, there can be no further conclusion than the suggestion that the lowest income groups can be found in agricultural and traditional urban sectors. The figure will gain meaning, however, when comparisons can be made in time and between different economies.

Returning to scheme V-2, it is suggested that the relation between production structure and income distribution is mitigated through various endogenous and exogenous mechanisms. Supply on commodity (and services) markets and determines (in part) sectoral labour demand follow from sectoral production functions. Factor and commodity market conditions will determine wage rates, wage differences and prices. The distribution of value added into profits and wages will then be determined as well.

First step in identifying these mechanisms will be specification of sectoral production functions.

- (i) Agricultural production functions are to be specified by farm size. As all farmers may be assumed to be involved in domestic food production

(13) Cf. Lewis (1954) and Fei and Ranis (1975) and paragraph V.3.

and as the size distribution of holdings is not very unequal, behaviour of farmers will not differ much. All farmers can be assumed to maximize output as government subsidies, and credit policies are related to productivity levels. Productivity thus will not only be determined by the land-labour ratio, but as well by access to fertilizers, HYV seeds and machinery and equipment. Capital-labour ratio will be more relevant to the larger farmers than to small farmers. Technological improvements are assumed to be exogenous, depending on government policies.

There are two categories of agricultural labour: family workers and landless labourers (hired workers). Labour demand for the latter category will be a residual after using unpaid family workers.

- (ii) Manufacturing production functions will also differ according to firm size. Firm size differences generally reflect differences in market conditions (oligopolistic versus competitive characteristics), product orientation (mass production of consumer and producer goods versus artisan and cottage industry products) and capital intensity. Firm behaviour will differ according to these characteristics. In the short run one may assume fixed capital coefficients as substitution elasticities tend to zero in short periods. Moreover, economies of scale considerations may be assumed to be of more importance (at least in modern sectors) than substitution elasticities. Thus scale parameters need to be included as well. It means that profit maximizing behaviour will not 'simply' depend on 'neo-classical' relative factor prices.

Furthermore, it can be considered more realistic to endogenize technological change as it will not be just manna falling from heaven. A study by Chen (1979, Ch. 5) tries to find a statistical fit for several indicators of technical progress, such as the changes in the capital/labour ratio itself ($\Delta K/L$) (Kaldor); cumulative investment over a certain period of time, i.e. measuring 'learning by doing' (Arrow) and enterprise expenditure on research and development, measured by the investment-national income ratio (I/Y) (Eltis). Chen adds imported foreign technology as a determinant of technical progress. The determinant can be measured by the ratio of imports of capital goods to investment (M_{cap}/I) or by foreign aid or capital inflows (F/Y). The only statistical fit found for Korea was for foreign aid, under the specifications:

$$\lambda = a + b (I/Y) + g (F/Y) \quad (\text{Eltis-Chen})$$

$$\text{and } \lambda = a + b (\Delta K/L) + g (F/Y) \quad (\text{Kaldor-Chen}),$$

in which λ is the technical progress rate included in the growth function:

$$Y = A_0 e^{\lambda t} f(K, L).$$

The trend term (t) also showed a highly significant statistical fit, indicating - according to Chen - at a considerable exogenous component of technological progress. Then the conclusion may be that technological change can be explained partly exogenously and partly by foreign capital inflows (in the 1956s and 1960s by foreign aid, in the 1970s by direct foreign investment). "Exogenous and from abroad", it still sounds like manna falling from heaven.

- (iii) Finding realistic production functions for the service sectors will be very difficult, as very little is known about the technical and behavioural relationships in the service sectors. As in the Adelman-Robinson model (1978) one might assume either fixed output-capital ratios, fixed output-labour ratios or no functional relationship between output and employment at all (14).

(14) Adelman and Robinson (1978, p. 31) suggest the following behavioural rules for the service sector:

Sector	Production function	Output rule	Employment rule
Construction	Fixed X/L	Supply function	Fixed L/X
Electricity and water	None	Supply function	Fixed L/K
Real estate	Fixed X/K	Fixed X/K	Fixed L/K
Transportation and communications	None	Supply function	Fixed L/K
Trade and banking	None	Supply function	Fixed L/X
Education	Fixed X/L	Supply function	Fixed L/X
Medical services	Fixed X/L	Supply function	Fixed L/X
Other services	Fixed X/L	Supply function	Fixed L/X
Personal services	Neoclassical	Profit maximization	Profit maximization

Note: X is output; L Labour, K. Capital.

V.3 Labour markets

Wages and wage differentials will be determined by conditions determining labour supply and labour demand. As labour is never homogeneous, and different employers in different sectors will have different labour demand functions, there will not exist one labour market with one market clearing wage rate. Wages will have a market clearing function on labour market segments. It will, however, be more important to look at the determining factors of labour demand and labour supply. Probably there will be a whole bunch of determining factors. Model equations of the labour market (which are not yet given here), should restrict to include only the most important factors.

Labour market theories for LDCs find their major roots in dualism theories of economic development. Real wage determination is explained by dualism in traditional (agriculture) and modern (non-agricultural) sectors. A dual labour market appears as an important feature of models analyzing the structural transformation of the labour force during the process of economic development. In the analyses of Lewis (1954) and Fei and Ranis (1966; 1975) dualism occurs because wages (the supply price of labour) from the traditional sector exceeds the marginal product of labour in agriculture. Criticism against the above theories, as well as against the plausibility of a theory based on market-clearing wages, was raised as a consequence of the observation of high urban wage rates next to high rates of urban unemployment. This criticism formed the background of the Harris-Todaro-model (1970), explaining rural-urban migration by expected urban (industrial) wage rates and employment. Expected urban employment was assumed to be a function of the rate of urban unemployment. The latter is the equilibrating mechanism of the labour market in the Harris-Todaro-model, rather than the fixed (subsistence level) wage rate.

Dual labour market theories are still characterized by a good deal of simplicity. Labour markets are in reality further segmented as a consequence of for instance modern firm hiring practices, government employment, demand and supply of skilled labour, different access of males and females to labour markets, ethnic or racial problems, etc. (14a).

(14a). An overview of some of these issues can be found in Squire (1979).

V.3.1 Rural labour market

A primary question often posed concerning the conditions of the labour market situation is whether there exists a labour surplus or not. Labour surplus is generally defined as the quantity of labour which can be withdrawn from the agricultural sector without reducing agricultural output. According to Fei and Ranis (1966; 1975) the condition would be reflected in the situation that the marginal product of agricultural production is below the institutionally determined real wage level. Indicators for the existence of a labour surplus situation in rural areas have been various:

1. A relatively high proportion of total labour force is still employed in agriculture. Putting the demarcation line of agricultural employment share at 50 percent (15), it would mean that Korea passed the labour surplus condition in 1973. This indicator does not take into account, however, the relation of rural population to available land and the possibility of high urban unemployment.
2. Relatively low participation of women in agricultural production. Again according to this indicator the turning point for Korea would lie in the beginning of the 1970s. Male participation in rural employment declined from 62 % in 1963 to 57 % in 1974 (16).
3. Absolute decline of agrarian labour force (17). In this case the turning point for Korea would lie in 1976. In 1975 there was an absolute decline opposite to 1974. However, there was an increase in 1976 again. In 1977 again there is (significant) absolute decline. The long existence of a growing agrarian labour force in spite of rapid industrial employment growth, has been explained by several factors:
 - persisting high labour-land ratio, in spite of increased mechanization, because the use of fertilizers and new seeds (HYV) has led to the net effect that technical changes have not been labour saving; moreover in recent years there has been some shift in agricultural production towards more labour-intensive crops like fruit and vegetables (18);
 - government policies have maintained internal terms of trade relatively favourable for rural sectors (see below), thereby creating an economic disincentive towards migration from rural areas;

(15) Cf. L. Taylor (1979), ch. 11.

(16) R. Moran, "Labor Availability and Employment", ch. 6 in Hasan and Rao (eds) (1979), p. 196.

(17) Fei and Ranis (1975) call this the so-called 'reversal point' in the structural transition of production and employment.

(18) R. Moran, *ibid.* and R. Harris, "Agriculture", in: Hasan and Rao (eds) (1979), ch. 7.

- female participation in agriculture has increased significantly, possibly to meet seasonal peaks;
- it has been suggested that agriculture is the residual employer as growth of agricultural labour force in the 1970-75 period correlates with a slow down of urban employment expansion (especially on the services sector) (19); the correlation holds for the 1975-77 fluctuations as well (20).

Another argument to 'prove' the existence of a labour surplus in agriculture has been:

4. much more rapid increase of manufacturing wages vis-à-vis rural wage increases; it was calculated that average increase of manufacturing wages in the 1950-75 period amounted to 8.3 percent per annum, whereas rural wages increased by 4.7 percent per annum (21).

Such an explanation implicitly assumes totally separated rural and urban labour markets, which, however, both are internally competitive and wages having a market-clearing function.

As a final indicator one might add:

5. the total amount of wage labour as a share of total labour force. A large number of self-employed within the occupational structure might indicate at a large amount of underemployment as there will be much use of unpaid family workers. In Korea the share of wage labour in total employment amounted to 38 % in 1974, which is low comparative to the share in other so-called semi-industrialized countries (22). The indicator may, however, be rejected at the same time, as the share of wage labour will not simply correlate with industrialization levels and a possibly existing labour surplus, but will be related to the agrarian structure. A country with a fairly equal distribution of land-ownership, like Korea, will have a larger share of self-employed (farmers) than a country with unequal distribution of land and wage labour absorbing production systems (e.g. plantations).

(19) Moran, *ibid*, pp. 195-196.

(20) In 1975 there was an absolute decline in agricultural employment vis-à-vis 1974 (from 5,584,000 to 5,524,000 people employed), whereas employment in trade and domestic services increased as a share of total employment. In 1976 there was an absolute increase in agricultural employment (to 5,6 million), when employment growth in trade and domestic services stagnated. For 1977 the opposite trend was observed again. (Data from ILO, Yearbook of Labour Statistics, several issues).

(21) Moran, *ibid*, p. 181.

(22) In Mexico the share is 62 %, Brazil: 55 %, Iran: 44 % (data circa 1970). Cf. Squire (1979), p. 28.

Thus no unambiguous indicator of a labour surplus condition has been found. Considering the conditions prevailing in Korea, it will be argued that there is no reason to assume a labour surplus situation in the sense that it determines rural wages. Rural wages have been said to be determined at subsistence levels (Lewis), but to hold only under conditions of labour surplus and low urban labour absorption. However, with a relatively equal distribution of land, a small amount of rural landless labour (23) and high urban employment growth, rural wages will at least be influenced by urban wages. Other determinants will be agricultural incomes of small peasants (24) and off-farm rural activities.

V.3.2 Rural-urban migration

The Harris-Todaro model of rural-urban migration, determines wage differentials between agricultural and non-agricultural sectors, urban unemployment and migration simultaneously. Urban unemployment is used as a proxy of expected urban (industrial) employment. The variables seem to be relevant within Korean reality:

- Relative agricultural stagnation and rapid industrial growth induced high rates of migration to urban areas. Net migration amounted to 3,647,000 people between 1950 and 1960, explaining 92,3 % of urban population growth and to 3,540,000 in the 1960-1970 period (i.e. 63.8 % of urban population growth) (25).
- Urban open unemployment rates declined rapidly; from 21,3 % of total urban labour force in 1963 to 6.1 % in 1977.

Most urban unemployed (over 50 percent) are classified in activities not adequately described (see table V-3). The share of urban unemployed is increasing in trade and manufacturing. The latter increase may, however, be explained by a shift towards more skill and capital intensive activities in recent years, unemployment therefore indicating at a disequilibrium in markets for skilled labour and decreasing demand for unskilled labour.

- Urban and rural wages differ significantly (see table V-4). However, it will be more realistic to link the migration function to the differential of urban wages of unskilled labour and traditional workers vis-à-vis rural wages. As has been suggested above rural wages will approximate small farmer incomes. From there a link can be found with the social group classification as it

(23) However, increasing: the share of wage labour in the agricultural labour force increased from 9.7 % in 1966 to 15.0 % in 1977 (ILO data).

(24) If rural wages paid by larger farmers are significantly higher than average household incomes of small farmers, the latter may seek better income positions by selling their labour power on the rural labour market or migrate to urban areas.

(25) Squire (1979), p. 55.

seems plausible that most rural migrants originate from the class of landless labour and from marginal farm size peasants.

Within the rural sector a migration elasticity is to be modelled with respect to the differential between, on the one hand, rural income of small farmers (less than 0.5 ha) and rural wages of landless labourers and, on the other hand, the average wage of urban modern sector wages of unskilled labour and urban traditional sector wages. A further determinant of the migration function will be the rate of urban unemployment, or alternatively the rate of urban employment growth. Like, it has been done in the Adelman-Robinson model (1978) one may introduce an upper limit on the share of each of the two rural labour categories that migrate. It may further be assumed that the land of the migrants is distributed among middle and large scale farmers. This can be done by adjusting the productivity parameters in the production functions of each type of farm. A modelling procedure is given by Adelman and Robinson (26).

Further analysis will also have to allow for the possibility of migration of household members, other than the main income earner, e.g. female and other family workers in rural areas seeking (temporary) jobs in manufacturing and urban services.

V.3.3 Urban labour markets

Korean experience with export-led industrialization has led to high urban productivity and employment growth rates. This development has allowed for significant increases in real urban wage levels. The often stated argument that Korean 'success' in growth performance is to be ascribed to low wages, cannot be interpreted in the sense that there is a secular trend in suppressing real wage levels. The 'low wage-regime' should be rather interpreted in terms of international competitiveness (see chapter III).

As can be seen from table V-4, urban wage levels (including mining) are significantly higher than those in agriculture. Also in traditional services sectors (take trade and community services as a rough estimate) wage levels are substantially higher. Even when taking into account that intra-sectoral wage differentials can be substantial, these figures seem to support the hypothesis that agriculture is the residual employer. Wage differentials between sectors are large. The highest wages are paid in the most productive sectors, i.e. social overhead and government services, finance and mining. But also wage differentials within the urban sector, employing the largest number of people, manufacturing, are considerable. Table V-5 shows these differences for a number of selected manufacturing industries, which are

(26) Adelman and Robinson (1978), appendix C, pp. 255-256.

substantial export sectors and which produce a large share of manufacturing output. Again there is a positive correlation between high productivity sectors and high real wage levels. Capital intensive sectors like transport equipment, iron and steel, printing and publishing and paper and paper products pay wages substantially above average wages of total manufacturing. To get a more detailed picture of the relation between wages and productivity, one may question whether wages follow productivity changes or not. Figures V-3 to V-15 (see statistical appendix) show these trends.

For the manufacturing sector as a whole wage rate changes and productivity changes show fairly equal trends, with productivity changes slightly above real wage changes after 1970. For the selected industries there is no unique conclusion. The general picture is that wages follow productivity trends and that productivity changes on average exceed wage changes. This picture is distorted in the following sub-sectors:

- food products (after 1971);
- textiles and spinning and weaving, after 1970 when productivity increases exceed wage increases significantly;
- wearing apparel: the picture of equal wage and productivity trends holds, but with a time-lag;
- printing and publishing: real wage increases exceed real productivity increases (demand for skilled labour is an explaining factor here).

Labour conditions may explain sectoral wage differentials as well. One indicator is the number of hours worked per week. Table V-6 shows that the number of weekly hours worked may differ significantly between manufacturing sectors, and also that there is a tendency in some sectors to shorten the work week, whereas in others (wearing apparel, rubber products and transport equipment) the length of the working day has been extended. Remarkable is the difference between wood products and electrical machinery. Average wage levels in both sectors are fairly equal, but workers producing wood products have to work about ten hours longer per week to receive the same wage. Differences between other sectors are not very large (though trends may differ!), therefore in first analysis we will abstain from differences in hours worked.

Significant wage differences between sectors reject the idea of a homogenous and competitive urban labour market:

1. Sectoral productivity differences produce sectoral wage differentials. This means that wages will be rather determined by capital intensity of the sector involved, than by supply and demand on the labour market.

2. Modern sector firm hiring practices in profitable sectors often allow for higher wages. Foreign firms and mining enterprises often create such wage differentials. In the Korean case we will only assume a labour market segment for mining workers. Wage levels in mining are very high, probably due to the location of mining exploitation in the mountainous and rather inaccessible North-East of the South Korean peninsula.
3. Traditional manufacturing and services sectors make use of unpaid family workers before entering the urban labour market. If urban wages for unskilled labour appear to them as too high, they may not even enter the urban labour market.
4. Hiring practices of the public sector will be assumed to be unresponsive to changes in labour market conditions. Social security of public sector employment will secure sufficient supply of (skilled) labour. The public sector (administration) share in total labour force is of minor importance in South Korea. In 1973 the share was 2.0 %; the public sector's share in total wage employment, however, amounted to 5.3 %.
5. The above discussed data do not allow for drawing conclusions on the effect of labour heterogeneity on wage differentials. Intrasectoral wage differentials will be explained by skill levels and experience. However, it has been analyzed that also intersectoral wage differences can be explained by demand for skilled labour. The shift in manufacturing sectors towards more heavy industries like chemicals, machinery and shipbuilding have changed labour demand. Demand for skilled labour has increased. Bottlenecks in supply of labour with higher education have hampered growth of some emerging industries, but explain differences between earnings of workers short in supply and other workers as well (27).
6. Urban participation of female workers is relatively low (see table V- for sectoral engagement of female workers). Their entrance to certain occupation will not be hampered by labour market conditions only. The prejudices against female participation are reflected in wide wage differentials between male and female (28).
7. Some additional (often government implemented) labour market distortions may prevail:
 - Minimum wage legislation will affect demand and supply conditions. Depending on the effectiveness of its implementation minimum wages affect intersectoral wage differentials, may narrow skill differentials, etc.(29).

(27) Moran (1979), *ibid.*, pp. 201-202.

(28) Moran (1979), *ibid.*, p. 201.

(29) For a discussion of some cases see Squire (1979), pp. 63 ff.

However, no minimum wage legislation efforts are known in the Korean case, so we can ignore this factor.

- The same holds for successful government suppression of independent trade union action in Korea, meaning that there is no such politically determined upward pressure on real wages.
- Social security programs and payroll taxation can also contribute to labour market distortions, as it may raise labour cost and thus will effect labour demand. Major question here is who pays the major share of social security premiums and payroll taxes. Again the factor is insignificant in Korean reality and thus can be left out of the analytical model.

V.3.4 Sub-model of labour markets: matching supply and demand

First requirements of the labour market sub-model must be the allowance for mapping socio-economic groups and labour types. The submodel should try to restrict to the most significant features of the functioning of labour markets. After mapping of the distinguished socio-economic groups and labour types, consistent accounting of employment and labour force data should be applied to (1) the demographic system, including population, population growth, population characteristics and migration; (2) the educational system: identifying skill levels of various types of labour; (3) determination of the size and composition of the labour force in the labour market sub-model.

Labour supply is determined in the demographic/migration block. In scheme V-2 demographic variables are treated as exogenously given. Demographic variables should include parameters determining population size and growth; fertility and mortality rates; age and sex structure of the population; and regional subdivisions (rural and urban). Migration has already been made endogenous with the labour market sub-system, as migration is assumed to be determined by rural and urban wage differentials and urban unemployment. The education system may be taken to be exogenous as well. Total school enrolment (primary, secondary, tertiary) then will have to be linked to the socio-economic group and labour type classification. In the first run of the model it can be convenient to take education as exogenous and directly take the structure of skilled and unskilled labour as given.

Once the labour supply is determined (either exogenous or endogenous), the labour market sub-model can be constructed by matching labour supply to labour demand functions.

Labour demand will have to be disaggregated by sector, labour types and skills. The labour market system can be divided into three major segments:

- the urban modern sector labour market;
- the urban traditional sector labour market;
- the rural labour market.

The urban modern sector labour market may be subdivided into labour demand from modern manufacturing and services and from the government. Modern manufacturing and services unskilled labour demand will have to be functionally related to firm behaviour (production functions) and productivity rates by sector. Demand for skilled labour will be demand determined, but dependent on the sector involved (demand for skilled labour will increase with capital-intensity of a sector or modern services incomes). Employers and self-employed in modern sectors are assumed not to enter the urban labour market. Their supply may be modelled partly exogenous (for instance by heredity, i.e. the magnitude of employers and self-employed in previous periods) and partly endogenous (for instance related to higher education to explain labour supply of professionals). Demand for government employees will be related to the growth of government current expenditure with fixed (or exogenously determined) wages and salaries.

The urban traditional sector labour markets will be composed of three types of actors: self-employed, their family workers and the traditional sector proletariat. Supply of self-employed in traditional sectors may be assumed as exogenous, related to heredity. Additionally, it may be specified that traditional sector self-employed ($L_{cap}^{trad.}$) will sell their labour power on the market if their incomes drop below average urban traditional sector wages (30). The urban traditional sector proletariat will be a residual after employment of unpaid family workers (thus a functional relationship will have to be found with traditional sector household size and age structure).

Rural-urban migration will be functionally related to rural and urban wage differentials, the difference between rural wages and small farmers incomes and urban unemployment. Net migration will decline as urban unemployment increases and internal terms of trade do not deteriorate (or improve) in favour of rural sectors. Rural wages will depend on large farm incomes and on the migration function variables.

(30) Thus the suggested equation might be:

$$L_{cap}^{trad.} = \alpha L_{cap}^{trad.}(t-1) + \beta (\Pi^{trad.}/L^{trad.} - W^{trad.}/L^{trad.}), \text{ in which } \Pi^{trad.}$$

is profit income of traditional enterprises, $W^{trad.}$ wage income in traditional sectors and $L^{trad.}$ represents total labour force in the traditional sector.

