JAPAN INTERNATIONAL
COOPERATION AGENCY

POLICY FOR PLANNING AND INVESTMENT
SOCIALIST REPUBLIC OF VIET NAM

THE ECONOMIC DEVELOPMENT POLICY IN THE TRANSITION TOWARD A MARKET-ORIENTED ECONOMY IN THE SOCIALIST REPUBLIC OF VIET NAM

FINAL REPORT

MACROECONOMY

June 1994

THE JICA INSTITUTE FOR INTERNATIONAL
COOPERATION
JAPAN INTERNATIONAL COOPERATION AGENCY

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DAIWA INSTITUTE OF RESEARCH LTD.
THE JAPAN ECONOMIC RESEARCH INSTITUTE
PACIFIC CONSULTANTS INTERNATIONAL CO. LTD.

CURRENCY EQUIVALENTS

March 1996	Currency Equivalent
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Preface

In response to a request from the Government of the Socialist Republic of Viet Nam, the Government of Japan decided to conduct the study of the Economic Development Policy in the Transition Toward a Market-Oriented Economy in the Socialist Republic of Viet Nam and entrusted the study to the Japan International Cooperation Agency (JICA).

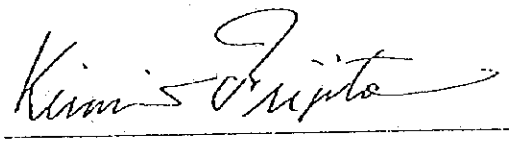
JICA sent to the Socialist Republic of Viet Nam a study team headed by Mr.Hirohiko Sekiya, composed of members of Daiwa Institute of Research Ltd., the Japan Economic Research Institute and Pacific Consultants International Co.Ltd., from December 1995 to March 1996.

The team held discussions with the officials concerned of the Government of Viet Nam and conducted field surveys in the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of socio-economic development of Viet Nam through the successful introduction of market mechanisms and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Viet Nam for their close cooperation extended to the team.

June 1996



Kimio Fujita
President
Japan International Cooperation Agency

Letter of Transmittal

June 1996

Mr. Kimio Fujita
President
Japan International Cooperation Agency

Dear Mr. Fujita,

It is my great pleasure to submit herewith the Final Report for the Development Study on the Economic Development Policy in the Transition Toward a Market-Oriented Economy in the Socialist Republic of Viet Nam ("the Study").

The report is the result of studies carried out by Daiwa Institute of Research, the Japan Economic Research Institute and Pacific Consultants International as per the contract with the Japan International Cooperation Agency (JICA). The Study was conducted between December 1995 and June 1996.

Based on the actual socio-economic situation in Viet Nam, a comprehensive development study was implemented covering four areas: the macroeconomy, fiscal and monetary policies, industrial policy and agricultural and rural development.

On behalf of the study team, let me express my heartfelt thanks to the Government of Viet Nam especially the Ministry of Planning and Investment for the generous cooperation, assistance and warm hospitality extended to them during their stay in Viet Nam.

Our thanks are also due to the Japanese International Cooperation Agency, the Ministry of Foreign Affairs, the Japanese Embassy in Viet Nam and the JICA Vietnamese Office for their valuable advice and support during the Study and preparation of this report.

Yours faithfully,

関屋宏彦

Hirohiko Sekiya
Leader of the Japanese Study Team
(Senior Consultant,
Daiwa Institute of Research Ltd.)

Abbreviations

BIDV	The Bank for Investment and Development in Viet Nam
CMEA	Council for Mutual Economic Assistance
CPI	Consumer Price Index
DOSTE	Department of Science, Technology and Environment
EIA	Environment Impact Assessment
ESAF	Enhanced Structural Adjustment Facility
FDI	Foreign Direct Investment
GSO	General Statistic Office
ICOR	Incremental Capital Output Ratio
IMF	International Monetary Fund
ILO	International Labor Organization
MOF	Ministry of Finance
MOSTE	Ministry of Science, Technology and Environment
MPI	Ministry of Planning and Investment
MPS	Material Product System
ODA	Official Development Assistance
SMEs	Small and Medium Enterprises
SNA	System of National Accounts
TBI	Two-tier Banking Index
UN	United Nations
VNNLS	Viet Nam Living Standard Survey

Executive Summary

Viet Nam's recent macroeconomic performance has been impressive. This is attributable to appropriate government policies as well as favorable circumstances. A reasonably successful reduction of the rate of inflation seems to be due largely to a reduction of the fiscal deficit and the termination of its central bank financing.

Based on our simulations, with the use of data consistent with the proposed five-year plan, the following can be regarded as important for the balance between growth and stability: the maintenance of high investment efficiency, a raising of domestic savings, attraction of direct investment, an appropriate money supply policy, and a flexible fiscal policy.

The foreign exchange rate policy, which is implicitly assumed in the proposed plan, seems to be generally reasonable. There are views that the assumed rate of depreciation of the dong may be too low in view of the still relatively high rate of inflation in Viet Nam. However, the government needs to consider many other factors including money supply and price stability as well.

As Viet Nam makes the transition to a market economy, its statistical system is also in the transition, e.g. National Accounts from MPS to SNA. There remain many problems in the system, for example: the discontinuity of time series data mainly due to changes in methodology; insufficient coverage such as non-state sector and underground economy and incomplete classification of sectors, commodities etc. The system should be changed in accordance with international standards.

To maintain stable growth from the long-run point of view, it is important for Viet Nam to deal with issues related to the environment at an early stage. The sooner Viet Nam deals with them, the lower the associated cost is likely to be.

The poverty situation in Viet Nam is widespread and more serious than in other Asian countries. Higher poverty incidence is recognized particularly in rural areas, ethnic minorities, and female headed families. There are indications that the recent economic reforms, while provided vast economic opportunities, had adverse effects on the poor. The following policy implications are presented for effective poverty alleviation: (1) need for rapid and broad-based economic growth; (2) need for targeted interventions; and (3) need for social welfare programs and provision of a social safety net for the rural poor.

Ⅰ. Macroeconomy

Chapter 2. Socioeconomic Development with Particular Emphasis on the Environment

I. MACROECONOMY

Chapter 1. GROWTH AND STABILIZATION

1-1 Qualitative Approach

(1) Recent Trends of Growth and Stabilization

The recent macrocconomic performance of Viet Nam has been impressive (Table I-1). The real GDP growth rate has been in excess of 8% since 1992. Inflation in terms of retail prices has been reasonably contained. The inflation rate that had reached close to 400 % in the late 1980's dropped to 5.2% at end-1993 compared to end-1992, while it rose again to 14.4% at end-1994 and 12.7% at end-1995. Though the current account deficit has widened somewhat in recent years, this does not appear to have been any immediate difficulty in financing it, in view of an increase in net capital inflow. With the four-year stability of the exchange rate of the dong, official external reserves have even been on a rise since 1993. The recent economic performance of Viet Nam has been in many respects comparable with that of many other Asian countries (Chart I-1～5).

One remarkable development with respect to the Vietnamese economy is that, unlike many other transition economies, a collapse of production was avoided following the implementation of comprehensive reform measures in 1988-89 and the collapse of the CMEA (Council for Mutual Economic Assistance) by the end of 1990 as we will see in more detail in (5). Real GDP growth declined slightly to 5.1% in 1990 and 6.0% in 1991, while Russia and other CIS (Common Wealth of Independent States) republics have not been able to emerge from the collapse of production. All East European countries experienced negative growth in the early 1990's, and they have started to recover only recently (Chart I-6 & 7).

Inflation measured in terms of retail prices rose to more than 300% in 1986-88 but tended to decline to a single-digit rate in 1993. It is interesting to note that the inflation rate moved lower with the abolition of price controls in mid-1988, the lifting of the remaining publicly administered prices at the end of 1990, and a devaluation of the dong to the level which prevailed in the parallel market in April, 1989. In most other transition economies substantial inflation has continued. Similarly, many Latin American countries which have experiencedextremely high inflation have not been able to stabilize prices (Chart I-8 & 9).

In the case of Viet Nam, central bank lending to the government increased during the course of the latter part of the 1980's in response to reduced assistance from CMEA countries, but declined in 1991 and has since been non-existent. Since 1992, government deficits have been financed by external borrowing and bond issues to the non-banking sector.

Despite relatively high growth, and heavy external debt, Viet Nam has not had any serious balance of payment financing problems in recent years. This development is attributed largely to a resumption of official grants and loan disbursements, an increase in foreign direct investment (FDI) and a Paris Club rescheduling in December 1993. An

additional factor is that Viet Nam has temporarily postponed debt repayment to CMEA countries, in particular to Russia, and has been negotiating the terms of repayment with them. Despite a widening of current account deficits since 1993, for these reasons, Viet Nam does not appear to have had difficulties of external financing. On the contrary, official external reserves have been on the increase, indicating that net capital inflow has exceeded the current account deficit, and the authorities have absorbed the excess supply of foreign currencies in the market in order to maintain the stability of the exchange rate. Since inflation in Viet Nam has been higher than that in most trading partner countries, the stability of the exchange rate implies an increase in the real (effective) exchange rate of the dong.

In addition, since around the beginning of the 1990's, capital flow to developing countries has substantially increased compared to the 1980's (Chart I-10 and Table I-2). In terms of amount, private capital has flowed into developing countries in the form of a) direct investment, b) debt flows (bond issues and bank lending), and c) portfolio investment. Capital inflow centering on direct investment is desirable for developing countries in many respects. A recent increase in FDI in Viet Nam can be considered in line with the worldwide trend. Certainly, there is no doubt that the efforts of the Vietnamese authorities to attract foreign capital have helped achieve the goal.

A side effect of large capital inflows is, however, upward pressure on the local currency in the foreign exchange market. Many countries have intervened in foreign exchange markets to mitigate such pressure, thereby increasing foreign exchange reserves. Due in part to the limitation of sterilization and difficulties in effecting sterilization, the real exchange rates of many countries have recently been on the rise. In this respect, the experience in Viet Nam is no isolated case.

The Vietnamese economy, after Doi Moi, has been doing relatively well compared with other developing or transition economies. The critical question that we need to pose at this point is whether this trend can continue well into the future. Or, was this trend of the past years mostly brought about by some initial favorable conditions which cannot be expected to continue?

To answer this question, we need to look closely at various aspects of Viet Nam's economy, and consider whether the past trend can continue from various aspects that we will examine closely in later sections.

The fundamental questions here are, firstly, how can high economic growth be achieved, and, secondly, whether targeting high economic growth could occasion instability that might eventually lower economic growth? In section (2), we look at investment, the engine of high growth. In sections (3) and (4), we look at growth and stability, by considering the relation with inflation and balance of payments or foreign savings. In section (5), we compare the performance of Viet Nam with other countries, especially other transition economies and Latin American countries to clarify the characteristics of the Vietnamese economy.

Table I - 1

Main Economic Indicators in Viet Nam

(%)

	1988	89	90	91	92	93	94
Real GDP Growth Rate	5.0	8.5	5.1	6.0	8.6	8.1	8.8
Inflation (Retail Prices)							
Annual Growth Rate	374.2	95.8	36.4	82.7	37.7	8.4	9.3
Dec./Dec. Growth Rate	393.8	34.7	67.5	67.6	17.6	5.2	14.4
Money Supply (Dec./Dec. Growth Rate)							
Total Liquidity	-	188.8	53.1	78.7	33.7	19.0	27.8
Dong Liquidity	-	128.8	44.2	55.6	58.5	31.4	33.0
Dong Currency	-	129.7	58.8	71.9	64.8	34.4	31.2
Fiscal Balance (% of GDP)	-	-7.7	-5.8	-1.9	-2.5	-5.5	-2.4
Current Account Balance (Millions of US dollars)	-	-584	-259	-133	-8	-867	-966
Gross Official Reserves of the State Bank (Millions of US dollars)	-	111	24	27	465	404	876
Official Exchange Rate (Dong Per US Dollar, Average)	-	-	5,133	9,274	11,150	10,640	10,967

Note: Total Liquidity = Dong Liquidity + Foreign Currency Deposits.
Dong Liquidity = Currency + Demand Deposits + Time Deposits.

Source: IMF, " Viet Nam - Statistical Tables," July 1995, and GSO, " Viet Nam Economic Report on Industrialization and Industrial Policy," October 1995.

Table I - 2

Current Account Balance, Capital Account Balance, and Foreign Exchange Reserve Change

(US$ bil.)

	East Asia			Latin America		
	Current Account Balance	Capital Account Balance	Foreign Exchange Reserve Change	Current Account Balance	Capital Account Balance	Foreign Exchange Reserve Change
1985	-7.2	14.3	-7.1	-1.8	-0.5	2.3
1986	11.4	12.9	-24.2	-10.7	6.3	4.5
1987	27.6	11.1	-38.7	-2.2	8.2	-6.0
1988	19.8	-5.1	-14.7	0.0	-2.3	2.2
1989	10.1	1.6	-11.7	-6.8	7.9	-1.1
1990	8.8	10.9	-19.7	-7.2	16.5	-9.3
1991	3.5	32.9	-36.4	-16.8	28.9	-12.1
1992	1.8	20.7	-22.5	-25.9	49.8	-23.9
1993	-17.2	50.4	-33.3	-33.6	53.0	-19.4
1994	2.2	44.7	-46.9	-43.3	38.5	4.8

Source: Economic Planning Agency, "White Paper on the World Economy, 1995 edition," p.273.

Notes: Capital account balances include errors and omissions.

A minus sign for changes in foreign exchange reserves indicates an increase.

Chart I -1

Real GDP of Asia 1

(Year on Year)

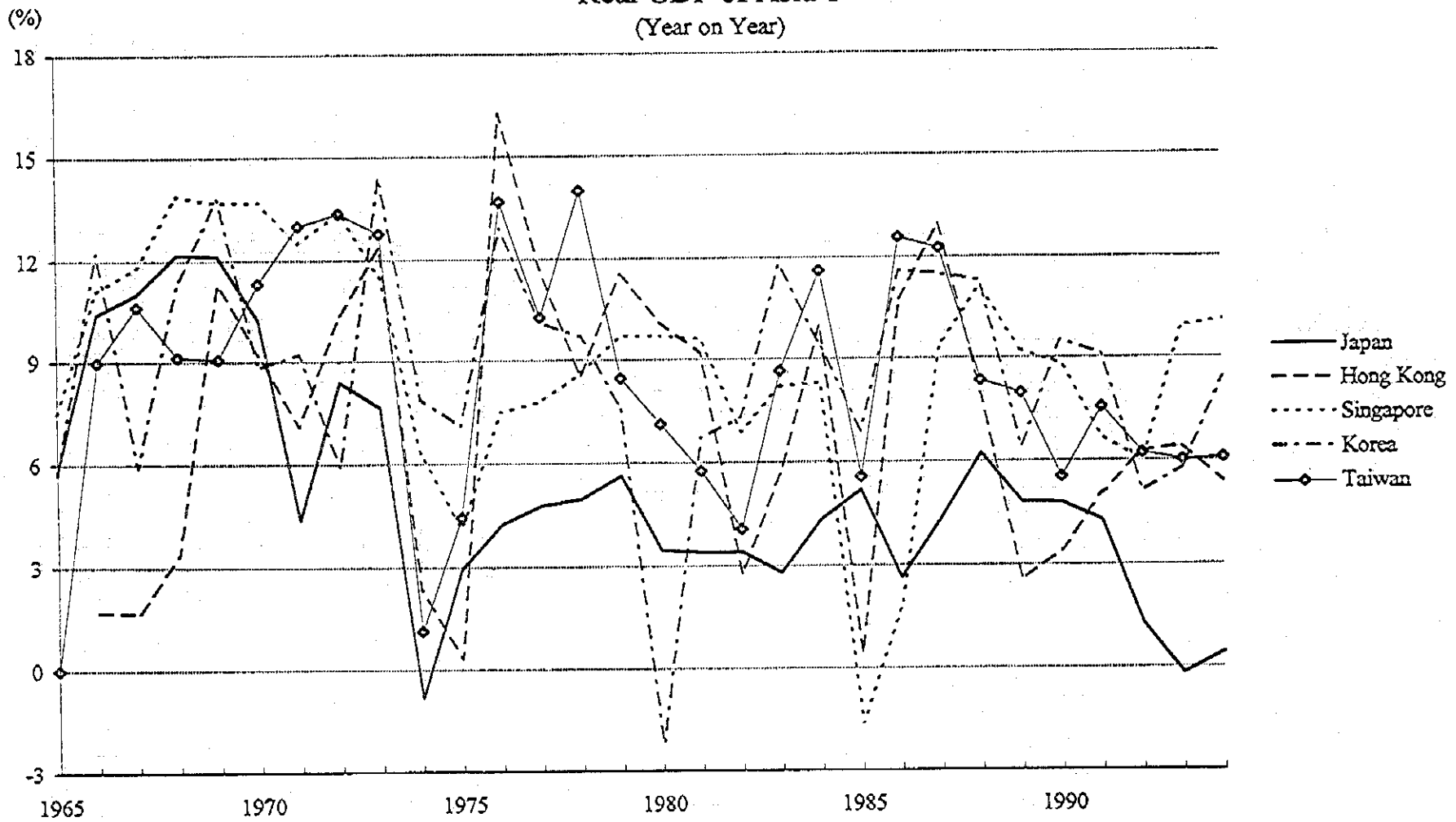


Chart I -2

Real GDP of Asia 2

(Year on Year)

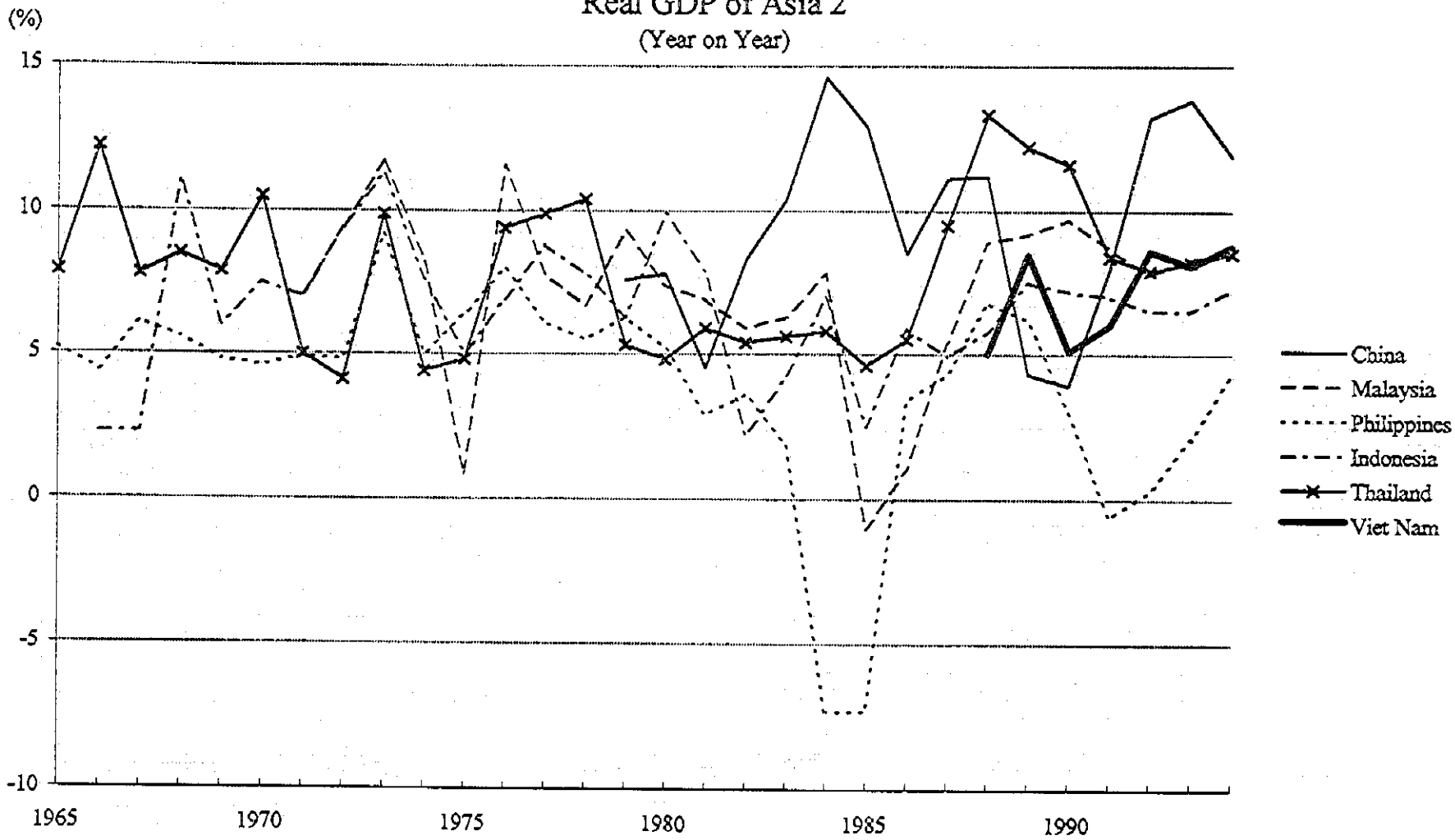


Chart I - 3

CPI of Asia 1

(Year on Year)

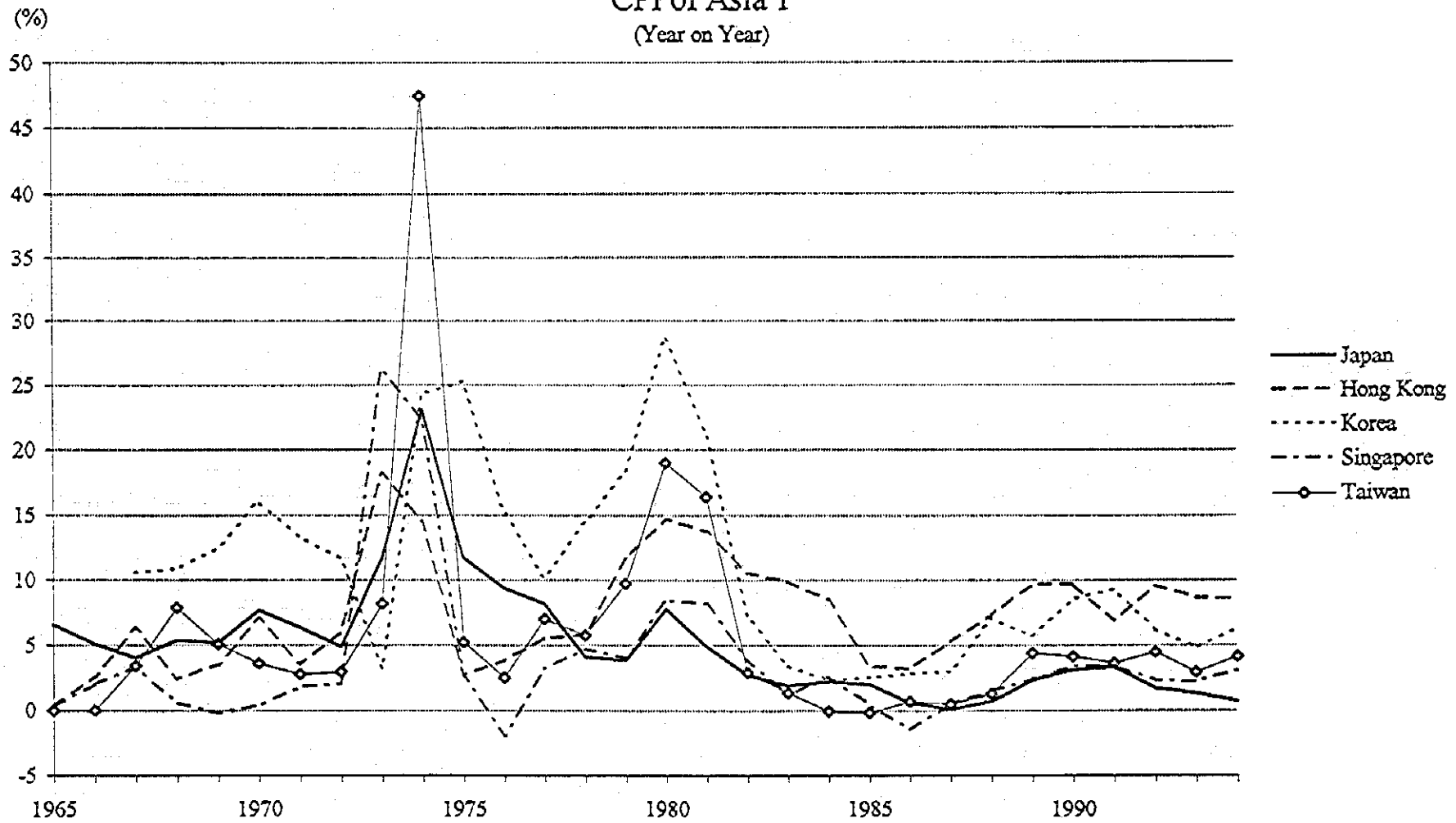


Chart I - 4

CPI of Asia 2 - 1

(Year on Year)

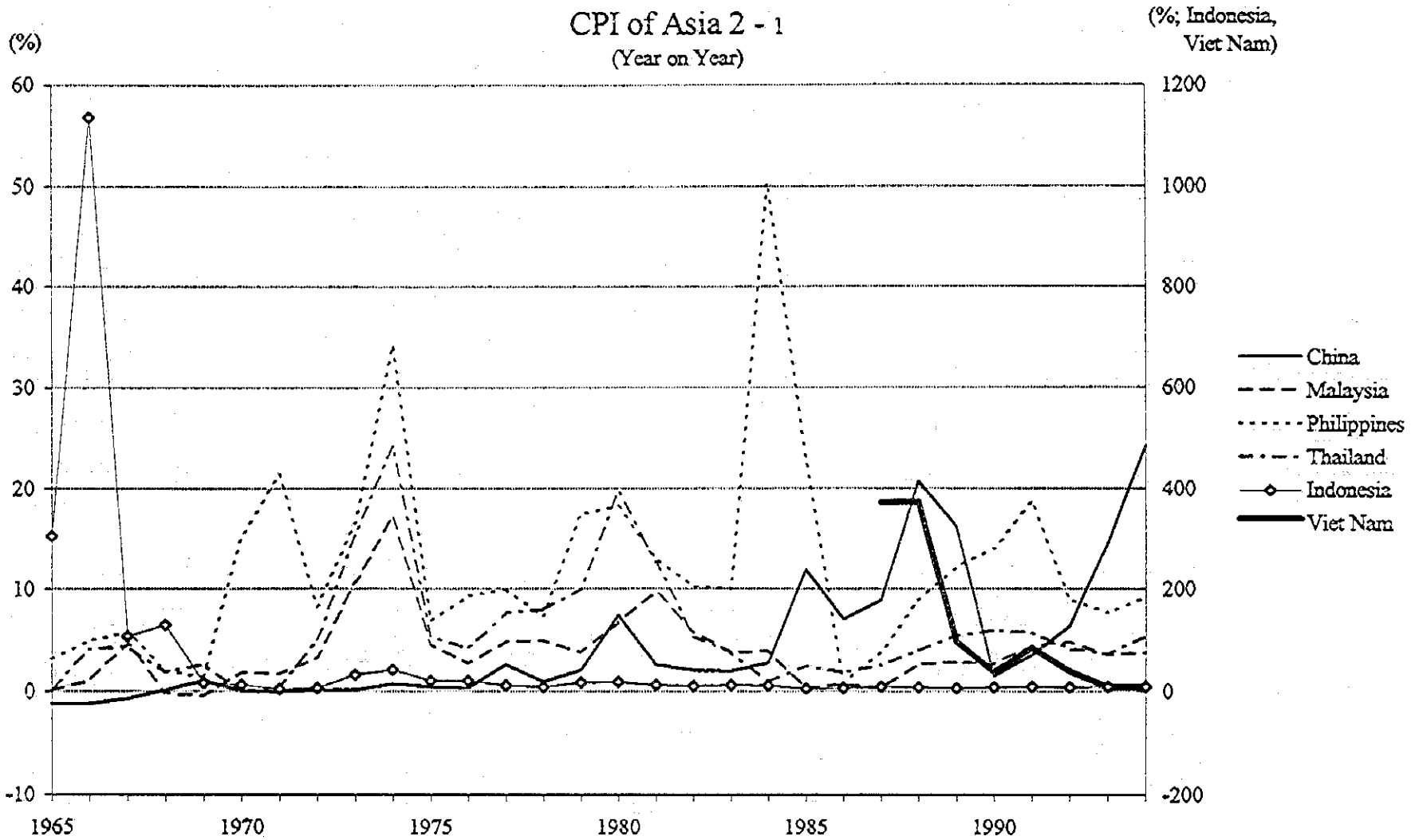


Chart I - 5

CPI of Asia 2 - 2

(Year on Year)

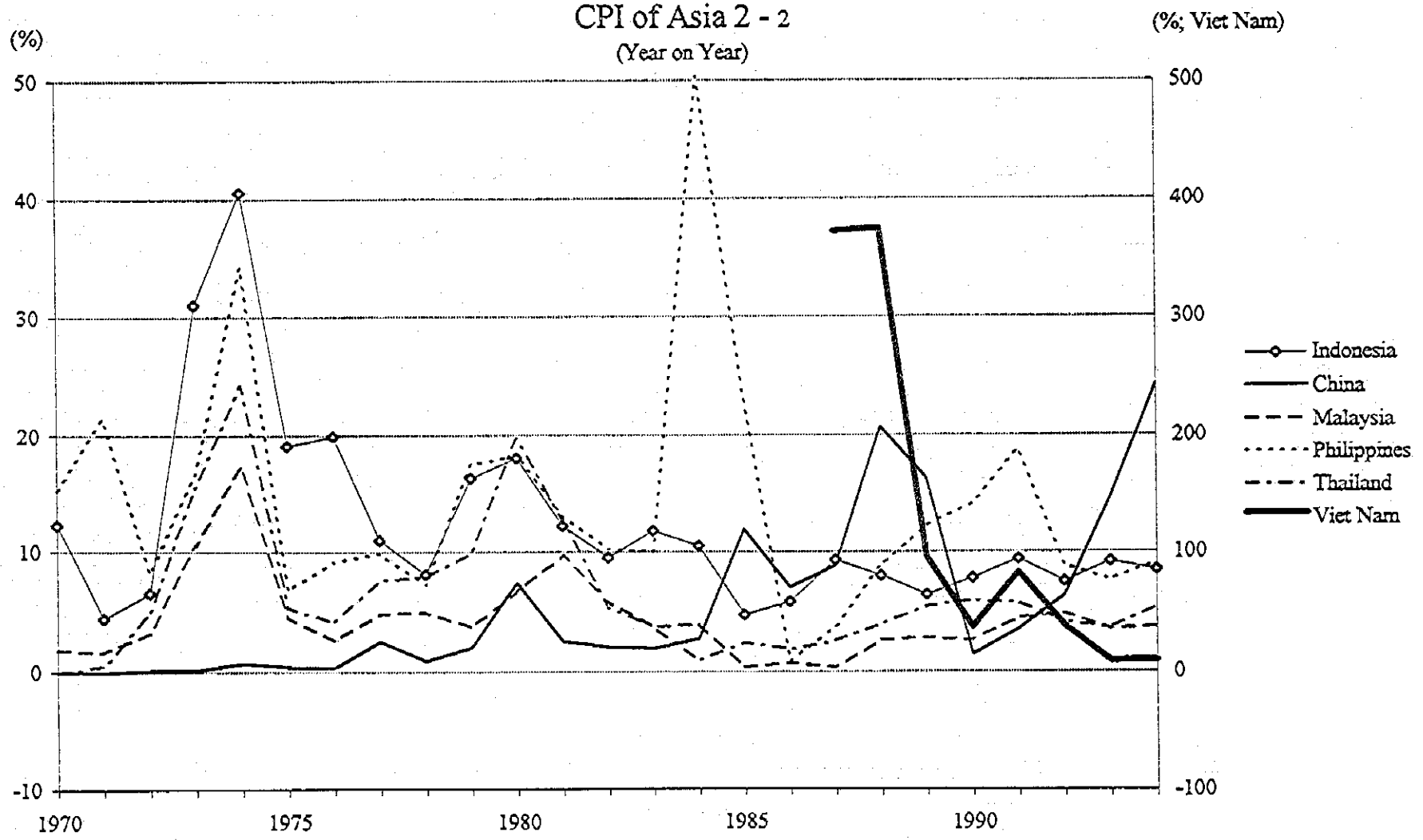


Chart I - 6

Real GDP in Eastern Europe and Russia

(Year on Year)

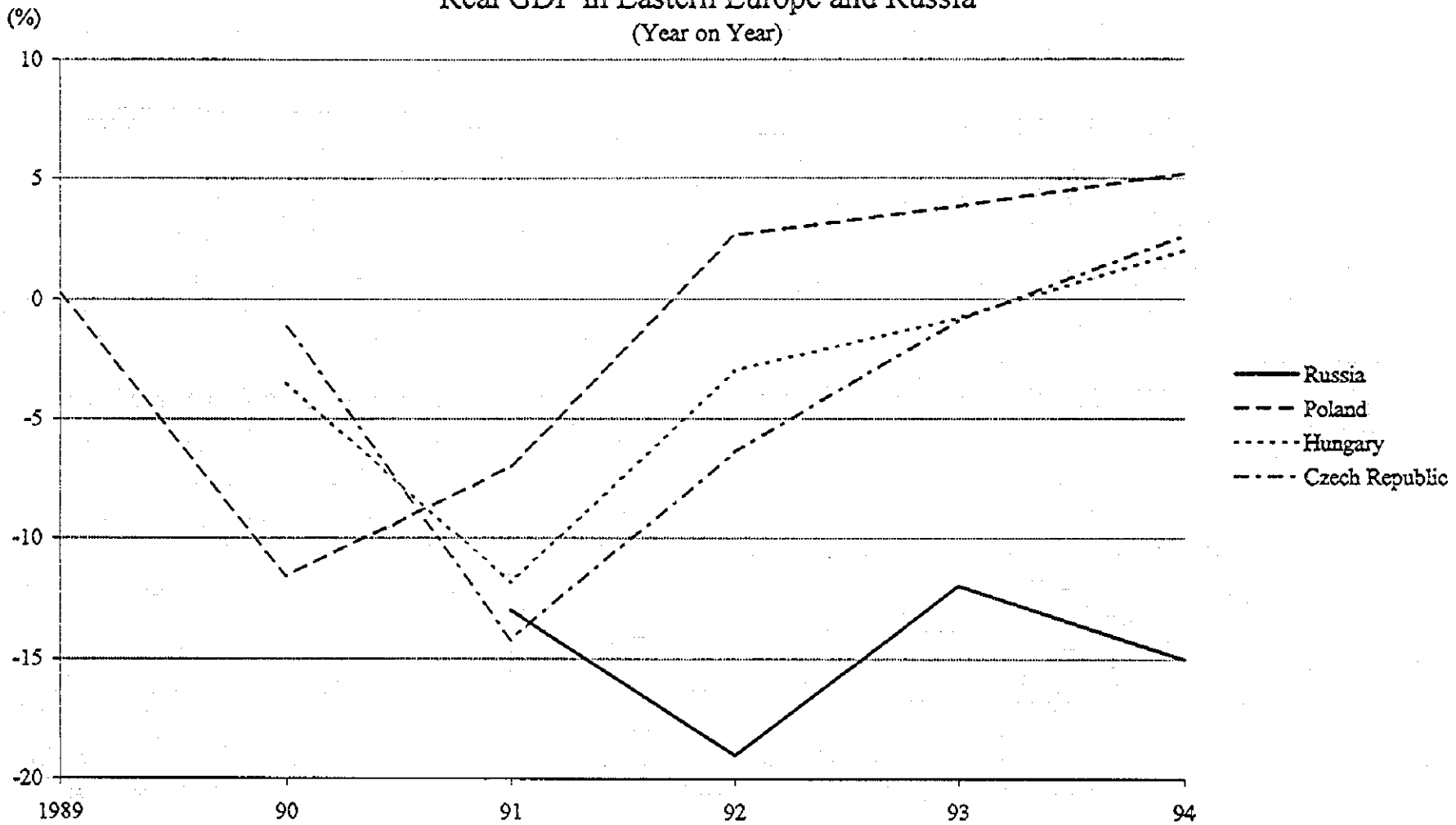


Chart I - 7

CPI in Eastern Europe and Russia

(Year on Year)

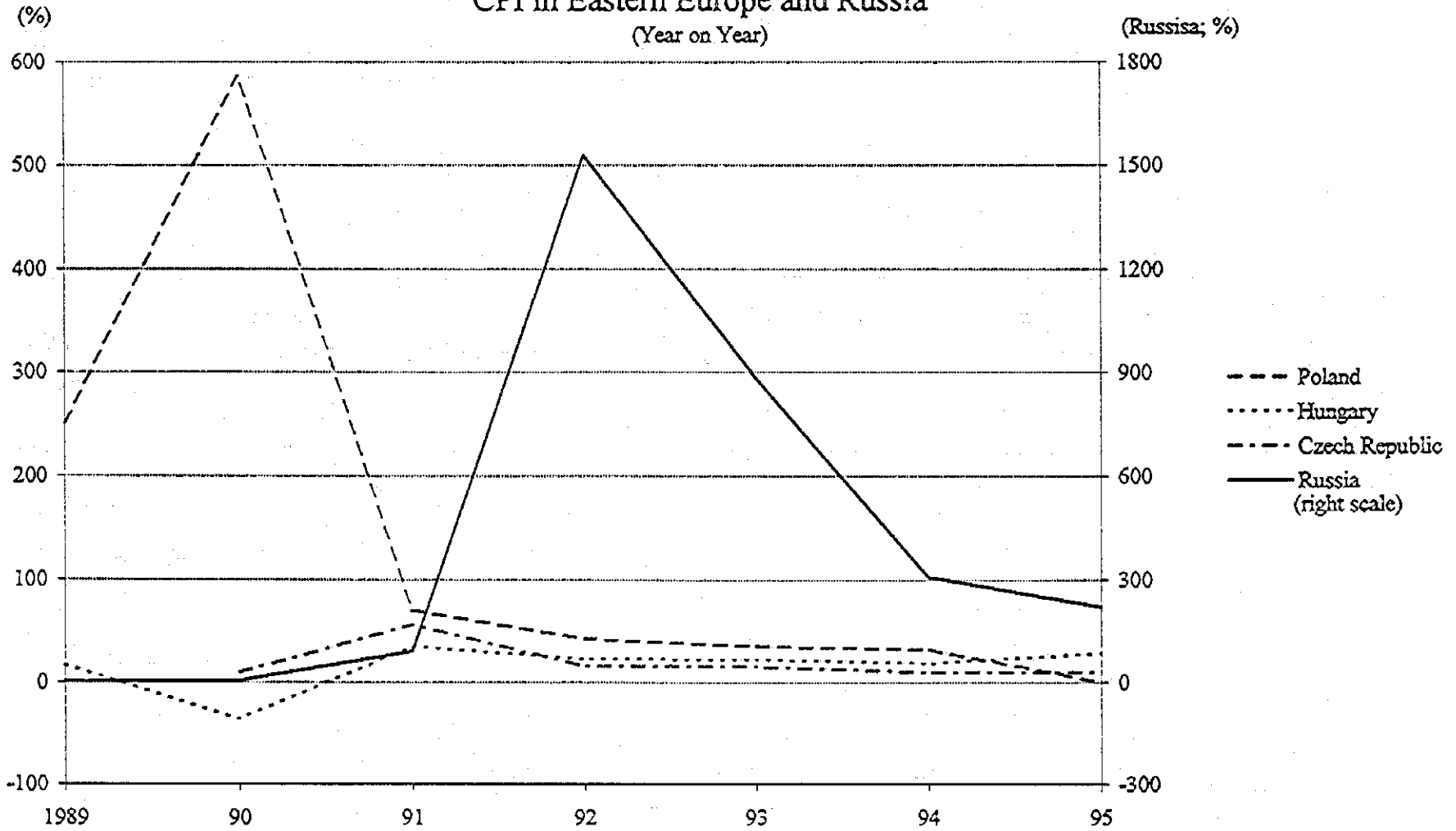


Chart I - 8

Real GDP of Western Hemisphere

(Year on Year)

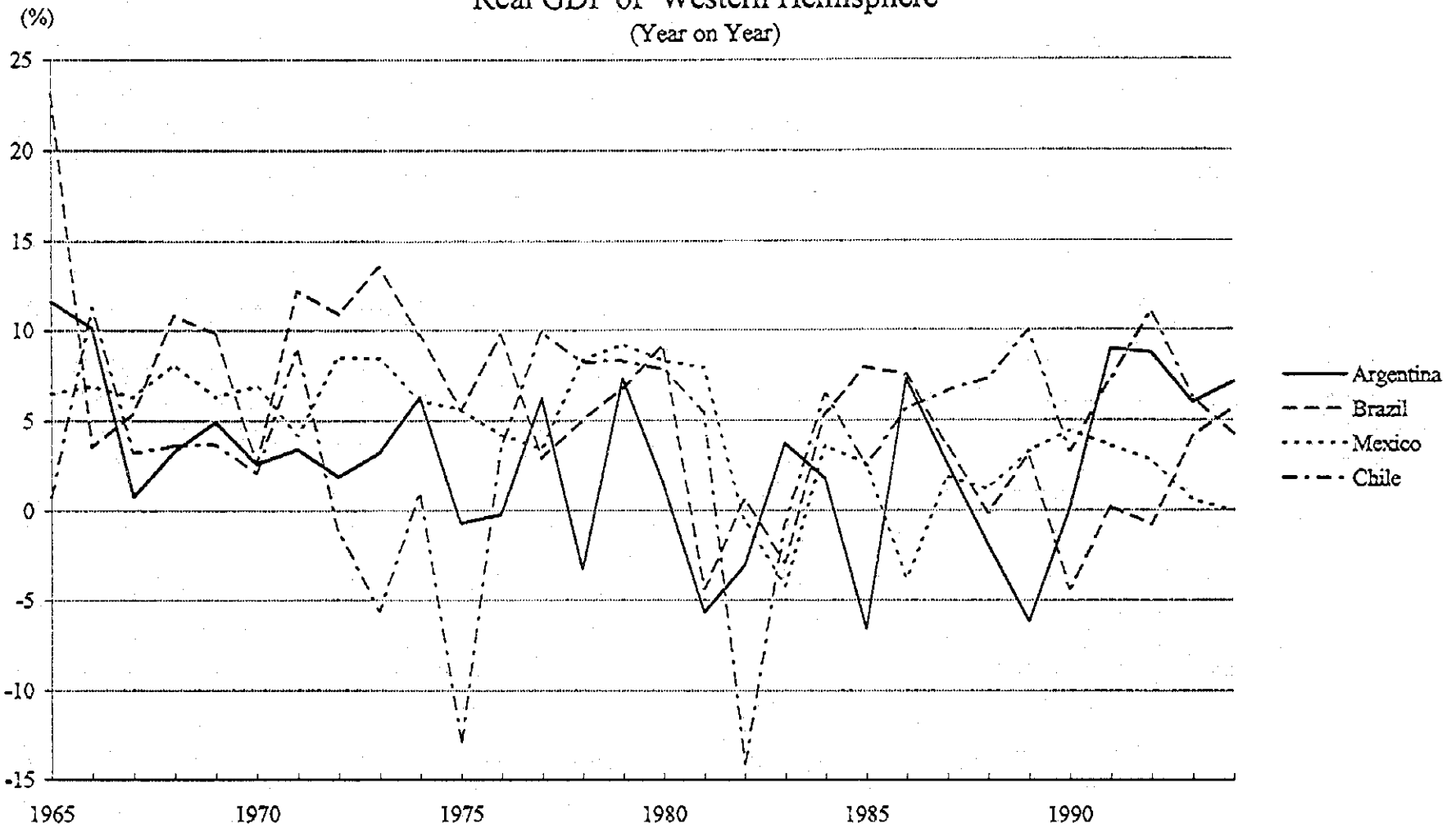


Chart I - 9

CPI of Western Hemisphere

(Year on Year)

