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THE FOREIGN ASSISTAI^ICE REQUIREMENTS OF THAILAND: A QUANTITATIVE ANALYSIS

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A THESIS

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CHAPTER I

INTRODUCTION

Capital accumulation is a necessary but insufficient condition for economic grov/th and development. The inability of less developed countries (LDC's) to generate adequate levels of domestic saving to finance the levels of investment required for significant growth results in the need for supplementary external investment resources. Consequently, the nature and sources of development assistance available and the contributions and limitations in the development plans and activities of the LDC's have been the subjects of much study recently.

The importance of efficiently used foreign financial assistance in achieving satisfactory economic growth and development targets is widely accepted by both theoretician and practitioner. In recent years several studies have been carried out which have examined the constraints to economic growth and development provided by inadequate savings and foreign exchange (for example, see 1, 4, 7, 11, and 12).

In the absence of significant foreign private capital inflows and foreign public assistance inflows, the amount

of foreign assistance available for importation of goods and services required for important development projects is determined by the value of exports. In the case of Thailand the value of exports and imports have been projected by the International Bank for Reconstruction and Development Mission (IBRD), by the office of the National Economic Development Board of Thailand (NEDB) and by the United Nations Economic Commission for Asia and the Far East (ECAFE)• These projections are presented in Table 1. These studies, ho'w'ever, did not project foreign assistance requirements and are for the period of Thailand's second national development plan, from 1967 through 1971. The ECAFE study did project the foreign exchange constraint for that period.

Hollis B. Chenery and several associates over the past few years have developed an approach for estimating the foreign financial assistance "requirements" of develop-- ing countries (1, 11, 12, 13, 14, and 15).^ The term "requirements" means the quantity of foreign financial assistance needed if the target growth rate is to be achieved and maintained under the assumed conditions. Chenery and Strout have estimated the values of some of the variables

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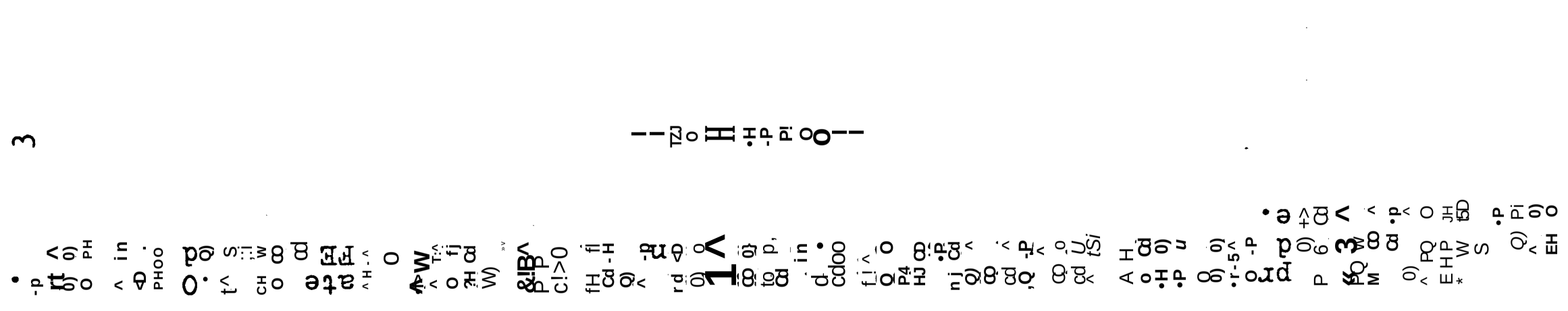
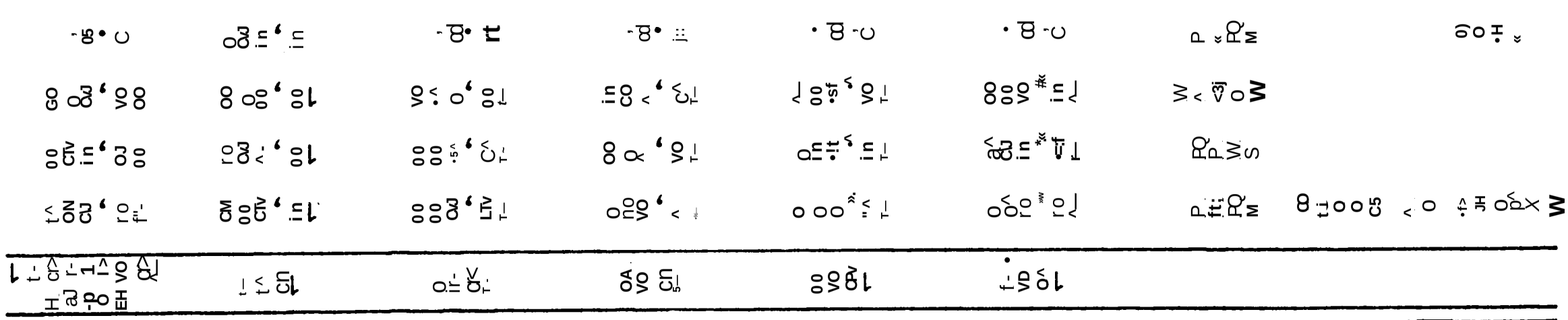
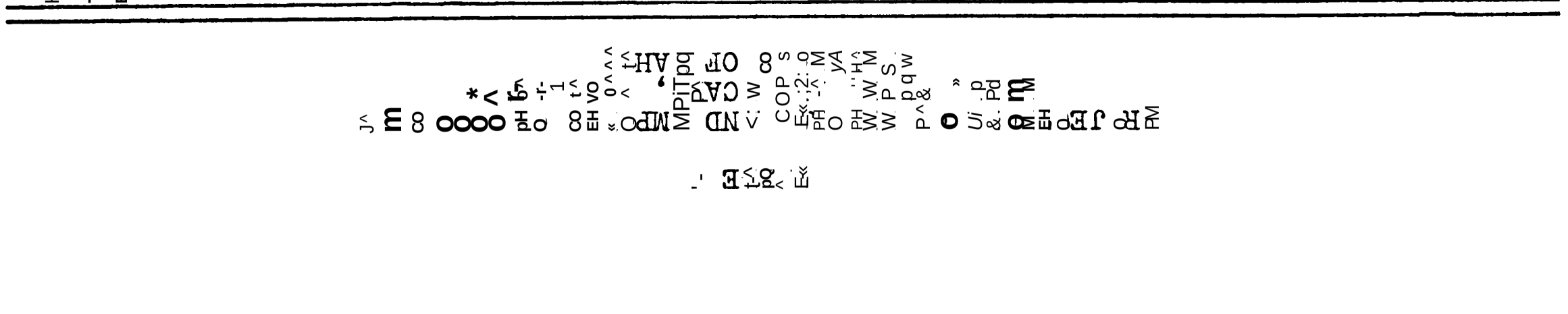
*The literature concerned v/ith this approach is dealt with in greater detail in Chapter III.







		1975	1980	1985	1990	1995	2000
Middle East	Population	4.8	5.6	6.5	7.6	8.9	10.4
	GNP	1,000	1,200	1,500	1,800	2,200	2,700
	Per capita GNP	208	214	231	237	247	260
	Military expenditures	20.0	24.0	28.8	34.6	41.5	49.8
	Per capita military expenditures	4.2	4.3	4.4	4.6	4.7	4.8
	Military expenditures as percent of GNP	2.0	2.0	1.9	1.9	1.9	1.9
	Military manpower	1,000	1,000	1,000	1,000	1,000	1,000
	Per capita military manpower	0.2	0.2	0.2	0.2	0.1	0.1
	Military manpower as percent of population	0.4	0.4	0.3	0.3	0.3	0.2
	Weapons systems	0.2	0.2	0.2	0.2	0.2	0.2
	Per capita weapons systems	0.0	0.0	0.0	0.0	0.0	0.0
	Weapons systems as percent of military manpower	0.2	0.2	0.2	0.2	0.2	0.2
	Weapons systems as percent of military expenditures	0.1	0.1	0.1	0.1	0.1	0.1
Israel	Population	3.6	4.2	4.9	5.7	6.6	7.7
	GNP	15,000	18,000	21,600	25,900	31,100	37,300
	Per capita GNP	4,167	4,286	4,408	4,544	4,712	4,844
	Military expenditures	4.5	5.4	6.5	7.8	9.3	11.2
	Per capita military expenditures	1.3	1.3	1.3	1.4	1.4	1.5
	Military expenditures as percent of GNP	30.0	30.0	30.0	30.0	30.0	30.0
	Military manpower	105,000	105,000	105,000	105,000	105,000	105,000
	Per capita military manpower	0.029	0.025	0.021	0.018	0.016	0.014
	Military manpower as percent of population	2.9	2.5	2.1	1.8	1.6	1.4
	Weapons systems	1,000	1,000	1,000	1,000	1,000	1,000
	Per capita weapons systems	0.000	0.000	0.000	0.000	0.000	0.000
	Weapons systems as percent of military manpower	1.0	1.0	1.0	1.0	1.0	1.0
	Weapons systems as percent of military expenditures	0.3	0.3	0.3	0.3	0.3	0.3

Source: Bonnie Cordell, Political Violence in the Middle East: Projections for the Next Decade (Bangor, 1968), p. 4.

needed for a projection of Thailand's foreign assistance requirements for a target GNP growth rate of 5 per cent from the year 1962 (14). They did not, however, develop the projections of Thailand's foreign financial assistance requirements.

Purpose

The purpose of this study is twofold: to develop a projection model for the projection of Thailand's foreign assistance requirements and to develop projections of those requirements for alternative growth rate targets and iinder different circumstances for the period from 1969 through 1975.

Thailand has experienced relatively rapid growth in recent years but faces great uncertainty with respect to the prospects for maintaining accelerated growth. If projections of foreign assistance requirements were available for a number of alternative sets of future possible circumstances and if probabilities were assigned to each alternative set, estimates of future foreign assistance requirements could be made which would be useful to policy makers. In this study a method for projecting foreign assistance requirements is illustrated and projections are developed for two possible future cases.

Method

The general approach followed is the so-called "two-gap" approach developed by Chenery and others. According to this approach rapid economic growth in less developed countries is characterized by disequilibrium conditions rather than neoclassical equilibrium conditions. For significant growth rates *ex* ante investment will be greater than savings and *e]^* ante imports will be greater than exports. The difference between the first two £x ante magnitudes can be called the savings gap and the difference between the second two can be called the trade gap. The foreign assistance requirement, if the target rate of growth is to be achieved, is equal to the larger of the two gaps. The two-gap approach is explained in greater detail in Chapter III.

The model developed for this study is a fixed parameter projection model. It is highly aggregated and was derived to a considerable extent from a model developed by Chenery and Strout (14). Data from the period from 1962 through 1968 were used to derive the parameters of the behavioral equations. The complete model is presented and explained in Chapter IV^

Scope and Limitations

The scope of this study is limited to the development of the projection model and to projecting the foreign

assistance requirements of Thailand for the period from 1969 through 1975 for two prospective cases^ The first case assumes that the projection period will be a continuation of the economic trends which existed in the previous seven years. The second case differs from the first case by its assumption that United States military expenditures in Thailand will decrease during the projection period. The nature of the second case is explained more fully in Chapter V.

The projections which are developed are neither forecasts nor estimates. They are instead indicators of the financial assistance requirements given the assumed conditions and the assumed growth rate target.

The limitations of the general two-gap approach are discussed in Chapter III. The limitations imposed by the specific model formulated for this study are brought out in Chapters IV and V. The limitations imposed by the uncertainties associated with military activities in Southeast Asia have already been mentioned. The impact and significance of U. S. military expenditures in Thailand are discussed in some detail in Chapters II and V. The limitations imposed by the nature and adequacy of data are discussed below. Although the limitations imposed upon this study are significant, many of them are those

typically encountered in economic development studies and the problem dealt with here is of such importance that studies of this type are quite beneficial despite their limitations. Similar conclusions were reached in a report by the Expert Group on the Uses of Analytical Techniques to the Organization for Economic Co-operation and Development (37: 51-62).

Data Sources

The major primary data sources for this study are the "National Income of Thailand, 1969" (mimeographed) and the reports of the Bank of Thailand. Some data were obtained directly from goverrimental agencies in Thailand and some data v/ere obtained from the United Nations Year-book of National Account Statistics.

The 1969 edition of the National Accounts of Thailand provides data for the period from I96I through 1969. It contains the latest available data. The data for 1969 were not used because of their highly preliminary nature.

There are two types of data limitations: those limitations imposed due to the lack of data and those imposed due to the reliability of the data. Both types of limitations were encountered in this study. The lack of reliable national income account data for 1969 and 1970 has resulted in the projection period covering two years which have

already occured. This problem is often encountered in studies in which very recent or current data are desirable. The lack of adequate data concerning price level changes has also posed a minor problem. Since reliable price indices or deflator series were not available the data were not adjusted for inflation^ The picture presented in this study in terms of monetary quantities at current prices, however, is more reliable than the picture which could have been obtained by attempting to convert the data to constant terms. The projection model could also have been improved soraev;hat if more hig'nly disaggregated data had been available for several components of national income.

The data for most countries for exports and imports are much more reliable than the data for savings and investments Since the data for savings are obtained by subtracting estimates of a large aggregate, consumption, from an even larger aggregate, income, a relatively small error in the estimates of the two large aggregates can result in a significantly larger error in estimated savings• Generally the higher the portion of total economic activity which occurs in organized markets the greater the reliability of estimates of savings and investments In less developed countries such as Thailand the portion of

total economic activity which occurs outside of organized markets is greater than it is in the advanced market economies• Data for imports and exports are more reliable than data for savings because imports and exports require multiple documentation and the physical units imported and exported are also accounted for. Consequently the import and export data employed for construction of the projection model are more reliable than the savings and investment data.

The foreign assistance requirements of a less developed country (LDC) depends upon its capacity to generate domestic savings and its capacity to generate foreign exchange. The extent to which foreign financial assistance can be productively used in terms of increasing the ability to produce goods and services depends upon the capacity of the recipient to absorb new investment. In turn, the capacity to absorb new investment depends upon the nature of the LDC*s social, political, and economic framework. The major characteristics of Thailand which are needed to explain the general development prospects and problems of Thailand are surveyed in Chapter II.

The savings and foreign exchange constraints to development are discussed in Chapter III. The nature of the two-gap approach, its limitations, and its applicability to the Thai case are also discussed in that Chapter.

The model constructed for this study is presented and explained in Chapter IV while the projections made from that model are presented in Chapter V. The modifications to the model needed to project foreign assistance requirements for the case involving an assumed decrease in U. S. military expenditures in Thailand are also presented in Chapter V along with the projections for that case.

The conclusions reached from the study are presented in the final chapter. The data required for constructing the model and for projecting the foreign assistance requirements for the two assiimed prospective cases and the details of the projections are presented in four appendices.

CHAPTER II

ECONOMIC DEVELOPIffiNT IN THAILAND: A BACKGROUND PERSPECTIVE

Thailand is unique in a variety of ways. Unlike many less developed countries, Thailand has never been a colony of a western nation. Also, unlike many less developed countries, Thailand has experienced relatively rapid economic growth since I960. Furthermore, although Thailand has engaged in development planning, unlike many less developed countries, Thailand's approach has not involved highly detailed planning or massive interference with market allocation processes.

In this chapter, the emergence of modem Thailand; its geographic, social, and political aspects; and its economic characteristics are outlined. Also, the nature of development planning in Thailand is described and the role of foreign assistance in Thailand's recent development is examined•

The Emergence of Modern Thailand

The Kingdom of Thailand was known as Sayam until its name was officially changed to Siam during the reign of

the fourth monarch of the Chakri Dynasty, King Mongkut (I85I-I868). Toward the end of I938 the Pibulsonggrara Government changed the name from Siara to Thailand (55: 10-11).

The Thai people lived in northwestern Szechuan about 4,500 years ago (55: 11). In 700 (the Thai year 1243) the Thais were forced to evacuate and move southward because of the Chinese invasion under the leadership of Kublia Khan. They founded their new country in 714 (the Thai year 1257) in the present location of Thailand.

The history of modern Thailand began in I85I when King Mongkut assumed the throne. The Chakri Dynasty had established Bangkok as its capital in 1782.

King Mongkut was a learned and enlightened monarch who recognized that his country's progress and independence depended upon an accomodation with the west (34: 10). During his seventeen-year reign he transformed the country's outlook. He established diplomatic relations with England, Prance and the United States. He opened Thailand to foreign commerce, established printing presses, built roads and canals, and issued the first modem currency for Thailand's expanded trade activities (55: 24).

Most aspects of Mongkut's modernization policy were continued and expanded by his successor, Chulalongkron,

or Rama V, who ruled for forty-two years (1868-1910). The policies resulted in significant economic progress.

Geographic, Social, and Political Aspects

Geographic Aspect

Thailand is located in the indochinese peninsula, in Southeast Asia. On the north it is bounded by China and Laos, on the west by Burma, on the south by Malasia and on the east by Cambodia and Vietnam. Thailand has an area of about 518,000 square kilometres. At its widest it measures about 750 kilometres, and at its longest part about 1,620 kilometres (55: 2). The shape of Thailand is often compared with that of the head of an ancient axe.

Rivers and canals provide an extensive inland transportation system and are used to transport goods to the principal seaport, Bangkok. Due to its central location Bangkok is a major air transportation center which accomodates airlines from three other continents: Europe, North America, and Australia.

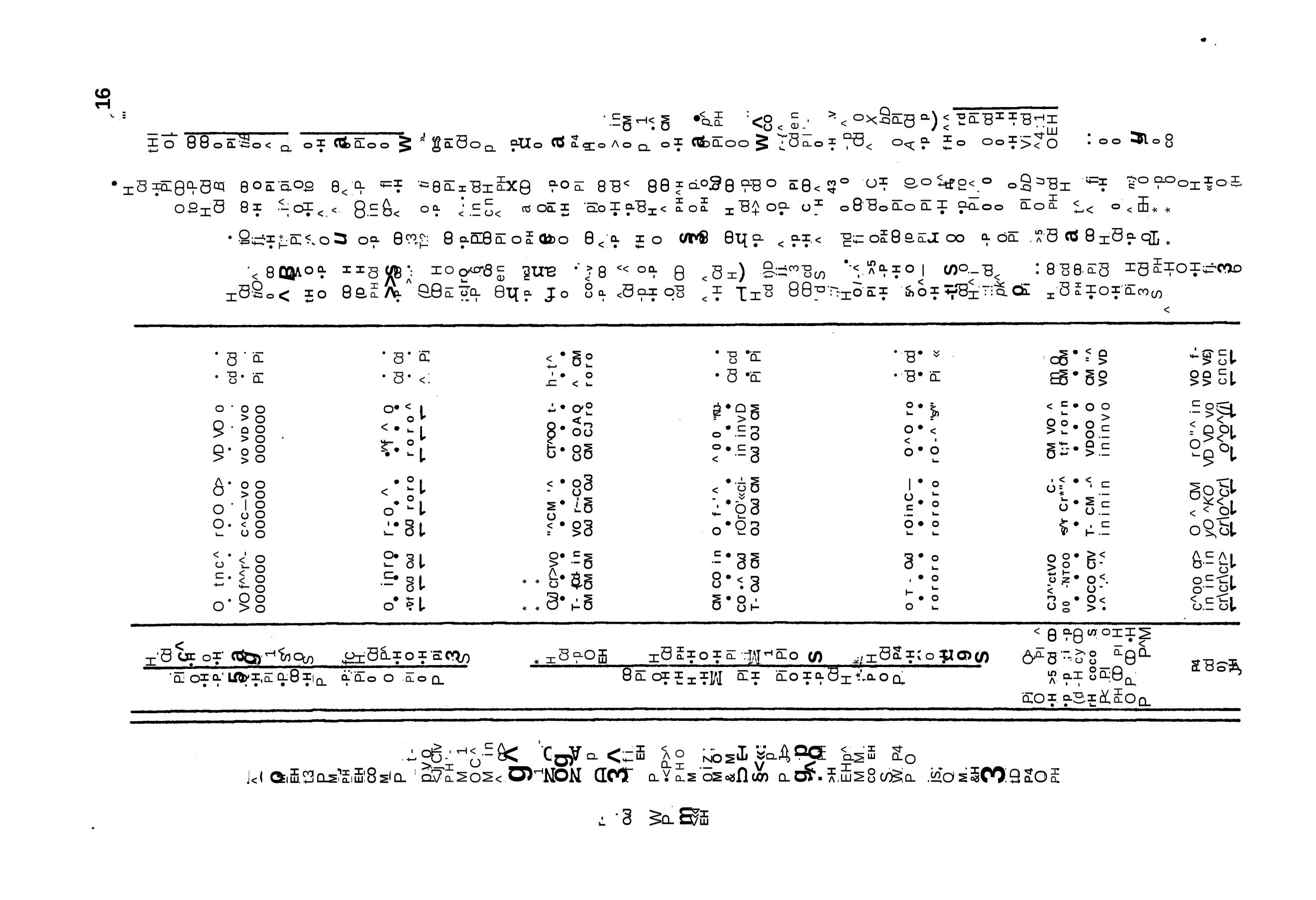
Thailand may be divided into five physiographic regions: the northern folded mountains, the central plain, the Khorat plateau, the southeast, and the peninsula.

Bangkok is located in the central plain, an area well suited for rice production. Tin, one of Thailand's principal exports, is one of several minerals found in the peninsula. Teak grows well in the northern folded mountains and up-land crops are grown on the Khorat plateau.

There are three seasons in Thailand• The tropical season begins about February and ends about Aprils The monsoon, or rainy season, usually lasts from May through September and the rest of the year is a dry season. The nature of the monsoon is a significant determinant of rice production.

The population of Thailand in 1969 was estimated to be about 37 million people. During the period from 1967 through 1969 population increased at an annual rate of 3.3 per cent (54: 1). Population density reached about 64 persons per square kilometer in 1967 (Table 2.1).

Most of Thailand's population are rural residents (Table 2.1)• About 14 per cent of the population reside in municipal areas and the remainder in non-municipal areas• The municipal area category includes both cities and towns• However, the definition of a municipal area which is used requires not only concentrations of population within an area but also the presence of several other urban characteristics•



Since 1958 the population in municipal areas has increased by at least 40 per cent and the portion of total population living in municipal areas has been increasing^ However, many of the problems associated with industrial urbanization have not appeared and are not expected in the near future•

Social Aspects

Selected General Characteristics• The Thai people are generally independent, nonaggressive, polite, and they tend to respect seniority. There is no caste system in Thailand although there is a class structure. In the urban areas class is distinguished by political power, social relationships, education, and family background (45: 15).

The name of the country indicates one of the important characteristics of Thailand. "Thai" means freedom. The love of individual freedom and independence from foreign control has been demonstrated in the history of Thailand.

In general the Thais do not sympathize with communist concepts and aims because they tend to conflict with Thai customs, traditions, and beliefs• For example, the feelings of loyalty to the King and the strength of Buddhism result in values which are inconsistent with communism^

Thailand is a relatively unified society and widespread acceptance and approval of monarchy is a source of harmony among groups in Thai society. Kenneth Young, a foreigner acquainted with Thailand has observed:

> Thailand isn't another Vietnam because Thailand is so different from Vietnam. She is viable, unified, dynamic, and progressing rapidly in her own way. As Vietnam is the hinge of Southeast Asia, Thailand is the swing state, the keystone for Asian regional cooperation (65: 94).

Since it was never dominated by a colonial power, Thailand has not developed the extreme nationalism and prejudices against foreigners which have often followed colonialism. The Thais express a genuine warmth and friendliness among themselves and to'wrard all other people• Thailand has often been characterized as "the land of smiles" (56: 4).

Language. The Thai language is the official language of tha nation. Although English has been officially adopted as a secondary language, its use is limited. The origins of tha Thai language have been traced back several centuries whan tha Thais lived in what is nov/ part of China. The alphabet was developed from Pali and Sanskrit. Tha first Thai alphabet was created in 740 A.D. (in the Thai year 1283) by King Ramkhamhaeng of the Sukhothai Dynasty (55: 15). There are 44 consonants and 32 vowels in the Thai language.

Occupational Characteristics. About 76 par cent of tha Thai labor force is employed in agriculture (Table 2.2).

TABLE 2.2

KivIPLOYMENT TREND IN THAILAND, PER CENT DISTRIBUTION BY OCCUPATIONAL GROUPS* FOR SELECTED YEARS

OccuMaronal Group	Per Cent Distribution 1954	19^0	1966	19VV^
Professional, Technical and Related Workers	j. ^ ''^	-,. ''^	/,. ''^	-.7
Administrative, Executive and I.Ianagerial V/orkers	0.5	0.2	0.5	0.6
Clerical Workers	0.7	1.2	1.3	1.6
Sales Workers	3.7	5.5	6.7	7.9
Farmer, Fishermen, Hunters, Loggers and Related Y/orkers	88.0	81.6	79.8	75-6
Miners, Quarrymen, and Related V/orkers	^^^	^^2	0.3	0.3
Workers in Transport and Communication Occupation	0.6	1.1	1.5	1.8
Craftsmen, Production Process Workers and Laborers not elsewhere classified	^^	g^-,	5^4	rj^Q
Services, Sports, and Recreation Y/orkers	-j^y	2.1	2.1	2^7
Not Elsewhere Classified	0^2	0.6	n.a.	n.a.
Total	100.0	100.0	100.0	100.0

*For members of tha labor force 15 years of age and older.

^Estimate of Manpower Planning Division, NEDB.

Source: Office of the National Economic Development Board, Economic Progress of Thailand (Bangkok, 1968), p. 32.

However, the portion employed in agriculture has been falling rapidly since 1954 when almost nine-tenths of tha labor force was employed in agriculture. This shift from agricultural employment to non-agricultural employment is a result and an indicator of economic development. Government provides a source of employment for educated members of tha work force in a variety of the occupational groups•

Education• Education is one of the keys for social, political, and economic development. The first system of compulsory education v.-as introduced in 1921 (56: 16). All children betv/een the ages of 7 and 14 v/ere required to attend school for 4 years of free elementary education in a government school. Secondary education was also made available on a competitive basis. Tha secondary program was 6 years in length plus 2 additional years of preuniversity education for those willing and able to enter college. On April 1, I96I, the new system of education was established under "The National Educational Plan." This program included required primary education of 7 years and a secondary education period of 5 years. By I966 only about 6 par cent of those completing elementary education entered tha secondary program. Tha latter is divided into 2 levels, junior and senior. Entrance into tha secondary continues to be on a competitive basis.

There are seven universities and one college of education in Thailand. The range of educational programs in

these universities is similar to that found in colleges within a university in tha United States. For example, there is an agricultural university and a liberal arts university. Within these institutions many major fields are offered. There is one university, Chulalongkorn, which is organized similar to universities in the United States. Its programs include political science, economics, natural science, education, mass communication and medical science. It is expected that the other universities will add additional programs and become similar to Chulalongkorn.

During tha academic year 1965-1966 mora than 36,000 students were enrolled in tha public institutions of higher education. The demand for higher education from prospective students has bean increasing and a program for tha expansion of higher education and tha creation of a new institution with an open admissions policy v/as initiated in 1971.

Continued economic growth and increased commercial activity has resulted in an increased demand for people with business training. Education for business administration is offered in four of tha public universities. A large number of private institutions also offer instruction in business subjects.

Tha educational program of Thailand during the past decade has been resulted in a relatively high literacy

rata for a lass developed country. About 71 per cant of tha population tan years old or older are considered to be literate (50: 142).

Political Aspects

Absolute monarchy was the form of government until June 24, 1932, whan constitution monarchy was introduced through a bloodless coup d' etat (45: 14). Throughout Thailand's history the king has served as head of state and as a symbol and a source of national unity. Ha has bean recognized as head of tha armed forces and upholder of religious faith. Tha monarchy v/as considered to be sacred and inviolable. However, the constitution of 1932 acknowledged that sovereign power belongs to the people and tha king was required to exercise legislative power through Parliament, executive power through the Council of Ministers and judicial power through tha court system (55: 34). Since tha and of absolute monarchy in 1932, Thailand has had 11 constitutions, 15 governments and numerous coups.

A wide assortment of political parties characterized Thailand's political axperianca until October 20, 1958, whan Field Marshal Sarit, with tha cooperation from General Thanom Kiltikhachon, his immediate deputy in the army and tha Prime Minister at that time took over tha government

by a bloodless coup (65: 95). Tha administration under tha leadership of Marshal Sarit proved to be vary efficient and very suitable for that period, a period of transformation, a period of national development and a period of cold war. From 1958 through 1968 political parties, elections and representative government were forbidden. Thailand was governed by martial law under an "administrative," rather than an elective, constitution. An appointed constitutional assembly slowly considered what form of government would best suit Thailand (65: 95).

Finally, a conservative constitution was promulgated on June, 1968, by his Majesty, King Bhumiphol Adulyadaj^ It provided for tha election of only one house of tha national legislature, with the executive in no way technically responsible to tha Parliament (10: 343)• The elections to tha lower House occured on February 10, 1969^ Tha government currently includes 14 Cabinet Ministers headed by Prima Minister Field Marshal Thanom Kittikachon and two Deputy Prima Ministars• Tha government is strongly anti-Communist (56: 5).

A Survey of Selected Economic Characteristics

Tha Thai economy can be regarded as a free enterprise economy. Tha government encourages full participation of the private sector in tha process of economic development.

Toward this and tha government stated in I960 in formulating its first development plan that it would be guided by the principle of social justice and v/ould support all activities of tha private sector which contribute to the country's development provided that such activities do not imply taking unfair advantage or trespassing upon the riyhts of others (22: i)^

Although there are few restrictions upon market allocation of resources relative to those found in centrally planned economies and relative to those found in advanced market economies; resource allocation, choice of productive techniques, and tha distribution of income are determined to a significant extant by non-market factors such as custom, prestige, and power. Hov;ever, prices are becoming mora important in directing production and incomes.

Thailand is a primary product producer. In 1966 the production of raw materials, mostly agricultural products, accounted for about 36 per cant of gross domestic product, about 80 par cant of total employment, and about 85 per cant of total exports (52: 88-89, 50: 32, 89).

Since 1855 the country has changed from being self-sufficient to international specialization and reliance upon international exchange. The growth of the Thai economy during the past 100 years could be characterized

as growth through international specialization. Tha current patterns of domestic production reflect its specialization in primary products.

Agriculture

Agriculture occupies a place of pivotal importance in Thailand's economy. Not only because it accounts for four-fifths of total employment and about one-third of the gross domestic product, but also because it accounts for tha bulk of foreign exchange earnings.

ThailEind's exports of rice, rubber, teak, maize, kenaf, cassava, oil seeds, and other upland crops account for 90 per cent of total foreign exchange earnings (22: 83). Total agricultural production has bean increasing at a rapid rate in recant years and the production of all major agricultural products except kapok has bean increasing (Table 2.3).