Another segment of the labour market may be introduced within each major segment: labour demand and supply of female workers. Female workers are partly a residual proletariat as well. They are primarily engaged as unpaid family workers (see table V-7) and as such will not enter the labour market, but may reduce rural and traditional sector labour market demand. As far as they are engaged as "real" wage labourers, their wages are determined separately from male wages and demand for female labour comes predominantly from labour-intensive manufacturing sectors (textiles) requiring low wage unskilled labour.

Recently, foreign demand for Korean (skilled) workers has increased to significant levels. Foreign demand predominantly originates from Middle East employment. Thus one further segment may be introduced.

After matching labour demand and supply on these segmented labour markets, the employment structure, sectoral wage differentials and unemployment will result.

The system of wage determination will have to be completed by allowing for price influences. We will as yet abstain from the functioning of the price system as a whole, but the effects of the internal terms of trade will be discussed below.

V.4 Internal terms of trade determination

Internal terms of trade reflect a change in the ratio of agricultural and industrial (non-agricultural) prices. Generally the internal terms of trade are formulated towards the rural sector taking the ratio of farm prices received and farm prices paid by the agricultural sector as an indicator. Renewed attention of the Korean government to the agricultural sector, have led to rather stable internal terms of trade in the 1970s, whereas terms of trade had been declining in the 1960s (cf. table V-8).

Government policies to influence the internal terms of trade may serve four ends: (i) creating price incentives to raise agricultural and especially food production; (ii) keeping real urban wages low by grain price supports; (iii) reducing rural and urban income disparities; (iv) discouraging rural-urban migration. Of course, these goals are not mutually exclusive.

In the 1960s internal terms of trade deteriorated for agriculture on the one hand because food shortages to feed a rapidly growing urban population were covered by allowances for food imports and, on the other hand, because the rapid industrial growth produced inflationary processes raising agricultural input prices as well. From a peak in 1963 (before the acceleration of economic growth), the farmers' terms of trade deteriorated rapidly until 1966 and remaining unfavourable until 1970. From 1970 onwards prices paid by farmers for their purchases increased, but their selling prices increased faster, improving the farmers' terms of trade. State policies were implemented to improve the farmers terms of trade. On the one hand, selling prices of farmers increased through grain price supports of the government and, on the other hand, production cost of the farmers were reduced to some extent through the subsidization of inputs (esp. fertilizers). Food price supports and input subsidies have been financed from the Grain Management Fund and the Fertilizer Fund respectively. Both funds also regulate imports food grains and fertilizers. In 1973 and 1974 both Funds ran into deficits as import prices increased considerably. This has led to price increases of inputs and reductions of grain prices received by farmers to cover deficits (31).

(31) R. Harris (1979), op.cit., p. 229.

Korean policies to maintain agricultural terms of trade probably have been implemented primarily to improve agricultural production for urban markets as the benefit from grain price support and fertilizer subsidies is distributed according to the proportion of output that is marketed (32). Rural-urban income disparities have been affected towards more equity. However, rural income distribution will have been affected less favourable, also because smaller farmers will consume a larger share of their output and thus bring less products to the market. It has been estimated that the proportionate impact on income from an increase in food support prices is five times as high for farmers with land holdings of 2 ha. and more as it is for small farmers holding less than 0.5 ha. of land (33). Of the above mentioned policy goals, the first will have dominated, the other being more or less desirable accompanying effects.

Given the above information, the internal terms of trade can be (simplified) endogenized as follows (34):

Supply of agricultural products (S_A) will originate from domestic agricultural production (X_A) and agricultural imports (M_A), i.e.:

$$(V-1) \quad S_A = p_A X_A + e \cdot p_{mA}^* M_A,$$

in which p_A equals domestic agrarian prices and p_{mA}^* multiplied by the exchange rate (e) equals import prices in domestic currency.

Demand for agricultural products (D_A) will depend on the proportion of household income (HOI) spent on consumption of agricultural products (C_A):

$$(V-2) \quad D_A = p_A C_A = \alpha c_h \left[\frac{\text{HOI}}{\alpha p_A + (1 - \alpha) p_{NA}} \right],$$

in which α is the proportion of household consumption spent on agricultural (food) products; c_h is the household propensity to consume and p_{NA} is the price level of non-agricultural products. The proportion of household consumption spent on food (α) may be affected by changes in the internal terms of trade, i.e. changes in the ratio of agricultural and non-agricultural prices. There will be a minimum amount spent on food consumption (C_A^*), but rapid rising food prices may reduce demand for food products:

(32) Rao (1978), p. 389

(33) Rao (1978), *ibid.*

(34) The equations presented below show a rough simplification of reality and merely serve the aim of showing the essence of the internal terms of trade mechanism. Input-output analysis of agricultural and non-agricultural sectors is required to obtain the precise determination of the internal terms of trade.

$$(V-3) \quad \alpha = C_A^* / C - \beta \left(\frac{P_A}{P_{NA}} \right) \cdot C_A / C$$

in which β is the price elasticity of food demand and C the total household consumption. Of course, the effect will differ according to the level of incomes.

Supply and demand equilibrium will be established if:

$$(V-4) \quad p_A X_A + e \cdot p_{mA}^* M_A = p_A C_A,$$

or formulated otherwise, imports of agricultural products will be defined by excess domestic demand:

$$(V-5) \quad e \cdot p_{mA}^* M_A = p_A C_A - p_A X_A$$

Agricultural imports will create a tendency towards equilibrizing domestic farm prices (p_A) and import prices ($e \cdot p_{mA}^*$). The government may try to support domestic farm prices by implementing price subsidies on grains and rice (35). In Korea the government created the Grain Management Fund to finance farm prices. Inputs for agrarian production may be subsidized as well, reducing production cost. In Korea the government created the Fertilizer Fund to finance input subsidies. Both funds, taken together as the Grain Fertilizer Fund (GFF) are fully used without creating deficits, if:

$$(V-6) \quad GFF = (p_A - e \cdot p_{mA}^*) M_A + (p_{NA} - p_A) \gamma_A X_A$$

in which $(p_A - e \cdot p_{mA}^*)$ is the price subsidy parameter and $(p_{NA} - p_A)$ the input subsidy parameter. γ_A is the technical input-output coefficient of agrarian production (36). To maintain internal terms of trade the price subsidy should cover difference between p_A and $e \cdot p_{mA}^*$ and similarly the input subsidy should amount to the price difference between p_{NA} and p_A . The GFF may run into a deficit, if the required price and input subsidies to maintain internal terms of trade exceed the size of the GFF. In the short run the GFF appears to be fixed. The sub-model therefore will close over a change in internal terms of trade. In the case of a GFF deficit farmers internal terms of trade will deteriorate as a consequence of a reduction in domestic grain prices (p_A) (the initial price difference between domestic and import prices will not be fully subsidized) and/or as a consequence of an increase in input prices to be paid by farmers (p_{NA}) (37).

(35) In Korea food imports consist mainly of grain products (wheat and barley).

(36) Analysis should be refined towards taking prices and input coefficients of subsidized inputs instead of p_{NA} and γ_A .

(37) Because the Fund buys fertilizers on domestic and international markets and sells them to the farmers at a fixed price, i.e. $(p_{NA} - \bar{S})$, in which $\bar{S}$ is the exogenously determined input subsidy parameter equal to $(p_{NA} - p_A)$.

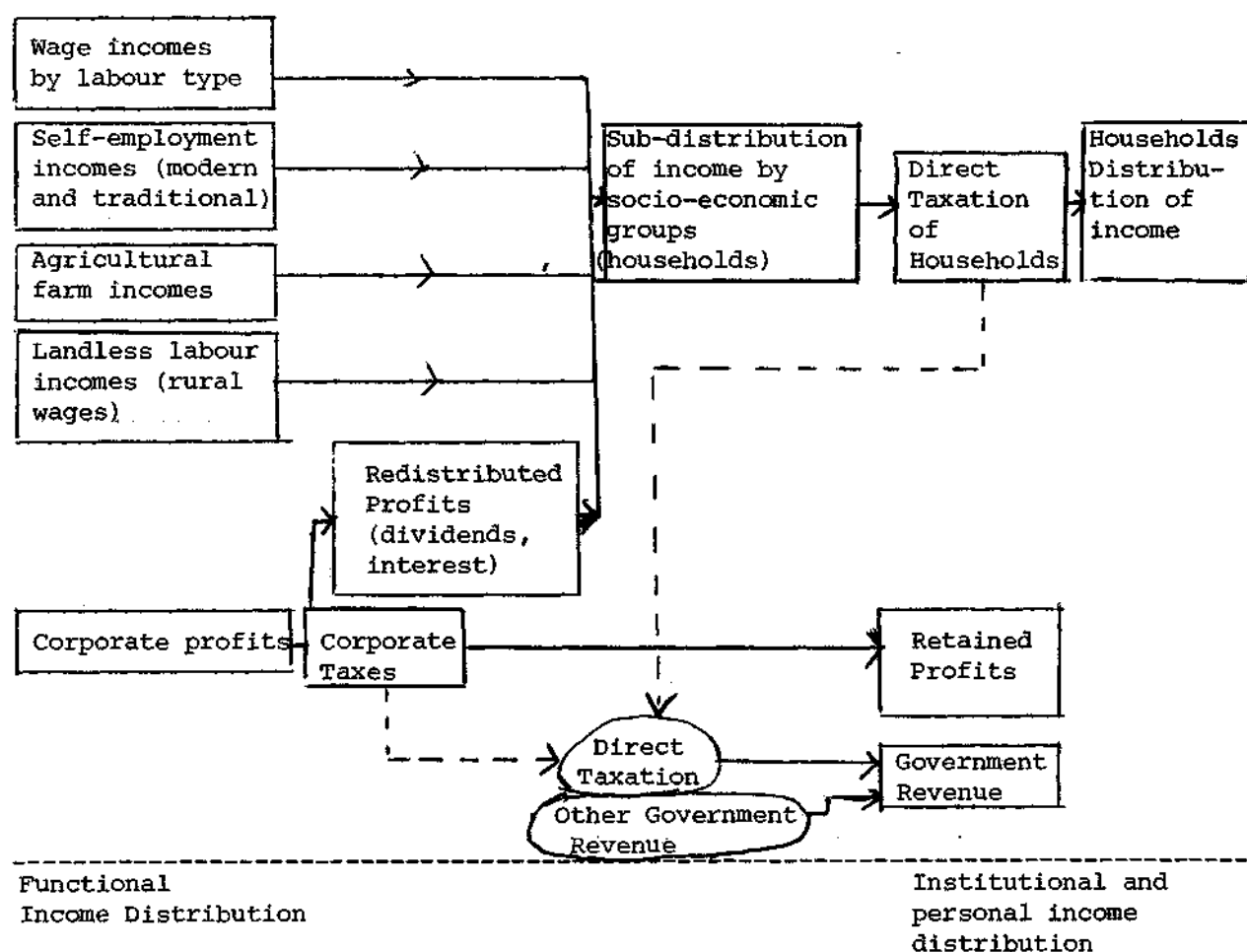
In fact, e.g. oil price increases since 1973 have led to significant price adjustments of fertilizer prices to cover the GFF deficit (38).

V.5 Income distribution

Once wages have been determined from the labour market sub-system and the price system, the distribution between wages and profits will be obtained as total value added will have produced from the production system. Wage and profit shares are fairly stable proportions of total GDP. Wage share fluctuates around 32 % average of GDP. Profits declined from 55 % in 1960 to 46 % in 1977 (see table V-9). Sectoral profit-wage ratios appear as stable for most sectors. The high profit-wage ratios in agriculture and trade indicate at a still important amount of self-employed income formation.

To be able to say something on the distribution of incomes, the model will have to be further specified. Once the occupational structure has been obtained, income formation equations are to be specified. The sub-system can be classified by the scheme given below.

SCHEME V-3: Income distribution sub-system



(38) In 1975 the Korean Government raised the selling price of fertilizers by about 80 percent. Also the current policy is to adjust selling prices to reflect changes in cost, the GFF remaining more or less fixed. See Harris (1979), op.cit. p. 229.

Households will have to be classified according to the socio-economic group classification in order to link - what is generally termed as - functional income distribution to the individual distribution of income. Accounting identity should be maintained between aggregate occupational (socio-economic group) income and aggregate household income. With inclusion of a corporate sector and taxation (profits and government revenue) further consistency should be obtained from the national accounting framework.

In the linkage of primary incomes by socio-economic group to household incomes it will be necessary to make allowance for household size and for the possibility that there will be other workers within one household next to the household head with the same or other occupations. Income distribution can be measured first between households or socio-economic groups by assuming a log normal distribution within each group. For a more detailed picture of the distribution the size distribution of income within households can be estimated by the size distribution within occupational categories (38).

Income distribution in Korea is generally considered as relatively egalitarian. As major causes for this fairly equal distribution of incomes, one generally refers to:

- equal asset distribution after two post-war land reforms as a consequence of which only a small amount of landless labourers exist;
- high educational efforts allowing for rapid industrialization;
- labour-intensive manufactured export expansion, assisted by a wide range of government incentives and foreign capital inflows;
- maintenance of internal terms of trade.

These factors should have contributed a relatively egalitarian distribution of rural incomes (land reform), no high urban inequalities (high urban labour absorption) and no wide rural-urban disparities (maintenance of terms of trade). However, evidence on income distribution trends mostly suffers from a lack of adequate data. Size distribution of income data still form the backbone of most evidence supplied. These data, from different sources, lead us to contradictory conclusions. Table V-10 shows size distribution of income of Korea in comparison to those of some other Asian countries. Table V-11 and figure V-16,

(38) The same procedure is followed by Adelman and Robinson (1978).

however, show contradictory trends of two different data sources of household income distribution.

Household surveys, which are probably the best to use for further model estimations, are:

- Government of the Republic of Korea, Annual Report on the Family Income and Expenditure Survey (various years); covers urban households.
- Ministry of Agriculture and Forestry, Report on the Results of the Farm Household Economy Survey and Production Cost Survey of Agricultural Products (various years); covers rural households.

Though one will have to work with these data-sources, it will be necessary to be aware of the shortcomings of these surveys. Some critical points can be mentioned:

- the urban and farm household survey are undertaken by different government bodies and because of different methodologies they are not strictly comparable;
- the richest households are outside the survey, or their incomes are underestimated (the point is generally acknowledged and for urban households one often takes as a rule of thumb that incomes are underestimated by 30 %);
- information about the poorest and one person households is often inadequate or are not covered in the survey at all;
- non-agrarian rural households are excluded from the farm surveys;
- before drawing conclusions on income disparities: (i) one has to take account of differences in household size and the number of paid workers belonging to the same household; (ii) it has been argued to take also account of differences in rural and urban consumption patterns (urban consumption of housing, public transportation then should require a higher living standard) (cf. Kuznets, 1977, pp. 97-98); and (iii) one has to take account of differences in rural and urban rates of inflation (Hasan and Rao, 1979, p. 41).

The surveys thus may be expected to underestimate income inequalities.

The discussion on income distribution data leaves us sceptical about the available data. Nevertheless, we are still left with the impression that enough consistency in the data can be obtained from diverse sources, such as tax data, wage data, family income surveys. Statistical gaps can be adjusted (with some qualitative assumptions) by maintaining full consistency of household survey data with a national accounting or social accounting framework.

STATISTICAL ANNEX TO CHAPTER V

Tables V-1 to V-11

Figures V-3 to V-16.

Table V-1. South Korea: Structural changes in production and employment
(percentage share)

	Production						Employment				
	1955 ¹⁾	1960	1965	1970	1975	1977	1963	1965	1970	1975	1977
1. Agriculture, forestry and fishing	44.2	36.7	38.0	26.7	23.6	21.4	63.2	58.7	50.4	45.9	41.8
2. Mining and quarrying	1.1	2.1	2.0	1.5	1.5	1.5	0.7	0.9	1.1	0.5	0.8
3. Manufacturing	9.7	13.8	18.0	21.0	26.4	27.4	7.9	9.4	13.2	18.6	21.6
4. Construction	3.1	3.4	3.5	5.5	5.1	6.5	2.5	2.9	2.9	4.3	4.8
5. Social overhead and government services ²⁾	9.0	12.5	10.2	13.5	11.4	12.3	1.8	2.6	3.8	3.3	4.0
6. Wholesale and retail trade, restaurants and hotels	) 14.6	12.8	15.5	16.4	17.3	15.3	9.9 ⁴⁾	11.5 ⁴⁾	12.4	15.9	15.2
7. Finance, insurance, real estate and business services		8.5	5.5	5.9	5.9	6.2	n.a.	n.a.	1.3	1.3	1.6
8. Community, social and personal services and domestic services of households	14.4 ³⁾	8.0	5.7	7.6	6.9	7.1	13.9	14.0	16.0	10.2	10.2
GDP at market prices (bln.Won)	113,1	243,1	798,1	2,663,1	9,803,1	16,753,6					
Total Employed (x 1000)							7,947	8,522	9,745	11,830	12,929

Sources: UN, Yearbook of National Accounts Statistics; ILO, Yearbook of Labour Statistics.

1) Taken from World Tables 1980.

2) Includes, electricity, gas and water, transport, storage and communication and producers of government services.

3) Defined as other activities.

4) Including employment in finance, insurance, etc.

Table V-2. Productivity levels by sector and decile distribution, 1971
(data to figure V-2)

Sector	Employed (L) (x 1000)	% share of employment	Productivity (Value Added/L) (thousand Won)	Deciles	(1)	(2)	Absolute Income share (Won) (1x2)
					Income share ¹⁾ (percentage)	Average Disposable household income per employed (x10 ⁸ : x 10 ³)	
1. Agriculture	4,876	48.4	180	0-10	2.9	(253.54 : 1006.6)	73.0
2. Mining	42	0.9	480	10-20	4.3	(253.54 : 1006.6)	108.3
3. Manufacturing	1,336	13.3	520	20-30	5.2	(253.54 : 1006.6)	131.0
4. Construction	348	3.5	470	30-40	6.3	(253.54 : 1006.6)	158.7
5. Social overhead and government services	394	3.9	700	40-50	7.3	(253.54 : 1006.6)	183.9
6. Trade	1,575	15.6	350	50-60	8.5	(253.54 : 1006.6)	214.1
7. Finance	132	1.3	1,540	60-70	10.0	(253.54 : 1006.6)	251.9
8. 'Traditional' services	1,313	13.0	200	70-80	12.1	(253.54 : 1006.6)	304.8
				80-90	15.3	(253.54 : 1006.6)	385.4
Total	10,066	100.0		90-100	28.1	(253.54 : 1006.6)	707.8
Average productivity			330	Total	100.0		
				Average Income share			252.0

Source: - UN, Yearbook of National Accounts Statistics
- ILO, Yearbook of International Labour Statistics
- S. Jain, Size Distribution of Income, IBRD, Washington D.C. 1975.

1) All households

Table V-3 South Korea: Open Unemployment Rates, 1962-1977
(thousands of people; percentage of total)

	Total unemployed	1. Agriculture		2. Mining		3. Manufacturing		4. Electricity, gas and water		5. Constructions	6. Trade		7. Transport	8. Finance		9. Comm. Service		Activities not adequately described		Unemployed as % of total labour force		
	(x 1000)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)	(x 1000)	(%)			
1962	716	60	(8.4)	6	(0.8)	40	(5.6)	1	(0.1)	12	(1.7)	28	(3.4)	12	(1.7)		65	(4.1)	492	(68.7)		
1963	705	69	(9.8)	5	(0.7)	65	(9.2)	1	(0.1)	14	(2.0)	47	(6.7)	20	(2.8)		106	(15.0)	360	(52.9)	8.45	
1964	683	69	(10.1)	2	(0.3)	63	(9.2)	1	(0.1)	16	(2.3)	52	(7.6)	20	(2.4)		101	(14.8)	358	(52.4)	8.08	
1965	677	55	(8.1)	2	(0.3)	56	(8.3)	1	(0.1)	20	(3.0)	38	(5.6)	18	(2.7)		87	(12.9)	400	(59.1)	7.64	
1966	666	63	(9.5)	4	(0.6)	41	(6.2)	-	-	14	(2.1)	37	(5.6)	13	(2.0)		59	(8.9)	435	(65.3)	7.34	
1967	590	40	(6.8)	3	(0.5)	56	(9.5)	2	(0.3)	21	(3.6)	38	(6.1)	17	(2.9)		56	(9.5)	357	(60.5)	6.35	
1968	496	37	(7.5)	1	(0.2)	50	(10.1)	2	(0.4)	23	(4.6)	33	(6.7)	12	(2.4)		45	(9.1)	293	(59.1)	5.14	
1969	471	29	(6.2)	1	(0.2)	55	(11.7)	-	-	23	(4.9)	40	(8.5)	6	(1.3)		6	(1.3)	311	(66.0)	4.76	
1970	446	29	(6.5)	2	(0.4)	49	(11.0)	1	(0.2)	13	(2.9)	31	(7.0)	11	(2.5)		38	(8.5)	272	(61.0)	4.37	
1971	476	31	(6.5)	4	(0.8)	54	(11.3)	3	(0.6)	17	(3.6)	35	(7.4)	19	(4.0)	4	(0.8)	39	(8.2)	270	(56.7)	4.52
1972	499	23	(4.6)	2	(0.4)	32	(14.4)	3	(0.6)	44	(8.8)	53	(10.6)	24	(4.8)	5	(1.0)	51	(10.2)	212	(42.5)	4.51
1973	461	19	(4.1)	4	(0.9)	91	(15.7)	3	(0.7)	35	(7.9)	62	(13.4)	20	(4.3)	6	(1.3)	49	(10.6)	172	(37.3)	3.97
1974	494	35	(7.1)	1	(0.2)	196	(21.5)	1	(0.2)	34	(6.9)	62	(12.6)	23	(4.7)	8	(1.6)	48	(9.7)	176	(35.6)	4.09
1975	510	19	(3.7)	1	(0.2)	128	(25.1)	1	(0.2)	36	(7.1)	60	(11.8)	21	(4.1)	4	(0.8)	38	(7.5)	202	(39.6)	4.13
1976	503	20	(4.0)	2	(0.4)	117	(23.2)	1	(0.2)	54	(10.7)	62	(12.3)	20	(4.0)	4	(0.8)	44	(8.7)	181	(35.8)	3.67
1977	512	22	(4.3)	4	(0.8)	104	(20.3)	1	(0.2)	34	(6.6)	58	(11.3)	20	(3.9)	6	(1.2)	32	(6.3)	230	(44.9)	3.81

Source: ILO, Yearbook of Labour Statistics, several issues.