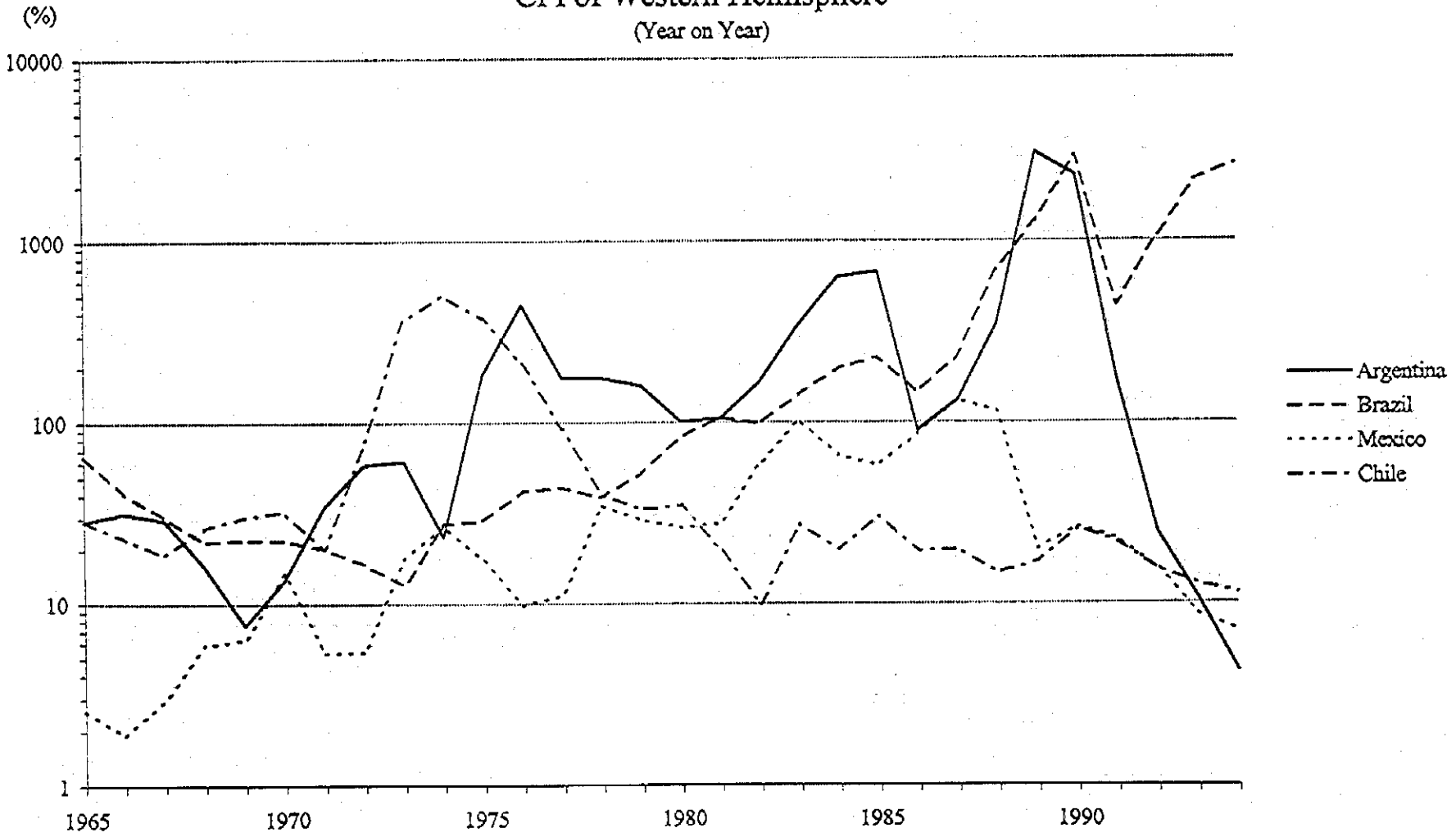
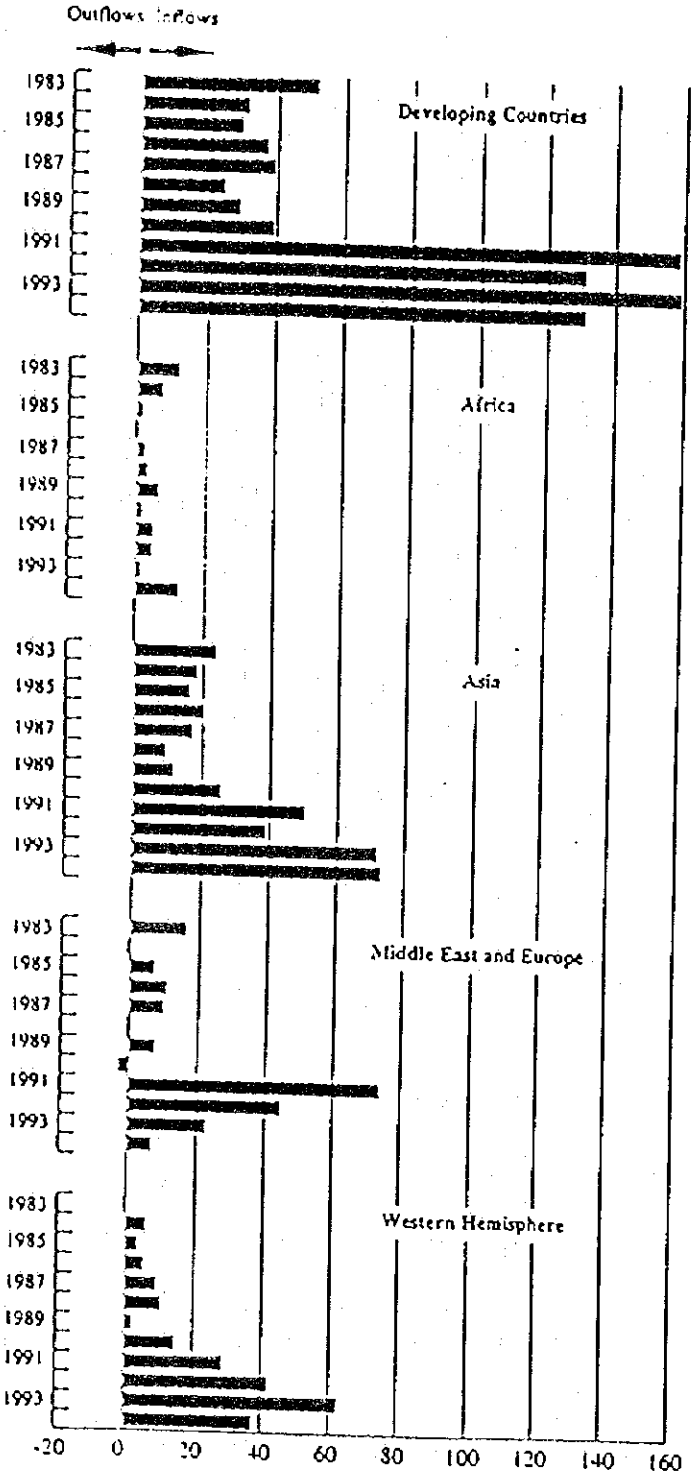


Chart I - 10 Developing Countries: Net Capital Flows[1]

(In billions of U.S. dollars)



[1]Net capital flows comprise net direct investment, net Portfolio investment, and other long- and short-term net investment flows, including official and private borrowing.

IMF, "World Economic Outlook, October 1995," P.41

(2) Growth and Investment

To achieve high economic growth, Viet Nam needs investment and the amount and kind of investment will set the future course of the country's economic growth. The role and future pattern of investment is critical at this point in time because investment requires financing from domestic savings and foreign savings, both of which are fundamentally limited and also because capital investment in Viet Nam is now experiencing a shift from investment by the state to that by the private sector and foreign direct investment.

In this section, we look at investment from three aspects. Firstly, savings, or the financing side of investment, secondly, ICOR (incremental capital-output ratio) to consider the rate of economic growth and the necessary amount of investment, and thirdly, the efficiency and effects of investment, focusing on the role of technological development, by referring to the concept of TFP (total factor productivity). There are many ways to analyze growth, but in order to make the argument concrete, we concentrate on those concepts (ICOR and TFP) for which the figures of other countries are readily available. This way we can obtain some implications for the future performance of the Vietnamese economy.

1) Past Investment and Saving Trends

A. Saving

In order to increase investment for higher economic growth, a country needs to increase domestic savings. This view is commonly shared by all concerned. Although external savings as well as domestic savings can be utilized, external savings basically have to be repaid in the future and can be very volatile depending on external conditions. Domestic savings should naturally be the main source of investment finance to achieve stable and high economic growth.

In Viet Nam, the savings rate has been increasing steadily. However, since the initial level was very low, it has not kept up with the financing needs of investment either in the private sector or public sector.

The low level of savings is basically attributed to the low level of per-capita income. One of the other major factors is the people's savings in the form of gold and dollars, neither of which can be utilized for financing domestic capital investment, unlike bank deposits.

B. Investment

As for the composition of investment, private investment accounts for two thirds, and public investment the rest. Of private sector investment, foreign direct investment occupies a major portion.

Investment has the effect of increasing both demand and production capacity. The effect of a demand increase can be seen instantly, whereas production capacity increases with a significant lag. An increase in production capacity is often more emphasized in developing countries but the demand side also needs to be looked at with care. In particular, when there is a large fluctuation in investment, aggregate demand of the economy fluctuates widely.

The amount of foreign direct investment can change from year to year and the effect on demand should also be analyzed.

2) ICOR (Incremental capital-output ratio)

In considering the necessary investment for a target economic growth rate, ICOR is a useful concept, especially to compare the economic growth patterns of other countries. ICOR is simply calculated as I / Δ Y (defined below). The lower ICOR, the more efficient is investment in terms of achieving the same economic growth rate.

A. The meaning of ICOR

In planning future economic development, a change in ICOR is a key factor. Although it is often said that ICOR should naturally increase judging from the figures of other countries, we should pay more attention to what constitutes ICOR to evaluate the appropriate ICOR for Viet Nam.

First, we need to consider what determines ICOR. Okawa and Kohama (1993) gives a clear explanation on the relationship between ICOR and technological change, calculated as a residual, in the following equation:

$$\Delta R = \Delta Y - r \Delta K - w \Delta L \quad \text{(Definition of the residual)}, \qquad (3)$$

where Y stands for real output, K for capital, L for labor, r for the rental price of capital, and w for wages, while Δ indicates an increment. Part of Δ Y which cannot be attributable to r Δ K and w Δ L can be considered as the result of technological change. This is the meaning of the technological change calculated as a residual.

Dividing both sides of (3) by I,

$$\Delta R / I = \Delta Y / I - r \Delta K / I - w \Delta L / I, \qquad (4)$$

where I stands for investment.

Rearranging(4), we get

$$\Delta Y / I = \Delta R / I + r + w \Delta L / I = 1 / ICOR, \qquad (5)$$

where Δ K is set equal to I.

An increase in the residual and an increase in labor input times wages would make ICOR lower. The residual defined here is nearly the same as TFP (explained in later sections), although assumptions are different.

B. The level of ICOR in Viet Nam

Past ICOR figures for Viet Nam are shown in Table I-3, and can be compared with figures for other countries in Table I-4. An increase in ICOR means that the same growth rate requires more investment, which then requires more savings. An accurate understanding and projection of ICOR is a key to accurate economic planning. Hence, the assumption of an ICOR of 3.0 to 3.3 during in the draft five-year economic plan for Viet Nam, should be analyzed carefully.

ICOR can be high if the savings rate is high enough to support a high level of investment but needs to be kept low if the savings rate cannot be raised to a high enough level. However, to argue that the amount of investment should be contained without any reasonable explanation should be avoided. Appropriate investment is needed to increase production capacity to make high economic growth possible.

Possible reasons behind a low of ICOR for Viet Nam:

a. One major factor is what has been making technological development possible, namely that Viet Nam is catching-up in terms of technology and moving to a higher level technology by introducing new technologies through foreign direct investment and the introduction of new management techniques, etc.

b. Through deregulation and price liberalization, a more efficient allocation of capital has become possible, leading to higher output without a big increase in capital stock.

c. Utilization of excess capacity probably made ICOR lower than it really is. This means that past investment is taking effect. A demand increase is resulting in idle production capacity being utilized. This can be seen in the observation that investment did not actually start to increase until 1990, while the economy grew steadily throughout the transition period. Although there is no accurate data available, this point should be noted since there is a limit to under-utilized capacity, and once highly utilized, capacity needs to be expanded in order to avoid a balance of payments deterioration and the acceleration of inflation. The utilization rate of production capacity is said to have been very low in the 1980's.

d. Reform of agricultural incentive mechanisms and liberalization procedures made agriculture production more efficient without requiring much capital investment. This is especially important because the share of agriculture to total production is still very high in Viet Nam (42.1% in 1989 → 28.9% in 1994) and agricultural trends have been reflected in overall economic performance.

e. An increase in the output of labor-intensive industries, both in agriculture and non-agriculture, has made ICOR low. This tendency is reflected in higher employment growth compared to growth of the labor force.

f. Investment has been made where there is a great shortage of capital. The elasticity of the substitution of labor for capital was small. Even if there had been a great need for capital, capital investment might have been limited for some institutional reasons or for the lack of available funds. Because of deregulation in many fields, a more efficient balance between labor and capital can now be achieved. This might be in sharp contrast with Russia and former East European countries where investment was made at a very high level as we will see in (5).

g. A boom in the service sector, especially in tourism, private transport, repairs, and housing, contributed to an increase in output as a result of liberalization measures taken during the transition period.

h. Infrastructure investment may have been given less emphasis in recent years. Since infrastructure investment does not increase production capacity directly, cutting down on

such investment and diverting it to production facilities, for example, would make ICOR low. The low ICOR of Viet Nam may simply mean less investment in infrastructure, such as roads, railways, and ports.

These are some of the factors that account for the present level of ICOR in Viet Nam. As the economy develops and as time elapses after major reforms, many of these factors must change as we will see in the next section.

C. Future possible changes in ICOR

Considering the present and future possible levels of ICOR of Viet Nam, we need to compare them with the figures of other countries and figure out how the differences arise and whether Viet Nam's ICOR will follow the patterns of other countries, that is, whether the present low level of ICOR for Viet Nam will go up in the future.

This can be seen by looking at the long-term trend of ICOR of other countries in Table I-4 1). In many countries, except Indonesia, ICORs increased from the 1960's to the 1970's. In the 1980's, ICOR's in some countries increased, but in others not.

In addition to long-term changes, ICOR levels are interesting, especially in the case of Taiwan, which maintained a low ICOR of 3.0 during the 1970's and the 1980's, whereas in Indonesia it rose to 5.4 and in the Philippines reached 12.9 in the 1980's. Although there is a great variation in the level of ICOR, it would be very difficult for any country to keep it below 3.0 for a long time. Recent ICOR data is shown in Table I-4 4). In many countries, average ICOR figures in the 1980's are higher than 4.0. However, in order to figure out the future course of ICOR in Viet Nam, we need to examine more closely where the differences in ICOR come from.

At the same time, we need to consider how the eight factors listed above in B (a~h) might change in the future, and whether they are short-term phenomena or can be sustained for some time in the future. If almost all disappeared, ICOR would increase as many predict, but of these factors, a and b could continue well into the future.

One other thing that we have to bear in mind is the possible under-recording of the emerging private sector. In Viet Nam, as in other transition economies, data gathering mostly relies on state-owned enterprises. Thus, in this sense, real ICOR could be lower than the calculated figure, because output in the private sector may not be fully reflected in GDP. We should pay more attention to this aspect when we compare with figures of other countries.

At the same time, considering ICOR in the short run can be undesirable because it usually reflects the effects of business cycles; also, too much emphasis on it in the short run might lead to less investment in infrastructure that is necessary for long-term development.

3) Efficiency of Investment

Investment must be made efficiently to minimize the amount of funds necessary. In 2), we looked at what made ICOR lower. A technological improvement was considered as a key factor. In other words, economic growth that could not be accounted for by the growth of capital investment was the key.

An increase in investment does not automatically lead to higher economic growth. The example of the USSR must be enough to clarify this point. As we will see later, Soviet economic growth was declining while investment was rising in the 1980's. One should consider efficiency in making investment. Paying too much attention to investment amount alone is not enough.

A. Technological development and TFP (total factor productivity)

Key factors in considering investment efficiency is technological development and the use of better techniques. New investment usually comes with new technology, higher efficiency, and better quality of production, together with economies of scale in many cases.

However, wrong investment decisions can lead to duplication of facilities, excessive production capacity, inefficient production in the sense that more labor-intensive production might have been better, etc.

R. Solow (1957) studied the historical data on the United States (1909-1949) and concluded that, of the average GNP growth rate of 2.9%, the contribution of capital stock was 0.32%, that of an increase in labor 1.09, and technological progress 1.49%. That is, he showed that more than half of the economic growth was brought about by technological progress.

The East Asian Miracle (World Bank, 1993) states that "about two-thirds of East Asia's extraordinary growth is attributable to rapid accumulation; that is, to unusually rapid growth in physical and human capital. The remaining third of this growth cannot be explained by accumulation and is therefore attributable to increased efficiency or TFP". This means that efficient investment has been made, i.e. more growth was achieved in East Asia than can be explained by accumulation. This is referred to as the effects of an increase in TFP. This way, growth is closely related with TFP. TFP may be more preferable than the residual explained in 2) because it is mentioned in many materials and with respect to various regions of the world and can therefore be a more useful concept when comparing with other regions of the world.

With the assumption of the Cobb-Douglas production function (unit elasticity of substitution between capital and labor), TFP is calculated in this paper by subtracting the contribution of labor and capital inputs from the rate of increase in added value. With this definition, TFP is the residual in economic growth that cannot be explained by the contribution of capital and labor.

Thus, TFP contains elements of technological advances, economies of scale, etc. In developed countries, technological progress is one of the major factors in TFP growth, In developing countries, on the other hand, some other elements could increase TFP. TFP can be high (but not necessarily so) when the economy is in the early stages of development due mostly to the improvement arising out of the transfer of technology that comes with foreign direct investment or the import of various products (technological catching-up) or more efficient utilization of inputs that follows the liberalization of prices and general economic deregulation.

TFP is defined here as

$$\Delta Y / Y = S_L \Delta L/L + S_K \Delta K / K + \Delta TFP / TFP \quad \text{----------(1)}$$

where Y is real GDP, L the labor force, K capital stock, S_L the share of labor, and S_K the share of capital.

TFP not only increases economic growth but lowers inflation as indicated by the equation below:

$$\Delta P / P = S_L \Delta W / W + S_K \Delta R / R - \Delta TFP / TFP \quad \text{----------(2)}$$

Since the level of TFP is thus closely related with economic growth and inflation, we will study the level and changes in TFP for Viet Nam in later sections. With positive TFP, a country might be able to avoid a price-wage spiral if the wage increase (adjusted for its share) is within the range of TFP increase. With negative TFP, the wage increase leads directly to a general price level increase.

In addition, the idea of TFP is useful in understanding what is actually needed to achieve higher "per capita" income, which is included in Viet Nam's draft five-year plan, as follows:

If $\Delta L / L = \Delta N / N$ and $S_L + S_K = 1$, where N is the total population, equation (1) can be rearranged as:

$$\Delta Y / Y = (1 - S_K) \Delta N / N + S_K \Delta K / K + \Delta TFP / TFP$$

It can be rearranged further as

$$\Delta Y / Y - \Delta N / N = -S_K \Delta N / N + S_K \Delta K / K + \Delta TFP / TFP$$
$$= S_K (\Delta K / K - \Delta N / N) + \Delta TFP / TFP$$

This equation means that per-capita income growth needs capital deepening and TFP growth. We need to check whether Viet Nam's draft economic plan is consistent with the concept of TFP.

B. TFP of Viet Nam

Table I-5 shows changes in TFP in the case of Viet Nam. TFP growth of Viet Nam seems to be relatively high compared with other countries, as will be seen in C. However, we should be careful how to interpret these figures since it is difficult to obtain necessary data, especially on capital stock and wages. What we could obtain was data on state-owned enterprises (SOEs).

We need to check whether analysis based on SOEs can accurately reflect the actual situation in Viet Nam, for the state sector accounts for only 40% of GDP, and especially in agriculture the risk is very high because the share of the state sector is as low as 3% (both figures are for 1994). Thus, an analysis of by-industry TFP should be used with these considerations in mind.

C. TFP of other countries

TFP of other countries is shown in Table I-6. According to IMF calculations shown in Table I-6 1), TFP growth in Asia is positive and relatively high, whereas in other regions

it is either low or negative. These figures indicate that high economic growth in Asia must have been closely related with TFP improvement.

The East Asian Miracle looks at the Asian countries more closely in Table I-6 2a). TFP growth rates for East Asian countries have been generally high, but those for Hong Kong, Japan, Korea, Taiwan, and Thailand have been especially high compared with those for Indonesia, Malaysia, and Singapore.

The definition of TFP in the East Asian Miracle is as follows: "TFP is estimated in a neoclassical framework by subtracting from output growth the portion of growth due to capital accumulation, to human capital accumulation, and labor force." In the sense that human capital accumulation is explicitly excluded from TFP, TFP figures in the East Asian Miracle could be lower than in the IMF calculations and the TFPs that we have calculated for Viet Nam. But still they are relatively high.

Although there is a great limitation it terms of data, we could say that the level of TFP growth in Viet Nam seems to have been pretty high compared with other countries and should be a factor that has contributed to high economic growth and relatively low inflation in Viet Nam, aside from monetary factors.

The East Asian Miracle defines two sources of TFP growth. One is a change in technology itself and the other is a change in the efficiency of technology use. "For productivity-based catching-up to occur, the low- and middle-income economies must be gaining on the moving target; that is, technical efficiency change must be positive". "In low- and middle-income economies, however, changes in TFP must reflect more than technical progress, otherwise, we would never find negative TFP growth rates. We have already argued that TFP growth rates for low-and middle-income economies contain an element of catching up to (or falling behind) best practice technologies."

In this sense, in order for Viet Nam to continue to have TFP growth, it needs to consider this element of catching up with best practice technologies, as well as the more efficient utilization of resources through liberalization processes. So far it seems to have been successful in this aspect, but what matters for long-term growth is a sustained and steady improvement in TFP.

More accurate data would probably make possible by-industry TFP figures for Viet Nam. In that case, the by-sector TFP data for Korea, Japan, and Taiwan in Table I-6 2)b would be quite useful, especially in considering target industries for FDI.

An example of a TFP decline can be seen in Table I-6 3), the case of Russia in the 1980's. If a country falls behind in technology, TFP growth can be negative. We need to reemphasize that TFP growth is not automatically achieved.

4) Comments on Growth

The savings rate needs to be raised for financing investment, but a prerequisite for this is that increased funds be used for efficient and good investment. The efficiency of investment is reflected in TFP and ICOR. The higher TFP and the lower ICOR, the smaller the investment amount needed.

We have looked at the level of TFP and ICOR of Viet Nam. Both of these concepts are important in making economic plans for Viet Nam. TFP can make high economic growth and low inflation possible. As for ICOR, it has to be considered together with the I-S (investment - savings) gap in Viet Nam, because a higher ICOR would require more domestic and foreign savings, which may not always be available.

Table I - 3 Calculation of ICOR for Viet Nam

Viet Nam

	1988	1989	1990	1991	1992	1993	1994(prel.)	
GDP	25,884	28,093	29,525	31,293	34,007	36,761	40,025	
Gross capital formation			4,469	4,727	5,786	7,144	8,833	Average
ICOR			3.12	2.67	2.13	2.59	2.71	2.65
Gross capital formation/GDP(real)			15.1%	15.1%	17.0%	19.4%	22.1%	
GDP Growth rate		8.5%	5.1%	6.0%	8.7%	8.1%	8.9%	

Table I - 4 ICOR of Other Countries (Long term)

1)ICOR of Other Countries

	A)		B)	
	1960's	1970's	1970's	1980's
China			5.1	4.0
India	5.2	5.8	6.5	4.0
Indonesia	2.8	2.3	3.2	5.4
South Korea	2.2	3.0	3.2	3.3
Philippines	3.6	4.0	4.7	12.9
Thailand	2.5	3.6	3.9	3.4
Taiwan			3.0	3.0
Bangladesh	2.4	3.5		
Nepal	2.8	3.8		
Sri Lanka	3.6	6.8		
Pakistan	2.0	3.6		
Malaysia	2.6	3.1		

Sources: A) Okawa and Kohama(1993)

B) Dan Duc Dam "Reform of Public Finance" Vietnam's Socio-Economic Development (Spring 1995) Institute of Economics, National Center for Social and Human Science.

2)Investment/GDP of Other Countries

	A)		B)	
	1960's	1970's	1970's	1980's
China			30.2	35.7
India	18.0	21.0	20.1	23.3
Indonesia	11.0	18.0	22.7	30.3
South Korea	19.0	29.0	28.0	30.5
Philippines	18.5	25.5	27.8	21.9
Thailand	21.0	26.5	25.9	26.8
Taiwan			29.6	23.7
Bangladesh	9.0	14.0		
Nepal	7.0	9.5		
Sri Lanka	17.0	28.0		
Pakistan	14.0	17.0		
Malaysia	17.0	24.5		

3) GDP Growth Rate of Other Countries

	A)		B)	
	1960's	1970's	1970's	1980's
China			5.9	9.0
India	3.4	3.6	3.1	5.8
Indonesia	3.9	7.6	7.2	5.6
South Korea	8.6	9.5	8.7	9.3
Philippines	5.1	6.3	5.9	1.7
Thailand	8.4	7.2	6.7	7.9
Taiwan			10.0	8.0
Bangladesh	3.7	3.9		
Nepal	2.5	2.5		
Sri Lanka	4.6	4.1		
Pakistan	6.7	4.7		
Malaysia	6.5	7.8		

4) ICOR of Other Countries (Medium term)

	Malaysia				Singapore				Indonesia			
	Real GDP (1978 prices)	Capital formation (1978 prices)	I/Y	ICOR	Real GDP (1985 prices)	Capital formation (1985 prices)	I/Y	ICOR	Real GDP (1983 prices)	Capital formation (1983 prices)	I/Y	ICOR
1979	41,428	11,455	27.7%									
1980	44,512	13,612	30.6%	4.41								
1981	47,602	15,952	33.5%	5.16								
1982	50,430	18,245	36.2%	6.45								
1983	53,582	19,638	36.7%	6.23								
1984	57,741	20,713	35.9%	4.98								
1985	57,150	16,626	29.1%	-28.13								
1986	57,859	14,390	24.9%	20.30					90,081	18,297	20.3%	
1987	60,929	14,016	23.0%	4.57	43,372	15,028	34.6%		94,518	19,616	20.8%	4.42
1988	66,258	17,317	26.1%	3.25	48,203	16,260	33.7%	3.37	99,981	21,422	21.4%	3.92
1989	72,435	20,608	28.5%	3.34	52,657	18,503	35.1%	4.15	107,437	22,597	21.0%	3.03
1990	79,329	24,769	31.2%	3.59	57,471	19,079	33.2%	3.96	115,217	25,201	21.9%	3.24
1991	86,149	31,427	36.5%	4.61	61,293	21,851	35.7%	5.72	123,225	28,568	23.2%	3.57
1992	92,866	32,770	35.3%	4.88	64,950	24,477	37.7%	6.69	131,185	32,732	25.0%	4.11
1993	100,617	37,512	37.3%	4.84	71,542	27,492	38.4%	4.17	139,707	35,040	25.1%	4.11
1994	109,915	45,799	41.7%	4.93	78,765	29,591	37.6%	4.10		36,415		
Average			32.1%	5.18			35.8%	4.87			22.3%	4.10

	Korea				Mexico				Brazil			
	Real GDP (1990 prices)	Capital formation (1990 prices)	I/Y	ICOR	Real GDP (1980 prices)	Capital formation (1980 prices)	I/Y	ICOR	Real GDP (1980 prices)	Capital formation (1980 prices)	I/Y	ICOR
1979												
1980												
1981												
1982					48,317	10,704	22.2%		12,076	2,615	21.7%	0.22
1983					46,289	7,677	16.6%	-3.79	11,722	2,380	20.3%	-6.72
1984					47,961	8,170	17.0%	4.89	12,355	1,843	14.9%	2.91
1985	111,330	32,231	29.0%		49,204	8,812	17.9%	7.09	13,325	1,881	14.1%	1.94
1986	124,194	34,861	28.1%	2.71	47,357	7,772	16.4%	-4.21	14,323	2,455	17.1%	2.46
1987	138,499	40,807	29.5%	2.85	48,236	7,762	16.1%	8.83	14,828	2,690	18.1%	5.33
1988	154,111	47,674	30.9%	3.05	48,837	8,211	16.8%	13.66	14,819	2,519	17.0%	-279.89
1989	168,905	55,779	34.0%	5.70	50,472	8,736	17.3%	5.34	15,288	2,549	16.7%	5.43
1990	179,539	66,299	36.9%	4.24	52,715	9,883	18.7%	4.41	14,610	2,269	15.5%	-3.35
1991	195,936	76,121	38.8%	4.64	54,627	10,704	19.6%	5.60	14,645	2,196	15.0%	62.74
1992	205,860	74,529	36.2%	7.51	56,160	11,865	21.1%	7.74	14,531	1,996	13.7%	-17.51
1993	217,699	76,388	35.1%	6.45	56,497	11,718	20.7%	34.77	15,130	2,192	14.5%	3.66
1994	235,931	88,442	37.5%	4.85	58,575	12,670	21.6%	6.10				
Average			33.6%	4.76			18.6%	12.15			16.6%	9.03

Table I - 5 TFP Summary Table

All industries

	1990	1991	1992	1993	1996(prel.)
dY/Ya	0.050	0.058	0.083	0.078	0.085
dL/La	0.049	0.022	0.027	0.028	0.029
dK/Ka	0.059	0.059	0.067	0.077	0.088
TFP growth		0.018	0.039	0.035	0.045
dP/Pa	0.348	0.532	0.280	0.133	0.135
dw/wa		0.589	0.512	0.430	0.252
dr/ra		0.507	0.061	-0.466	-0.139

Agriculture

dY/Ya	0.015	0.021	0.070	0.037	0.038
dL/La	0.051	0.026	0.032	0.029	0.028
dK/Ka	0.059	0.059	0.067	0.077	0.088
TFP growth		-0.014	0.038	0.026	0.051
dP/Pa	0.298	0.615	0.115	0.038	0.142
dw/wa		0.606	0.644	0.251	0.365
dr/ra		0.593	-45.731	0.773	0.619

Industry and Construction

	1990	1991	1992	1993	1996(prel.)
dY/Ya	0.028	0.086	0.131	0.123	0.131
dL/La	0.042	0.001	0.014	0.022	0.023
dK/Ka	0.059	0.059	0.067	0.077	0.088
TFP growth		0.050	0.085	0.071	0.075
dP/Pa	0.357	0.551	0.366	0.146	0.115
dw/wa		0.625	0.486	0.455	0.220
dr/ra		0.579	0.422	0.022	0.161

Services

dY/Ya	0.103	0.079	0.067	0.088	0.097
dL/La	0.044	0.021	0.014	0.026	0.036
dK/Ka	0.059	0.059	0.067	0.077	0.088
TFP growth		0.039	0.023	0.040	0.043
dP/Pa	0.391	0.439	0.376	0.184	0.134
dw/wa		0.570	0.231	0.764	0.062
dr/ra		0.391	0.528	-0.476	0.388

All Industries

1. Calculation of TFP

Calendar Year		1989	1990	1991	1992	1993	1994(prel.)	Comment	Unit
Real Y	Y	28.093	29.526	31.286	33.991	36.735	39.982	1989 prices	Billion
Deflator	P	1.00	1.42	2.45	3.25	3.72	4.25		
	Y*P	28.093	41.956	76.689	110.482	136.475	170.076		
	w/12		57.2	104.9	177.1	274.2	353.2	SOE Average Income	thousand
	w		686.4	1258.8	2125.2	3290.4	4238.4		
	L	28.851	30.294	30.974	31.819	32.718	33.669	Employment	thousand
	w*L		20.794	38.990	67.622	107.655	142.703		billion
	r*K		21.163	37.699	42.860	28.820	27.373		billion
	K	73.775	78.244	82.971	88.757	95.902	104.734		billion
	r		0.270	0.454	0.483	0.301	0.261		dong

Share(s)						
labor share	(w*L/p*Y)a		0.504	0.570	0.710	0.817
cap share	(r*K/p*Y)a		0.496	0.430	0.290	0.183

Quantity					
dY/Ya (Y)	0.050	0.058	0.083	0.078	0.085
dL/La	0.049	0.022	0.027	0.028	0.029
dK/Ka	0.059	0.059	0.067	0.077	0.088
s*dL/La		0.011	0.015	0.020	0.023
s*dK/Ka		0.029	0.029	0.022	0.016
TFP growth (T)		0.018	0.039	0.035	0.045
T/Y		30.4%	46.5%	45.6%	53.3%

Price					
dP/Pa	0.348	0.532	0.280	0.133	0.135
dw/wa		0.589	0.512	0.430	0.252
dr/ra		0.507	0.061	-0.466	-0.139
s*dw/wa		0.297	0.292	0.305	0.206
s*dr/ra		0.252	0.026	-0.135	-0.026
TFP growth		0.016	0.038	0.037	0.045

2. Estimate of K

Calendar Year	1989	1990	1991	1992	1993	1994(pr)	
Nominal Y	28.093	41.956	76.689	110.482	136.475	170.076	
Real Y	28.093	29.526	31.286	33.991	36.735	39.982	
Estimate of K							K/Y=2.65
1) K/Y=2.65	74.446	78.244	82.908	90.076	97.348	105.952	
2) Addition of investment							
Gross capital formation (Nominal)		6.350	11.588	18.806	26.542	37.572	
Gross capital formation (Real)		4.469	4.727	5.786	7.144	8.833	
k	73.775	78.244	82.971	88.757	95.902	104.734	
(k for 1990 is calculated from K/Y=2.65)							
3) Capital stock of SOE				70.135 (Beginning 1993)			

Agriculture and Forestry

1. Calculation of TFP

Calendar Year		1989	1990	1991	1992	1993	1994(prel.)	Comment	Unit
Real Y	Y	11,470	11,642	11,894	12,751	13,235	13,751	1989 prices	Billion
Deflator	P	1.00	1.35	2.55	2.86	2.97	3.42		
	Y*P	11,470	15,717	30,318	36,468	39,321	47,083		
	w/12		43.9	82.0	159.8	205.6	297.4	SOE Average Income	thousand
	w		526	984	1,918	2,467	3,568	weighted by employment	
	L	20,806	21,895	22,483	23,208	23,898	24,587	Employment	thousand
	w*L		11,523	22,118	44,504	58,956	87,734		billion
	r*K		4,194	8,199	-8,036	-19,635	-40,651		billion
	K	6,644	7,046	7,472	7,993	8,636	9,432		billion
	r		0.054	0.099	-0.091	-0.205	-0.388		dong

Share(s)						
labor share	(w*L/p*Y)a		0.731	0.998	1.365	1.698
cap share	(r*K/p*Y)a		0.27	0.00	-0.37	-0.70

Quantity					
dY/Ya	0.015	0.021	0.070	0.037	0.038
dL/La	0.051	0.026	0.032	0.029	0.028
dK/Ka	0.059	0.059	0.067	0.077	0.088
s*dL/La		0.019	0.032	0.040	0.048
s*dK/Ka		0.016	0.000	-0.028	-0.061
TFP growth		-0.014	0.038	0.026	0.051

Price					
dP/Pa	0.298	0.615	0.115	0.038	0.142
dw/wa		0.606	0.644	0.251	0.365
dr/ra		0.583	-45.731	0.773	0.619
s*dw/wa		0.443	0.642	0.342	0.620
s*dr/ra		0.160	-0.112	-0.282	-0.432
TFP growth		-0.012	0.415	0.022	0.046

2. Estimate of wage

w/12	Agriculture		43.9	82.1	160.2	205.8	298.1
w/12	Forestry		39.4	69.3	116.1	181.4	218.4
L	Agriculture	20,608	21,689	22,276	22,998	23,684	24,364
L	Forestry	198	206	207	210	214	223
L	Total	20,806	21,895	22,483	23,208	23,898	24,587
w/12	Weigted avg.		43.9	82.0	159.8	205.6	297.4

3. Estimate of K

	1989	1990	1991	1992	1993	1994	
K of all industries	73,775	78,244	82,971	88,757	95,902	104,734	billion dong
K of SOE (all industries)				70,135	100.0%		
K of SOE (agriculture and forestry)				6,316	9.0%		
Estimate of K of agriculture and forestry	6,644	7,046	7,472	7,993	8,636	9,432	

Industry and Construction

1. Calculation of TFP

Calendar Year		1989	1990	1991	1992	1993	1994(prel.)	Comment	Unit
Real Y	Y	6,444	6,629	7,228	8,242	9,324	10,631	1989 prices	Billion
Deflator	P	1.00	1.44	2.53	3.66	4.23	4.75		
	Y*P	6,444	9,513	18,255	30,142	39,486	50,514		
	w/12		74.0	141.4	232.1	368.7	459.7	SOE Average Income	thousand
	w		888	1,697	2,785	4,425	5,517	weighted by employment	
	L	4,036	4,210	4,214	4,275	4,370	4,470	Employment	thousand
	w*L		3,740	7,150	11,905	19,336	24,660		billion
	r*K		5,772	11,105	18,236	20,150	25,853		billion
	K	43,814	46,468	49,275	52,711	56,954	62,200		billion
	r		0.074	0.134	0.205	0.210	0.247		dong

Share(s)						
labor share	(w*L/p*Y)a		0.392	0.394	0.449	0.489
cap share	(r*K/p*Y)a		0.61	0.61	0.55	0.51

Quantity					
dY/Ya	0.028	0.086	0.181	0.123	0.131
dL/La	0.042	0.001	0.014	0.022	0.023
dK/Ka	0.059	0.059	0.067	0.077	0.088
s*dL/La		0.000	0.006	0.010	0.011
s*dK/Ka		0.036	0.041	0.043	0.045
TFP growth		0.050	0.085	0.071	0.075

Price					
dP/Pa	0.357	0.551	0.366	0.146	0.115
dw/wa		0.625	0.486	0.455	0.220
dr/ra		0.579	0.422	0.022	0.161
s*dw/wa		0.245	0.191	0.204	0.107
s*dr/ra		0.352	0.256	0.012	0.082
TFP growth		0.046	0.081	0.070	0.075

2. Estimate of wage

w/12	Industry		75.9	147.8	236.3	371.4	460.4
w/12	Construction		66.3	114.9	214.4	357.6	457.0
L	Industry	3,241	3,392	3,394	3,450	3,522	3,595
L	Construction	795	818	820	825	848	875
L	Total	3,241	4,210	4,214	4,275	4,370	4,470
w/12	Weigted avg.		74.0	141.4	232.1	368.7	459.7

3. Estimate of K

	1989	1990	1991	1992	1993	1994
K of All industries	73,775	78,244	82,971	88,757	95,902	104,734
K of SOE (All industries)				70,135	100.0%	
K of SOE (Industry and Construction)				41,652	59.4%	
Estimate of K of Industry and Construction	43,814	46,468	49,275	52,711	56,954	62,200

Services Industry

1. Calculation of TFP

Calendar Year		1989	1990	1991	1992	1993	1994(prel.)	Comment	Unit
Real Y	Y	9.831	10.894	11.794	12.617	13.778	15.182	1989 prices	Billion
Deflator	P	1.00	1.49	2.32	3.40	4.09	4.67		
	Y*P	9.831	16.188	27.397	42.885	56.297	70.915		
	w/12		144.6	259.8	327.7	732.7	779.5	SOE Average Income	thousand
	w		1.735	3.118	3.932	8.792	9.354	weighted by employment	
	L	4.010	4.189	4.277	4.336	4.450	4.612	Employment	thousand
	w*L		7.269	13.335	17.051	39.124	43.142		billion
	r*K		8.919	14.062	25.834	17.173	27.773		billion
	K	23.314	24.726	26.220	28.048	30.306	33.097		billion
	r		0.114	0.169	0.291	0.179	0.265		dong

Share(s)							
labor share	(w*L/p*Y)a			0.473	0.432	0.566	0.647
cap share	(r*K/p*Y)a			0.527	0.568	0.434	0.353

Quantity						
dY/Ya		0.103	0.079	0.067	0.088	0.097
dL/La		0.044	0.021	0.014	0.026	0.036
dK/Ka		0.059	0.059	0.067	0.077	0.088
s*dL/La			0.010	0.006	0.015	0.023
s*dK/Ka			0.031	0.038	0.034	0.031
TFP growth			0.039	0.023	0.040	0.043

Price						
dP/Pa		0.391	0.439	0.376	0.184	0.134
dw/wa			0.570	0.231	0.764	0.062
dr/ra			0.391	0.528	-0.476	0.388
s*dw/wa			0.269	0.100	0.433	0.040
s*dr/ra			0.206	0.300	-0.207	0.137
TFP growth			0.036	0.024	0.042	0.043

2. Estimate of wage

	w/12	Total		57.2	104.9	177.1	274.2	353.2
	w/12	Agriculture etc.		43.9	82.1	160.2	205.8	298.1
	w/12	Industry etc.		39.4	69.3	116.1	181.4	216.4
	L	Total		30.294	30.974	31.819	32.718	33.669
	L	Agriculture etc.		21.895	22.483	23.208	23.898	24.587
	L	Industry etc.		4.210	4.214	4.275	4.370	4.470
	L	Services	4.010	4.189	4.277	4.336	4.450	4.612
	w/12	Weighted avg		144.6	259.8	327.7	732.7	779.5

3. Estimate of K

	1989	1990	1991	1992	1993	1994	
K of All industries	73.775	78.244	82.971	88.757	95.902	104.734	billion dong
K of SOE (All industries)				70.135	100.0%		
K of SOE (Agriculture and forestry)				22.163	31.6%		
Estimate of K of services	23.314	24.726	26.220	28.048	30.306	33.097	

Table I - 6 TFP of Other Countries

1)World Development Outlook (October 1993)

	1971-93	1971-75	1976-81	1982-87	1988-91
Africa	0.2	1.6	-0.3	-0.7	0.7
Asia	2.6	2.7	1.9	2.8	3.2
Middle East and Europe	0.1	3.6	-2.4	-0.7	0.8
Western Hemisphere	0.5	2.8	0.7	-0.9	-0.2
All developing countries	1.4	2.7	0.6	0.9	1.8

Total factor productivity is calculated as the residual after taking into account the contribution of capital and labor to growth of potential GDP

2) The East Asian Miracle

a. TFP estimates for high performing East Asian economies

	TFP growth (Full sample, parameter estimates)	TFP growth (Full sample, parameter estimate)
Hong Kong	3.6470	2.4113
Indonesia	1.2543	-0.7953
Japan	3.4776	1.4274
Korea	3.1021	0.2355
Malaysia	1.0755	-1.3369
Singapore	1.1911	-3.0112
Taiwan	3.7604	1.2829
Thailand	2.4960	0.5466
Latin America	0.1274	-0.9819
Sub-Saharan Africa	-0.9978	-3.0140

b. TFP growth rates by sector

Sector	Korea	Japan 1960-70	Taiwan 1966-86
Food	7.3	-1.8	2.0
Beverages	7.9	0.0	
Tobacco	13.4		
Apparel		2.0	10.5
Textiles	10.7	0.5	7.6
Leather	12.6	1.0	
Shoes		1.0	
Wood	9.4	2.8	0.3
Furniture	12.1	1.7	
Paper	8.2	1.4	2.3
Printing	10.7	-0.2	
Chemicals	18.1	3.4	3.3
Petroleum	-0.3	-3.6	0.0
Rubber	11.4	1.0	6.3
Non-metallic minerals	2.8		2.4
Basic metals			7.2
Iron and steel	3.7	1.3	
Metal products	7.6	3.4	4.4
Non-electrical machinery	8.0	2.3	6.7
Electrical machinery	10.7	5.4	
Electrical equipment			7.1
Transport equipment	11.2	4.3	2.7
Precision instruments			11.0
Plastic products		0.9	0.0
Other manufacturing	7.5	-1.8	
Average	8.8	1.2	4.6

3) TFP of USSR, 1928-87

	Total economy	Industry
1928-39	0.6	2.4
1940-49	1.3	1.5
1950-59	2.8	4.6
1960-69	0.8	1.4
1970-79	0.1	1.8
1980-87	-0.2	-0.1

TFP calculated as (growth of output per worker) - 0.4 (growth of capital per worker)
Source: Easterly and Fischer (1995).