Rice is tha most important crop in Thailand both for domestic consumption and for export purposes• About *55* per cent of tha total food crop production area is devoted to rice cultivation (53: *S).* Rica production has been increasing in recant years (Table 2^4). Large-scale government irrigation projects are extending tha area on which two rice crops can be grown each yaar^

INDIA, 1951–1969
(Per cent)

	1951	1956	1961	1966	1967	1968	1969
Food grains	17.2	17.1	17.4	17.3	17.3	17.2	17.2
Rice	7.1	7.2	7.2	7.2	7.2	7.2	7.2
Wheat	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Jowar and Bajra	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Maize	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Gram	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Other pulses	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Potatoes	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Onions	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other vegetables	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Fruits	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Sugar	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Gur	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Milk	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Meat	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Eggs	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fish	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Groundnuts	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Coconuts	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Gingelly	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other oilseeds	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Vegetable oils	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Spices*	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Tea	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Coffee	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tobacco	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Cotton	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Jute	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Mesta	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rubber	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Consist of mung beans, moth beans, horse gram, chillies, turmeric, ginger, coriander, garlic and chile.

TABLE 3.--Continued

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Production[#]	100.0	97.8	100	90.5	114.2	116.0	120.3	124.5	121.1
Area harvested	100.0	101.2	100	99.8	98.1	102.3	104.2	106.2	107.9
Fish catch	100.0	97.3	100	90.5	116.4	113.2	115.4	117.3	112.9
Agriculture production per person	100.0	94.4	100	89.8	111.2	110.3	111.3	112.1	107.8

[#] Consists of rice, corn, sugar, vegetables, fruits, and bamboo.

** Consists of cattle, buffalo, pigs, goats, and poultry.

SOURCE: Bank of Thailand, Monthly Bulletin (June, 1970), p. 75.

TABLE 2.4

RICE PRODUCTION AND AREA USED FOR RICE PRODUCTION, 1962-1969

Production Period	Area under Cultivation (Thousand of dai*)	Paddy (Rice) Production (Metric Tons)
1961/62	38,619.2	8,176,626
1962/63	41,617.9	9,279,478
1963/64	41,256.1	10,028,882
1964/65	40,871.7	9,558,170
1965/66	40,491.3	9,217,948
1966/67	45,663.8	11,845,522
1967^68	40,064.5	9,594,854
1968/69	44,681.4	10,772,097

*0na rai is equal to 0.4 acre.

Source: Bank of Thailand, Monthly Economic Report (June, 1970), p. 77.

Significant increases in production have also taken place in such crops as maize, cotton, kanaf and sorghum (Table 2.3). Production of these crops more than doubled during tha period from I960 through 1966. Increased production of these crops was associated with an increase in the area denoted to their production and an increase in tha area denoted to their production and an increase in demand in export markets.

Industry

Manufacturing industries in Thailand were set up initially to process agricultural products. The development of agricultural production and mineral production was conducive to a complementary expansion of processing factories and the establishment of a wider range of industries to supply tha internal market. In 1969, the manufacturing activities contributed 14.7 per cent of Thailand's gross domestic product. 'Manufacturing output grew at a rate of 12.8 per cant during tha period from I96I through 1966 and at an 11.3 per cent rata from 1967 through 1969 (52: 88-89, 113).

The industrial labor force amounts to only about 4.7 par cant of tha total labor force or about 2 par cant of the total population of tha country in I966 (50: 31). They are employed in several industries: food, beverage and tobacco, textiles, sawmilling, woodwork and matches, pulp and paper.

cement, metal products, machinery and engineering, rubber processing, oil refining, chemical and electrical production, and others.

Thailand has progressed towards industrialization since tha government enacted tha "Promotion of Industrial Investment Act B.E. 2505 (1962)," which renders attractive rights and benefits to investors. To increase capital investment for industrial development, Tha Industrial Finance Corporation of Thailand was created in 1959 to finance tha establishment, expansion, or modernization of private industrial enterprise and to encourage tha participation of private capital both internal and external (45: 38).

In 1960 there ware about 16,000 factories in Thailand but after tha government promotion of industrial investment tha number had increased to about 43,500 by 1967 (50: 65). Tha largest foreign participant in tha program in 1967 was Japan whose share of tha capital investment increase accorded to tha program v/as 14.7 per cant (21: 64). Tha United Kingdom was also a major participant with a 12^0 par cant share. The portion ov^nad by tha Republic of China than was 5.8 per cant and 4^1 par cent was owned by residents of tha United States. Thai nationals accounted for 65-0 par cant^

Government Finance

Tha sources of government revenue in Thailand are income taxes on both individuals and corporations and

several indirect taxes• Tha indirect taxes provide about 78 per cant of total revenue while tha income taxes provide only 12 par cent of government revenue (7: 28)• Most of tha indirect tax revenues are derived from import and export duties•

In addition to serving as a source of revenue for governmental expenditures taxation can also be used as a tool for achieving price stabilization, changing resource allocation, promotion of domestic production, increasing savings, influencing income distribution, and promotion of "public decency•" Thailand's tax system is used for these purposes•

Total government expenditures are small both absolutely and relatively by western standards• In 1968 total expenditures ware 19,485 million baht which was about 1^7 par cant of GDP (Table 2.5).

Whan government expenditures are classified by major functional area, it reveals that the largest expenditures are in tha "economic service" category. These expenditures accoimtad for about one-fourth of the total in 1968^ This category includes expenditures for transportation facilities, irrigation projects, communication systems and various services to the business sector^ The second largest category of government expenditures is social services• Tha social service category includes expenditures on programs

Source: [illegible] (Census 1970, p. 10).

for improved education, housing, health, and social welfare. In recant years social service expenditures have tended to amount to about one-fourth of total expenditures•

Although govarnmant expenditures are small relative to GDP, they have bean increasing rapidly in recant years• Total expenditures almost tripled from 1961 through 1968 (Table 2^5).

Since 1949 the government's budgets have resulted in deficits. These deficits are partly explained by large increases in expenditures designed to develop tha infrastructure needed for economic developments

Monetary System

Thailand's central bank. The Bank of Thailand, was established in December, 1942^ Its main functions are to issue notes for circulation, to serve as a bank for the government, to serve as a bank for other banks, and to serve as the fiscal agent of tha government in dealing with international monetary organizations (55: 443).

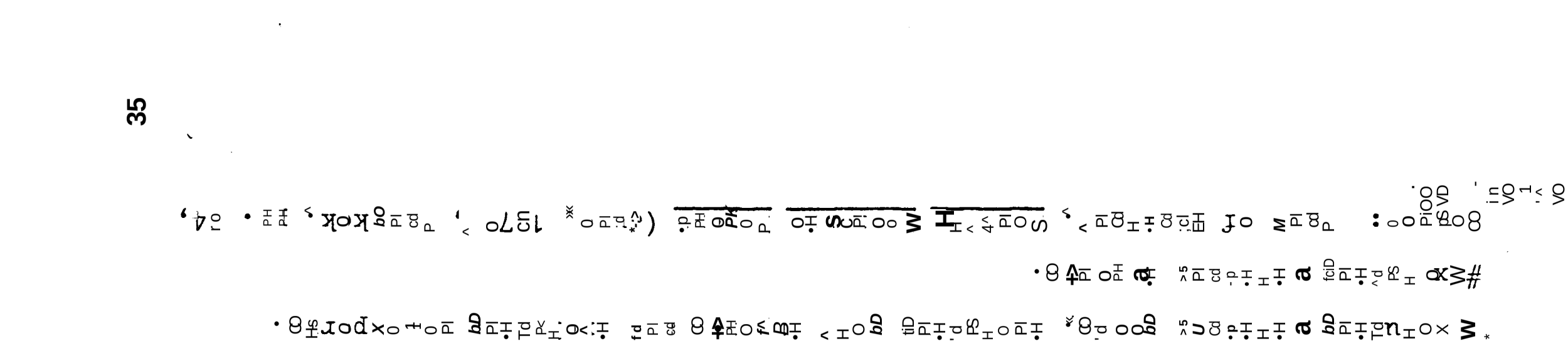
Since 1961 tha money supply has increased from 11,075.4 million baht to 20,302^7 million baht in December 1969 (7: 4). This increase resulted from an increase in inflows of gold and foreign currencies as wall as from tha growth of debt of the private and public sectors•

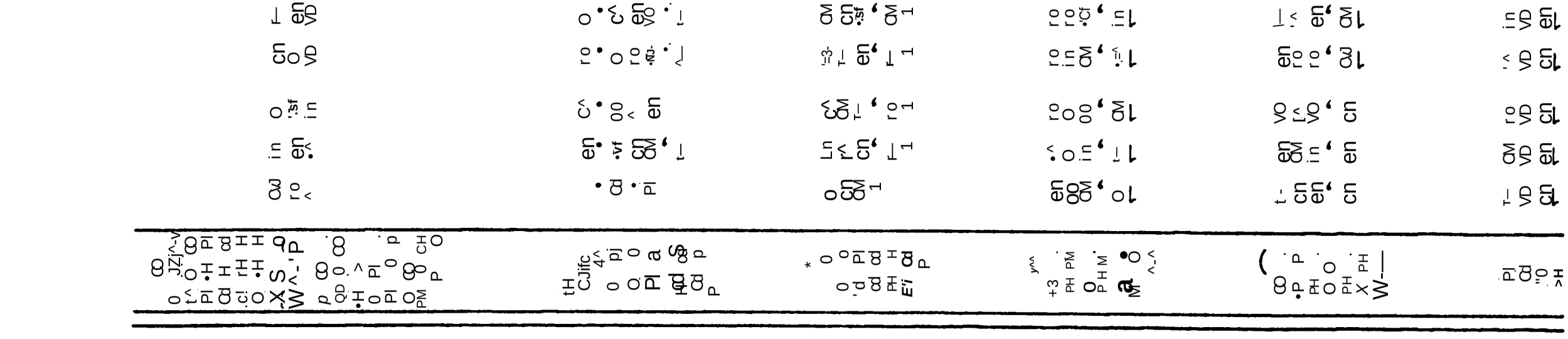
Prom 1947 through 1954 Thailand employed a system of multiple exchange rates• For almost 8 year.c after 1954 tha free market rata was adopted as the official rate (53: 64). During this period fluctuations in the exchange rata decreased^ Tha relatively good reputation of the baht derives in part from the strong reserve position v.hich Thailand acquired• In 1969 Thailand's international reserves amounted to an equivalent of 874 million U. S. dollars (7: 68). On October 20, 1963, Thailand established in tha International Monetary Fund an initial par value for tha baht at 0^0427245 fine grams of gold (55: 442)• Tha official conversion rate into U^ S^ dollars is one dollar equals 20^8 baht.

Foreign Trade

Since tha opening of Thailand to foreign commerce in 1855, foreign trade has grov;n in importance to such an extant that tha annual value of exports now amounts to nearly 16 par cant of gross national product and imports amount to nearly 20 par cent of GNP. Customs duties accounted 40 per cant of govarnmant revenue (55: 410).

Thailand has had an unfavorable balance of trade since 1953. The currant account deficit increased from 290 million baht in I96I to 10,424 million baht in I968 (Table 2.6)• During tha first year of the first National Economic





Plan, 1961, the balance of trade deficit more than doubled. Tha trade deficits have bean partly tha result of increased imports associated with implementation of tha development plan and imports associated with tha military and private construction required to accomodate tha increased number of U.S. military personnel in Thailand.

The rapid increase of capital goods imports, however, has not created balance of payments problems since they ware mora than offset by inflows of private capital and foreign assistance. Indeed foreign exchange reserves have increased during the past 10 years (Table 2^6).

Rica, rubber, tin, and taak have been the principle exports of Thailand for many years (Table 2^7). Since 1961 maize, juta, and kanaf, and tapioca flour have gained in importance as export commodities•

Economic Development

Several aspects of tha general development of modern Thailand have already bean described• The economic development experienced and the problems encountered are discussed in this section• Development planning in Thailand and tha role of foreign assistance will be dealt with in subsequent sections•

Although economic development is a complex process and tha rata of progress is difficult to measure even whan

TABLE 2^7

VALUE OF PRINCIPAL EXPORTS,
1958-1969
(MILLIONS OF BAHT)

Year	Rice	Rubber	Tin	Maize	Teak	l^^i^^^ Products	Jute and Ken of
1958	2,968	1,326	255	183	239	192	69
1959	2,576	2,336	434	250	244	224	88
I960	2,570	2,579	537	551	356	288	230
1961	3,598	2,130	617	597	252	446	526
1962	3,240	2,111	685	502	170	423	579
1963	3,424	1,903	741	828	137	439	358
1964	4,389	2,060	962	1,346	179	653	495
1965	4,334	1,999	1,166	969	200	676	1,102
1966	4,001	1,861	1,316	1,520	243	644	1,614
1967	4,653	1,574	1,822	1,355	194	726	866
1968	3,775	1,816	1,510	1,556	169	772	674
1969	2,938	2,664	1,631	1,671	166	874	775

Source: Bank of Thailand, Monthly Economic Report (June, 1970), Bangkok, pp^ 46-47.

several indicators are used, the most often used single indicator is par capita income^ Although changes in par capita income may indicate a great deal about the presence or absence of economic development, knowledge of per capita income changes alone is not adequate for an assessment of tha existence of economic developments

In recant years Thailand has not only experienced substantial increases in par capita income but also other changes usually associated with progress toward greater economic developments Tha index of per capita real GDP increased from 69 to 94 in the period from 1953 through 1962 (Table 2^8)• Evan mora rapid increases ware

TABLE 2^8

INDEX NU&IBERS OP TOTAL AND PER CAPITA DOMESTIC PRODUCT AT CONSTANT PRICES, SELECTED YEARS (1963=100)

Index	Year									
	1953	1955	1958	1960	1961	1962	1964	1965	1966	1967
GDP	51	56	68	83	86	91	106	115	128	134
Par Capita	69	71	79	91	92	94	103	109	117	119

Source: United Nations, Statistical Yearbook, (New York, 1969), p. 533.

experienced from 1962 through 1966 whan tha index of real per capita GDP increased from 94 to 117. During tha second

half of tha first development plan, tha three years from tha and of 1963 through 1966, an average annual growth rata of real GDP of 8^0 per cent occured•

Several changes indicative of economic development have also occured in recant years• The portion of the labor force employed in agriculture has declined, literacy rates have risen, death rates have fallen, and productivity in agriculture has increased. The shift in employment and composition of aggregate output away from agriculture toward other industries has bean cited as the hallmark of economic development. The average annual rates of growth in agricultural output declined from 8.1 per cent during tha period from 1957 through I960 to 4.0 per cant for tha period from I960 through 1967 while the annual growth rate in the industrial sector increased from 5.1 per cent to 12.0 per cant between tha same two periods (60: 554).

Not all changes have unambiguously indicated economic development. For example, there may be soma reason to suspect that tha inequality of income distribution has increased in recant years. Tha recent spurt in total income may have resulted in the incomes of upper income groups increasing at faster rates than the increase in incomes of lower income groups. However, tha data available are for only one year and, therefore, comparisons from one period to another cannot be made (Table 2.9).

TABLE 2.9

DISTi:IBUTIOI'l OF FAI>iILIES AND UNATTACHED
ir::oiviDUALS BY INCOLIE CLASS, 1963

Income Class	Per Cent of Families and Unattached Individuals					
	Northeast	North	East	Central	South	Kingdom
under :0 3,000	73.6	58.7	31.8	24.8	31.0	48.4
^ 3,000-5,999	11.9	20.1	26.8	30.7	30.7	20.8
]i 6,000-11,999	10.1	15.4	28.7	29.9	24.8	19-5
]i 12,000-17,999	2.4	3.5	8.0	8.1	7.2	5.7
]i 18,000 and up	2.0	2.3	4.7	6.5	6.3	5.6

Source: National Statistical Office, Office of tha Prima Minister, Some Important Statistics of Thailand 19687~T969, Bangkok, 1970, pp. Ill, 113.

Tha increase in par capita income in recant years has bean accompanied by moderate inflation. Consumer price data is collected for tha two largest cities, Bangkok and Thonburi. The consumer price index rose from 99^1 to 115.8 from 1962 through 1969 (Table 2.10). However, during tha

TABLE 2^10

CONSUI/IER PRICE INDEX NUIffiERS FOR BANGKOK-THONBURI, 1962-1969

	1962	1963	1964	1965	1966	1967	1968	1969
Consumer Price Index	99.1	100	102^0	102^9	106.7	110.0	113.4	115.8
Food Com- ponant	.jQQV/,	4,QQ	^0A.3	104.9	111-7	119-7	123-8	128.7

Source: United Nations, Monthly Bulletin of Statistics, Vol. 24 (April-June, 1970), p. 182.

same period the price index of tha food component in tha consumer price index rose mora rapidly: from 100.1 to 128.7. Expenditures for food account for a larger portion of tha budgets of lower income groups than of higher income groups.

"^ Tha par capita income of Thailand is about SI30 which is quite low whan compared with the par capita income of a mora developed country like tha United States which is substantially mora than $3,000 (60: 586, 588)• Thailand

is in that group of about 80 nations whose par capita income is lass than S300^ Although Thailand has experienced relatively rapid growth in tha past few years many obstacles to continued growth still exist and many problems will be faced in attempting to sustain rapid economic growth•

Muscat states that until recently one of tha most important categories of obstacles to Thailand's economic development has bean market imperfections (34). After calling attention to tha low level of industrialization in Thailand ha argues that one source of difficulty has bean govarnmant intervention in tha market and tha govarnmant 's discrimination against tha Chinese in Thailand^ Ha racommandad a policy of total disengagement by the Thailand Government from tha industrial process•

In 1959 the Mission of tha International Bank for Reconstruction and Development summarized the obstacles to Thailand's economic development as:

!• A lack of guiding objectives in tha government's development effort which has been unbalanced, unco-ordinated, and excessively diffused;

2. The uncertain financial planning of the government's development effort; and

3. A shortage of trained manpower and of managers and administrators qualified by experience to operate

industrial concerns in government departments efficiently (26: 11-13).

There are several other problems associated with the framework of tha economy such as the short-run fluctuation in demand and tha long-run deterioration in the terms of trade of primary products• Tha difficulties arise from low income elasticities of demand for primary products .and limited flexibility in tha adjustment on tha supply sida^

The low productivity in agriculture is related to the widespread use of traditional techniques and production of most agriculture products on small plots of land with reliance on family or communal labor• The average size of farms in Thailand is about 25 rai (about 10 acres) and tha average size farms in the irrigated area is only about six rai (about 2^4 acres) (26: 33).

In recant years the government has greatly expanded its expenditures on irrigation and road projects and on tha improvements of rail and port facilities• These programs have resulted in increased agricultural output and have increased tha "size of tha markets" However, the pattern of small scale family farming of traditional crops with traditional techniques persists^

Population growth also poses problems. Thailand has experienced population growth since World War II. Tha population has increased from about 26 million in I960 to

TABLE 2.11

POPULATION, MTE OP POPULATION GROY/TH, BIRTH dATE, DEATH RATE IN THAILAND, 1960-1969

Year	(1) Population (Thousand)	(2) Rata of Population Growth (Per Cent)	(3) Birth Rate (Per Cent)	(4) Death Rata (Per Cent)
1960	26,392	3.09	3.47	0.84
1961	27,210	3.09	3.36	0.78
1962	28,054	3.10	3.48	0.79
1963	28,923	3.09	3.54	0.81
1964	29,820	3.10	3.77	0.78
1965	30,744	3.09	3.63	0.70
1966	31,698*	3.10	n.a.	n.a.
19-37	32,680	3.09	n.a.	n.a.
1968	33,693	3.09	n.a.	n.a.
1969	34,738	3.10	n.a.	n.a.

*The population for 1967, 31,698,000 given here differs from the figure given by the National Statistics Office of 31,689,000 for 1967.

Sources:

(1) United Nations, ~~Monthly Bulletin of Statistics~~, Vol. 24 (April-June, 1970), p. 4.
(2) Calculated from 1.
(3) and (4) Office of National Economic Development Board, ~~Economic Progress of Thailand~~ General Indicators (Bangkok, 19^8), p. 24.

Development Plan. Tha plan failed to take into account two of tha most important aspects of economic development planning, population policy and a framework for rational industrial development (41: 161-168).

Davalopmant Planning in Thailand

One of tha major goals of tha government after Marshal Sarit and his colleagues assumed power in 1958 was tha promotion of economic development, especially through industrialization^ Tha Economic Development Council, later renamed tha Economic Development Board, was established to formulate a national development plan^ Tha first plan covered tha period from 1961 through I966 and was divided into two phases of equal lengths In constructing tha plan tha Economic Development Board first announced general objectives, policies, targets, and various estimates of resource requirements. Than subcommittees, in cooperation with govarnmant agencies, prepared a list of possible davalopmant projects for government agencies. Tha Board than examined, evaluated, and tailored the projects to correspond with tha objectives, policies, and available resources (45: 5).

The major objectives of the first plan ware to increase total income and to develop tha infrastructure for further growth and developments Total development expenditures

amounted to about 27-7 billion baht during the period as GNP rose from 59.8 to 97.2 billion bahts During tha first half of tha plan (1961-1963) the average growth rata of GNP was 6s5 par cants Tha rate rose to 8sO par cant during tha second half of tha periods

Tha implementation of tha plan was accompanied about structural changes• As has been pointed out there was a marked change in tha composition of total output with a Bhift from agriculture to manufacturings

The second national plan was for the period from 1967 through 1971 and was titled tha Second National Economic and Social Development Plans Its broad objectives were:

1. Mobilization of human and natural resources for optimum utilization in expanding productive capacity and national income of the country, so that tha benefits of development can be shared equitably by all classes of people•

2. Promotion and maintenance of social justice; tha preservation of social stability, national institutions, customs, culture; and the provision of relief to people in isolated areas who cannot affectively help themselves.

3. Maintenance of economic and financial stability to enable tha davalopmant process to continue on tha basis of sound values and productive invast-
\ mants for long term growths

4^ Preservation of national security, which depends in tha final analysis upon the economic strength and social unity of the country (22: 23)-

The second plan also gives recognition to tha importance of agriculture as tha key sector• However, the share

of GDP originating in tha agriculture sector was projected to decrease from about 32 par cent in 1966 to about 26 par cent in 1971- The plan also reflected an expected increase in tha average annual growth rate of 8^5 per cent, substantially above tha 7.2 par cent annual average growth rata experienced under tha first plan^

•An evaluation of the second plan cannot be undertaken here and would be a bit premature since all of tha data needed are not yat available• However, it can be noted that tha annual growth rata has been around 8 per cant in tha last few years and that portion of GDP originating in agriculture has bean falling (52: 90-91)-

Foraign Assistance in Thailand's Development

Economic development depends on mobilization of resources for development and upon tha efficient use of tha resources which are mobilized• Tha sources of development resources may be divided into two broad categories: internal and externals Most lass developed countries find that tha quantity of internal resources which can be mobilized is inadequate to achieve tha desired rata of growth and is less than could be affectively utilized• External sources of resources are than required. If foreign investment inflows are inadequate than foreign assistance must be sought if development objectives are to be attained.

Foreign assistance is also required whan necessary capital equipment cannot be obtained due to insufficient foreign exchange•

Foreign assistance for economic davalopmant purposes was first racaivad by Thailand in 1950 when it received three loans from the International Bank for Reconstruction and Development. In tha same year Thailand entered into a mutual economic assistance treaty with tha United States.

Through 1963 Thailand had received more than Si•I billion in all types of external assistance (19: 235)• Over 43 per cant of tha assistance wa?: in the form of military grants from the United States• Economic assistance from both bilateral and international sources totaled S654 million of which about half was in the form of grants and about half in the form of loans•

In recent years Thailand has bean receiving slightly mora than SI00 million annually in non-military financial assistance (Table 2^12)^ About one-half of tha assistance has bean in tha form of grants• It is apparent that tha assistance racaivad has bean substantial for a country with a GDP of about S5-6 billion^ All of tha proceeds from tha IBRD loans and most of the non-military financial assistance from tha United States was allocated to development of the infrastructure, especially the transportation, power and communications systems.

TABLE 2.12

SOURCES OF FOREIGN NON-MILITARY FINANCIAL ASSISTANCE TO THAILAND, 1966-1968
(MILLIONS OP DOLLARS)

Types and Sources of Assistance	Year 1966	1967	1968
1• Grant	55-80	70.50	66.3
United States of America	44.32	56.64	50.3
United Nations	2.90	3.00	3-5
Group of tha Countries under tha Columbo Plan	4.42	5.60	6.0
Other Countries	2.23	3-92	5-0
Volunteers	1-93	1.34	1-5
2. Loans	45-40	40.94	39-0
World Bank	42.00	31.00	29-0
United States of America	0	7-55	0
Canada	0	1.00	0
Germany	0	0	5-0
Asian Development Bank	—¥c	—¥:	5-0
Austria	3-40	0	0
Italy	0	1.40	0
Total	101.20	111.45	105-3

*Asian Development Bank was not established until 1968.

Source: Department of Technical and Economic Co-operation (DTEC), TGchnical and Economic Cooperation Reports, 1967-19"SF; pp. 9-10 (in Thai).

Since 1963 Thailand has received substantial military assistance from tha United States (Table 2.13). After large receipts, about S72 million, in 1963 military assistance inflows declined to about S35 million in 1964 and about S31 million in 1965. By 1968, hov/ever, military assistance receipts had risen to over S70 million again.

Tha flow of net official external assistance resources in recant years was moderate in comparison with that racaivad by some of the other less developed countries (Table 2.14). Thailand has received from one-fifth to one-fourth as much assistance as has the Republic of Korea but about substantially more than Malasia.

Tha externally held public debt of Thailand more than tripled during the 1960's. The external debt amounted to 2,153 million baht (about S108 million) and increased to 6,072 million baht (about S303 million) in 1968 (Table 2.15). Tha externally held debt is expected to amount to about 10 per cent of GDP by the end of 1971 (22: 44).

Although external debt has been increasing rapidly, outflows for interest charges and payments on previous loans, the debt service requirements, are expected to be wall within the capacity of the economy in the near future. The second plan anticipated a debt service of about 4.0 par cant of foreign exchange earnings for 1970 and 1971 (22: 44).

TABLE 2.13

THE U. S^ MILITARY ASSISTANCE TO THAILAND, 1963-1969
(MILLIONS OF DOLLARS)

Assistance Expenditure Category	Fiscal Year						
	"19^1	T9F4	T9S5	*Ts^*	*TWf*	193B	*T9U9*
1• Operating	17.8	15.9	14.5	16.5	24.3	28.9	32.4
2. Investment	27.4	7-5	6.1	17-3	23.8	34.4	31-2
3. Construction	23.9	7.4	7.0	4.6	7.8	5.3	0.8
4. Overhead	2.7	4.4	3.2	3.9	3.1	7.9	9.1
Total	71.8	35.2	30.8	42.3	59.0	76.5	73.5

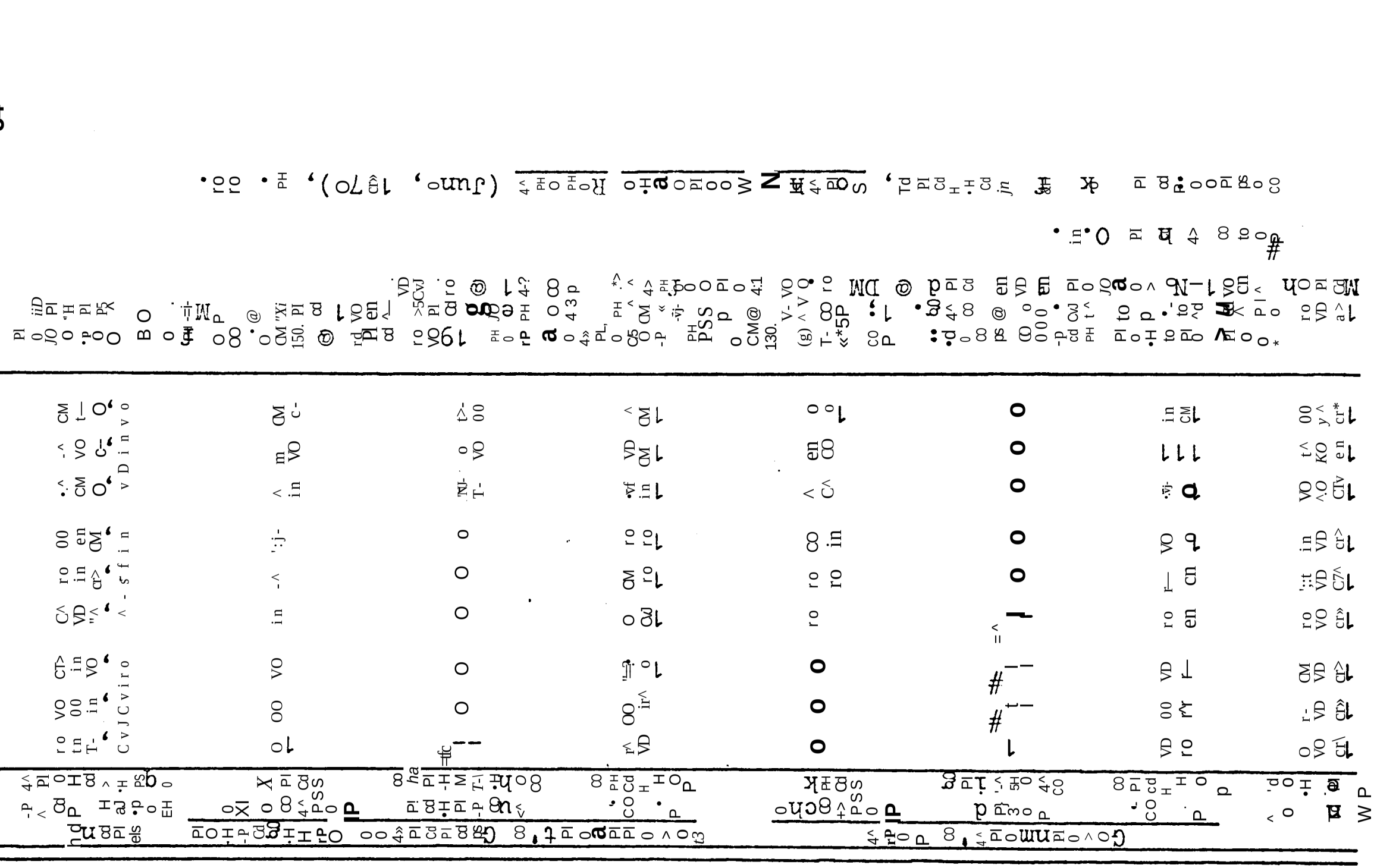
Source: U. S^ Congress. Senate. Foreign Relations Committee. United States Security Agreements and Commitments Abroad; Kingdom of Thailand. Hearings Before the Subcommittee on United States Security .A^;reements and Commitments Abroad. Part 3. 91st Congress, 1st Session, November 10, 11, 12, 13, 14, and 17, 1969- Washington, D. C: U. S. Government Printing Office, 1970.