Table V-4. South Korea: real wages
(thousands of Won, constant prices 1970 = 100)

	<u>1968</u>	<u>1970</u>	<u>1972</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Average real wage ¹⁾	181.8	220.0	267.7	300.6	313.7	348.9	382.2
1. Agriculture	103.9	130.0	110.2	122.7	137.3	170.2	177.6
2. Mining	168.8	290.0	582.7	852.8	862.7	791.5	714.3
3. Manufacturing	181.8	190.0	275.6	269.9	264.7	280.9	308.9
4. Construction	207.8	220.0	283.5	325.2	343.1	344.7	397.7
5. Social overhead and government services ²⁾	766.2	740.0	787.4	920.2	936.3	1068.1	1119.1
6. Trade	64.9	160.0	189.0	245.4	215.7	238.3	274.1
7. Finance	n.a.	700.0	779.5	662.6	681.4	676.6	710.4
8. Community, personal and domestic services	103.9	120.0	165.4	208.6	240.2	297.9	324.3

Source: UN, Yearbook of National Accounts Statistics; ILO, Yearbook of Labour Statistics; UN ESCAP, Statistical Yearbook for Asia and the Pacific, several issues.

- 1) Defined as compensation of employees, deflated by the consumer price index (all urban households), divided by total number of employees.
- 2) Includes electricity, gas and water, transportation, storage and communication; and producers of government services.

Table V-5. South Korea: real wages¹⁾ in selected manufacturing sectors
(thousands of Won, constant prices 1970 = 100)

ISIC-number	Sector	1963	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
	Total Manufacturing	130.3	113.0	125.1	139.1	155.1	165.8	172.9	175.6	210.2	217.2	228.8	253.9
311/2	Food products	88.4	87.0	103.8	105.3	133.0	148.3	161.7	145.6	196.1	180.6	203.5	242.1
321	Textiles	91.3	92.3	110.4	112.7	130.1	131.4	139.8	148.6	186.0	190.3	201.1	225.0
- 3211	- Spinning and weaving	98.5	99.2	113.1	119.1	136.0	135.1	146.4	153.0	194.7	202.6	211.4	233.9
322	Weaving apparel	84.6	82.3	94.1	118.4	145.3	121.1	115.4	114.8	146.8	150.2	152.7	179.7
331	Wood products	116.1	128.5	153.1	130.0	172.2	169.1	180.4	172.1	218.5	212.5	208.8	241.5
341	Paper and Products	125.0	129.5	134.2	150.8	179.2	195.7	198.0	209.3	238.3	270.0	250.8	265.7
342	Printing and publishing	155.8	158.1	164.3	224.0	242.5	193.8	261.7	252.4	286.7	309.3	313.8	354.4
355	Rubber products	95.7	102.1	112.6	124.0	144.7	151.3	145.6	154.7	176.2	190.2	203.1	223.4
371	Iron and Steel	130.0	166.7	136.8	159.7	213.3	212.1	263.7	252.4	309.8	367.2	328.8	385.8
383	Electrical Machinery	110.0	116.7	118.5	157.5	141.0	169.7	179.9	194.2	200.8	214.8	211.7	240.1
384	Transport equipment	151.0	136.5	173.9	187.7	220.0	248.6	244.4	226.6	294.8	316.4	388.7	404.3

Source: UN, Yearbook of Industrial Statistics; UN ESCAP, Statistical Yearbook for Asia and the Pacific, several issues.

As general note: Figures cover firms with 5 employees and more. Data therefore are not completely comparable to data in table V-4.

1) Equals wages and salaries divided by total employees and deflated for the urban household consumer index.

Table V-6. South Korea: Number of weekly hours worked in manufacturing industries

<u>ISIC</u>	<u>Sector</u>	<u>1970</u>	<u>1977</u>
	Non-agricultural sectors (average)	51.6	51.4
	Manufacturing (average)	52.3	52.9
311/2	Food products	53.4	53.2
321	Textiles	53.1	52.9
322	Weaving apparel	53.9	55.4
331	Wood products	58.1	58.6
341	Paper and products	52.8	53.9
342	Printing and publishing	52.2	51.2
355	Rubber products	53.0	55.6
371	Iron and Steel	55.3	53.4
383	Electrical machinery	49.7	48.1
384	Transport equipment	50.5	53.0

Source: ILO, Yearbook of Labour Statistics 1978.

Table V-7. South Korea: Structure of economically active population
(thousands of people)

	Employers and self-employed						Salaried employees and wage earners						Unpaid family workers						Others and Status Unknown						Total					
	Male		Female		Total		Male		Female		Total		Male		Female		Total		Male		Female		Total		Male		Female		Total	
	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977	1970	1977
1. Agriculture	1,955.3	1,895.0	318.3	364.0	2,273.7	2,259.0	375.7	572.0	174.2	290.0	549.9	812.0	689.3	740.0	1,642.4	2,334.0	2,331.7	2,374.0	0.8		0.8		1.6		3,021.2	3,157.0	2,135.8	2,248.0	5,157.0	5,405.4
2. Mining and quarrying	7.1	3.0	0.3	-	7.4	2.0	84.7	94.0	5.7	5.0	90.4	99.0	1.2	-	0.6	1.0	1.8	1.0	0.1		-		0.1		93.0	97.0	6.6	6.0	99.6	103.0
3. Manufacturing	176.8	241.0	60.1	245.0	236.9	486.0	719.8	1,420.0	389.8	777.0	1,109.6	2,197.0	29.9	41.0	68.4	115.0	98.3	115.0	1.4		1.1		2.5		928.0	1,702.0	519.5	1,096.0	1,447.5	2,798.0
4. Electricity, gas and water	1.5	1.0	0.1	-	1.6	1.0	27.3	28.0	1.7	3.0	29.0	31.0	0.1	1.0	0.0	1.0	0.1	1.0	0.0		0.0		0.1		29.0	30.0	1.8	3.0	30.8	33.0
5. Construction	55.0	32.0	0.9	1.0	55.9	33.0	379.0	542.0	17.3	46.0	396.3	588.0	6.4	2.0	2.3	4.0	8.7	4.0	1.1		0.0		1.1		441.5	576.0	20.5	49.0	462.0	625.0
6. Trade	520.3	780.0	224.5	446.0	744.8	1,226.0	225.2	210.0	127.0	139.0	352.2	349.0	44.7	63.0	137.3	392.0	182.0	392.0	0.7		0.5		1.2		790.8	1,053.0	489.3	914.0	1,280.2	1,967.0
7. Transport, storage and communication	39.1	48.0	0.7	-	39.8	48.0	263.2	388.0	24.0	40.0	287.2	428.0	1.3	3.0	0.3	3.0	1.6	3.0	0.4		0.1		0.5		304.1	439.0	25.1	40.0	329.2	479.0
8. Finance, etc.	26.4	55.0	0.8	3.0	27.2	58.0	52.9	95.0	15.4	48.0	68.3	143.0	0.5	1.0	0.2	2.0	0.7	2.0	0.2		0.1		0.3		80.0	151.0	16.5	52.0	96.5	203.0
9. Community, social and personal services	106.9	120.0	25.0	57.0	131.9	177.0	739.8	793.0	315.8	324.0	1,055.6	1,117.0	9.5	8.0	10.3	22.0	19.8	22.0	12.6		2.3		14.9		868.9	921.0	353.4	395.0	1,222.3	1,316.0
10. Activities not adequately described	0.4		0.1		0.5		2.2		0.4		2.6		0.1		0.1		0.3		18.8		5.7		24.5		21.5		6.3		27.8	
Unemployed	..	..	..	..	..	..	..	..	..	..	..	..							174.6	392.0	50.0	119.0	224.6	511.0	174.6	392.0	50.0	119.0	224.6	511.0
Total	2,889.0	3,175.0	630.9	1,116.0	3,519.9	4,291.0	2,869.8	4,092.0	1,071.4	1,672.0	3,941.2	5,764.0	783.0	859.0	1,862.1	2,015.0	2,645.1	2,874.0	210.8	392.0	60.6	119.0	221.4	511.0	6,752.6	8,518.0	3,624.9	4,922.0	10,277.5	11,440.0

Source: ILO, Yearbook of Labour Statistics, several issues.

Table V-8. South Korea: Internal terms of trade¹⁾
(indices, 1970 = 100)

<u>Year</u>	<u>Terms of trade</u>	<u>Year</u>	<u>Terms of trade</u>
1963	112.4	1973	112.7
1968	90.8	1974	112.2
1969	89.7	1975	111.6
1970	100.0	1976	110.8
1971	102.5	1977	110.4
1972	109.8	1978	107.3

Source: FAO.

1) Defined as the ratio of farm prices received and farm prices paid by the agricultural sector.

Table V-9. South Korea: Wage and Profit shares
(percentages of GDP, current prices)

	1960	1963	1965	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Total wages ¹⁾	32.3	26.8	27.5	29.9	31.8	32.6	32.7	32.3	30.5	30.0	31.2	32.3	34.1
Total profits ²⁾	55.0	61.9	60.9	51.5	52.3	51.4	51.7	51.9	52.9	54.4	51.1	48.5	46.4
By sector (% of GDP)													
1. Agriculture: wages				3.5	3.1	2.8	2.7	2.6	2.3	1.9	1.9	2.0	2.2
profits				23.8	24.2	23.4	23.3	22.7	21.2	21.4	20.7	19.7	18.3
2. Mining: wages				0.8	0.9	1.0	0.9	0.9	0.8	0.9	1.1	0.9	1.1
profits				0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.2
3. Manufacturing: wages				7.4	8.0	8.0	8.2	8.5	8.4	9.1	9.5	10.4	10.4
profits				6.8	6.0	6.1	6.1	6.8	9.3	9.0	8.0	8.3	7.3
4. Construction: wages				2.9	3.3	3.2	3.0	3.0	3.1	3.0	3.5	3.1	3.6
profits				1.6	2.0	1.9	1.6	1.2	1.5	1.2	1.2	1.5	2.3
5. Social overhead and government services: wages				8.3	8.4	8.8	8.5	8.3	7.6	7.0	6.8	7.4	7.9
profits				2.2	2.3	2.3	2.5	2.6	2.3	2.1	2.5	2.2	2.4
6. Trade: wages				0.8	2.2	2.2	2.2	2.0	1.8	1.7	1.5	1.5	1.5
profits				11.0	12.5	12.4	12.9	13.4	14.3	16.3	14.4	12.5	11.8
7. Finance: wages				1.3	1.6	1.8	2.6	1.8	1.7	1.6	1.6	1.4	1.6
profits				2.8	2.9	2.8	3.0	3.0	2.7	2.8	2.7	2.8	3.1
8. Community and domestic services: wages				4.9	4.2	4.8	5.2	5.2	4.7	4.8	5.2	5.6	5.6
profits				3.1	2.3	2.3	2.2	1.9	1.5	1.3	1.3	1.2	1.1

Source: UN, Yearbook of National Account Statistics

1) Defined as compensation of employees.

2) Defined as operating surplus.

Table V-10. Size Distribution of Income in Some Asian Countries
(percentage shares, national household population)

	<u>lower 20 %</u>	<u>lower 40 %</u>	<u>top 20 %</u>
Korea (1966)	9.4	23.2	35.8
(1971)	9.9	23.7	37.2
Philippines (1965)	3.6	11.5	55.4
(1971)	3.9	11.9	54.0
Taiwan (1964)	7.8	17.2	40.8
(1972)	8.8	22.3	37.2
Malaysia (1960)	3.2	9.6	61.2
(1970)	3.8	11.8	56.2
Average for 44 LDCs ¹⁾	5.6	14.0	56.0

Source: S.Jain, Size Distribution of Income, IBRD Washington 1975.

1) From I. Adelman and C.T. Morris, An Anatomy of Income Distribution Patterns in Developing Countries, World Bank Working Paper no. 116, Washington D.C. 1971.
Average on basis of available censuses (1960s).

Table V-11. South Korea: Size Distribution of Income, data comparison 1966 and 1971
(percentage shares, national households)

<u>Percent of population</u>	<u>Income shares 1966 (1)</u>	<u>Income shares 1966 (2)</u>	<u>Income shares 1971 (1)</u>	<u>Income shares 1971 (2)</u>
0 - 10	3.9	2.3	2.9	4.2
10 - 20	5.5	4.2	4.3	5.7
20 - 30	6.4	5.4	5.2	6.5
30 - 40	7.4	6.5	6.3	7.3
40 - 50	8.4	7.8	7.3	8.2
50 - 60	9.4	9.2	8.5	9.1
60 - 70	10.8	10.9	10.0	10.2
70 - 80	12.4	13.1	12.1	11.6
80 - 90	14.8	16.3	15.3	13.9
90 - 100	21.0	24.3	28.1	23.3
95 - 100	12.1	14.1	18.1	14.8

Source: S. Jain, Size Distribution of Income; A Compilation of Data, IBRD, Washington D.C., 1975.

Original sources:

- 1966 (1) Harry T. Oshima (1970), "Income inequality and economic growth: the post-war experience of Asian countries", in: *Malyan Economic Review*, Vol. 15 No. 12, p. 13.
- 1966 (2) The Chung Ang University Income and Expenditures Survey of 1966, as quoted in B. Renaud (1975), "Economic Growth and Income Inequality in Korea", mimeographed, Seoul National University and Population and Development Studies Center, table 2, p. 8.
- 1971 (1) Computed from unpublished data base for KMAF Farm Household Survey of 1971 and KEPB Urban Household Survey of 1971.
- 1971 (2) Computed from KEPB, *Korea Statistical Yearbook 1972*, Seoul 1972, p. 286.

Note: See also figure V-16 and text for comments.

FIGURE V-3: Mining

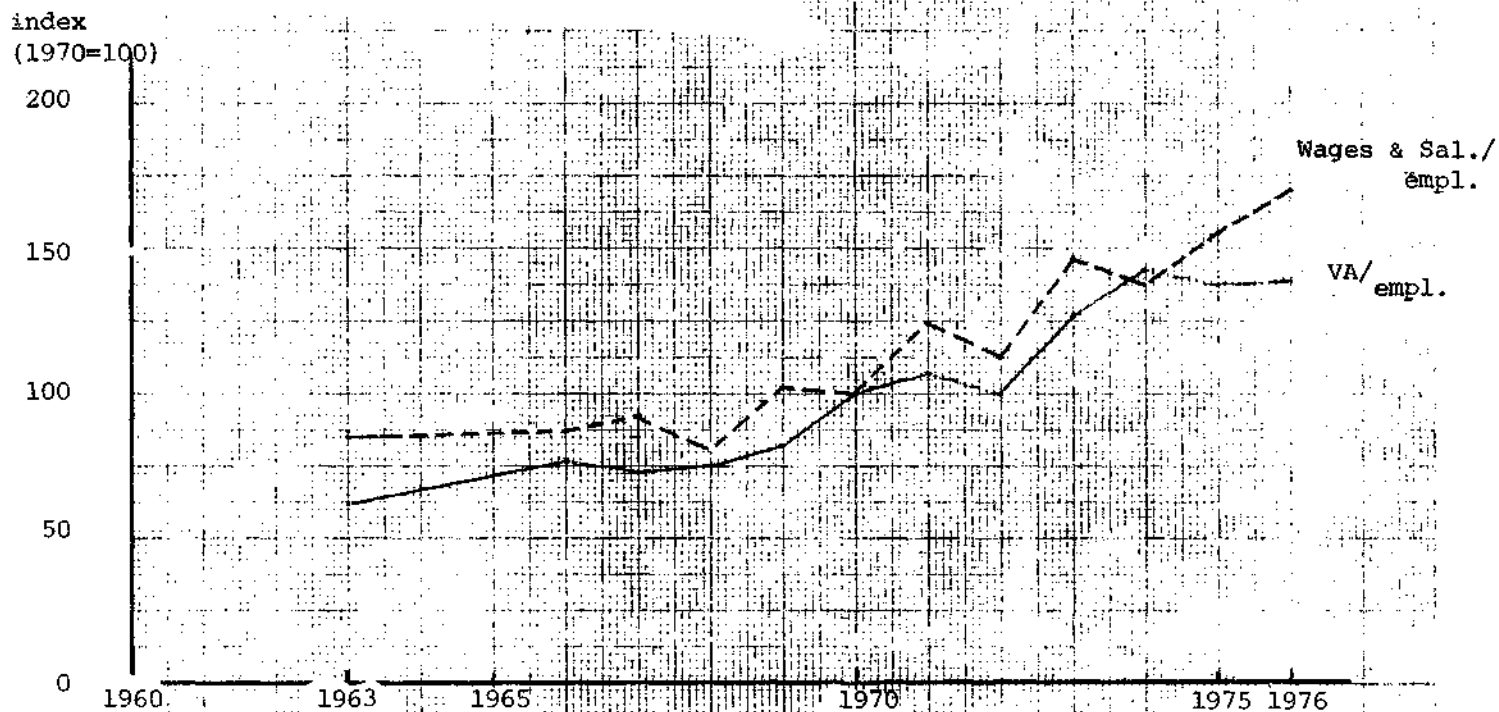


FIGURE V-4: Manufacturing (total)

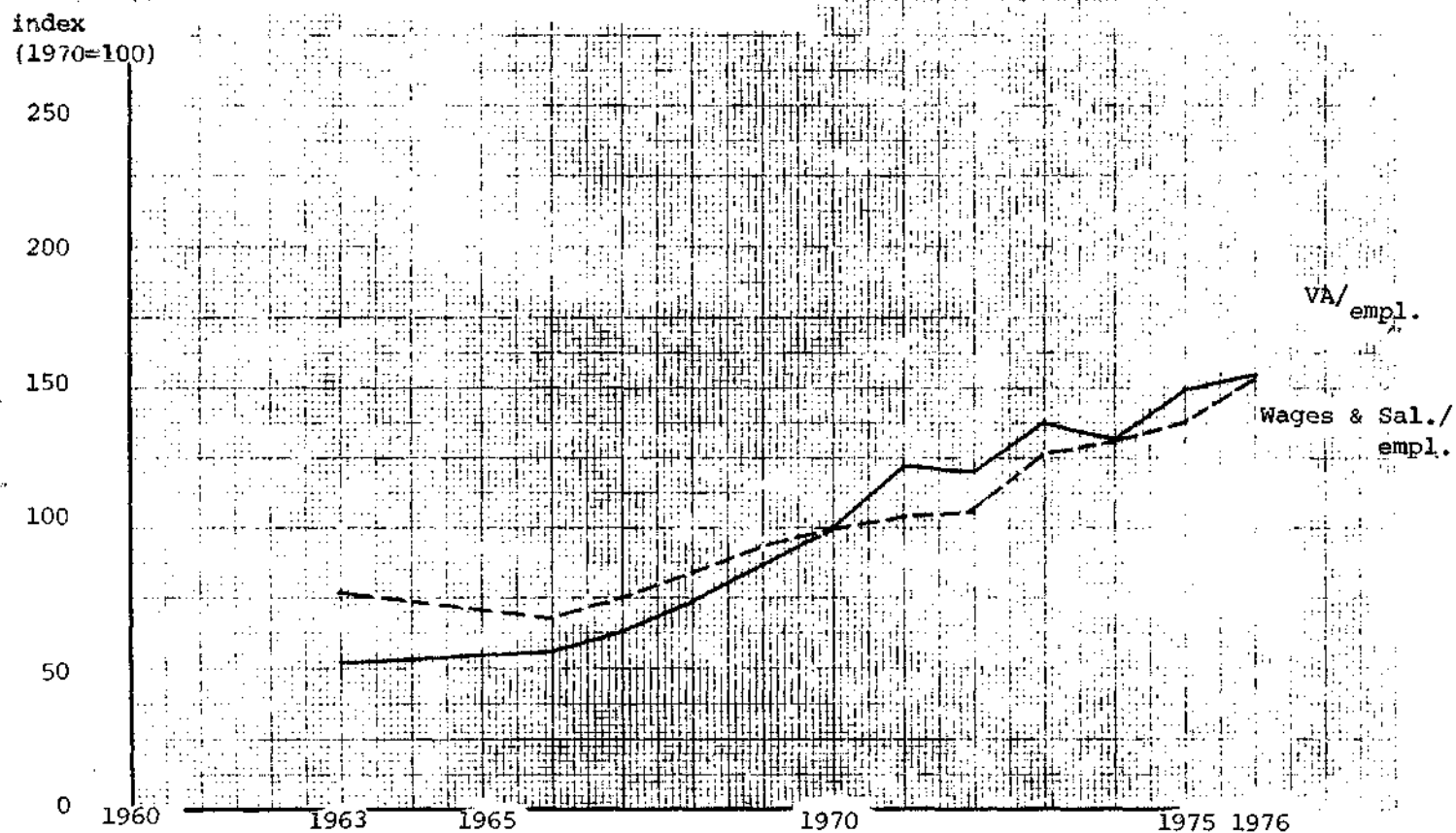
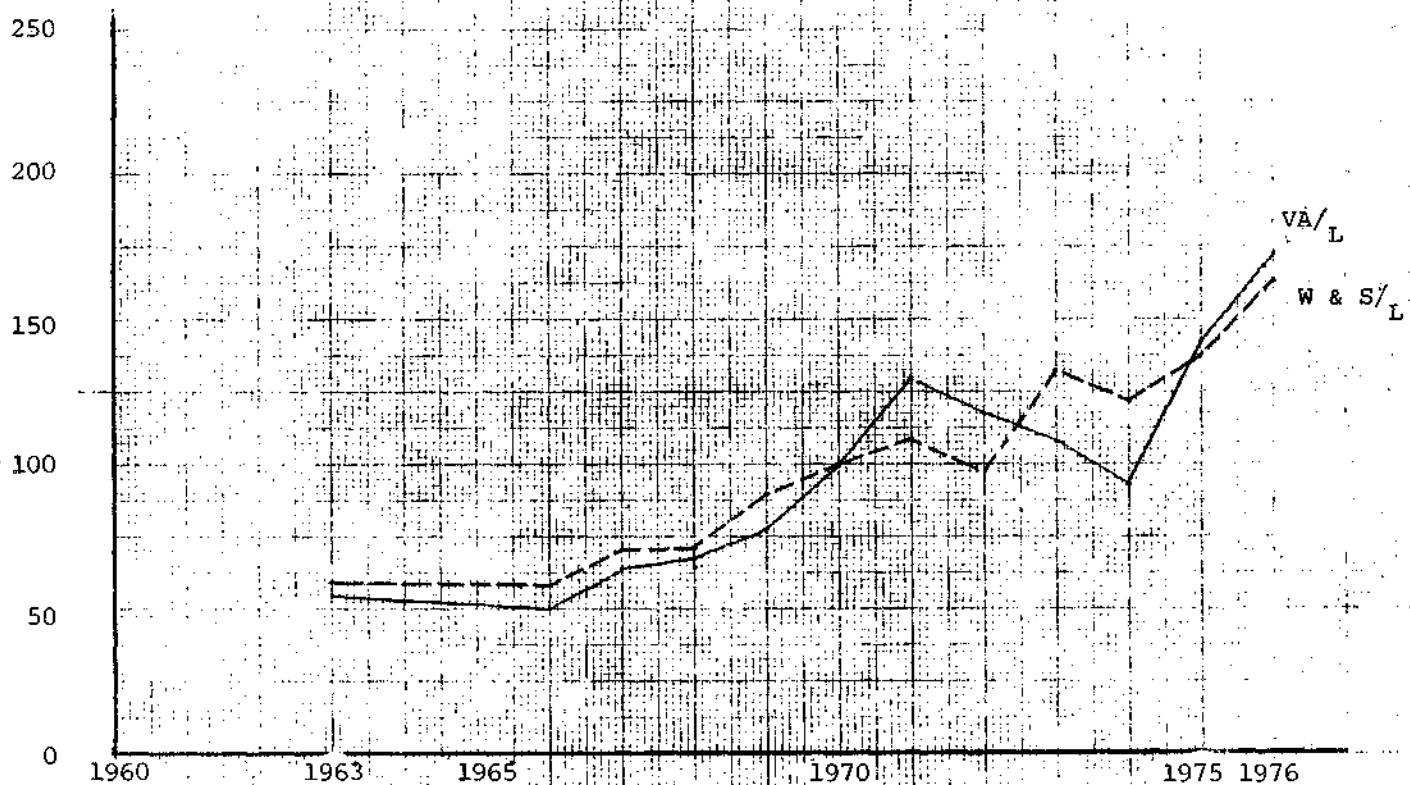