(3) Growth and Inflation

In the following sections, the causes of inflation are analyzed in relation to growth, with special attention to monetary factors. In considering the problems of instability brought about by high economic growth, inflation is the single most important concern.

1) Causes of Inflation

A. Monetary factor

Increases in money supply are absorbed by the economy (a) for transaction purposes, (b) for accumulation as financial assets, and (c) by price increases. As long as the dong's credibility is maintained, money supply is allocated first to (a) and (b). Or, vice versa, i.e., only enough money should be created for (a) and (b). If monetary policy is managed in that fashion, there should not be any money left, leading to (c), i.e., unnecessary inflation.

The biggest reason behind money creation leading to inflation is the financing of large budget deficits by the central bank, i.e. printing money to finance the government deficit. This has been the major factor in Russia, East European countries, and Latin American countries as we will see in section (5). To consider the problems of inflation, monetary aspects are emphasized here, because whatever the original causes of inflation are, it is usually accompanied by an increase in money at the macroeconomic level.

B. Capacity and bottlenecks

When demand surpasses supply capacity in goods markets, that excess demand must be absorbed by price increases. At the macroeconomic level, this relationship can best be described by the Phillips Curve, showing the trade-off between inflation and unemployment. The size of capacity relative to demand influences the level of inflation not only at the macroeconomic level, but also at the by industry or the by product level.

In the case of Viet Nam, the Phillips Curve is not a useful concept due to the lack of data and the existence of under-employment in the economy. It would be more useful to look closely at agriculture. This is not only because the share of agriculture in the total economy is especially large but also because exports of agricultural products have recently been given higher priority compared to their domestic consumption. That is why, when agricultural production does not grow as expected, the domestic market rather than exports, tends to function as a channel through which demand and supply are equalized by price changes. Since agricultural products comprise a major portion of the price index, price movements in agriculture influence the level of inflation in Viet Nam.

Although we do not elaborate on this aspect of inflation here, the Vietnamese government must consider this basic supply and demand factor. This is because, even if money supply in dong was controlled to mitigate the effects related with this factor, the money supply in a broader sense, including dollars and gold, could not be controlled. Dollars and gold, the bulk of which is used as a store of value, can in these cases be used for transaction purposes i.e., to purchase goods in short supply. Thus inflation could reach a very high level, without adequate monetary policy tools.

C. Wages and other cost-push factor

A wage increase becomes a source of inflation when there is pressure from the labor side to increase wages beyond the range consistent with productivity growth. One feature of this process is what is called indexation, which is an ingrained mechanism of increasing the level of wages and other prices in line with the general price level regardless of changes in labor productivity within which wage hikes should be contained to achieve price stability. Especially in Latin America, this indexation, which had led to hyper inflation, became a major issue. Likewise, an exchange-rate devaluation can become a major source of inflation by pushing up import prices, which would subsequently lead to general price increases.

In Viet Nam, wages in the public sector are kept at a low level, compared with the market-determined wage level of the private sector. When and how these wages should be increased is of critical importance. However, without a proper tax base for the government, this could lead to hyper inflation through monetization of government deficits.

D. Comments on causes of inflation

Factors B and C are very important in Viet Nam, especially because the existence of dollars and gold can make monetary policies ineffective in coping with these problems. These non-monetary factors can in fact lead to uncontrollable inflation in cases where monetary policies are not as effective as they are in non-dollar economies.

2) Money Supply and Inflation

We now examine the money creation mechanism, the movement of money supply, and inflation in recent years in order to figure out how monetary factors influenced the inflation trend in Viet Nam.

A. HPM (High-powered money)

The amount of HPM is important in considering inflation not only because it is the basis of money creation but because it can be controlled by the government in one way or another.

The increase in HPM in recent years has been brought about by increases in foreign reserves rather than increases in lending by SBV (the State Bank of Viet Nam) to the government, reflecting the Vietnamese government's determination not to print money for financing government deficits as can be seen in Table I-7. An increase in lending to the government by the monetary authorities no longer occupies the major part of the increases in assets of the central bank. In 1994, for example, 60% of the increase in HPM was brought about by the increase in net foreign assets held by the central bank. This trend seems to have intensified in 1995.

Increases in foreign reserves, on the other hand, are brought about basically by the recent inflow of foreign funds made up of FDI and ODA, reflecting the world's improving evaluation of the Vietnamese economy and the recent international environment surrounding Viet Nam as will be discussed in section (4).

On the liability side of SBV, currency increased more than bank reserves as can be seen in Table I-8. As for bank reserves, yearly figures for the ratio of bank reserves to deposits have not changed much, except for a one-time drop in 1989, indicating that the government is adjusting the amount of broad money by controlling bank loans directly, rather than changing reserve requirements as a policy measure.

One thing that needs to be clarified is the mechanism of foreign reserve accumulation by the government, especially whether there is any relationship between foreign reserve accumulation and currency increase, and whether currency increase has any relationship with the government budget deficit.

NFA (net foreign assets) of the economy and NFA of the central bank have not necessarily moved in line with each other. The central bank claims that only enough HPM has been supplied to satisfy expected real GDP growth and price increases and, in this sense, HPM is controlled, regardless of the changes in NFA held by the central bank. The level of NFA held by the central bank, then, must be determined by some other factors. As we will consider in later sections, and as some maintain in Viet Nam, if excessive inflow of dollars is a major factor for the dong to strengthen, the central bank has no choice other than to purchase dollars in order to prevent the dong's appreciation.

B. M2

a. Changes in M2

HPM may be controlled by the central bank, but M2 is not under the central bank's direct influence in many countries. However, M2, or broad money, is directly related to the pace of inflation and it is necessary to analyze the movement of this broader money supply. The ratio of M2 to HPM has been stable in Viet Nam, except in 1989, when there was a large change in bank reserves.

The rate of increase in money supply (M2) has eased since 1988 in Viet Nam, and this has been a reflection of the successful government policy in controlling money supply, which emphasizes stringent budget constraints on state-owned enterprises and the termination of direct financing of government budget deficits by the central bank.

b. Dong vs. the Dollar

Taking a closer look at the composition of M2 in Table I-9 shows that all components are increasing except for the recent movement of dollar deposits. Dollar deposits increased substantially up to 1991, but have not risen since then. This volatile movement probably reflects changes in government policy toward dollar currency and dollar deposits; but at the same time, it may reflect increased confidence of the Vietnamese in the dong, due mostly to the recent decline in inflation and the dong's stable exchange rate.

On the other hand, the dong currency and dong deposits have been increasing steadily. From 1990 to 1993, dong currency increased more than dong deposits, probably reflecting small or sometimes negative real interest rates on deposits. In 1994, the rate of increase was almost the same for both currency and deposits. Although we have no data on the amount of dollars in circulation, the increase in dong currency and deposits, along with a slow or

negative increase in dollar deposits, can generally be understood to reflect conversion from dollars to dong.

c. Currency vs. Deposits

An increase in dong currency merits special attention, although at the present stage we are not sure about the real causes except for a probable increase in the credibility of the dong in comparison with the dollar. Compared with the increase in dong currency, the increase in deposits has been relatively small. However, judging from the fact that Vietnamese are beginning to gain confidence in domestic banks, dong deposits with positive real interest rates should increase more than dong currency. (It appears that the increase in deposits in 1995 was very large.)

The reason for this smaller increase in dong deposits might be the inefficiency that remains in the banking sector with regard to bank deposits. Trust in the banking sector may still be an issue as well. This should be studied further since the share of currency in broad money is much higher in Viet Nam than in other countries. According to the World Bank (1995), the currency/broad money ratio was 45.0% for Viet Nam, whereas it was 10.8% for Indonesia, 6.5% for Malaysia, 14.7% for the Philippines, 8.2% for Singapore, 8.0% for Thailand, 16.6% for China, and 9.5% for Korea. Another possible explanation is the inefficiency of the bank settlement system in Viet Nam, which makes it very difficult to settle transactions in dong currencies.

d. Marshallian *k*

Marshallian *k*, which is the ratio of money stock to GDP, has stabilized over the past several years, indicating that financial deepening has not progressed in Viet Nam despite ongoing financial deregulation. This issue will be examined again in connection with the roles of the dollar and gold.

C. Money supply and inflation

Money supply is not always the cause of inflation, but inflation usually accompanies monetary growth. Table I-10, shows the relationship between money supply and inflation. With relatively stable velocity, which is the inverse of Marshallian *k* , the increase in money supply has been used for the real GDP increase and also for the price increase. The stability in velocity means that Viet Nam has been able to limit capital flight to dollars, unlike many East European and former Soviet Union countries.

The quantity theory of money assumes in its extreme case that the velocity of money does not changeover time, and the equation, MV = PY, can be expressed as:

$$\Delta P/P = \Delta M/M - \Delta Y/Y,$$

where P is the price level, M money stock, Y real GDP and V the velocity of money.

When we look at the relationship among $\Delta M/M$, $\Delta P/P$, and $\Delta Y/Y$ in Table I-10, except for 1989, when there was a big drop in velocity, velocity has been relatively stable (although edging up), indicating that the above relationship has generally been closer to the

actual situation in Viet Nam. The change in velocity in 1989 can in large part be explained by the increase in dollar deposits. As can be seen in the bottom row of the table, velocity, calculated by excluding dollar deposits, has in fact been very stable. The stability of velocity, in turn, reflects the relative confidence in the dong.

In Russia, for example, as explained in Sachs (1994), velocity moved from 4.6 (in 1992.1-3) to 9.4 (in 1993.10 - 1994.5) due to large-scale dollarization, leading to a very high inflation rate. In East European countries, velocity moved up substantially as well, leading to a rapid increase in inflation, as explained in Calvo and Kumar (1994).

3) Money Supply and Economic Growth

A. Domestic credit and SOEs

Limiting the increase in money supply basically limits the extent of inflation, but it may also limit economic growth, especially in transition economies. If no properly functioning financial market exists and if state banks limit the amount of lending to SOEs (state-owned enterprises), SOEs may have great difficulty in acquiring necessary funds for their operations.

a. Liquidity of Viet Nam's SOEs

Careful attention must be paid to the credit constraints of SOEs. Table I-11 shows that, in Viet Nam, the increase in the amount of lending to SOEs by SBV and other banks has declined, contrary to the fact that the share of SOEs in the economy has still been on the rise. Moreover, net transfers from SOEs to the government has increased greatly. These figures alone might indicate that SOEs have been squeezed, but we need to look at their profits and inflows of FDI money to clarify the real position as well as their oil-related transfer to the government.

If we assume that all funds related to FDI and revenues from oil go to SOEs, i.e. if we assume that all those funds are provided to SOEs, we may be able to subtract those funds from the above-mentioned burdens of SOEs to come up with the real burden for them, which is indicated in the last row in the table. The net burden on SOEs is calculated to be about 2% of GDP. Still, considering their share in GDP, it can be a substantial burden for SOEs. However, the Vietnamese government has prepared a stabilization fund for SOEs to ease their burden.

b. Credit and output growth of enterprises

Calvo and Kumar (1994) shows the positive relationship between changes in real credit and changes in output by examining the relationship for Poland in 1992 between bank credit, profitability, and output across 25 major sectors of the economy.

Unlike Poland, however, since credit data by industry is not available for Viet Nam, we cannot examine the effects of credit on economic growth in order to understand whether there is a credit constraint on enterprises and whether sufficient funds for growth are being provided, in addition to those indicated by the figures shown in Table I-11.

The relationship between domestic credit and inflation is very important because the combination of a target economic growth rate and a target inflation rate can only be achieved by providing SOEs with appropriate credit. Overemphasis on reducing inflation could lead to lower economic growth by squeezing SOEs. More attention should be paid to this aspect because, as stated above, an increase in HPM has mostly been brought about by an increase in foreign reserves, and net domestic credit to commercial banks etc. appears to simply fill the gap between the increase in foreign reserves and total targeted HPM growth. The effects of changes in supply channels of central bank credit have so far apparently not been taken into account in Viet Nam.

B. Real M2 and economic growth

Since the credit side of M2 is mostly made up of domestic credit to enterprises rather than to consumers in most developing countries, M2 can generally be understood to be a rough indicator of the amount of funds available for enterprises. What matters in evaluating the liquidity position of enterprises is the real balance of money, M2/P. In the case of Russia, for example, P (prices) increased much more than M (money), resulting in a rapid decrease in M/P, which represented the hard-pressed conditions of Russian firms. This is regarded by some to be one of the main factors that brought about a decline in real GDP in the case of Russia.

What matters in the movement of M/P is the velocity of money, whose stability depends largely on the trust people have in the dong. Inflation must be avoided in order for the government to be trusted. Trust in the government is difficult to be regained once it is lost. Hyper inflation should be avoided, but short-term adjustments in domestic credit are also critical to achieve long and sustained economic growth.

Once trust in the domestic currency is lost, the velocity of money increases, resulting in a decrease in the real money balance. However, increasing money to make up for that usually fuels inflation. This sort of situation is a vicious circle that governments must avoid. Limiting inflation within a controllable range is critical in this sense.

C. Budget deficits

The budget deficit is perhaps the single most important factor in explaining the growth of money supply in high-inflation economies. The budget deficit usually widens when there is strong pressure for social expenditures to gain political support, or when the government assumes a leading role in trying to achieve unattainable economic growth, or when there is a big change in the tax base, which often leads to a decline in government revenues.

However, the deficit does not automatically lead to money creation. Firstly, as in many developed economies, it can be financed by domestic savings through the issuance of government bonds in the domestic financial market. Secondly, it can be financed abroad either through the issuance of bonds in international markets or through external borrowings, including ODA.

If either of these financings is possible, the budget deficit will not necessarily lead to money creation. However, as for the first measure of utilization of domestic savings, if the level of savings is not high enough, it can crowd out domestic private investment through higher interest rates. Or people simply may not wish to hold government bonds unless interest rates are attractive, or, more simply, people may not have enough faith in the government and government bonds. The possibility of these depends mostly on the IS gap of the country. If there is enough savings in the country, this sort of problem is unlikely to emerge. As for the second measure of financing from abroad, if foreign investors or governments lose confidence in the country's future, funds simply do not flow in.

In these cases, the government tends to turn to monetization of budget deficits unless it can cut down on expenditures. Government deficits thus have to be constrained to levels that can be financed without resorting to their monetization. The mere willingness on the part of the government not to print money is not enough to avoid monetization of government deficits.

4) US Dollars and Gold

A. The effects of the presence of dollars and gold

There is a large amount of dollar currency and deposits as well as gold in Viet Nam as media of exchange and store of value. Their amount cannot be accurately estimated and any estimate or discussion based on that estimate tends to be a sheer guess. Nevertheless, there are certain points that should be kept in mind.

a. Dollars and gold are outside the control of SBV, so once there is threat of inflation, the government would have no means to control them. Under such circumstances, the central bank tends to resort to direct control of commercial banks, which is contrary to the present trend to give more freedom to those banks. Although the government buys and sells dollars and gold, if the inflow and outflow cannot be effectively controlled, the total amount of dollars and gold may be outside the realm of their control.

b. Since there is no accurate information on the amount of dollar and gold holdings, it would be difficult to estimate the amount of broad money. It would also be difficult for the government to expand money in such a way as to be consistent with appropriate nominal GDP growth. Furthermore, it would be very difficult for the government to assess the amount of money needed for savings, which might lead to oversupply or under-supply of money.

c. As stated in Sahay and Vegh (1995), "to the extent that dollarization is reflected in a shift away from domestic money, it will exacerbate the inflationary consequences of a given fiscal deficit". The existence of dollars and gold means that the real outstanding amount of necessary dong is limited by the amount of dollar and gold holdings. The cost associated with monetization of the government deficit is usually spread among holders of the local currency rather than holders of dollars because money is created only in the local currency. This cost usually takes the form of depreciation of the value of the local currency against the dollar thus holding local currency becomes unattractive.

If the amount of local currency is large relative to the size of the budget deficit, the cost of budget deficit monetization in the form of inflation is spread thinly among all holders of the currency. However, if the amount is small, i.e., if the size of the budget deficit is large compared with local currency in circulation, the burden for the holders of local currency becomes relatively large while holders of dollars do not assume the burden. The same amount of monetization of a fiscal deficit would give rise to higher inflation in a highly dollarized economy.

d. The savings of the Vietnamese people in the form of dollar currency and gold cannot be mobilized for investment.

As for gold, its purchasing power is basically transferred abroad, thereby lowering domestic expenditures and lowering the economic growth of Viet Nam, as long as gold is used as a means of store of value. Importing gold has the same effect as importing any other goods in the short term. The only difference is that it can be re-exported and would increase GDP by that amount. So if people sell gold and place the proceeds in bank deposits, that would increase national savings that could be used to finance investment, increasing the economic growth rate at the same time. On the other hand, dollars basically are credit to the US government and selling dollars by itself would not increase GDP, unlike selling gold. It is only a matter of the exchange rate. However, if people save in banks in dong rather than dollars, their savings can be utilized for investment financing.

Although the existence of dollars and gold makes it difficult for the government to mange the economy, under the present circumstances, it may be a necessary part of the Vietnamese economy in smoothing business transactions and in providing means of saving. In this sense, any forced contraction of the use of dollars is likely to cause confusion, while a phasing out of dollars in circulation is necessary and desirable in the long run.

B. Marshallian *k* and dollars plus gold

Marshallian *k* is often cited as an indicator of the degree of financial deepening. Calculation of *k* from official monetary figures indicates that *k* in Viet Nam is relatively low compared with other countries. However, taking into account the existence of dollars and gold, unofficial Marshallian *k* can be as close as 100%.

· 1994 Nominal GDP (a)	170,258 billion dong = 15.4 billion dollars (Conversion rate = 11,023 dong/$)
· 1994 M2 (b)	41,273 billion dong = 3.7 billion dollars
· Amount of dollar currency (c)	from 0.6 billion dollars to several billion dollars
· Amount of gold (d)	About 10 billion dollars
· Marshallian *k* (b/a)	24.2%
· Marshallian *k* ((b+c)/a)	27.9%~about 50%
· Marshallian *k* ((b+c+d)/a)	92.8%~

If they could convert dollar currency and gold into either dong or bank deposits, it would increase domestic savings and official Marshallian *k* without increasing unofficial Marshallian *k* calculated here.

C. Current situation of dollarization

a. Recent trends

Although the official data does not include dollar currency, for the past several years, the velocity of money in Viet Nam has not increased much, indicating that there has not been much dollarization since the middle of the 1980's. At a glance, the velocity seems to differ greatly before and after 1989, but if we take a closer look at the composition, excluding dollar deposits, it has been surprisingly stable as we have seen in Table I-10. This trend indicates that there has not been large-scale dollarization or de-dollarization in Viet Nam for the past several years. The background for this might be that the role for dong, dollars, and gold might be rather separated. However, as we saw in 2) B-b, there seems to have been some gradual conversion from dollars to dong.

b. Capital inflow and foreign reserve accumulation

In the past few years, Viet Nam's official external reserves have increased, suggesting a net capital inflow in excess of the current account deficit. It is possible and even plausible that the reserves will continue to increase, considering the recent global trend of capital flows to developing countries and the recent economic performance of Viet Nam. However, it is conceivable that part of the reserve increase reflects the conversion of US dollars to dong inside the country. This part, if any, should be reflected on the international balance of payments as errors and omissions. If the current account balance, the capital account balance and changes in official external reserves were all correctly counted and estimated, the size of errors and omissions could be a source of information to estimate the net amount of conversion between US dollars and dong. But, reality is a far cry from being ideal, and this method of estimation is unlikely to be helpful.

As explained in 2), an increase in official external reserves leads to an increase in the supply of dong. If domestic lending by the central bank is curtailed by the extent that currency is supplied against an increase in external reserves in order to stick to a predetermined rate of increase in the supply of currency, currency may not increase as planned. (Some of the Vietnamese monetary authorities acknowledge this problem and the actual money supply control might take this into account.)

Suppose the monetary authorities buy US dollars to mitigate upward pressure on the dong and do not conduct sterilization operations (= absorption by SBV of dong liquidity supplied in connection with intervention in the foreign exchange market). Then, the supply of currency may be less than that planned to the extent of increase in external reserves, or, more precisely, to the extent of increase in foreign exchange (US dollar) reserves, which reflects domestic conversion of US dollars to dong.

In considering the possible impact of such conversion on prices and the level of economic activity, we may also need to judge to what extent the US dollars which were converted were used as the medium of exchange. If that extent were also substantial, money supply policy might unintentionally become tighter. The opposite case is conceivable when the reverse conversion occurs.

c. Foreign reserve accumulation and money supply

In this context, an increase in the share of currency in M2 in Table I-9 needs some explanation. It appears that the conversion of dollars to dong has been done through the accumulation of foreign reserves, i.e., through dollar purchases by the central bank in the past few years. As long as the resulting composition of M2 reflects the people's financial needs, it would not cause much of a problem. But the monetary authorities should be careful not to supply too much dong currency in this process in order to avoid inflation in the future.

5) Comments on Inflation

The worst policy of the government is the unlimited monetization of the government deficit. Many policy makers clearly understand this, but no country monetizes the government deficit because they think that it is the best policy. In most of the cases, the government had no other choice but to monetize the deficit simply because of its sheer size.

So, the government's commitment not to monetize the budget deficit is one thing, but whether they can actually do it or not depends on the fundamentals of the economy, especially whether domestic savings, together with foreign savings, can finance private investment and the budget deficit.

In this sense, in order to avoid high inflation, the long-term policy of the government should be geared to increase domestic savings and to reduce budget deficits. Getting rid of the fundamental factors that might lead to higher growth of money should be emphasized, together with the monetary aspects described here.

Table I - 7 HPM's Credit Side

(Billions of dong)

At year-end	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995.3
1. Assets of SBV				4,167	6,497	8,041	14,574	18,370	23,862	24,162
(1)Net domestic credit (NDA)				4,676	7,307	9,498	11,127	15,111	17,304	16,437
%increase above					56.3%	30.0%	17.2%	35.8%	14.5%	-5.0%
Government				2,973	3,903	4,069	4,547	4,025	4,009	3,326
State enterprises				120	84	80	89			
Commercial banks				1,615	2,741	3,640	5,004	6,792	7,752	7,274
Others				-32	579	1,709	1,487	4,294	5,543	5,837
(2)Net foreign assets (NFA)				-509	-810	-1,457	3,447	3,259	6,558	7,725
Discrepancies				5	7	0	0	0	0	0
2. HPM (Reserve money)				4,172	6,504	8,041	14,574	18,370	23,862	24,162

(Increment)

At year-end	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995.3
1. Assets of SBV					2,330	1,544	6,533	3,796	5,492	300
(1)Net domestic credit (NDA)					2,631	2,191	1,629	3,984	2,193	-867
Government					930	166	478	-522	-16	-683
State enterprises					-36	-4	9	-89	0	0
Commercial banks					1,126	899	1,364	1,788	960	-478
Others					611	1,130	-222	2,807	1,249	294
					0	0	0	0	0	0
(2)Net foreign assets (NFA)					-301	-647	4,904	-188	3,299	1,167
Discrepancies					2	-7	0	0	0	0
2. HPM (Reserve money)					2,332	1,537	6,533	3,796	5,492	300

(Composition of the increment)

At year-end	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995.3
1. Assets of SBV					99.9%	100.5%	100.0%	100.0%	100.0%	100.0%
(1)Net domestic credit (NDA)					112.8%	142.6%	24.9%	105.0%	39.9%	-289.0%
Government					39.9%	10.8%	7.3%	-13.8%	-0.3%	-227.7%
State enterprises					-1.5%	-0.3%	0.1%	-2.3%	0.0%	0.0%
Commercial banks					48.3%	58.5%	20.9%	47.1%	17.5%	-159.3%
Others					26.2%	73.5%	-3.4%	73.9%	22.7%	98.0%
(2)Net foreign assets (NFA)					-12.9%	-42.1%	75.1%	-5.0%	60.1%	389.0%
Discrepancies					0.1%	-0.5%	0.0%	0.0%	0.0%	0.0%
2. HPM (Reserve money)					100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Foreign loans for financing the budget deficit (net)

	1986	1987	1988	1989	1990	1991	1992	1993	1994
				413	1264	767	2673	1925	622
cf. increase in foreign reserves					-301	-647	4904	-188	3299

Table I - 8 HPM's Liability Side

SBV data
(Reserve money=HPM) (Billions of dong)

At year-end		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995.3	
Currency					2,535	4,095	6,605	10,887	14,756	19,395	19,296	SBV data
Bank reserves:	Bank deposits				1,056	2,069	1,125	3,427	3,540	4,413	4,814	SBV data
	Other				580	340	311	260	74	54	52	
Discrepancy					1	0	0	0	0	0	0	
RM Total					4,172	6,504	8,041	14,574	18,370	23,862	24,162	
Average						5,338	7,273	11,308	16,472	21,116		
Currency/RM Total					60.8%	63.0%	82.1%	74.7%	80.3%	81.3%		

Increment

At year-end		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995.3
Currency						1,560	2,510	4,282	3,869	4,639	-99
Bank reserves:	Bank deposits					1,013	-944	2,302	113	873	401
	Other					-240	-29	-51	-186	-20	-2
Discrepancy						-1	0	0	0	0	0
RM Total						2,332	1,537	6,533	3,796	5,492	300

Table I-9 Composition of M2

(Content of M2)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995.3
Currency(C)	55	205	1024	2,352	3,735	6,419	10,579	14,218	18,652	18,353
D				1,615	1,578	2,707	4,232	4,870	4,956	5,080
T				1,357	2,365	2,821	4,120	5,794	8,473	10,674
T(or D+T)	54	237	1,303	2,972	3,943	5,528	8,352	10,664	14,429	15,754
F	1	29	242	2,096	3,680	8,354	8,213	7,406	8,192	8,356
M2 total	111	471	2,569	7,420	11,358	20,301	27,144	32,288	41,273	42,463

(Composition)

Currency(C)	49.5%	43.5%	39.9%	31.7%	32.9%	31.6%	39.0%	44.0%	45.2%	43.2%
D				21.8%	13.9%	13.3%	15.6%	15.1%	12.0%	12.0%
T				18.3%	20.8%	13.9%	15.2%	17.9%	23.0%	25.1%
D+T	48.6%	50.3%	50.7%	40.1%	34.7%	27.2%	30.8%	33.0%	35.0%	37.1%
F	0.9%	6.2%	9.4%	28.2%	32.4%	41.2%	30.3%	22.9%	19.8%	19.7%
M2 total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(/GDP)

C/GDP	9.2%	7.1%	6.6%	8.4%	8.9%	8.4%	9.6%	10.4%	11.0%
D/GDP				5.7%	3.8%	3.5%	3.8%	3.6%	2.9%
T/GDP				4.8%	5.6%	3.7%	3.7%	4.2%	5.6%
D+T/GDP	9.0%	8.3%	8.5%	10.6%	9.4%	7.2%	7.6%	7.8%	8.5%
F/GDP	0.2%	1.0%	1.6%	7.5%	8.8%	10.9%	7.4%	5.4%	4.8%
Total(=Marshallian k)	18.4%	16.4%	16.7%	26.4%	27.1%	26.5%	24.6%	23.6%	24.2%

(% Increase)

Currency(C)	272.7%	399.5%	129.7%	58.8%	71.9%	64.8%	34.4%	31.2%
D				-2.3%	71.5%	56.3%	15.1%	1.8%
T				74.3%	19.3%	46.0%	40.6%	63.5%
D+T	338.9%	449.8%	128.1%	32.7%	40.2%	51.1%	27.7%	35.3%
F	2800.0%	734.5%	766.1%	75.6%	127.0%	-1.7%	-9.8%	10.6%
M2 total	324.3%	445.4%	188.8%	53.1%	78.7%	33.7%	19.0%	27.8%

Table I - 10 Money Supply and Inflation

(Unit: billions of dong)

	Calendar Year	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	HPM				4,167	6,497	8,041	14,574	18,370	23,862
2	* m2 (multiplier)				1.781	1.748	2.525	1.862	1.758	1.730
3	= M2	111	471	2,569	7,420	11,358	20,301	27,144	32,288	41,273
4	* GDP/M2(Velocity)	5.40	6.09	6.00	3.79	3.69	3.78	4.07	4.23	4.13
5	Nominal GDP	599	2,870	15,420	28,093	41,955	76,707	110,535	136,571	170,258
6	/ Real GDP	23,694	24,562	26,012	28,093	29,526	31,286	33,991	36,736	39,982
7	P	0.025	0.117	0.593	1.000	1.421	2.452	3.252	3.718	4.258

% change

	Calendar year	1986	1987	1988	1989	1990	1991	1992	1993	1994
1	HPM					55.9%	23.8%	81.2%	26.0%	29.9%
2	m2					-1.8%	44.4%	-26.2%	-5.6%	-1.6%
3	= M2		324.3%	445.4%	188.8%	53.1%	78.7%	33.7%	19.0%	27.8%
4	* GDP/M2(Velocity)		12.9%	-1.5%	-36.9%	-2.4%	2.3%	7.8%	3.9%	-2.5%
5	Nominal GDP		379.1%	437.3%	82.2%	49.3%	82.8%	44.1%	23.6%	24.7%
6	/ Real GDP		3.7%	5.9%	8.0%	5.1%	6.0%	8.6%	8.1%	8.8%
7	P		362.2%	407.3%	68.7%	42.1%	72.5%	32.6%	14.3%	14.5%

	M2/P	4,391	4,031	4,334	7,420	7,993	8,280	8,347	8,685	9,692
					8,575 *					
	%increase		-8.19%	7.51%	71.22%	7.73%	3.59%	0.81%	4.05%	11.60%
					97.87% *					
	Marshallian *k*	18.5%	16.4%	16.7%	26.4%	27.1%	26.5%	24.6%	23.6%	24.2%
					30.5% *					

Avg. 5.49%

*1989 M2 is 8,575 in Table 4.1 of the "Viet Nam Economic Report on Industrialization and Industrial Policy 1995/10)

cf.	Velocity (GDP/(M2-F))	5.40	6.09	6.00	5.28	5.46	6.42	5.84	5.49	5.15

Table I - 11 Domestic credit to enterprises (Monetary Survey Data)

(billions of dong)

End of year	1989	1990	1991	1992	1993	1994	1995.3
(Compositon of M2 --- Credit side)							
Credit to the government	3,144	3,977	4,121	1,913	3,870	4,503	4,734
Credit to state enterprises	3,606	5,309	9,129	12,439	15,511	19,652	19,661
Credit to non-state sector	511	620	1,026	2,770	7,698	11,623	12,979
(Credit to the non-government)	4,117	5,929	10,155	15,209	23,209	31,275	32,640
Net foreign assets	451	1,657	6,708	10,593	6,231	7,221	8,275
Other items	-292	-206	-683	-571	-1,022	-1,726	-3,083
M2 Total	7,420	11,357	20,301	27,144	32,288	41,273	42,566
% change							
Credit to the government		26.5%	3.6%	-53.6%	102.3%	16.4%	5.1%
Credit to state enterprises		47.2%	72.0%	36.3%	24.7%	26.7%	0.0%
Credit to non-state sector		21.3%	65.5%	170.0%	177.9%	51.0%	11.7%
(Credit to the non-government)		44.0%	71.3%	49.8%	52.6%	34.8%	4.4%
Net foreign assets		267.4%	304.8%	57.9%	-41.2%	15.9%	14.6%
Other items		-29.5%	231.6%	-16.4%	79.0%	68.9%	78.6%
M2 Total		53.1%	78.8%	33.7%	19.0%	27.8%	3.1%
Net increase							
Credit to the government		833	144	-2,208	1,957	633	231
Credit to state enterprises		1,703	3,820	3,310	3,072	4,141	9
Credit to non-state sector		109	406	1,744	4,928	3,925	1,356
Net foreign assets		1,206	5,051	3,885	-4,362	990	1,054
Other items		86	-477	112	-451	-704	-1,357
M2 Total		3,937	8,944	6,843	5,144	8,985	1,293
% of GDP							
Nominal GDP	28,093	41,955	76,707	110,535	136,571	170,258	
Credit to the government	11.2%	9.5%	5.4%	1.7%	2.8%	2.6%	
Credit to state enterprises	12.8%	12.7%	11.9%	11.3%	11.4%	11.5%	
Credit to non-state sector	1.8%	1.5%	1.3%	2.5%	5.6%	6.8%	
(Credit to the non-government)	14.7%	14.1%	13.2%	13.8%	17.0%	18.4%	
Net foreign assets	1.6%	3.9%	8.7%	9.6%	4.6%	4.2%	
Other items	-1.0%	-0.5%	-0.9%	-0.5%	-0.7%	-1.0%	
M2 Total(Marshallian *k*)	26.4%	27.1%	26.5%	24.6%	23.6%	24.2%	

(cf.)

GDP	28,093	29,526	31,286	33,991	36,735	39,982	
State sector	9,322	9,555	10,376	11,661	13,011	14,679	
Non-state sector	18,771	19,971	20,910	22,330	23,724	25,303	
% change							
GDP		5.1%	6.0%	8.6%	8.1%	8.8%	
State sector		2.5%	8.6%	12.4%	11.6%	12.8%	
Non-state sector		6.4%	4.7%	6.8%	6.2%	6.7%	
Net transfer to the budget from state enterprises	969	2,527	5,388	11,894	15,205	19,741	
Net bank and budget support for state enterprises		-824	-1,568	-8,584	-12,133	-15,600	
Government's crude oil revenue	280	850	2,158	4,195	4,800	5,215	billions of dong
Excluding oil revenue	280	26	590	-4,389	-7,333	-10,385	
Excluding FDI	280	642	2,630	-1,490	-4,141	-3,264	
% in Nominal GDP		1.5%	3.4%	-1.3%	-3.0%	-1.9%	
FDI (millions of dollars)	100	120	220	260	300	650	
Exchange rate		5,133	9,274	11,150	10,640	10,955	
FDI (billions of dong)	0	616	2,040	2,899	3,192	7,121	
Nominal GDP(billions of dong)		41,955	76,707	110,535	136,571	170,258	

(4) Growth and Balance of Payments

This section deals with the structure of the international balance of payments and IS (investment - savings) gap of Viet Nam and international capital flows involving Viet Nam, together with their implications for policy making in terms of economic growth, inflation, and the exchange rate. Our emphasis is not restricted to domestic factors, the international environment surrounding Viet Nam is also examined. Without a proper understanding of the international situation, it would be difficult for us to determine whether the present situation is special and therefore subject to change. Proper understanding of these points is critical for future policy making.

Table I-12 gives data derived from balance of payments statistics and Table I-13 GDP data. Table I-12 shows that Viet Nam had a trade deficit of 6.14 trillion dong in 1993, and a larger deficit of 8.77 trillion dong in 1994. The ratio of the 1994 deficit to GDP was 5.2%. If we look at balance of payments statistics in Table I-13, we can observe that the trade deficit has widened since 1993 after three years of modest deficits.

Based on Table I-13, one feature of Viet Nam's balance of payments is that these are relatively large trade deficits (and current account deficits) financed mostly by foreign direct investment and foreign loans, with the share of foreign direct investment increasing greatly in recent years.

If we explain the overall balance (current account balance + capital account balance) based strictly on statistics in Table I-13, there has usually been a shortage in the case of Viet Nam. This has not been financed by decreases in net foreign assets. In fact, net foreign assets have generally been accumulated (negative figures, implying increased accumulation). The final gap is financed by changes in arrears in repaying external debt. However, in terms of actual fund flows, arrears must have been set first, then the capital account balance, and the gap should have appeared as a change in net foreign assets, at least for the past several years. One interesting factor is the recent accumulation of net foreign assets. When there is an accumulation in net foreign assets, capital inflows in the capital account can be considered to have been more than enough to fill the gap.

The key point in analyzing balance of payments issues in Viet Nam is to find out whether the relatively large current account deficit can in fact be financed without adverse effects on long-term economic development. We need to consider the future size of the current account deficit and IS gap (to be examined in I-2, Quantitative Approach), together with their smooth financing. An analysis of the domestic and international economic setting is naturally needed.

1) Trade Balance

A. Trends in Viet Nam's Trade Balance

Viet Nam's trade balance improved up to 1992, but in 1993 and 1994 it deteriorated with imports increasing more rapidly than exports. From 1989 to 1994, US-dollar denominated exports increased an annual 22.2%, while imports grew 21.9%. Of total exports, petroleum accounted for about a quarter and rice 12%. The amounts of both of

these export items were negligible up to 1988. With changes in main export items, export amount has increased rapidly. Of imports, machines and spare parts started to increase suddenly three years ago, and now account for as much as one-third of total imports, probably reflecting the impact of the recent surge in foreign direct investment.

Viet Nam's exports consist mostly of primary products and are thus it is susceptible to changes in world market conditions and can be very volatile. In this respect, the export structure is similar to that of Latin American countries.

Another consideration is the effect of forcign direct investment on exports and imports, the magnitude of which is probably considerable.

B. World Export Environment for Viet Nam

Viet Nam is often said to have succeeded in changing its trading partners from CMEA to convertible curreney areas. The collapse of CMEA seriously affected Viet Nam around the beginning of the 1990's. Viet Nam made up for the loss by increasing exports of oil, agricultural and marine products, and light manufactures to other countries.

However, another factor that needs special attention is the external environment. The collapse of CMEA did not only affect Viet Nam. It affected almost all parts of the world, especially member countries. We need to consider what has happened since the collapse of CMEA in terms of world trade structure and environment, which has influenced Viet Nam's trade. In general, external circumstances for Vietnamese exports have become favorable in recent years.

In addition, there must have been some special factors affecting large trading partners, especially Japan. Viet Nam's largest export market is Japan. In Japan, import volume has recently increased substantially by historical standards, up 13.5% in 1994 and 12.9% in 1995. In US dollar terms, import growth was even higher--14.2% in 1994 and 22.3% in 1995--despite the almost zero growth of domestic demand. This remarkable increase in imports to Japan can be attributed largely to recent deregulation in Japan.

Viet Nam obviously benefited from this development in Japan (Table I-14). Among Japan's relatively large trading partner countries, Viet Nam was at the top with exports to Japan rising the most during the 1989 to 1994 period. Japan's imports from Viet Nam increased threefold during the period, although the relative share of imports from Viet Nam was still small at 0.5% of total imports in 1994. During the same period, imports from old trade champions such as Taiwan and Korea, where wages have become relatively high, did not increase as much as new comers like Viet Nam and China. A similar phenomenon can be observed in changes in the trade pattern of Singapore, Viet Nam's second largest trading partner (Table I-15).

A similar phenomenon will eventually be observed in US trade, but, due to the US delay in normalizing ties with Viet Nam, Viet Nam's trade with the United States is not yet significant (Table I-16). However, in view of the increasing reliance of China on the United States as an export market (Table I-17), Viet Nam's exports to the United States can be expected to grow fast in the future as Viet Nam increases exports of more high value-added products.

As can be seen in these examples, Viet Nam has benefited a great deal from recent changes in the external environment. This favorable situation is likely to continue and may even be strengthened, but the Vietnamese government and businesses should prepare for a not-so-favorable situation as well. Obviously, more detailed analysis is needed on these points.

2) Capital Flows

The trade balance, the service account balance, and net transfers comprise the current account balance. When the current account is in a deficit, without a change in external reserves, it has to be financed by capital inflows. In this case, the current account balance is negative, while the capital account balance is positive by an equivalent amount.

A. Trends of capital flows to Viet Nam and foreign exchange reserves

At the present stage, we can probably ignore the existence of arrears, considering the fact that the exchange rate of the dong has now been stabilized and is under the pressure of appreciation rather than depreciation, indicating that there seems to be enough (or more than enough) capital inflow to make up for the current account deficit. In many other developing countries, a similar phenomenon has been observed.

There is, in fact, a possibility that capital flows to developing countries have become and will remain excessive rather than insufficient on a world basis. Since around 1990, capital flows to many developing countries have shown signs of becoming excessive. This is reflected in the marked increase in foreign exchange reserves in many countries, as is similar for Viet Nam as we have seen in (3). Normally, foreign exchange reserves increase rapidly when the monetary authorities purchase foreign currencies in foreign exchange markets to maintain or stabilize the real exchange rate (the inflation-adjusted exchange rate). At least from the perspective of the monetary authorities, these operations are necessary when the supply of foreign currencies becomes excessive vis-à-vis demand for the domestic currency. An excess supply of foreign currencies occurs when foreign currencies flow in excessively.

Foreign exchange reserves tend to increase along with growth in international transactions, as can be seen by the fact that foreign exchange reserves of developing countries have increased an average $21 billion annually over the past 20 years. However, the recent accumulation has far exceeded this amount. With the exception of 1992, foreign exchange reserves have been increasing rapidly since 1990; $74 billion in 1991, $72 billion in 1993, $86 billion in 1994, and $56 billion during the first half of 1995. The biggest increases have been seen in East Asia, South Asia, Latin America, and Eastern Europe. Most of the major individual developing countries in these regions are experiencing a rapid increase in foreign exchange reserves. Countries which have recently witnessed particularly large increases include Brazil, China, India, and Singapore, each receiving massive capital inflows centering on foreign direct investment (Chart I-11～13).

A similar development appears to be happening in Viet Nam. While the trade balance has been widening for the past four years, it has been offset or more than offset by the increasing inflow of FDI and ODA.

B. Characteristics of Recent Capital Flows to Developing Countries

We will elaborate on the international situation here because a proper understanding of the international environment is desirable for any future projection of balance of payments for Viet Nam. Also, a review of how other countries have dealt with excessive capital inflow should be useful to draw implications for Viet Nam's foreign exchange rate management policy.

a. Factors influencing capital flows to developing countries

A conspicuous phenomenon since around the start of the 1990s was the deterioration of the current account balances of developing countries, implying that capital inflow into developing countries has increased. The background to this is that many indebted developing countries have improved their economic situation through structural adjustment. A more important point is, however, that economic reform and external opening have become global trends, thereby improving the economic performance of many developing countries. Reform and opening measures which have been widely observed include privatization, attempts at fiscal discipline, measures to promote market mechanisms such as domestic price liberalization, an easing of capital controls, and trade liberalization. Many countries have also started to promote the improved functioning of domestic financial and capital markets.