TABLE 2.14

NET OFFICIAL FLOW OF EXTERNAL RESOURCES TO SELECTED COUNTRIES FROM DEVELOPED MRKET ECONOMIES AND FROM I\1ULTILATEKAL AGENCIES, 1965-1968
(MILLIONS OP DOLLARS)

Region and Countries	Year			
	'VW5'	TgBF	*TWT*	T9OT
Latin America	995	1,180	1,177	1,251
Africa	1,701	1,591	1,601	1,562
Asia and Pacific Islands	3,330	3,349	3,804	3,471
China (Taiwan)	68	61	86	66
Korea, Republic of	220	209	262	287
Malasia	34	47	40	60
Thailand	47	54	61	70
Vietnam, Republic of	316	509	448	445

Source: United Nations, Statistical Yearbook 1969, (New York, 1970), p. 672.



GOVERNMENT EXPENDITURES AND REVENUES (June, 1970), pp. 101-[illegible].

The constraints placed on growth and development by inadequate savings and foreign exchange are discussed in tha following chapter• Techniques for assessing tha quantity of foreign assistance needed to achieve a given rata of growth are also examined•

CHAPTER III

SAVINGS AND FOREIGN EXCHANGE CONSTRAINTS TO DEVELOPMENT

It has long been recognized that tha rate of capital accumulation, an important determinant of the growth rata, is dependant upon tha rate of savings. However, under certain circumstances, tha lack of foreign exchange may constraint tha rate of development to a level" lower than would otherwise be possible given the rate of saving. Consequently, in those cases in which foreign exchange bottlenecks might occur, estimates of the magnitude and impact of foreign exchange bottlenecks (and of the foreign assistance requirements if the bottleneck is to be avoided) are raquir3d for development planning purposes.

The nature of saving and foreign exchange constraints to development and the nature of the so-called "two-gap" models used to analyze tham are discussed in this chapter. The general applicability of tha approach is examined and specific criticisms of tha approach are presented. Finally, the nature of tha conditions which give rise to foreign exchange constraints in tha Thai case are examined.

Two-Gap Models

During the 1960's a category of models was developed to estimate and forecast tha foreign exchange "requirements" of less developed countries. These models, tha so-called two-gap models, direct attention to what is thought to be an important obstacle to development, the lack of foreign exchange in sufficient quantities for importation of goods and services needed to promote domestic development.

In tha context of development planning a less developed country may find that particular goods and services which are not available in tha domestic economy are required ingredients in crucial development projects and programs. If there are structural rigidities or resource deficiencies in tha domestic economy which do not allow tha required goods and services to be produced in tha domestic economy, they can only be obtained by expenditure of foreign exchange abroad• Export earnings and private investment inflows available for tha purchase of tha needed goods and services may not be adequate• Hence, a shortage of foreign exchange may present a serious bottleneck in tha davalopmaǹt process^

Foreign capital plays a dual rola^ It allows tha recipient to increase its imports and its level of investment. Tha two-gap models deal with both dimensions. In the planning context tha investment needed to achieve a

given growth rata objective may require investment in ax-cess of domestic saving and may require foreign exchange for purchase of goods and services from abroad which com-plamant those available in the domestic economy.

Tha basic approach employed in the two-gap models is to define a prospective "savings gap" (the savings con-straint) and a prospective "trade gap" (the foreign ex-change constraint) corresponding to tha target rate of growth, tha extant structural economic conditions, and the economic relationships assumed• The prospective savings gap is the difference between tha gross investment required to attain tha specified growth target and the gross savings v/hich the domestic economy is capable of generating. The prospective trade gap is the difference between the value of tha imports required at the specified level of aggregate output and tha value of tha exports tha economy can produce and sell (12: 968)•

Tha concepts involved in tha two-gap approach and a number of specific models have bean developed by Hollis B^ Chenery and several associates over the last decade• Tha first formulation appearing in tha literature was by Chanary and Bruno in 1962 (11: 79-103). This effort was followed by the relatively well known article by Chenery and Strout in 1966 which attempted to provide a technique for the optimal distribution of a given amount of foreign assistance

among a large number of possible recipient countries. In recant years there have bean several studies using the approach to evaluate tha foreign assistance needs and other aspects facing specific less-developed countries. This group of studies includes: Irma Adelman and Hollis B. Chanary, for Graaca, 1966; Arnold B. Baker and Frank Falano, Jr^, for Peru, 1970; Michael Bruno, for Israel, 1966; Hollis B^ Chanary and Pater Eckstein, Latin America, 1970; and Hollis B^ Chanary and Arthur MacEwan, for Pakistan, "1966 (1, 5, 8, 12, 13).

Tha two-gap models are planning models• They deal with disequilibrium situations as opposed to the equilibrium situations in neoclassical analysis: as Chenery notes, "tha view of tha davalopmant process that is common to all two-gap studies is that structural disequilibrium, rather than neoclassical equilibriiim, is characteristic of countries attempting to accalarata growth" (15: 913). Consequently in the davalopmant planning framework, "tha two-gap diagnosis has two different meanings: (i) as a description of an existing condition of structural disequilibrium; (ii) as a po^tantial limit to future growth" (9: 446)•

Usually in actual situations tha ex ante trade gap and savings gap need not be tha same but £x post both gaps will necessarily be the same due to the process of adjustment.

If tha target rate of growth is to be achieved the larger of tha two gaps must be filled by a capital inflow^ Actually, tha foreign capital inflow fills both gaps simultaneously so that in retrospect the two are necessarily equals The ex post identity is:

$$0 - (C \twoheadrightarrow I) = S - I = X - M = Ip$$

Where: 0 = Aggregate Output

C = Gross Domestic Consumption

S = Domestic Saving

I = Gross Investment

Ip = Foreign Investment

X = Exports of Goods and Services

M = Imports of Goods and Services

It can readily be seen from tha identity that if domestic consumption expenditures and investment expenditures exceed aggregate output, the excess will be equal to tha excess of investment over savings, which equals tha excess of imports over exports^ This excess is, in turn, equal to net foreign investment or tha amount of foreign financial resources which will be available for domestic use (27: 134).

Chanary and Strout develop a simple basic model which uses eight endogenous variables and tan parameters.* As

*Mora complex linear programming versions have also been developed to obtain optimal solutions in terms of patterns of growth (for example, saa 13).

Pai and Ranis have pointed out tha modal presumes a national income accounting system (18: 898). Tha endogenous variables are planning variables: GNP, gross investment, gross domestic savings, imports of "required" items, other imports, exports, net inflow of foreign capital (foreign assistance), and consumption^

Tha modal is over-determined since nine equations are used to determine a system of eight variables. This condition has given rise to some controversy. The over-determinancy gives rise to a "gap between the gaps." In other words, the savings gap is not equal to tha trade gap. This, however, is to be expected since the model is a disequilibrium modal as opposed to a neoclassical equilibrium modal and since assumed structural rigidities do not permit rapid adjustments and the forces which determine tha savings-investment disequilibrium are different from tha forces v/hich determine tha import-export disequilibrium.

Tha modal formulated for this study is mora detailed than tha Chanary-Strout basic modal. It is relatively disaggregated and is presented in tha following chapter.

Absorptive Capacity

The efficient use of foreign capital inflows ideally requires that the quantity made available not exceed tha technical absorptive capacity of the recipient country.

Also, currant inflows should not provide barriers to continued growth and development in tha future. Therefore, the quantity of currant debt assumed by the recipient country for currant capital inflows should not exceed a volume which would require debt service in future periods to such an extant that it would seriously constrain growth than (40: 109).

In actual practice tha amount of foreign assistance given and racaivad appears to be quite flexible. The quantity of flows, tha distribution of flows among donor and recipient countries, and the composition of assistance in terms of types of assistance are determined by a large number of factors, conditions, and motivations.

If the purpose of assistance is to raise immediate consumption levels in the lass developed countries as well as to increase their capacity to produce, the quantity of foreign assistance required depends upon the target levels of living in tha recipient countries as wall as tha target rates of growth. This combination, of course, is not perceived as being feasible if high targets are setter both for tha near future. Tha objectives of assistance are often cast by both donors and recipients in terms of achieving target rates of grov/th through increasing tha recipient's ability to produce which it is

hoped will result in independently sustained rapid growth in tha future. Consequently, tha capacity to absorb (efficiently utilize) foreign assistance is an important consideration in estimating foreign assistance requirements.

One of the virtues of the application of the two-gap approach is that it points out that if rapid growth is to be achieved and sustained in countries at vary low levels of development the quantity of assistance needed will not in all cases diminish in a fev/ years. The assistance inflows raq-aired may v/all increase over time for rather long periods if increases in domestic consumption are not or cannot be limited to rather low rates. This situation points to the need to evaluate and estimate the optimum quantities of investment from domestic saving over time.

In tha Chanary and Strout formulation the capacity limit for investment involves a linear capital-output function in v;hich GI^ is equal to or less than the GNP of tha previous period plus tha reciprocal of k, gross investment divided by tha change in GNP, times the gross investment of tha previous period (14: 685). This is used, "as á^mattar of convenience" but is thought to be plausible (14: 685).

The limit on tha ability to invest in the Chenery Strout simple model is given by a function in v/hich gross

investment is equal to or less than one plus b times the gross investment in tha previous period where b is a parameter referred to "as tha 'skill limit,' reflecting tha skill formation required of managers, skilled labor, and civil servants in order to increase productive investment" (14: 686). This is also said "to reflect tha widely held view that absorptive capacity for additional investment in any period is limited by tha supply of complementary inputs, which can only be increased as a result of tha development process" (14: 686).

The concept of tha development process behind tha Chanary-Strout two-gap approach is developed in terms of three growth regimes or phases: a skill-limited phase, a saving-limited phase, and a trade-limited phase (14). In the skill—limited phase tha bottleneck to development is tha lack of skills needed to design and carry out projects which increase productive investment. Foreign exchange is required to obtain tha necessary skills. If this bottleneck is avoided through assistance inflows and relatively rapid growth occurs there may be an inability to restrain consumption so that accelerated grov/th cannot be maintained due to insufficient investment from savings a savings bottleneck will arise which can again be avoided by assistance inflows. In tha second phase required

assistance inflows decrease over time. However, tha third phase will be encountered if tha rata of growth in exports cannot be made to excaad tha rate of growth of imports. Once again if tha target growth rata is to be achieved and maintained foreign assistance inflows v/ill be required to "fill tha gap."

Fei and Ranis have criticized Chenery and Strout's three phase analysis as a stages of growth thesis which suffers from a lack of clear definition of tha turning points from one stage to tha next and from a lack of any logical sequence (18). Chanary replied that the concept of phase is "central" to the analytical scheme but that a "presumption of a given sequence of phase is not" (18: 914).

There are five major steps involved in projecting foreign assistance requirements by tha two-gap approach. First, tha data required is obtained and evaluated. Second, tha projection modal for tha particular country with its particular circumstances is formulated. Third, tha structural coefficients are derived from tha historical data. Fourth, tha projected savings gaps and trade gaps are calculated, and, finally, tha foreign assistance requirements are derived.

Tha alternative to aggregate approaches for assessing tha capital requirements of a lass developed country such

as the two-gap approach may be called tha project approach. Unlike tha aggregate approaches which do not take the specific form of investments into account the project approach estimates total capital needs by adding up the capital needed as indicated from detailed studies of alternative investment projects (23). Tha two approaches are not mutually exclusive. Thay are complementary. Each can provide a check on tha other and each can provide information useful in refining tha estimates derived from tha other.

Tha two-gap approach focuses on the relationships between tha internal conditions in a given country and its external economic environment, the structural disequilibrium involved in achieving rupid economic growth and the foreign assistance requirements if development goals are to be attained. Tha two-gap models can be used for a variety of other purposes. They can be used to interpret recant development performance, to indicate in quantitative terms tha requirements for accelerated growth, to discover tha policy changes needed to bring tha system into equilibrium, and to investigate the probable effects over time of alternative assumptions and alternative courses of action.

Of course, all analytical tools suffer from limitations. Tha two-gap models are no exception in this regard. Tha

Tha major limitations of these models are discussed in tha following section.

Limitations and Criticisms of the Approach

Several aspects of tha two-gap approach have received criticism and its limitations have been pointed out in several studies (sea, for example, 18, 27, 37). Paul Straatan, however, has provided a comprehensive critique entitled, "Economic Models and Their Usefulness for Planning in South Asia," as an appendix to Volume III of Gunner Myrdal's Asian Drama (33). The discussion in tha appendix takes Harrod-Domar type models "as an arch-type of modal-thinking," and the tv/o-gap models are mem-bars of tha family of Harrod-Domar type models. Tha discussion which follows summarizes Streetan's general criticisms. An additional recant criticism of tha Chanary-Strout model is also reviewed.

Tha Straatan critique is both extensive and intensive. A passage from the introductory section of the appendix is quoted at length below to present the extant and flair of tha Straatan critique (33: 1944).

> To observe that models are selective, abstract and logically complete, and quantifiable is to expose their limitations: they are not compre-hensive but partial; they can be quite irrele-vant; and they tend to neglect those factors that, at least so far, have proved difficult to

quantify. They are often expressed in the language of mathematics or symbolic logic, because this medium makes it easier to discover inconsistencies. But it also facilitates the neglect of relevance and realism, and ambituities enter by reason of tha various possible empirical interpretations of the logically formulated premises. V/hen tha models are "applied," their selective and therefore arbitrary nature is usually forgotten. More important, these models frequently pass under false pretenses, inasmuch as some of tha assumptions that are essential if the models are to ba rigorous are not stated; often the modalbuilders are not even aware of them. This bent is encouraged by ignorance of the history of economic thought and naivete about, and contempt for, the sociology of knowledge. The result is that, contrary to tha intentions and pretensions of their authors, the models often have only the appearance of logical consistency, rigor, and precision, covering up what in reality is gross looseness in thinking.

Straatan develops his general criticisms of Harrod-Domar type models under four headings: adapted ceteris paribus or automatic mutatis mutandis, one-factor analysis, misplaced aggregation, and illegitimate isolation. Tha major problem with "adapted ceteris paribus" is that "tha assumptions that attitudes and institutions are fully adapted so as to permit a smooth davalopmant process is not only that it is implicit but also that it is entirely indeterminate" and cannot ba tested (33: 1948). Automatic mutatis mutandis involves tha implicit assumption that "attitudes and institutions, though not fully adapted to tha development process under consideration, are adaptable

without intentional and direct policies" (33: 948). This assumption is also seen as being indeterminate and invalid. Chanary and Strout attempt to overcome these limitations by recognizing that growth is a disruptive rather than a smooth process and by presenting a policy model designed to point out to policy makers that actions are required to deal with tha disruptions caused by growth•

Tha one-factor analysis criticism involves the argument that Harrod-Domar type models employ an aggregate production function which contains only one input, capitals To Streetan this is untenable. The existence of a historical relationship betveen capital and output provides no explanation of a causal relationship and, more importantly, tha implic^ation that increases in tha stock of capital is tha sola requirement for economic growth is a gross oversimplification. It ignores tha crucial roles played by technological and institutional change. Tha Chanary-Strout modal employs tha Harrod-Domar type capital/output ratio or aggregate production function. In^extra-modal comments, however, thay interpret tha model in situations in which capital is complementary with other required resources.

Straatan grants that, even though it is generally recognized that quantification of changes in heterogeneous

aggregates is arbitrary, tha use of aggregates such as indices of industrial production are quite useful in advanced countries if they are not assigned more precision than thay possess. However, he concludes that this is not tha case in lass developed countries.

> Tha situation in the underdeveloped countries of South Asia is very different. There prices do not respond to demand and supply; factors of production, including entrepreneurship, are more often specific and respond sluggishly if at all to economic incentives. Market imperfections, ignorance, and irrationality are the rule. There is much less diversification. Indivisibilities abound. Mobility is absent or tardy, and complementarities are ubiquitous and strong. Tne use of aggregates in such countries conceals mora than it reveals. It may be justifiable to add swords and plowshears at their production costs in an advanced country, and quite meaninglass in an underdeveloped country. If there is excess demand in one sector and excess supply in another, but the supply in one cannot be used to meet tha demand in the other, there is no sense in talkingy of aggregate demand or aggregate supply (33: 1951).

Tha criticism Streetan develops iinder the title, "illegitimate isolation," is in one sense the opposite from misplaced aggregation. Straatan illustrates the limitation imposed by isolating only a few variables for analysis by an analogy. "To construct such models [on the assumption that variables are separable and that all but a few can be ignored] is like judging a violin concert by tha number and quality of violins without regard to tha skill of tha violinists. Violins, however fine, cannot produce a

melody without skilled violinists, nor can violinists without violins. The appropriate unit is violin plus violinist, and to talk of a violin/melody ratio is to commit both tha fallacies, misplaced aggregation and illegitimate isolation" (33: 1954),

Straatan notes that a full evaluation of alternative capital projects which included appraisals of their impact upon attitudes and institutions might result in marked changes in the ranking of projects from what it would ba if only there physical effectiveness is taken into account. Dealing v/ith this problem is, however, a matter of improving the estimates of and assessments of capital requirements by tha project approach rather than tha aggregate approach. As was indicated earlier, the two approaches are complementary.

All of Streetan's extensive criticisms have not been summarized hare. Part II of Appendix 3 is entitled "An Immanent Critique of tha 'Capital/Output Ratio' and Its Application to Davalopmant Planning" (33: 1968-1993). It contains an extensive list of criticisms of the capital/output ratio which is a crucial part of tha Chanery-Strout type of models.

It may ba argued that Streetan's criticisms are ovar-drav/n. However, tha criticisms in combination should

serve as a warning that analyses of the econou'uc growth and development process in less developed countries based solely upon aggregate models should not he accorded mora significance than thay merit.

Recently Henry J. Bruton has argued that contrary to tha formulations of Chanary and his various collaborators, "aid is gap producing, not gap covering, and that accepting it as tha latter can in fact impede, rather than facilitate, development" (9: 440). He notes that foreign assistance can provide resources which are used to continue to function in an acceptable fashion v.ithout making the changes in the economy required to eliminate distortions which give rise to prospective gaps. Consequently aid may perpetuate tha gaps. Ha also argues that the receipt of foreign assistance may "hide the right allocation" of resources. Furthermore he argues that the "distinction batv/een the two gaps is due to particular policies that themselves are growth impeding" (9: 446).

Chanary, in a reply, agreed with the bulk of Bruton's analysis but disagreed with his conclusions (9). Since Bruton argued from the framev/ork of neoclassical equilibrium analysis ha found that changes in resource allocations and structural changes that could be made would not be made due to the financial assistance inflows. Chanary

pointed out once again that the tv/o-gap approach was based upon a view of development that holds that rapid growth in lass developed countries is not characterized by neoclassical equilibrium conditions but, rather, is characterized by structural rigidities which give rice to disequilibrium.

Foreign Exchange Constraints to Development in (Thailand

As has bean pointed out Thailand in recent years has axparianced relatively rapid grov/th, has imported more than was exported, and has received substantial foreign assistance inflows. It appears that foreign capital in-flows have contributed greatly to Thailand's rapid growth. It can ba argued that Thailand has been freed by capital inflows during tha past decade from v/hat would have been a substantial foreign exchange constraint.

Thailand's recent experience corresponds to Chenery and Strout's view of "skill-limited" growth phase. Many infrastructure projects v/era, and continue to be, needed to promote economic development. Both skills and capital equipinant not available in Thailand are required for the projects. Export earnings ware (and are) inadequate to finance tha services and capital goods needed if the growth rata is to ba maintained. Moreover, imports

have bean increasing mora rapidly than exports. Tha struc-- tural rigidities assumed by Chenery and Strout also characterize tha Thai economy.

The projection model developed for this study is presented in tha following chapter. It allows the mag- nitude of tha foreign exchange constraint and the saving constraint to Thailand's economic growth to be projected.

N.

CHAPTER IV

A MODEL FOR THE PROJECTION OF THE FOREIGN ASSISTANCE REQUIREFCENTS OF THAILAND

Tha davalopmant of estimates of the foreign assistance requirements of Thailand over the next few years using the two-gap approach requires the formulation of a model specifically designed according to tha characteristics of the Thai economy and the conditions it can be expected to face. In this chapter, tha genesis of the model, its elements, and tha special assumptions employed are presented. Than tha elements are combined and the projection modal is presented along with tha estimates of the parameters. Tha projections generated from tha modal are presented and discussed in tha subsequent chapter.

Genesis of the Model

The modal presented here was derived from the Chanary-Strout approach discussed in tha previous chapter. Consequently, there are many similarities between the two models. Tha main difference involves a higher degree of disaggregation in tha modal presented hare. The modal presented hara is specifically for Thailand and, therefore, incorporates

specification of functional relationships which are of particular importance to Thailand. The relationships were developed from and tha parameters were obtained from data for the period from 1962 through 1968.

Elements of the Model

Tha model consists of 45 variables in 37 equations. There are 25 aquations concerned v/ith endogenous variables and 12 aquations concerned with exogenous variables. Each relationship is in the form of a simple linear regression equation.

Special Assumptions

A multitude of factors on both the supply side and tha demand side interact in complex processes and influence foreign assistance requirements. Several assumptions must ba made to reduce tha problem of estimating foreign assistance requirements to manageable proportions. The following are among tha mora important special assumptions used in this study:

(1) The needed foreign aid is at all times determined by tha larger of tha two gaps and foreign assistance is equal to the larger gap during each of the periods of the projection. In other words, tha volume of foreign assistance is assumed to ba adequate to fill the larger of tha two gaps.

(2) There are only two constraints encountered in tha effort to achieve sustained growth—the saving constraint and tha trade constraints

(3) There is no limit to the capacity to absorb new investments In other words, tha incremental capital output ratio is constant.

(4) Tha model is "static" in tha sense that all parameter values remain constant during the projected period.

(5) All foreign assistance received is financial assistance.

(6) Tha debt service payments during the projected period are negligible.

(7) The relationship between tha growth in factor inputs and the growth in aggregate output which occured from 1962 through I968 remains constant over tha projection period. Explicit aggregate production functions and explicit capital output ratios were not specified and introduced into tha analysis since no meaningful relationships could ba derived from the available data.

(8) All variables are measured using current pricess

(9) The growth target is defined as a rate of increase in GDP rather than a rate of growth of GNP or par capita GNPs

(10) Tha commercial policy of Thailand and other countries is not changed and the existing quotas do not

present an increased barrier to Thai exportss

Variables

Tha 45 variables appearing in the model and tha symbols used to represent tham are given below.

A_{pr} = planted areas of rice

C = consumption expenditure

C^ = consumption expenditures on durable goods

C_{f} = net private expenditure balance

C_{g} = government consumption expenditure

C_{n} = consumption expenditures on nondurable goods

C_{p} = total private consumption expenditure

C_{r} = volume of domestic rice consumption

C_{s} = consumption of services

E = exports of goods and services

E_{g} = exports of goods

E_{o} = exports of others

E_{r} = exports of rices

a_{r} = volume of rice exports

E_{ru} = value of rubber exports

e_{ru} = volume

E_{tk} = val^a of teak exports

E_{tn} = value of tin exports

E_{s} = exports of services

I = gross capital formation

$I_{\hat{}}$ = gross domestic investment in construction in a public sector

Ijjj = gross domestic investment in transport equipment and in machinery and other equipment

$I_{p\hat{}}$ = gross domestic investment in construction in a private sector

I_s = increase in stock

M = imports of goods and services

M_c = imports of consumption goods

M_g = total imports of goods

M_{ir} = imports of intermediate products and raw materials

M_k = imports of capital goods

M_o = imports of others

M_s = imports of services

P_r = price of rice par metric ton

P_{ro} = price of rubber per metric ton

R = growth rate of GDP

r = real grov/th rata of GDP

S = total savings

S_g = government savings

S_p = private savings

t = time

Y = gross domestic product

y = real gross domestic product

Y_d = disposable income

Y_g = govarnmant revenue

Y_r = rice production

Y^ = tha index of world real GDP

Definition Equations

Tha modal contains seven equations which are definitions. In other words, a variable is defined in terms of other variables.

Disposable Income. Disposable income is defined as gross domestic product less government revenue.

(1) Y^ = Y - Yg

This formulation follows tha practice of ECAFE (16: 13).

Government Savin,g;Ss Tha government savings variable is defined as tha residual of government revenue after govarnmant consumption expenditure in a framework in v/hich total government expenditure is divided between consumption expenditure and capital expenditures

(2) $S^{\wedge}_{g} = Y_{g} - C^{\wedge}_{g}$

Private Savingss Tha private savings variable is defined as that part of disposable income which is not spent, i.e., is left after consumption expenditures.

(3) $S^{\wedge}_{p} = Y_{d} - C_{p}$

Exports of Goods. Tha total exports of goods variable is defined as the sum of tha exports of rice, rubber, tin, teak, and other exports. This allows the major exports to ba projected separately,

, (4) Eg = E/+ E^^ + E,j^ + E,^ + E^

Imports of Goods. The total goods imported variable is defined as tha sum of the imports of consumption goods, intermediate products and raw materials, capital goods, and other imports. This breakdown allows separata projection of major import categories. Nonmonetary gold is included in tha other imports category.

(5) Mg = M^ -h M^^ •f U^ 4- M^

Private Consumption. Private consumption is tha sum of domestic consumption expenditures on durable goods, domestic consumption expenditure on nondurable goods, tha balance of consumption expenditures by residents abroad minus tha consumption expenditures of non-residents in tha domestic economy, and consumption expenditures on services.

(6) Cp = C^ + C„ + C^ + C^

Gross Capital Formation. Gross capital formation is tha sum of gross private construction investment, gross public construction investment, gross domestic investment

in machinery and equipment, and increase in stocks (inventories).

(7) $I = In + I\hat{} + Im + I.$
$p \quad g \quad m \quad s$

Identity Equations

- Sevan identities are used in the models Identities are relationships of equality which necessarily hold under the conditions assumeds

Product Idantitys Aggregate income equals the sum of private consumption expenditure, government consumption expenditure, investment expenditure and the difference between exports and importss

(8) $Y - C \quad 4\text{-}C \quad - f l - f E - M$
$P \quad g$

Consumption Identity* Total consumption is the sum of private consumption and government consumption.

(9) $C . Cp + Cg$

Savings Identity. Total savings is equal to private savings and govarnmant savings.

(10) $s . Sp + Sg$

Savings-Investment Idantitys The savings gap is equal to savings minus investment.

(11) Savings gap = S - I

Export Identity. Total exports equal tha sum of the exports of goods and tha exports of services.

(12) E ≔ Eg + E^

Import Identitys Total imports equals tha sum of imports of goods and imports of servicess

(13) M = M ⊣h M
g s

Trade Gap Identity. The trade gap equals exports minus imports.

(14) Trade gap ^ E - M

Functional Equations

There are 23 functional aquations in the model. These equations represent quantitative relationships among variables and in some cases contain simplifying assumptions.

Government Consumption. Govarnmant consvimption is ass-umad to bear a linear relationship with government revenue.

(15) C_ = a^ ^ be Y_
^ g g ^

Government Revenues It is assumed that government revenue is a linear function of GDPs

(16) Y_ - aY ⊣f bY Y
^ g g

Gross Domestic Product. GDP in tha target year of tha plan, t, is equal to Y in tha initial year multiplied by the compound growth rata, $Y(1 + R)^t$.

(17) $Y^ = Y^(1 + R)^*$

Domestic Consumption Expenditure of Residents. Each of tha components of the domestic consumption expenditure of residents is assumed to be a linear function of disposable incomes

(18) $C_d = a_c^ + b^^Y^$

(19) $C_n = a^_,^ + b_j,J^$

(20) $C_3 = a_{C_S} -^ b_{C_o} Y^$

Net Expenditure Balance. Tha net expenditure balance is defined as tha consumption expenditures of residents abroad minus the consumption expenditure in the domestic economy by nonresidents. This balance is assumed to ba a function of time.

(21) $C^ = a^^ + bp^t$

Imports of Consumer Goods. The imports of consximer goods are expressed as a function of disposable income.

(22) $M^ -- a_{j,0} + b_{j,c} Y^$

Imports of Raw Materials, Capital Goods, Services, and Other Importss Tha imports of intermediate products and raw materials, imports of capital goods, the imports of services and other imports are assumed to ba linear functions of GDP.

(23) $M_i^{\wedge} = aj_{ir} + bj_{ir} Y$

(24) $Mj^{\wedge} = aj^{\wedge} + b_{M_k} Y$

(25) $M_s = aj_s + b^{\wedge} Y_s$

(26) $M_o = a_{„o} + b_{„o} Y$

Exports of Rice, The quantity of rice exports was estimated by subtracting estimated domestic consumption from estimated total production. This was the approach which was used in the ECAFE study (16: 17).

(27) $e^{\wedge} = Y^{\wedge} - C^{\wedge}$

Both rice production and domestic consumption are determined exogenously. Rice production is estimated as tha product of tha harvested area times tha average yield, ECAFE has found tha harvested area to average about 90 per cent of tha planted area (17). The planted area can ba assumed to ba a linear function of time. In other words, tha estimated future planted area is an extrapolation of past

trends. In this case this approach is not expected to yield absurd results, such as greater planted area than land available, since tha area planted in rice in recent years has been relatively stable.

Paddy (unmilled rice) production can be expected to increase by an average of 1.5 kilogram per rai per year if past trends continue (See Table A.8). To convert paddy production into milled rice a conversion factor of 0.66 was used (16: 18)•

Domestic rice consumption has been divided into two categories: seed consumption and non-seed consumption. There are several estimates of per capita non-seed consumption^ and tha quantities estimated differ greatly. For example, tha Rica Department v/ithin tha Ministry of Agriculture estimates annual per capita consumption to ba 125 kilograms while tha estimate of the National Economic Davalopmant Board is 154.3 kilograms and ECAFE estimated 146.5 kilograms (16: 19-20). Recently Edward Van Roy estimated tha average annual non-seed consumption of rice to be about 159.0 kilograms par capita (42: 473). Tha estimate used here is that of ECAFE.

Tha total domestic non-seed rice consumption in future years was estimated by multiplying tha par capita non-seed consumption estimate by tha projected population. Population was projected on the basis of the past growth rate of 3.3 per cent per year.

About 9.6 kilograms of rice are required for seed purposes for each rai (16: 19). Hence, the estimates of seed consumption were derived by multiplying this amount by the projected number of rai planted.

Tha physical quantity of rice exported was then obtained by subtracting total domestic consumption from projected rice production. An average price of rice of 3,000 baht per metric ton was used to project the value of rice exports. This price was obtained from the trend of past rice prices (See Table A.7). The value of rice exports is, than, the assumed price times the projected quantity of rice produced.

(29) E^ = Pp • ^r

Exports of Rubber. Rubber is produced for export purposes only. Hence, the physical quantity of rubber exports is a function of tha world demands

(30) log a , = a + h log Y
ro a^^ a^^ w

A price of 9,500 baht per metric ton has been assumed• This represents an estimated average price over tha projection period if the trend of tha past few years continues• Tha value of rubber exports is then:

(31) E^^, = P ^ • e^^ .