FIGURE V-5: 311/2 Food Products

index
(1970=100)



index
(1970=100)

FIGURE V-6: 321 Textiles

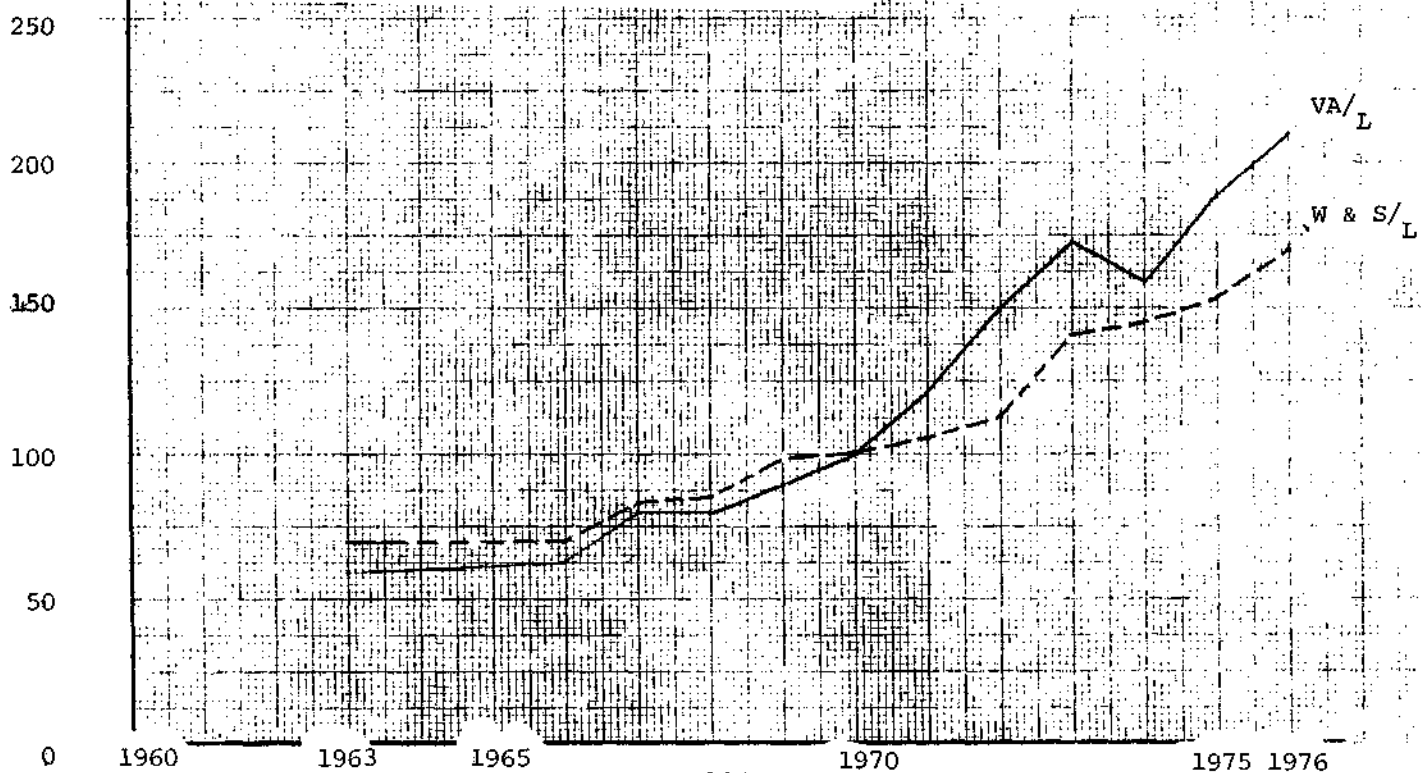


FIGURE V-7: 3211 Spinning and Weaving

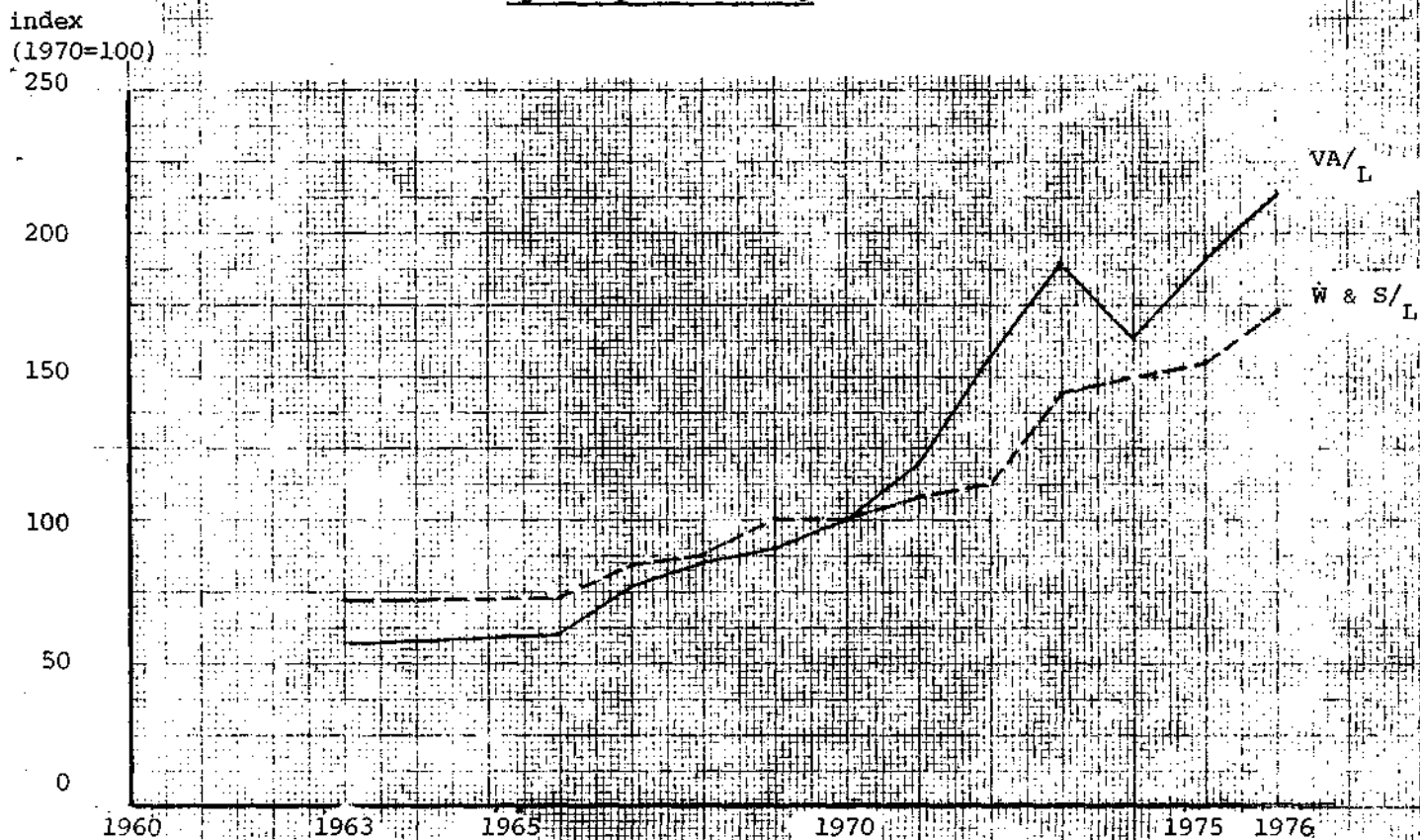
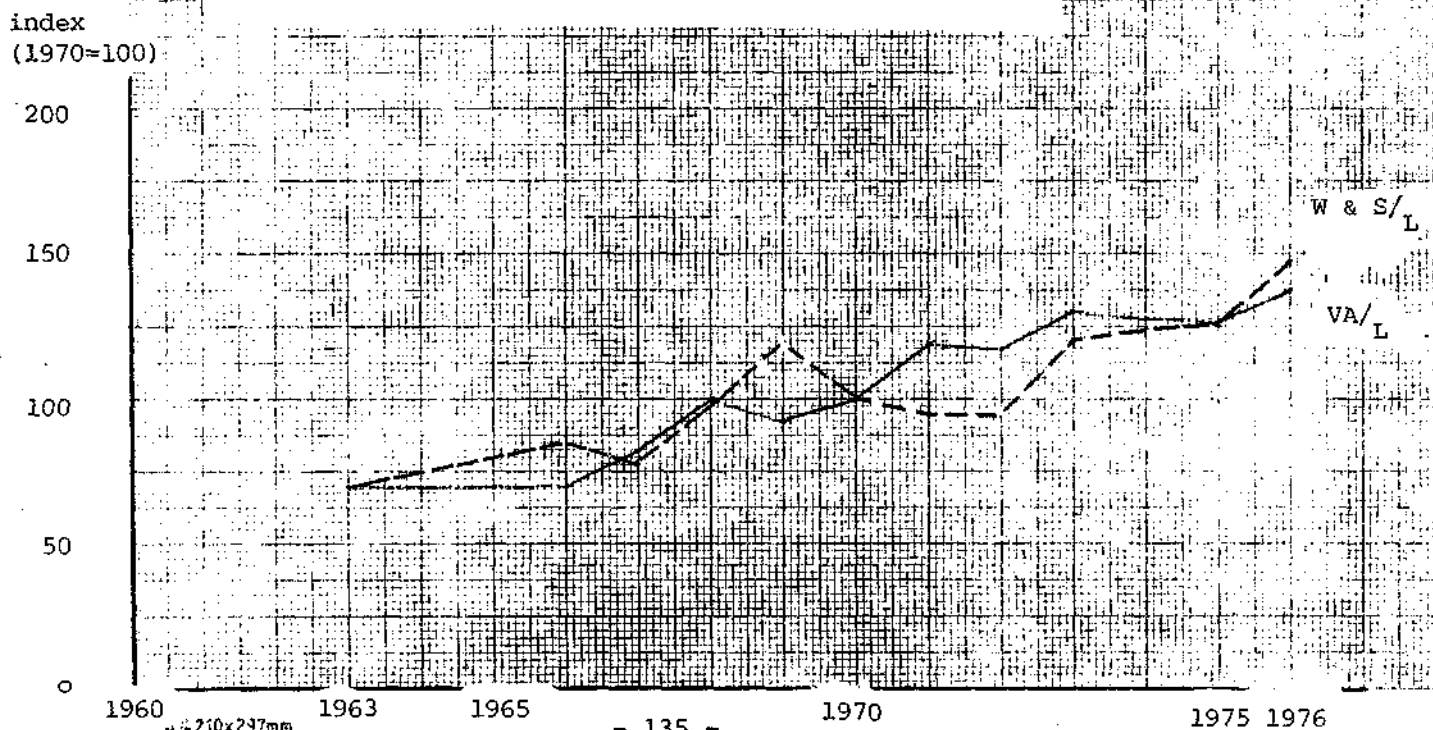
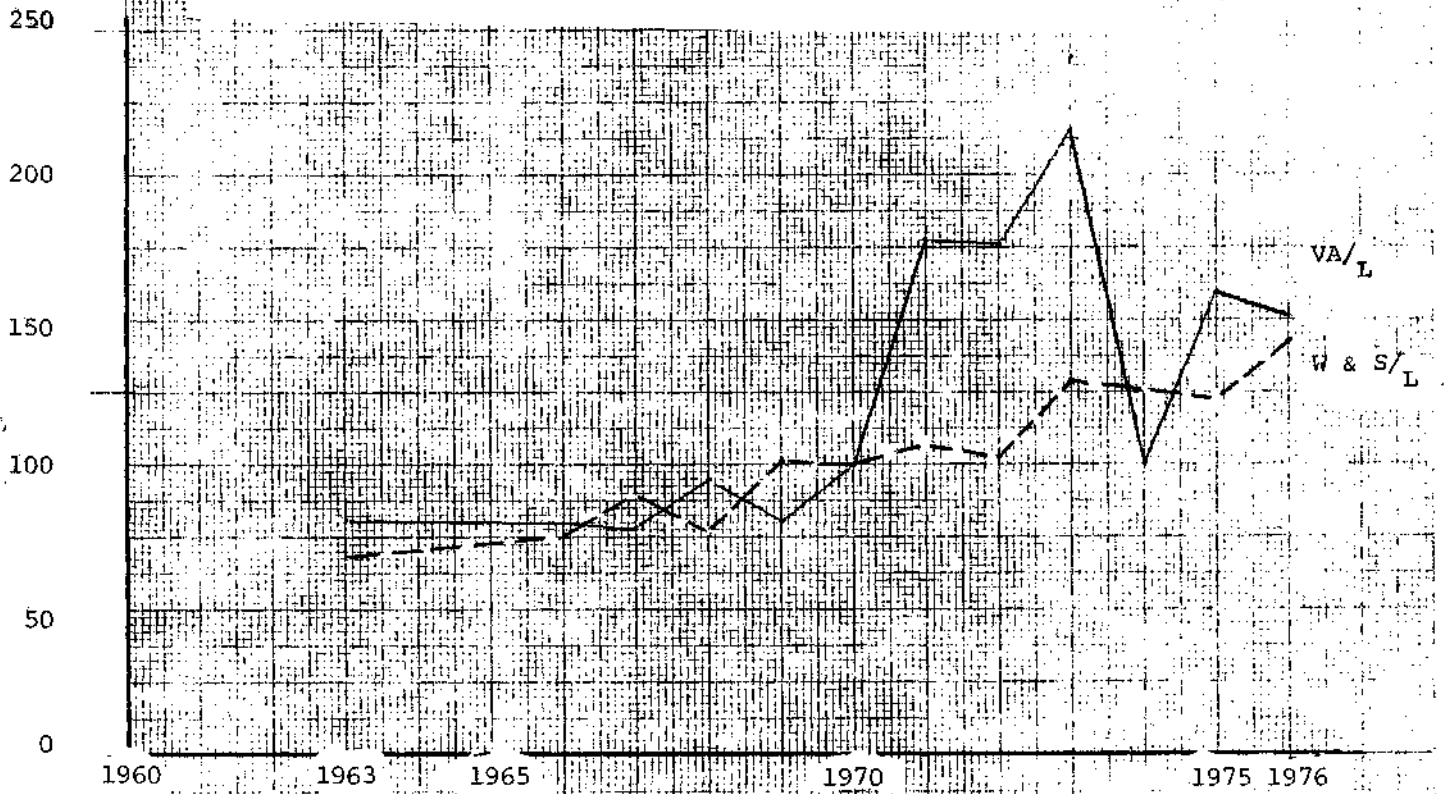
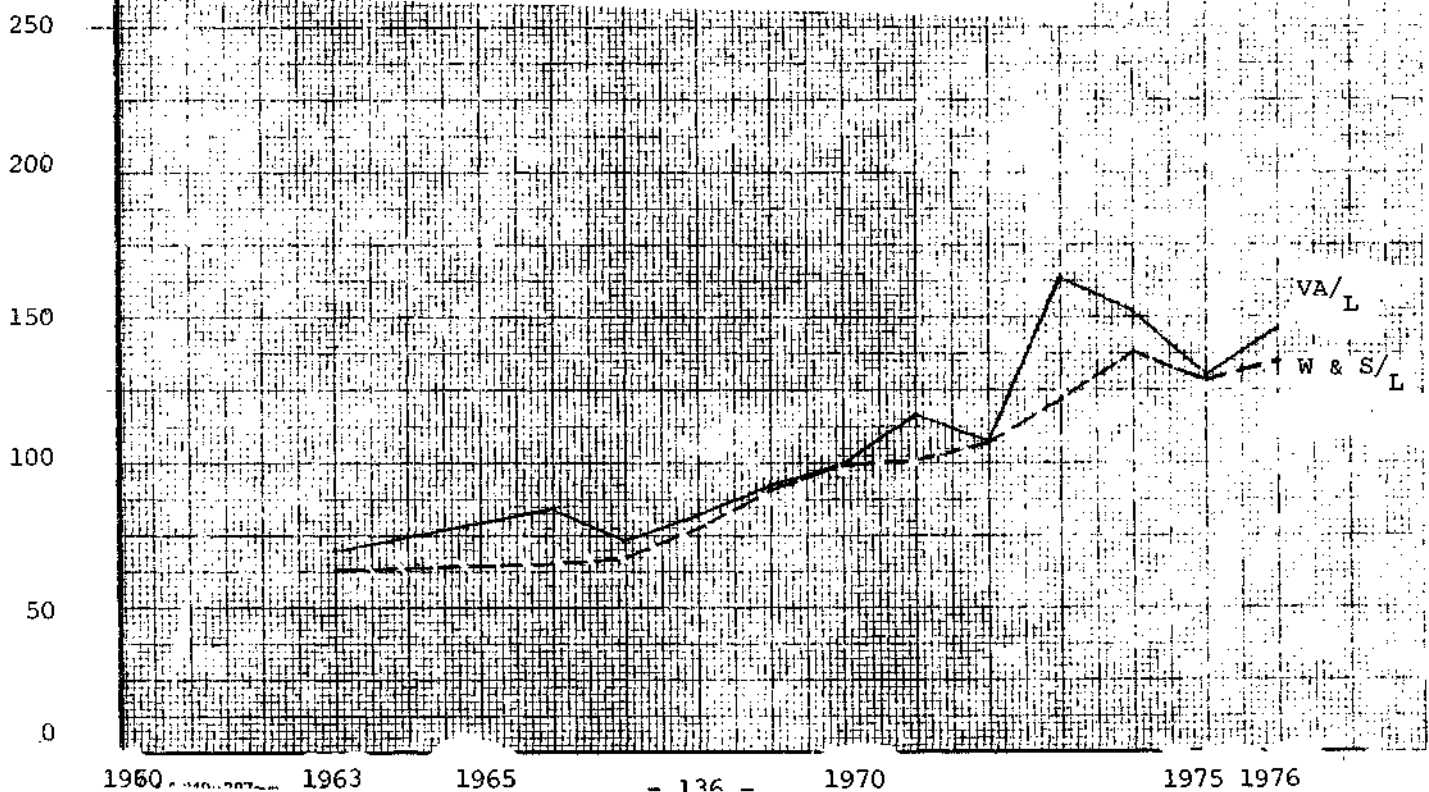