In response to this development, direct investment from industrialized countries and some middle-income areas (such as South Korea, Taiwan, and Hong Kong) to other developing countries increased, and foreign investment in the securities markets of developing countries also became active. Capital raising in the international financial market by the governments and private companies of developing countries resumed. In order of magnitude we have witnessed foreign direct investment, private debt flows (bond issues, bank loans, etc.), and portfolio investment. In view of the size and the development stage of capital markets in developing countries, the last route has been a limited one in most countries, except for a small number of countries such as Mexico and Brazil. Compared to the capital flows to developing countries centering on bank loans prior to the debt crisis, the capital flows, mainly foreign direct investment, in the 1990s are considered to be relatively long term and stable. Further, according to World Bank materials, capital that once left has returned to the originalcountries, particularly in Latin America since around 1989.

The above features do not apply to certain developing countries, in particular Sub-Saharan African countries. They depend largely on official grants and loans from industrial countries and certain middle-income developing countries. Many of them have been in arrears in repaying past debt and have had to repeatedly reschedule, with a portion of debt being pardoned. This group of countries will have to keep relying almost entirely on official flows. Private capital flows to former Soviet republics will depend largely on their political and economic development, and for the time being, neither the timing nor size of such flows is certain.

Viet Nam is now enjoying a large influx of capital in this overall environment, not to mention the benefits stemming from the successful restructuring of its economy.

b. How we should view capital inflow

Capital inflows alleviate constraints in the international balance of payments, reduce interest rates and induce high investment and high growth. However, if inflows become excessive, foreign exchange rates can rise, eroding export competitiveness. But, if capital inflows thereafter stop or reverse, disorder could result. This is why monetary authorities try to absorb foreign currencies to stabilize and maintain the real exchange rate. However, when the central bank absorbs foreign currency, an equivalent amount of domestic currency is supplied. In order to avoid excess supply of the domestic currency, money supply has to be absorbed through "sell" operations. This step has the effect of reducing prices of bonds and discount bills and raising interest rates. Even if the authorities resort to raising reserve requirements or regulating bank credit instead of conducting "sell" operations, the effect is similar. There are inevitable limits to just monetary measures.

While capital inflows boost domestic demand and create inflationary pressure, fiscally stringent measures can be considered, and import demand can increase through liberalization of trade and service transactions. Furthermore, assuming that capital inflows are not to be regulated, inflows can be partially offset by liberalizing capital outflows. Many Asian countries have regulated short-term capital inflows. Capital inflows are also controllable by expanding exchange risk, for example, by widening the range of exchange rate fluctuation. If capital flows are stable, the appreciation of real exchange rates can also be acceptable. This could improve productivity through corporate rationalization and upgrade real living standards. Against the background of recent capital inflows into developing countries lies the progress in their economic reforms and external opening rather than something that is reversed in the short run like monetary tightening.

In fact, many countries have recently allowed the real exchange rates of their currencies to rise against the US dollar (Chart I-14～20 and Table I-18). At the same time, most of them have adopted a blend of various policy measures mentioned above. (A note on various exchange rate definitions is found on the last page of this section・・・Various exchangerates -A Note-)

However, if net capital inflows drop suddenly while the current account surplus is widening, the currency will experience downward pressure. A sudden drop in capital inflows can result from expectations of the correction of currency overvaluation or a decline in confidence in economic policy. The larger the relative dependence of capital inflows on portfolio investment, the more sudden and larger the decline tends to be. The currency crisis in Mexico beginning in December 1994 was just such an example. If a country tries to stabilize the exchange rate, the authorities will have to intervene in the market by selling foreign currencies and buying domestic currency, along with effecting changes in economic policy. As a result, foreign exchange reserves decline. If they fall to an uncomfortable level, the authorities will have to employ a tighter policy to reduce the current account deficit.

Capital inflow, although desirable and necessary, thus needs to be looked at with care, and proper government policies should be taken to alleviate some of the negative effects on the economy that might happen in the future.

3) Dong-Dollar Exchange Rate Policy

It was reported that the aggregate amount of inward direct investment on a contract basis in Viet Nam came to $20.4 billion as of early February, 1996, almost equivalent to GDP in 1995. In the case of China, for example, the aggregate amount of inward direct investment on the same basis came to $220 billion as of the end of 1993. Even if the amount of newly contracted inward direct investment in 1994 is simply added to the aggregate amount without subtracting the amount implemented in that year, the total amount, $301.4 billion, is less than 60% of China's GDP in 1994. Taking into consideration the fact that the United States, the largest investor in the world, has not yet started to invest in Viet Nam in any substantive way, direct investment in Viet Nam is likely to increase further. A large amount of capital inflow has obvious implications for the exchangerate of the dong.

When considering the exchange rate of the dong, Viet Nam must consider the following factors: (1) the size of foreign exchange reserves; (2) the extent of change in the real effective exchange rate; (3) a phasing out of US dollars, gold, and other commodities such as rice as media of exchange and stores of value; (4) need for the use of the exchange rate as a nominal anchor to promote price stability; (5) relationship to an interest rate policy; (6) the extent that sterilization (absorption of dong liquidity supplied in connection with foreign exchange market intervention by SBV) does not cause serious problems; (7) the readiness to take stringent fiscal measures; and (8) the feasibility of effective capital control.

When the sum of net capital inflow and domestic conversion of US dollars to dong exceeds the current account deficit, the dong receives upward pressure in the foreign exchange market. Part of the recent capital inflow and domestic currency conversion may be attributable to relatively high interest rates on dong deposits and the recent stability of the dong exchange rate against the US dollar. If the Vietnamese monetary authorities try to suppress such upward pressure on the dong, they will have to intervene in the market by buying US dollars and selling the equivalent amount of dong, thereby leading to an increase in foreign exchange reserves. It is understood that the total amount of foreign exchange reserves, which has recently been on the rise, is still short of the target imposed by the IMF in connection with the ESAF arrangement. From this point of view, a further increase in foreign exchange reserves can be regarded as necessary and desirable at present. It is also desirable as a buffer against a sudden drop in capital inflows.

Due in part to foreign exchange market intervention, the nominal exchange rate of the dong against the US dollar has been stable since 1992. But, because of that stability in the face of a relatively high rate of inflation in Viet Nam, the real exchange rate of the dong against the US dollar has been on the rise, creating fears of a continuous decline in the international price competitiveness of not only existing export industries but also emerging ones in Viet Nam.

In this connection, however, it should be noted that the real exchange rates of currencies of many main trading partner countries against the US dollar have recently been on the rise as well, although the extent depends largely on the choice of base year in calculating real exchange rates. It is possible that the extent of the rise in the real effective exchange rate of the dong (a trade-weighted average of real exchange rates of the dong) has not risen as much as

the real exchange rate of the dong against the US dollar. As a matter of fact, the real effective exchange rate of the dong calculated by the IMF did not rise as much as its real exchange rate against the US dollar for the 1990 to 1994 period. However, since Japan is the largest export market for Viet Nam and the Japanese yen has depreciated against the US dollar and also since the rate of inflation in Viet Nam has been around 10%, which is still higher than inflation rates in many main trading partner countries, the real effective exchange rate of the dong may have risen faster in 1995.

Here, we have chosen 1990 as the base year in calculating real exchange rates of the dong, without any examination about the extent to which this choice is appropriate for Viet Nam. The official exchange rate of the dong against the US dollar was merged with the rate that prevailed in the parallel market in March 1989 and the unified exchange rate subsequently depreciated until 1991. The dong-dollar exchange rate has been stable since then, as mentioned above. The real effective exchange rate of the dong calculated by the IMF is based on March 1989 as the base. However, allowing for some time to adjust following the change in Viet Nam's exchange rate management policy, 1990 can be considered as a reasonable starting point for the comparison of movements of the rate in the subsequent period. Obviously, we need a more detailed analysis of the price competitiveness of Vietnamese industries to judge how appropriate this choice of base year is.

The negative aspect of a stable nominal exchange rate of the dong against the US dollar, which has just been discussed above, has to be assessed by giving due consideration to several positive aspects. One such aspect is related to the presence of presumably large amounts of US dollars and US dollar deposits. Basically, people hold US dollar assets against the fear of possible devaluation of the dong. In forming an exchange rate management policy, it is necessary to infer how Vietnamese people will react to an increase or a decrease in the value of the dong with regard to their choice of dong, US dollars, and gold. Stability of the dong exchange rate is important in order to promote conversion of US dollars to dong. Without such conversion, control of domestic liquidity and mobilization of domestic savings for productive use will remain difficult.

In a country where inflation is substantial, a depreciation of its currency pushes up import prices and leads to an increase in general prices, which in turn makes further depreciation inevitable. This vicious circle often creates built-in mechanisms by which people try to prevent their income from lagging behind inflation, which makes the circle hard to break and prices drift upwards. Some countries, including Argentina since 1991 and Brazil since 1994, have fixed their exchange rates against the US dollar or limited their movement, thereby using the exchange rate as an anchor to stop a price drift by breaking such a vicious circle. Since price movements have inertia, the inflation rate does not usually come down to a level comparable to that of the United States overnight. Therefore, the real exchange rate of the currency of such a country against the US dollar tends to rise. The rise in the real exchange rate may be regarded as a cost of stabilizing prices in a country that had a high rate of inflation in the past.

The inflation rate in Viet Nam was substantial not so long ago. Viet Nam has had stronger needs for exchange rate stability as compared to other Asian countries. A certain rise in the real exchange rate of the dong against the US dollar may be considered as a cost of past inflation as well as the cost of promoting price stability today.

Price and exchange rate stability can contribute to lower domestic interest rates. Lower inflation naturally leads to lower interest rates by making inflation premiums embodied in nominal interest rates smaller, but at the same time, in a country like Viet Nam where US dollars are widely used and held, higher local-currency deposit rates are necessary to induce people to convert US dollars to local currency. The degree by which higher deposit rates are necessary in this regard tends to be less if exchange rate stability is maintained.

Furthermore, the extent to which the monetary authorities intervene in the foreign exchange market to suppress upward pressure on the dong or to guide the dong exchange rate weaker also depends on the extent to which sterilization does not cause serious problems. When SBV buys foreign currencies, mostly US dollars, its net foreign assets increase and central bank credit supplied. In order to stick to a predetermined increase in central bank credit, lending to commercial banks have to be limited. As long as SBV sticks to the predetermined increase in central bank credit, the central bank can be regarded as committing to sterilization. However, since SBV buys US dollars mostly through the Bank for Foreign Trade of Viet Nam, a large fluctuation in the net foreign assets of SBV should cause instability vis-à-vis channels through which central bank credit is supplied. As the Vietnamese authorities realize, SBV needs to expand the means of sterilization to mitigate the problem. A money market should be developed for open market operations, and SBV should be prepared, in case of need, to change reserve requirements as a means of sterilization.

It is reported that dong deposits have recently been on the increase substantially and SBV has absorbed excess liquidity by selling State Bank bills to commercial banks. Under such circumstances, curtailment of central bank credit to commercial banks as a result of an increase in net foreign assets of SBV may not have surfaced as a problem. However, there is no doubt that the recent increase in net foreign assets of SBV in connection with the bank's foreign exchange market intervention has increased the sale of State Bank bills. From the point of view of SBV, they were costly operations. When the exchange rate of the dong against the US dollar remains stable, interest payments on State Bank bills are higher than interest payments that SBV receives from holding foreign currency-denominated assets. This cost has often become unbearably large in Latin American countries.

When sterilization by monetary means faces a difficulty for some reason, stringent fiscal measures may be called for. Smaller government expenditures help mitigate upward pressure on prices and interest rates. In certain extreme cases, the timing of actual implementation of foreign direct investment may need to be controlled, or ceilings may be imposed on foreign borrowings.

When upward pressure on the dong strengthens, can the central bank temporarily stop buying US dollars and let the market determine whatever level the exchange rate should be? In the case of Viet Nam, this kind of policy is dangerous. Unlike developed countries and some middle-income developing countries, the role played by short-term hot money (speculative money) or international portfolio investment is limited. So, an increase in foreign exchange rate fluctuation risk is not likely to slow capital inflow. Also, an appreciation of the dong exchange rate, once allowed, will not be easily reversed.

When excessive capital inflows centering on foreign direct investment appear to continue and the size of sterilization as well as its associated cost appear to remain large, however, the real exchange rate of the dong may be allowed to rise. But, there should be a

limit to the rise in order to restrain deterioration of the current account. A rise in the real exchange rate of the dong creates the fear that export competitiveness will be eroded. It is natural that there is an argument to maintain the stability of the real exchange rate of the dong against the US dollar. However, there are also positive or inevitable aspects of the stability of the nominal exchange rate of the dong against the US dollar. Assuming the rate of inflation in Viet Nam at around 10% and that of the United States at around 3%, and also assuming stable real exchange rates of currencies of main trading partner countries against the US dollar, the rate of depreciation of the nominal exchange rate of the dong against the US dollar should be somewhat lower than 7%. If the appropriate rate of depreciation is considered to be 1-2%, however, it would be better to maintain the nominal exchange rate of the dong against the US dollar for the sake of simplicity. In either case, however, a cumulative rise in the real exchange rate of the dong expands with time. Therefore, when conditions change or permit, the monetary authorities should be prepared for a downward adjustment of the nominal exchange rate.

4) Trade and IS Gaps and Inflow of Foreign Capital

In order to understand the question of external balance, one needs to understand the relationship between the IS gap and the trade gap, or between domestic savings and foreign savings. The relationship can be explained, based on Itoh (1989), as follows:

GDP = Consumption + Investment + Government Expenditure + Exports - Imports

Rearranging this and adding net factor income from abroad (NFI) on both sides,

Exports - Imports + NFI = GDP + NFI - Consumption - Investment - Government Expenditure.

Since exports minus imports plus NFI is equal to the current account balance and GDP plus NFI is equal to GNP,

Current Account Balance = GNP - Consumption - Investment - Government Expenditure.

Subtracting tax payments from GNP and adding tax revenue to the government sector,

Current Account Balance = GNP - Tax - Consumption - Investment + Tax - Government Expenditure.

Since GNP minus tax payments, which is equal to disposable income, minus consumption is defined as private saving,

Current Account Balance = (Saving - Investment) + (Tax - Government Expenditure)

The last expression indicates that the current account deficit is a reflection of shortages of domestic private savings relative to private investment and government deficits. When we simply say the I-S gap, we mean the right-hand side of the equation. The current account balance is sometimes referred to as the trade gap.

Higher economic growth brought about by a higher level of investment (leading to a lower or negative net savings) and by a higher budget deficit would normally lead to a higher current account deficit. In this sense, the IS balance of the private sector, the budget balance, and the current account balance, should all be considered at the same time.

Usually, there is no restriction on the amount of capital inflow from abroad. However, when the capital inflow is restricted, it would then restrict the amount of current account deficit and growth of the economy. From this point of view, the availability of foreign funds can also be a major factor in determining current account balance size.

At the same time, the current account is defined as exports minus imports plus net factor income from abroad, and all of these components influence current account balance size.

The sheer size of the current account balance does not indicate much about what the main factors were in determining the balance. That is, the availability of foreign funds, the IS gap, or the trade gap (exports minus imports plus net factor income from abroad) can be a main determinant. However, making clear the basic relationship among them can be a key to understanding the past and future possible causes of instability, and to consider what the government needs to do in order to avoid instability in the future.

5) Comments on the Balance of Payments

The current account deficit of Viet Nam has become relatively large, attributable to strong investment relative to domestic savings. Investment, which stimulates demand for imports, has been stimulated and partly financed by foreign capital inflows. Large current account deficits tend to restrict economic growth, because they would usually make creditors or investors lose confidence in the future repayment capability of the country, resulting in the reduction of the amount of capital inflow and needs for tight monetary and fiscal policy. The reduced capital inflow may put downward pressure on the currency in the foreign exchange market. In the event of a depreciation of the currency, the inflation rate will increase. In the case of Viet Nam, however, the large deficit has so far been financed by a large inflow of funds. The amount of inflow actually appears to have exceeded the financing need. What about the future?

Projection of future availability of foreign funds should be correctly assessed. But, however hard we try, it is almost impossible to accurately forecast future flows. As a policy maker, therefore, it is to a certain extent necessary to prepare for something unexpected happening in order to avoid a catastrophic situation like Mexico's debt crisis in 1982 and currency crisis in 1994-95.

In view of the above, the use of foreign savings should be limited within a reasonable range. Raising the domestic savings rate, maintaining export competitiveness, and keeping investment within a controllable range should all be considered, together with attracting foreign funds. These considerations should be reflected in the drafting of long-term economic plans.

Table I - 12 Balance of Payments and I-S balance

(Unit: billion dong)

	1986	1987	1988	1989	1990	1991	1992	1993	1994
(GDP data)									
Nominal exports						22,915	35,767	38,538	53,606
Nominal imports						-21,851	-32,957	-44,677	-62,377
Trade balance						1,064	2,810	-6,139	-8,771
% of GDP Exports						29.9%	32.4%	28.2%	31.5%
Imports						-28.5%	-29.8%	-32.7%	-36.6%
Balance						1.4%	2.5%	-4.5%	-5.2%
(GDP data)									
Saving					6,448	12,655	21,625	20,403	28,802
Investment					6,350	11,588	18,806	26,542	37,572
Saving gap (a)					98	1,067	2,819	-6,139	-8,770
NFA change (Monetary survey data)(b)					1,206	5,051	3,885	-4,362	990
Inflow of funds (c=-a+b)					1,108	3,984	1,066	1,777	9,760
Foreign direct investment					616	2,040	2,899	3,192	7,121
Net loans, etc.					492	1,944	-1,833	-1,415	2,639
(cf.) NFA of the Central Bank					-301	-649	4,906	-188	3,299

Table I - 13 Balance of Payments

(millions of dollars)

	1986	1987	1988	1989	1990	1991	1992	1993	1994
Trade Balance	-627	-575	-679	-350	-41	-63	-60	-655	-900
Services and Transfers	-28	-49	-72	-237	-218	-69	51	-214	-98
Current Account Balance	-655	-624	-751	-586	-259	-132	-8	-869	-998
Capital Account Balance	363	378	405	300	122	-60	271	-146	759
Loans etc.	363	378	405	200	2	-280	11	-446	109
Foreign direct investment	0	0	0	100	120	220	260	300	650
Errors and Omissions	-23	-51	26	67	-6	142	5	-91	9
Overall Balance	-315	-297	-320	-219	-143	-50	268	-1,106	-230
Change in NFA(Excl. IMF credit)	2	0	0	-110	-159	-276	-463	527	-255
IMF Credit	-4	0	0	0	0	-6	0	-39	175
Change in Arrears, etc.	317	297	320	329	302	332	195	618	310

Table I - 14

Merchandise Trade of Japan

(1989-1994)

Exports Imports (%)

Area	Share (1994)	Change	Area	Share (1994)	Change
Developed Countries	50.5	20.4	Developed Countries	47.6	24.6
Developing Countries	49.4	80.1	Developing Countries	52.2	37.3
Africa	1.5	30.1	Africa	1.4	-3.2
Asia	40.1	91.7	Asia	35.8	50.9
Europe	0.7	-35.8	Europe	1.6	9.9
Middle East	2.7	32.0	Middle East	10.1	22.0
Latin America	4.4	100.0	Latin America	3.3	7.0
Growth Rate Ranking Among Relatively Large Trading Partners					
1. Liberia	0.5	203.9	1. Vietnam	0.5	292.4
2. Malaysia	3.1	201.0	2. China	10.1	148.8
3. Philippines	1.5	148.6	3. Thailand	3.0	129.1
4. Panama	1.5	134.3	4. Ireland	0.5	117.0
5. Indonesia	1.9	133.4	5. Sweden	0.7	69.4
6. Norway	0.3	126.8	6. Spain	0.4	67.7
7. Hong Kong	6.5	124.4	7. Malaysia	3.0	61.0
8. Mexico	1.1	120.7	8. Chile	0.8	60.2
9. China	4.7	120.4	9. Singapore	1.7	58.2
10. Thailand	3.7	115.8	10. Iran	1.0	53.1
Reference					
US	30.0	26.3	US	23.0	30.7
Taiwan	6.0	55.0	Taiwan	3.9	20.3
Korea	6.2	47.7	Korea	4.9	4.6
Viet Nam	0.16	283.3	Hong Kong	0.8	-2.8

Source: IMF, "Direction of Trade Statistics Yearbook," 1995.

Table I-15

Merchandise Trade in Singapore

(1989-1994)

Exports			Imports		(%)
Area	Share (1994)	Change	Area	Share (1994)	Change
Industrial Countries	43.2	82.8	Industrial Countries	53.8	98.8
Developing Countries	56.7	149.3	Developing Countries	46.2	115.2
Africa	1.3	62.2	Africa	0.5	33.1
Asia	50.6	159.1	Asia	37.6	145.3
Europe	1.4	128.8	Europe	0.7	110.8
Middle East	1.8	56.5	Middle East	6.5	34.3
Western Hemisphere	1.5	148.5	Western Hemisphere	0.9	51.4
Growth Rate Ranking Among Relatively Trading Partners					
1. Ireland	0.7	1131.6	1. Thailand	4.8	289.9
2. Netherlands	2.7	257.6	2. Viet Nam	0.4	246.2*
3. Viet Nam	1.4	242.3*	3. Philippines	0.8	192.1
4. Malaysia	19.7	211.4	4. Korea	3.8	163.1
5. Hong Kong	8.7	197.0	5. India	0.8	159.9
6. Korea	2.6	192.4	6. Malaysia	16.4	156.6
7. Taiwan	4.0	189.5	7. Hong Kong	3.4	143.0
8. UAE	0.8	151.1	8. Netherlands	1.0	126.1
9. Philippines	1.6	137.9	9. Switzerland	1.1	114.3
10. Thailand	5.6	117.2	10. Japan	22.0	112.1
Reference					
USA	18.8	73.4	USA	15.3	83.4
Japan	7.0	76.8	Taiwan	3.9	75.5
China	2.2	75.0	China	2.8	69.9

*: change from 1992

Source: IMF, " Direction of Trade Statistics Year Book," 1995.

Table I - 16

Merchandise Trade of the US

(1989-1994)

Exports Imports (%)

Area	Share (1994)	Change	Area	Share (1994)	Change
Developed Countries	57.3	27.7	Developed Countries	57.0	32.7
Developing Countries	42.6	63.9	Developing Countries	43.0	50.3
Africa	1.2	24.6	Africa	2.1	-1.5
Asia	17.9	60.0	Asia	23.8	62.0
Europe	1.7	9.6	Europe	1.2	87.4
Middle East	3.7	37.4	Middle East	2.5	5.8
Latin America	18.1	88.7	Latin America	13.3	52.8
Growth Rate Ranking Among Relatively Large Trading Partners					
1. Argentine	0.9	330.7	1. China	6.0	220.6
2. Malaysia	1.4	142.3	2. Malaysia	2.1	192.7
3. Indonesia	0.5	123.8	3. Thailand	1.6	133.0
4. Colombia	0.8	112.4	4. Dominica	0.5	85.5
5. Costa Rica	0.4	112.2	5. Ireland	0.4	82.6
6. Thailand	0.9	112.1	6. Mexico	7.3	82.5
7. Mexico	9.9	103.6	7. Philippines	0.9	82.1
8. Hong Kong	2.2	81.6	8. Indonesia	1.0	81.2
9. Singapore	2.5	77.1	9. Singapore	2.3	70.6
10. Israel	1.0	76.8	10. Israel	0.8	60.5
Reference					
Canada	22.3	46.0	Canada	19.1	47.4
Japan	10.4	20.0	Japan	17.8	26.1
Taiwan	3.3	50.8	Taiwan	4.1	9.0
Korea	3.5	33.8	Korea	3.0	-0.8
Viet Nam	0.03		Viet Nam	0.008	

Source: IMF, "Direction of Trade Statistics Yearbook," 1995.

Table I -17

China's Trade - Relative Shares of Major Trading Partners

(%)

	US		Japan		Europe 4		ASEAN 4		Hong Kong		NIEs 3	
	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.	Exp.	Imp.
80	5.4	19.6	22.2	26.5	10.8	12.5	4.3	2.4	24.0	2.9	n.a.	n.a.
81	6.8	21.3	21.6	28.1	8.1	10.5	3.3	2.1	23.9	5.6	n.a.	n.a.
82	7.9	22.3	21.5	20.2	8.8	9.2	2.8	4.1	23.2	6.8	n.a.	n.a.
83	7.7	12.9	20.3	25.7	8.7	12.7	2.6	2.5	26.1	8.0	n.a.	n.a.
84	8.8	14.0	19.7	29.4	6.2	9.3	2.9	2.5	25.2	10.3	5.1	2.1
85	8.5	12.3	22.3	35.9	5.9	11.4	2.7	2.1	26.1	11.3	8.0	2.9
86	8.5	11.0	16.4	29.0	10.1	15.2	2.1	2.2	31.6	13.0	4.4	3.2
87	7.7	11.2	16.2	23.3	7.0	14.3	2.5	3.3	34.9	19.5	4.1	4.3
88	7.2	12.0	16.9	20.0	7.2	12.5	2.8	3.7	38.4	21.7	4.2	5.9
89	8.4	13.3	16.0	17.8	6.6	13.1	2.5	3.6	41.7	21.2	4.3	7.4
90	8.3	12.3	14.5	14.2	6.4	12.7	2.8	3.9	42.9	26.7	5.2	8.2
91	8.6	12.6	14.3	15.7	6.6	11.0	2.9	4.3	44.7	27.4	7.4	10.7
92	10.1	11.0	13.8	17.0	6.2	10.3	2.6	3.7	44.1	25.5	6.6	12.7
93	15.3	8.3	12.0	15.6	9.3	11.6	2.6	3.0	21.4	9.1	6.8	15.1
94	17.7	12.1	17.8	22.8	8.4	12.0	3.1	3.8	26.7	8.2	7.3	8.6
95.II	15.3	12.5	16.8	21.5	7.7	10.8	3.2	4.9	26.3	7.0	8.3	11.2

China's Trade Balance with Major Trading Partners

(US $ billion)

	US	Japan	Europe 4	ASEAN 4	Hong Kong	NIEs 3
80	-2.8	-1.1	-0.5	0.3	3.8	n.a.
81	-3.2	-1.4	-0.5	0.3	4.0	n.a.
82	-2.5	0.9	0.2	-0.2	3.9	0.5
83	-1.0	-1.0	-0.8	0.0	4.1	0.5
84	-1.5	-2.9	-0.9	0.1	3.8	1.1
85	-2.9	-9.1	-3.2	-0.1	2.4	1.8
86	-2.1	-7.4	-3.4	-0.3	4.2	0.7
87	-1.8	-3.7	-3.4	-0.4	5.3	0.7
88	-3.2	-3.0	-3.5	-0.7	6.2	0.5
89	-3.5	-2.1	-4.2	-0.8	9.4	0.2
90	-1.4	1.4	-2.8	-0.3	12.4	1.4
91	-1.8	0.2	-2.3	-0.6	14.7	2.1
92	-0.3	-2.0	-3.1	-0.7	17.0	1.4
93	5.4	-5.2	-3.6	-0.7	10.2	-1.9
94	7.5	-4.7	-3.7	-0.5	22.9	-1.1
95.II	4.1	0.1	-0.5	-0.4	15.2	-0.3

Source: IMF, "Direction of Trade Statistics Yearbook," 1995.

Table I - 18

Policy Response to Increased Capital Inflow

- Experience of East Asia and Latin America During the First Half of the 1990's -

Policy Response	Flexible Exchange Rates	Tight Fiscal Policy	Intervention with Sterilization		Limitation to Capital Inflow	Easing of Capital Outflow Control
			Open Market Operations	Other Means		
East Asia					○	
Korea			○		○	
Indonesia				○		
Malaysia	○	○	○	○		○
Thailand		○	○	○		○
Philippines	○		○	○		○
Latin America						
Mexico			○			○
Argentina						
Chile	○	○	○		○	○

Notes:

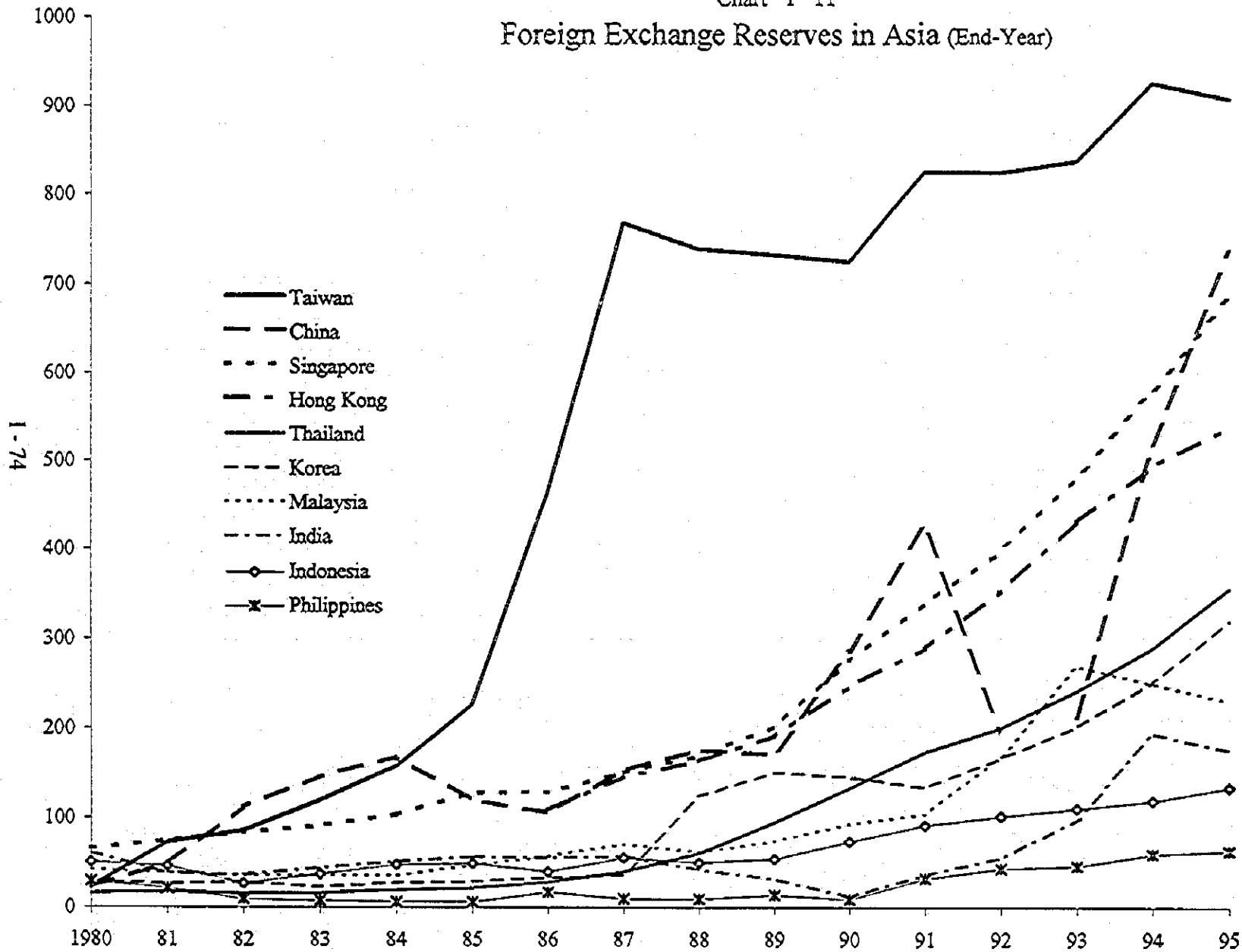
1. This table summarizes policy response by some East Asian and Latin American countries to an increase in capital inflow.
2. Flexible exchange rates point to transition of rigid exchange rate systems such as the fixed rate system to flexible systems by a widening of the fluctuation band, limited use of swap facilities, employment of a currency basket, etc.
3. Other means of sterilization include a lifting of reserve requirements and a lifting of capital adequacy ratios of banks.
4. Limitation to capital inflow points to taxation on capital inflow, provision of reserves to foreign currency borrowing, provision of a ceiling on foreign currency borrowing, etc.

Source: Economic Planning Agency, " White Paper on the World Economy, 1995 edition", p.289.

(100 Mil. $)

Chart I -11

Foreign Exchange Reserves in Asia (End-Year)



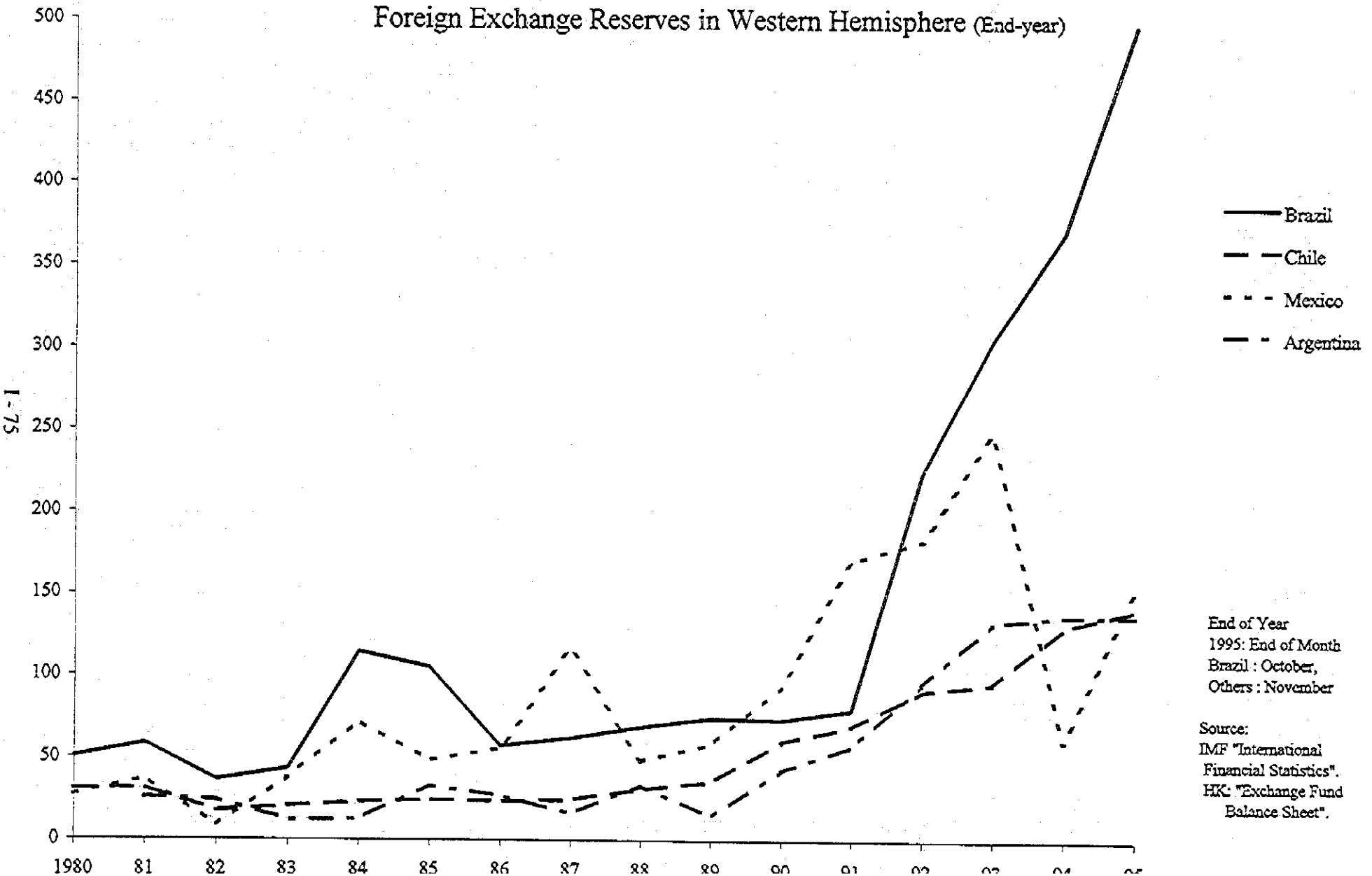
1. End of Year
1995: End of Month
Hong Kong: June,
Malaysia: August,
Korea, India: October,
Thailand, Indonesia:
November, and Others
:September

2. China,
~91: Bank of China+
People's Bank of
China
92~: People's Bank of
China

Source:
IMF "International
Financial Statistics".
HK: "Exchange Fund
Balance Sheet".

Chart I -12

Foreign Exchange Reserves in Western Hemisphere (End-year)



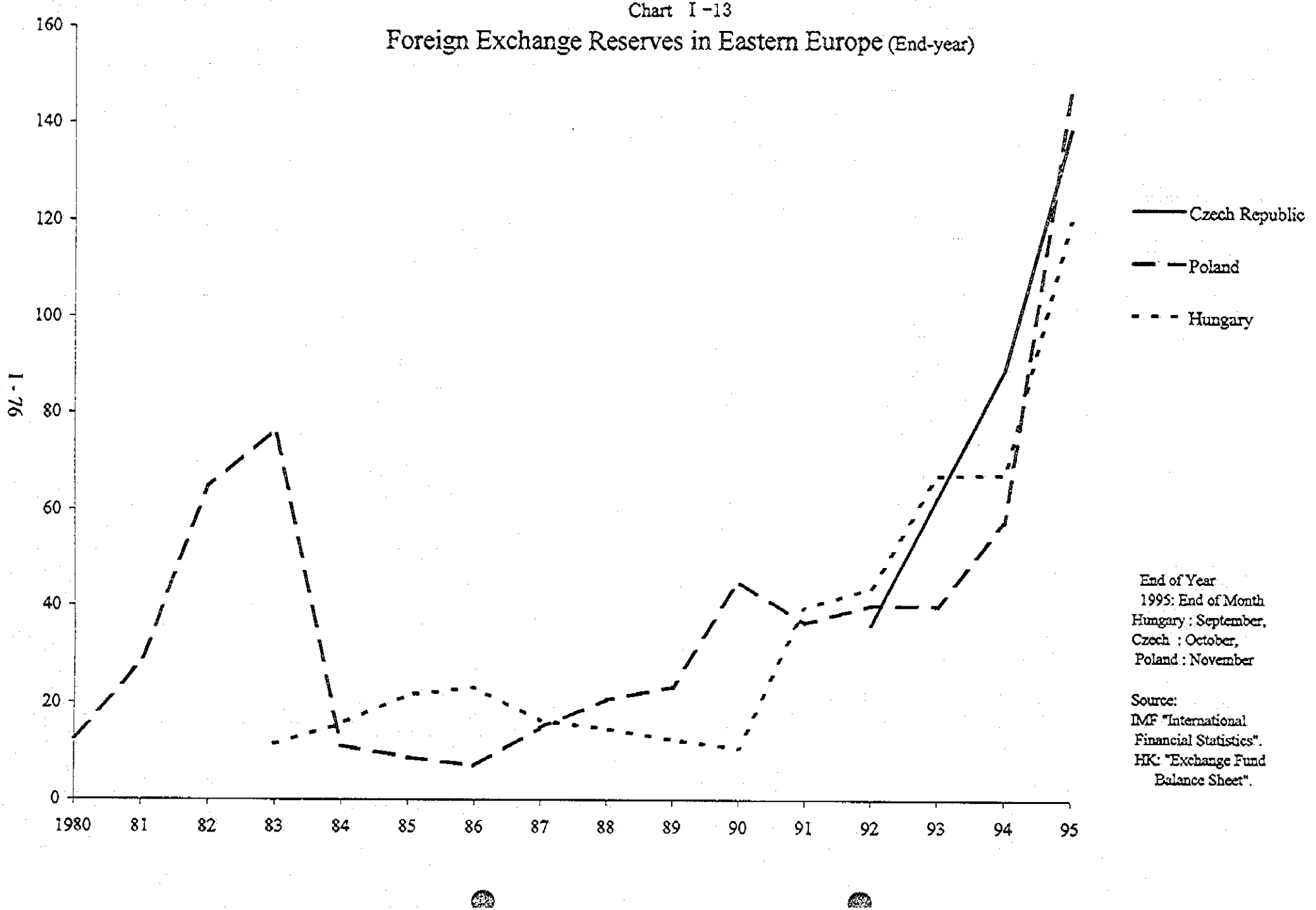
End of Year
1995: End of Month
Brazil : October,
Others : November

Source:
IMF "International Financial Statistics".
HK: "Exchange Fund Balance Sheet".

(100 Mil. $)

Chart I -13

Foreign Exchange Reserves in Eastern Europe (End-year)



End of Year
1995: End of Month
Hungary : September,
Czech : October,
Poland : November

Source:
IMF "International Financial Statistics".
HK: "Exchange Fund Balance Sheet".