The data required to obtain the estimates of tha value of rubber exports are shown in Table B^3.

Exports of Tin. Thailand's exports of tin depend upon world supply and demand conditions, modified by export .quotas regulated by tha International Tin Agreement. Consequently it has been assumed that in face of increasing demand, the export quotas will ba increased and that if demand falls tha quotas will ba decreased. The quantity supplied will depend upon the size of the export quota. It has bean further assumed that recent trends in the demand for tin will continue and, therefore, exports of tin can ba represented as a function of time.

(32) E,, = a,^^ . b,^^t

Exports of Taak. Tha exports of teak have declined since 1958 for two major reasons: the quantity produced has decreased and tha quantities demanded domestically have increased (Saa Table 2.7). It is assumed hare that tha exports of taak will remain constant at 200 million baht par year during tha period for which teak exports are projected. This is tha same assumption as was made in the ECAFE study (16: 24).

Exports of Other Goods. Most of tha goods in tha other category are upland crops. Production can be shifted from one upland crop to another over time in response to changes in tha demands Tha category of exports of other

goods is assumed to ba a function of world real income (See 16: 24).

$$(33)\quad E\hat{} = ag_0 + b\hat{}\ Y\hat{}$$

Exports of Services• Tha national income accounts of Thailand do not include tha expenditures of nonresidents made while traveling in Thailand or the investment incomes of nonresidents earned in Thailand, in tha export of services accounts These two categories of transactions are, however, included in the export services account in tha balance of payments^ Tha expenditure for travel services by nonresidents is picked up and included in the private consumption expenditure account of the national income accounts^ Tha investment incomes earned in Thailand by nonresidents are deducted from gross domestic product to arrive at tha estimate of gross national product (16: 15). Tha data employed in this study are obtained from the balance of payments^ It is assumed that the trend in tha value of tha export of services during tha past few years will continue and, therefore, the export of services is assumed to be a function of time^

$$(34)\quad E\hat{} - ag_s + bg_{\tilde{o}}\ t$$

Domestic Investments To a vary great extant tha levels of public and private construction, the level of investment

in tha transportation system, tha level of investment in other machinery and equipment is related to tha level of imports. Consequently, these categories of investment expenditure have been assumed to ba linear functions of tha level of imports.

(35) $I_{-} = a^{\wedge} \; \dot{-}\!\!+ \; b_{..} \; M$
$\quad\; - \quad\; \wedge \quad\; \bar{} P \qquad\; \wedge P$

(36) $Ig - aj \; \dot{-}\!\!f \; bj \; M$
$\qquad\quad\; \bar{} \qquad\; S \qquad\; g$

(37) $Ijn = aj \; 4\text{-} \; b_{..} \; M$
$\qquad\quad\; \bar{} m \qquad\; \bar{}_{i} m$

Increase in Stocks. The increase in stocks inventory accumulation has been defined as an exogenous variable. Its value varied from two to ten par cant of gross fixed capital formation during the period from 1962 through 1969 (52: 16-17). For tha purposes of this study it has been assumed to have a value of zero during tha projection period.

Prices. Currant prices are used in this studys Data which would have allowed variables to ba stated in monetary tmits of constant purchasing power or which v/ould have allowed historic data to have been deflated are either nonexistent or not sufficiently reliable. Tha data needed to formulate and construct tha behavioral fxmctions are presented in Appendix A.

The Projection Model

The projection model composed of tha elements described in tha previous section is presented belows The value of the parameter coefficients are given for the behavioral equations. The F ratios and the correlation determinants are also given to the right of each regression aquation. Tha P test v/as significant .at the 0.01 level in each case. The standard errors of tha coefficients are given in parentheses just below the coefficients.

(1) $Y\hat{}_d = Y - Y\hat{}_g$

(2) $S_g = Y_g - C\hat{}_g$

(3) $S_p = Y_d - C_p$

(4) ^g = ^r ^ \b ^ ^tk ^ ^tn -^ ^o

(5) Mg = M^ + ^ir ^ \ ^ ^0

(6) Cp = ^d -^ ^n -^ ^f ^ ^s

(7) I = Ip ^ Ig ^ ^m ^ ^s

(8) $Y = C_P + C_g + I + E - M$

(9) $C = C_P + C_g$

(10) $S = S\hat{}_P + S\hat{}_g$

(11) Savings Gap = S - I

(12) $E = E_g + E\hat{}_s$

(13) $M = M_g + M\hat{}_s$

(14) Trade Gap = E - M

(15) Cg = -316.10547 + 0.74354 Y_g F = 422.593
(458.47888) (0.03617) R^ = .9941

(16) Yg =. -025s7l875 -f Os15058 Y F = 140.708
(560s54085) (Os01269) R^ = .9827

(17) log y^ = 4.93518 4- 0.04746(t-1962) F = 280.743
(.00848) (.00283) R^ = .9912

(18) C^ = -1543.42139 « Os06941 Y^ F = 225s073
(83.67875) (Os00463) R^ = s9891

(19) C^ = 5424s90625 + Os54174 Y^ F = I88s151
(715.50918) (0.03949) R^ = .9870

(20) Cg = 1111.46484 + .13783 Y^ p = 201.675
(175.81050) (.00971) R^ = s9878

(21) C^ = -61s37148 - 119.12848(t-1965) F = 14.823
(111.56252) (30.94159) R^ = .8647

(22) M^ = 1359-81836 4- 0.04010 Y^ F = 121s997
(65-69824) (0.00363) R^ = .9801

(23) Mj_^ = -1672s94385 -f Os05769 Y F = 393-340
(255.87422) (Os00291) R^ = s9937

(24) IM^ = -2250.41797 » 0.08479 Y F = 72.595
(898.94121) (0.00995) R^ = .9672

(25) MQ = -362.19702 + 0^04643 Y F = 12K708

(372^86397) (0^00421) R^ = ^9801

(26) Mg = -655-51709 + 0^01679 Y F = 57-876

(181^59232) (0^00221) R^ = ^9594

(27) e ^ = Y ^ - C ^

(28) A_{pr} = 41226^32813 -f 416^54004(t-1965) P = 1.021

(1486^61583) (412^31299) R^ = .4117

(29) E^ = Pp • e^

(30) log a^^ = 3.95027 -f 0^63426 log Y^ F = 7.663

(0^33645) (0^22912) R^ = ^7779

(31) E^b =^rb • ^rb

(32) E^^ = 1171.71411 -h 178^24997(t-1965) F = 32-974

(111.92040) (31.04143) R^ = -9318

(33) E^ = -5404.55469 + 71.90028 Y^ F = 28.341

(1987.36024) (13.50582) R^ = .9220

(34) E_s = 3507.25537 -f 1075.42163(t-1965) F = 48.987

(554.00016) (153.65193) R^ = .9526

(35) I_p = 322^51563 -f 0^31332 M F= 331.895

(313-05074) (0^01720) R^ = .9926

(36) I_g = -1670^60157 "f 0^31895 M F = 2236^985

(122.29923) (0.00674) R^ = .9989

(37) $1^{\wedge}$ = -3572^15625 + 0^66660 M F = 1041.810

(376^17282) (0^02065) R^ = ^9976

Tha model consists of 25 endogenous variables, 25 endogenous equations, 21 exogenous variables, and 12 exogenous aquations.

The endogenous variables are: C, C-, , C , C^, C ,
' a' g' n' p'
^s' I' h' ^m' Ip' M' \ ' \ ' \ r ' \ ' «o' ^B' 2' Sg.
S_r, savings gap, trade gap, Y, Y_{-}, and Y .
·T' U g

The exogenous variables are: A^{pr}, $C^{\wedge}$:, C^{r}, E, E^{g}, $E_{„}$, E^, e^, E^^^, e^^, E^, E^^, E.^^, I^, P^, P^^, R, r, t, Y^, and Y^.

To find the value of both tha savings-investment gap and tha trade gap, tha number of endogenous equations can be reduced to eleven simultaneous equations by substitution of soma equations into other appropriate equations. There are only eleven endogenous variables left: Y_g^{-}, C_g, S_g^{a}, $Y_{,}^{p}$, C^{p}, S^{p}, S , I , Savings gap, M, and Trade gap^ The system of simultaneous aquations is given below•

(16) Y_g = -925.71875 + 0^15058 Y

(15) $C^{\wedge}_g$ = -316^10547 -f 0^74354 Y_{π}

(2) S_g = -609.61328 4- 0.15058 Y - 0.74354 $Y_{„}$
S

(1) Y^ = 925.71875 -f 0.84942 Y

(5) c_p = 4931.57822 4- 0.74898 $Y^{\wedge}$ - 119.12848(t-1965)

(3) Sp = -4005.85947 "f 0.84942 Y - 0.74898 Y^

+ 119.12848 t

(10) S = -4615.47275 + Y - 0.74898 Y_{a} - 0^74354 Y_{o}

+ 111.12848(t-1965)

(7) I = -4920.25218 4- 1.29887 M

(13) M = -3581.25757 + 0.04010 Y^ 4- 0.20570 Y

(11) Savings gap = 4956.83357 + 0.73241 Y - 0.8009

•f $Y_{a'}$ - 0.74354 Y_{g} 4- 119.12848(t-1965)

(14) Trade gap = E 4- 3581.25757 - 0.04010 Y^

- 0.20570 Y

Both gaps can ba solved in terms of exogenous variables• Given tha value of the exogenous variables, both gaps can be projected• Tha projections of the exogenous variables are presented in tables in Appendix B^

Incorporation of Alternative Growth Rata Assumptions

Tha trade gap and savings-investment gap have been projected from 1969 through 1975" under five different assumptions concerning the growth rates• Recall that the target growth rates are stated in terms of the change in GDP.

Assumption 1

Tha first assumption is that tha future growth rate will ba at 8^5 per cant par year. This is tha target specified in tha second five-year plan (1967-1971).

Assumption 2

Tha second assumption is that tha future growth rata will be similar to tha real growth rata (deflated) in the recant past (1962-1968), 8.0 per cant par year as determined by tha method of least square.-^^

Assumption 3

Tha third assumption is that tha future growth rate will ba at 7.2 par cant par year. This was tha actual growth rata during tha first six year plan (1961-1966)•

Assumption 4

Tha fourth assumption is that tha future growth rata will ba at 6^5 par cant per yaar^ This was tha actual growth rata during tha first part of the first six-yaar plan (1961-1963)-

---

*log y^ = 4.90616 4- 0.03335(t-1962) F = 862^816

(0^00332) (0^00114) R^ = ^9971

where: 1 4- r = antilog of 0.33335

r = 8.0 per cant

Tha data used are shown in Table A.I.

Assumption 5

The fifth assumption is that the future growth rate will ba at 4-5 par cant per year. This was the target during the first half of tha first six-yaar plan (1961-1963).

The trade gap and savings-investment gap projections for tha alternative growth rates are presented in tha next chapter^ Each sat of projections incorporates an assumption that prices will increase during tha projection period at tha same rate as was axparianced from 1962 through 1968^

CHAPTER V

PROJECTED FOREIGN ASSISTANCE REQUIREMENTS OF THAILAND, 1969-1975

The two-gap projection modal presented in tha previous chapter was used to project the foreign assistance requirements of Thailand for two possible sets of circiim-stances for the period from 1969 through 1975. The first case. Case I, involves tha extrapolation of conditions existing in tha period from 1962 through 1968 including tha impact of United States military expenditures in Thailand• Tha second case. Case II, involves projections based upon an assumption that United States military expenditures in Thailand decrease•

Projected Foreign Assistance Requirements: Case I

The savings gaps and trade gaps and resulting foreign exchange raquireraants were projected for Case I for the five target growth rata assumptions which ware explained in tha previous chapter^ These projections and projections of selected endogenous variables are presented in this section^

Projected Trade Gaps and Saving Gaps for Alternative Growth Rata Targets

The projected trade gap from 1969 through 1975 is greater than tha projected savings gap for the high GDP growth rate targets of 8^5 per cant, 8^0 par cant, 7^2 per cant, and 6.5 per cent (Table 5.1). For tha lowest of the target rates of growth, 4.5 par cent, however, tha savings gap is greater than tha trade gap, except for 1969.

The projected trade gap for tha highest growth rata target, 8^5 par cent, increases from about 3^2 billion baht (about S160 million) for 1969 to about 11.1 billion baht (about $556 million) for 1975- The projected savings gap at 8.5 per cent grov/th in GDP is not only smaller but also it increases mora slowly. It increases from about 2^2 billion baht (about S110 million) for 1969 to about 6^3 billion baht (about $315 million) for 1975- \

For the lowest growth rata target, 4-5 par cant annual increase in GDP, tha trade gap is about two-thirds as large as it is at the highest target growth rata in 1969 (Table 5.1). For tha 4.5 per cant GDP growth rata tha trade gap dacraasas through 1973 and an export surplus is projected for 1974 and 1975.

The projected savings gap at the lowest target growth rata for 1969, about 1^9 billion baht ($95 million), is only about 0.3 billion baht smaller than tha projected

savings gap for 1969 at the highest target growth rate. At tha end of tha projection period, however, the projected savings gap at tha lowest target growth rate is about 3.4 billion baht (about Si70 million) and is about 6.3 billion baht (about $315 million) for tha highest target growth rata.

For all target growth rates, except 4.5 par cent, the trade gap increases rapidly throughout the projection period (Table 5.1). The rates of increase in tha trade gap over tha projection period range from 11.5 per cent for tha 6^5 per cant growth target to 22^9 par cent for the 8^5 per cant growth targets

Tha projected savings gaps increase rapidly over the projection period for each target GDP growth rata^ Tha rata of increase in tha size of tha savings gaps over tha projection period ranges from about 10,3 per cant for tha 4^5 par cant growth rata target to about 18^6 per cent for tha 8^5 per cant growth rata targets

As tha target growth rata is increased both gaps increase • However, tha projected trade gap increases mora rapidly as tha target growth rate is increased than tha projected savings gap increases^

Tha projected trade gap as a par cant of GDP for tha 8.5 per cant growth rate target increases during tha projection period from 2.5 par cant for 1969 to 5.4 per cant

TABLE 1

(PERCENT CHANGE, 1969 TO 1970, AND SELECTED PRIOR PERIODS)

	1969	1970	1971	1972	1973	1974	1975	1976
GDP								
Real GDP	2.7	-0.3	3.3	5.6	5.4	-1.8	-2.0	5.4
Real GDP per capita	1.5	-1.4	1.9	4.2	4.0	-3.2	-3.4	3.8
Real GDP per employed person	0.7	-0.4	1.4	2.4	2.2	-0.1	-1.1	3.1
Industrial production	3.3	-4.8	4.8	8.7	11.3	-5.1	-8.4	11.2
Employment								
Civilian employment	2.0	0.5	1.9	3.2	3.2	1.7	-1.1	2.3
Nonfarm employment	2.6	0.2	2.1	3.6	3.8	1.8	-1.4	2.7
Manufacturing employment	0.6	-3.8	0.4	3.1	4.3	-1.4	-7.9	4.1
Unemployment rate (level)	3.5	4.9	5.9	5.6	4.9	5.6	8.5	7.7
Prices								
Consumer prices	5.4	5.9	4.3	3.3	6.2	11.0	9.1	5.8
Food prices	4.8	6.4	3.0	3.0	14.5	14.3	8.4	2.4
Wholesale prices	3.2	0.4	3.3	6.2	15.1	20.3	9.1	4.5
Farm prices	6.1	-3.2	3.1	15.1	37.1	14.5	-1.9	-0.5
Industrial prices	3.2	2.0	3.4	4.8	9.9	20.8	11.1	6.1
Compensation per hour	7.1	7.4	6.8	6.8	7.7	9.0	8.5	5.1
Nonfarm business	6.8	6.9	6.4	6.4	7.2	8.7	8.1	4.8
Manufacturing	6.8	6.9	6.4	6.4	7.2	8.7	8.1	4.8
Productivity								
Nonfarm business	0.2	-0.5	3.0	3.4	1.8	-3.4	1.0	2.4
Manufacturing	0.2	-0.5	3.0	3.4	1.8	-3.4	1.0	2.4
Unit labor costs								
Nonfarm business	6.6	7.4	3.4	3.0	5.4	12.7	7.0	2.4
Manufacturing	6.6	7.4	3.4	3.0	5.4	12.7	7.0	2.4
Corporate profits								
Before taxes	1.7	-15.1	22.0	15.1	12.1	-16.5	19.1	36.4
After taxes	1.7	-15.1	22.0	15.1	12.1	-16.5	19.1	36.4
Personal income								
Current dollars	8.3	7.3	7.9	9.2	10.1	9.3	7.3	8.1
Real	3.4	1.0	3.4	5.6	4.6	0.3	-0.7	2.7
Real per capita	2.2	-0.2	2.0	4.4	3.4	-0.9	-1.9	1.9
Disposable personal income								
Current dollars	8.3	7.3	7.9	9.2	10.1	9.3	7.3	8.1
Real	3.4	1.0	3.4	5.6	4.6	0.3	-0.7	2.7
Real per capita	2.2	-0.2	2.0	4.4	3.4	-0.9	-1.9	1.9
Personal saving rate (level)	7.5	8.3	8.2	8.0	8.0	8.4	8.4	7.6
Money supply (M1)	3.1	5.1	6.5	8.0	5.2	4.8	4.6	5.8
Interest rates (level)								
Federal funds	8.2	7.2	5.3	5.5	8.7	10.5	5.8	5.0
Treasury bills (3-month)	6.7	6.5	4.3	4.1	7.0	7.9	5.8	5.0
Treasury bonds (long-term)	6.1	7.4	6.6	6.2	6.8	7.4	8.0	7.6
Corporate bonds (Aaa)	7.0	8.0	7.4	7.2	7.4	8.6	8.8	8.4
Home mortgages (FHLBB)	7.4	8.3	7.7	7.5	7.8	8.8	9.0	9.0
Federal budget (fiscal year)								
Receipts	8.3	3.4	5.2	11.2	13.8	14.4	2.1	6.3
Expenditures	6.2	9.6	8.4	8.7	9.2	12.7	12.0	5.9
Deficit (-) or surplus	25.3	-23.0	-12.4	15.1	25.1	-1.1	-53.2	-3.1
Federal debt (end of year)	1.1	2.1	4.1	4.0	3.1	3.1	6.1	5.8
Balance of payments								
Merchandise exports	11.6	5.1	5.1	17.1	43.1	39.1	11.1	19.1
Merchandise imports	11.1	1.1	11.1	15.1	31.1	41.1	11.1	21.1
Merchandise trade balance	1.1	4.1	-6.1	2.1	12.1	-2.1	1.1	-2.1
Current account	1.1	2.1	-1.1	7.1	7.1	-1.1	18.1	4.1
Exchange rates								
Trade-weighted dollar	1.1	4.1	-6.1	-4.1	-1.1	-4.1	-4.1	-4.1
Foreign currency units per U.S. dollar								
Canadian dollar	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
French franc	5.5	5.5	5.1	4.9	4.2	4.3	4.8	4.8
German mark	3.7	3.6	3.4	3.2	2.7	2.6	2.5	2.4
Japanese yen	359	358	349	303	272	292	297	297
Swiss franc	4.3	4.3	4.1	3.8	3.2	2.6	2.5	2.4
U.K. pound	2.4	2.4	2.4	2.5	2.3	2.3	2.2	1.8

NOTE: Data for 1976 are preliminary.

PROJECTED TRADE GAPS AND SAVINGS-INVESTMENT GAPS AS PERCENT OF GDP FOR SELECTED ALTERNATIVE GROWTH RATE OF GDP, 1969-1975*
(PER CENT)

Item	Year						
	1969	1970	1971	1972	1973	1974	1975#
Export	5.7	5.8	5.9	6.0	6.1	6.2	6.3
Import	7.4	7.5	7.6	7.7	7.8	7.9	8.0
Trade gap	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Net factor income from abroad	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Net transfers	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Savings-investment gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross domestic savings	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Gross domestic investment	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Memo: Savings rate	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Investment rate	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Incremental capital-output ratio	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Rate of growth of GDP	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Source: A. Khan, "Trade Gaps and Savings-Investment Gaps: Some Projections for Pakistan", Pakistan Development Review, Vol. VIII, No. 1, Spring 1968, p. 45.

No trade gap or surplus.

* Assuming that the net factor income from abroad and net transfers from abroad remain constant at the 1968-69 level.

for 1975 (Table 5-2). At tha 4.5 per cant target growth rata, the trade gap as a par cent of GDP declines from 1.7 par cant for 1969 to 0.2 par cant for 1973. For 1974 and 1975 there is no projected trade gap at this growth rata. Tha projected savings gap as a par cent of GDP over tha projection period varies from a low of about 1^6 per cant for a 4.5 per cant grov/th rata for 1969 to a high of about 3.0 par cant for an 8^5 per cant growth rata for 1975.

In terms of tha Chanary-Strout growth phases, it can ba said that in Case I tha projections indicate that at an annual GDP growth rata of 4.5 par cant Thailand v/ould move from a trade constrained phase of growth to a savings constrained phase of growth during 1970^ At all other target rates of growth, however, Thailand would remain in a trade constrained growth phase•

Tha relative size of the savings gaps and trade gaps associated with tha alternative target growth rates is indicated in Figures 1 and *2.* Figures 3 and 4 allow comparison batwaan tha actual gaps during tha historical eriod from 1962 through 1968 and the gaps projected for 969 through 1975.

During tha period from 1962 through 1968 the size of .a trade gap fluctuated a great deal (Figure 3). The nual rata of increase over tha period was about 45 per

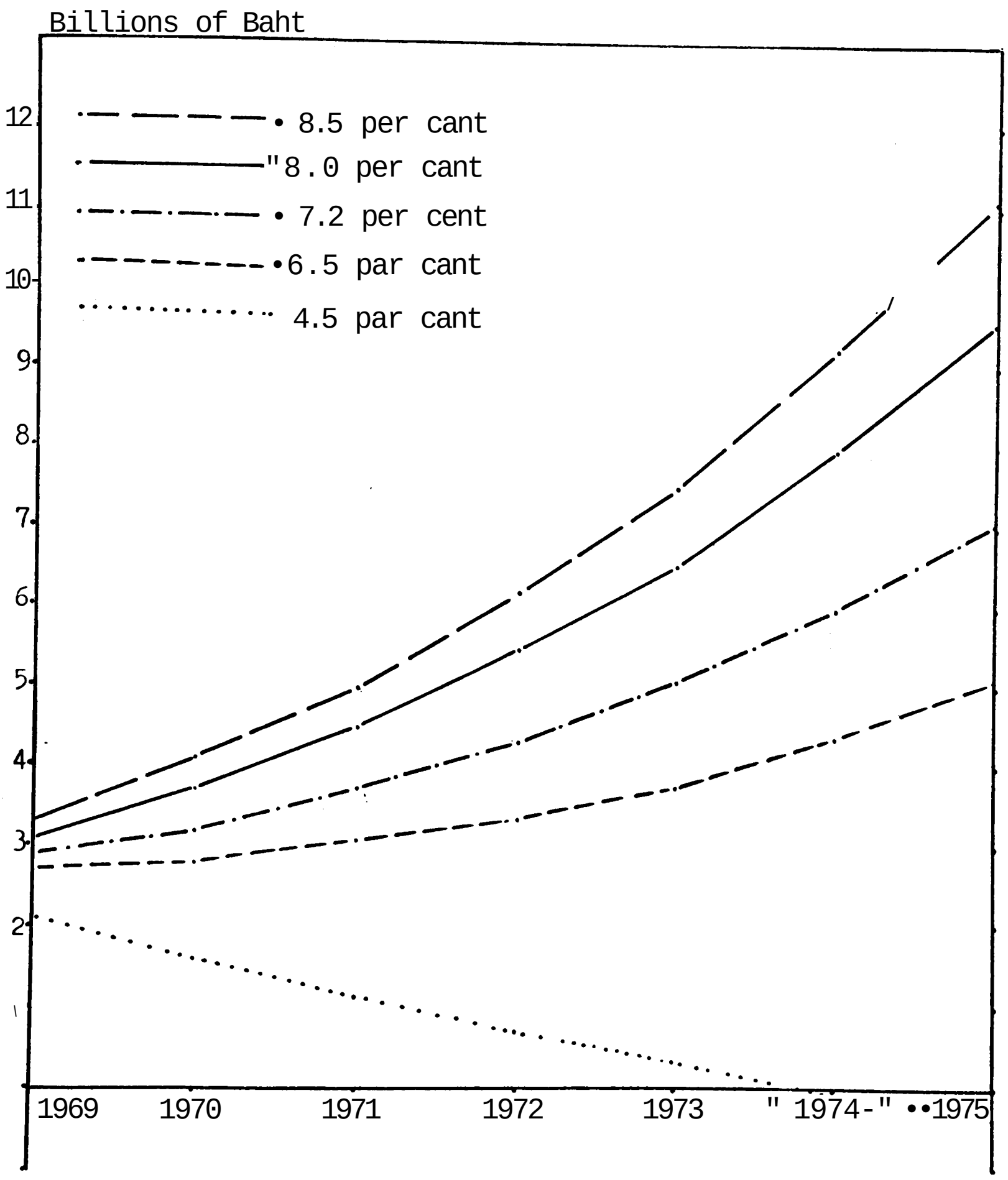


Figure 1 .—Projected trade gaps associated with selected rates of growth (See Table 5.1)

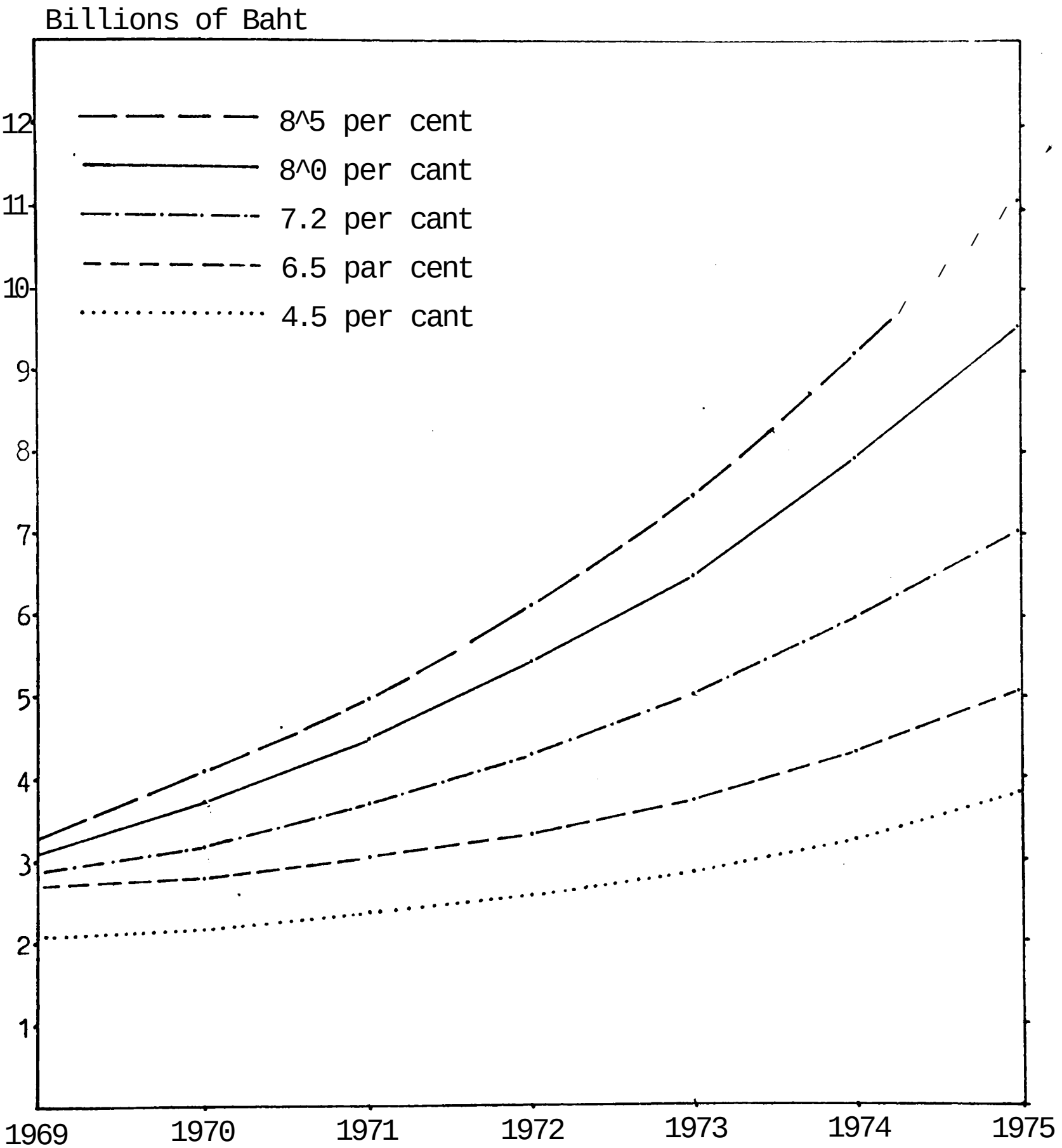


Figure 2.—Projected savings-investment gaps asso-- ciated v/ith selected rates of growth (See Table 5-1).