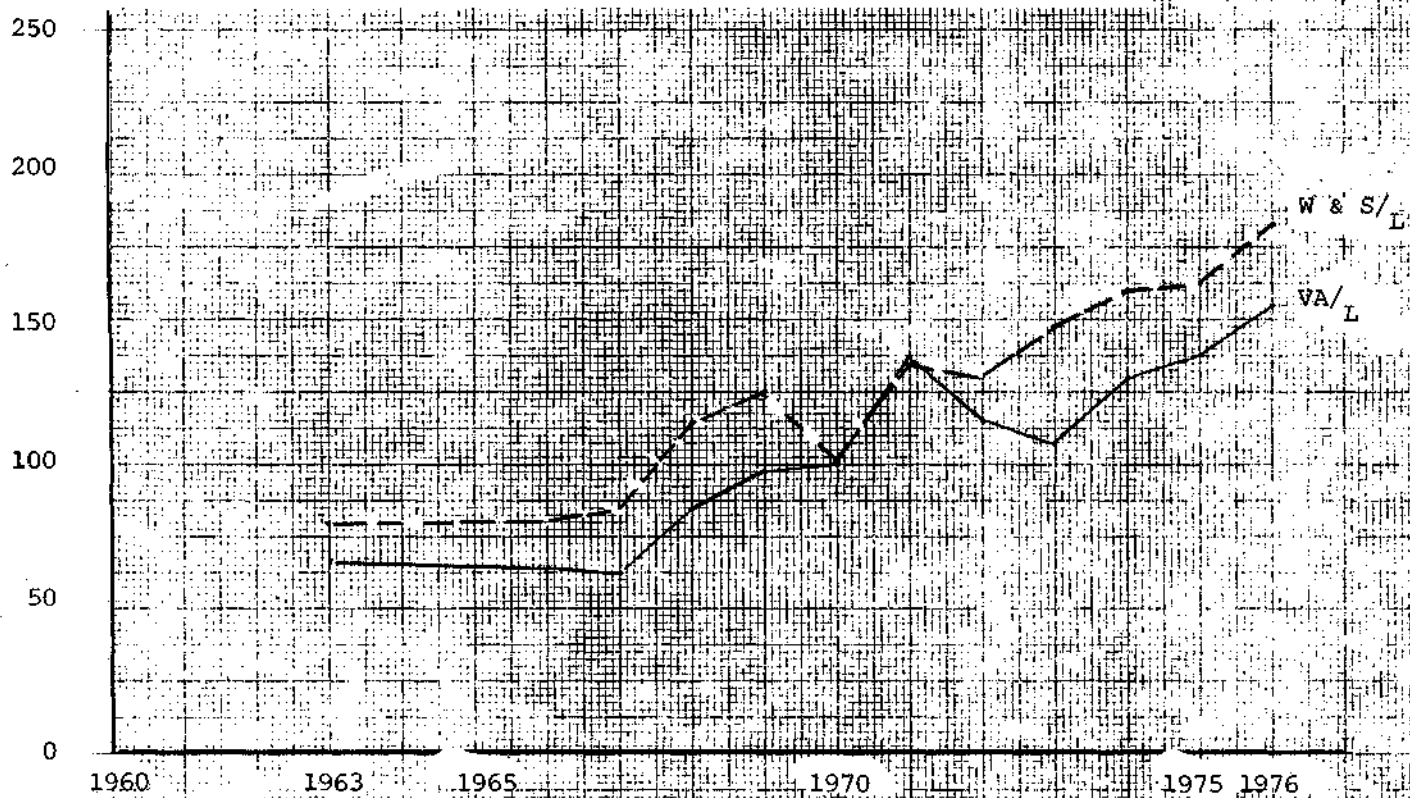
FIGURE V-8: 322 Wearing Apparel



index
(1970=100)FIGURE V-9: 331 Wood Productsindex
(1970=100)FIGURE V-10: 341 Paper and Products

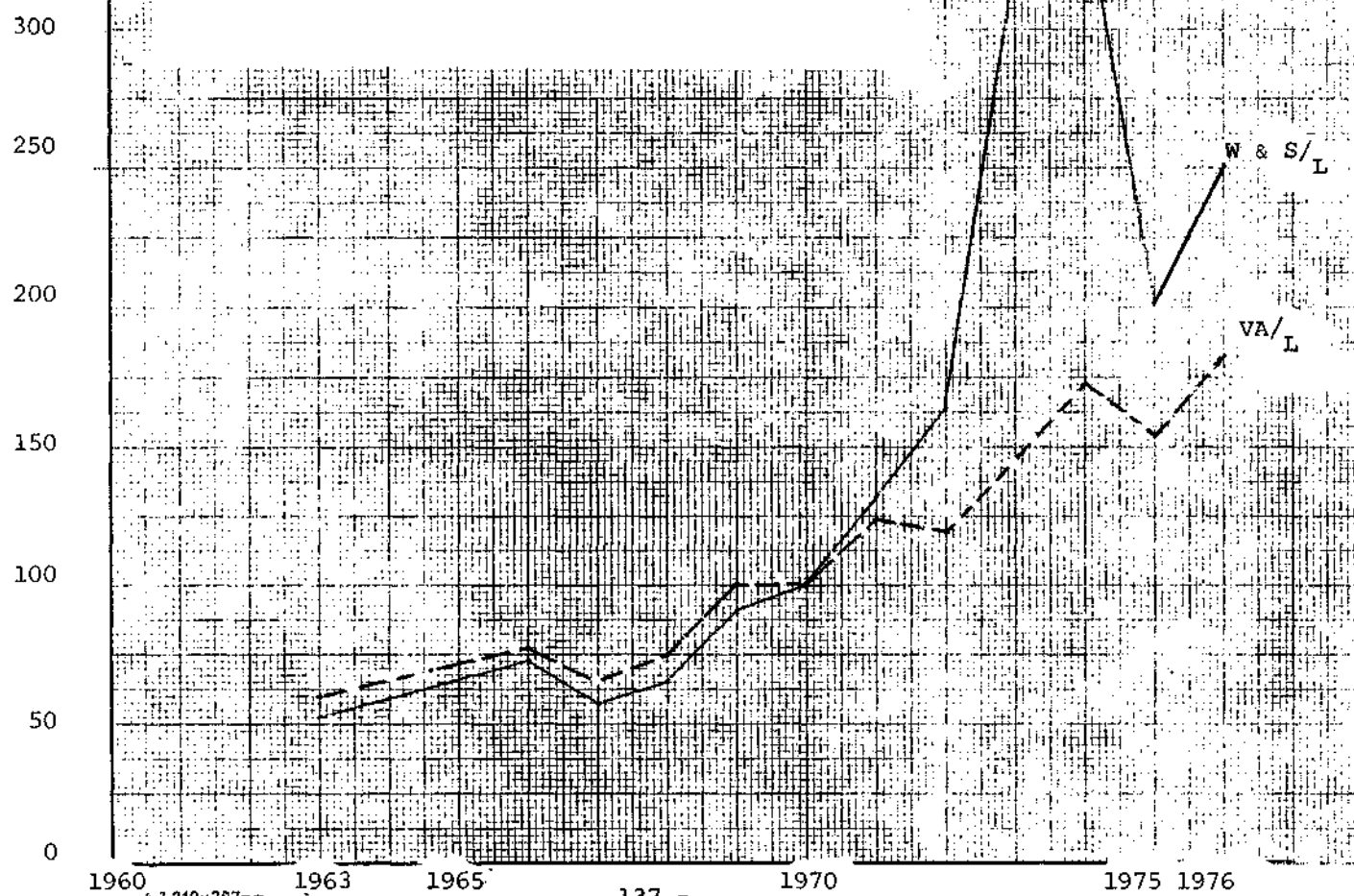
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(1970=100)

FIGURE V-11: 342 Printing and Publishing



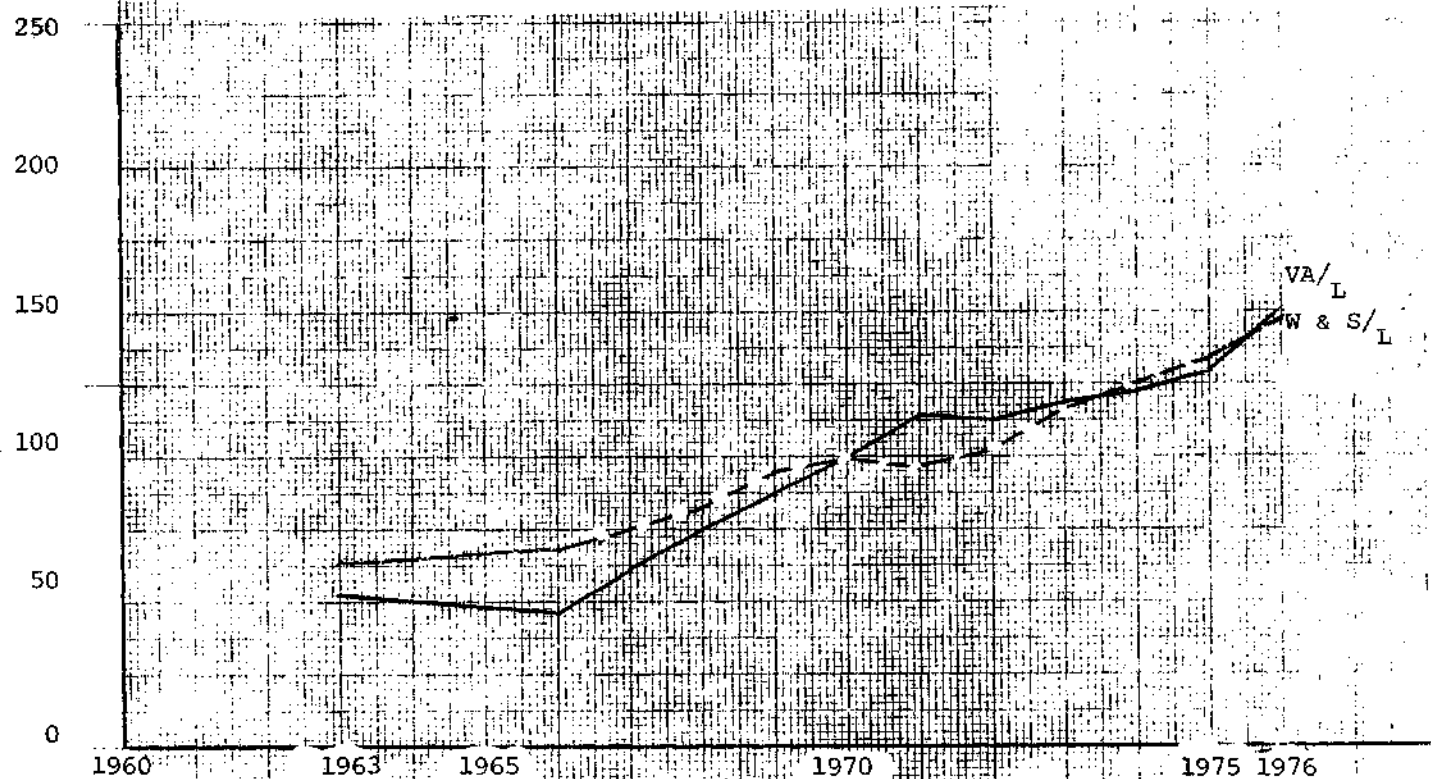
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(1970=100)

FIGURE V-12: 371 Iron and Steel



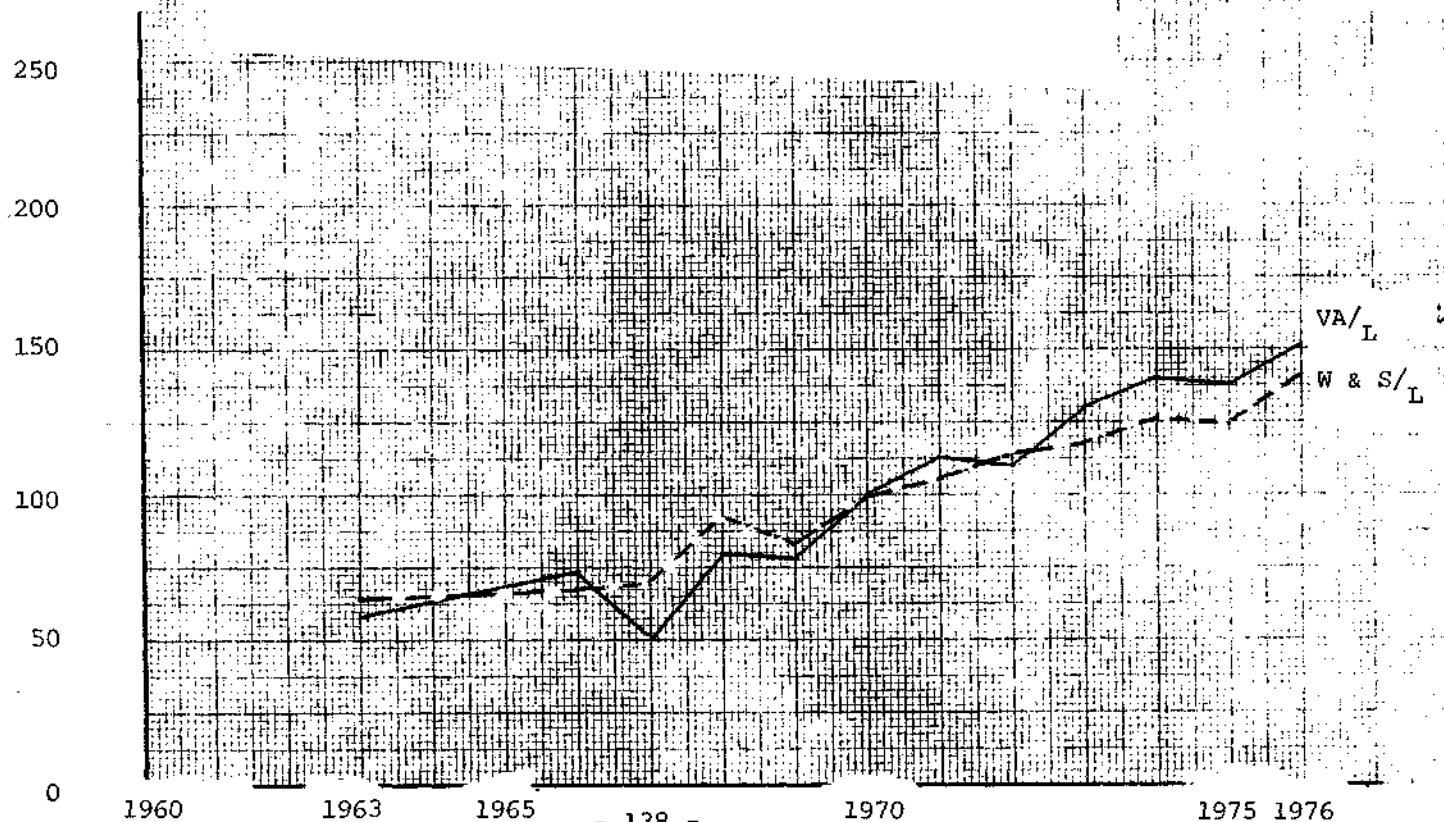
index
(1970=100)

FIGURE V-13: 355 Rubber products



index
(1970=100)

FIGURE V-14: 383 Electrical Machinery



index
(1970=100)

FIGURE V-15: 384 Transport Equipment

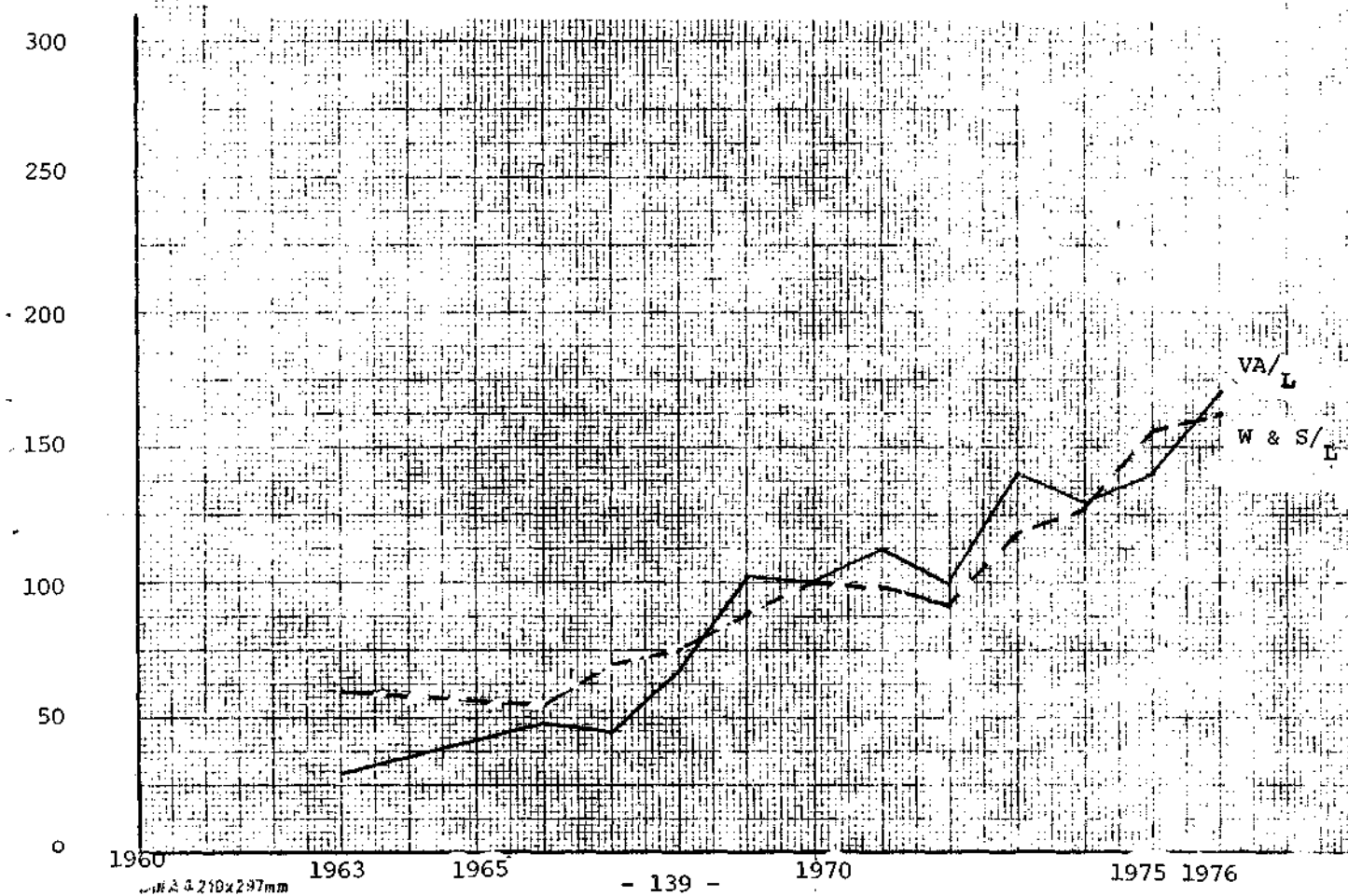
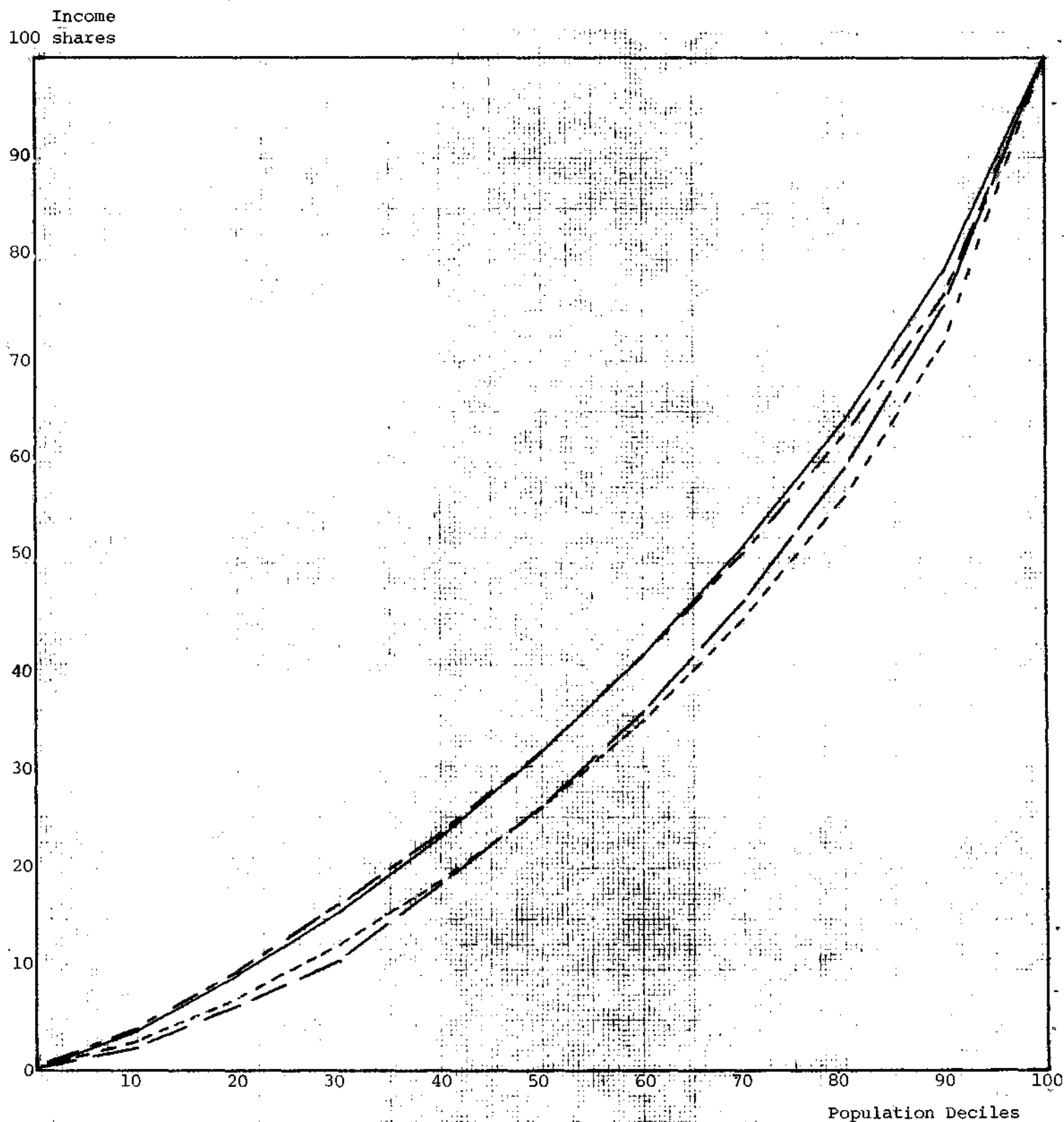


FIGURE V-16: Size Distribution of Income, data comparison
1966 and 1971
 (national household population)



1966 (1) —————
 1966 (2) - - - - -
 1971 (1)
 1971 (2) -

Sources: See table V-11

VI. THE ROLE OF THE STATE AND THE CLOSURE OF THE MODEL SYSTEMVI.1 State intervention and income distribution

The generally supposed relatively egalitarian growth of the post-war South-Korean economy has been divided into three phases (1):

- (1947-52): phase of static asset redistribution, through which the initial distribution of wealth became fairly equal by the elimination of Japanese asset holders, capital and ownership destruction during the wars (World War II and the Korea-war) and pervasive land reforms;
- (1953-63): phase of dynamic redistribution, in which inequality tendencies of import substituting industrialization are assumed to be off-set by a widely spread 'educational explosion';
- (1964-...): phase of 'redistributed - asset value - realization', which runs down to an explanation of successful export oriented development with 'trickle down' effects.