Chart I -14

Real Exchange Rates in Asia

(against US$ 1967=100)

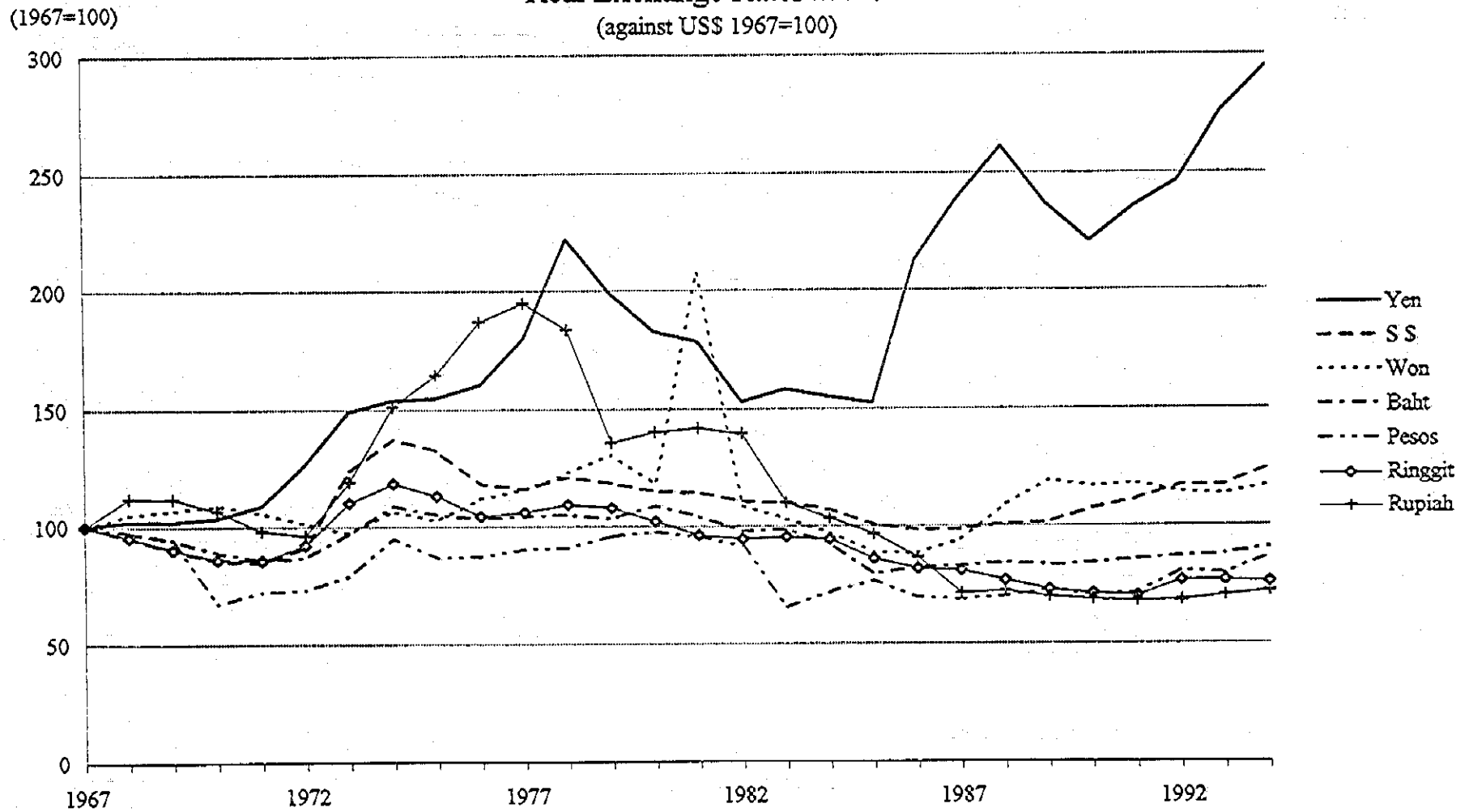


Chart I -15

Real Exchange Rates in Asia

(against US$)

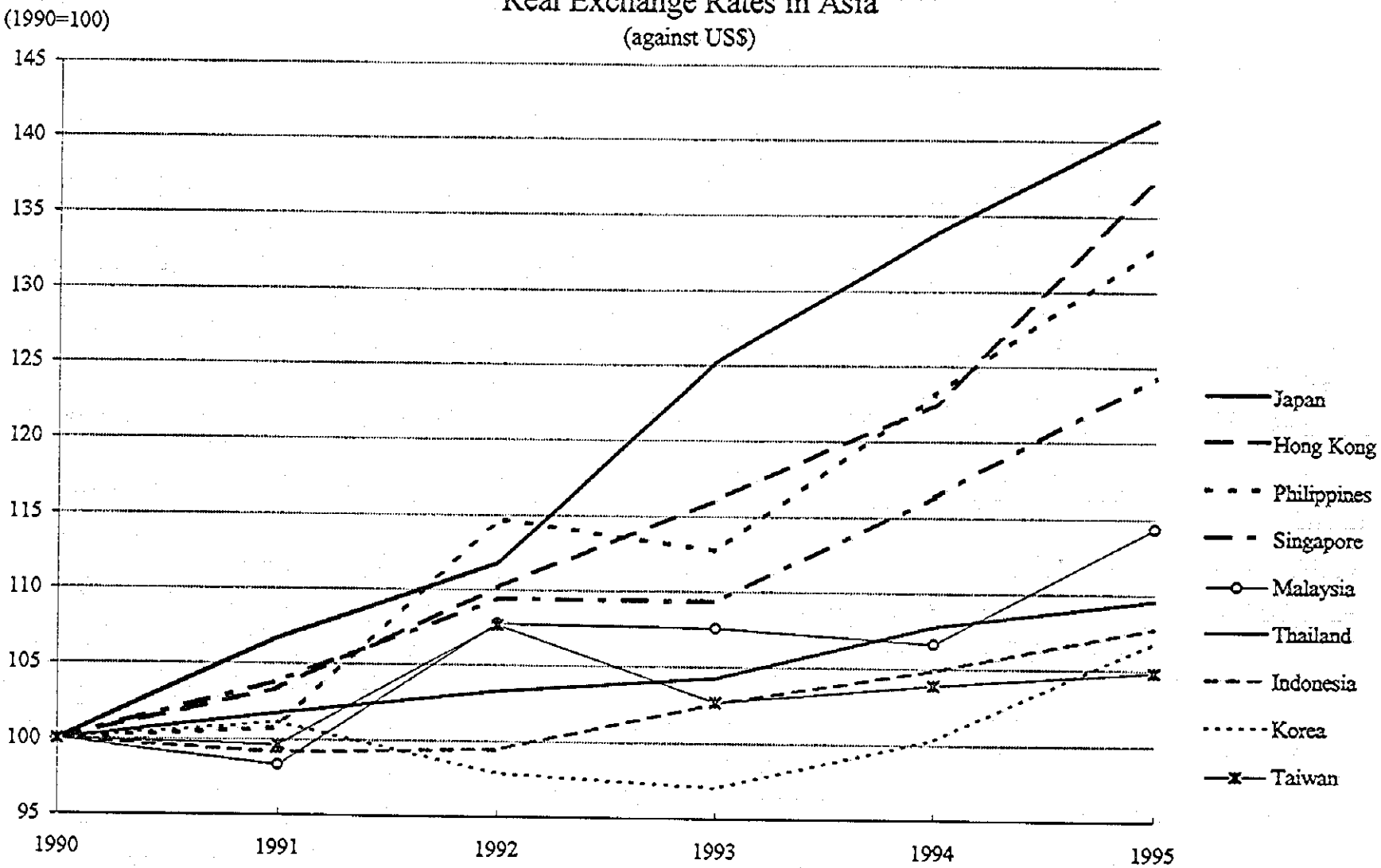


Chart I -16

Real Exchange Rates in Asia

(against US$ '94 Jan.=100)

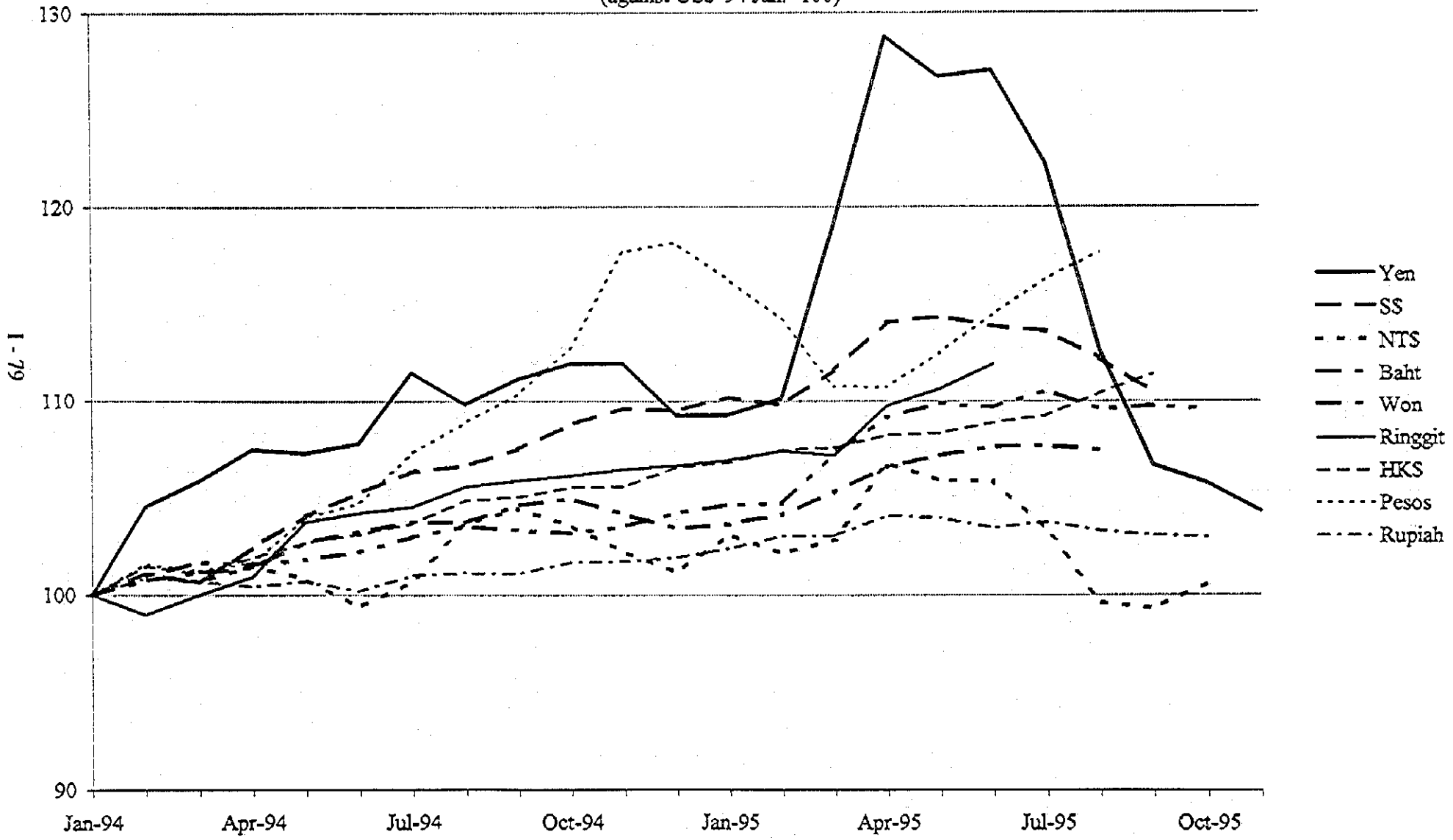


Chart I -17

Real Exchange Rates: Brazil, Mexico, Chile

(against US$)

(1967=100: Brazil, Mexico)
(1975=100: Chile)

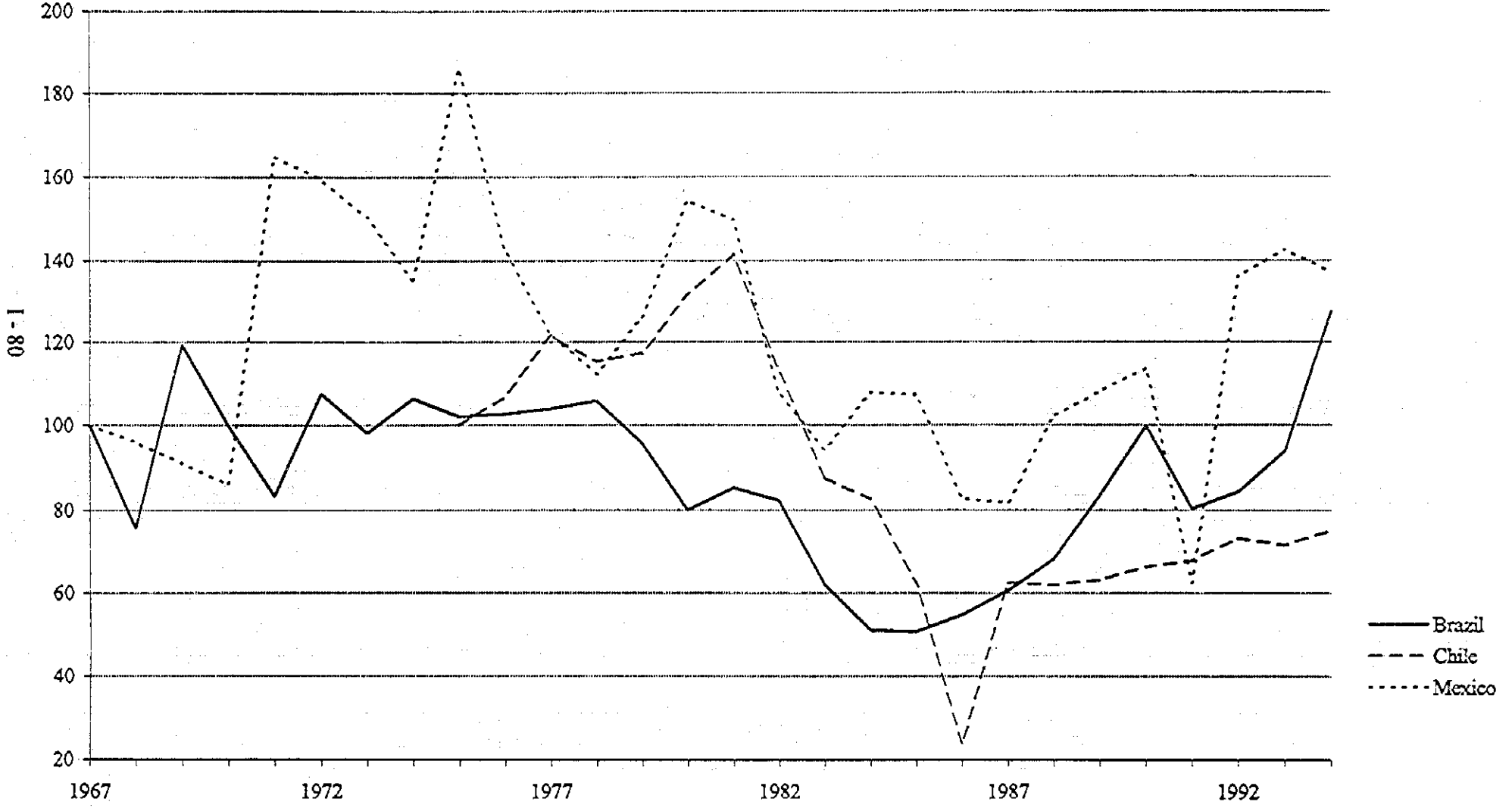


Chart I -18

Real Exchange Rates: Brazil, Mexico, Chile

(against US$)

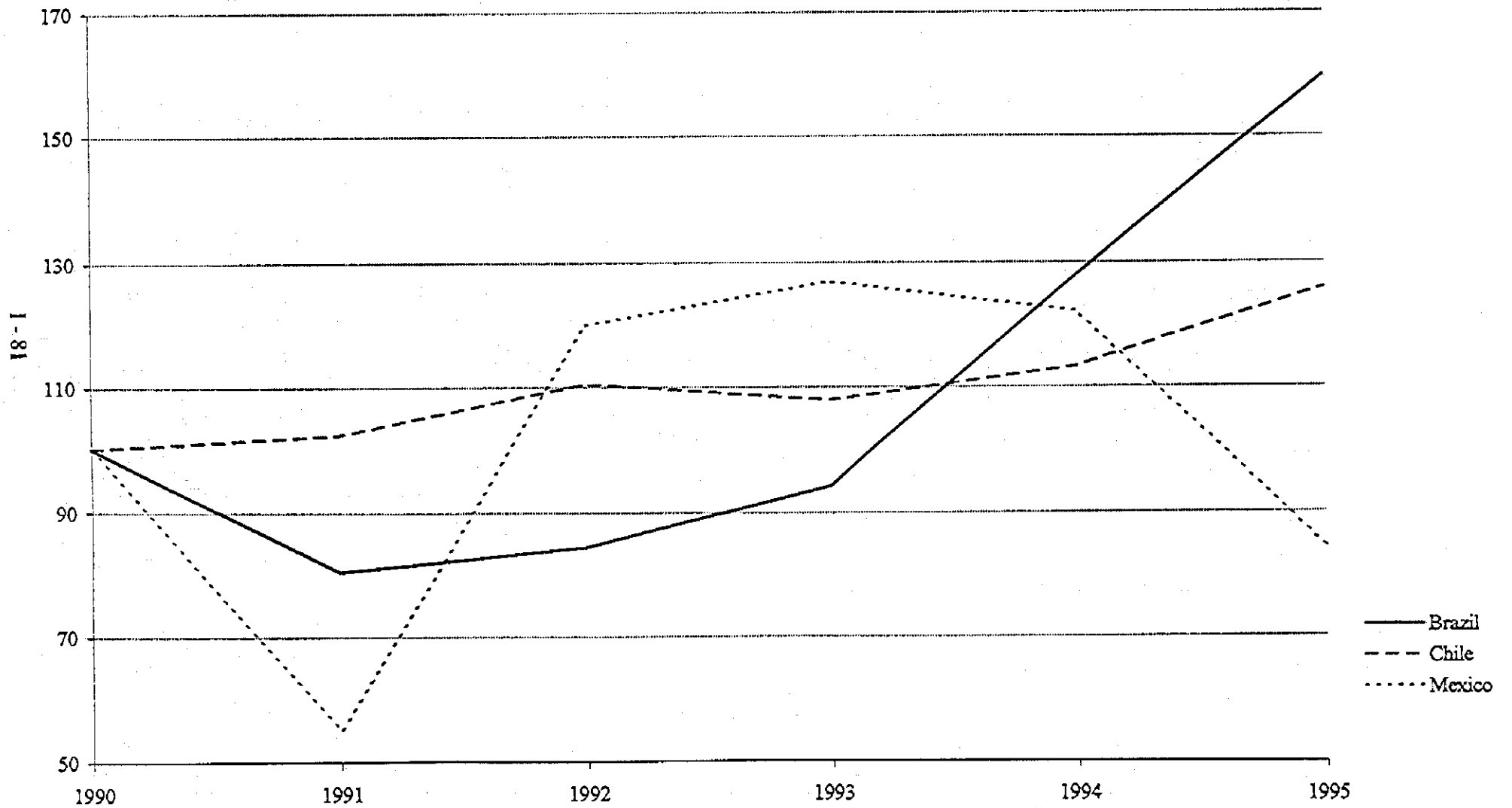


Chart I -19

Real Exchange Rates: Eastern Europe

(against US$, 1990=100)

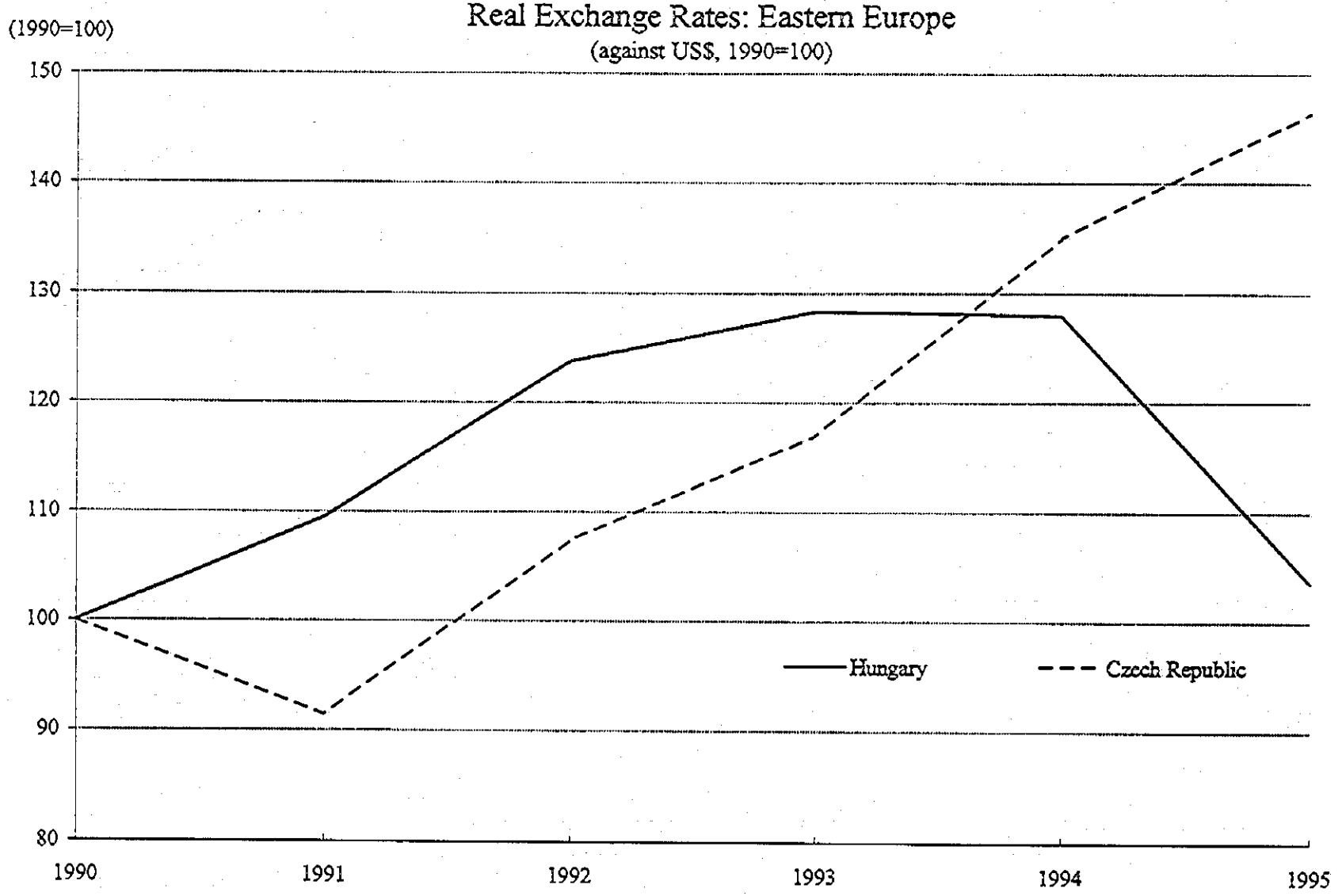
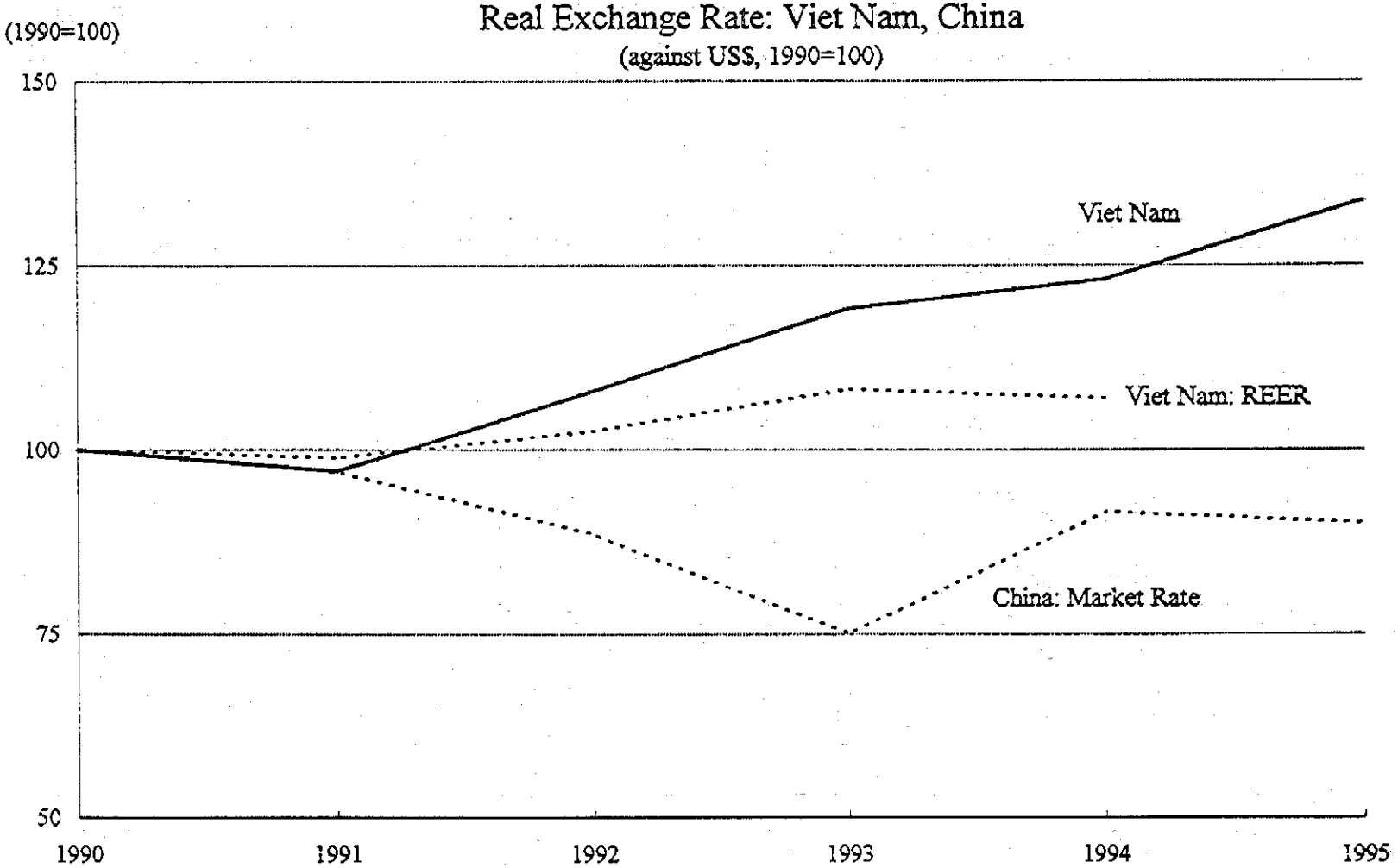


Chart I -20

Real Exchange Rate: Viet Nam, China

(against US$, 1990=100)



Note: China unified exchange rates of the yuan on January 1, 1994 and changed the system of exchange rate determination from one of exchange rates determined by a basket of currencies to flexible exchange rate system based on demand and supply in the market.
The yuan market rate for the period from 1990 to 1993 is the rate that prevailed at the Shanghai Foreign Exchange Swap Center.
Viet Nam: REER is the real effective exchange rate of the Dong adopted from IMF, "Viet Nam-Background Papers," September 1995.

Various Exchange Rates - A Note -

The real exchange rate (index) of the dong against the US dollar in 1995 using 1990 as the base year, $re_{95,90}$ is calculated by

$$re_{95,90} = (P_{US,95,90} / P_{VN,95,90}) (e_{95} / e_{90}) \times 100, \quad \cdots (1)$$

where $P_{95,90}$ is the price index in 1995 with 1990 being the base equal to 100.

The purchasing power parity (PPP) rate of the dong against the US dollar in 1995 using 1990 as the base year, $pe_{95,90}$, is calculated by

$$pe_{95,90} = (P_{VN,95,90} / P_{US,95,90}) e_{90} \cdots (2)$$

From (2),

$$(P_{US,95,90} / P_{VN,95,90}) = (e_{90} / pe_{95,90}) \cdots (3)$$

Inserting (3) into (1), we get

$$re_{95,90} = (e_{95} / pe_{95,90}) \times 100$$

Therefore, $re_{95,90}$ indicates how much e_{95} deviates from $pe_{95,90}$. When $re_{95,90}$ is lower than $re_{94,90}$, the dong becomes stronger compared to its PPP rate.

If we prefer that the real exchange rate rises when the dong becomes stronger than it's PPP rate, the exchange rate data we use must be converted from dong units per one US dollar to US dollar units per one dong. In that case, however, the real exchange rate is calculated by

$$re_{95,90} = (P_{VN,95,90} / P_{US,95,90}) (e_{95} / e_{90}) \times 100$$

This is the method that we have used here.

The nominal effective exchange rate (index) of the dong is the ratio, expressed as a certain base year equal to 100, of an index of the exchange rate of the dong to a weighted (geometric) average of exchange rates for the currencies of selected trading partner countries, and the real effective exchange rate (index) of the dong is the nominal effective exchange rate adjusted for relative movements of prices in Viet Nam and trading partner countries.

Reference:

Itoh, M. "Kokusai Keizaigaku Nyuumon (Introduction to International Economics)", Nihon Keizai Shimbunsha, 1989.

IMF, "International Financial Statistics."

(5) Comparison with Other Countries and Viet Nam's Growth Pattern

The purpose of this section is to make clear the characteristics of Viet Nam's growth pattern by comparing with other countries with respect to growth and stabilization. In particular, we compare with those of Eastern European and Latin American countries and Russia, all of which have experienced high inflation, thus having implications for the stabilization of the Vietnamese economy.

Table I-19 indicates the overall picture of Viet Nam's growth. The economies in Eastern Europe, Russia and Latin America are characterized by high or hyper-inflation, together with output declines or low growth. On the other hand, China, Korea, and Malaysia are shown for their high but stable economic growth. These figures alone indicate that Viet Nam's performance is closer to that of better-performing countries in Asia than to countries in Eastern Europe or Latin America.

I) Comparison with Other Economies in Transition

We compare Viet Nam with six Eastern European countries and the Russian Federation from 1989 to 1994 to focus on the period of transition. The Eastern European countries that we took up here are Poland, Hungary, Romania, Bulgaria, Czech Republic, and Slovak Republic (Czech and Slovak Federal Republic until January 1993).

A. Characteristics of Russia and Eastern European countries

Characteristics of the transition of Eastern European countries and Russia as follows:

a. One thing that needs special attention with respect to these seven countries is that a decline in budget deficits relative to their respective GDP's seems to have been closely related with a decline in production. A production decline led to a decline in government revenue.

b. This decline in government revenue, through an increase in budget deficits, has in large part led to the monetization of the budget deficit and then to high inflation, although a country like Poland succeeded in limiting the decline.

c. Production declined due largely to the collapse of the former production and distribution systems. This cannot be over-emphasized. A survey of industrial enterprise managers in Bulgaria, conducted in early 1991 and quoted in Borensztein, Demekas and Ostry (1993), shows that about half of the managers surveyed viewed supply factors, such as input shortages or supply disruptions, as most responsible for the production decline, while only about one in ten managers cited demand factors, such as a lack of orders or a loss of the markets, as most responsible. By mid-year, however, demand factors became the most important contributing factors for the decline for about half the enterprises. As can be seen in the survey, initial supply shocks during the reform process must have been very large.

d. The effects of the collapse of CMEA appeared to be large. In the case of Eastern European countries, a terms-of-trade shock mostly from increases in energy import prices, which had been kept at an artificially low level by Russia, as well as a decrease in the trade volume, had a large impact. On the other hand, a decline in oil production led to shortages of

foreign currencies in Russia, which made it difficult for the country to import necessary materials for production.

e. A decline in investment led to a decline in demand. Investment levels before transition were very high. The level of capital investment before the transition period must have been too high to be justified by market principles. A decline in investment decreased demand, which in turn decreased the needs for investment. The demand side of investment as well as its production side should be emphasized in explaining the production decline.

f. Dollarization progressed in all of these countries, leading to a very high rate of inflation through the flight to dollars. During the process, the value of the domestic currency depreciated and inflation soared.

g. Monetary overhang led to a rapid increase in the price level. One-time price hikes to catch up with market-level prices led to a high rate of inflation.

h. Wages increased rapidly. State-owned enterprises, when being given management freedom, restrained investment but increased wages.

B. Inflation in Russia and China

Of the seven economies, Russia's inflation rate has been the highest and it is worth examining some of the characteristics and comparing with a totally different achievement by China.

a. Russia

In Russia, there was large-scale dollarization. As a result, the price level rose much faster than money stock and the real money balance declined considerably. The decline in M/P (real money balance) was so great that it made it difficult for firms to acquire necessary funds for their operations, thus making their growth difficult.

There were several causes of dollarization in the case of Russia, but the biggest factor was the monetization of the government deficit, as indicated by the movement of central bank credit in Table I-20. Sachs (1994) states "Greater domestic and foreign financing of the deficit in place of central bank financing could have diminished this source of credit expansion. It is also likely that the delay in implementing a real stabilization program exacerbated the budget deficit by encouraging tax evasion, leading to a drop in tax collections". He continues to say that "The second main source of credit expansion during 1994 was domestic credit to state enterprises through central bank credits to commercial banks. • • • The third source of credit expansion was central bank credits to CIS members, which reached about 7 percent of GDP in the second half of 1992".

The process leading to monetization of budget deficits must have important implications for Viet Nam.

b. China

China is often cited as a very good example of successful transition from a regulated economy into a liberalized one, achieving high economic growth with modest inflation in the

80's. China can best be characterized by the enormous increase in M2 from 28% of GNP in 1978 to about 97% in 1991 as shown in Mckinnon (1994).

Table I-20 shows that the scale of M1, as well as M2, was large. In the late 1980's and early 1990's, the monetary authorities' claims on the general government were only 3 to 5% of GDP, while those on deposit money banks were as much as 25 to 30% of GDP. However, Mckinnon (1994) shows that the consolidated deficit of the Chinese government and state-owned enterprises was as much as 10% of GDP in 1990 and 1991. Also, a large part of the claims on deposit money banks can be regarded as their lendings to SOE's. These clearly indicate that there was large credit expansion through large government deficits.

But still, inflation was generally modest. Unlike Russia, modest inflation made the real money balance increase by the amount needed for GDP growth, i.e., enough money was provided to stimulate economic growth. Despite the increase in money supply, inflation did not become severe in China partly because, as indicated in Mckinnon (1994), the Chinese savings rate became high enough to finance government deficits as well as private investment. In addition, he says that " The only reason this government borrowing was not inflationary was the relatively liberalized non-state sector, including TVEs (township and village enterprises), which was not a major claimant on the state banking system."

The ratio of deposits to GDP went up from 5.87% in 1978 to 45.88% in 1991. One of the factors behind this increase in the savings rate was the government's firm commitment to keep real interest rates on deposits positive.

The increase in savings in China makes the country somewhat special. The existence of enough savings must have contributed to making it possible for China to achieve growth and reasonable price stability at the same time.

c. Comparison with Eastern European Countries and Russia

The characteristics of Eastern European countries and Russia are compared with Viet Nam in Tables I-21. (1) - (8)

Table I-21 (1) : Russia and Eastern European countries experienced negative growth, very high inflation and, in most cases, current account deficits during the "big bang" transition period. Compared with these countries, in the case of Viet Nam, the most peculiar aspect is the continuation of economic growth during the transition period. This feature attracts much attention because the economies of these seven countries experienced negative growth without exception. The biggest difference should lie in the degree of the functioning of the Russian-style socialist economic system. In this regard, it should be noted that the private-sector share was much larger for Viet Nam than for Eastern European countries and Russia. This difference in the share or the role of the private sector should explain part of Viet Nam's better performance during transition, because the degree of transformation toward a market economy should have been very different.

As for current account deficits, those of Russia and Eastern European countries are not especially large, while Viet Nam's is relatively larger. Part of the reason for this must be limited capital inflow to these economies. In the case of Eastern European countries, capital inflow from Russia could not be expected when Russia itself was going through extensive changes, while in Viet Nam the transition occurred when Russia was still not in its worst

situation. This difference has likely contributed to the difference in degree of current account deficit.

Table I-21 (2) : The share of Viet Nam's exports to CMEA in total exports was relatively small compared with other countries, suggesting a smaller shock by the collapse of CMEA for Viet Nam. That is one of the reasons why in many of these countries, exports declined sharply, which contributed to production declines, while Viet Nam experienced steady growth. On top of this, there must have been a terms-of-trade shock for Eastern European countries. Trade of Eastern European countries with the U.S.S.R. "is dominated by imports of energy and raw materials whose relative prices in terms of manufactures were previously well below world market levels"(IMF 〈1991〉), i.e., Energy prices used to be priced lower relative to manufactured products, which were their main export items, but the prices of energy and raw materials were quickly lifted to the prevailing market prices during the transition.

Viet Nam's performance in the external sector has been impressive compared to that of other transition economies. Following the collapse of CMEA, Viet Nam had to switch trading partners and suffered a lack of foreign exchange due to termination of CMEA economic assistance in 1990. The switch of trading partners by Viet Nam was successful because Viet Nam's trade with CMEA countries was rather limited (32% of exports and 49% of imports in 1985, assuming $1= TR 2.55) and because Viet Nam's main exports were primary commodities such as crude oil, rice, and marine products which were easier to sell in international markets. The impact of the collapse of CMEA should have been greater for Eastern European countries and many CIS republics, since their major trading items were high value-added manufactured products which were not competitive in international markets. Also, in general, many developing countries have employed a policy of economic reform and external opening since around the beginning of the 1990's, while most developed countries have also emphasized the need for economic reform measures including deregulation and privatization. As a result, the external market has been easier to penetrate. The external environment for newcomers such as Viet Nam has been favorable in the 1990's.

Table I-21 (3) by itself does not tell much about how inflation in Eastern Europe and Russia was brought about in a different way compared to Viet Nam. Consumer prices, money supply, and wages increased together with the depreciation of their currencies. Both in Viet Nam and in these countries, wages went up sharply, contributing to very high inflation.

Table I-21 (4) : and (5) : Domestic savings decreased greatly without exception in Eastern Europe and Russia, but their domestic investment also decreased. The resulting changes in I-S balance vary across the countries, but compared with Viet Nam, the negative gap in the I-S balance does not seem to be very large in most countries, since a drop in savings was often accompanied by a drop in investment on a similar scale.

Much of the drop in savings was merely a reflection of the decrease in government revenues in Romania and Bulgaria as can be seen in Table I-21 (7). In these cases, savings, kept at an artificially high level in the form of government revenue, decreased, reducing the overall savings rate.

Fixed investment (domestic investment minus changes in the level of inventories) also dropped sharply. The drop in fixed investment reduces demand instantly, while limiting the growth of production capacity in the long run. The decline in investment could partly be explained by a drop in government capital expenditures, but more generally it was a reflection of the very high level of capital expenditure in the past. Especially in Russia and Romania, the level of investment was extremely high before reform, as Easterly and Fischer (1995) wrote: "The conventional hypothesis for the Soviet decline in growth is the pattern of extensive growth · · · as growth mainly through input accumulation rather than through productivity growth."

As can be seen in Table I-21 (6), the structure of industries is also very different between Viet Nam and the other countries in that the share of agriculture is significantly higher in Viet Nam. The large share of agriculture should have a close relationship with the performance of the Vietnamese economy. However, the sheer comparison of industry-specific growth rates is not indicative, since all industries within these countries share nearly the same trends in this period: growth in Viet Nam and declines in Eastern European countries.

However, the larger share of agriculture in Viet Nam should explain part of the reasons behind the differences in the relative performance between Viet Nam and the other countries. In the agriculture sector of Viet Nam, it has often been claimed that the market was in fact functioning to a certain extent before the reform period.

Table I-21 (7) and (8) indicate that government revenues declined sharply in Romania, Bulgaria, and Czechoslovakia, although the government responses were different from country to country. Romania reduced capital expenditures, whereas Bulgaria and Czechoslovakia reduced current expenditures, with the budget deficit of Bulgaria worsening the most. In the case of Viet Nam, government revenue did not decrease, although the government deficit level was large from the outset. As a special factor for Viet Nam, there was a large contribution from oil production. The effect of oil revenue is shown in the last row of Table I-21 (7). During the period from 1989 to 94, the government budget deficit was reduced by 2.8% of GDP per year on average.

In addition, the political and bureaucratic system in Viet Nam has shown stability and flexibility. This feature is, to a certain extent, shared by the country's northern neighbor, China. It is not clear to what extent it was historically inevitable that political and administrative reform precede economic reform in the former USSR and Eastern Europe, but there is no doubt that such a sequence has caused difficulties for economic recovery and stability in those countries.

2) Comparison with Latin America

A. Characteristics of Latin American countries

In Latin American countries, a primary cause of inflation has been monetization of government deficits, although in some cases inflation has reflected structural problems. Since the rate of inflation does not come down easily due largely to die-hard expectations of inflation, tight economic policy tends to lower growth and employment. The cost of

demand management policy is high when inflation expectations remain strong. In order to minimize adjustment cost on the real side of the economy, demand management policy was often accompanied by an incomes policy including price, wage, and exchange rate controls, but it failed due largely to not satisfying the most important prerequisite, i.e., a narrowing of government deficits.

One exception is the success of Argentina. The Argentine peso was fixed against the US dollar in 1991 and this exchange rate has been maintained since then, Argentine pesos can only be issued against the equivalent amount of US dollars in the central bank by law, thereby leading to forced monetary discipline. The rate of inflation declined from 2,000-3,000% in 1989-90 to 4.2% in 1994, and the real GDP growth rate recovered to 6-9% during 1991-94.

The characteristics of Latin American economics can be summarized as follows:

a. The level of budget deficits has tended to stay high owing to political pressures, and Latin America has generally been characterized by chronically high inflation. The background for the chronic inflation has been the existence of budget deficits for most of the period from 1975 to 1994.

b. A high propensity to consume by those in high income brackets has tended to worsen the trade balance once the economy started to grow. The widening trade gap tended to be a constraint on further economic growth.

c. The level of domestic savings was not sufficiently high for financing budget deficits. On the other hand, the use of foreign savings was also limited. The budget deficit could not be financed by domestic and foreign savings, inevitably leading to its monetization.

d. The share of primary products in total exports is large and the fluctuation of world market conditions for these products has influenced the economies of Latin America through changes in the trade balance.

e. Expectations of high inflation and the prevalence of indexation have produced a situation of strong inflation inertia.

B. Comparison with Viet Nam

Table I-22 (1) shows that Latin America has experienced very high inflation. Growth was positive for the overall period from 1975 to 1994, not high but closer to zero. During the hyper-inflation period, growth rates became negative for three of the four countries (five-year average) as can be seen in Table I-22 (2).

Tables I-22 (3) and (4) show that the inflation rate, broad money increase, and exchange rate depreciation were all on a similar scale. One interesting point is that broad money increased on average more than inflation, contrary to the observation that dollarization might be one of the key factors that exacerbated inflation in these countries. The real money balance increased, unlike in Russia and Eastern European countries during the transition period. Data for wages are limited and we cannot estimate the effect of these cost-push factors in Latin America.

Table I-22 (5) indicates that an important difference between Latin American countries and Viet Nam is the way of financing government deficits. In the case of Viet Nam, about one-third was financed by foreign loans, whereas in the case of Latin American countries, the major part was financed domestically. The budget deficit evidently exerted a direct and more heavy burden on the domestic economy in Latin America, leading to monetization of the deficits.

Inflationary expectations and indexation are regarded as outstanding features of Latin American countries and they are probably major factors in bringing about chronic inflation. This appears to hold, especially for the period of hyper-inflation, since the budget deficit was not necessarily large during the period as shown in Table I-22 (6).

3) Implications for Viet Nam and Characteristics of Its Growth Pattern

A. Differences in initial conditions between Viet Nam and other transition economies

As indicated by the examples of Russia, and Eastern European and Latin American countries, growth and stabilization are not necessarily in a simple and direct trade-off relationship. They experienced high inflation and low or negative growth at the same time. Some other countries like China, Korea, and Malaysia experienced both high economic growth and relatively contained inflation. Viet Nam after Doi Moi looks more like these latter countries. But can the present situation be sustained?

Some of the characteristics of the Vietnamese growth pattern were made clear in comparing with Eastern Europe, Russia, and Latin America. The most fundamental question is to what extent the Vietnamese economy was in fact a market economy before Doi Moi. Comparison with Eastern Europe makes clear the peculiar aspect of Viet Nam that high inflation did not accompany a decline in real GDP as in the other transition economies. We need to consider differences in initial conditions between Viet Nam and the other transition economies.

As indicated by the share of the non-state sector, the private sector was a lot larger in Viet Nam. The agricultural sector was larger as well. Watanabe (1995) maintains that free-market prices were in fact dominant in the 1980's and that official prices were just following the general trends of free-market prices. If this observation had been considered relevant, price liberalization after Doi Moi, especially at the end of the 1980's, could have been in a sense ratification of the preceding price trends. Price liberalization at that time could have been nominal.

It is possible to infer that, even prior to the Doi Moi policy, a relatively large portion of the economy was not fully incorporated into central planning. Luoc(1992) states "as the State could not provide enough consumer goods to the people at the prices fixed by it, they had to acquire them in the free market at higher prices."

A low level of industrialization meant that collapse of the division of labor among CMEA countries had relatively small effects, and Viet Nam was able to increase trade with fast-growing neighbors. Further, the wide use of US dollars, gold, and certain commodities such as rice as media of exchange may have worked favorably at the time of high inflation by minimizing confusion over relative prices.

With these considerations in mind, the recent performance of the Vietnamese economy it thus probably not something to marvel at. Still, questions remain why and how relatively high inflation existed in a socialist country where there should have been no inflation. A key to this question may lie in the fact that agriculture occupies a large part of the economy. In the agricultural sector, market mechanisms could have worked properly even in the 1970's and the 1980's, probably because agriculture was difficult to control via central planning, especially in the years when agricultural production was stagnant and food shortages occurred.