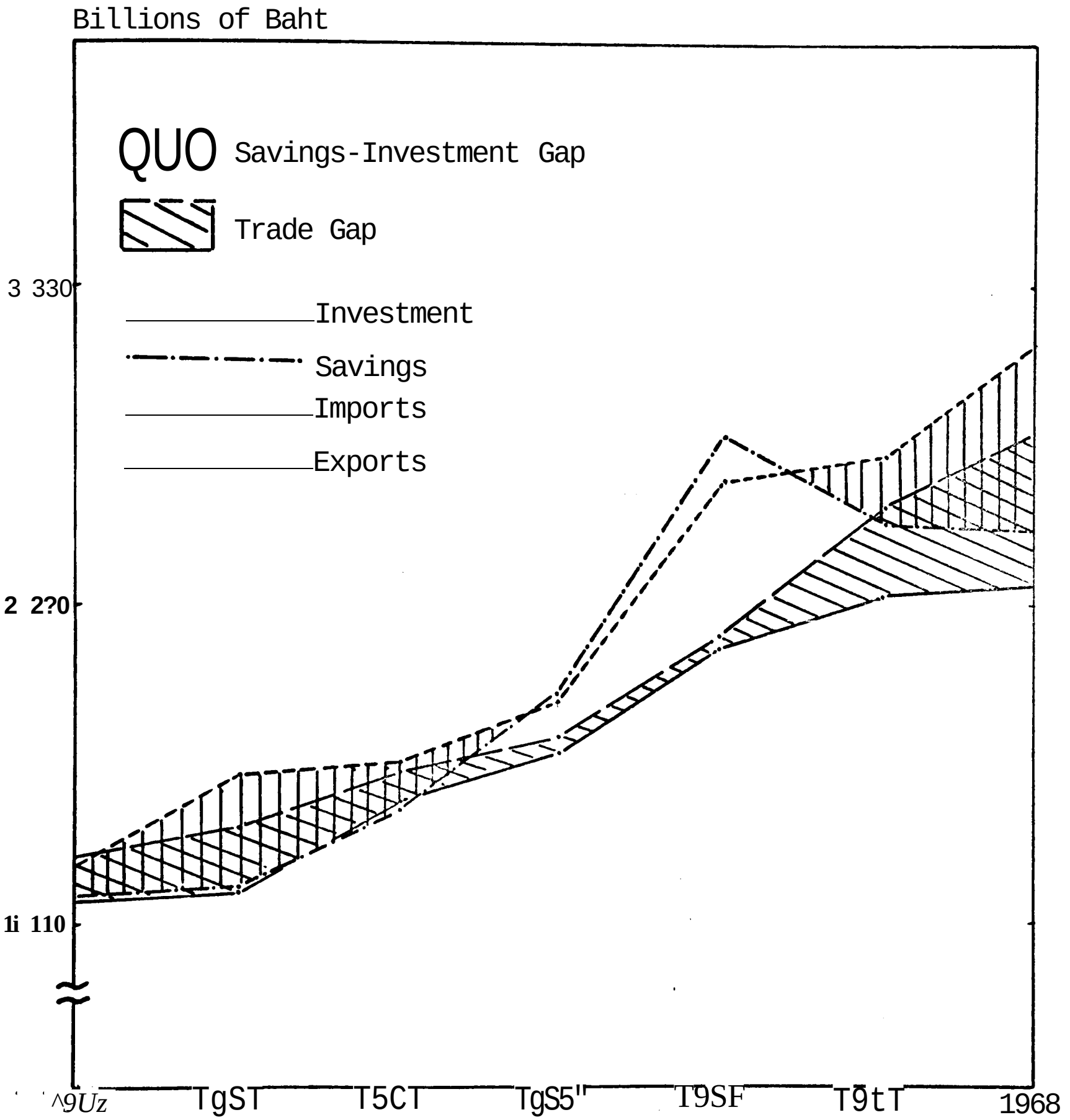


Figure 3-—Previous savings-investment gaps and trade gaps (See Table A.10, A.11).

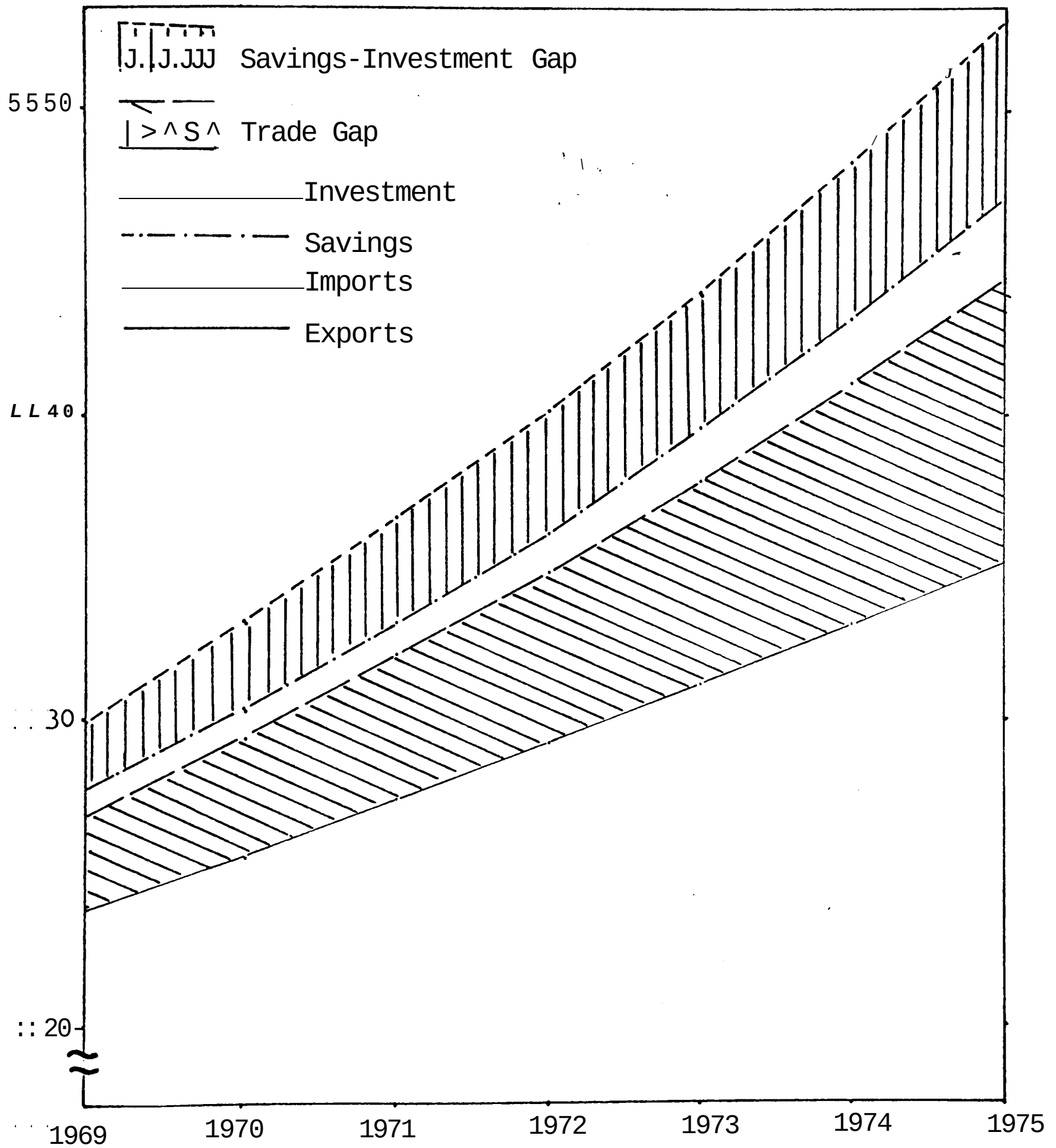


Figure 3.—Projected savings-investment gaps and trade gaps (See Table 5-3, 5-4).

cent (Saa Table A.10). Tha rata of increase in tha size of the projactad trade gap for tha 8.0 par cent growth target is about 21 par cent (Figure 4)^

Tha actual savings gap during tha period from 1962 through 1968 fluctuated from a significant gap at tha beginning of the period to no gap for 1965 and 1966 to a significant gap at the and of tha period (Figure 3 and Table A^ll)^ For tha 8^0 par cant growth rata target the projected compound growth rata of tha increase in tha size of the savings gap over tha projection period is about 18 per cant (Figure 3)^

Projections of Endogenous Variables

Projections of endogenous variables under tha assumption of a target annual growth rata in GDP of 8.0 par cant are presented in Tables 5-3 and 5.4.* The projected values of the endogenous variables which datannina the trade gap are presented in Table 5.3 and tha projactad values of tha endogenous variables which determine the savings gap are presented in Table 5*4.

Projactad exports of goods for tha period from 1969 through 1975 increases at a rata of 4.6 per cant par year (Table 5.3)- This growth rate results from relatively rapid projected increases in tha exports of tin and tha

*^Tha projections of the endogenous variables at the other alternative GDP growth rates are given in Appendix C.

TRADE GAP PROJECTIONS

(

Manufacturers	1.00	0	0.00	0.00	0.00	0.00	0
Other	0.00	0	0.00	0.00	0.00	0.00	0
Total	1.00	0	0.00	0.00	0.00	0.00	0

Total may not equal sum of parts because of rounding.

Source: Derived from data in Table 3.

goods in tha "other" category offset by a decrease in projected rice exports^ Tha reduction in projected rice exports is due to a higher population growth rata than tha rate of growth in rice production (Sea Tables B^l and B^2)^ Changes in tha composition of total exports over the projection period is indicated in Figure 5.

Projactad total imports of goods at tha 8^0 per cent target growth rate increases at a rate of 8.8 par cent per year (Table 5.3). The projected annual increase in consumption goods imports, 7-5 par cant, is significantly lass than tha projactad annual increase in imports of intermediate products and raw materials, 9-9 per cent, and in imports of capital goods, 9-7 per cant. Tha projactad composition of both goods and services over the projection period is illustrated in Figure 6.

The savings gap projections are derived from tha savings function and tha investment function. Projected total savings for tha 8.0 par cant target growth rata increases at an annual rate of about 9-6 per cant (Table 5.4). Tha growth rata of total savings is accounted for by a projactad increase in private savings of 9-2 par cant par year and a projactad increase in govarnmant savings of about 7.9 per cant per yaar^

The projected composition of total consumption is illustrated in Figure 7- The relative size of tha components

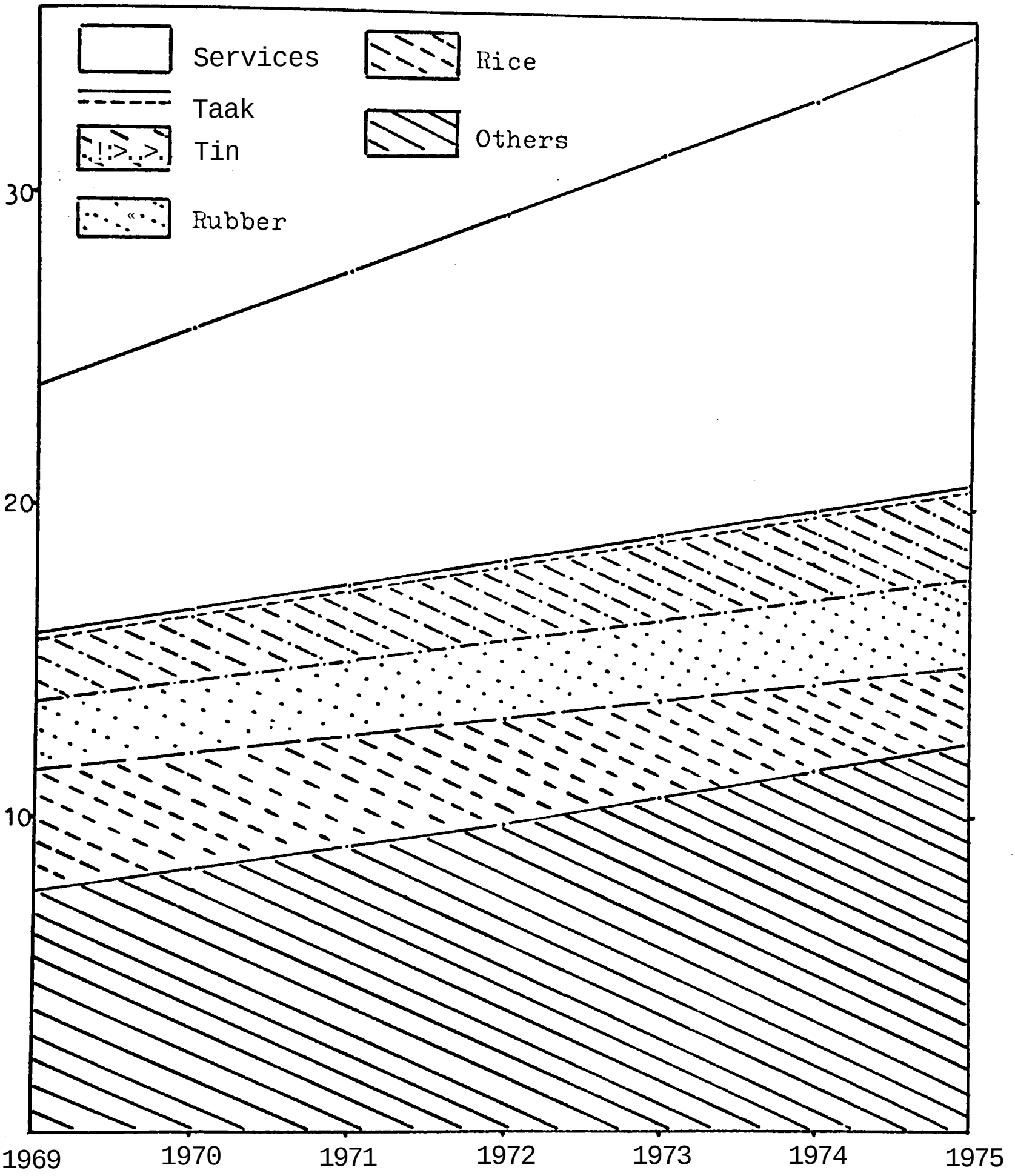


Figure 5-—Projected composition of total exports (See Table A.5)-

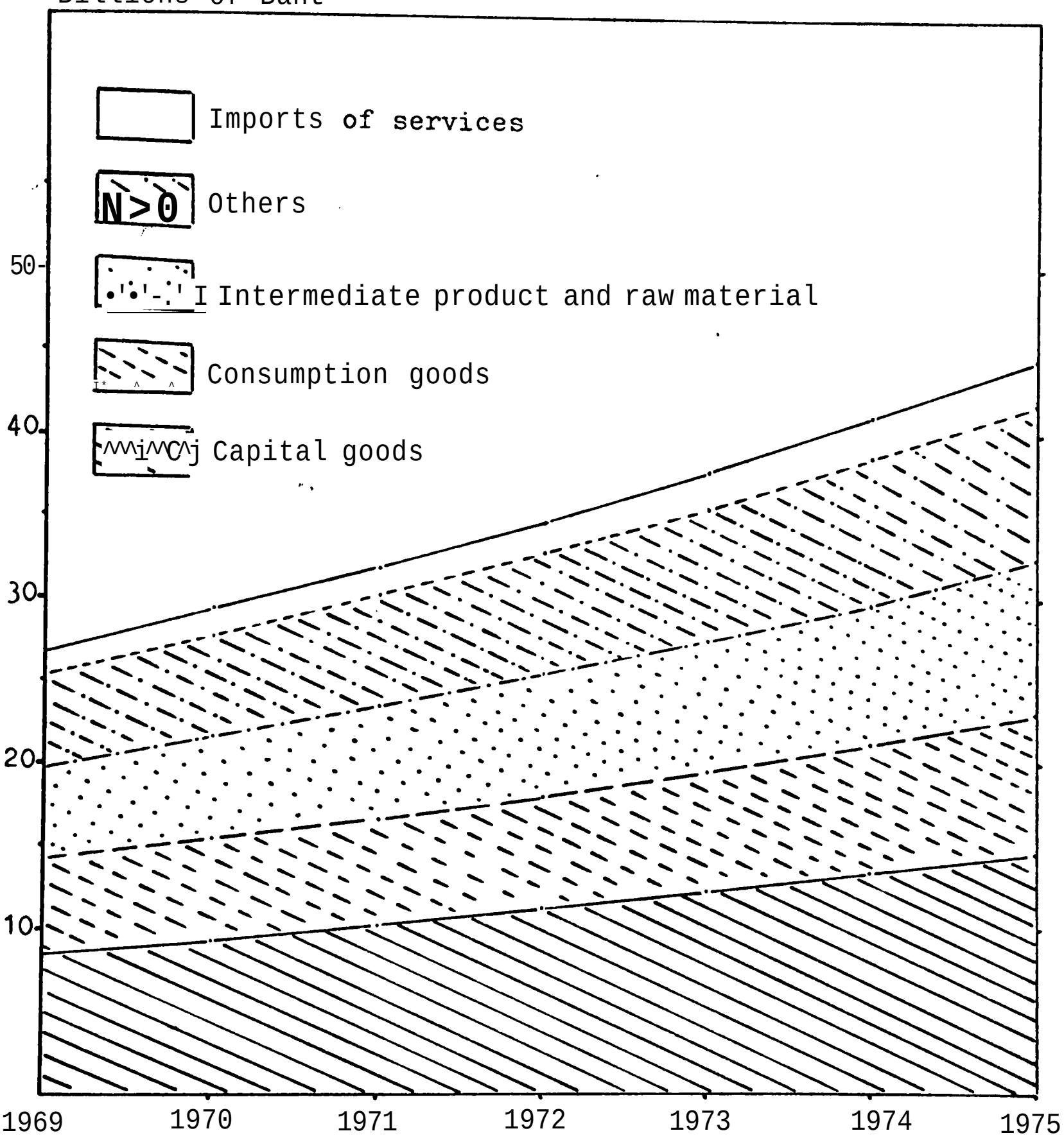


Figure 6.—Projected composition of imports of goods and services (See Table A.4).

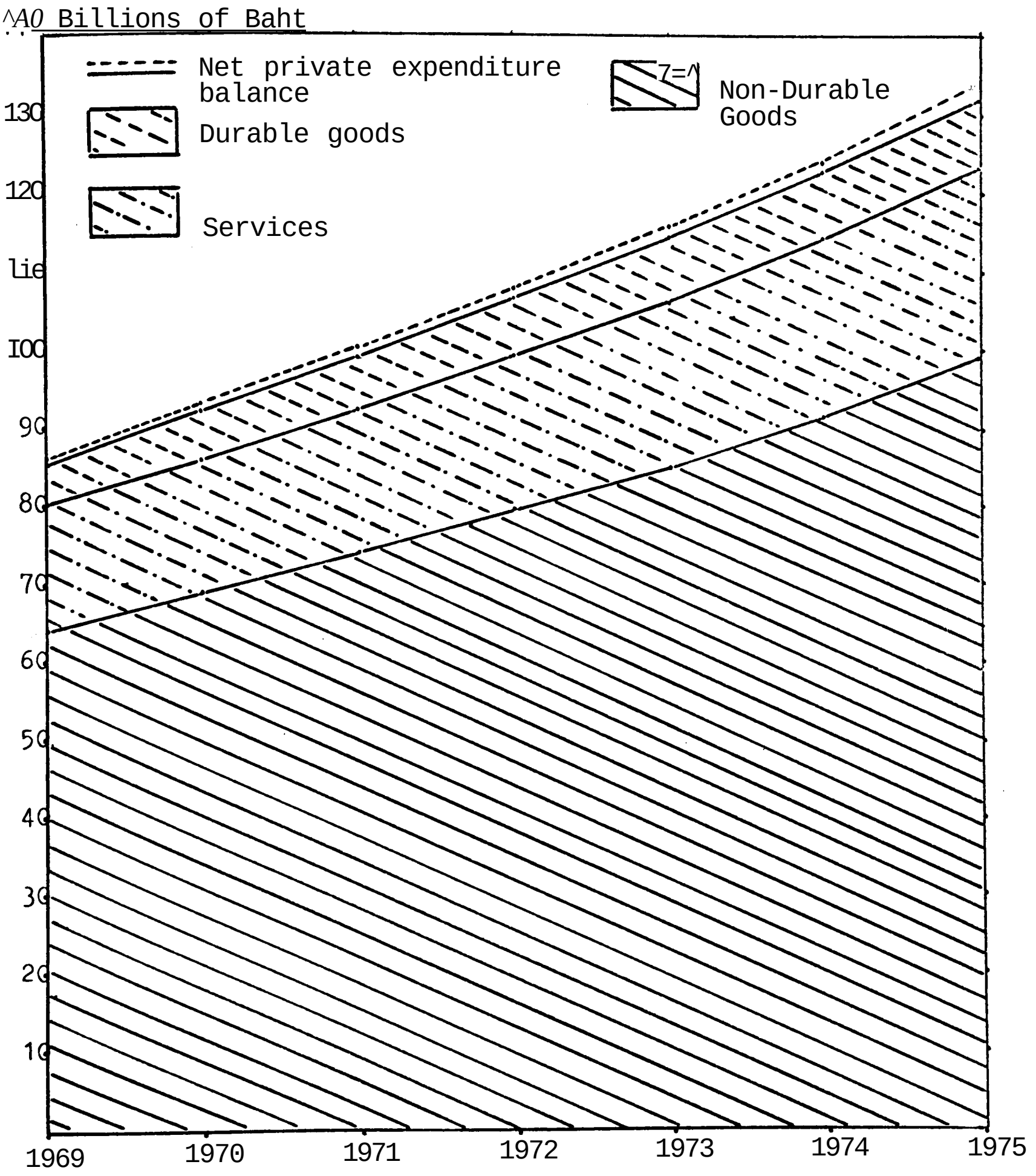


Figure 7.—Projected composition of private consumption expenditures (See Table 5.4).

of projected total investment are indicated in Figure 8.

Projected total investment increases over the period at an annual rata of about 10 per cent (Table 5.4). Projected public sector construction expenditures, increase at a faster rata than projected private construction expenditures. Tha rata of increase for the former is about 10.5 per cant and about 8.6 per cent for the latter. The projected rate of increase in investment in transportation equipment and other machinery and equipment is about 10.6 per cant.

Although projactad savings increases almost as rapidly as projactad investment, tha savings gap more than doubles over tha projection period. This indicates that the size of tha savings gap would ba sensitive to rather slight changes in tha rates of increase or decrease of the major components of savings and investment.

Projected Foreign Assistance Requirements

Tha quantity of foreign financial assistance required, given tha assumptions made in this analysis, if the target rate of growth is to be achieved is equal to tha size of the larger of tha two gaps. Tha projections of the gaps assume that the larger ex ante gap for the first year projactad is filled by foreign financial assistance and that tha target growth rate is achieved for that year. However,

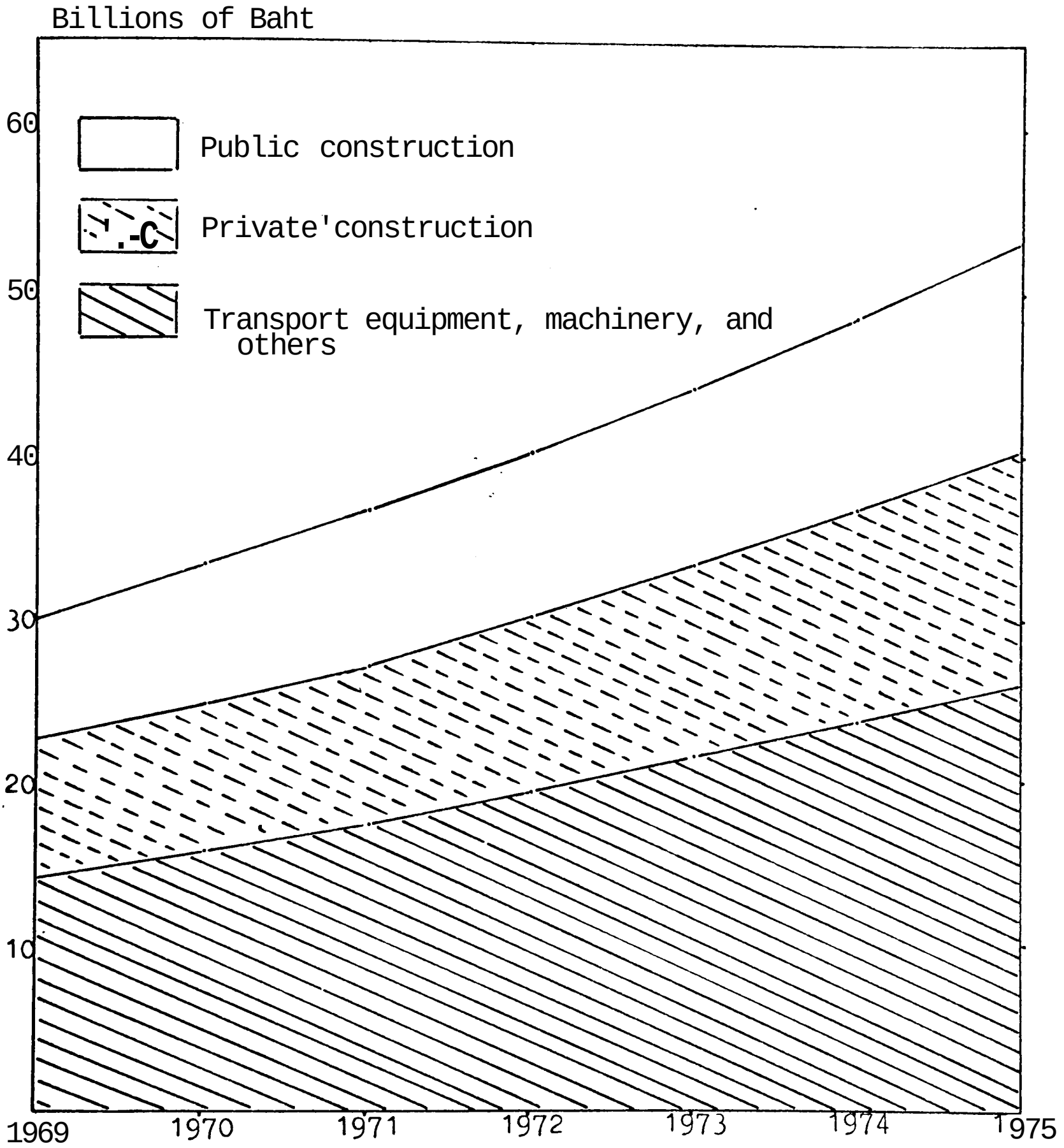


Figure 8.—Projected composition of domestic investment (See Table 5.4).

given the structural conditions of the domestic and international economy and the target rata of growth, ex ante gaps may again occur for the second year which must be filled if the target rata of growth is to be maintained, and so on for tha remainder of tha projection period.

The projactad foreign financial assistance requirements for Thailand derived from tha two-gap approach is equal to tha size of tha trade gap from I969 throUi^h 1975 for tha target GDP annual growth rates of 8.5, 8.0, 7.2, and 6.5 par cant^ For the target growth rata of 4.5 per cent tha foreign assistance requirement is equal to the size of tha savings gap for 1970 through 1975.

Tha quantity of foreign assistance required for the high target growth rata of 8.5 per cent increases from about 3.2 billion baht (about $160 million) in I969 to 11.1 billion baht (about $i556 million) for 1975 (Table 5.5). At tha low target growth rata of 4.5 par cent the foreign assistance requirement increases from about 2 billion baht (about $104 million) to 3.4 billion baht (about $171 million) for 1975. The yearly assistance requirements for the alternative target growth rates are given in Table 5.5.

During tha last few years Thailand has axparianced relatively rapid growth in GDP^ Tha annual growth rata in GDP was 8^0 par cant for tha period from 1962 through 1968^ During that period Thailand also received significant

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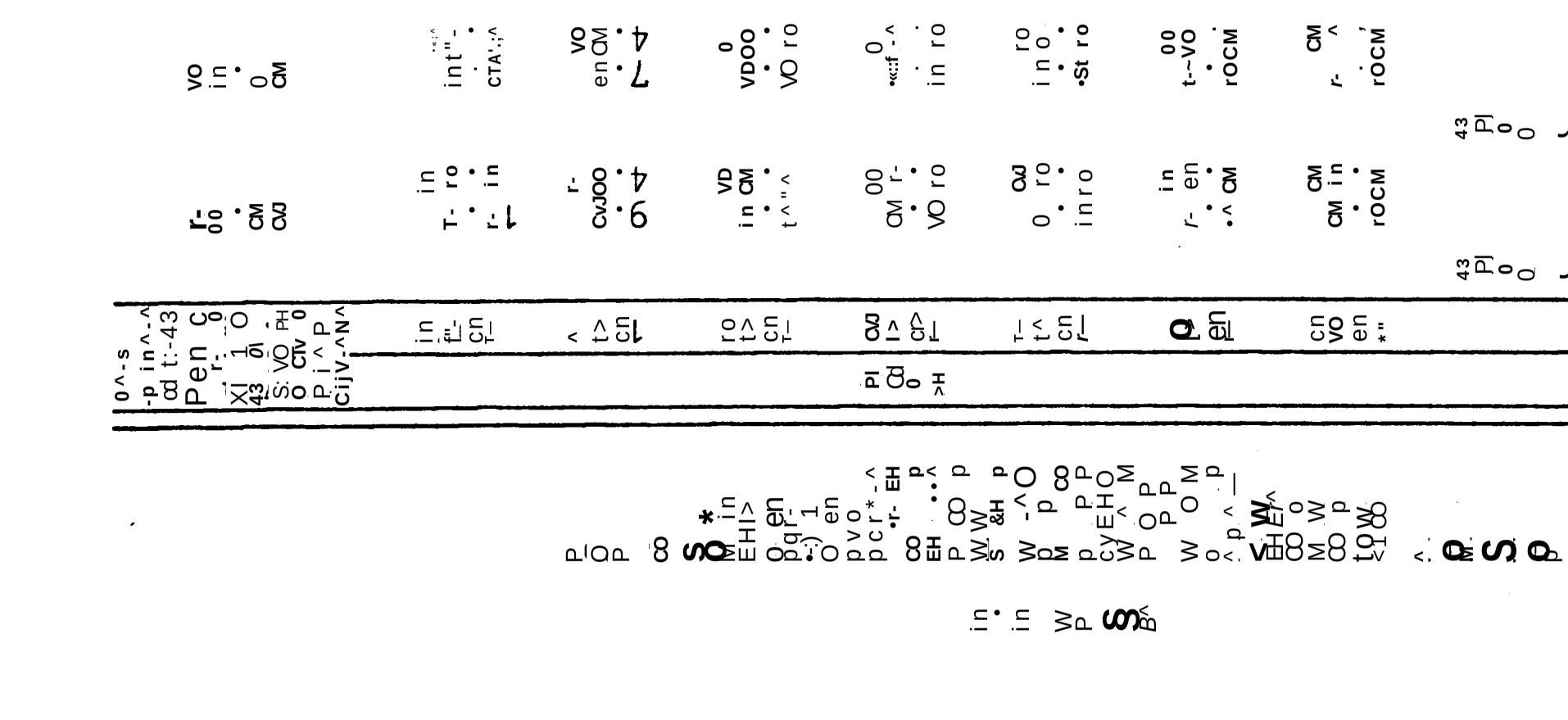


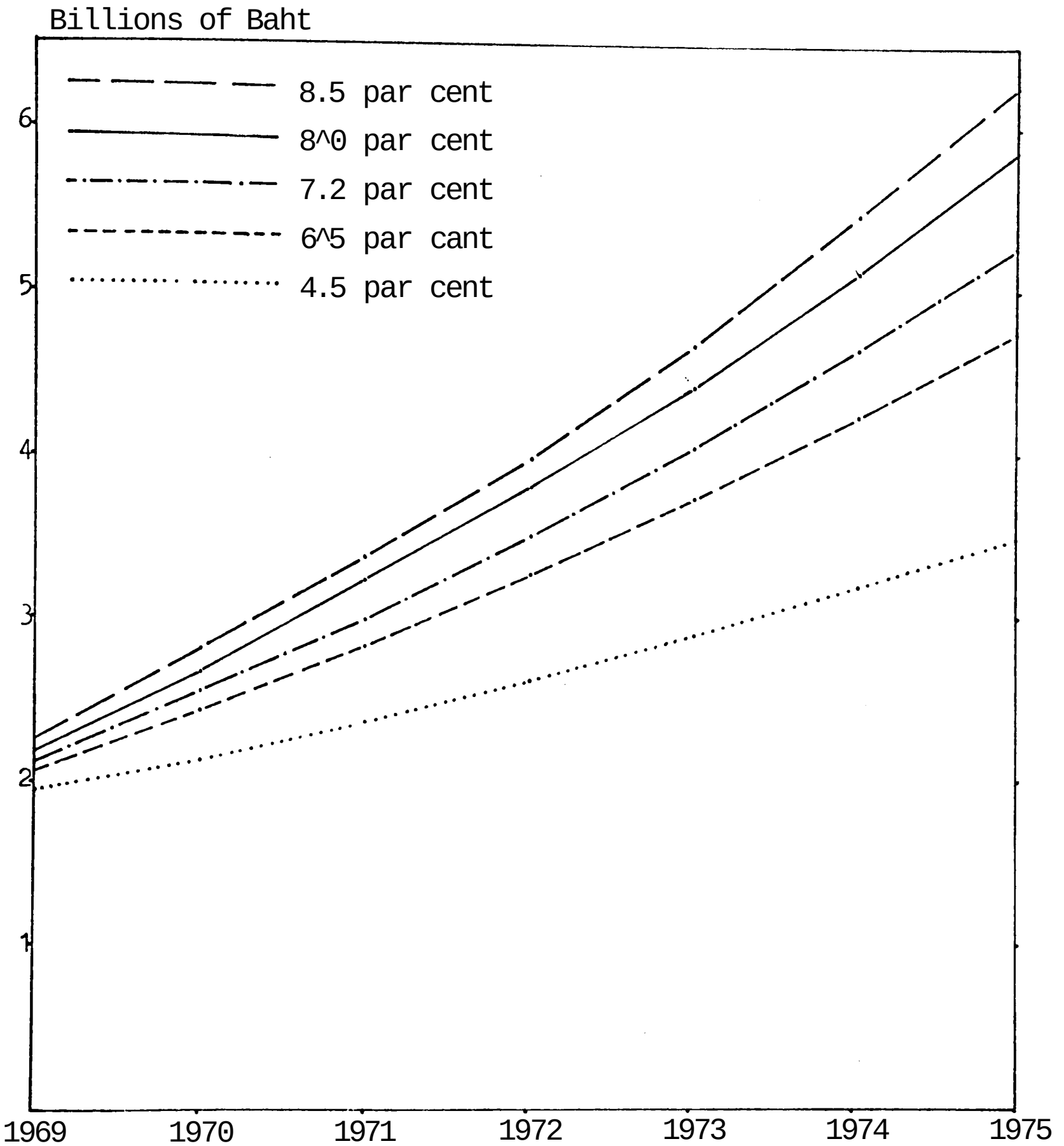


Figure 9-—Foreign assistance requirements for selected growth rates (See Table 5.5).

financial assistance inflows• For example foreign financial assistance averaged about 1^2 billion baht par year (about $60 million) from 1961 through 1966^

The projections indicate that under the conditions of Case I large quantities of foreign financial assistance will be required and that the financial inflows will have to increase relatively rapidly if tha high growth rata recently experienced is to be maintained• Tha projections also indicate that under tha conditions of Case I substantial assistance will be required to achieve the relatively low growth rate of GDP of 4.5 per cant^

The latest available data concerning actual foreign financial assistance indicate that about 3.5 billion baht (about ^;175 million) in 1968 (6)^ Tha Case I projections for 1969 are lass than this amount for even tha highest target grov/th rate (Table 5-^).