It is the story of successful 'redistribution-cum-growth'. The facts of the first phase clearly are the base of convincing arguments. The other arguments may sound less convincing or need further explanation. In addition the specific Confucian ideology has been a supplementary argument to explain successful economic growth with no high inequality. It explains 'Korean success' by a will to economize and an upward activism. We can only be speculative on the impact of such cultural factors. We will not go into explaining the 'political economy of success' of Korea here, but it should be noticed that the 'trickle down' of economic growth in the third phase has not been the result of deliberate redistribution policies for more equity by the state. Such activist 'reach down' policies have not systematically been pursued, but redistribution has been at the most an accompanying effect of a political strategy emphasizing economic growth since the start of the Park Chung Hee regime (1963).

What has been the role of the Korean state in the process of economic growth and distribution of wealth?

Economic policies implemented by the Korean state has been both impressive by range and pervasive in effect. Korean economic policy can be divided into three periods:

- 1) policies underlying the import substituting industrialization strategy (1953-63);

(1) Adelman and Robinson (1978), pp. 37 ff.

- 2) incentive policies towards low skill, labour intensive export-led industrialization (1964-1972);
- 3) shift of policy towards stimulation of more capital-intensive manufactured exports (1972-), as a response to a slowdown in economic performance in the period 1970-72 and financial problems (2).

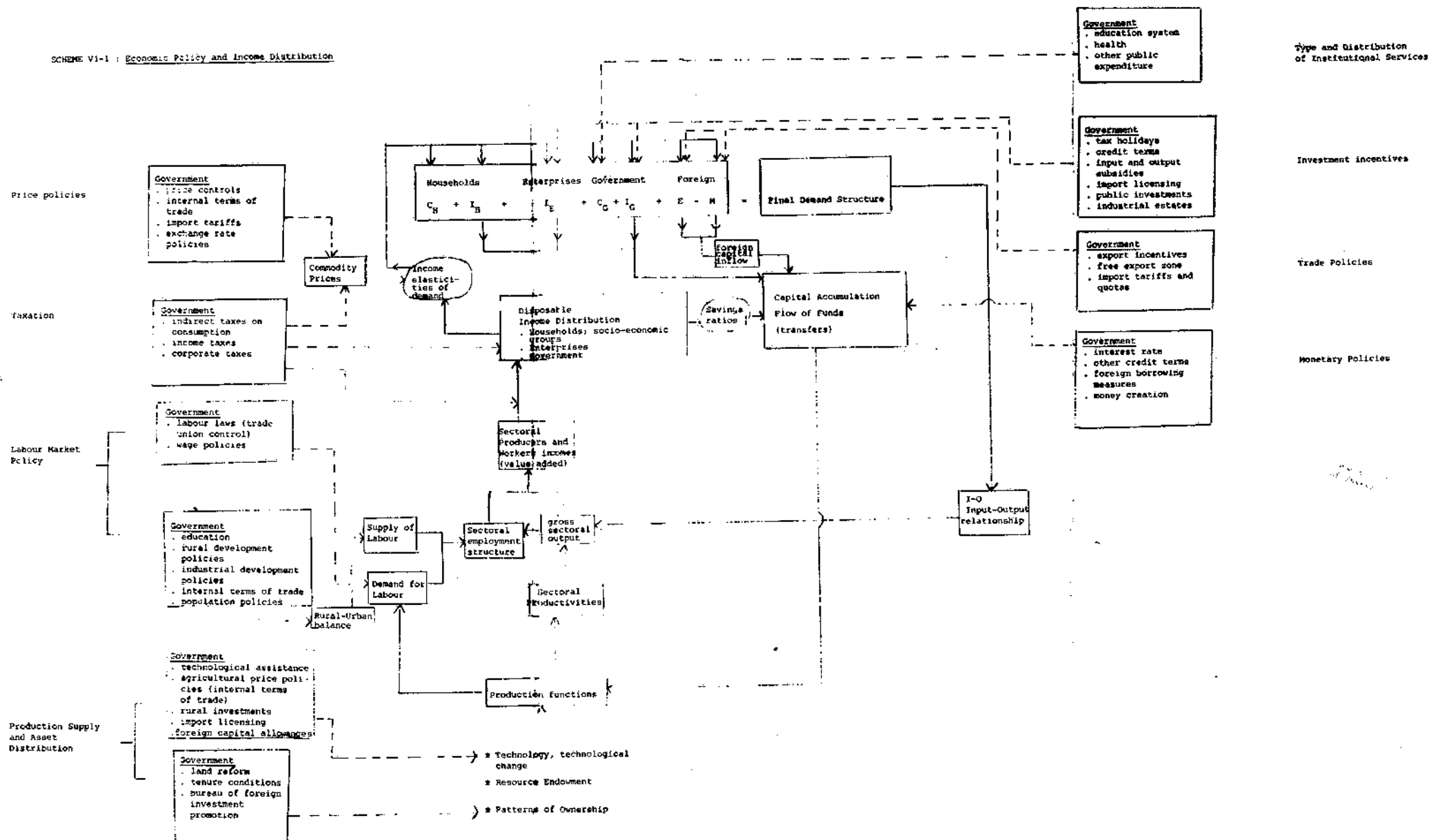
To implement successful economic policies it is necessary to have a clear understanding of the interrelationships between the economic variables affected and socio-economic group behaviour. Scheme VI-1 gives a global framework for analyzing the impact of government policies on the variables of growth and distribution.

Scheme VI-1 does not do more than showing where the government enters the economic process and which variables are affected by state policies and through which mechanisms the distribution of income will be influenced.

Table VI-1 shows the most important features of the whole range of policy measures implemented. The success of Korean economic policies is often ascribed to the good functioning of the market system in Korea. However, a large part of important economic measures is directed towards the conditioning of the market structure; in the fields of asset redistribution, labour market policies and public investments. Crucial to every economic strategy of growth and development is the decision-making process with regard to productive investment. Pervasiveness of economic policies therefore will depend on the grip of the state on the process of capital accumulation. Dynamics of the model flow chart in scheme VI-1 follows from the final demand structure and the process of capital accumulation. Below we will summarize the main elements of state influence in the process of financing economic development and its consequences for the overall income structures.

- 1) Public investments have been directed towards establishing and strengthening the industrial sector. The state has been mainly active in basic industries and infrastructure. The dynamic role of public enterprises was already discussed in par. III.1.2. The central government expenditure on economic services has been largely spent in infrastructural sectors (energy, water supply, transport), as can be seen from table VI-2. Recently the bulk of central government economic expenditure is directed to improving rural
-
- (2) The period starts off with the Presidential Decree of August 1972. The Decree meant a radically different approach to economic policy. Until 1972 the policy system was characterized by inflationary trends in past as a consequence of high interest rates, many devaluations of the exchange rate and allowance of Keynesian inflationary financing of economic growth. After 1972 policies were characterized by price stability measures through more direct controls, low interest rates and a stable exchange rate. (Other factors as imported inflation and money creation induced by structural deficits explain persisting high inflation rates).

SCHEME VI-1 : Economic Policy and Income Distribution



infrastructure. Income distributional impact: indirect through economic growth. Public enterprise development stimulated urban income growth. Primary benefitters are private investors; direct employment effects are low, due to capital-intensive nature of public investments. Some correction in the rural-urban income disparities results from rural investment programs.

- 2) Wage determination and internal terms of trade: Wages and the balance between agricultural and non-agricultural sectors have been important elements in both a process of vertical and horizontal financing of the export-led industrialization strategy. A structure of low wages was initially present due to a labour surplus situation. The rôle of the state in this process of vertical financing of industrial development has been to prevent high nominal wage pressures and institutional wage determination by restricting trade union action. Employment growth, productivity increases and labour market distortions still allowed for continuous growth in real wages (without constraining capital accumulation).

Shortages in domestic food production necessitated food import allowances to off-set upward pressures on food prices. Urban wages could be safeguarded from price increases and deteriorating internal terms of trade meant a process of horizontal financing from rural to urban areas. This process was mitigated through the state sector from 1970 onwards (3), improving internal terms of trade in favour of the rural sector but with maintenance of low food prices.

Income distributional impact: Wage differentials and urban inequalities are endogenous in the production process, while the state only influences labour market conditions from the outside. Internal terms of trade policies improves the rural-urban balance, but increased rural inequalities as subsidies to farmers appear as a premium on production.

- 3) Taxation: several tax reforms (in 1962, 1966 and 1968) increased the public sector's own savings especially by improving the tax administration and the organization of tax collection. The increased appropriation of economic surplus by the state can be read from table VI-3. Current revenue (excl. direct foreign aid to general government) increased from 13.0 percent of GDP in 1960 to 20.0 percent in 1977, and public savings (general government only) increased from negative rates in the early 1960s to over 5 percent of GDP

(3) With the establishment of the Grain Management Fund and the Fertilizer Fund.

in the latter half of the 1970s. However, the tax structure heavily relies on indirect taxation (70.3 percent of total tax revenue in 1978, cf. table VI-4) (4). It means that increased tax revenues are a result of improved administration and of economic growth, rather than due to a reform with political impact by taxing high income groups or profits. The correlation of tax revenue with economic growth can also be found in table VI-3, as the tax ratio has declined with GDP growth in the recession period 1970-73. The political element is that the fiscal system is rather used for investment incentives (tax exemptions on corporate profits) than towards redistributing personal (household) incomes. A very tentative picture of the regressiveness of the Korean tax system is given in table VI-4, in which over 85 percent of the tax burden is assumed to be carried by household incomes and it may further be assumed that these will be carried most by lower income groups as commodity taxes are irrespective of incomes and lower income groups consume a higher proportion of their income. The conclusion remains purely speculative as no information has been available on the tax rates per type of commodity and the extent in which indirect taxes fall on luxury items (5). Tax structures in LDCs are generally considered to be regressive (6). However, good tax incidence studies are sparse and even then rough assumptions do not allow for more than tentative conclusions on the tax incidence on socio-economic groups (7). Regressive tax systems can be compensated for through the impact of benefits from government spending programs. Again expenditure incidence studies to quantify the impact are scarce and contain even more difficulties in analyzing the benefits for various socio-economic groups. Again some tentative conclusions may replace complete ignorance. Direct redistributive

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- (4) Which is normal practice in LDCs. Export taxes (on primary exports) are assumed to be a form of direct taxation as these cannot be easily passed on into export prices (which are determined in the world market) and can change the picture of the direct-indirect tax ratio, like in the case of Malaysia.
 - (5) Highest indirect tax revenues originate, however, from (unhealthy) mass-consumption items like liquor and tobacco fiscal monopolies.
 - (6) De Wulf (1975).
 - (7) Available incidence studies (on various cases), however, generally only refer to income classes and not to socio-economic groups. Cf. e.g. A. Foxley, E. Aninat and J.P. J.P. Arelland (1977), The Incidence of Taxation (case study on Chili), ILO Working Paper WEP 2-23/WP5 Geneva; De Wulf (1975); Ch. McLure (1972), "The Incidence of Taxation in West Malaysia", in: Malaysian Economic Review, Vol. 18, no. 2; J. Meerman (1979), Public Expenditure in Malaysia; Who Benefits and Why?, O.U.P., Oxford. Moreover in practice successful tax evasion generally reduces progressiveness of the tax system (esp. of personal income taxes), but it is extremely difficult to analyze the real impact of tax evasion.

effects of government spending (from the budget) may be limited. First, because a large share of government expenditure is channelled towards maintenance of the state apparatus and internal and external control of existing political system, i.e. public administration and defence (see table VI-5). Second, certain kinds of public spending may increase the existing pattern of inequality, e.g. concentration of infrastructural investment in urban areas and industrial estates. In Korea the argument holds especially for the 1960s. During the 1970s the picture is corrected as a higher share of expenditure is directed towards rural infrastructure, of which also rural lower income groups benefitted under the Saemaul Undong (New Community Movement) program (8). Thirdly, also programs of education, health and social welfare may fail to reach lower income groups, even though these expenditures account for over 20 percent of total government outlay (see table VI-5). In Korea the major share of these expenditure is absorbed by education. Though education by and large has reached the bulk of the population, there are some factors indicating at a direct regressive income impact: primary education is compulsory, but not free of all charges and middle and high schools fees are a heavy to poor families (9). Expenditure on health, social security and housing are low and thus contain little redistributive effects. The regressive effects may even be larger as health is less accessible in rural areas (a.o. higher transportation costs to reach health services in rural areas), medical insurance barely exists and costs of hospitalization are too high for most Koreans (10).

- 4) Financial intermediation: the firm grip of the state on the Korean banking system was already discussed in chapter IV. The Bank of Korea is controlled directly by government offices and its policies are inbedded in general economic policies. Commercial banking operations are restricted by government controls and strict credit regulations (many credits to private enterprises are earmarked for certain sectors). Significant government control of the banking system has been a major condition for pervasive monetary policies and rapid increases in financial intermediation. Radical interest rate reforms succeeded in mobilizing increasing levels of domestic (household) savings into the banking system. Agricultural and industrial credit policies through a largely controlled banking system substitute for the capital market.

(8) Cf. E.Lee (1978); Hasan and Rao (eds) (1979), ch. 7.

(9) F. Golladay and T. King, "Social Development", ch. 5 in: Hasan and Rao (eds) (1979).

(10) *ibid.*

5. Foreign aid and borrowing: the process of financing economic development in Korea is significantly characterized by a high level of foreign financing. U.S. foreign aid was of significant importance to finance the post-war reconstruction of the economy. The transition to export-led industrialization was financed to a large extent by U.S. aid, Japanese loans (after the Normalization Treaty in 1965) and foreign exchange earnings from military procurement (for the VietNam-war) and Won sales to U.N. military personnel. Commercial loans and private direct investments from abroad (the U.S. and Japan) in the latter half of the 1960s and in the 1970s took care of a high proportion of foreign financing of capital formation.
6. Money creation: inflationary financing is an often used residual form of financing, if structural disequilibria, capital market imperfections, and lack of political power to enforce tax reforms fail to mobilize sufficient domestic savings. The high level of foreign financing is still significant and appears to compensate for 'forced savings' through money creation (as has been argumented in chapters III and IV. However, money creation appears to increase as a form of financing government liquidity shortages and to have had significant impact on private consumption. Model simulations will have to clarify which socio-economic groups are affected most by the inflationary burden.

We may conclude that the state is significantly involved in (conditioning) the process of capital accumulation. It is our contention that the state has been more concerned with creating conditions for high economic growth than with redistributing economic gains. The direct overall impact of state policies has been regressive.

Why the state intervenes in a certain manner is not simply a matter of economic insight. It questions the nature of the state. The state has become a dominant actor in Korean society. Social structure was destructed after the wars. Landlords were further subjected to land reforms and industrial owning classes were a scattered social group after the separation of the peninsula into North and South Korea and the capital destruction during the wars. State dominance was heavily supported by U.S. aid. Under these conditions the South Korean state has played its role as agent of economic modernization, comparable in certain respects to the role of the Japanese state in the Meiji-period. But, also, economic development is necessary to rationalize political dictatorship. In the regime's ideological legitimation this is formulated as "for the sake of economic development, government must control all of Korean society".

The type of political leadership and the constraints on state intervention from the process of capital accumulation are important factors in the determination of the closure of the model system.

VI.2 Closure of the model system

What is meant by the 'closure of the model system'? It refers to the decisions to be made by the model builder concerning the mechanism through which supply and demand variables are brought into balance. Consequently it will also refer to an implicit or explicit, unconscious or conscious decision made on the behaviour of the dominant actors of the economic system. Political leadership may be assumed for certain socio-economic groups (e.g. land lords, modern sector employers, foreign investors) or the state. Certain socio-economic actors then are assumed to be more active and to dominate the other actors of the system.

The closure of the model system thus relates to the adjustment process of socio-economic group expenditure behaviour.

In a recent paper, Cohen has distinguished between four approaches of model closing mechanisms, i.e. fixed closure, flexible closure, bargaining closure, deterministic closure (11). We will not discuss the different 'closures' here. Reference is made to the Cohen paper, because, though the review of recent 'alternative' modeling efforts is excellent, it seems to confuse the identification of dominant actor behaviour with the closure of the model system. As was noted in the above both are related issues. However, Cohen does excellently clarify different approaches on modeling dominant group behaviour, but incorrectly uses the term closure. After identification of dominant socio-economic group behaviour, the model 'closure' will depend on further model specification. E.g. private investors may be assumed to enforce their behaviour (profit maximization) and then the model specification will determine whether for instance urban real wages or peasant incomes are the adjusting or 'closing' variables.

Not only the type of closure mechanism will be important to the specific closure of the model. The theoretical foundation(s) of the model system will be crucial as well. For instance, the sine qua non of a post-Keynesian or Kaleckian model is that savings adjust to investment demand and they stress income distribution shifts to allow for such adjustments. Neo-classical growth models assume that investments (and growth) are savings constrained. Savings in turn are determined by productivity and profit maximizing behaviour.

(11) S. Cohen (1970), "Towards a Social Group Approach in Economic Models", Paper prepared for the ISS-seminar on 'Models for Alternative Development Strategies', The Hague, 12-24 October 1980.

Closing mechanism (model adjustment) in both models takes place through the price system. However, in a neo-classical model the adjustment will be based on the price-equals-cost identity in production, whereas a post-Keynesian model would base the adjustment on the demand-equals-supply balance of gross output (i.e. of the accumulation balance) (12).

The model builder will have to be explicit on both the behaviour of the dominant actors of the economic system and the theoretical assumptions underlying the suggested specification of the model system.

(12) A comparison of post-Keynesian (or Cambridge, England) and neo-classical closures (with reference to Brazil) can be found in Taylor (1979) and Cardoso and Taylor (1980).

VI.3 Korean closure and the role of the state

We now can bring together the pieces of the closure mechanism, already supplied in the chapters II to V.

The state can be assumed to be the dominant actor with a certain qualitative target, i.e. economic growth (13). Other actors in the system (employers, modern and traditional labour groups) also will be assumed to behave in a certain manner, but without an explicit (macro-economic) target. Employers will try to maximize profits, but are dependent on conditions created by the external world and by the government. Working classes can be one of the dominant actors if they have significant influence in the determination of the wages. In the Korean case this influence is negligible as the degree of organization is insignificant, and social mobility due to rapid employment growth is high. Labour classes therefore will be assumed to be passive.

The total model system includes various closures in the sub-models (e.g. the closure of the internal terms of trade sub-model). We will restrict the analysis of the Korean closure to the accumulation balance. The state may set a certain growth target, but cannot do this purely voluntaristic, i.e. it is not just a matter of political will. The constraints under which such a target within an export-led growth strategy is to be pursued will be formed by:

- the type of investment behaviour;
- the determination of the wages; and
- external conditions (foreign demand and capital).

We may start with the latter 'constraint' as the external gap (M-E) fluctuates heavily in Korea, which is a general characteristic of the open economy. There is some endogenous coverage of the external gap through direct foreign investments (attracted by comparative wage cost advantages). Large part of the foreign exchange gap used to be covered exogenous by U.S. aid. Now the endogenous determined upward shift of imports (exceeding exports) is covered by large sums of foreign borrowing. Foreign borrowing cannot be an instrument to reach investment growth, but is a constraint depending on economic growth (credit worthiness) and political ties with the major suppliers of the funds (U.S. and Japan).

(13) One may explain the target as a function to rationalize political dictatorship.

Wage costs are an important variable in an export-led growth strategy. The state influences labour market conditions (trade union control, education), but productivity increases and labour market distortions (see par. V.3) have allowed for significant real wage increases. Wages will not be a closing variable as long as economic conditions remain as favourable as they are. The shift in export strategy towards more skill intensive manufactured products, reflects competition from economies with lower wages (Malaysia, Thailand, Sri Lanka). But it can be argued that it is also an external demand induced shift, as international market perspectives for labour intensive manufactured exports (as textiles) become less favourable with the inevitable growth of the number of suppliers.

In a mixed economy state policies are also dependent on private investment behaviour. Supply bottlenecks can be relieved by public investments and import allowances. Still the investment climate will have to be made favourable through investment incentives.

The above conditions are the constraints to the investment target. In a Kaleckian closure, savings (foreign and domestic) are assumed to be adjusted to the target investment rate (14). The conditions of development finance and the role of the state were already discussed in paragraph VI.1.