One possibility that might explain growth after Doi Moi, even with high inflation, is the possible low utilization of production capacity. The production level at the early stage of transition, which was low relative to capacity, could easily have led to a rapid increase in production once bottlenecks, including problems associated with institutional and legal frameworks, were removed. At the same time, the relatively easy production increase, with the existence of excess capacity, must have contributed to price stability in the reform process. This possibility was mentioned when we discussed Viet Nam's low ICOR.

B. Implications for the future

High growth requires a high level of investment and technological advancement, while the rate of increase in money supply has to be controlled in order to keep inflation within a reasonable range. Since the implementation of Doi Moi policy, Viet Nam seems to have achieved this mostly as a result of a low ICOR and successful transformation of the economy. As discussed in (2), the low ICOR may not be able to be sustained. This is a concern that the government has to keep in mind. In the event of an increase in ICOR, the government may need more investment to attain a target growth rate.

Viet Nam has had a high TFP, reflecting the successful transition. However, investment does not automatically bring about positive TFP. Like in Russia, it can be negative. Viet Nam is expected to increase its dependence on FDI. This FDI-led growth pattern has not been experienced in Viet Nam in the past. Too much dependence on FDI poses some well-known future risks, but the main one is possible fluctuating inflows. FDI inflows will fluctuate depending on economic prospects for Viet Nam and changes in the external environment. On the demand side, a decrease in FDI has the same effect as a decrease in domestic fixed investment. A sudden drop in FDI can lead to a large decrease in demand as can be inferred from the effects of a decline in domestic fixed investment in Russia and Eastern European countries. Likewise, it could affect the production side.

The international environment has recently been favorable for Viet Nam as has been described in (4). Viet Nam should probably grow as much as possible while the environment is favorable, especially under the conditions of price stability aided by external funds centering on FDI. However, Viet Nam has to prepare for the time when the situation is reversed. To this end, the domestic savings rate has to be brought up; the tax base has to be expanded; technology should be developed from the long-term perspective; investment has to be encouraged; and proper infrastructure should be developed.

It is important not to target short-term economic growth. A long-term perspective is necessary. The world environment surrounding Viet Nam, both in terms of capital flow and trade, can easily change. A country has to be prepared for some adverse circumstances. In the case of Latin American countries, in many instances, some changes in the external environment led to economic instability. But, the real cause was, in most cases, inappropriate fundamentals, such as uncontrollable budget deficits, excessive external debt, and a deterioration of export competitiveness.

A decisive factor common to continuing high inflation in Russia/Eastern Europe and Latin America has been the monetary accommodation of government deficits including soft loans to state-owned enterprises. The recent upsurge of inflation in China has also been attributed to a problem associated with soft budget constraints on state-owned enterprises.

Comparison with other transition countries and Latin American countries suggests that a country needs to prepare for some exigencies.

Table I -19 Trade-off among Inflation, Growth, and Balance of Payments

	Period	Inflation (Consumer prices)	Growth (Real GDP growth)	Current Account (GDP ratio)	Characteristics of the period
(Transition economies)					
Russia	1989-94	(90-) 540.4%*1	-12.7%	-0.0%	Transition to market
Poland	1989-94	70.5%	-1.8%	-1.7%	Transition to market
Hungary	1989-94	25.8%	-3.6%	-2.1%	Transition to market
Romania	1989-94	143.2%	-5.0%	-3.5%	Transition to market
Bulgaria	1989-94	118.1%	-5.9%	-9.1%	Transition to market
Czech Republic	1989-94	(90-) 22.2%	-3.9%	1.4%	Transition to market
Slovak Republic	1989-94	(90-) 24.6%	-4.5%		Transition to market
China	1978-94	(80-) 7.3%*2	9.4%		Transition to market
(Latin America)					
Mexico	1975-94	39.4%	2.9%	-2.5%	Chronic inflation
Brazil	1975-94	276.6%*2	3.0%	-2.2%	Chronic inflation
Argentina	1975-94	242.3%*2	1.7%	(76-) -1.1%	Chronic inflation
Chile	1975-94	33.9%*2	5.0%	-5.1%	Chronic inflation
Peru	1975-94	148.8%*2	0.6%	(77-93)-2.9%	Chronic inflation
Bolivia	1975-94	122.4%	1.4%	-5.0%	Chronic inflation
Brazil	1987-92	984.4%*2	-0.4%	0.2%	Hyper-inflation
Argentina	1987-92	516.7%*2	1.7%	-1.1%	Hyper-inflation
Peru	1987-92	521.1%*2	-4.7%	-2.9%	Hyper-inflation
Bolivia	1982-87	670.1%	-1.2%	-4.9%	Hyper-inflation
(Asia)					
Korea	1975-94	9.1%	8.3%		High economic growth
Malaysia	1975-94	3.7%	7.1%		High economic growth
Viet Nam	1986-94	91.0%*1	6.8%	(90-) -3.6%	Transition to market

*1 Retail prices *2 GDP deflator

Table I-20 Money Supply of Other Countries

Russia (Unit:billions of rubles)

	Monetary Authorities Data		Broad Money	% of Nominal GDP					
	Currency	Credit of the Central Bank	M2	Currency	Credit of the Central Bank	M2	%Increase in Deflator	%Growth of Real GDP	% Increase of M/P
1965									
1966									
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									
1977									
1978									
1979									
1980									
1981									
1982									
1983									
1984									
1985									
1986									
1987									
1988									
1989									
1990	76		510	11.8%		79.2%			
1991	167		1,201	12.8%		92.4%	132.0%	-13.0%	1.5%
1992	1,716	6,894	6,400	9.5%	38.2%	35.4%	1615.4%	-19.0%	-68.9%
1993	13,278	25,445	32,601	8.2%	15.7%	20.1%	921.0%	-12.0%	-50.1%
1994	36,482		96,200	5.8%		15.3%	356.7%	-15.0%	-35.4%
1995									

China

(Unit:billions of yuan)

	Monetary Authorities Data				Broad Money	% of Nominal GDP							
	Foreign Assets	Claims on General Government	Claims on Private Sector	Claims on Deposit Money Banks	Total Liquidity	Foreign Assets	Claims on General Government	Claims on Private Sector	Claims on Deposit Money Banks	Total Liquidity	%Increase in Deflator	% Growth of Real GDP	% Increase of M/P
	11	12a	12d	12e									
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977					128.65								
1978					139.85								
1979					196.47							7.6%	
1980					239.47							7.8%	
1981					276.66						2.4%	4.5%	14.4%
1982					320.81						0.1%	8.3%	10.5%
1983					367.65						1.2%	10.5%	16.1%
1984					478.48						4.5%	14.6%	34.0%
1985	14.57	27.51	7.84	224.86	614.86	1.7%	3.2%	0.9%	26.4%	72.1%	9.0%	12.9%	13.0%
1986	14.40	37.01	14.05	268.16	806.00	1.5%	3.8%	1.4%	27.7%	83.2%	4.7%	8.5%	22.1%
1987	25.47	51.50	24.42	275.64	1,001.81	2.3%	4.6%	2.2%	24.4%	88.6%	5.0%	11.1%	12.8%
1988	28.22	57.65	32.92	336.44	1,189.81	2.0%	4.1%	2.3%	23.9%	84.6%	11.8%	11.2%	7.3%
1989	40.50	68.46	38.18	420.95	1,393.86	2.5%	4.3%	2.4%	26.3%	87.1%	9.0%	4.3%	-2.5%
1990	82.05	80.11	46.37	509.07	1,778.41	4.6%	4.5%	2.6%	28.8%	100.6%	6.4%	3.9%	13.0%
1991	139.96	106.78	52.28	591.81	2,155.62	6.9%	5.3%	2.6%	29.3%	106.8%	5.7%	8.0%	21.3%
1992	133.04	124.11	73.50	678.02	2,638.55	5.5%	5.2%	3.1%	28.2%	109.8%	5.1%	13.2%	24.0%
1993	145.99	158.21	95.51	962.57	3,181.92	4.7%	5.0%	3.0%	30.7%	101.4%	14.8%	13.8%	5.9%
1994											24.8%	11.9%	
1995													

Table I -2 1 (Comparison with Eastern Europe and Russia)

(1) Summary Table

	Period	Growth (Real GDP growth)	Inflation (Consumer prices)	Current Account	Private Sector Share (1989)	
		Annual % change	Annual % change	% of GDP	(% of GDP)	incl. cooperatives
Russia	1989-94	-12.7%	(90-) 540.4%*1	-0.0%	5.3%	
Poland	1989-94	-1.8%	70.5%	-1.7%	28.6%	
Hungary	1989-94	-3.6%	25.8%	-2.1%	14.9%	29.0%
Romania	1989-94	-5.0%	143.2%	-3.5%	12.8%	
Bulgaria	1989-94	-5.9%	118.1%	-9.1%	(91) 16.6%	
Czech Republic	1993-94	-3.9%	(90-) 22.2%	1.4%	11.2%*2	
Slovak Republic	1993-94	-4.5%	(90-) 24.6%		22.0%	
Czechoslovakia	1989-93					
Viet Nam	1986-94	6.8%	91.0%*1	(90-) -3.6%	66.8%*2	
Viet Nam	1989-94	7.3%	32.4%*1			

*1 Retail price *2 Non-state

Sources: International Financial Statistices 1995 (IMF), World Economic Outlook, May 1991 (IMF); Transition Report 1995 (EBRD), Trends in Developing Economies 1995 (World Bank), etc.

The same sources for the following tables.

(Comparison with Eastern Europe and Russia)

(2) Trade

	Period	Current Account	Exports*3 (in dollars)	Cumulative Drop in Exports (in dollars)	Exports of Goods and Non-Factor services	Exports to CMEA Countries (1989)	Exports of Manufactures (1990)	Imports (in dollars)	Imports of Fuel and Energy (1990)
		% of GDP	annual % change	Cumulative drop to the lowest level	% of GDP (1990)	% in total exports	% in total exports	annual % change	% in total imports
Russia	1989-94	-0.0%				(USSR) 55.2%			
Poland	1989-94	-1.7%	17.5%	(92-93) -2.9%		34.3%		19.4%	(92) 22.1%
Hungary	1989-94	-2.1%	3.4%	(92-94)-24.1%	31.1%	41.0%		13.7%	13.6%
Romania	1989-94	-3.5%	-0.4%	(89-90)-16.7%	16.7%	(85) 35.8%	65.9%	11.8%	47.6%
Bulgaria	1989-94	-9.1%	5.8%	(89-91) -45%	33.1%	83.0%		-1.5%	29.9%
Czech Republic	1993-94	1.4%							
Slovak Republic	1993-94			(92-93)-16.9%	26.3%		(92) 95.7%		(92) 27.8%
Czechoslovakia	1989-93					53.7%			
Viet Nam	1989-94	(90-)-3.6%	22.2%	-	26.4%	32.4% (1985)	15.3%	21.9%	18.7%
Viet Nam	1986-89		28.2%					19.0%	

*3 Data from the balance of payments.

(Comparison with Eastern Europe and Russia)

(3) Inflation

	Period	Inflation (Consumer Prices)	Broad Money	Wages In Industry	Labor Productivity	Exchange Rate (Domestic currency/ USD)	Foreign Currency deposits/ Broad Money
		Annual % change	Annual % change	Annual % change	Annual % change	Annual % change	Ratio in 1993
Russia	1989-94	(90-) 540.4%*1	298.1%	486.0%	(92-) -14.0%	416.8%	
Poland	1989-94	70.5%	57.5%	83.2%	7.0%	73.6%	28.8%
Hungary	1989-94	25.8%	22.4%	23.6%	2.3%	12.2%	21.0%
Romania	1989-94	143.2%	94.6%	113.4%			29.0%
Bulgaria	1989-94	118.1%	58.8%	78.4%	0.3%	98.9%	18.9%
Czech Republic	1989-94	(90-) 22.2%	(92-) 21.0%	14.9%			
Slovak Republic	1989-94	(90-) 24.6%	(91-) 13.8%	15.0%			
Czechoslovakia	1989-92						
Viet Nam	1989-94	32.4%*1	36.9%	(90-) 56.9%*4		(90-) 20.9%	22.9%
Viet Nam	1986-94	91.0%*1	109.6%				

*1 Retail price

*4 Average income of state employees

(Comparison with Eastern Europe and Russia)

(4) I-S Balance 1

	Period	Domestic Saving*5/ GDP in 1985 (S1)	Domestic Saving / GDP in 1990 (S2)	Domestic Saving / GDP in 1994 (S3)	Change in % points 1985-94	Domestic Investment* 6/GDP in 1985 (I1)	Domestic Investment/ GDP in 1990 (I2)	Domestic Investment/ GDP in 1994 (I3)	Change in % points 1985-94
		% of GDP	% of GDP	% of GDP		% of GDP	% of GDP	% of GDP	
Russia	1989-94	35.2%	30.4%	28.5%	-6.7%	32.8%	30.1%	27.0%	-5.8%
Poland	1989-94	29.0%	32.8%	17.2%	-11.8%	27.7%	25.6%	14.6%	-13.1%
Hungary	1989-94	27.1%	28.0%	13.1%	-14.0%	25.0%	25.4%	20.0%	-5.0%
Romania	1989-94	37.2%	20.8%	24.8%	-12.4%	33.0%	30.2%	26.6%	-6.4%
Bulgaria	1989-94	31.8%	22.0%	21.6%	-10.2%	32.2%	25.6%	20.6%	-11.6%
Czech Republic	1989-94								
Slovak Republic	1989-94	30.6%	24.2%	20.4%	-10.2%	31.6%	33.5%	15.1%	-16.5%
Czechoslovakia	1989-92								
Viet Nam*5	1990-94		15.4%	16.9%			15.1%	22.1%	

*5 Domestic savings = GDP - Total consumption. *6 Domestic investment includes net changes in inventories.

*7 Data from IMF statistics.

(Comparison with Eastern Europe and Russia)

(5) I-S Balance 2

	Period	IS Balance (S1 - I1) 1985	IS Balance (S2 - I2) 1990	IS Balance (S3 - I3) 1994	Period	Growth (Real GDP growth)	Fixed Investment in 1989	Fixed Investment in 1994	Change in % points 1989-94
		% of GDP	% of GDP	% of GDP		Annual % change	% of nominal GDP	% of nominal GDP	
Russia	1989-94	2.4%	0.3%	1.5%	1989-94	-12.7%	32%	21%	-11%
Poland	1989-94	1.3%	7.2%	2.6%	1989-94	-1.8%	16%	16%	0%
Hungary	1989-94	2.1%	2.6%	-6.9%	1989-94	-3.6%	22%	20%	-2%
Romania	1989-94	4.2%	-9.4%	-1.8%	1989-94	-5.0%	30%	(93) 16%	-14%
Bulgaria	1989-94	-0.4%	-3.6%	1.0%	1989-94	-5.9%	26%	18%	-8%
Czech Republic	1989-94				1989-94	-3.9%	26%	27%	+1%
Slovak Republic	1989-94	-1.0%	-9.3%	5.3%	1989-94	-4.5%	28%	26%	-2%
Czechoslovakia	1989-92				1989-92				
Viet Nam	1990-94		-7.0%	-4.5%	1989-94	6.8%			

(Comparison with Eastern Europe and Russia)

(6) Sector Analysis

	Period	Share Of Industry (1989)	Share Of Agriculture (1989)	Growth In GDP (90-94)	Growth In Agriculture (90-94)	Growth In Industry (90-94)	Growth In Services (90-94)
		% of GDP	% of GDP	Annual % change	Annual % change	Annual % change	Annual % change
Russia	1989-94						
Poland	1989-94	49.5%	7.8%	2.5%	-8.3%	-4.2%	7.2%
Hungary	1989-94	30.1%	9.7%	-3.6%	-9.3%	-2.2%	-2.8%
Romania	1989-94	52.8%	13.9%	-6.3%	-2.2%	-7.4%	-6.7%
Bulgaria	1989-94	59%	11%	-6.2%	-2.9%	-9.3%	-1.4%
Czech Republic	1989-94	(92) 45.0%					
Slovak Republic	1989-94	(92) 38.0%		-5.2%	-2.5%	-11.8%	3.4%
Czechoslovakia	1989-92		6.3%				
Viet Nam	1989-94	24.2%	40.8%	7.9%	4.3%	12.1%	8.7%
	State			11.3%	4.1%	14.5%	8.7%
	Non-state			6.1%	4.3%	8.0%	8.5%
Viet Nam	1986-90	(86) 30.6%	(86) 36.4%	5.7%	2.9%	3.5%	10.8%

(Comparison with Eastern Europe and Russia)

(7) Budget of the Government 1

	Period	Budget Deficit in GDP	The Largest Budget Deficit During The Period	Revenue Of General Government (1989)	Revenue Of General Government (1992)	Change in % points 1989-92
		% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
Russia	1989-94	(91-) -16.8%	(91) -31.0%		37.6%	
Poland	1989-94	-3.8%	(89) -7.4%	41.4%	43.9%	2.5%
Hungary	1989-94	-3.9%	(94) -8.2%	59.6%	57.8%	-1.8%
Romania	1989-94	0.4%	(92) -4.6%	51.0%	37.6%	-13.4%
Bulgaria	1989-94	-11.1%	(93) -15.7%	59.8%	38.3%	-21.5%
Czech Republic	1989-94	(93-) 1.2%			49.5%	
Slovak Republic	1989-94	(93-) -5.2%			50.9%	
Czechoslovakia	1989-92	(89-92) -2.0%	(92) -3.3%	69.5%	56.4%	-13.1%
Viet Nam	1989-94	-6.2%	(89) -10.8%	14.6%	18.3%	+3.7%
excl. crude oil		-9.0%	(89) -11.9%	13.5%	14.5%	+1.0%

(Comparison with Eastern Europe and Russia)

(8) Budget of the Government 2

	Period	Current Expenditure (1989)*7	Current Expenditure (1992)	Change In % points 1989-92	Capital Expenditure (1989)	Capital Expenditure (1992)	Change In % points 1989-92
		% of GDP	% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
Russia	1989-94		41.7%			2.7%	
Poland	1989-94	45.5%	49.0%	+3.5%	3.3%	1.7%	-1.6%
Hungary	1989-94	54.4%	54.3%	-0.1%	6.6%	8.1%	+1.5%
Romania	1989-94	25.1%	26.7%	+1.6%	17.6%	5.8%	-11.8%
Bulgaria	1989-94	56.0%	42.5%	-13.5%	5.5%	2.8%	-2.7%
Czech Republic	1989-94		40.2%			7.3%	
Slovak Republic	1989-94		55.8%			8.2%	
Czechoslovakia	1989-92	63.8%	48.8%	-15.0%	8.5%	11.3%	+2.8%
Viet Nam	1989-94	15.6%	19.5%	+3.9%	5.8%	6.9%	+1.1%

*7 Including Interest Payments

Table I -22 (Comparison with Latin America)

(1) Summary Table

	Period	Inflation (Consumer prices)	Growth (Real GDP growth)	Current Account (GDP ratio)	Share of Agriculture in 1985	Size of Government Expenditure	Fixed Investment ratio	Savings Rate (Domestic saving)
		% Annual Increase	% Annual Increase	% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
Mexico	1975-94	39.4%	2.9%	-2.5%	9.1%			
Brazil	1975-94	275.6%*1	3.0%	(-93) -2.2%	11.5%	(-92) 24.5%		(-93) 22.8%
Chile	1975-94	33.9%*1	5.0%	-5.1%	7.4%	(-93) 27.9%	18.1%	20.1%
Argentina	1975-94	242.3%*1	1.7%	(76-) -1.1%	7.6%	(-89) 15.1%	20.5%	22.4%
Peru	1975-94	(-93) 148.8%*1	0.6%	(77-79)-2.9%	(93) 11.0%	(-93) 16.8%	19.6%	20.6%
Bolivia	1975-94	122.4%	1.4%	-5.0%	36.9%	(77-91)20.3%	(-91) 14.1%	(75-91) 19.5%
Viet Nam	1986-94	91.0%	6.8%		(86) 36.4%	(90-) 18.5%		
Viet Nam	1989-94	32.4%	7.3%	(90-) -3.6%				(90-) 16.7%

*1 GDP deflator

Sources; International Financial Statistics 1995 (IMF); Viet Nam Economic Report on Industrialization and Industrial Policy, October 1995 (World Bank)

(Comparison with Latin America)

(2) Summary Table Hyper-inflation Period

	Period	Inflation (Consumer prices)	Growth (Real GDP growth)	Current Account	Size of Government Expenditure	Fixed Investment Ratio	Savings Rate (Domestic savings)
		Annual % increase	Annual % increase	% of GDP	% of GDP	% of GDP	% of GDP
Brazil	1987-92	984.4%*1	-0.4%	0.2%	31.6%		26.1%
Argentina	1987-92	516.7%*1	1.7%	-1.1%	(-89) 11.8%	16.5%	19.2%
Peru	1987-92	521.1%*1	-4.7%	-2.9%	12.9%	17.3%	17.8%
Bolivia	1982-87	670.1%	-1.2%	-4.9%	28.0%	21.6%	21.6%

*1 GDP deflator

(Comparison with Latin America)

(3) Inflation

	Period	Inflation (Consumer prices)	Broad money	Wages	Exchange Rate (Domestic currency/USD)
		% Annual Increase	% Annual Increase	% Annual Increase	% Annual Change
Mexico	1975-94	39.4%	51.1%	39.8%	34.3%
Brazil	1975-94	320.8%*1	321.0%	83.2%	(-93) 321.6%
Chile	1975-94	33.9%*1	(-93)47.9%		26.4%
Argentina	1975-94	242.3%*1	263.4%		213.8%
Peru	1975-94	(-93) 148.8%*1	178.2%		155.3%
Bolivia	1975-94	122.4%	116.4%		91.5%
Viet Nam	1986-94	91.0%	109.6%		
Viet Nam	1989-94	32.4%	36.9%		

*1 GDP deflator

(Comparison with Latin America)

(4) Inflation　　Hyper-inflation Period

	Period	Inflation (Consumer prices)	Broad Money	Exchange Rate (Domestic currrency/ USD)
		% Annual Increase	% Annual Increase	% Annual Change
Brazil	1987-92	984.4%*1	1167.8%	928.5%
Argentina	1987-92	516.7%*1	445.2%	440.7%
Peru	1987-92	521.1%*1	822.0%	841.5%
Bolivia	1982-87	670.1%	638.6%	696.6%

*1　GDP deflator

(Comparison with Latin America)

(5) Budget Deficits

	Period	Budget Deficit in GDP	Financing Of the Budget Deficit (Foreign)	Financing Of the Budget Deficit (Domestic)	Government's Borrowing from Central Bank*2
		% of GDP	% of GDP	% of GDP	% of GDP
Mexico	1975-94	(-90) -6.7%	1.2%	(75-89) 6.2%	3.1%
Brazil	1975-94	(-92) -5.7%	(81-86) 0.1%	(81-86) 6.4%	19.4%
Chile	1975-94	(-93) 0.6%	0.1%	0.5%	8.4%
Argentina	1975-94	-3.3%	(76-89) 0.7%	(75-89) 3.6%	6.5%
Peru	1975-94	-4.0%	1.9%	2.3%	1.0%
Bolivia	1975-94	(77-91)-10.8%			(-91) 16.8%
Viet Nam	1989-94	-3.8%	1.6%	2.2%	1.6%
Viet Nam	1986-88	-6.0%	2.1%	3.3%	3.3%

*2 This figure is calculated as change in amount outstanding of the claims on the central government held by the monetary authorities divided by nominal GDP. The ratio tends to be highly exaggerated in the case of hyper-inflation.

(Comparison with Latin America)

(6) Budget Deficits Hyper-inflation Period

	Period	Budget Surplus or Deficit	Financing Of the Budget Deficit (Foreign)	Financing Of the Budget Deficit (Domestic)	Government's Borrowing from Central Bank
		% of GDP	% of GDP	% of GDP	% of GDP
Brazil	1987-92	-9.5%			47.8%
Argentina	1987-92	-1.0%	(87-89)1.3%	(87-89)0.4%	8.4%
Peru	1987-92	-3.7%	1.6%	2.1%	0.8%
Bolivia	1982-87	-21.2%			(-91)38.0%

1-2 Quantitative Approach---The Results of Simulations of a Simple Macroeconometric Model of the Economy of Viet Nam ---*

The purpose of this section is threefold: (1) to report the results of simulations of a simple macroeconometric model of the VN economy; (2) to describe the assumptions of the macroeconometric model used in simulations; and (3) to discuss their policy implications.

The simulation exercises are carried out with two specific objectives. The first objective is to compare the values of various macroeconomic variables contained in the 5 year economic plan systematically with the historical data. The second objective is to give quantitative analysis regarding a possible problem: An overly ambitious development program might destabilize the economy and end up with higher inflation, higher external debts, and possibly lower aggregate growth rate.

The specification of the macroeconometric model used for our simulation study is chosen by our desire to replicate most of the target values and estimates of macroeconomic variables in the Plan under the explicit set of assumptions on the structure of the Vietnamese economy. Many important parameters of our model correspond directly to the parameters discussed in the Plan. This helps us not only to replicate the Plan but also interpret results of simulations within the basic framework of the Plan.[1] Besides, the number of sample points is too small to estimate complicated behavioral equations for the economy whose structure is changing rapidly. For most relationships between variables, we simply compute the averages of their ratios either for the whole sample period or for the most recent two years and assume them to be fixed for the whole planning period from 1996 to 2000. Such a modeling imparts a very rigid structure to the adjustment mechanism embedded in the model and tends to overemphasize the instability of the economy. While we consider this an important limitation of this exercise, it will still serve our two objectives stated in the previous paragraph.

We will first examine a non-monetary model in Part I under the assumption that both the inflation rate and the rate of depreciation of dong are fixed at the rate assumed in the Plan. The primary objective of studying the non-monetary model is to gain the first and robust insights into the interrelationships between the Plan and the growth prospect of the Viet Nam economy without complication of monetary factors. In Part II we will attach a model of the monetary sector to the non-monetary model studied in Part I in order to reexamine our observations obtained in Part I and to expand the scope of our analysis to inflation. Part III concludes the paper.

(1) A Non-monetary Model

In this section we evaluate the effects of changes of various policy variables on the growth path of the economy without considering monetary factors. The inflation rate is assumed to remain constant without regard to the development of real economic variables such as real GDP or real investment. Thus the negative implications of overly ambitious investment program appear primarily either in accumulated external debt or in accumulated domestic debt of the government at the end of the Plan period.

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Part I consists of three sections. Section 1 describes a non-monetary model used for simulations in Part I. The model is chosen to obtain quantitative information about important macroeconomic relations on the basis of the limited number of data observed during the past 5 years. The set of parameters which characterize the model correspond closely to those of the Plan. Section 2 describes the assumptions of the Plan concerning behavior of major macroeconomic variables. Section 3 reports the results of simulations under alternative assumptions of the growth path of exogenous variables including policy variables.

1) A Simple Non-monetary Growth Model

The model employed is a version of the Harrod-Domar model. Technology is characterized by the linear relationship between total output (GDP) and capital stock (K):

$$GDP = \frac{1}{v(t)}K \qquad (1)$$

v(t) is the technology coefficient and varies over time exogenously. Both GDP and K are real, and unless noted otherwise, all the variables in this section are measured in domestic goods. We are assuming here that the aggregate technology is such that the labor supply exceeds the amount of labor necessary to utilize the existing capital stock fully. The technology (1) implies

$$\Delta GDP = \frac{1}{v(t)}\Delta K = \frac{1}{v(t)}I \qquad \text{or} \qquad \frac{I}{\Delta GDP} = v(t) \qquad (2)$$

where I is gross investment and the ratio v(t) is the incremental capital output ratio (ICOR). We assume that v(t) is an exogenous process and changes with time t. From (2) we obtain

$$\text{the growth rate of GDP} = \frac{\Delta GDP}{GDP} = \frac{1}{v(t)}\,\frac{I}{GDP} \qquad (3)$$

The gross investment I includes both government investment and private investment and is written as

$$I = IG + IP = IG + FDI + IOP \qquad (4)$$

where IG is government investment, IP private investment, FDI foreign direct investment and IOP private investment other than FDI.

From the GNP identity in the National Income and Product Account we get the following identity between gross investment, gross savings and current account balance:

$$\begin{aligned} I &= SD - CAB \\ &= SG + SP - CAB \end{aligned} \qquad (5)$$

where SD is domestic saving, SG government saving (government revenue minus government consumption), SP private saving and CAB current account balance. From the

balance of payment account we also have

$$\Delta R = CAB + FDI + \text{net external borrowings} \qquad (6)$$

or

$$CAB = -(FDI + \text{net external borrowings}) + \Delta R \qquad (7)$$

where R is the foreign exchange reserve held by the central bank, measured in real terms.[2] In Part I we assume that $\Delta R = 0$ and that the difference between – CAB and FDI is covered entirely by external borrowings. When we define foreign saving SF by SF = FDI + net external borrowings, then we can write Equation (7) as

$$CAB = -SF \qquad (8)$$

Then, using Equation (8), Equation (5) can be rewritten as

$$I = SG + SP + SF \qquad (9)$$

when $\Delta R = 0$. Equation (9) is an identity and shows how investment is financed by different sources.

Dividing Equation (9) by GDP, we have

$$\frac{I}{GDP} = \frac{SG}{YG}\frac{YG}{GNP}\frac{GNP}{GDP} + \frac{SP}{YP}\frac{YP}{GNP}\frac{GNP}{GDP} + \frac{SF}{GDP} \qquad (10)$$

where YG is government income (taxes and non-tax incomes), YP private income, and GNP gross national product which is equal to the sum of GDP and net factor income abroad (NFIA). We assume that SG/YG = $s_g(t)$ (an exogenous process), SP/YP = $s_p(t)$ (an exogenous process), YG/GNP = y_g (constant), YP/GNP = y_p (constant), GNP/GDP = (GDP+NFIA)/GDP = (1+NFIA/GDP) = 1 + f (constant). Note that $y_g+y_p=1$ and that f is negative for a highly indebted economy because of interest and amortization payments. Then the investment/GDP ratio can be written in these parameters as

$$\frac{I}{GDP} = (s_g(t)y_g + s_p(t)y_p)(1+f) + \frac{SF}{GDP} \qquad (11)$$

Then, substituting (11) into (3), we get

$$\frac{\Delta GDP}{GDP} = \frac{1}{v(t)}\left[(s_g(t)y_g + s_p(t)y_p)(1+f) + \frac{SF}{GDP}\right] \qquad (12)$$

Thus, given the parameter values v(t), $s_g(t)$, $s_p(t)$, y_g, y_p and f, the higher growth path of GDP is associated with the higher dependence on foreign saving. Figure 1 illustrates the trade-off between the growth rate of GDP and the dependence on foreign saving embodied in Equation (12). Note that Equation (12) is not a causal relationship between SF/GDP and

ΔGDP/GDP. It only shows that two ratios move along Equation (12). In order to move the two ratios along the line, we need to control exogenous variables (that is, investment variables in this model). For example, as will be shown in simulations, a higher government investment IG results in both a higher SF/GDP and a higher ΔGDP/GDP.

We can also use Equations (5) and (7) to find the implication of a growth program for external borrowings when ΔR = 0;

$$\begin{aligned} \text{net external borrowings} &= -\text{CAB} - \text{FDI} \\ &= \text{I} - \text{SD} - \text{FDI} \\ &= (\text{I} - \text{FDI}) - \text{SD} \end{aligned} \qquad (13)$$

That is, the value of net external borrowings is equal to the non-FDI domestic investment which is not covered by domestic saving SD.

Given the values of government investment (IG) and government saving (SG), the value of budget deficits is defined simply by

$$\text{budget deficits} = \text{IG} - \text{SG} \qquad (14)$$

Finally, we assume that the growth process of exports is given exogenously. Then, by using the definition of CAB = exports − imports + NFIA and Equation (8), we can determine imports by

$$\begin{aligned} \text{imports} &= \text{exports} + \text{NFIA} - \text{CAB} \\ &= \text{exports} + \text{NFIA} + \text{SF} \end{aligned} \qquad (15)$$

when ΔR = 0. Equation (15) can be written also as:

$$\text{trade balance} = \text{exports} - \text{imports} = -(\text{NFIA} + \text{SF}) \qquad (16)$$

In summary, the model is characterized by the parameters y_g, y_p, v(t), $s_g(t)$, $s_p(t)$ and f. Exogenous variables are investment variables (I, IG, IP, FDI, IOP) and exports. Endogenous variables are GDP, NFIA, GNP, YG, YP, saving variables (SD, SG, SP, SF), CAB, net external borrowings, budget deficits and imports.

2) Model Calibration

In this section we choose the parameter values of the non-monetary growth model specified in Section 1. The major criterion we use in our choice is to replicate the growth program of the Plan within the framework of our model as closely as possible. Whenever the values of macroeconomic variables given in the Plan imply specific values for the parameters of the model, we take these parameter values as the "estimates" of the parameters. The values of ICOR, v(t) (t=1996, .., 2000), are determined in this way from GDP(t) and I(t) given in the Plan. For the parameters which cannot be inferred uniquely from the Plan we "estimate" their values from the data between 1990 and 1995. However, rather than taking average estimates over the whole sample period, we choose the values which seem to

represent the best "estimates" for the Plan period. Thus, the values of y_g and y_p are their values in 1994; f is the average between 1992 and 1994; and $s_p(t)$ is the average saving rate from 1990 to 1994. The values of $s_g(t)$ are determined from SG(t) and GNP(t) processes in the Plan. Such "estimation" procedure is clearly arbitrary but seems to be optimal for the purpose of this paper: to examine the growth program of the Plan under alternative assumptions on the changes in the economic environment of Viet Nam. The replicated growth process based on the Plan will serve as a reference case in simulations reported in Section 3.

A short remark is necessary on the relationship between the reference case based on the Plan and the Plan itself. The values of some variables (such as total investment I) are given in annual terms in the Plan, but others (such as government investment IG or FDI) are given only in 5 year totals. For the variables whose values are given in 5 year totals, we convert them into annual values by assuming that they grow at constant growth rates. For the variable whose 5 year total is given by a range we choose its annual values so that its 5 year total is close to the middle of the given range.

We proceed as follows.

A. Real GDP and prices (Deflator)

Growth rate of real GDP = 9.5% (9~10% in the Plan)

Inflation rate = 10%

B. Investment variables and ICOR v(t)

The Plan describes the annual rate of investment I(t) in US dollars. We first convert them to dong values by assuming 4% rate of depreciation of dong against the dollar.[3] Then we obtain its real values by assuming a 10% inflation rate.

From the processes of real GDP and real investment obtained above, we find the values of ICOR v(t) from 1996 to 2000.[4] See the row of ICOR in Simulation 1-1(Plan). It varies between 3.05 and 3.16, falling in the range between 3.0 and 3.3, noted in the Plan.[5]

The Plan provides the estimate of Government investment (IG) in its 5 year total. We assume that it grows at a constant rate and configure the annual values IG(t) so that its 5 year total equals $15.6 billion (as defined in Table 7 in the Plan[6]. The growth rate is found to be equal to 35% in nominal dong and 22.7% in constant dong.

The Plan does not specify the values of Private investment IP(t). We compute its values from the relation:

Private investment (IP) = Total investment (I) - Government investment (IG)

The Plan gives the estimate of Foreign direct investment (FDI) in a 5 year total with a range of $13~$14 billion. We assume it will grow at 40% in dollars so that its 5 year total is equal to $13.4 billion, in the middle of the $13~$14 billion range of the Plan. This is equivalent to 44% growth in nominal dong and 30.9% growth in constant dong.

The Plan does not specify the value of private investment other than FDI. We compute its value by: Other private investment (IOP) = Private investment (IP) – FDI.

IOP includes both a part of the investment of state enterprises and investment of the private sector.

C. Saving variables and saving rates $s_p(t)$, and $s_g(t)$

We assume that f (=NFIA/GDP) is equal to -.02 which is the average between 1992 and 1994. See the row NFIA/GDP in Simulation 1-1(Plan). Then, GNP = GDP + NFIA.

We assume that y_p = .75. This is the value of YP/GNP in 1994. y_g = .25 by definition. See the rows YP/GNP and YG/GNP in Simulation 1-1(Plan).

We assume that $s_p(t)$ = .1 . This is the average rate of private saving SP/YP during 1990 - 1994. See the row SP/YP in Simulation 1-1(Plan).

Foreign saving (SF) = FDI + net external borrowings (mostly ODA). The annual values of net external borrowings are obtained so that its 5 year total is equal to $7.3 billion which is in the $7~8 billion range of the Plan.[7]

The value of Government saving follows from the GNP identity: Government saving (SG) = I – SP – CAB = I – SP – SF. In the last equality we assume that foreign exchange reserve remains constant in real terms. Domestic saving (SD) follows from: SD = SP + SG.

We compute the parameter values of the government saving rate by : $s_g(t)$ = SG(t)/YG(t) (t=1996~2000). It declines gradually from .311 in 1996 to .182 in 2000. See the row SG/YG in Simulation 1-1(Plan). Simulation 1-1(Plan) also shows the change in the government consumption/GDP ratio in the row CG/GDP. It is related to $s_g(t)$ by: CG/GDP = ((YG–SG)/YG)(YG/GNP)(GNP/GDP) = $(1-s_g)y_g(1+f)$. It increases gradually from 16.9% in 1996 to 20.1% in 2000.

D. Exports, imports and trade balance

The Plan assumes that the 5 year total of exports during the Plan period is 3 times the 5 year total from 1991 to 1995. When we assume that the growth rate of exports is constant, the Plan implies that exports grow at 24.8% in dong, 20% in dollars, or 13.5% in real terms. See the export data in the table of Trade Balance. The growth rate in dollar value of exports is somewhat smaller than the range between 24 - 28% which is also given in the Plan. The value of Imports is obtained from: Imports = Exports + NFIA – CAB = Exports + NFIA + SF, when the foreign exchange reserve remains constant in real terms. We can also compute the trade balance by: Trade balance = Exports – Imports = – (NFIA + SF). See the data on imports and trade balance in the table of Trade Balance.

The table of Trade Balance also shows the value of imports described in the Plan. We note immediately that the value of imports obtained in the model is vastly different from that of the Plan. Since we have chosen the parameter values of the model in order to replicate the investment and saving program of the Plan, the significant difference in the estimates of imports within the Plan implies that the estimates of exports and imports are not consistent with the estimates of investment and saving in the Plan. In particular, the Plan underestimates the value of imports by a large margin (as much as 13.6% of GDP in 2000), if

we take the investment and saving program of the Plan as given. In Appendix A we show that the Plan is indeed most likely to be underestimating the value of imports by comparing the import function estimated from the data during 1991-1995 with that from the data in the Plan.

3) The Results of Simulations

This section reports the results of simulations under alternative assumptions on the values of exogenous variables and parameters.

A. Private investment IP

a. IP in the Plan, Simulation 1-1 (Plan)

As seen in Simulation 1-1, the growth rate of real private investment declines gradually throughout the Plan period from 18.7% to –3.4%. Given the values of its growth rate, 19.9% in 1993, 35.4% in 1994 and 23.8% in 1995, the Plan values are likely to underestimate the growth rate of real IP by a large margin.

Given the target growth rate of real GDP, this is caused by one or both of the following reasons: (1) the government investment (IG) is too large, given the growth rate of total investment, or (2) total investment is too small, given the growth rate of real GDP, or, equivalently the implicitly assumed values of ICOR are too small. If we consider the implicit values of ICOR (between 3.05 and 3.16) as plausible, then IG is too large for the 9.5% growth rate of real GDP.

On the other hand, if IG is given as planned and if IP continues to follow its trend during the past 5 years, the growth rate of real GDP is likely to be higher than 9.5%. We will check this possibility later.

The underestimation of private investment is most visible for Other private investment (IOP) which is calculated as residual after subtracting government investment (IG) and foreign direct investment (FDI) from total investment (I). It serves the role of the adjustment term in the standard case. The fact that real IOP increases at the rate of 25.6% in 1996 but declines at the rate of 27% and 47.1% in the last two years of the Plan period indicates that there is a significant imbalance in the growth program of the Plan.

b. Alternative cases of private investment

We have examined the implications of alternative assumptions on the growth path of IP. The results are shown in five tables from Simulation 1-2 (IP-1) to Simulation 1-2 (IP-5).

The first three tables, from Simulation IP-1 to Simulation IP-3, examine the effects of the increase in the growth rate of real IP from 9.5% to 20% to 30%. The effects on the growth rate of real GDP are straightforward. If real IP grows at 20%, a somewhat conservative estimate of the growth rate of IP, the average growth rate of real GDP increases from 9.7% to 11.4% to 13.5% during the Plan period. Thus, if the growth rate of real IG is given at 22.7% in the Plan, the growth rate of real GDP is likely to be higher than 9.5%. Its effects on foreign loans necessary to finance the higher investment are shown in the row ODA

and Loans (OL). When real IP grows at 20%, the 5 year total of OL amounts to $17.3 billion, much higher than the range $7~8 billion in the Plan. The accumulated OL/GDP ratio caused by the borrowing between 1996 and 2000 reaches 37.3%, much higher than the standard case 16.7%.

Simulation IP-4 looks at the case when real Other private investment grows at 30%. While the average growth rate of real GDP is 13.5% and is much higher than the standard case, its effect on the accumulated OL/GDP ratio is very large, increasing from 16.7% (in the standard case) to 56.6%.

Simulation IP-5 shows what happens if FDI is lower than planned, growing at 10% in real terms rather than 30.9%. The average growth rate of real GDP is 8.3%, the lowest among the cases examined.

B. Government investment (IG)

In the standard case, Simulation 1-1(Plan), real government investment grows at 22.7%. Two tables, Simulation 1-3(IG-1) and 1-3(IG-2), show the effects of higher (30%) and lower (9.5%) growth rate of real IG. The average growth rate of real GDP during the Plan period is 10.1% and 8.6% respectively. The row BS shows the budget surplus. The effects of the change in the growth rate of IG on the budget deficit (that is, negative BS) and OL can be seen clearly. When real IG grows at 30%, both the accumulated -BS/GDP ratio and the accumulated OL/GDP ratio increase from 14.7% and 16.7% (in the standard case) to 22.2% and 23.7% respectively in the year 2000. When real IG grows at 9.5%, the two ratios decline to 3.4% and 6.2% respectively in the year 2000.

C. Private saving rate $s_p(t)$

Simulation 1-4(SP) shows the growth path of the economy when $s_p(t)$ is 8% for the whole Plan period, smaller than the standard case $s_p(t) = 10\%$. The accumulated OL/GDP ratio increases from 16.7% (in the standard case) to 22% in the year 2000.

D. Government consumption and government saving rate $s_g(t)$

Simulation 1-5(CG-1) shows the case when the CG/GDP ratio remains at 16%, lower than the standard case. This is equivalent to the case when $s_g(t)$ is constant at 34.7% throughout the Plan period. Both the accumulated -BS/GDP ratio and the OL/GDP ratio decline from 14.7% and 16.7% (in the standard case) to 5.9% and 8% respectively in the year 2000. On the other hand, Simulation 1-5(CG-2) shows the effects of a larger CG/GDP ratio which increases gradually to 25% at the end of the Plan period. $s_g(t)$ declines from 30.6% to minus 2%. Both the accumulated -BS/GDP ratio and the accumulated OL/GDP ratio increase to 26.4% and 28.4% respectively in the year 2000.

E. ICOR v(t)

Within the framework of our model the growth processes of GDP and other endogenous variables depend importantly on the choice of the estimates of ICOR v(t).