Projected 'Soreifm Assistance Requirements: Case II

Tha projections derived for Case I reflect tha rapid growth rate v/hich Thailand axparianced from 1962 through 1968. United States military expenditures in Thailand v/as one of tha factors which stimulated growth during that period. Case II differs from Case I in its assumption that United States military expenditures in Thailand will da-crease over tha projection period rather than increase.

Importance of U.S^ Military Expenditures in Thailand, 1963-T9^

United States military expenditures in Thailand increased from 296 million baht in 1963 to 5,618 million baht in 1968 (Table 5.6)• There was a large increase between 1965 and 1966 due to tha rapid expansion of tha number of U^ S^ military personnel stationed in Thailand• In early I960 there ware only 300 U^ Z. military personnel in Thailand• By September, 1967, there were 45,000 and by August, 1969, there ware 48,000 (64: 768)• The amount of U^ S^ military expenditure in Thailand changed tha economic structure of Thailand during that periods These expenditures accounted for 0^37 per cent of GDP in 1963 and increased to 4.78 par cant of GDP in 1968 (Table 5.6)^

U^ S^ military expenditures are recorded in tha balance of payments in two accounts, travel and "government *n. 1.* a^" (not included alsawhara)^ In tha national income accounts, however, tha travel receipts ware included in private consumption expenditures but the remainder, composed mainly of payment for services in Thailand, was included as part of tha government n^ i^ e^ in the service exports accounts Consequently, the amount of U^ S^ military expenditure in the government *n. ±.* e. category can ba obtained by subtracting the U^ S^ military expenditures in tha travel accoimt from total U. S^ military expenditures.

Since late 1965 U. S^ military personnel have entered Thailand for rest and recreation• The Tourist Organization of Thailand has estimated that about 7,000 U^ S^ military personnel have visited Thailand each month since than (50)• The typical visit lasted from four to eight days^ Tha average expenditure was about $40^00 per day. About 25 par cant of tha total expenditure was for lodging, about 30 per cent was for food and beverage, about 30 par cent was for souveniars and entertainment and about 10 par cant was for transportaion. Total receipts from tha U^ S^ military in tha travel account ware 213 million baht in 1966 and increased to 366 and 420 million baht in 1967 and 1968, raspacrivaly (Table 5.6).

These travel expenditures accounted for 0^5 per cant of private consumption expenditures in 1968 (See Table A.2).

Tha growth of U. S^ military expenditure in Thailand from 1962 through 1968 also influenced other imports, exports, total consumption, and domestic investments

Tha Impact on ImportSs Tha Bank of Thailand has divided total imports of goods into two categories: "regular imports" and "non-ragular imports" (Table 5-7). Those imports of goods induced by or due to foreign public and private financial assistance inflows and Us Ss military

TABLE 5-6

U.S. MILITARY EXPENDITURE IN THAILAND, 1963-1968*
(MILLIONS OF BAHT)

	1963	1964	1965	1966	1967	1968
U.S. Military Expenditures	^^^	^^^	^^^	2,688	4,300	5,618
Govarnmant n. i. as	296	404	830	2,475	3,934	5,198
Travel	0	0	0	213	366	420
U.S. Military Expenditures as the Percantage of GDP	0.37	0.54	0.98	2.65	3-97	4.78

^Including tha expenditure of U.S. military from Vietnam which came to Thailand for rest and recreation.

Source: Bank of Thailand, The Impact of The U.^. Military Expenditure on Thailand's Balance of Payment, Bangkok, 1969-

expenditures in Thailand are in tha non-ragular category. The remaining imports of goods are in the regular category.

Imports due ro U. S. military expenditures in Thailand increased at an average annual rata of about 100 per cant during the period irom 1963 through 1968 (Table 5.7). These axpenditure.o played an important role in the increase in Thailand's imports of goods during that period. Tha portion of total goods imported due to U. S, military expenditures in Thailand increased from about 3 par cant in 1963 to about 11 per cent in 1968 (See Table A.4).

Tha Impact on Exports. U. S. military expenditures in Thailand have h?d a significant impact on Thailand's exports in recant years. In 1968 purchases in Thailand by tha U. S. military amounted to about 75 per cant of total service exports or about 25 per cant of total exports (Table As5)-

Tha Impact on Domestic Consumption Expenditures United States military axpenditues have had an indirect impact on domestic consumption expenditures in tha past few yearss Military construction projects have provided employment for Thai civilianss Tha increased income generated by tha construction projects lead to increased consumer demand for goods and servicess

The expenditures of U. Ss military personnel who coma to Thailand for rest and recreation are included in the

TABLE 5-7

THE AMOUNT OF NON-REGULAR I1\TP0RT DUE TO FOREIGN FINAI^CIAL ASSISTAJMCE AND THE U.S. MILITARY EXPENDITURES, 1963-1968
(MILLIONS OF BAHT)

Year	Non-Regular Import due to	
	Foreign Financial Assistance	U.S. Military Expenditures
1963	2,496	395
1964	2,538	395
1965	2,286	644
1966	2,269	1,643
1967	3,409	2,725
1968	3,508	2,746

Source: Bank of Thailand, The Impact of the U.S. Military Expenditure on Thailand's Balance of Payments, Bangkok,"~T9^9"]i

private consumption expenditure account in Thailand's national income accounts. These expenditures amounted to 213 million baht in I966 and grew to 420 million baht in 1968 (Table 5.6). For tha latter year these expenditures, however, amounted to only 0^5 per cant of total private consumption expenditure (Saa Table A^2)^

Tha Impact on Domestic Investments Domestic investment grew rapidly in tha period from 1962 through I968. Public investment increased at an average annual rate of about 30 per cent while private construction increased at an annual rata of about 15 per cent (Saa Tables A^3 and A^ll). Tha increase in public investment was used for various projects designed to improve tha infrastructure• Much of tha investment in tha private sector was in construction induced by U^ S^ military expenditures in Thailand• Tha demand for food, lodging, and entertainment increased rapidly during tha periods For example, in I960 there ware 959 hotel rooms in Thailand but there ware an estimated 7,000 hotel rooms by 1967 and there ware than about 1,900 rooms either under construction or planned for construction in that year (46)^ Unfortunately there are no data available indicating tha amount of investment induced by U^ S^ military expenditures in Thailand in 1968^

An Adjusted Modal for Projections Under the Circumstances of Case II

Recant events indicate that U^ S^ military expenditures in Thailand may decrease in tha next few years• Agreement was reached in Septamber of 1969 on a reduction of military personnel in Thailand (64: 768)• Under tha agreement President Nixon directed that the number of military personnel in Thailand ba reduced by 6,000 by June 30, 1970^ Tha June 1970 ceiling was to ba 42,000 personnels

Changes in Assumptionss Tha Bank of Thailand has attempted to estimate tha impact of reduced Us Ss military expenditures in Thailand by projecting tha U. Ss military expenditures in Thailand which are recorded in tha balance of payments category entitled government ns is as (not included elsewhere) and by projecting tha imports induced by declining Us Ss military expenditures in Thailand (Sea Tables Ds3 and D.4).

Tha assumptions upon which tha Bank of Thailand projected Us Ss military expenditures ware that thay would decrease by one-fourth from I968 to 1969 and by one-third from 1969 to 1970 and by one-third again from 1970 to 1971. The projection of induced imports reflects tha assumed reduction of Us S. military expenditures in Thailands Tha rate of increase in imports induced by foreign assistance inflov/s was also substantially reduced s

The assumptions employed by tha Bank of Thailand were employed in the formulation of Case lis In Case II it is assumed that th^t portion of U^ S^ government military expenditures recorded in the balance of payments category entitled governri:ent n. i. e. decreased by one-fourth from 1968 to 1969 and at an annual rata of decrease of one-third per year for tha period from I97O through 1975. This portion of U. S. government military expenditures accounted for about 92 per cent of total U. S. military expenditures in Thailand in 1968.

The two-gap projection modal presented in Chapter IV was modified to deal with the assumptions incorporated in Case II. The impact of decreased U. S. military expenditures in Thailand on domestic investment expenditures and tha amount of travel receipts from U. S^ military personnel are ignored in tha modified projection models There is no data available dealing with tha magnitude of induced investment and tha travel receipts have in recant years amounted to only about 0^5 par cant of total private consumption expenditures• Consequently tha projactad savings gaps are the same for Case II as they ware for Case I^ Only tha trade gap is taken into account in the adjusted modal for Case II.

New Variables. Tha nev/ variables required for tha adjusted modal are:

^fits ≈ ®^PO^"ts of freight and insurance on merchandise, other transportation, and other services

•^gov "^ government n. i. *e.* (not included elsewhere)

M_{rg} = imports of "regular" goods

M_{nrg} = imports of "non-regular" goods

M^r_ U S ~ imports of "non-regular" goods due to tha U^ S^ military expenditure

M_{hr} ^^^ = imports of "non-ragular" goods due to foreign financial assistance

Changes in Functional Equations• Tha adjustment of tha modal requires no changes in tha projections of tha axports of goods since thay ware not related to U^ S^ military expenditures in Thailand• Tha ass'omad reductions affect tha export of services and tha import of goods• Consequently tha functional aquations which project these two items require adjustments

To formulate tha adjusted model total services exports is divided into two categories: exports of services included in the balance of payments category entitled govarnmant ns i. a. and tha remaining exports of services which includes exports of freight and insurance on merchandise, other transportation, and other services. The first category, which includes the amoimt of U. S^ military expenditure in Thailand, is an exogenous variable• Tha second category of services is assumed to ba a function of time •

%its = % ... iits -^ t>E fits ^

The previously discussed procedure of dividing total goods imports into tha categories of "regular" and "non-regular" devised by tha Bank of Thailand was used here (5).

$M_g = M_{rg} 4- M_{\wedge rg}$

The imports of regular goods is assumed to be a linear function of GDP^

\g+ = ^ ^hl rg Y

Tha non-ragular goods imports, those which result from or are induced by official and private financial assistance inflows 0'^^a-,ffQ,) ^^^ U^ S^ military expenditures in tha country (M^^g.U.S.^' ^^^ ^^ divided two components^

\rg = ^rg^U^S^ "^ \rg^ffa

Both of tha components are determined by policies of decision-makers outside of Thailand and are largely independent of normal market transactions• Consequently, both are exogenous variables^

Tha services imports are assumed to ba a linear function of Thailand's GDP^

^s = ^M^ -^ ^M_S ^

Tha adjusted portion of tha modal needed to project imports and exports with assumed reductions in U^ S^ military

expenditures in Thailand is presented below. The coeffi-cients of determination, P statistics, and error of the coefficient are also given for the behavioral equations.

(1) E = Eg + E3

(2) ^g = ^r -^ \b * \n * \i, * \

(3) $E_s = E_{.p_{fits}} + E_{gov}$

(4) E... = 505.2108 4- 149.3964(t-1962) F^= 63.86
^^^^ (18^6936) (67.4005) R2 = ^9129

(5) $M = M_g + M_s$

(6) $M_g = M_{rg} + M_{nrg}$

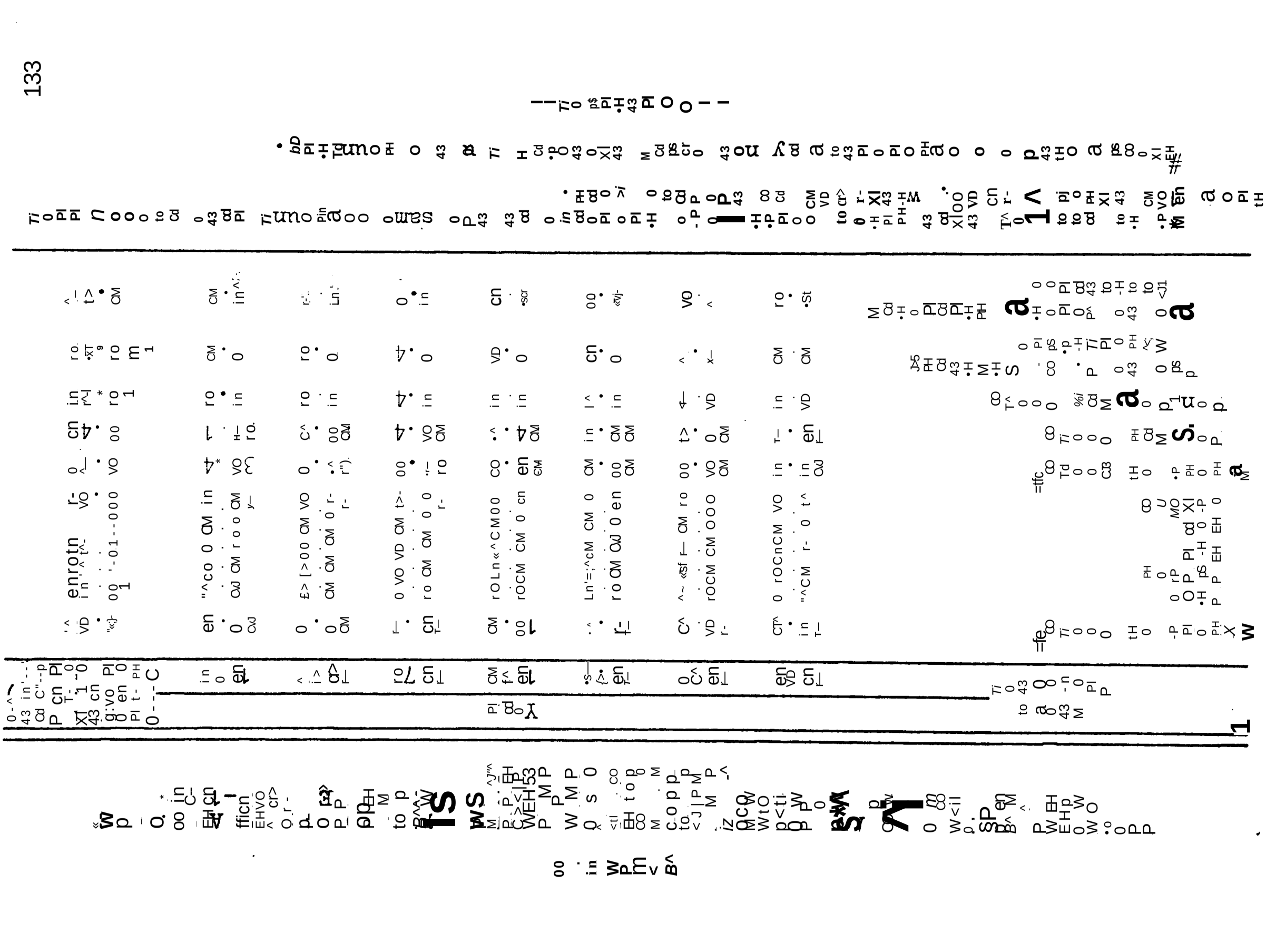
(7) M^^ = -1393.3787 "f 0.1614 Y F^= 45.95
^^ (441.3350) (.0238) R2 = ^9000

(8) \rg " \rg.U.S. •" \rg^ffa

The Projacted Gaps and Foreign Exchange Requirements for Case II

As was pointed out in tha previous section the pro-jections of the savings gaps in Case II using tha adjusted model remain tha same as thay ware for Case I^ Tha trade gap projections and resulting foreign assistance requirements do, however, change• These projections ware made for a tar-gat annual rate of grov/th in GDP of 8^0 par cant for tha period from 1969 through 1975.

Tha projactad trade gap for Case II amounts to about 5 billion baht for I969 (Table 5-8)• The trade gap for



[illegible]	1975	1974	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2^4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible].7	2.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	24.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	39.1	6.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-14.4	[illegible]2.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	14.4	2.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	7.15	6.80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] due [illegible] rounding.

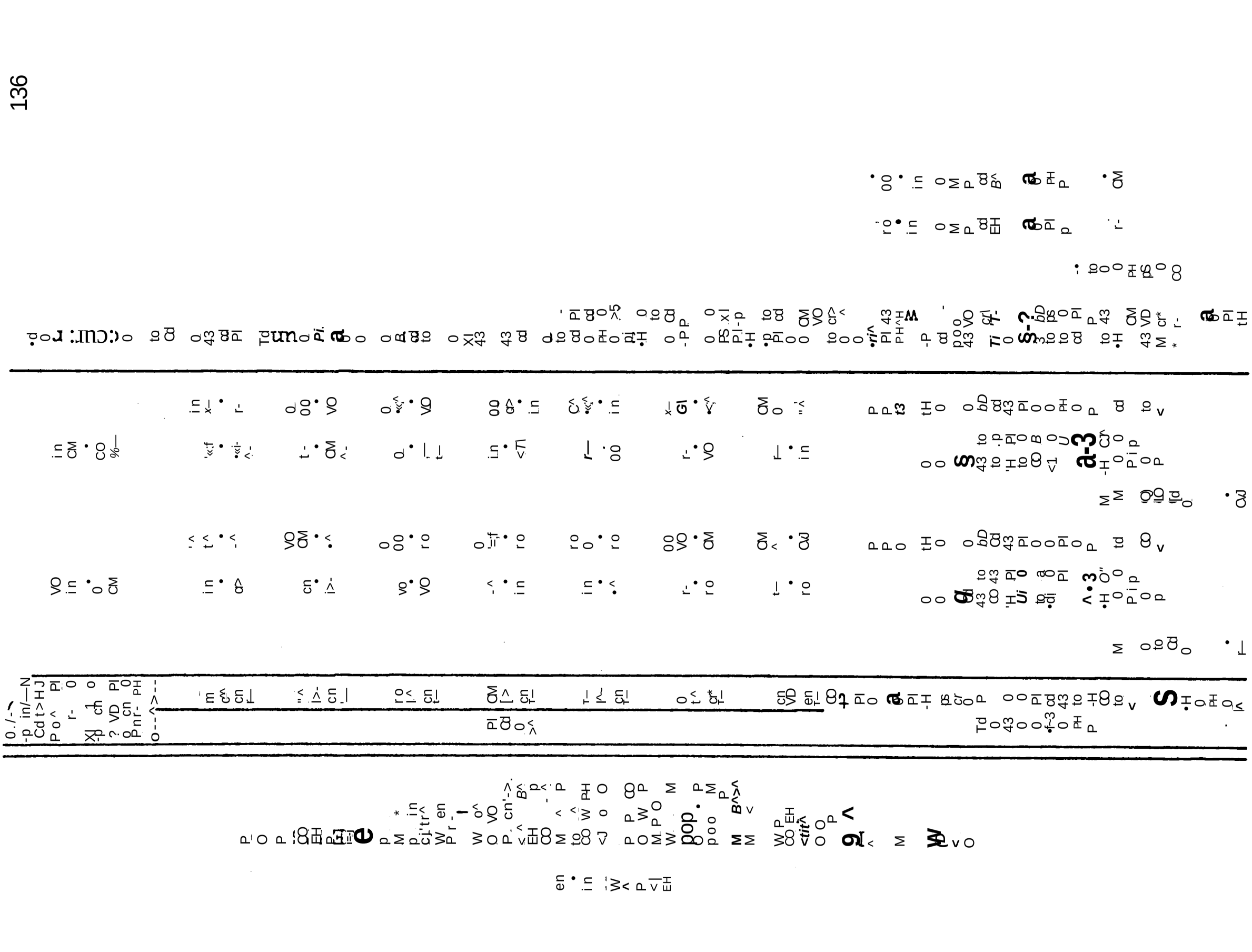
[illegible] the pro[illegible]ions in [illegible] s-in[illegible] tmen[illegible] gap.

[illegible] import of [illegible] pro- [illegible] ction is [illegible] Table [illegible]

Case II increases at a rata of about 18 per cent per year over tha projection period and tha size of the gap amounts to about 14.4 billion baht for 1975.

Since the projected Case II trade gaps are larger than tha projected savings gaps and tha foreign assistance required to maintain tha target growth rate is equal to tha larger of tha two gaps, tha foreign assistance requirements for Case II equal tha size of tha projected trade gaps. Tha quantity of foreign assistance required to maintain a target growth rata of 8.0 par cant is significantly greater for case II than it is for Case I (Table 5.9). For Case I tha requirements for 1969 are about 3.1 billion baht (about $155 million) while for Case II thay are about 5.1 billion baht (about $255 million). For tha last year in the projection period, 1975, foreign financial assistance requirements increase to about 7-9 billion baht (about $395 million) for Case I to about 12^7 billion baht (about $635 million) for Case II• In both cases projected foreign assistance requirements become large as a par cent of GDP^ In Case I thay become about 4-7 per cent of GDP and in Case II thay become about 7-2 par cent of GDP in 1975^

Tha projections for Case II can ba interpreted as indicating that it will ba very difficult for Thailand to maintain tha rapid growth it has experienced in recant



years in the face of a reduction of U^ S^ military expandi'-
turas in Thailand• Rather massive quantities of foreign
financial assistance would ba required•

CHAPTER VI

SUMI.IARY AND CONCLUSIONS

This report presents projections of tha foreign financial assistance requirements of Thailand for tha period from 1969 through 1975. The analysis began with a survey of tha economic characteristics of tha Thai economy^ This survey provides not only a background perspective but also allows the relevance of tha two-gap approach to the Thai case to ba evaluated• After tha survey tha nature of tha two-gap approach and tha procedures involved in its use are described• Than tha limitations of the approach are explained• Next tha projection modal formulated for this study is presented• Finally tha projections derived from tha modal and those derived from a modified modal based upon different assumptions are presented•

Thailand has experienced relatively rapid increases in gross domestic produce (GDP) during tha past few years• The annual GDP growth rata for tha period from 1962 through 1968 averaged about 8.0 per cant. Great uncertainties face Thailand, however, about tha prospects of maintaining accelerated grov/th. Thailand has been receiving substantial

foreign financial assistance and one of the important determinants of Thailand's future growth rate will be tha size of future assistance inflows.

The two-gap approach is flexible. As this study illustrates it allows projections of foreign assistance requirements if target growth rates are to ba achieved and maintained under different sets of assumptions about future circumstances. Two-gap models are policy models. If foreign assistance requirements are projected for a variety of sets of assumed future circumstances tha policy makers may evaluate the probability of tha different sets and formulate estimates of tha probably quantities of foreign financial assistance v/hich will be required if economic growth targets are to ba achieved.

In this study projections are made for two future cases. Case I is largely an extrapolation of trends and conditions axparianced in Thailand during tha period from 1962 through 1968. Case II differs from Case I in one major aspect. In Case II it is assumed that U. S. military expenditures in Thailand dacraasa during tha projection periods For Case I projections ware made for five alternative grov/th rata targets and for Case II projections were made for one growth rata target, tha growth rata which has bean recently axparianced•

According to the two-gap approach growth in lass developed countries is characterized by disequilibrium conditions rather than neoclassical equilibrium conditions and usually involves tv/o ex ante gaps^ One between domestic savings and domestic investment and another batv/ean exports and imports• The larger of tha two gaps must be filled by foreign financial assistance inflows if growth rate targets are to be achieved. The behavioral relationships which must ba established to obtain tha prospactiva savings gaps and prospective trade gaps are tha consumption fimction, tha investment function, tha import function and tha export function.

For Case I- Thailand's projected trade gap is larger than the projected savings gap throughout tha projection period for annual GDP growth rata targets of 8.5, 8.0, 7.2, and 6.5 per cent. Also for these targets both gaps increase during tha projection period. At the relatively low targat rate of annual increases in GDP of 4-5 par cant tha savings gap is larger than tha trade gap from 1970 through 1975 and tha trade gap disappears for 1974 and 1975.

For Case II tha projactad trade gap at tha target GDP growth rata of 8.0 par cant per year is larger than the projected savings gap. The trade gap for Case II increases relatively rapidly over tha projection period and is

twice as large at the end of the projection period as it is for Case I.

The projected foreij^n financial assistance requirement for Case I at a target annual GDP grov/th rata of 8^0 par cant is 3-1 billion baht (about $156 million) in 1969 and increases at the compound growth rate of 20^6 par cent to 9.5 billion baht (about $475 million) for 1975. These foreign assistance requii-aments would amount to about 2^4 per cant of GDP for 1969 and about 4.7 per cent of GDP for 1975.

For Case II, which incorporated an assumption that U^ S^ military expenditures in Thailand v/ould decrease during tha projection period, tha projected foreign assis-tance requirementG for the 8.0 par cent GDP growth target ware substantially greater than for the same target for Case I. The projected assistance requirement for 1969 for Case II amounted to 5-1 billion baht (about $255 mi].-lion) and increased to 14-4 billion baht (about $720 mil-lion) for 1975- Foreign financial assistance requirements projected for Case II as a per cant of Thailand's projactad GDP are large, 4.0 per cent for 1969, 6.4 per cent for 1973, and 7.2 per cant for 1975.

Tha projections indicate that it will be difficult for Thailand to maintain the relatively high growth rates it has experienced in recent years. To maintain accelerated ,

growth it must either continue to racaiva large and growing foreign financial assistance, or somehow significantly increase domestic savings and export earnings. A variety of policies might be employed to attempt to achieve tha latter alternative but these involve matters beyond the scope of this study.

Although tha validity of tha two-gap approach has a measure of empirical support and has bean widely used recently, it is subject to several limitations. Tha modal construction and projection process is complex but yet tha modal is simple whan compared with the complex phenomenon of economic growth and developments The approach is highly aggregative, and requires numerous simplifying assumptionss Tha models are formulated from relatively short periods of historical observations However, it can be maintained that although imperfect it is a highly useful analytical tools

APPENDIX A

DATA REQUIRED FOR PROJECTIONS

TABLE A.1

GROSS DOMESTIC PRODUCT, GOVERNMENT REVENUE, GOVERNMENT CONSUMPTION AND DISPOSIBLE INCOME, 1962-1968
(BILLIONS OF BAHT)

Year	(1) GDP at Current Prices	(2) GDP at 1962 Prices	(3) Implicit Deflation (1962=100)	(4) Government Revenue	(5) Government Consumption	(6) Disposible Income
1962	63.8	63.8	100.00	8.7	7.5	56.1
1963	68.1	69.1	98.48	9.7	8.4	59.7
1964	74.7	74.7	99.96	10.4	7.1	64.3
1965	84.3	79.5	106.05	11.6	8.0	72.7
1966	101.4	89.2	113.66	13.2	9.0	88.2
1967	108.2	94.1	114.99	15.4	10.7	92.8
1968	117.3	102.6	114.35	17.5	12.1	99.8

Sources:

Column 1: Office of the National Economic Development Board, National Income of Thailand (Bangkok, 1969), pp. 16-17.

Column 2: Ibid., pp. 28-29.

Column 3: Column 1 divided by column 2.

Column 4: National Income of Thailand, 1969, pp. 12-13.

Column 5: Ibid., pp. 70-71.

Column 6: Column 1 minus column 4.

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Note: [illegible] a balan[illegible] ion axp[illegible] dents ab[illegible] th[illegible] .

Source: [illegible] al Econ[illegible] 9.