With the state as dominant actor, the accumulation balance will have to close through the government budget. The external deficit will be covered by direct private investment (ΔI_F), foreign borrowing (ΔF) and use of international reserves (ΔR). Foreign capital thus finances part of domestic capital formation. Domestic savings (by socio-economic groups, enterprises and the state) result from the income structures given by the production process. Enterprises appear as deficit units in the economy but are supplemented with foreign capital (direct investments and foreign loans through the banking system). It results that the adjustment process connected with the coverage of the government deficit will be the closure of the system. From ex-ante behaviour and given the investment target, it would result that

$$(I_g - S_g) > (S_p - I_p) + (M - E).$$

The excess government deficit (D), after foreign aid and borrowing (ΔF_g) needs to be covered by forced savings. Further adjustment of the model system goes through the price system. This will have to be analyzed from the workings of the full model. However, if price increases are assumed to be passed on to

(14) The Kaleckian or post-Keynesian closure is thought to be more realistic than a closure in which investments are constrained by savings. Arguments have been supplied in paragraph III.2.1.

(low) household incomes, they will affect private consumption. In real terms the closure means a transfer of funds from the private (household) sector to the state $(\Delta D \rightarrow \Delta p \rightarrow \Delta \frac{HOI}{p} \rightarrow - \Delta C_p)$.

High foreign exchange gaps in the mid 1970s created some attempts, a.o. through selective import substitution, to shift from a mainly external closure to a more important internal closure (15). The shift towards more capital-intensive manufactured export production, however, maintains heavy dependence on foreign capital and technology. An increasing share of the external deficit, however, is covered by autonomous capital inflows (ΔI_F). Economic growth and political ties with the U.S. and Japan are still adequately well to ensure high levels of accommodating financial inflows (ΔF). Economic and political dependence on the outside world thus remain and still forms a cornerstone to the political system. Legitimization of the type of political leadership by the Korean state will not be seriously threatened by working classes or peasants as long as incomes are rising and social mobility is high. The groups that are in the vanguard of political protest are rather the groups with higher education demanding for more political freedom (16). However, the 1980 uprising was not a mere student protest, but included regional discontent of smaller urban areas (Kwangshu) too. In the current situation more repression covers a deficit of legitimation and social consent.

STATISTICAL ANNEX TO CHAPTER VI.

(15) Foreign capital inflows dominated over money creation.

(16) It were student revolts that also led to the toppling of the Rhee regime in 1960.

Table VI-1. South Korea: Major economic policy measures (1947-1977)

Type of policies	Dates Applicable	Measures taken
Asset Redistribution	1947	Land reform (American auspices)
	1950	Land reform (domestically induced); maximum landholding of 3 cheongbo (= 3 ha).
	1947-1977	Education programs.
Trade Policies	(1953-63)	<u>Import substitution strategy</u>
	1955-62	Tariffs (ad valorem), quotas, prior deposit payments ¹⁾ , input license systems.
	1955-56; 1961-63	Direct export subsidies (a.o. 50 % reduction ²⁾ of direct taxes on export incomes).
	1959-63	Production loans.
	1959-63	Tariff exemptions on intermediate goods ³⁾ .
	1961-63	Tariff exemption on imported raw materials and spare parts.
	(1964-77)	<u>Export-led industrialization strategy</u>
	1964-72; 1965-72 ⁴⁾	Tariff exemptions on inputs of raw materials, spare parts for export industries and domestic suppliers.
	1964	Establishment of Korean Trade Promotion Corporation (KOTRA).
	1964-65; 1966-68	Export-import linking system; from 1968 on ad hoc basis.
	1964, 1968-75	Prior deposits payments ¹⁾ .
	1966-74	Increased tariff exemptions on imports of machinery and equipment for direct and indirect imports.
	1964-77	Imports of consumer durables and other luxury consumption goods largely prohibited.
	1970	Free Export Zone (Masan).
	1973	Abolishment of a number of incentive mechanisms as a reaction to excessive export profits a.o. due to appreciation of Japanese Yen; it included: abolishment of lower direct tax rates and automatic tariff exemption on capital good imports, reduction of wastage allowances and interest subsidies.
	1974-75	Rapid increase of import bill leads to modest system of selective import substitution: Selected tariff exemptions to certain imports (essential to manufacturing, must embody latest technology, must be non-competitive) and certain industries (agriculture, mining, manufacturing, electricity and railroad transport). Complete and automatic tariff exemptions are maintained for imports financed by foreign capital.

<u>Type of policies</u> (cont. 1)	<u>Dates Applicable</u>	<u>Measures taken</u>
Trade policies (continued)	1975-77	Tariff rebate on draw back system: tariffs on imported inputs for export production are paid at time of importation and rebated at time of exportation.
	1975-77	Incentives for establishment of large trading companies which produce and export on own account or act as exporting agents for smaller enterprises.
Investment policies	1964-77	Public investment in public enterprises (in social overhead and basic industries).
	1965-72 ⁴⁾	Wastage allowances.
	1966-72 ⁴⁾	Accelerated depreciation allowances; since 1972: special rates.
	1966-77	Establishment of industrial estates.
	1967-71	Reduced rates (prices) on public utilities.
	1967-71	Monopoly rights granted in new export markets; loss carry forward provisions.
	1970-77	Zoning regulations: attempt to spread manufacturing activities outside Seoul and Pusan; also 'green belt' creation around by cities.
	1968-77	Rural public investment under Saemaul Undong (New Community Movement) (with much finance from the World Bank). (see also tax and credit policies).
Labour market policies	1964-77	Trade union control.
	1968-77	Policies influencing rural-urban balance (internal terms of trade) and rural-urban migration: rural investment programs, Saemaul Undong Movement, Grain Management Fund and Fertilizer Fund (1970).
	1964-77	Education programs (high level of school enrolment in secondary professional education).
Tax policies	1962	Tax reform implemented.
	1966-68	Tax reforms effectuated, especially in improving tax administration and collection; progressive urban property taxes, taxes on capital gains.
	1968	Corporate taxes: - reduction for small corporations - increase for large corporations (but exempted by 50 % tax reduction on export earnings).
	1968	Income taxes: more progressive. Increase indirect taxes on consumption items.
	1972, 1974	Renewed reduction on corporate taxes; progressive reduction in income taxes on lower incomes.
	1975-77	Introduction of global income tax system. The new tax structure is less progressive for most incomes than total impact of schedular and global taxes under the old system.
	1975	Introduction of defense surcharges on corporations.

<u>Type of policies</u> (cont. 2)	<u>Dates Applicable</u>	<u>Measures taken</u>
Capital flow policies	1953-1977 1965	Direct U.S. aid to government. Normalization Treaty with Japan (inducing large capital inflows from Japan: loans and investments).
	1964-1977	Foreign capital and technological licensing agreements through Bureau of Foreign Investment Promotion of Economic Planning Board (all foreign investments are registered). (see also investment incentives and tax policies which contain special preferences for foreign investors).
	1966	Removal of limits on equity investment and profit remittances.
Monetary policies (interest rate and banking policies)	1954-67	Establishment of government owned banking institutions among which Korean Develop- ment Bank (1954), Medium Industry Bank (1961), Credit Departments for Agri- culture and Fishing (1961, 1962), Korea Housing Bank (1967), Korea Exchange Bank (1967).
	1965-68	Increase of official ceiling on nominal interest rate on time and savings deposits from 15 to 30 % (real interest rate becoming about 10 %).
	1970	Credit expansion allowances by reducing banking reserve requirements and compulsory deposits.
	1972	Compulsory reporting system for unofficial money lenders and debtor firms of all outstanding loans and debts in order to ban the curb (unofficial) money market.
(interest rate and banking policies)	1972	Reduction of bank deposit and reserve requirements.
	1974-76	Domestic credit restrictions to curb inflation.
(exchange rate policies)	1965	Abolishment of multiple exchange rate system.
	1964-65	Won devaluation (1961: 1 US \$ = 130 Won; 1964: 255 Won; 1965: 270 Won).
	1965-70	Graduate devaluations
	1974	Exchange rate stabilized at 1 US \$ = 484 Won.

<u>Type of policies</u> (cont. 3)	<u>Dates Applicable</u>	<u>Measures taken</u>
(credit policies for exports)	1964-77	Control of commercial banking credit emission by earmarking credits to export industries.
	1964-72 ⁴⁾	Export incentives: Production loans, BOK discount on export bills, capital loans through MIB, Off-shore procurement loans (a.o. for Viet Nam-war).
	1971-72 ⁴⁾	Foreign exchange loans.

Sources: Hasan (1976); Kim and Westphal (1977); Hasan and Rao (1979).
 However, no complete overviews of economic policies are available.
 The type of measures taken have been derived from the above descriptive
 studies and of the studies cited in previous chapters.

Notes:

- 1) I.e. advance deposit requirement under which part of the import value of
inputs used for export production has to be paid in advance.
- 2) The export promotion impact is only small (1960 export level only amounts
to 3.4 % of GDP).
- 3) The import substitution policies are mainly directed towards substitution for
non-durable consumer goods.
- 4) Sources only indicate at applicability of measure taken up to 1972.
No information available whether applicable after 1972.

Table VI-2. South Korea: Central Government Expenditure on Economic Services by Sector
(bln. Won, current prices)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
1. General Administration, Regulation and Research - Extrabudgetary Accounts	19.4 -	16.6 -	65.9 -	12.7 -	37.9 -	113.9 -	155.5 -	63.2 -	80.8 0.9	48.9 1.9
2. Agriculture, Forestry, Fishing - Extrabudgetary Accounts	30.0 -	33.1 0.2	39.5 0.2	40.5 0.6	52.3 0.4	129.1 0.1	118.6 0.8	147.7 1.0	165.6 2.5	536.8 32.0
3. Mining, Manufacturing Construction - Extrabudgetary Accounts	7.1 -	19.0 -	31.9 -	17.4 -	60.9 -	30.0 -	25.0 -	20.3 1.4	43.0 4.1	73.7 5.2
4. Electricity, Gas, Steam, Water	2.2	1.4	5.6	6.6	30.4	27.2	103.1	41.2	52.9	40.7
5. Roads	25.6	18.8	29.2	36.1	31.8	50.9	46.1	84.4	86.2	89.4
6. Inland and Coastal Waterways	6.0	6.8	7.5	9.0	10.5	24.5	47.5	40.0	45.0	101.4
7. Other Transport and Communications	4.8	3.3	2.6	2.0	9.4	4.5	7.0	14.6	39.1	127.9
8. Other Economic Services	8.5	9.9	10.1	8.9	19.1	10.3	12.4	31.4	57.2	203.7
Total Economic Services Expenditures by Central Government	103.6	108.9	192.3	133.2	252.3	390.4	515.2	442.8	569.8	1222.5

Source: IMF, Government Finance Statistics Yearbook, 1977-1980.

Table VI-3. South Korea: General Government Budget
(% of GDP, bln. Wons, current prices)

	1960	1963	1965	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Current Revenue ¹⁾	20.1	17.4	16.4	18.7	20.8	19.9	20.3	19.5	17.4	16.1	17.9	19.6	20.5	20.2
Current Revenue less Foreign Aid	13.0	12.1	11.9	15.7	18.6	18.4	19.3	18.8	16.9	15.8	17.3	19.5	19.9	20.0
Current Expenditures	16.0	13.0	10.6	12.1	12.8	12.6	12.7	13.2	13.4	11.7	15.0	14.5	14.2	14.9
General Government Savings ²⁾ (net of depreciation)	-3.0	-0.9	1.3	3.6	5.8	5.8	5.6	5.6	5.5	4.1	2.3	5.0	5.7	5.1
Depreciation	0.7	0.7	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5
Capital Transfers (net)	0.8	0.2	-0.1	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.6	-1.2	-0.6	-0.5	-0.7
Investments (S _g - I _g)	3.3 (-5.6)	3.6 (-3.8)	3.9 (-2.1)	5.0 (-0.9)	6.8 (-0.5)	8.2 (-2.0)	6.6 (-0.6)	6.2 (-0.1)	5.7 (0.2)	5.3 (-0.8)	4.2 (-1.5)	6.6 (-1.1)	5.0 (1.2)	6.2 (-0.6)
Net Lending:														
- Domestic (to other residents) (-/+)	-1.5	-1.5	-2.4	-2.1	-1.7	0.7	-0.4	-0.6	-0.7	0.5	0.9	0.7	-1.8	0.4
- From Abroad	7.1	5.3	4.5	3.0	2.2	1.5	1.0	0.7	0.5	0.3	0.6	0.4	0.6	0.2

Source: UN, Yearbook of National Accounts Statistics.

1) Including current transfers from rest of the world.

2) Excluding current transfers from rest of the world.

3) Including net capital transfers.

Table VI-4. Taxation by Central Government in Selected ESCAP Countries
(percentage distribution).

	South Korea (bln. Won)		Malaysia (mln. Ringgit)		Thailand (mln. Baht)		Philippines (mln. Pesos)		Bangla Desh (mln. Taka)
	1973	1978	1973	1978	1973	1978	1973	1977	1973
Total Tax Income (domestic currency)	586.4	3693.2	300.4	796.9	2265.4	5700.8	618.4	1711.0	1855.8
Tax Income as percentage of GDP	11.2	16.6	16.1	22.2	10.5	12.8	8.6	11.2	2.7
<u>Percentage distribution</u>									
1. Direct taxes on income, profits, capital gains	29.6	28.2	27.6	39.7	14.0	20.1	38.9	26.3	7.7
of which - personal	(9.3)	(14.6)	..	(9.7)	(7.5)	(8.9)	(10.5)	(15.7)	(-)
- corporate	(8.5)	(13.7)	..	(30.0)	(6.5)	(11.2)	(16.8)	(10.7)	(0.2)
- other	(11.8)	(-)	..	(-)	(-)	(-)	(11.6)	(-)	(7.5)
2. Social security contribution	1.0	1.0	0.3	0.6	-	-	-	-	-
paid by: - employees	-	-	..	..	-	-	-	-	-
- employers	(1.0)	(1.0)	..	..	-	-	-	-	-
3. Tax and property	4.3	0.5	1.4	0.5	1.2	1.5	0.9	0.7	3.1
4. Export duties ¹⁾	-	-	14.6	18.4	3.6	3.1	7.2	3.5	2.7
Total direct taxes	34.9	29.7	43.9	59.2	18.8	24.7	47.0	30.5	13.5
- on household incomes ²⁾	(22.1)	(15.5)	(..)	(9.7)	(7.5)	(8.9)	(22.1)	(15.7)	(7.5)
- on property and capital incomes ³⁾	(12.8)	(14.2)	(..)	(49.5)	(11.3)	(15.8)	(24.9)	(14.8)	(6.0)
5. Indirect taxes on goods and services	48.9	47.4	29.6	23.0	51.9	49.7	27.8	38.3	46.9
6. Import duties	14.1	20.8	24.7	16.6	28.2	24.9	24.0	24.9	34.9
7. Other taxes	2.2	2.1	1.6	1.2	1.1	0.7	1.2	6.3	4.8
Total indirect taxes	65.2	70.3	56.1	40.8	81.2	75.3	53.0	69.5	86.5
Total taxes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- on household incomes ⁴⁾	87.2	85.8	..	50.5	88.7	84.2	(75.1)	(85.2)	(94.0)
- on property and capital incomes	12.8	14.2	..	49.5	11.3	15.8	(24.9)	(14.8)	(6.0)

Source: IMF, Government Finance Statistics Yearbook, 1977-1980.

- 1) Export duties are accounted as direct taxes, as it seems plausible to assume that export duties cannot be passed on to the purchaser as prices are determined on international markets. Bargaining power balance between exporting agent and export producer (if separated) will determine who ultimately carries the burden.
- 2) Direct taxes on household incomes consist of personal income tax, employees social security contribution, and other direct taxes on income and capital gains.
- 3) Direct taxes on property and capital incomes consist of corporate tax, employers social security contribution and property tax and export duties.
- 4) Indirect taxes are assumed to be passed on to final prices and to be paid by households.

Table VI-5. Central Government Expenditure by Function in Selected ESCAP Countries
(percentage distribution)

	<u>South Korea</u>		<u>Malaysia</u>		<u>Thailand</u>		<u>Philippines</u>		<u>Bangla Desh</u>
	<u>1972</u>	<u>1977</u>	<u>1972</u>	<u>1977</u>	<u>1972</u>	<u>1977</u>	<u>1972</u>	<u>1977</u>	<u>1973</u>
1. General Public Services	11.9	10.6	15.3	19.8	11.9	9.2	9.0	15.4	16.1
2. Defence	25.8	36.0	18.5	17.5	19.5	18.7	10.1	19.0	5.1
3. Education	15.9	16.7	23.4	23.6	19.3	21.6	15.1	12.0	14.9
4. Health	1.2	1.7	6.8	7.4	3.6	4.5	3.0	4.6	5.0
5. Social Security and Welfare	5.0	5.0	3.4	2.0	3.3	3.6	3.3	1.8	9.8
6. Housing	0.8	0.8	1.0	0.2	3.5	2.3	0.7	1.2	-
7. Other Community and Social Services	1.3	0.8	2.1	1.6	0.6	0.4	0.2	0.5	0.7
8. Economic Services	25.6	15.8	14.2	12.1	24.5	22.9	16.4	34.2	39.3
9. Other Purposes	12.5	12.6	15.4	16.6	13.8	16.8	11.7	10.6	13.6
Suspense Account/Unallocated									-4.4
Adjustment to Cash Basis							30.5	0.7	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Central Government Expenditure as % of GDP	18.7	16.7	27.0	27.9	17.8	18.0	14.4	14.9	6.1

Source: IMF, Government Finance Statistics Yearbook, 1977-1980.

VII. MODELING METHODOLOGY AND DATA CONSISTENCY

VII.1 Methodology

The present chapter aims at supplying a tentative and preliminary working program for modeling the economies of the ESCAP-region.

The preceding study presents an as yet (incomplete) qualitative analysis of the South Korea economy as part of research project which aims at constructing alternative models for the ESCAP-region. In many respects the Korea study is to be considered as an example study. Much time was spent on searching for a methodology for a realistic approach to model a region as heterogeneous as the ESCAP-region. A first step which was made, has been the tentative development of a country typology emphasizing major differences between various economic structures (1). Each country has its own characteristics and peculiarities. This does not hold only in an economic sense, but also, if socio-political elements are introduced. The country typology will be used to incorporate the specific development issues of each country into the model system, and to stylize the country differences in order to be able to make a comparative study. The country typology was based on the following basic characteristics:

- 1) openness of the economy;
- 2) size of the economy;
- 3) demographic characteristics;
- 4) mineral resource richness or dependence on oil imports.

The relations between main categories such as international trade, population density and natural resource endowment influence production structures and income distribution.

In the cited paper a tentative analysis was given of the interrelations between the above factors for different types of economies. For reasons of analytical rigidity a dual polarity was designed between open and closed (small and large) and densely and sparsely populated economies. The focus of the analysis was on identifying differences in transfer mechanisms between agricultural (or primary) and non-agricultural sectors and differences in the role of international trade in the transfer processes. Transfer mechanisms were analyzed in terms of monetary flows (savings, taxation, international terms of trade and foreign capital) and 'real' flows (labour and commodities: food, raw materials). In correspondence with the criteria of the country typology (but also with more exogenously given political factors), different transfer mechanisms produce different accommodating variables per type of economy (imports, foreign or domestic investment, private consumption, etc.). The resulting income structures (intra- and inter- rural-urban income disparities) will require a different explanation per type of economy.

(1) See the project papers by Smit (1980) and Smit, Vos and Weyland (1980).

In order to be able to make a relevant comparative study, there needs to be a clear-cut procedure of country modeling, which will need to adapt to the following imperatives:

- 1) The country models will need to be comparable, therefore the main variables need to be the same, the structure of the model will be the same for each country and the modeling procedures to be followed should be equal for each country.
- 2) Model specifications result from subjective choices of the model builder, who therefore will have to clarify the assumptions made and the theoretical backgrounds used.
- 3) Aims and focus of the model need to be clarified.
- 4) The above imperatives will produce the wanted level of disaggregation. The model builder will have to clarify the criteria used to disaggregate towards socio-economic groups and sectors.
- 5) The closing procedure and mechanism of the model will have to be made explicit, which includes that the model builder will have to be conscious of which actors dominate the economy and which exogenous behaviour is assumed.
- 6) The position of the model builder towards the (possible) final users of the model or the target groups of the modeling exercise.

The ethics of the ESCAP-project, as it has proceeded up to now, contains the following elements:

- ad 1) The country typology will be used as an analytical basis around which the country models are to be constructed. The suggested modeling procedure is treated below.
- ad 2) The theoretical backgrounds as they have been clarified up to now convey a bit of an eclectic picture. Development theories have been used for the various composing parts of the model. Dualism theories by Lewis and Fei and Ranis have been used in the construction of the country typology, where the relation between agricultural and non-agricultural sectors has been considered crucial in the development process. The process of capital accumulation contains elements from dualism theories as well as from post-Keynesian and Kaleckian theories of development finance. Investment decisions have been considered to determine saving behaviour and not the other way around. The institutional setting has been taken as the initial determinant of the process of income distribution and capital accumulation, the resulting final demand structure produces the dynamics of income distribution, which fits into the tradition

of (post-) Keynesian thought. Labour market modeling does not rest on one clear-cut theoretical background, but reference is made to dualism theories and some derived neo-classical statements (the relation between labour demand, wages and productivity). Other issues like production functions, consumer behaviour and population growth have to be elaborated on in subsequent analyses.

- ad 3) Models can be used for economic planning, policy simulation or theoretical analysis. Primary aim of the ESCAP-project is to make a realistic diagnosis of the relevant development issues of the ESCAP-regions, in order to analyse the linkage between international trade, demographic characteristics, production structure and income distribution. The focus of the model is towards the changes in the living conditions of distinctive socio-economic groups in the countries concerned, which will be analyzed through the following elements: a) income structures; b) income levels; c) food production and consumption.