While we have used the values of v(t) calculated from the Plan, some evidence exists which indicates that v(t) may increase over time as a trend.[8] Tables denoted by ICOR show the results of the simulations corresponding to the cases discussed above under the assumption that ICOR increases from 2.9 (in 1996) to 3.3 (in 2000). Simulation 1-1(ICOR) computes the value of investment I under the new values of ICOR and the assumption that the growth rate of real GDP equals to 9.5%. Now IP and IOP take more plausible values, but still their underestimation is clearly visible in the rows of their growth rates. Generally speaking, the simulation results are not much different from the standard case under the new values of ICOR. The average growth rate of real GDP remains approximately the same as the standard case because real GDP grows faster at the beginning and slower at the end of the Plan period.

F. IOP and $s_p(t)$

Simulations 1-6(IOP, SP) assume the growth rate of real IOP at either 20% or 30%, which is much higher than the rate implicit in the Plan but is in line with the historical trend observed during 1991-1995. The average growth rate of real GDP during the Plan period is much higher than the Plan and is 12% and 13.5% when real IOP grows at 20% and 30% respectively. Simulations 1-6(IOP, SP) also examine more possibilities for the saving rate $s_p(t)$, increasing from .1 in 1995 to either .15, or .20, or .30 in 2000. While the higher growth rate of IOP results in the higher accumulated external debt to GDP ratio, the higher saving rate seems to be able to reduce the ratio significantly. For example, the increase in the saving rate in the final year 2000 from 15% to 20% reduces the accumulated OL/GDP ratio from 34.7% to 26.2% when the growth rate of real IOP is 20%.

4) Summary of Part 1

We can summarize the main observations obtained in Part 1 as follows:

A. The exports/imports side of the Plan is not consistent with the investment/saving side of the Plan. Given the estimate of the income elasticity of real imports during 1991-1995, the Plan is underestimating the value of imports by a large margin. The investment/saving side of the Plan implies much higher trade deficits than those described in the Plan.

B. The assumption on Private Investment implicit in the Plan is unrealistically low. When we extrapolate the trend of Private Investment observed between 1991 and 1995 to the Plan period, the growth rate of real GDP is likely to exceed the range between 9 and 10% of the Plan significantly. This implies that the government investment program of the Plan is likely to result in the higher grow path of GDP. It is also likely, however, that the Plan will result in external debts much higher than the range anticipated in the Plan.

(2) A Monetary Model

Now we consider monetary factors explicitly and reexamine the insights we have gained in the non-monetary model in Part I in view of the changes in the inflation rate and foreign exchange rate.

1) A Model of the Monetary Sector and Its Calibration

We describe the monetary sector by a money demand function and a model of the money supply mechanism. The specification of a money demand function establishes the linkage between GDP, money supply and the price level. The model of the money supply mechanism shows how money supply changes in the economy.

We choose the demand function for real currency balances (held by the public) rather than M1 or M2 as a demand function of money. In the cash-dominated economy with a small amount of demand deposits being used as a medium of exchange, the demand for real currency balances will better approximate the transaction demand for money.[9] We assume that the demand for real currency balances is determined uniquely by real GDP. Let Cur denote currency held by public, and P denote the price level. By using the data from 1989 to 1994 we find that:

$$\log \frac{Cur}{P} = -11.89 + 1.79 \log (\text{real GDP}) \qquad (16)$$

$$(-7.11) \quad (12.86)$$

$$\bar{R}^2 = .97, \quad DW = 2.50$$

(The figures in the parentheses are t-values.)

The equation implies that the income elasticity of demand for real currency balances is 1.79.

The basic construct of a money supply mechanism is the mechanism which regulates the value of high powered money HPM (monetary base or base money), the amount of currency issued by the central bank. It is divided into two components: currency held by the public (Cur), and currency held by the banks as reserves. The money demand function (16) is the demand for (Cur). We assume that the Cur/HPM ratio is constant and is equal to .807, the average ratio during 1992-1995.

Let ΔHPM denote the change in the stock of high powered money. Three sources exist which change HPM: the balance of payments, the change in net government liabilities held by the central bank, and the change in central bank credits to financial institutions.[10] That is,

$$\Delta HPM = \text{the balance of payments} + \text{the change in net government liabilities} + \text{the change in credits to financial institutions} \qquad (17)$$

We assume that the position of the overall balance of payments causes the same amount of change in foreign exchange reserve held by the central bank and in the amount of HPM.[11] Since the balance of payments is equal to the sum of the current account balance CAB and the net capital inflows SF, foreign exchange reserves increase or decrease, depending on whether SF exceeds CAB or not. Note that SF = FDI + net external borrowings. In the non-monetary model we have assumed that CAB + SF = 0.

The change in net government liabilities held by the central bank is caused by various reasons, including direct or indirect monetization of budget deficits and the purchases and

sales of government securities. We assume that the degree of monetization of overall government budget deficits is given by a policy parameter α (alpha). We run simulations by assuming either $\alpha = .5$ (for most cases) or $= 0$ (for other cases).

Central bank credits to commercial banks is another important channel to increase HPM. The central bank can support an increasing demand for credits necessary for the growth of the enterprise sector, including state owned enterprises (SOE), private firms, cooperatives and so on by increasing its credits to financial institutions. In such a case the central bank refinances a part of the credits extended by commercial banks to the enterprise sector. The Public Investment Program for 1996-2000 provides the estimate of the commercially viable investments of SOEs at $5.9 billion, and that of the investments of the private sector at $19.9 billion, which further consists of domestically financed $6.9 billion investments and $13.0 billion FDI. We assume that the central bank refinances the commercially viable investments of SOEs and that its fraction out of domestically financed private investments is given by a constant, 5.9/(5.9+6.9), throughout the Plan period. That is, we assume that 46% of domestically financed private investment is financed by issuing new HPM.[12]

2) Assumptions on Foreign Savings

We consider two extreme cases on the availability and use of foreign savings. One is Case A in which external resources are readily available and are used to eliminate the deficits of Current Account Balance exactly. In Case A, the balance of payments is always zero and does not cause a change in HPM. The other is Case B in which the amount of foreign savings which are available and used is fixed exogenously at the value given in the Plan. In this case the deficits of Current Account Balance are only partly financed by foreign savings and the remainder results in the change in foreign exchange reserves. Such a policy is feasible only when the level of foreign exchange reserves is non-negative. When reserves run out, the growth program must be revised within the limit determined by the amount of available foreign savings given in the Plan. The foreign exchange reserve held by the central bank at the end of 1995 is estimated to be at US$0.7 billion.[13]

We also consider two alternative foreign exchange rate policies. One is to depreciate the dong at a constant rate (4%) against the US dollar. The other is to keep the real exchange rate constant. The difference in their effects on the growth process, however, is very limited in the present model. Our model does not have a mechanism through which real exchange rate affects exports or imports. Exports are given by an exogenous process and imports are determined by the GNP identity. The role of exchange rate is minimal: to translate foreign currency denominated variables into dong values. But this does not mean that the choice of foreign exchange rate policy has no real effect on the economy. In our simulations FDI is given in US dollars and takes on different values in constant dong, depending upon the choice of foreign exchange rate policy.[14] Also the amount of ODA is given in foreign currencies rather than dong or constant dong.

3) The Results of Simulations

Now we will reexamine the implications of alternative growth programs for the behavior of the economy in the framework of the monetary model. However, rather than producing

exact counterparts of the simulations of the non-monetary model, we will reexamine the problems found in Part I in detail in the new framework.

The most important problem seems to be the underestimation of IOP, private investment other than FDI. So, in the first place, we will consider various growth possibilities of IOP and examine their effects. Then we will assume that real IOP grows at 20% which is smaller than its average (24.5%) between 1993 to 1995 and examine the effects of the changes of other exogenous variables and parameter values.

A. IOP, private investment other than FDI

We increase the growth rate of IOP from 0% to 20% by 5%. Private saving rate $s_p(t)$ is assumed to increase gradually from 10% to 20%. Government saving rate $s_g(t)$ remains the same as the non-monetary model. ICOR v(t) is assumed to increase from 3.1 (in 1996) to 3.5 (in 2000), somewhat higher than the value used in Part I.[15] Real IG grows at 22.7%, the rate assumed by the Plan. The dollar value of FDI is the one used in Part I.

Case A : CAB + SF = 0

The tables of Monetary 1 (13-1,..,5) and (14-1,..,5) show the complete results of the simulations. The table of Monetary Model 1 summarizes their main results. The figures of Monetary Model 1 (13, 14) plot the relationships between two variables in the table. Real exchange rate is fixed for the cases marked 13 and nominal exchange rate depreciates at 4% for the cases marked 14. We can obtain the following observations:

a. A clear trade-off exists between the growth rate of real GDP and three variables: the inflation rate, the accumulated OL/GDP ratio and the accumulated –CAB/GDP ratio. The trade-off between the growth rate of real GDP and inflation and the OL/GDP ratio is more marked when the nominal exchange rate depreciates at a constant rate. But the opposite is the case for the –CAB/GDP ratio.

b. The accumulated budget deficits to GDP ratio has negative correlation with the growth rate of real GDP. This is attributable to the assumption that real IG grows at a constant rate.

The main policy implication of these observations is that we should expect higher growth in real GDP and prices, higher external borrowings and higher current account deficits when IOP turns out to be higher than anticipated by the Plan.

Case B : CAB + SF ≠ 0

The tables of Monetary 2 (13-1,..,5) and (14-1,..,5) show the complete results of the simulations. The table of Monetary Model 2 summarizes their main results when the total amount of available external funds is fixed at the level given in the Plan. The figures of Monetary Model 2 (13, 14) plot the relationships between two variables in the table. The observations we obtain in Case B are more complicated than Case A:

a. When real exchange rate is fixed, the foreign exchange reserve runs out of stock in the year 2000 only when IOP grows at 20%. When IOP grows more slowly, the result is

the same as Case A.

b. When nominal exchange rate depreciates at 4%, the stock of foreign exchange reserve decreases to zero if the growth rate of IOP is higher than 10%. The growth program breaks down in the year 2000 for two cases and in the year 1999 in one case. The relationships among variables become more irregular and less predictable.

These observations indicate that the foreign exchange rate policy to depreciate the value of dong at 4% may not be sustainable and that the growth program may need a major revision before the end of the Plan period if the dollar value of ODA and other external loans is fixed at the level of the Plan.

B. Other simulations

Sixteen tables from Monetary 1(1) to Monetary 1(16) are the simulation results for Case A (when CAB + SF = 0). Another sixteen tables from Monetary 2(1) to 2(16) are for Case B (when CAB + SB ≠ 0). They cover the cases in which private saving rate $s_p(t)$ remains at 10% (case 1,2), increasing to 15% (case 11,12), 20% (case 13,14) or 30% (case 15,16); budget deficits are not monetized ($\alpha = 0$) (case 3, 4); real exports grows at 20% (case 5, 6); the share of government consumption increases gradually to 25% of GDP (case 7,8); and real government investment increases at 30% (case 9, 10). In all these cases real IOP is assumed to grow at 20%, the highest among the cases examined in the previous section.

Two tables, Monetary Model 1 and Monetary Model 2 summarize the main results of the simulations. Various figures are attached to ease the comparison of a large number of cases. The observations obtained from them verify the conclusions we have derived in the previous section.

4) Summary of Part 2

We have gained certain additional insights from the monetary model:

A. We should expect higher growth rates in real GDP and prices, higher external borrowings and higher current account deficits when IOP turns out to be higher than anticipated by the Plan, provided that foreign savings are available whenever necessary to fill the current account deficits.

B. If the dollar value of ODA and other external loans is fixed at the level of the Plan and if the foreign exchange rate policy is pursued to depreciate the value of dong at 4%, then the growth program may need a major revision before the end of the Plan period because of the constraint of foreign exchange reserves.

(3) Concluding Remarks

We ran simulations to find answers to the following two questions: (1) whether the growth program of the Plan is systematically based on the trend and characteristics of the Vietnamese economy observed in the historical data during 1990 - 1995; (2) under which condition the Plan might become overly ambitious, destabilize the economy and end up with

higher inflation, higher external debts and possibly lower aggregate growth rate.

Our answers are follows:

1) The exports/imports side of the Plan is not consistent with the investment/saving side of the Plan. The Plan is underestimating the value of imports by a large margin. The investment/saving side of the Plan implies much higher trade deficits than those described in the Plan.

2) The assumption on Private Investment implicit in the Plan is unrealistically low. When we extrapolate the trend of Private Investment observed between 1991 and 1995 to the Plan period, the growth rate of real GDP is likely to exceed the range between 9 and 10% of the Plan significantly. This implies that the government investment program of the Plan is likely to result in the higher grow path of GDP. It is also likely, however, that the Plan will result in inflation, external debts and current account deficits much higher than the range anticipated by the Plan.

3) If Private investment grows faster than the estimate of the Plan, if the dollar value of ODA and other external loans is fixed at the level of the Plan and if the foreign exchange rate policy is pursued to depreciate the value of dong at 4%, then the growth program may need a major revision before the end of the Plan period because of the constraint of foreign exchange reserves.

All in all, we may conclude that the behavior of Private Investment and Imports may deviate significantly from the Plan and that such deviations may destabilize the growth process.

Appendix A

For the period 1991-1995, we get:

$$\log \frac{IMP}{P} = -13.72 + 2.04 \log(\text{real GDP}) \qquad (1)$$

(-8.59) (15.42)

$\bar{R}^2 = .99$, DW = 2.09

(The figures in the parentheses are t-values.)

The income elasticity of imports is 2.04 which indicates that the real imports grew twice as fast as real GDP during the sample period.

For the imports derived from other variables in the Plan, we get:

$$\log \frac{IMP}{P} = -6.68 + 1.48 \log(\text{real GDP}) \qquad (2)$$

(-35.82) (99.44)

$\bar{R}^2 = .9996$, DW = 2.51

(The figures in the parentheses are t-values.)

If we take the import function (1) estimated from the past data as a reference, the value of imports derived from other variables in the Plan seems to be too small. This implies that either SF is too small or I is too small in the Plan, if we take exports and SD as given.

For the estimates of imports given in the Plan, we have:

$$\log \frac{IMP}{P} = -1.10 + 1.02 \log(\text{real GDP}) \qquad (3)$$

(-8.59) (15.42)

$\bar{R}^2 = 1.0000$, DW = 2.59

(The figures in the parentheses are t-values.)

Clearly the income elasticity is too small, much smaller than the estimate in Equation (2). The value of imports seems to be chosen in the Plan so that the value of real imports grows at the same speed as real GDP. The empirical basis of such assumption, however, is very weak.

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[1] Besides it makes it possible for us to use the parameter values used by our counterparts in computing the figures in the Plan and to discuss whether or not assumptions for the parameter values are appropriate.

[2] We get the foreign exchange reserve in USD terms (for example) by multiplying R by price index and then dividing it by the exchange rate of USD in terms of dong.

[3] The value of the rate of depreciation is not in the plan but was used in computing the amount of external funds necessary for investment.

[4] ICOR is computed by $\frac{I(t)}{GDP(t) - GDP(t-1)}$. This assumes that the investment in period t increases productive capacity and output during the same period.

[5] We do not have substantial evidence which may be used to test the validity of the assumption of the Plan on the range of v(t). But some evidence is available to check whether the assumption is plausible. See the section of ICOR of Macroeconomic Report.

[6] First, the real value of public investments is given. Then it is converted to nominal dong value by assuming the 10% inflation rate. Finally the dollar value is computed by assuming the 4% depreciation rate of dong.

[7] The annual values do not grow at a constant rate by a mistake. If they do, they will cause government saving (government consumption resp.) to decline (to increase resp.) somewhat more rapidly. The effects seem to be minor.

[8] See the section of ICOR of Macroeconomic Report.

[9] By using real currency balances rather than M1 or M2, we can avoid using the estimate of money multiplier which seems to be very unstable. We have tried to estimate the demand function of quasi money in order to evaluate the strength of currency substitution in Viet Nam. But we failed.

[10] Devaluation of dong increases the dong value of foreign exchange reserve held by the central bank. Its immediate effect is the capital gain by the central bank and it does not increase HPM in itself, although it could create incentive to increase HPM.

[11] This is true when all foreign currencies are surrendered to the central bank. But even when they are not surrendered to the central bank, the position of the balance of payments will have similar monetary effects if foreign currencies are used as medium of exchange.

[12] This assumption on the degree of monetization may be too large, giving an upward bias to inflation.

[13] This is its value as of March 1995.

[14] We are not sure how important this mechanism is. External commitments seem to be made in foreign currency.

[15] The parameter values of $s_p(t)$ and v(t) are different from those used in Part I. New values are chosen after consultation with the VN counterpart in Hanoi and Tokyo.

Appendix B Tables and Charts

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
GDP, real	214397	234765	257068	281490	308231	337513		
YOY	1.095	1.095	1.095	1.095	1.095	1.095		9-10%
nominal	214397	258242	311052	374663	451281	543568		
YOY	1.259	1.205	1.205	1.205	1.205	1.205		
Deflator	1.000	1.100	1.210	1.331	1.464	1.611		less than 10%
YOY	1.150	1.100	1.100	1.100	1.100	1.100		
Exchange Rate	11000	11440	11898	12374	12868	13383		depreciated at 4%
YOY	1.000	1.040	1.040	1.040	1.040	1.040		

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
GDP, real	214397	234765	257068	281490	308231	337513		
YOY	1.095	1.095	1.095	1.095	1.095	1.095		9-10%
nominal	214397	258242	311052	374663	451281	543568		
YOY	1.259	1.205	1.205	1.205	1.205	1.205		
Exchange Rate	11000	11440	11898	12374	12868	13383		depreciated at 4%
YOY	1.000	1.040	1.040	1.040	1.040	1.040		
I, nominal	52082	68640	83284	102701	122250	143870		
YOY	1.386	1.318	1.213	1.233	1.190	1.177		
/GDP	0.243	0.266	0.268	0.274	0.271	0.265		30%
real	52082	62400	68830	77160	83499	89332		
YOY	1.205	1.198	1.103	1.121	1.082	1.070		
$	4.7	6.0	7.0	8.3	9.5	10.8	41.6	41-42
ICOR	2.80	3.06	3.09	3.16	3.12	3.05		3.0-3.3

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
I, nominal	52082	68640	83284	102701	122250	143870		
YOY	1.386	1.318	1.213	1.233	1.190	1.177		
/GDP	0.243	0.266	0.266	0.274	0.271	0.265		30%
real	52082	62400	68830	77160	83499	89332		
YOY	1.205	1.198	1.103	1.121	1.082	1.070		
$	4.7	6.0	7.0	8.3	9.5	10.8	41.6	41-42
IG, dong, nominal	14667	19800	26728	36081	48706	65750	15.6	15.6
YOY	1.298	1.350	1.350	1.350	1.350	1.350		
/GDP	0.068	0.077	0.086	0.096	0.108	0.121		
real	14667	18000	22089	27108	33267	40825		
YOY	1.129	1.227	1.227	1.227	1.227	1.227		
IP, nominal	37415	48840	56556	66620	73544	78120		
YOY	1.424	1.305	1.158	1.178	1.104	1.062		
/GDP	0.175	0.189	0.182	0.178	0.163	0.144		
real	37415	44400	46740	50052	50232	48507		
YOY	1.238	1.187	1.053	1.071	1.004	0.966		
FDI	10010	14414	20757	29890	43041	61979	13.4	13-14
YOY	1.520	1.440	1.440	1.440	1.440	1.440		
real	10010	13104	17154	22457	29398	38484		
YOY	1.322	1.309	1.309	1.309	1.309	1.309		
Others	27405	34426	35799	36730	30503	16141		
YOY	1.392	1.256	1.040	1.026	0.830	0.529		
real	27405	31296	29586	27596	20834	10022		
YOY	1.211	1.142	0.945	0.933	0.755	0.481		

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
YG	52748	63269	76208	91792	110564	133174		
/GNP	0.251	0.250	0.250	0.250	0.250	0.250		
CG	34201	43582	53618	66874	84683	108992		
/GDP	0.160	0.169	0.172	0.178	0.188	0.201		
SG	18548	19687	22590	24918	25880	24182		
/YG	0.352	0.311	0.296	0.271	0.234	0.182		
BS	3880	-112	-4138	-11163	-22826	-41568		
/GDP	0.018	0.000	-0.013	-0.030	-0.051	-0.076		
ΣBS/GDP		0.000	-0.014	-0.041	-0.085	-0.147		
YP	157361	189808	228623	275377	331692	399523		
/GNP	0.749	0.750	0.750	0.750	0.750	0.750		
SP	15736	18981	22862	27538	33169	39952		
/YP	0.100	0.100	0.100	0.100	0.100	0.100		
SD	34284	38668	45452	52456	59050	64134		
/GDP	0.160	0.150	0.146	0.140	0.131	0.118		15%
SF	17798	29972	37831	50245	63201	79736	260985	
/GDP	0.083	0.116	0.122	0.134	0.140	0.147		15%
$	1.62	2.62	3.18	4.06	4.91	5.96	20.7	20-22
FDI	0.91	1.26	1.74	2.42	3.34	4.63	13.4	13-14
ODA and Loans	0.71	1.36	1.44	1.65	1.57	1.33	7.3	7-8
Σ(ODA+Loans)/GDP		0.060	0.105	0.141	0.162	0.167		

	1995	1996	1997	1998	1999	2000	1996-2000	Plan
Exports, nominal	76442	95400	119059	148585	185434	231422		
YOY	1.426	1.248	1.248	1.248	1.248	1.248		
$, nominal	6.9	8.3	10.0	12.0	14.4	17.3	nominal $ basis	
YOY	1.426	1.200	1.200	1.200	1.200	1.200		24-28%
real	76442	86727	98396	111634	126654	143695		
YOY	1.240	1.135	1.135	1.135	1.135	1.135		
/GDP	0.357	0.369	0.383	0.397	0.411	0.426		3.0 times
Imports, nominal	88591	106876	128935	155548	187653	226384		
YOY	1.420	1.206	1.206	1.206	1.206	1.206		
$, nominal	8.1	9.3	10.8	12.6	14.6	16.9	nominal $ basis	
YOY	1.420	1.160	1.160	1.160	1.160	1.160		22-24%
real	88591	97160	106558	116865	128169	140567		
YOY	1.235	1.097	1.097	1.097	1.097	1.097		
/GDP	0.413	0.414	0.415	0.415	0.416	0.416		2.8 times
Trade Balance, dong	-12149	-11477	-9877	-6962	-2218	5038		
/GDP	-0.057	-0.044	-0.032	-0.019	-0.005	0.009		
Σ(Trade Balance)/GDP		-0.044	-0.069	-0.076	-0.068	-0.047		
$ basis	-1.10	-1.00	-0.83	-0.56	-0.17	0.38		

Non-monetary model

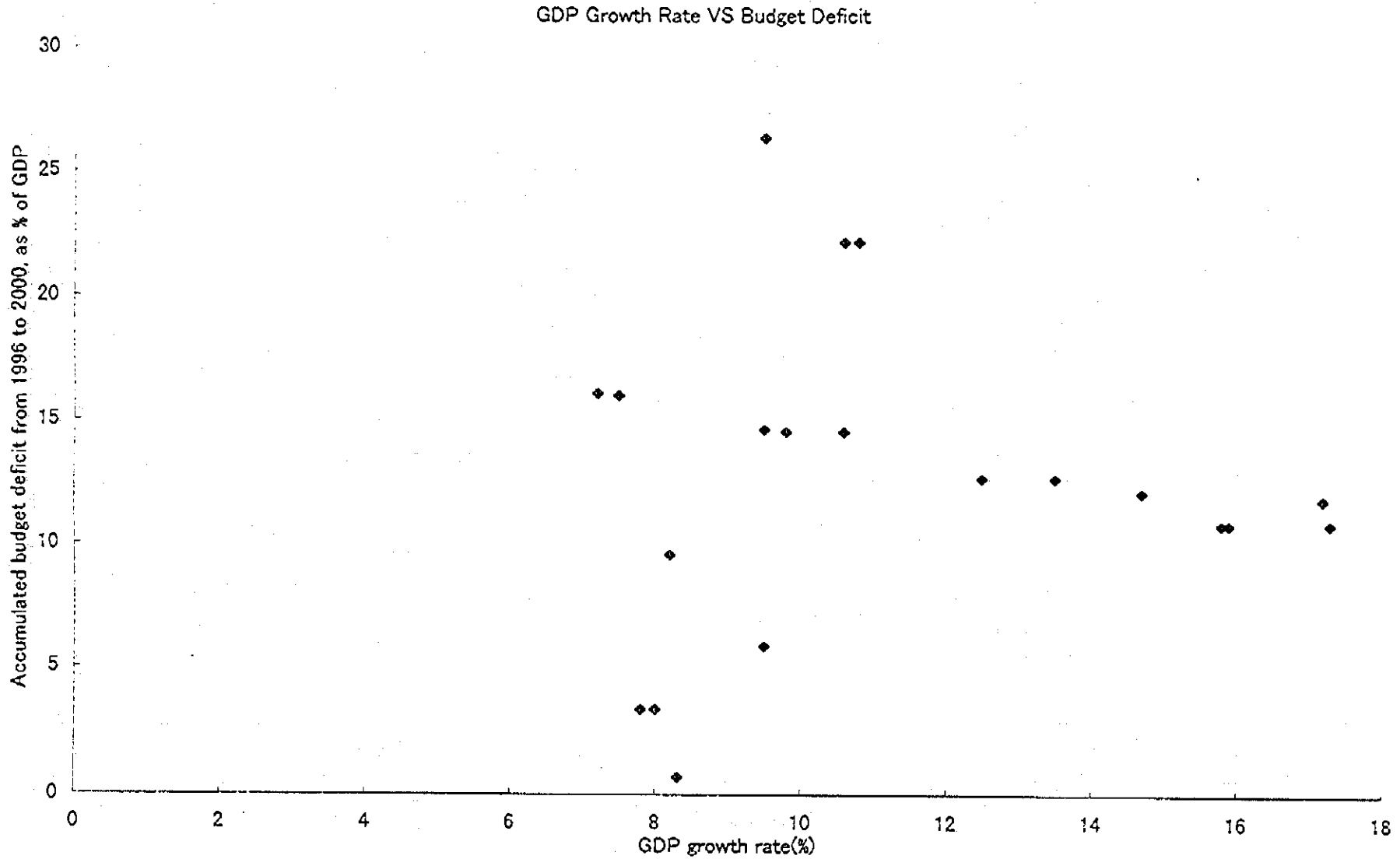
	GDP *1	Inflation *2	Budget Deficit *3	ODA and Loans *4	Comments
Plan	9.5	10.0	14.7	16.7	
IP-1	10.6	10.0	14.6	19.4	real IP growth rate: 9.5%
IP-2	13.5	10.0	12.7	37.3	real IP growth rate: 20%
IP-3	17.2	10.0	10.8	56.1	real IP growth rate: 30%
IP-4	17.3	10.0	10.8	56.6	real Others growth rate: 30%
IP-5	7.2	10.0	16.1	18.2	real FDI growth rate: 10%
IG-1	10.8	10.0	22.2	23.7	real IG growth rate: 30%
IG-2	7.8	10.0	3.4	6.2	real IG growth rate: 9.5%
SP	9.5	10.0	14.7	22.0	private saving rate: 8%
CG-1	9.5	10.0	5.9	8.0	share to GDP remains at 16%
CG-2	9.5	10.0	26.4	28.4	share to GDP arises to 25%
IPO, SP-1	14.7	10.0	12.1	34.7	real Others growth rate: 20%, SP/YP increases gradually to 0.15
IPO, SP-2	14.7	10.0	12.1	26.2	real Others growth rate: 20%, SP/YP increases gradually to 0.20
IPO, SP-3	14.7	10.0	12.1	9.2	real Others growth rate: 20%, SP/YP increases gradually to 0.30
IPO, SP-4	17.8	10.0	10.8	43.2	real Others growth rate: 30%, SP/YP increases gradually to 0.15
IPO, SP-5	17.8	10.0	10.8	39.9	real Others growth rate: 30%, SP/YP increases gradually to 0.20
IPO, SP-6	17.8	10.0	10.8	23.3	real Others growth rate: 30%, SP/YP increases gradually to 0.30

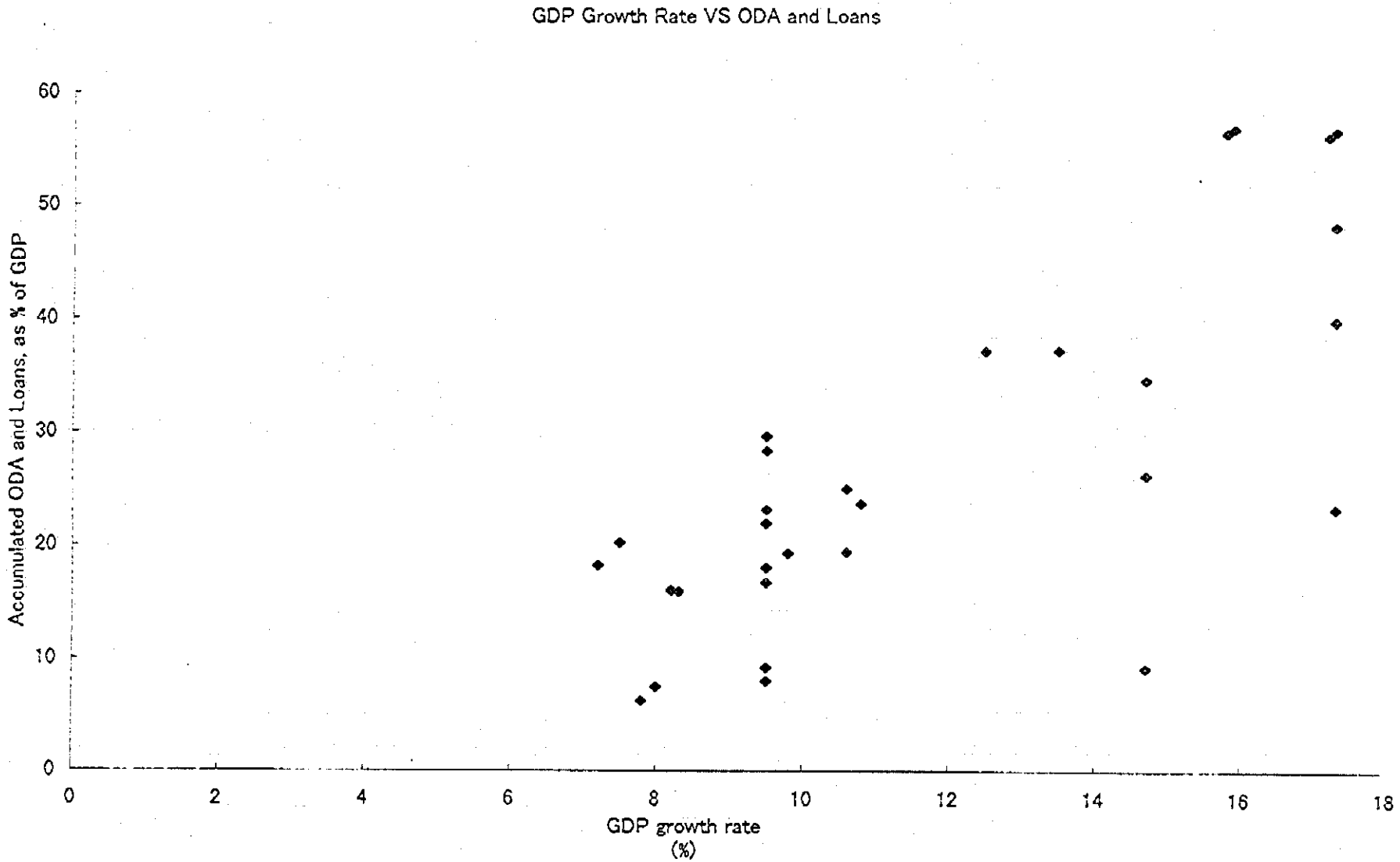
*1 GDP growth rate in 2000
*2 inflation rate in 2000
*3 accumulated budget deficits from 1996 to 2000, as % of nominal GDP
*4 Accumulated ODA and loans from 1996 to 2000, as % of nominal GDP

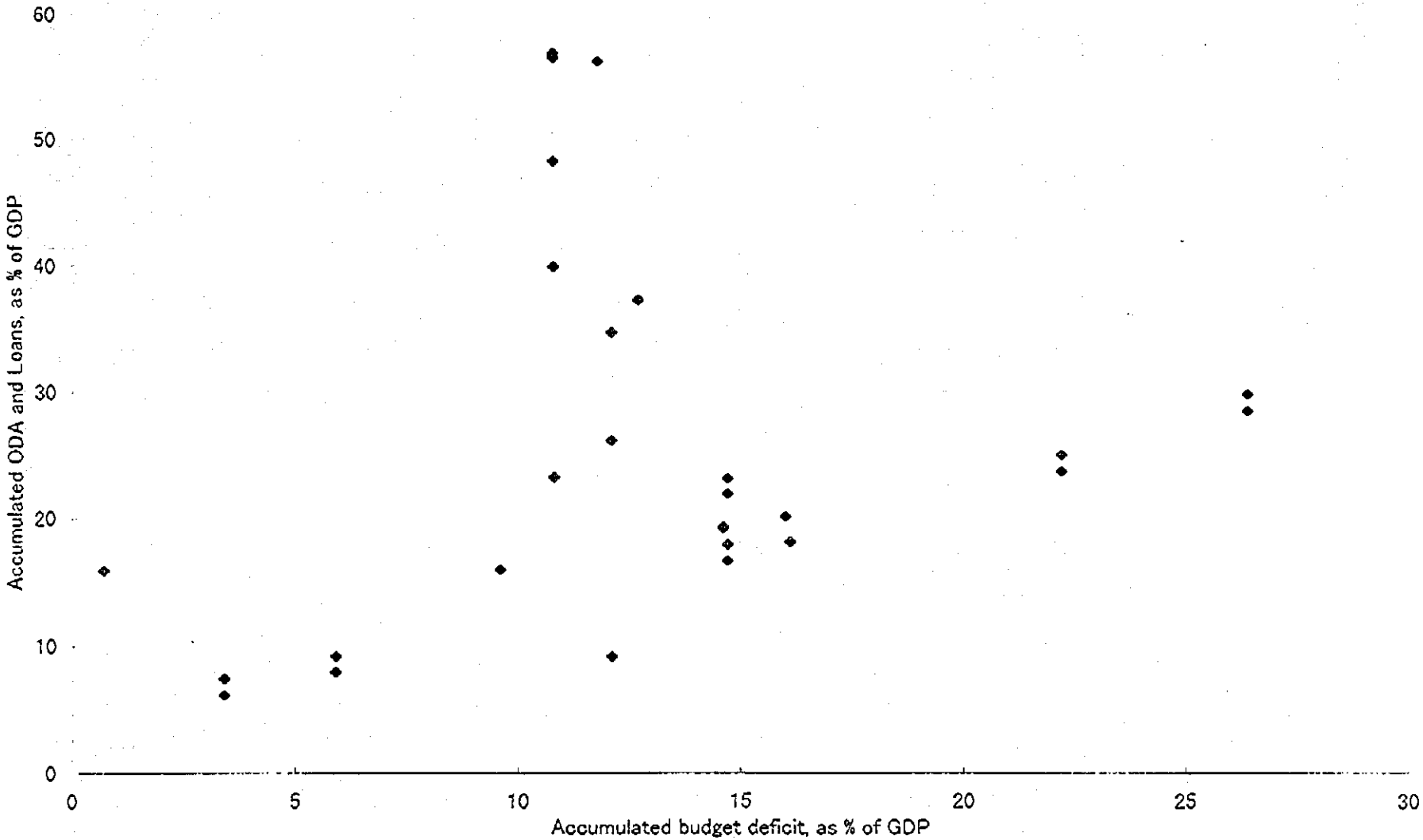
Non-monetary model, ICOR gradually increases from 3.0 to 3.5

	GDP *1	Inflation *2	Budget Deficit *3	ODA and Loans *4	Comments
ICOR	9.5	10.0	14.7	18.0	
IP-1	9.8	10.0	14.6	19.3	real IP growth rate: 9.5%
IP-2	12.5	10.0	12.7	37.3	real IP growth rate: 20%
IP-3	15.8	10.0	10.8	56.4	real IP growth rate: 30%
IP-4	15.9	10.0	10.8	56.8	real Others growth rate: 30%
IP-5	7.5	10.0	16.0	20.2	real FDI growth rate: 10%
IG-1	10.6	10.0	22.2	25.0	real IG growth rate: 30%
IG-2	8.0	10.0	3.4	7.5	real IG growth rate: 9.5%
SP	9.5	10.0	14.7	23.2	private saving rate: 8%
CG-1	9.5	10.0	5.9	9.2	share to GDP remains at 16%
CG-2	9.5	10.0	26.4	29.7	share to GDP arises to 25%

*1 GDP growth rate in 2000
*2 inflation rate in 2000
*3 accumulated budget deficits from 1996 to 2000, as % of nominal GDP
*4 Accumulated ODA and loans from 1996 to 2000, as % of nominal GDP

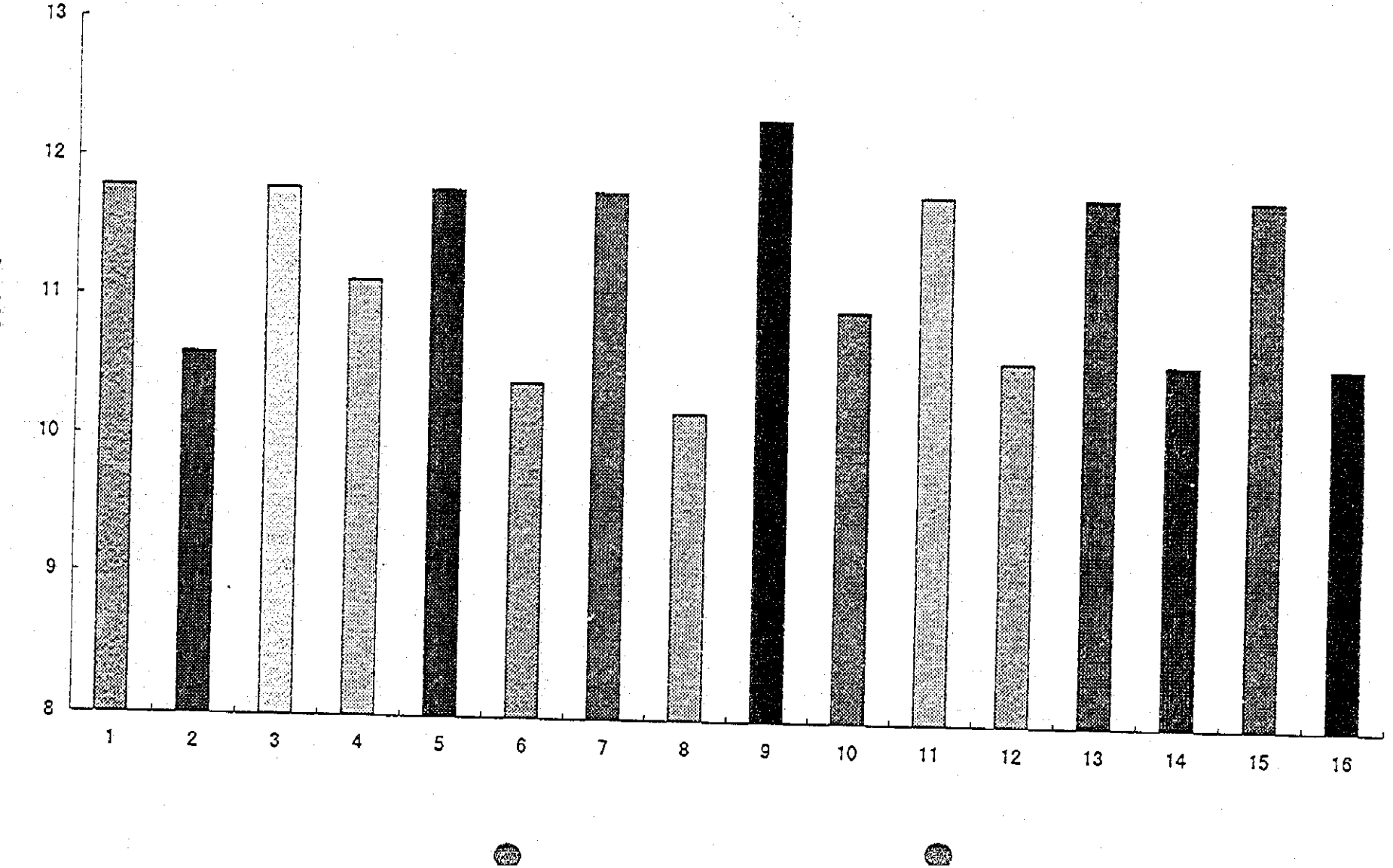

GDP Growth Rate VS Budget Deficit
Accumulated budget deficit from 1996 to 2000, as % of GDP
GDP growth rate(%)
0
5
10
15
20
25
30
0
2
4
6
8
10
12
14
16
18

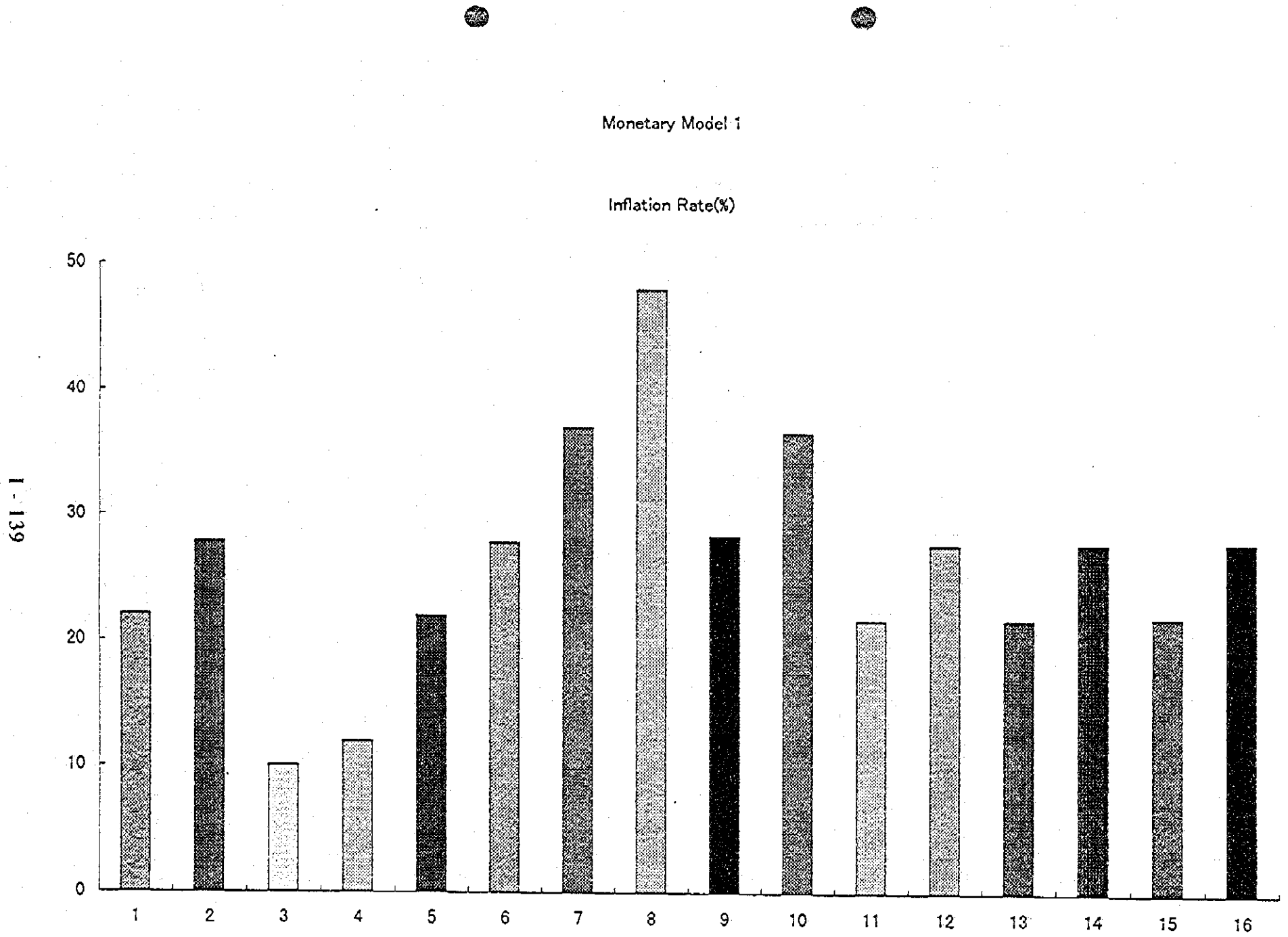

GDP Growth Rate VS ODA and Loans
Accumulated ODA and Loans, as % of GDP
60
50
40
30
20
10
0
0
2
4
6
8
10
12
14
16
18
GDP growth rate
(%)