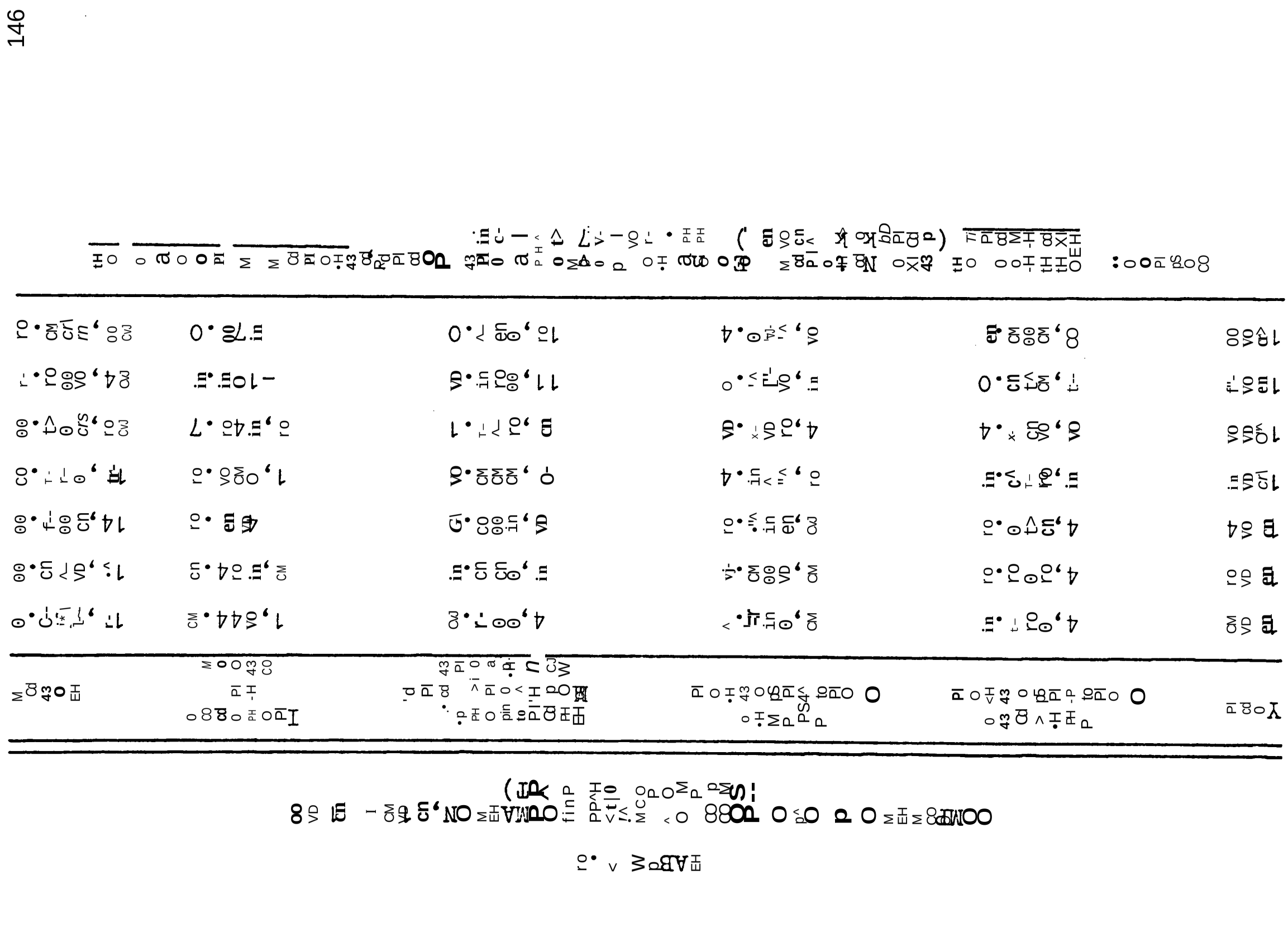

TABLE A.[illegible]

COMPOSITION OF EXPORTS OF GOODS AND SERVICES, [illegible] (MILLIONS OF BAHT)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* [illegible]

[illegible]

** [illegible]

[illegible]: [illegible]

TABLE A.6

QUANTITY AND VALUE OP EXPORTS OF RUBBER, 1962-1968

Year	Metric Tons	Millions of Baht
1962	194,180	2,111
1963	186,887	1,903
1964	216,993	2,060
1965	210,854	1,999
1966	202,535	1,861
1967	211,118	1,574
1968	252,220	1,816

Source: Bank of Thailand, P/Ionthly Economic Report (June, 1970), p. 4*57

TABLE A.7
PRICES OF PRINCIPAL EXPORT COMMODITIES, 1[illegible]
(BAHT PER METRIC TON UNLESS OTHERWISE IN[illegible]

*

*Sources derived from Thailand Statistics.

Prices are for tin concentrate. From 1[illegible] the prices are for tin metal.

Source: Bank of Thailand, Quarterly Economic Report (June 1[illegible]), p. 62.

TABLE A.8

PADDY (RICE) PRODUCTION: AREA PLANTED, AREA HARVESTED, TOTAL PRODUCTION AND AVERAGE YIELD, 1962-1968

Year	Planted Areas (1,000 Rai)	Harvested Areas (1,000 Rai)	Paddy Production	
			Metric Tons	Kilo^rams/Rai
1962	38,619.2	35,349.1	8,176,626	321
1963	41,617.9	38,695.8	9,279,478	240
1964	41,256.1	39,715.0	10,028,882	253
1965	40,871.7	37,316.1	9,558,170	256
1966	40,491.3	37,034.0	9,217,948	249
1967	45,663.8	42,987.0	11,845,522	276
1968	40,064.5	35,006.7	9,594,854	274

Source: Bank of Thailand, Monthly Economic Report (June, 1970), p. 77.

TABLE A.9

INDEX NUMBERS OF TOTAL GROSS DOMESTIC PRODUCT OF THE WORLD, 1956-I975**
(1958=100)

Index of Total GDP		Index of Total GDP#	
1956	93	1966	154
1957	98	1967	162
1958	100	1968	171
1959	106	1969	181
I960	112	1970	191
1961	117	1971	201
1962	124	1972	212
1963	129	1973	224
1964	138	1974	236
1965	146	1975	249

**Gross product originating in each industrial group in 1958 as percentage of total gross domestic product (excluding services) for tha v/orld, including tha USSR and Eastern Europe.

#From 1966-1975 based upon tha annual growth rate of GDP 5-5 per cant.

Source: United Nations, Year Book of National Account Statistics 1966 iNew YorIc,"T967), p. 719-

TABLE A.10

Income Group	1961	1967	1970	1971	1972	Average Annual Percentage Increase
Poor	1.1	1.1	1.1	1.1	1.1	0.0
Lower Middle	1.1	1.1	1.1	1.1	1.1	0.0
Middle	1.1	1.1	1.1	1.1	1.1	0.0
Upper Middle	1.1	1.1	1.1	1.1	1.1	0.0
Rich	1.1	1.1	1.1	1.1	1.1	0.0

153

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APPENDIX B

PROJECTIONS OF RICE PRODUCTION, RICE EXPORTS, AND RUBBER EXPORTS, 1969-1975

[illegible] N, 19[illegible]7 [illegible]

Year	(1) (1,000 [illegible])	(2) (1,000 [illegible])	(3) ([illegible])	(4) (1,000 [illegible])	(5) (1,000 [illegible])
1[illegible]	[illegible]	[illegible]	[illegible]	10,731.7	[illegible]
1[illegible]	[illegible]	[illegible]	[illegible]	10,894.[illegible]	[illegible]
1[illegible]	[illegible]	[illegible]	[illegible]	11,058.1	[illegible]
1[illegible]	[illegible]	[illegible]	[illegible]	11,[illegible]	[illegible]
1[illegible]	[illegible]	[illegible]	[illegible]	11,[illegible]	[illegible]
1[illegible]	[illegible]	[illegible]	[illegible]	11,556.7	[illegible]
1[illegible]	[illegible]	[illegible]	[illegible]	11,724.[illegible]	[illegible]

Sources:
Column (1): [illegible]
Column (2): [illegible]
Column (3): [illegible]
Column (4): [illegible]
Column (5): [illegible]

Sources:

Column (1) From the National Economic Development Board Projection at an annual growth rate of 3.3 per cent as reported in the study of Edward Van Roy, "The Malthusian Squeeze," Asian Survey, VII (July, 1967), p. 475.

Column (2) Calculated from the assumption of a future per capita annual domestic rice consumption of 146.5 kilograms and data presented in ECAFE, Analysis and Projection of the Trade Gap for Thailand (Bangkok, 1968), p. 22.

Column (3) Based upon the requirements of 9.6 kilograms/rai of planted area. See National Income of Thailand, 1956 Edition, p. 109.

Column (4) The sum of column 2 and 3.

Column (5) From Table B.1.

Column (6) Column 5 minus column 4.

Column (7) Based upon an assumed price of 3,000 baht per metric ton. This assumption was derived from the past trend.

TABLE B^3

PROJECTED VOLUME AND VALUE OF RUBBER EXPORTS, 1969-1975

Year	(1) Volume (Metric Tons)	(2) Value (Millions of Baht)
1969	241,130.0	2,290.0
1970	249,460.0	2,370.0
1971	257,690.0	2,448.0
1972	266,550.0	2,532.0
1973	276,000.0	2,622.0
1974	285,300.0	2,710.0
1975	295,190.0	2,804.0

Sources:

(1) Projected from 1962-1968 data.
(2) Based upon an assumed price of 9,500 baht per metric ton. This assumption was derived from tha past trend.

APPENDIX C

CASE I PROJECTIONS OF THE TRADE GAP AND SAVINGS-INVESTMENT GAP UNDER ALTERNATIVE ASSUr-IPTIONS

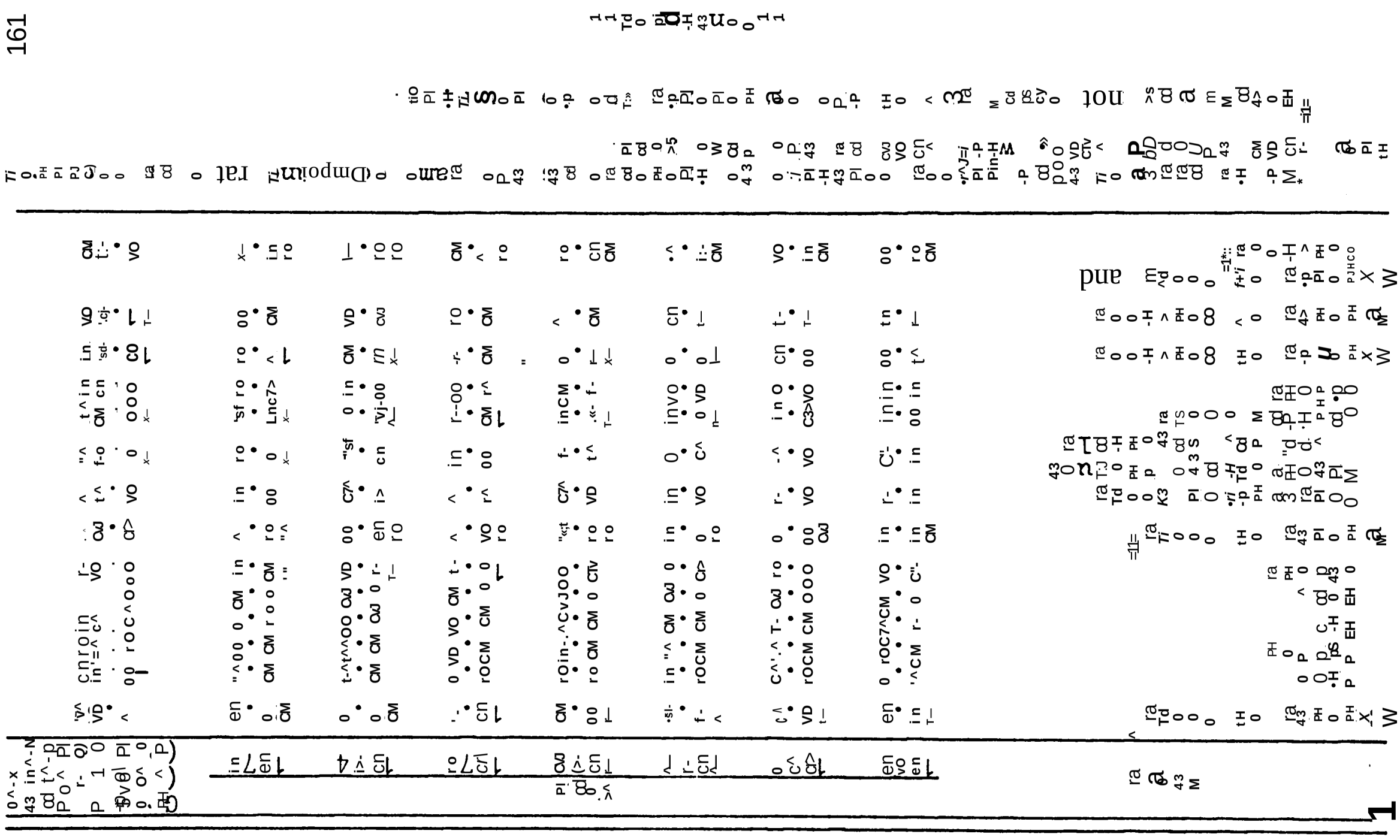

TABLE C.1--Continued

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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TABLE 7

SAVINGS-INVESTMENT GAP PROJECTIONS FOR GROWTH AT 8.5 PER CENT, 1967-1976
(BILLIONS OF BAHT)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Gross domestic product	330.0	358.0	388.0	421.0	457.0	496.0	538.0	584.0	634.0	688.0
Savings	49.5	53.7	58.2	63.2	68.6	74.4	80.7	87.6	95.1	103.2
Foreign capital	16.5	17.9	19.4	21.1	22.9	24.8	26.9	29.2	31.7	34.4
Investment	66.0	71.6	77.6	84.2	91.4	99.2	107.7	116.8	126.8	137.6
Savings-investment gap	16.5	17.9	19.4	21.1	22.9	24.8	26.9	29.2	31.7	34.4
Savings-investment gap as percentage of gross domestic product	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

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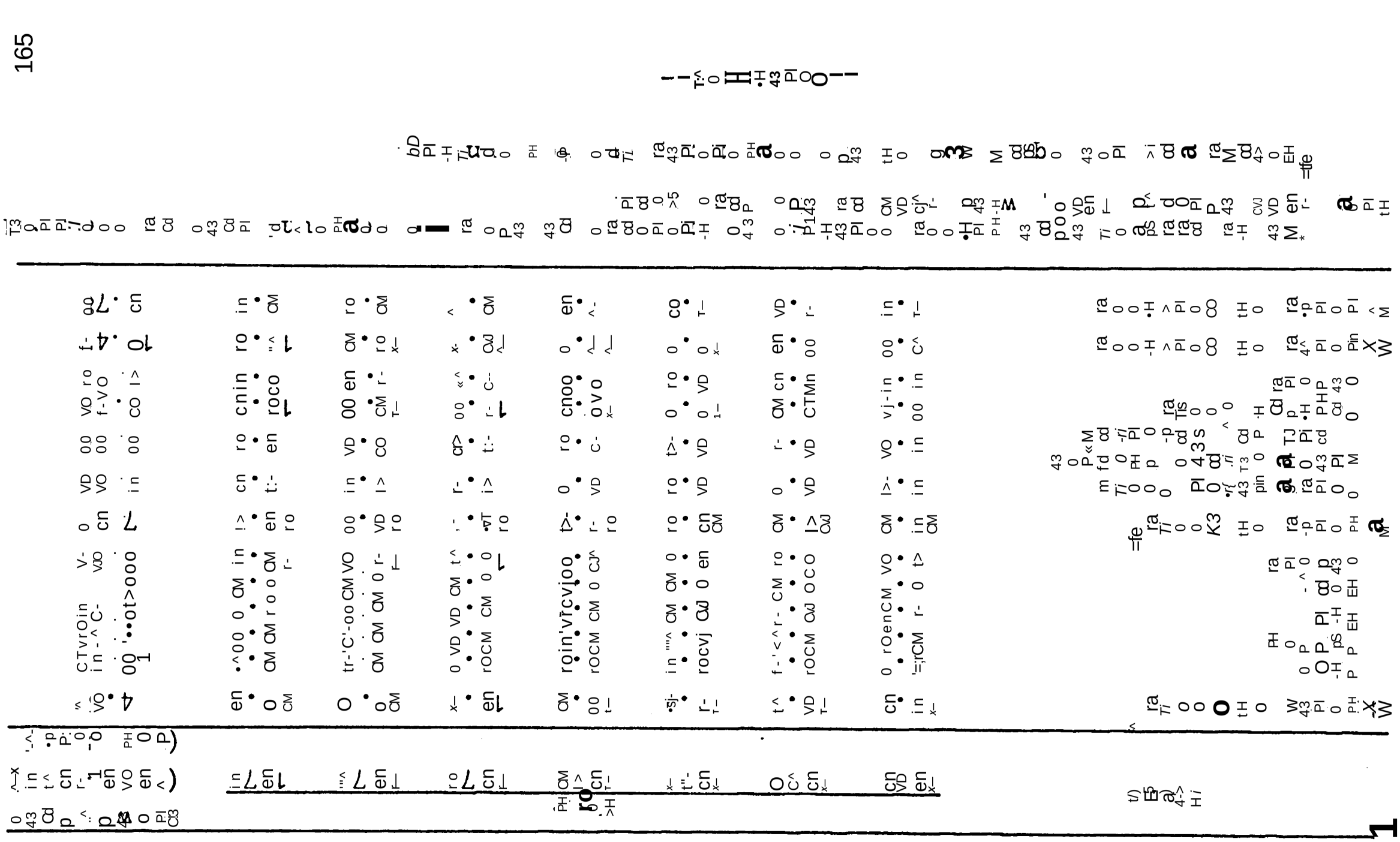


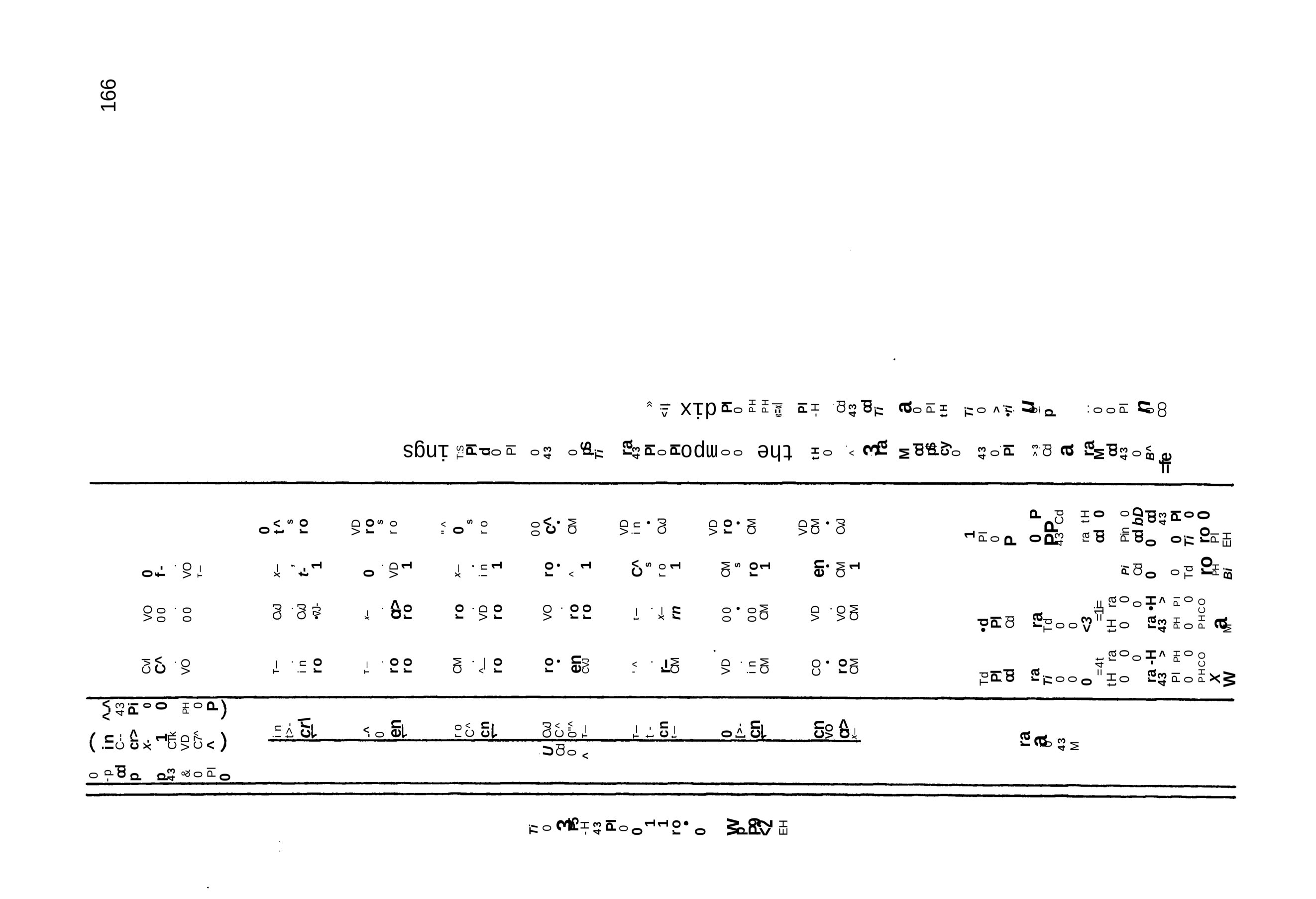
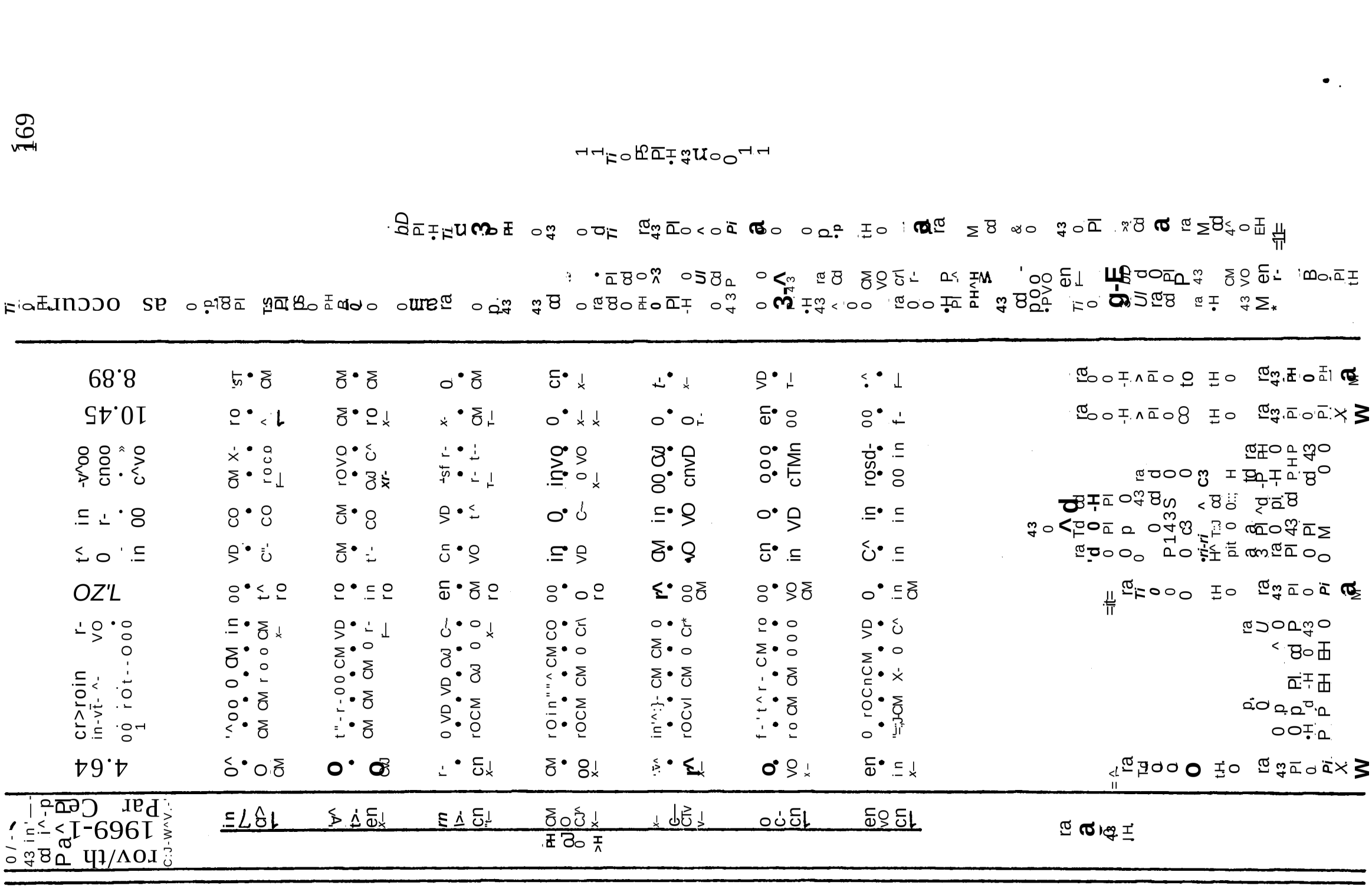


TABLE 8

	1969	1970	1971	1972	1973	1974	1975
Total Population	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Age 0-4	100	100	100	100	100	100	100
Age 5-9	100	100	100	100	100	100	100
Age 10-14	100	100	100	100	100	100	100
Age 15-19	100	100	100	100	100	100	100
Age 20-24	100	100	100	100	100	100	100
Age 25-29	100	100	100	100	100	100	100
Age 30-34	100	100	100	100	100	100	100
Age 35-39	100	100	100	100	100	100	100
Age 40-44	100	100	100	100	100	100	100
Age 45-49	100	100	100	100	100	100	100
Age 50-54	100	100	100	100	100	100	100
Age 55-59	100	100	100	100	100	100	100
Age 60-64	100	100	100	100	100	100	100
Age 65-69	100	100	100	100	100	100	100
Age 70-74	100	100	100	100	100	100	100
Age 75-79	100	100	100	100	100	100	100
Age 80-84	100	100	100	100	100	100	100
Age 85+	100	100	100	100	100	100	100
Total Deaths	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Deaths Age 0-4	400	400	400	400	400	400	400
Deaths Age 5-9	100	100	100	100	100	100	100
Deaths Age 10-14	100	100	100	100	100	100	100
Deaths Age 15-19	100	100	100	100	100	100	100
Deaths Age 20-24	100	100	100	100	100	100	100
Deaths Age 25-29	100	100	100	100	100	100	100
Deaths Age 30-34	100	100	100	100	100	100	100
Deaths Age 35-39	100	100	100	100	100	100	100
Deaths Age 40-44	100	100	100	100	100	100	100
Deaths Age 45-49	100	100	100	100	100	100	100
Deaths Age 50-54	100	100	100	100	100	100	100
Deaths Age 55-59	100	100	100	100	100	100	100
Deaths Age 60-64	100	100	100	100	100	100	100
Deaths Age 65-69	100	100	100	100	100	100	100
Deaths Age 70-74	100	100	100	100	100	100	100
Deaths Age 75-79	100	100	100	100	100	100	100
Deaths Age 80-84	100	100	100	100	100	100	100
Deaths Age 85+	100	100	100	100	100	100	100
Total Births	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Male Births	800	800	800	800	800	800	800
Female Births	800	800	800	800	800	800	800
Net Migration	0	0	0	0	0	0	0
Male Migration	0	0	0	0	0	0	0
Female Migration	0	0	0	0	0	0	0

a Male and female migration equal sum of age components.

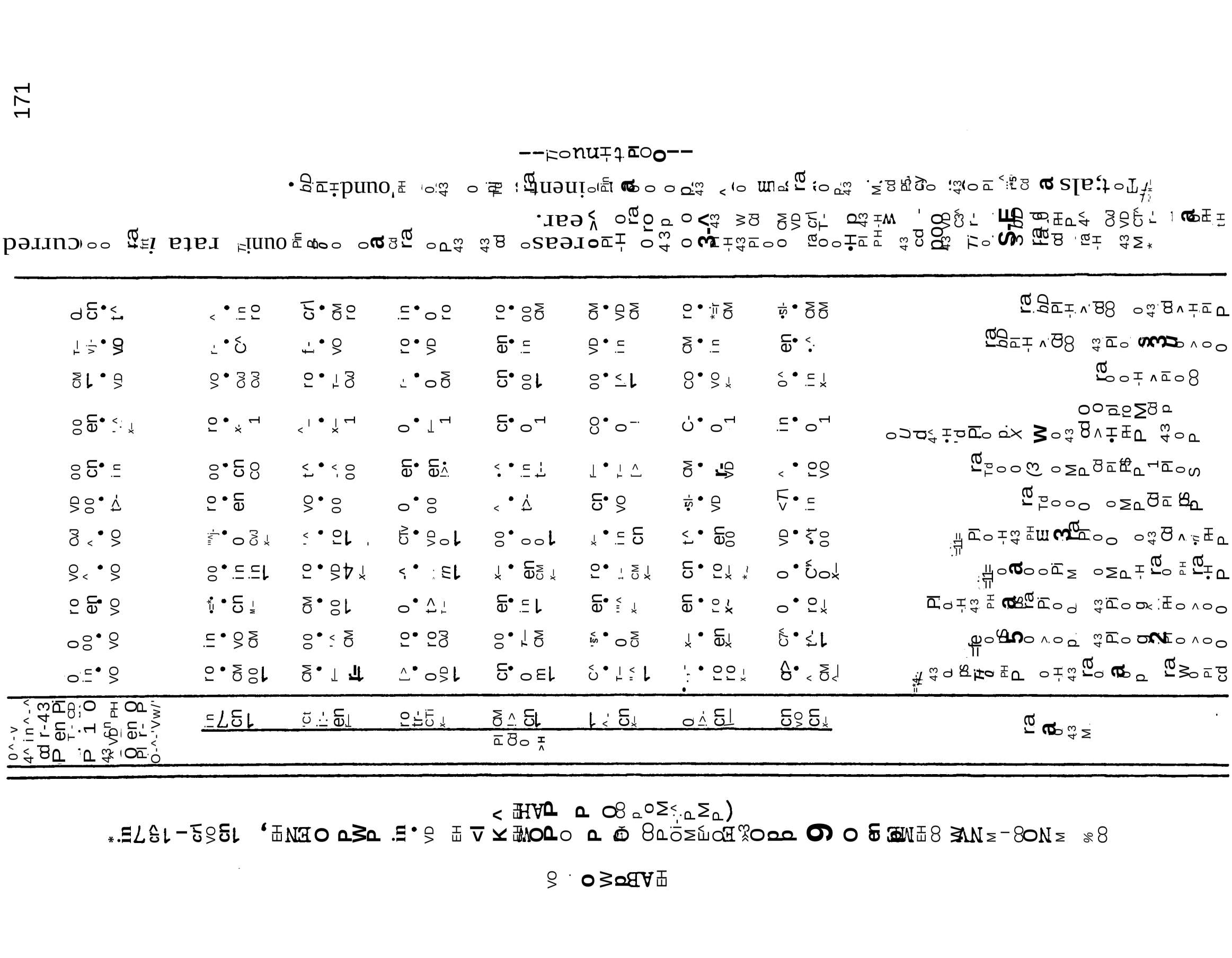
Note: Population from data for 1969 to 1975.