- ad 4) Major disaggregation is towards socio-economic groups and modern and traditional production sectors. The criteria for classification of socio-economic groups have been clarified in paragraph V.1.1. The classification was based on: mode of production (employers versus workers, modern sector versus traditional sector); sector; location (rural, urban) and education (skilled versus unskilled). Thus the classification of households into socio-economic groups is suggested to coincide with the mode of production (economic status) and occupational structure. Production sectors should be classified in such a way that they are homogenous in: size of the firm; traditional or modern production methods and tradability. Identification of traditional and modern activities will meet, aside from theoretical difficulties, many statistical difficulties. One may adopt several criteria to demarcate both sectors, such as: a certain level of labour productivity, level of education of production workers, average size of the firm, listing of certain types of activities. We will be pragmatic and draw the line according to size of the firm in terms of number of people employed as wage labourers (the demarcation line could be around 5 employees).

- ad 5) Methods for the closure of the model were presented in paragraph VI.2. The Korean closure was explained in paragraph VI.3. The closing mechanisms as such will differ in each type of country, depending on the economic structure and the balance of power between socio-economic groups.

ad 6) Modeling aims have been put largely in academic tradition. The ESCAP Development Planning Division and Institutions in ESCAP-member countries are to become participants in the project. Policy targets towards governments or other institutions of the countries involved have not been formulated. It can be argued that another set of models and computer output will be difficult to digest. It is thought, however, that the inclusion of social variables and socio-economic groups into models on the ESCAP-region, will contribute to a better understanding of the regional development issues and to more realistic model building.

VII.2 The modeling process

When a clear-cut idea of the modeling effort is formulated, one can design the modeling process. The modeling process can be divided into 5 general phases:

- 1) Qualitative analysis on the functioning of the political-economic process of the country involved. Causal relations between the main aggregates should be supported by some data analysis. Determination of socio-economic group classification and level of disaggregation.
- 2) Model specification, i.e. formalization of the causal relations found and identifying the model closure.
- 3) Further data gathering and quantification of the variables specified.
- 4) Data compilation, consistency checks and parameter estimation procedures.
- 5) Testing the model behaviour, finding an algorithm for solving of the model.

After completion of the country models the final step will be:

- 6) Comparative analysis of structures and results, and establishing inter-country linkage systems.

The progress of the Korea-model is somewhere in the middle of phases 1 and 2. Many of the elements for model specification are already available, but still need formalization. After completion of model specification, data collection for model quantification is the next step. Paragraph VII.3 gives suggestions of sources from which major data can be compiled.

Specific steps in the model specification procedure can be derived from scheme V-2, which relates to the Korea-model; the general specification procedure can be followed for the other studies as well. The composing parts of the flow chart can be divided into the following steps going from macro to micro levels and vice versa.

- 1) Because capital accumulation is seen as the core of the process of growth and income distribution, the procedure starts with modeling the determinants of the process of capital accumulation. Investment and savings behaviour (primarily disaggregated by institutions: households, enterprises and the state) is linked with export and import structures and gaps. Monetary equations should be added to complete flow of funds analysis. Aggregate consumption will have to be modelled consistently with the macro variables above within a national accounts framework.
- 2) Specification the wanted level of disaggregation to sectors and socio-economic groups.
- 3) Specification of the production structure around a split between rural and urban sectors and according to ownership pattern (firm size, foreign and domestic ownership), technology (modern and traditional), type of activity and market orientation (domestic and foreign) (2). Assumptions on firm behaviour (e.g. profit maximization) will have to be made explicit.
- 4) Construction of the labour market sub-model which coincides with the occupational structure. Labour demand should be linked to the production structure. Labour supply can be derived block recursive from the demographic and education block.
- 5) Income distribution equations will have to reconcile socio-economic group specification and can be generated in different steps:
 - a) Distribution of value added into wages and profits from the production accounts;
 - b) Distribution of value added into wages and profits from the labour market sub-model. Wages are specified according to labour type and production sectors. Profits are calculated as a residual.
 - c) Distribution of wages and profits after taxes and before transfers.
 - d) Distribution of wages and profits after taxes and after transfers.
 - e) Distribution of incomes by households (redistributed incomes by socio-economic groups), enterprises (retained profits) and government (government revenue after current expenditure, i.e. government savings).

(2) The latter two specifications have been used to reshuffle input-output sectors for a World Bank model on Korea. See S. Gupta, "Macro economic Model", in: Hasan and Rao (eds) (1979), Appendix A. The sector classification is based on the BOK, "1973 Input-Output Tables" and is reproduced in Appendix VII-1.

- 6) Derivation of consumption and savings behaviour by socio-economic group from an analysis of household budget surveys.
- 7) Linkage of production structure, employment structure, income formation and distribution, capital accumulation and final demand structure.
- 8) Formulation of the gaps and design of the closing mechanism.

Following steps are the quantification of the variables, data consistency check and parameter estimation, and the feedback on the model specification.

VII.3 Data gathering and data consistency

In order to attain data consistency, it will be preferable to use data sources as much as possible from the same institution, which is assumed to have its own consistency checks. In Korea, the Bank of Korea (the Central Bank) is a major supplier of statistics. The BOK supplies input-output tables, as well as national income accounts and flow of funds. Table VII-1 lists a number of major sources from which basic data can be gathered. It means that most of the statistics used in the previous chapters have served the mere aim of supporting the qualitative analysis and will not be directly used for the model quantification. Non-availability of the wanted data sources prevented immediate model quantification. The time invested in compiling data from other statistical sources is not wasted because of its usefulness for the qualitative study and, of course, a process of learning-by-doing has been involved, from which hopefully some fruits can be reaped in the further progress of the project.

Table VII-1. DATA SOURCES AND DATA-GATHERING

<u>Model section</u>	<u>Source</u>
<u>1. Production and Factor Supply</u>	
Employment by sector and labour type	(1) ILO, Yearbook of Labour Statistics. (2) BOK, I-O accounts. (3) National Employment Surveys.
Investments by sector, firm size and institution	(1) BOK, I-O accounts. (2) BOK, National accounts. (3) EPB, Manufacturing census (4) Min. of Agr. and For., Yearbook of agriculture and forestry statistics. (5) BOK, Flow of funds.
Production by sector and commodities	(1) BOK, I-O accounts. (2) EPB, Manufacturing census. (3) Min. of Agr. and For., Yearbook of agriculture and forestry statistics.
<u>2. Income formation and income structure</u>	
Wages and profits by sector, labour type and firm size	(1) BOK, I-O accounts. (2) BOK, National accounts. (3) Above employment data. (4) BOK, Wage surveys. (5) EPB, Manufacturing census. (6) Min. of Agr. and For., Yearbook of agriculture and forestry statistics.
<u>3. Redistribution of incomes</u>	
Taxation and transfers:	
direct taxes	(1) Office of National Tax Administration (Gort. of ROK), Statistical Yearbook of National Tax. (2) BOK, National accounts.
indirect taxes	(1) I-O accounts. (2) Above tax survey.
transfers	(1) BOK, Flow of funds (2) BOK, National accounts. (3) EPB, Family income and expenditure surveys (urban households) (4) Min. of Agr. and For., Farm household economic surveys.
Income distribution by socio-economic groups after transfers and taxation	(1) EPB, Family income and expenditure surveys (urban households). (2) Min. of Agr. and For., Farm household economic surveys. (3) BOK, National accounts. (4) Findings from above data.

Table VII-1 (cont.)

<u>Model section</u>	<u>Source</u>
<u>4. Flow of funds</u>	
Investments by sector, firm size and institution	(1)-(5) above data sources.
Household savings by socio-economic group	(1) BOK, National accounts. (2) EPB, Family income and expenditure surveys (urban households). (3) Min. of Agr. and For., Farm household economic surveys.
Enterprise savings (retained profits) by sector and firm size	(1) BOK, I-O accounts. (2) BOK, National accounts (3) EPB, Manufacturing census. (4) Min. of Agr. and For., Yearbook of agriculture and forestry statistics.
Government savings	(1) BOK, National accounts. (2) BOK, I-O accounts (which also give government investment and current expenditure).
Transfers through monetary system	(1) BOK, Flow of funds.
Foreign savings (current account and capital inflows)	(1) BOK, I-O accounts. (2) BOK, Flow of funds. (3) BOK, National accounts.
Obtain full data consistency through Input-Output tables, National Accounts and Flow of Funds accounts.	
<u>5. Final demand structure</u> (excl. investments)	
Private consumption by socio-economic group and type of expenditure	(1) BOK, I-O accounts. (2) EPB, Family income and expenditure surveys (urban households). (3) Min. of Agr. and For., Farm household economic surveys.
Government consumption by type of expenditure	(1) BOK, I-O accounts.
Exports by sector and type of commodity	(1) BOK, I-O accounts.
Imports by sector and type of commodity (competitive; non-competitive)	(1) BOK, I-O accounts
<u>6. Inter-industry deliveries</u>	(1) BOK, I-O accounts.

Table VII-1 (cont. 2)

<u>Model section</u>	<u>Source</u>
7. <u>Price system</u>	
Exchange rates	(1) IMF, International Finance Statistics.
Consumer prices	(1) EPB, Family income and expenditure surveys (urban households). (2) Min. of Agr. and For., Farm household economic surveys. (3) BOK, National accounts.
GDP deflators	(1) BOK, National accounts.
World market prices	(1) UN, Commodity trade statistics.
Product prices	(1) BOK, I-O accounts. (2) BOK, Price statistics summary.
Interest rates	(1) BOK, Economic Statistics Yearbook.

BOK = Bank of Korea

EPB = Government of Republic of Korea, Economic Planning Board

ROK = Republic of Korea

Note: Bank of Korea, National accounts and flow of funds are recently also covered in BOK, Economic and Statistics Yearbook.

Full data consistency is to be obtained through a data compilation system of national accounts and social accounts (SAM). Emerging statistical discrepancies between various sources should be ruled out, e.g. by iteration procedures.

Complications in data compilation will arise because most current accounting frameworks are not oriented towards providing the level of specification and thus the data base for studying income distribution issues in the type of modeling as is suggested here. In certain cases (data sources) it will be a matter of reshuffling the classification of data. In most cases, however, we will have to go through a process of revising and piecing together of disparate data sets. This will mean that also the data compilation may require an additional set of assumptions (from economic theory and econometrics). However, it will not necessarily mean that one moves away from reality as long as one tries to maintain accounting consistency, preferably with national accounts and input-output relations.

A method of attaining such a consistency check and which is increasingly suggested as a basic accounting framework of development models, is the construction of a Social accounting matrix (SAM) ⁽³⁾. A SAM maps production accounts together with social accounts supplying information on income distribution and employment according to institutions and socio-economic groups. Scheme VII-1 presents a SAM in a more or less generalized form. Social structure and sectoral disaggregation can be specified according to model requirements and country characteristics. The rows of the framework present total receipts of the economy, i.e. incomes of production factors, socio-economic groups, enterprises and government; acquisition of funds through the capital account by households (socio-economic groups), enterprises, the government sector and foreign financing (net capital inflow); and total sales of production sectors (incl. imports). The columns present total expenditures or income outlays of the economy, i.e. consumption, savings and investments by institutions and total costs of production activities.

Institutions have been distinguished into labour and capital households, modern and traditional enterprises and the public sector (general government and public enterprises). Labour households can be split into 5 socio-economic

(3) From a discussion of the theoretical background and for a detailed account of the SAM approach, see Pyatt and Thorbecke (1976), Pyatt, Roe and associates (1977), Pyatt and Round (1977). SAMs have been constructed for a.o. Sri Lanka (Pyatt, Roe (1977), Malaysia (Chander, et.al. 1980), Swaziland and Iran (see Pyatt and Round, 1977), Thailand (Grais, 1980). All differ with respect to disaggregation, zero accounts and classification.

groups, i.e. one group of rural workers, and four groups of urban workers (modern sector skilled and unskilled labourers, traditional sector workers and government employees) (4). Capital households may refer to for instance three groups of owners, i.e. peasants, modern sector employers, professionals and managers, and traditional sector self-employed.

Also the number of production sectors(6) is rather tentative and can be varied according to model requirements. Intersectoral transfers are also tentatively indicated in scheme VII-1. From there it is possible to follow the circular flow of income throughout the economy. Production factors are paid from output of production activities in the form of wage incomes and profit incomes. Wages and profits are redistributed (after transfers and taxation) into household incomes, retained profits and government savings.

The output of production activities and imports are purchased by households (consumption), enterprises (investment), government (consumption and investment) and the rest of the world (exports). The SAM thus consistently reveals the source of income received by socio-economic groups and institutions and then traces incomes through to expenditure. Consistently mapping of all receipts and expenditures for each sector and institution means that all row sums must equal all column totals.

Consistency check of less reliable and disparate data can be obtained best, if at least income and income outlay totals and inter-industry totals match national income accounts totals and input-output table totals.

It will be evident that the SAM is no more than an accounting framework. In itself the SAM does not produce causal relations for the model. Moreover, it only presents the registration of the circular flow of the economy at one point in time. As such it is no more than an extended integration of input-output relations, national accounts and social accounts.

After obtaining data consistency the model can be set on trial in the computer.

(4) Of course, more types of labour can be distinguished, such as between rural labourers a distinction can be relevant between large scale (plantation) workers and traditional agricultural workers.

Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
		1. Factor of prod.	2a. Labour households	2b. Capital households	3. Enterprises	4. Government	5a. Labour households	5b. Capital households	6a. Modern enterprises	6b. Traditional enterprises	7. Government	8. Rest of the world	9. Rest of the world	10. Modern Agriculture	11. Traditional Agriculture	12. Infrastructure	13. Industry and Mining	14. Modern Services	15. Traditional Services			
1. Factor of production (Capital and land)																				Income of Domestic Factors of Production (GDP Factor)		
2a. Labour households	Labour income			Profits distributed to households	Transfers								Modern enterprises				Profits	Profits	Profits	Income of Domestic Labour households (after transfers)		
2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7. Modern enterprises				Retained profits after tax																Acquisition of funds by capital households		
8. Traditional enterprises				Retained profits after tax																Acquisition of funds by modern enterprises		
9. Government					Government current account surplus (deficit)															Acquisition of funds by traditional enterprises		
10. Rest of the world																				Acquisition of funds by government		
TOTALS																				Total foreign financing (net capital inflows)		

Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
		1. Factor of prod.	2a. Labour households	2b. Capital households	3. Enterprises	4. Government	5a. Labour households	5b. Capital households	6a. Modern enterprises	6b. Traditional enterprises	7. Government	8. Rest of the world	9. Rest of the world	10. Modern Agriculture	11. Traditional Agriculture	12. Infrastructure	13. Industry and Mining	14. Modern Services	15. Traditional Services			
1. Factor of production (Capital and land)																				Income of Domestic Factors of Production (GDP Factor)		
2a. Labour households	Labour income			Profits distributed to households	Transfers								Modern enterprises				Profits	Profits	Profits	Income of Domestic Labour households (after transfers)		
2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7. Modern enterprises				Retained profits after tax																Acquisition of funds by capital households		
8. Traditional enterprises				Retained profits after tax																Acquisition of funds by modern enterprises		
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TOTALS																				Total foreign financing (net capital inflows)		

Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
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2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7. Modern enterprises				Retained profits after tax																Acquisition of funds by capital households		
8. Traditional enterprises				Retained profits after tax																Acquisition of funds by modern enterprises		
9. Government					Government current account surplus (deficit)															Acquisition of funds by traditional enterprises		
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Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
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2a. Labour households	Labour income			Profits distributed to households	Transfers								Modern enterprises				Profits	Profits	Profits	Income of Domestic Labour households (after transfers)		
2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
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Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
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2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7. Modern enterprises				Retained profits after tax																Acquisition of funds by capital households		
8. Traditional enterprises				Retained profits after tax																Acquisition of funds by modern enterprises		
9. Government					Government current account surplus (deficit)															Acquisition of funds by traditional enterprises		
10. Rest of the world																				Acquisition of funds by government		
TOTALS																				Total foreign financing (net capital inflows)		

Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
		1. Factor of prod.	2a. Labour households	2b. Capital households	3. Enterprises	4. Government	5a. Labour households	5b. Capital households	6a. Modern enterprises	6b. Traditional enterprises	7. Government	8. Rest of the world	9. Rest of the world	10. Modern Agriculture	11. Traditional Agriculture	12. Infrastructure	13. Industry and Mining	14. Modern Services	15. Traditional Services			
1. Factor of production (Capital and land)																				Income of Domestic Factors of Production (GDP Factor)		
2a. Labour households	Labour income			Profits distributed to households	Transfers								Modern enterprises				Profits	Profits	Profits	Income of Domestic Labour households (after transfers)		
2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7. Modern enterprises				Retained profits after tax																Acquisition of funds by capital households		
8. Traditional enterprises				Retained profits after tax																Acquisition of funds by modern enterprises		
9. Government					Government current account surplus (deficit)															Acquisition of funds by traditional enterprises		
10. Rest of the world																				Acquisition of funds by government		
TOTALS																				Total foreign financing (net capital inflows)		

Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
		1. Factor of prod.	2a. Labour households	2b. Capital households	3. Enterprises	4. Government	5a. Labour households	5b. Capital households	6a. Modern enterprises	6b. Traditional enterprises	7. Government	8. Rest of the world	9. Rest of the world	10. Modern Agriculture	11. Traditional Agriculture	12. Infrastructure	13. Industry and Mining	14. Modern Services	15. Traditional Services			
1. Factor of production (Capital and land)																				Income of Domestic Factors of Production (GDP Factor)		
2a. Labour households	Labour income			Profits distributed to households	Transfers								Modern enterprises				Profits	Profits	Profits	Income of Domestic Labour households (after transfers)		
2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7. Modern enterprises				Retained profits after tax																Acquisition of funds by capital households		
8. Traditional enterprises				Retained profits after tax																Acquisition of funds by modern enterprises		
9. Government					Government current account surplus (deficit)															Acquisition of funds by traditional enterprises		
10. Rest of the world																				Acquisition of funds by government		
TOTALS																				Total foreign financing (net capital inflows)		

Expenditure		Capital Account										Current Account					Current Account					TOTALS
		Institutions					Institutions					Production					Activities					
		1. Factor of prod.	2a. Labour households	2b. Capital households	3. Enterprises	4. Government	5a. Labour households	5b. Capital households	6a. Modern enterprises	6b. Traditional enterprises	7. Government	8. Rest of the world	9. Rest of the world	10. Modern Agriculture	11. Traditional Agriculture	12. Infrastructure	13. Industry and Mining	14. Modern Services	15. Traditional Services			
1. Factor of production (Capital and land)																				Income of Domestic Factors of Production (GDP Factor)		
2a. Labour households	Labour income			Profits distributed to households	Transfers								Modern enterprises				Profits	Profits	Profits	Income of Domestic Labour households (after transfers)		
2b. Capital households				Profits distributed to households	Transfers								Modern enterprises							Income of Domestic Capital households (after transfers)		
3. Enterprises	Capital income				Transfers															Income of Domestic modern enterprises (after transfers)		
4. Enterprises	Income				Transfers															Income of Domestic traditional enterprises (after transfers)		
5. Government		Direct taxes	Direct taxes	Direct taxes	Direct taxes								Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Indirect taxes	Total current government revenue		
6. Rest of the world																				Acquisition of funds by labour households		
7.																						

APPENDIX VII-1

Sector Classification World Bank-model

<u>17-sector classification</u>	<u>Equivalents in the 53-sector classification</u>
1 Grains	1 Part of agriculture and forestry
2 Other agriculture	1 Part of agriculture and forestry
	2 Fishing
3 Mining including oil	3 Coal
	4 Metallic ores
	5 Nonmetallic minerals
4 Heavy, labour-intensive, export-oriented manufacturing	34 Electronics
5 Heavy, capital-intensive, export-oriented manufacturing	23 Rubber products
6 Heavy, labour-intensive, domestic-oriented manufacturing	32 Nonelectrical machinery
	33 Industrial electrical machinery
	35 Household electrical machinery
	36 Shipbuilding and repairing
	37 Railroad transport
	38 Motor vehicles
	39 Precision and optical products
7 Heavy, capital-intensive, domestic-oriented manufacturing	14 Pulp, paper, and paper products
	16 Inorganic chemicals
	17 Organic chemicals
	18 Chemical fertilizers
	19 Synthetics
	20 Other chemicals
	21 Petroleum products
	22 Coal products
	24 Cement
	25 Glass, clay, and stone products
	26 Iron and steel
	27 Rolled steel
	28 Steel pipes and plated steel
	29 Cast and forged steel
	30 Nonferrous metals
	31 Metallic products
8 Light, labour-intensive, export-oriented manufacturing	9 Fabrics
	10 Finished textiles
	11 Leather and leather products
	40 Other manufactures
9 Light, capital-intensive, domestic-oriented manufacturing	6 Processed foods
	7 Beverage and tobacco
	15 Printing and publishing
10 Light, labour-intensive, domestic-oriented manufacturing	13 Wood products and furniture
11 Light, capital-intensive, export-oriented manufacturing	8 Fiber spinning
12 Trade (retail and wholesale), banking, and insurance	12 Lumber and plywood
	45 Banking and insurance
13 Dwellings	49 Commerce
	46 Housing
14 Education, health and other services, including public administration	50 Education
	51 Health
	52 Other services

17-sector classificationEquivalents in the 53-sector classification

15	Transport and communications	47	Communications
		48	Transport and storage
16	Electricity	43	Electricity
		44	Water and sanitary services
17	Residence, buildings, and other construction	41	Residence and buildings
		42	Public and other constructions

Source: Hasan and Rao (eds.) (1979), pp. 417-418.

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