8.89
10.45
4.64

Total	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.6
Wood and paper	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Textiles, apparel, and leather	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Petroleum and coal products	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Primary metals	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Fabricated metal products	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Machinery, except electrical	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Electrical machinery	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Transportation equipment	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Instruments and related products	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Miscellaneous manufacturing	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Transportation	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Communication	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Electric, gas, and sanitary services	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Trade	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Finance, insurance, and real estate	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Services	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Government and government enterprises	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Rest of the world	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

#Totals may not equal sum of the components due to rounding.



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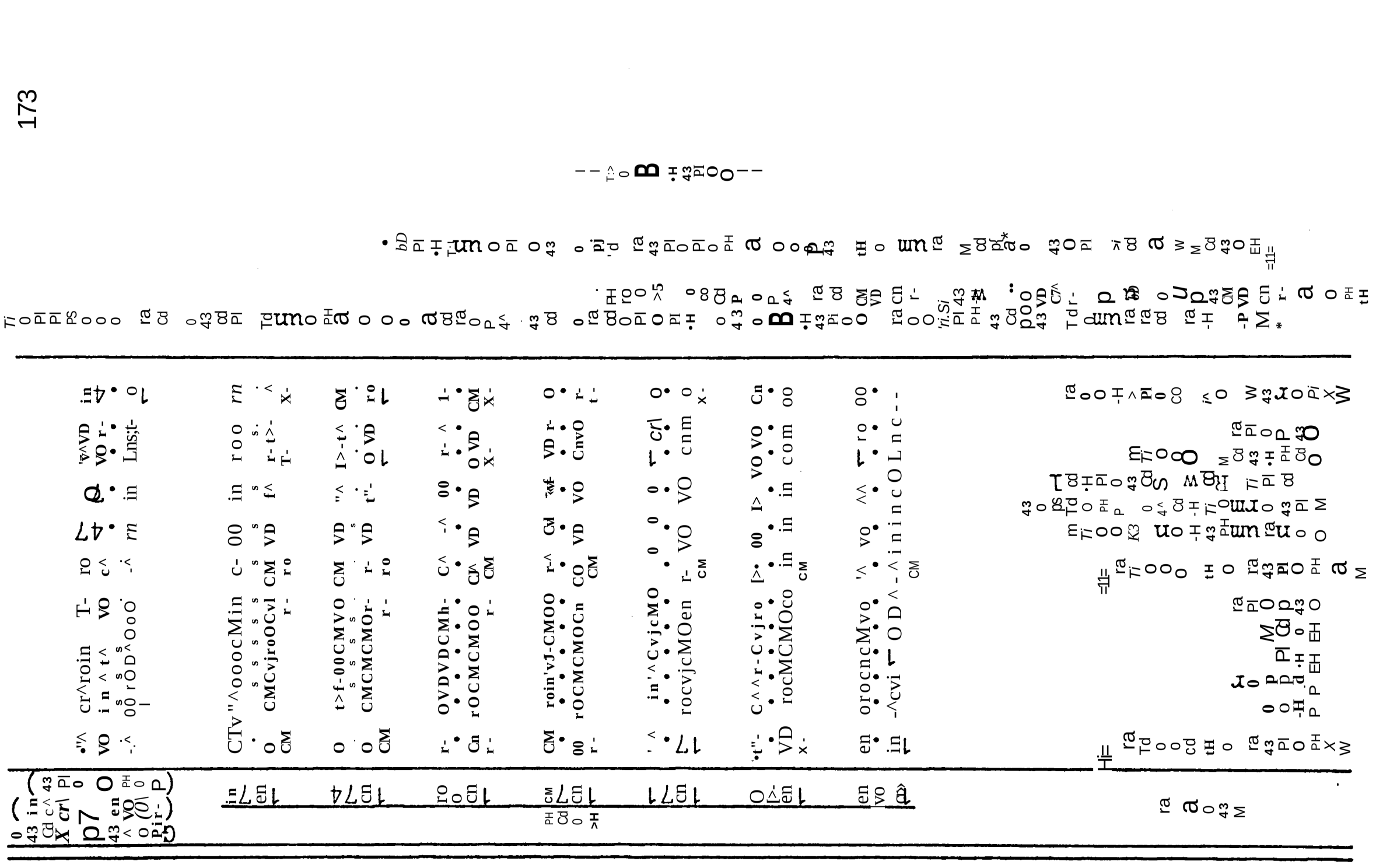
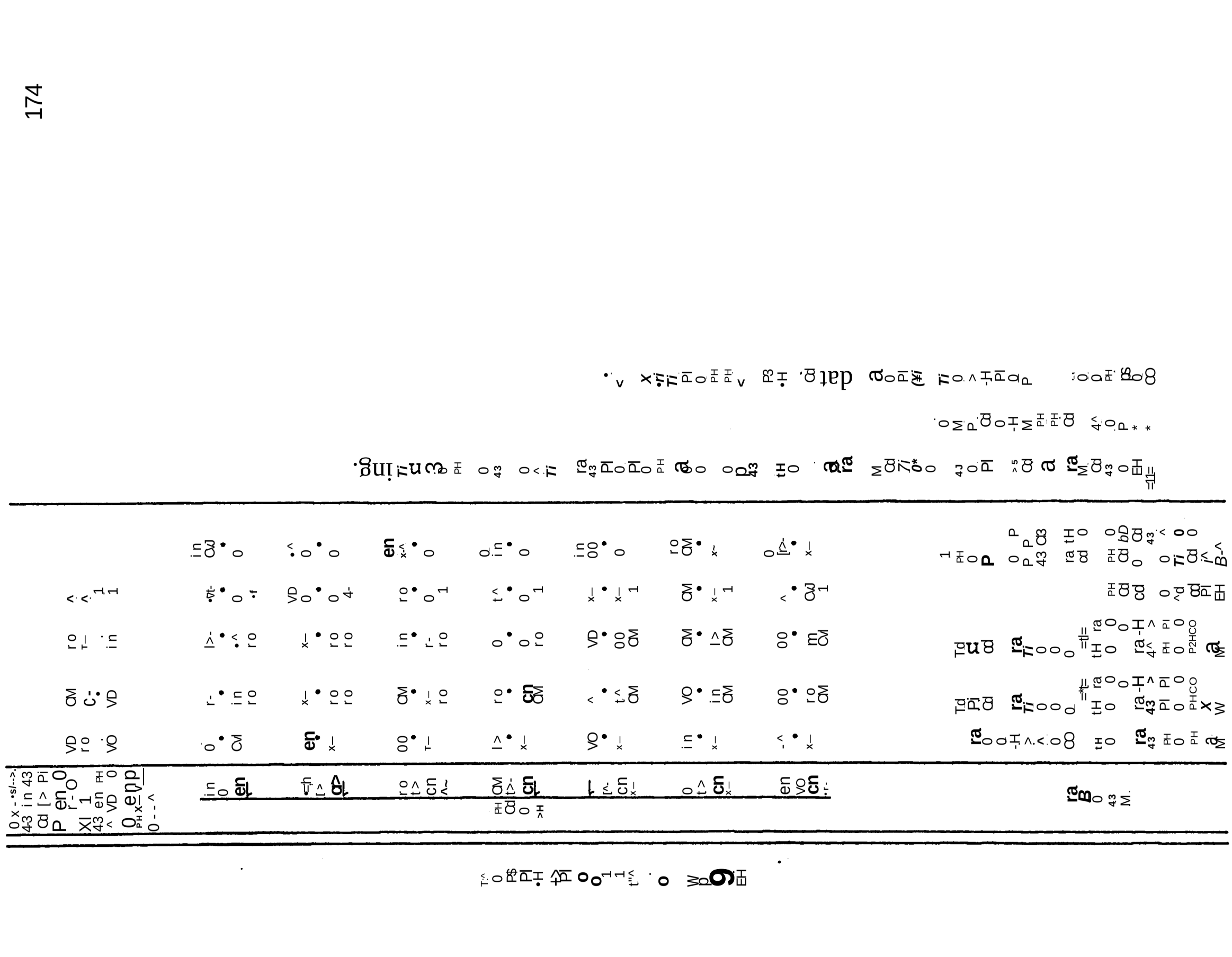
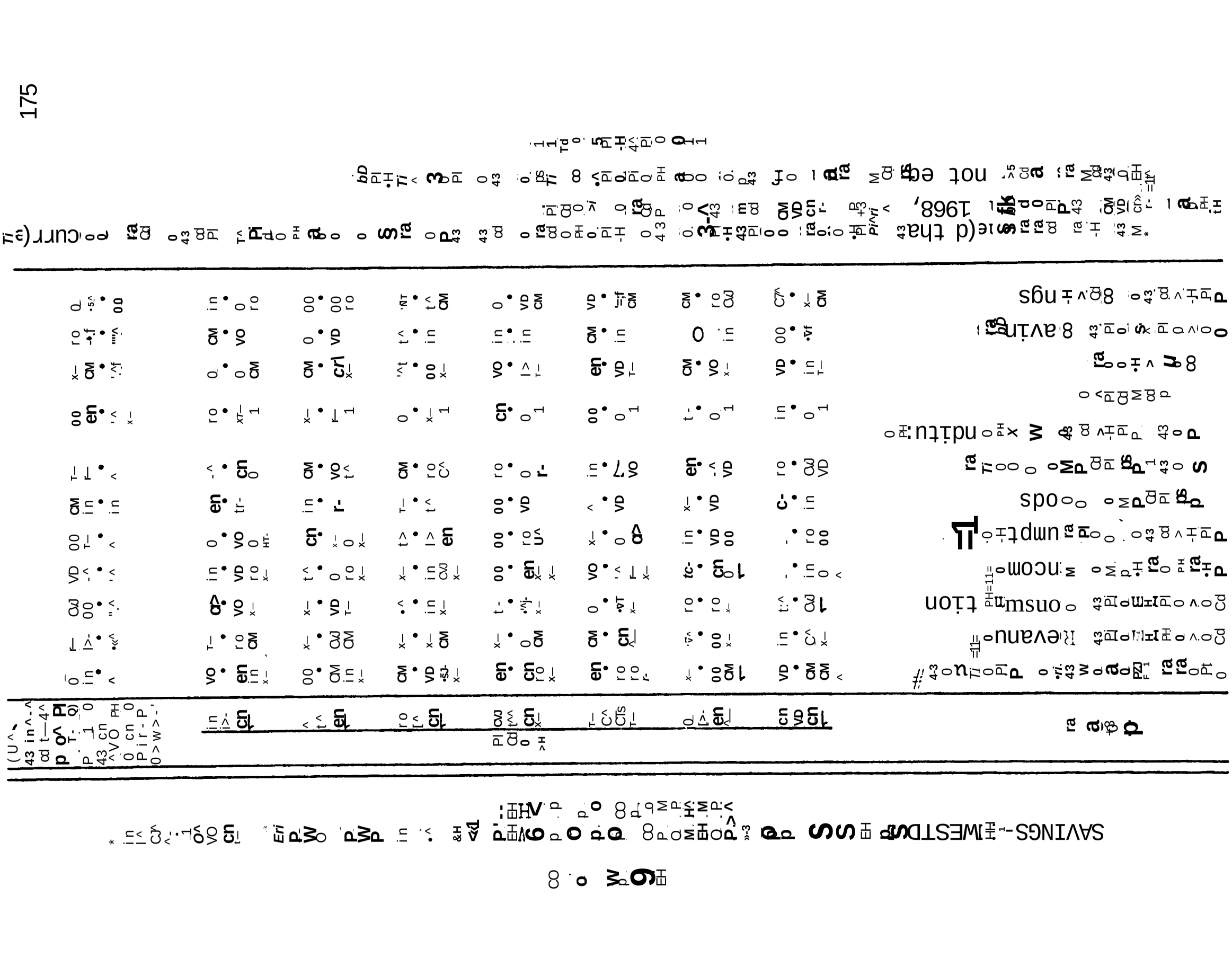
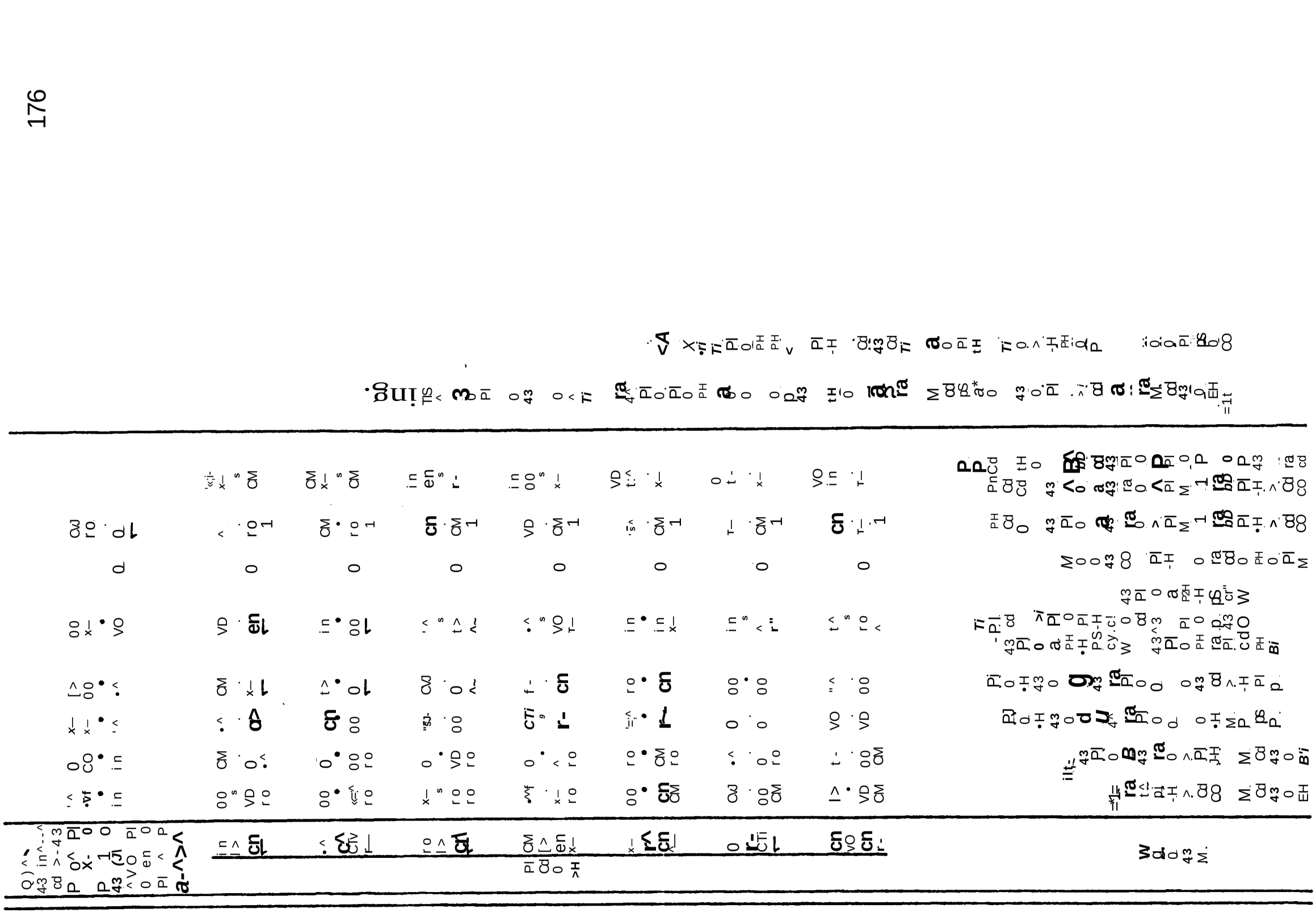








APPENDIX D

DISTRIBUTION OF IMPORTS AND EXPORTS BY SPECIAL CATEGORIES

DI[illegible] AND [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1. [illegible]	1[illegible]	14,[illegible]	1[illegible]	1[illegible]	1,[illegible]	[illegible],87[illegible]
[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],326
[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]	[illegible],[illegible]	[illegible],746
[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],[illegible]	[illegible],508
[illegible]	[illegible],[illegible]	11,[illegible]	1[illegible],[illegible]	14,[illegible]	1[illegible],[illegible]	1[illegible],[illegible]

[illegible]:

1. [illegible], [illegible] (Jun[illegible], 197[illegible]), [illegible], [illegible]. [illegible]-44.

[illegible]. [illegible] U. Col. [illegible] ([illegible]).

[illegible]. [illegible].

TABLE [illegible]

COMPOSITION OF EXPORTS OF [illegible], 1[illegible] - [illegible]
(MILLIONS OF [illegible])

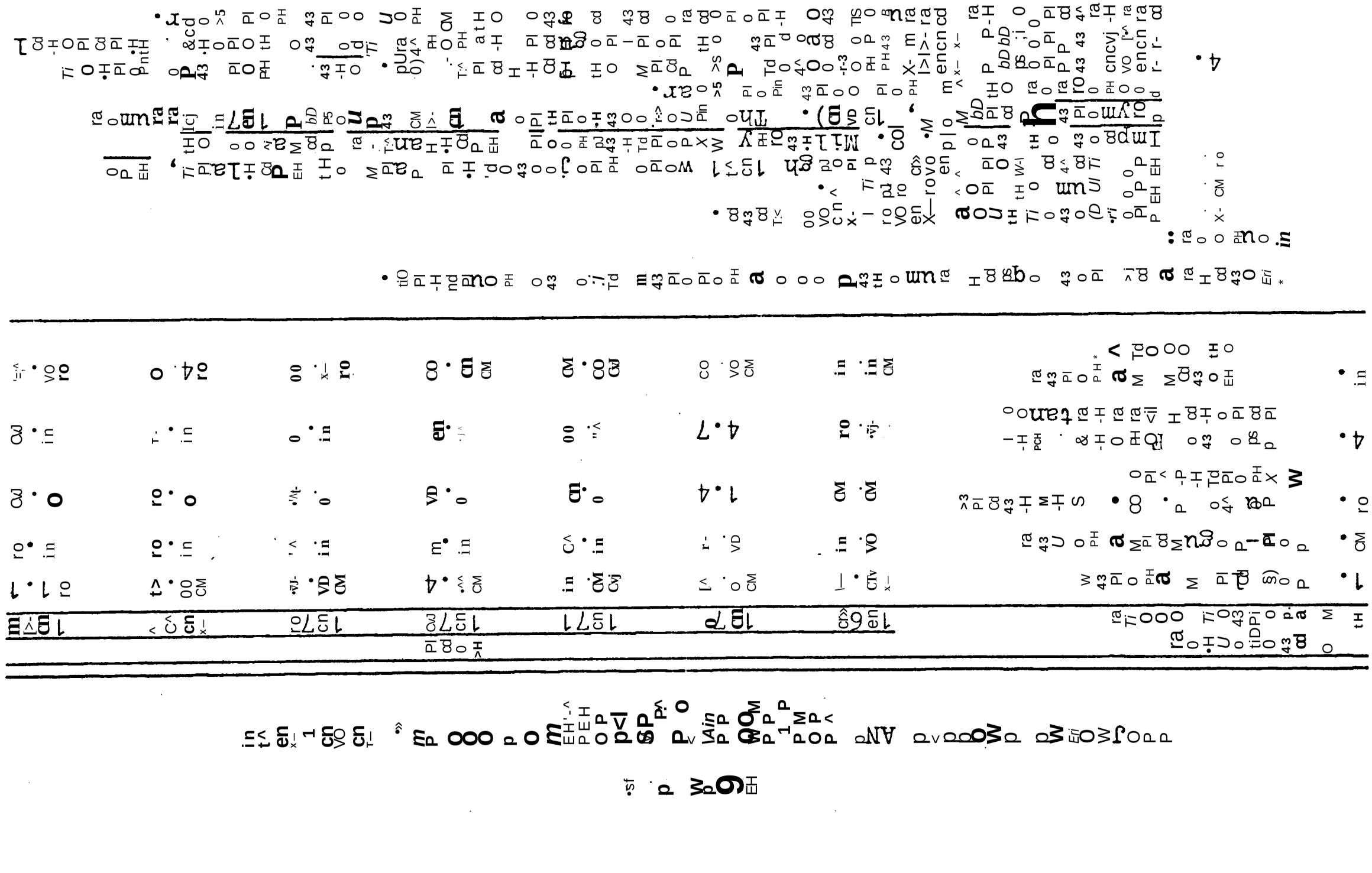
[illegible]	Year						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1[illegible]7	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1,940.0	1,[illegible].7
[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]1.	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Source: [illegible] (Japan, 19[illegible]), [illegible], p. 4.

TABLE D.

PROJECTED EXPORTS OF SERVICES IN THE CATEGORIES ENTITLED FREIGHT, INSURANCE, TRANSPORTATION, AND GOVERNMENT NOT-INCLUDED-ELSEWHERE, 1969-1975
(BILLIONS OF BAHT)

	1969	1970	1971	1972	1973	1974	1975
Freight	0.6	0.7	0.8	0.9	1.1	1.3	1.5
Insurance	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Transportation	0.2	0.2	0.3	0.3	0.4	0.4	0.5
Government not-included-elsewhere	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total	1.0	1.1	1.3	1.4	1.8	2.0	2.3



REFERENCES

1 Adelman, Irma and Chenery, Hollis B. "Foreign Aid And Economic Development: The Case of Greece." The Review of Economics and Statistics. XLVIII. February, 19^6, 1-19-

2 Adlar, J. H. Absorption Capacity: The Concepts and Its Determinants." Washington, D. C: The Brookings Institution, 1965.

3 Atthakor, Bunchana. Bunchana* s Report on Official Trips Abroaci During 1964. Bangkok: Thai Natana Panich, 1966.

4 Ayal, Elizer B. Thailand's Six Year National Economic Development Plan. Asian Survey. January, 1962, 33-43.

5 Baker, Arnold B. and Falano, Frank Jr., "Trade-Constrained or Savings-Constrained Growth in Peru?: An Empirical Test." Paper presented at the Southern Economics Association Meetings, Atlanta, Georgia, November 11-14, 1970.

6 Bank of Thailand. "The Impact of the U. S. Military Expenditure on Thailand's Balance of Payment." Unpublished Study, 1969.

7 Bank of Thailand. Monthly Economic Report. June, 1970.

8 Bruno, Michael. "A Programming Model for Israel." In Irma Adelman and Erik Thorbecke, eds. Thf Theory and Design of Economic Development. Baltimore: The Johns Hopkins Press, 1966, 327-356.

9 Bruton, H. J. "The Tv/o Gap Approach to Aid and Development." American Economic Keview. LIX. June, 1969, 439-446; with reply by Hollis B. Chenery, pp. 446-449.

10 Butwell, Richard. "Thailand After Vietnam." Current History. LVII, December, 1969, 339-43.

11 Chanary, Hollis B. and Bruno, Michael. "Development Alternatives in an Opened Economy: The Case of Israel." Economic Journal. March, 1962, 70 in^^^"^*" ^^ I-/-IU 3 .

12 Chanary, Hollis B. and Eckstein, Peter. "Development Alternatives for Latin America." Journal of Political Economy. LXXVIII. Supplement to" July/August, 1970, 966-1,005.

13 Chanary, Hollis B. and MacEv/an, Arthur. "Optimal Patterns of Growth and Aid: The Case of Pakistan." In Irma Adelman and Erik Thorbecke, eds. The Theory and Design cif Economic Development. Baltimore: The Johns Hopkins Press. 1966. 149-180.

14 Chanary, Hollis B. and Strout, Alan M. "Foreign Assistance and Economic Development." American Economic Review. LVI. September, 1966, 678-733.

15 Chanary, Hollis B. and Strout, Alan M. "Foreign Assistance and Economic Development: Reply." -American Economic Revie-v-.-. LVIII. September, 1968, 912-917. "

16 Economic Commission for Asia and the Far East. "Analysis and Projections of the Trade Gap for Thailand." Bangkok, 1968, (Mimeographed)*.

17 Economic Commission for Asia and the Far East. Projection of Sectoral Outputs and Employment: A Case Study of Thailand. Bangkok, 1969.

18 Fai, J. C. H. and Ramis, G. "Foreign Assistance and Economic Development: Comment." American Econo-mic Reviev.^. LVIII. September^l 1968, 897-912.

19 Friedman, Wolfgang G., Kalamanoff, George, and Meagher, Robert F. "International Financial Aid." New York: Columbia University Press, 1966.

20 Goldwin, Robert A. Why Foreign Aid? Chicago: Rand McNally and Company"^ 1963.

21 Government of Thailand. The National Economic Development Board. Office of the Prime Minister. Evaluation of; thje First Six-Year Plan 1961-1966. Bangkok: Government House Printing Office"; 1967-

22 Government of Thailand. The Second National Economic and Social Development Plan (1967-1971). Bangkok: Government House Printing Office, 1968.

23 Hawkins, E. K. "Measuring Capital Requirements." Finance and Development. No. 2, 1968, 2-5.

24 Higgins, Benjamin. Economic Development. New York: W. W. Norton & Company, Inc., 1968.

25 Ingram, James C. Economic Ch.ange in Thailand Since 1850. Stanford, California: Stanford University Press, 1955-

26 International Bank for Reconstruction and Development. A Public Development Program for Thailand. Baltimore: The Johns Hopkins Press, 1959-

27 Learner, Edward E. and Stern, Robert M. Quantitative International Economics. Boston: Allyn and Bacon, Inc., 1970.

28 Little, I. M. D. and Clifford, J. H. International Aid. Chicago: Aldine Publishing Company, 1965-

29 Mallor, John W. and Stevens, Robert D. "The Average and Marginal Product of Farm Labour in Underdeveloped Economies." Journal of Farm Economics. August, 1956, 780-791.

30 Miar, Gerald M. Tha International Economics of Development: Theory and Policy. New York: Harper & Row, 1968.

31 Myrdal, Gunnar. Asian Drama: An Inquiry Into the Poverty of Nations, Vol. 1. New York: Pantheon, 1968.

-K2 Mvrdal, Gunnar. Asian Drama: ^ Inquiry Into the Poverty of Nations, Vol. 2. New York: Pantheon, 1968.

33 Myrdal, Gunnar. Asian Drama: An Inquiry Into the Poverty of Nations, Vol.-3- New York: Pantheon, WTspeTiaTTyT^pendix 3, "Economic Models and Their Usefulness for Planning m South Asia*by Paul Straatan, pp. 1941-2004.

34 Muscat, Robert J. Development Strategy in Thailand: A Study of Economic Growth. New York: Frederick "K. Praager, 1966^

35 Nairn, Ronald C^ International Aid to Thailand: The Nev/ Colonialism? New Haven, Conn.: Yale University Press, 1966.

36 Nartsupha, Chatthip. Foreign Trade, Finance and the Economic Development of Thailand 1956-1''965. Bangkok: Thai Sanashand Ltd., Part, 1970.

37 Organization for Economic Co-operation and Development. Quantitative Models as an Aid to Development Assistance Policy. Paris, 1967-

38 Pendleton, Robert L. Thailand: Aspect of Landscape and Life. New York: Duell, Sloan and Pearce, T9F2.

39 Pincus, John. Trade Aid an(3 Development; The Rich and Poor Na"tions. New York: McGraw-Hill Book Company, 1967.

40 P. N. Rosenstein-Rodan. "Intemation Aid for Under-davalopm.ented countries." The Review of Economics and Statistics. XLIII. May, I96I, 107-13BT

41 Pombhejara, Vichitvong N. "The Second Phase of Thailand's Six Year Economic Development Plan, 1964-1966." Asian Survey. March, 1965, 161-168.

42 Roy, Edv.'ard Van. "The Malthusian Squeeze." Asian Survey. VII. July, 1967, 469-481.

43 Sangupta, A. "Foreign Capital Requirements for Economic Development." Oxford Economic Papers. XX. March, 1968, 38-55-

44 Shone, Robert. "Problems of Planning for Economic Growth in a Mixed Economy." The Economic Journal. LXXV. March, 1965, 1-19-

45 Soonthornsina, Chinnav/oot. A Macroeconomic Model for Economic Development of Thailand. Bangkok: Thammasat University Press, 1964.

46 Tassanayavej, Bunyart. "A Surplus of Hotel," Bangkok Post: Industrial Review of Thailand. Special edition. Bangkok, 1967.

47 Tharavanij, Thongon. "International Trade and Economic Development of Thailand" (in Thai). Unpublished M.A. Thesis. Kasetsart University. 1969.

48 Thailand. National Statistical Office. Some Important Statistics of Thailand 1968-I969. Bangkok: National Statistic Office, I970.

49 Thailand. Office of tha National Economic Development Board. Department of Technical and Economic Cooperation. Technical and Economic Cooperation Reports 1967-1968. Tin Thai). Bangkok, 1969.

50 Thailand. Office of National Economic Development Board. Economic Progress of Thailand: General Indication. Bangkok: The National Economic Development Board, October, 1968.

51 Thailand. Office of the National Economic Development Board. National Income of Thailand, 1967 Edition. Bangkok: The National Economic Development Boara, 1968.

52 Thailand. Office of the National Economic Development Board. National Income of Thailand, 1969 Edition. Bangkok: The National Economic Development Board, 1970. (Mimeographed.)

53 Thailand. Office of National Economic Development Board. Thailand's Current Economic Situation. Bangkok: The Maiional Economic Development Board. October, 1967.

54 Thailand. Office of National Economic Development Board. Thailand's Current Economic Situation 1968/1969^ (in ThaD7 Bangkok: National Economic Development Board, 1970.

55 Thailand. Office of the Prime Minister. Official Yearbook, 1968. Bangkok: Government House Printing OlTice, 1968.

56 Tha Royal Thai Embassy. Office of Public Relations Attache. Thailand. Washington, D. C: Office of Public Relations Attache, I968.

57 Tourist Organization of Thailand. "Tourist Industry" Un Ihai}^ Tourist Magazine. September, I970.

58 United Nations. Monthly Bulletin of Statistics, XXIV. April-June, I970.

59 United Nations. "Speeding the Flow of Capital Assistance to Developing Countries: Report to Economic and Social Council and to General Assembly•" Yearbook, 1967- New York: United Nations, 1968, 359-364.

60 United Nations. Statistical Yearbook, 1969. New York: United Nations, I970I

61 United Nations. Yearbook of International Trade Statistics 1967. New York: United Nations Statistical Office, T9^.

62 United Nations. Yearbook of National Accounts Statistics 1966. New York: United Nations Statistical Office, 1967.

63 United States. Area Handbook for Thailand. Washington, D.C.: U. S. Government Printing Office, September, 1968.

64 U. S. Congress. Senate. Foreign Relations Committee. United States Security Agreements and Commitments Abroaci: Kingd'orn of Thailand. Hearings Before the Subcommittee on United States Security Agreements and Commitments AbroaTI Part 3. 91st Congress, 1st Session, November 10-14, and 17, 1969. V/ashington, D. C: U. S. Government Printing Office, 1970.

65 Young, Kenneth. "Thailand's Role in Southeast Asia," Current History. LVI, 1969, 94-99.