Budget Deficits VS ODA and Loans
Accumulated ODA and Loans, as % of GDP
60
50
40
30
20
10
0
0
5
10
15
20
25
30
Accumulated budget deficit, as % of GDP

Monetary Model 1

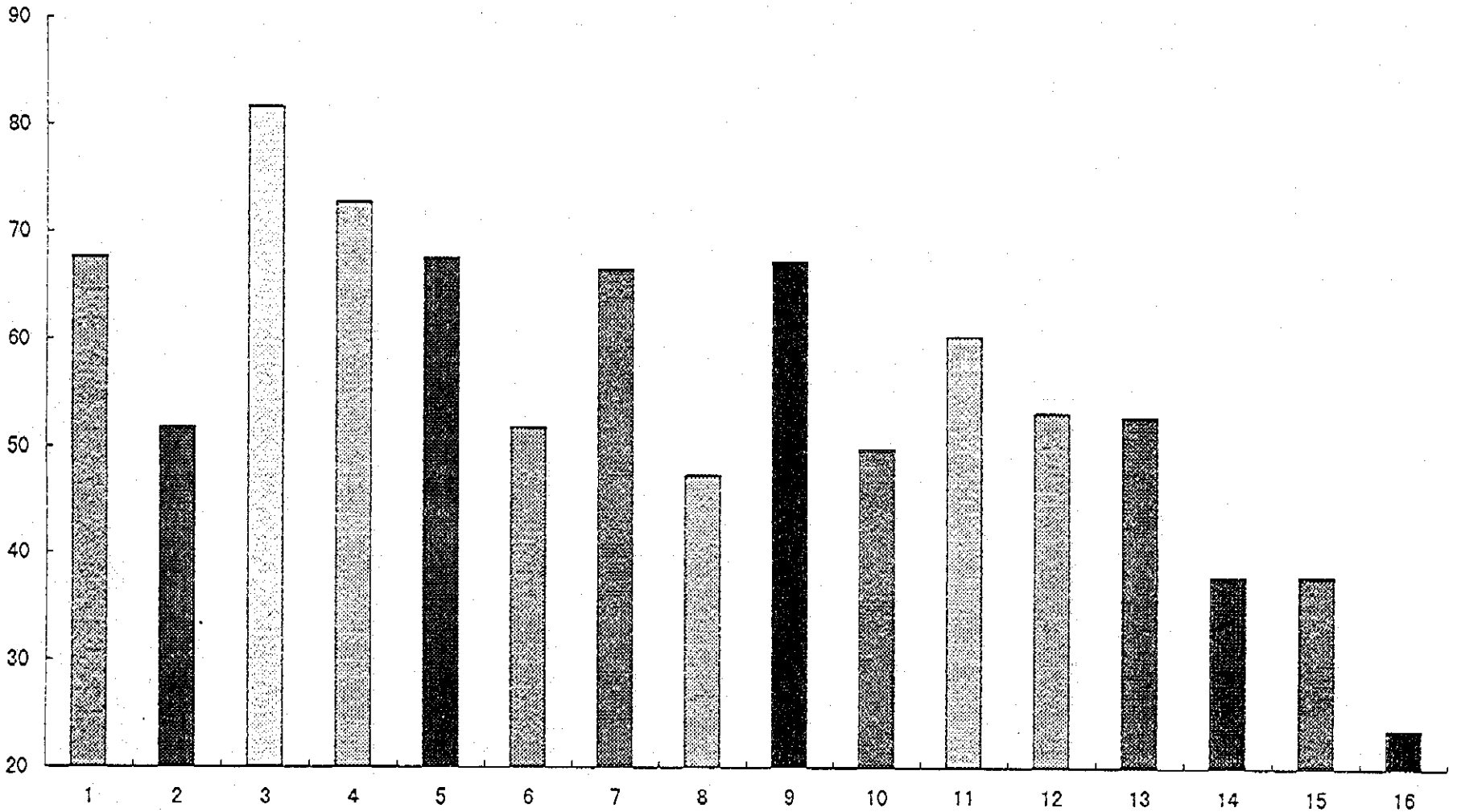
GDP Growth Rate(%)




Monetary Model 1
Inflation Rate(%)
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

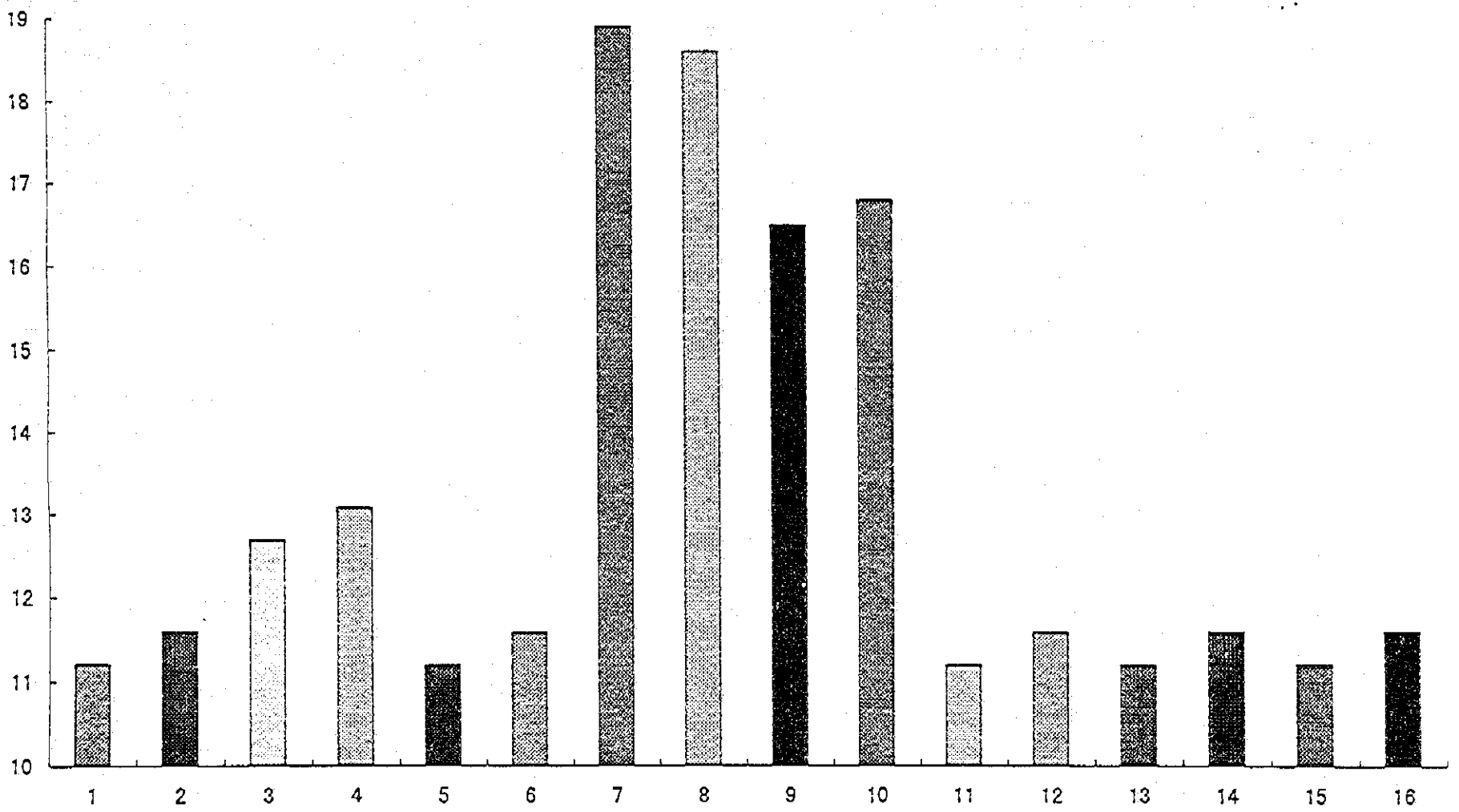
Monetary Model 1

Current Account Balance, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



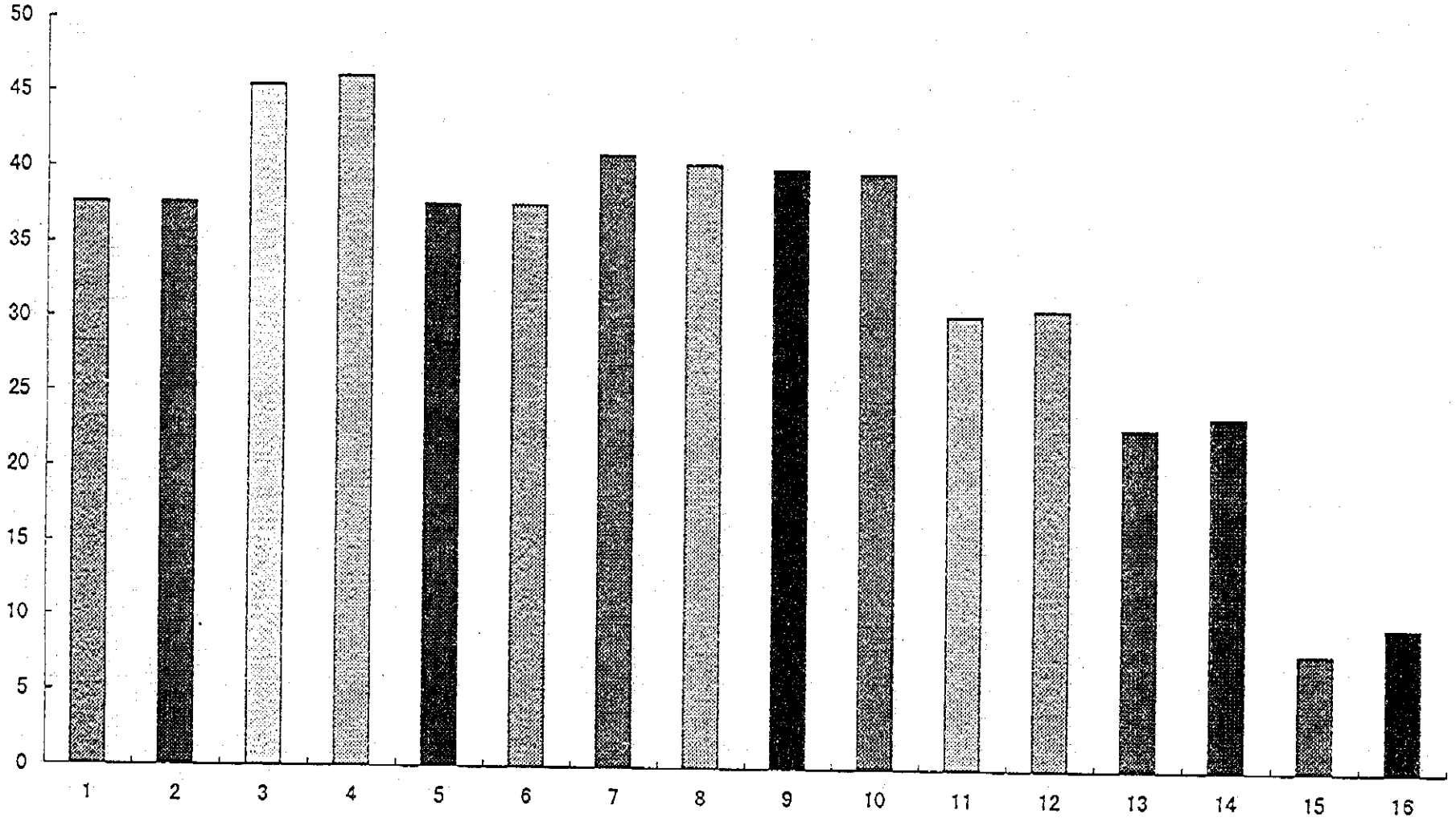
Monetary Model 1

Budget Deficit, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



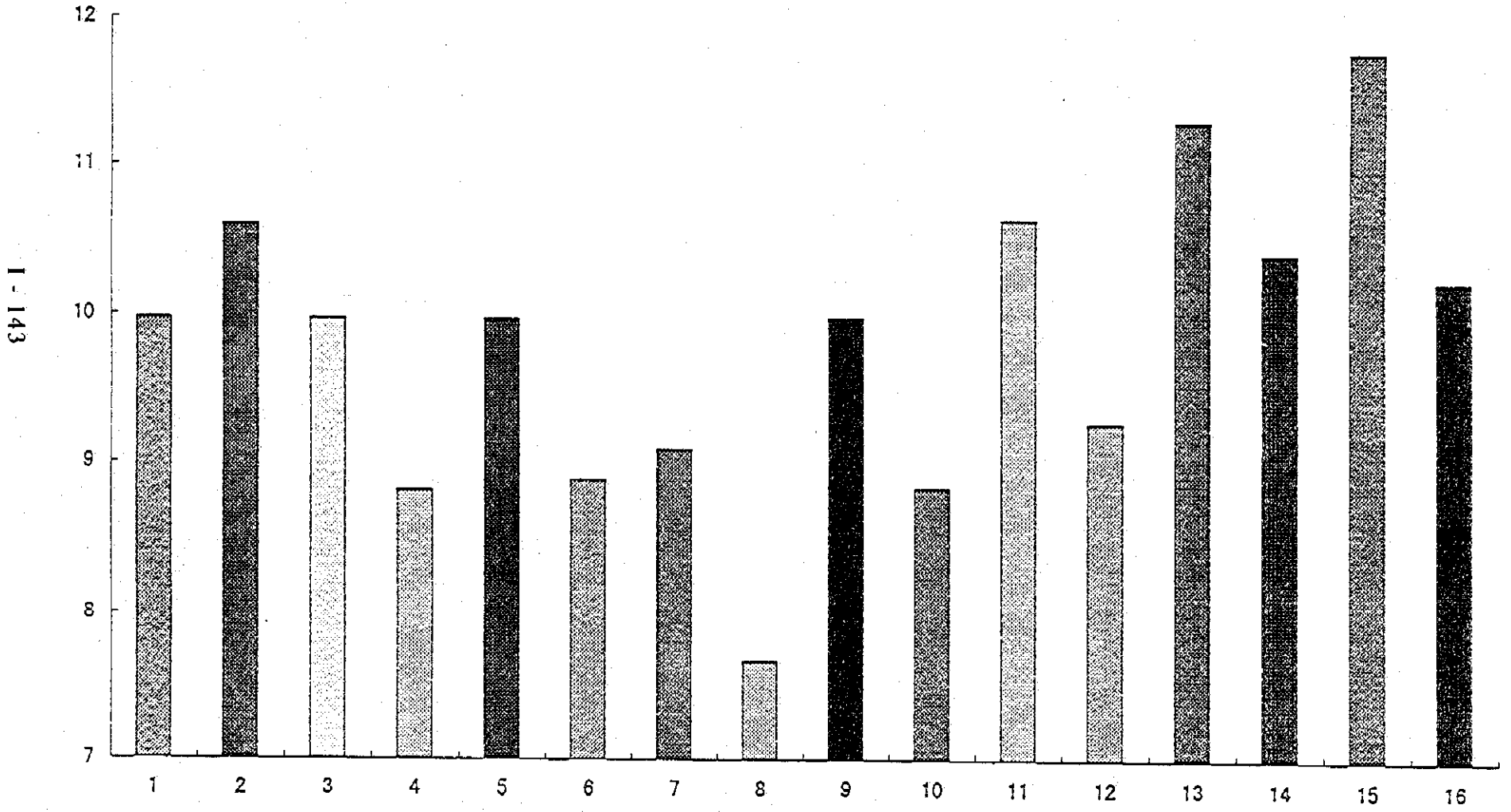
Monetary Model 1

ODA and Loans, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



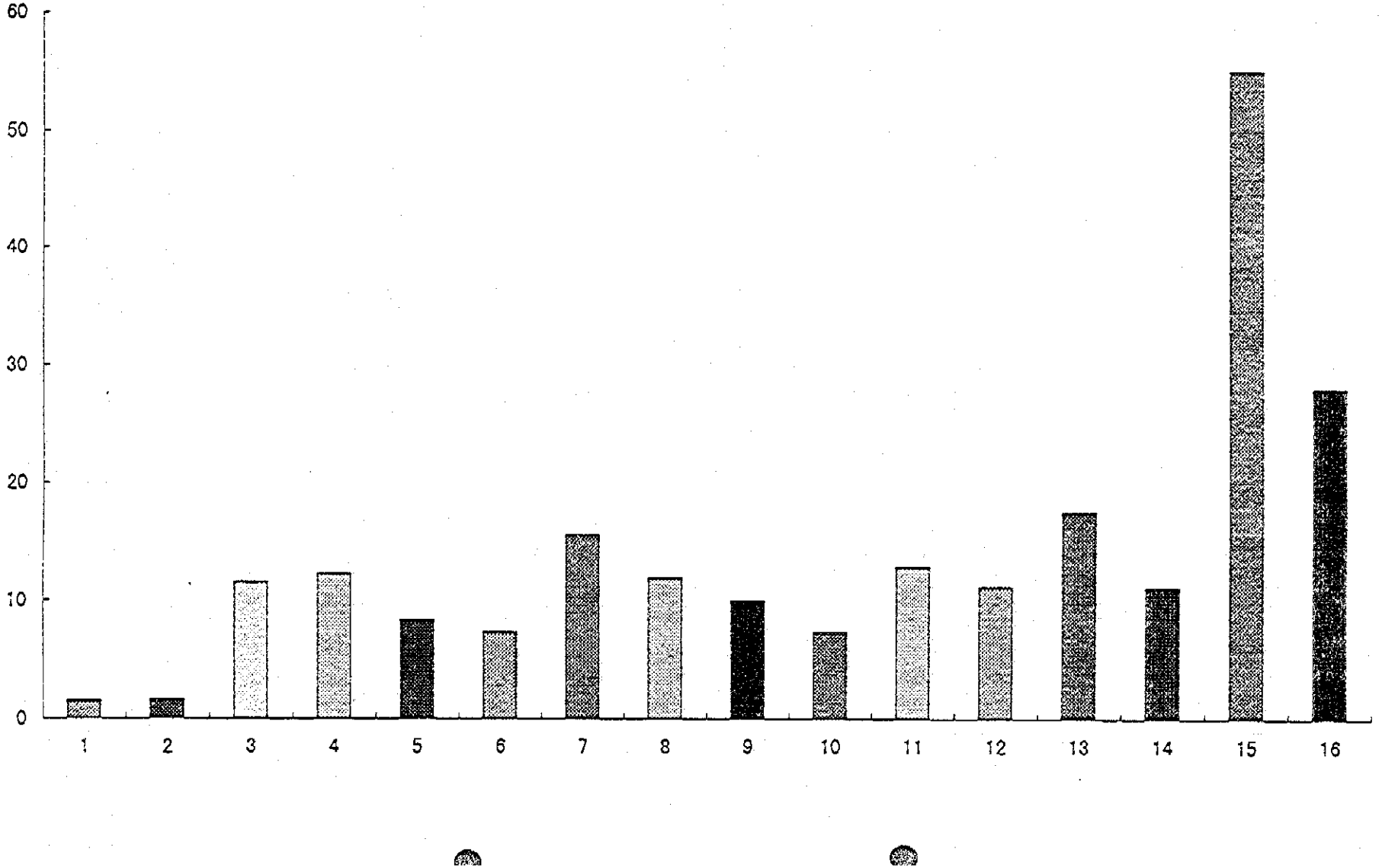
Monetary Model 2

GDP Growth Rate(%)



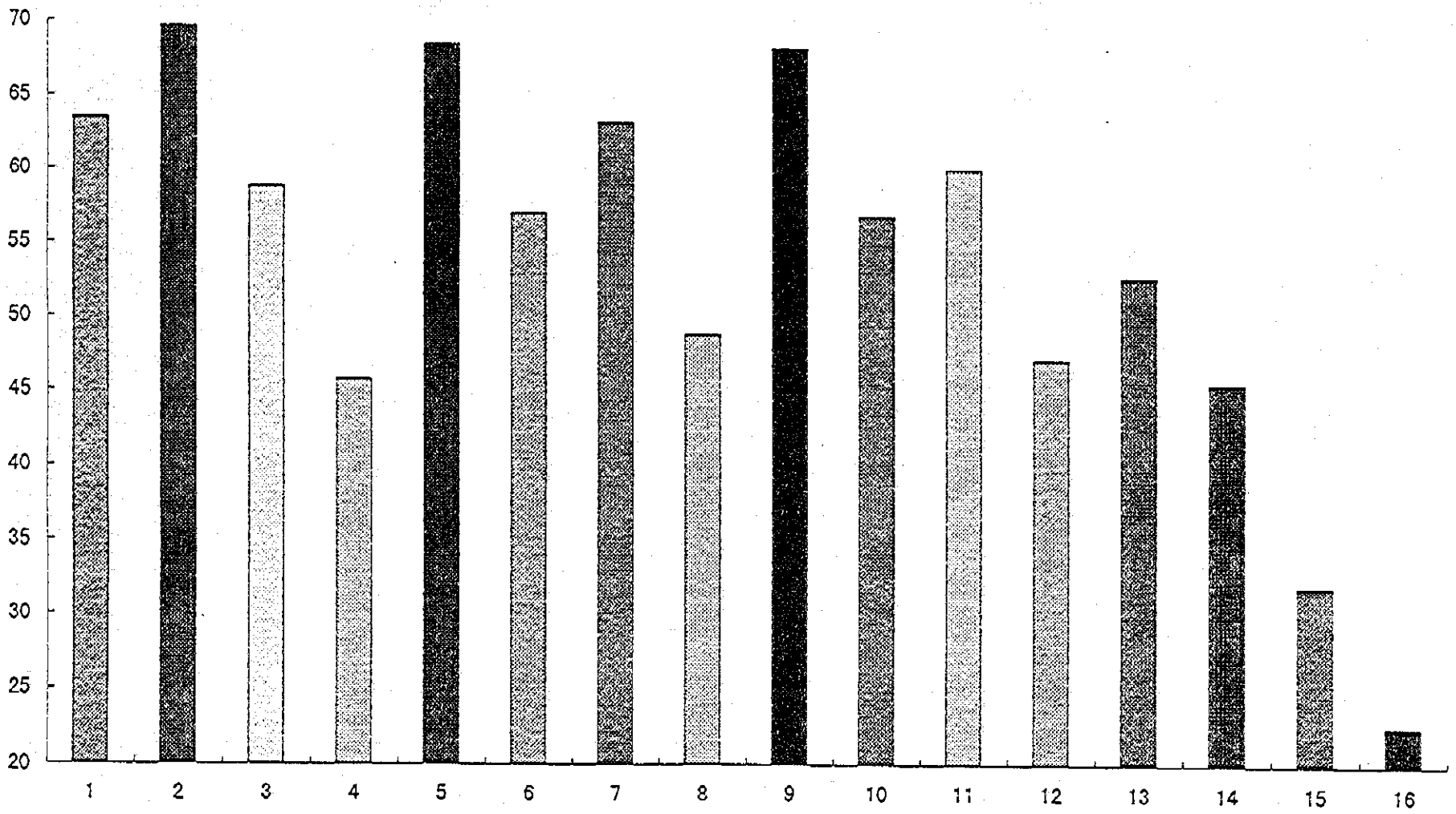
Monetary Model 2

Inflation Rate(%)

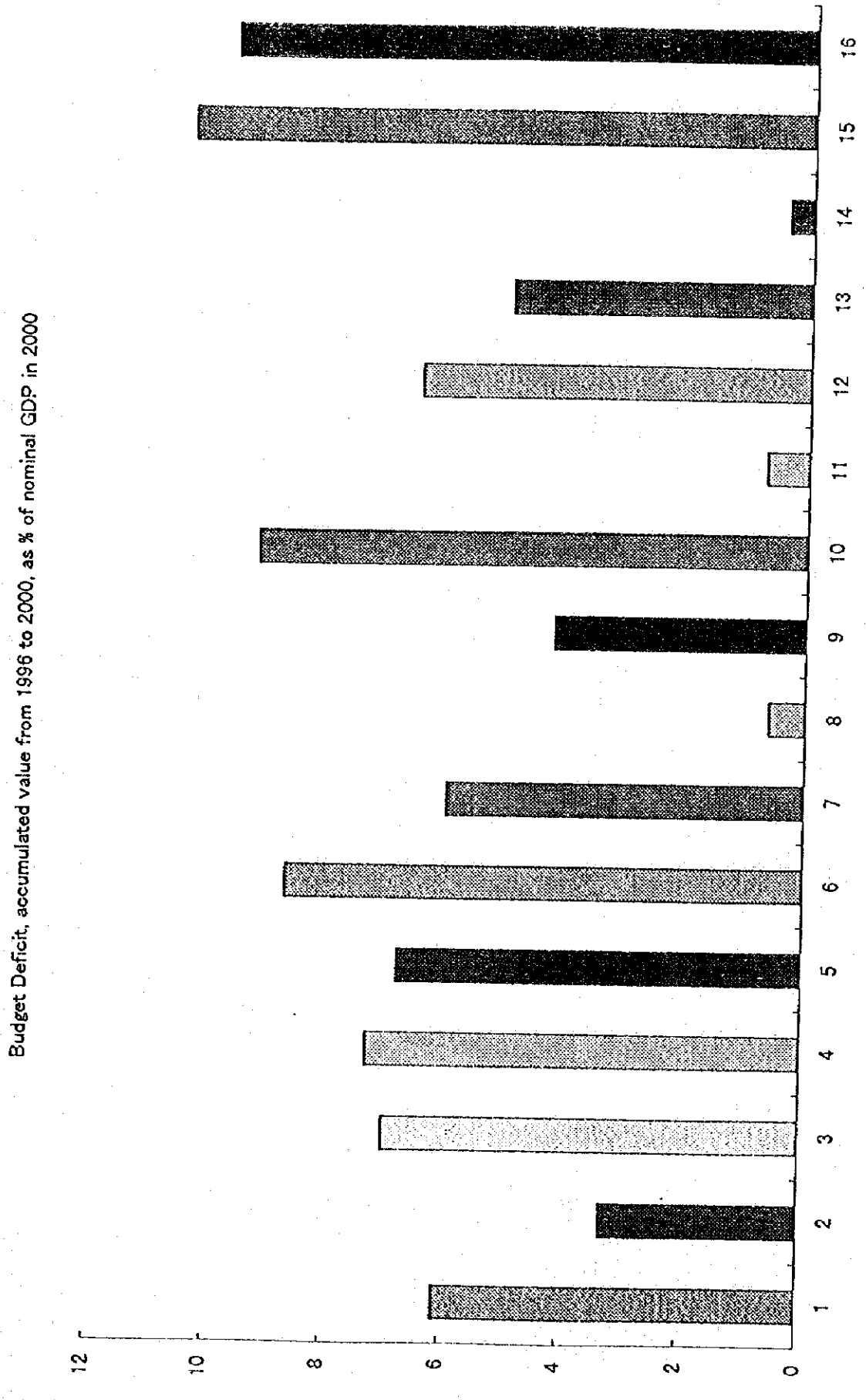


Monetary Model 2

Current Account Balance(Deficit), accumulated value from 1996 to 2000, as % of nominal GDP in 2000

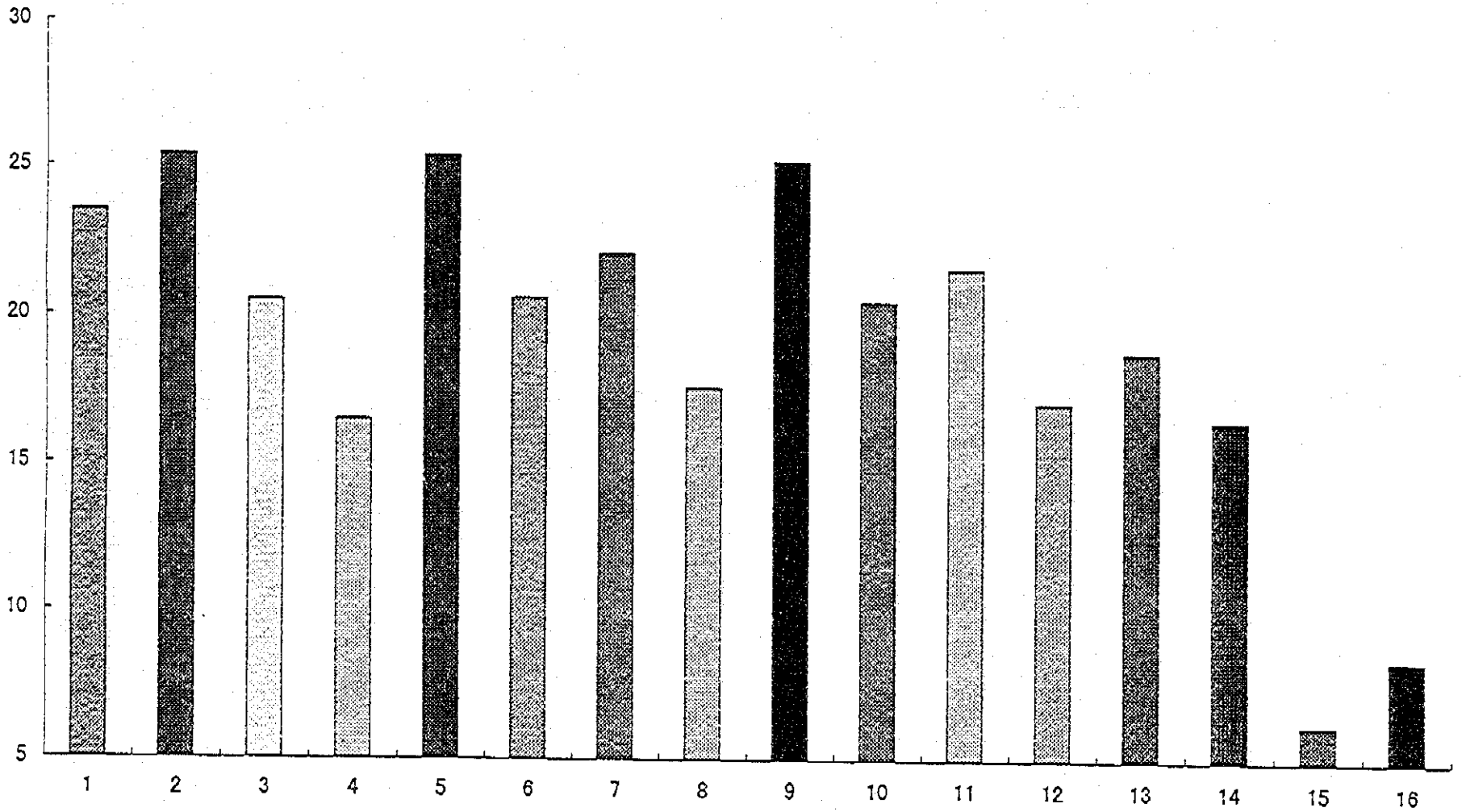


Monetary Model 2

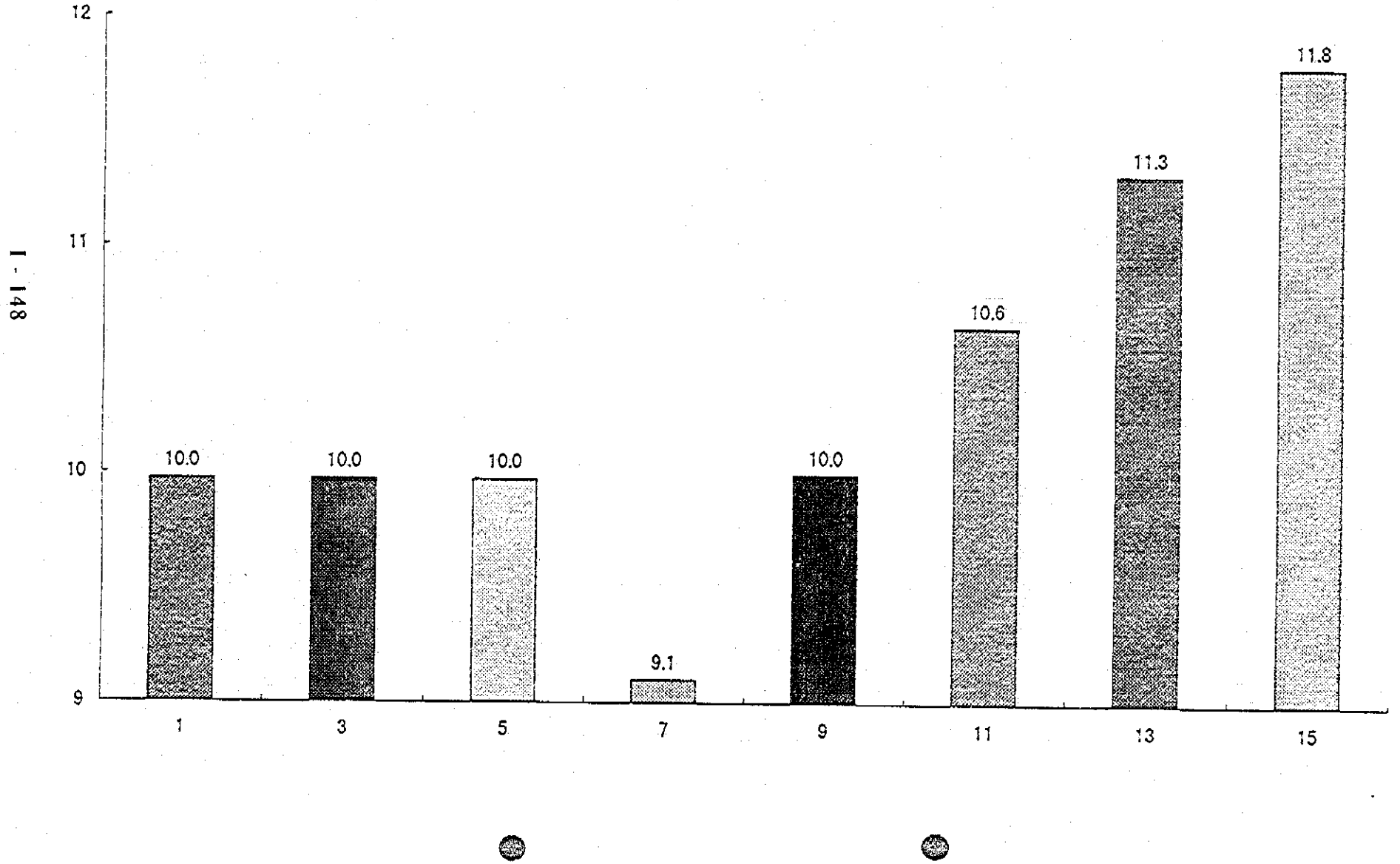


Monetary Model 2

ODA and Loans less Change in FOREX Reserves, accumulated value from 1996 to 2000, as % of nominal GDP in 2000

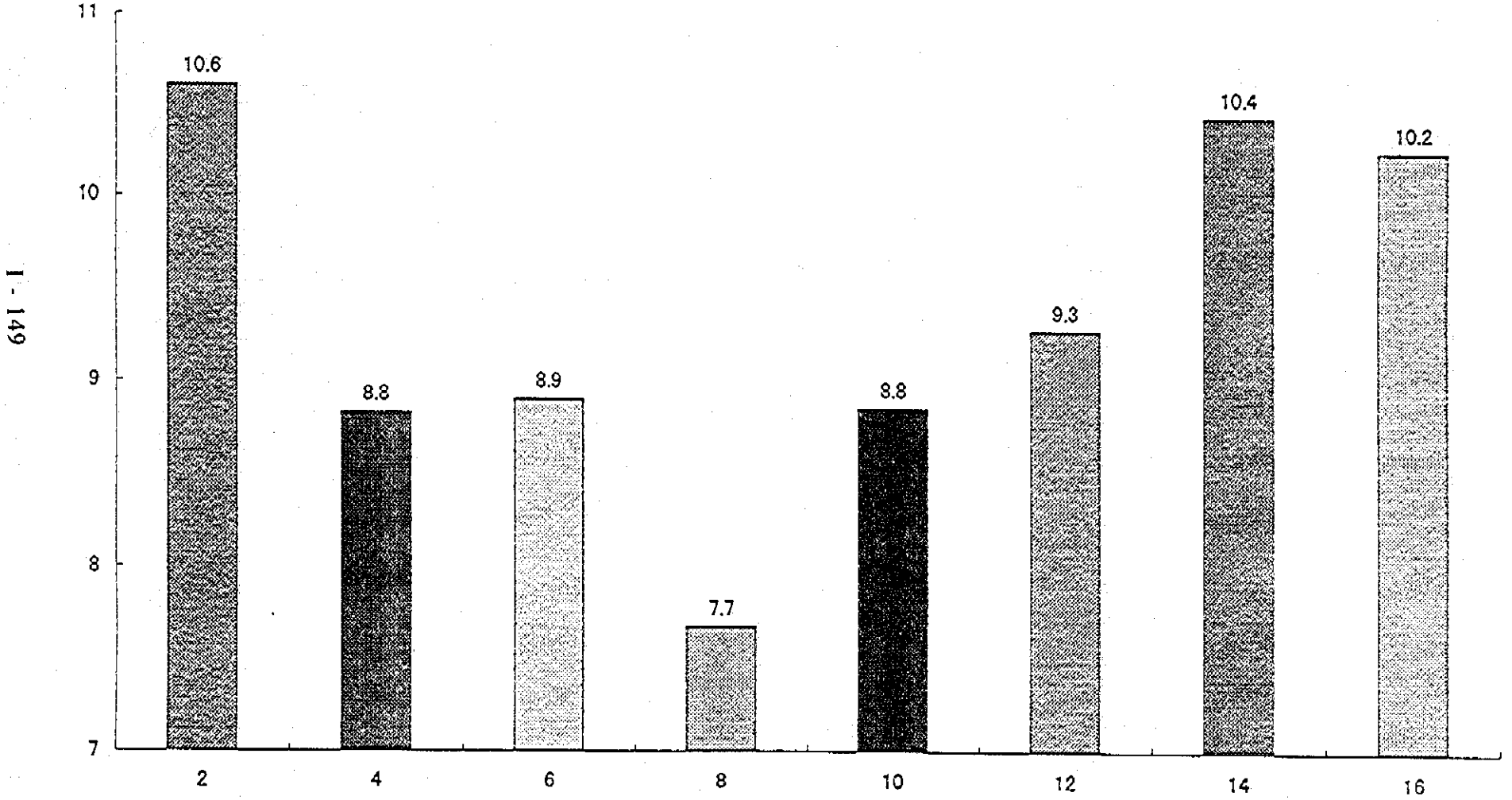


Monetary Model 2

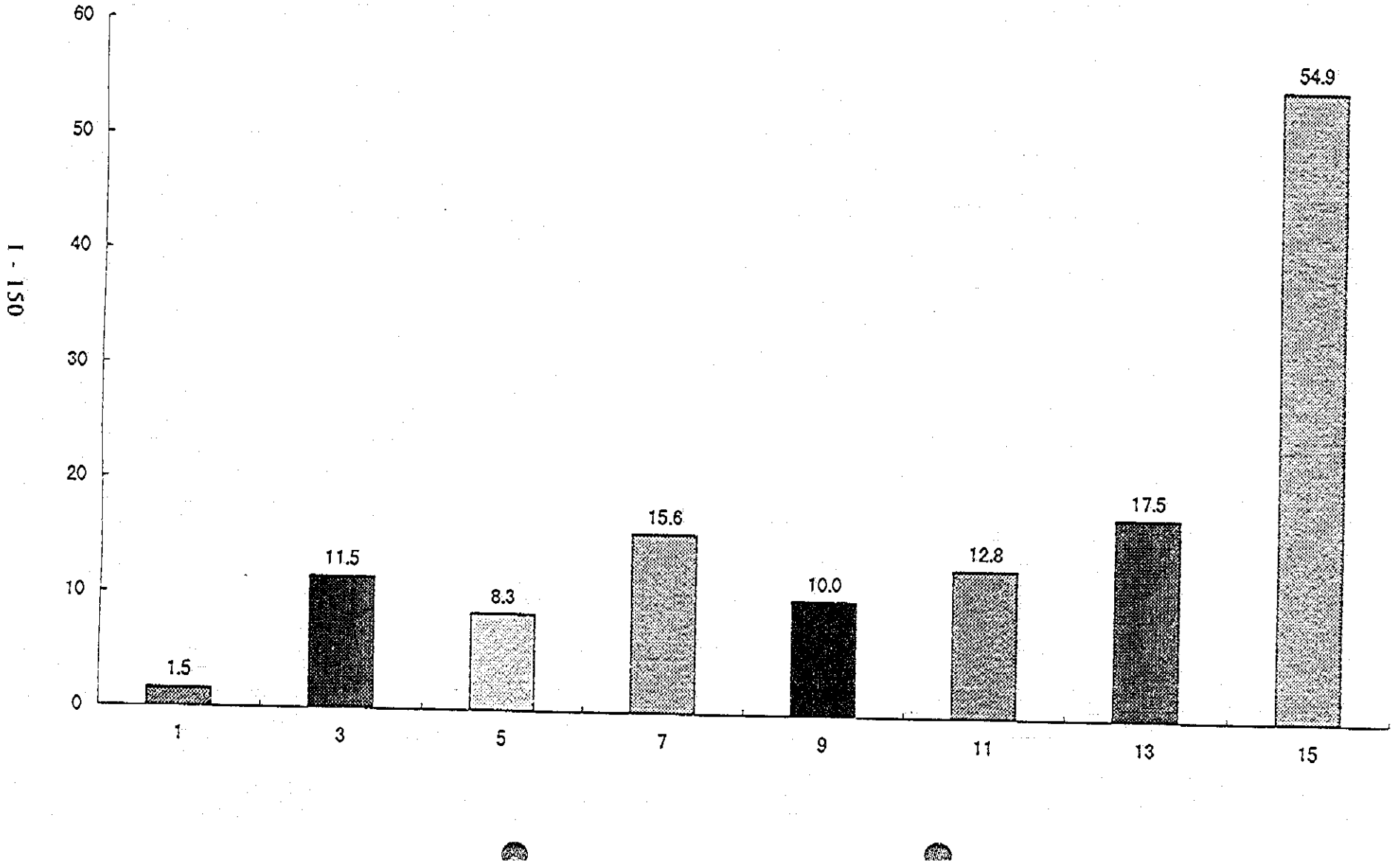


Monetary Model 2

GDP Growth Rate(%)

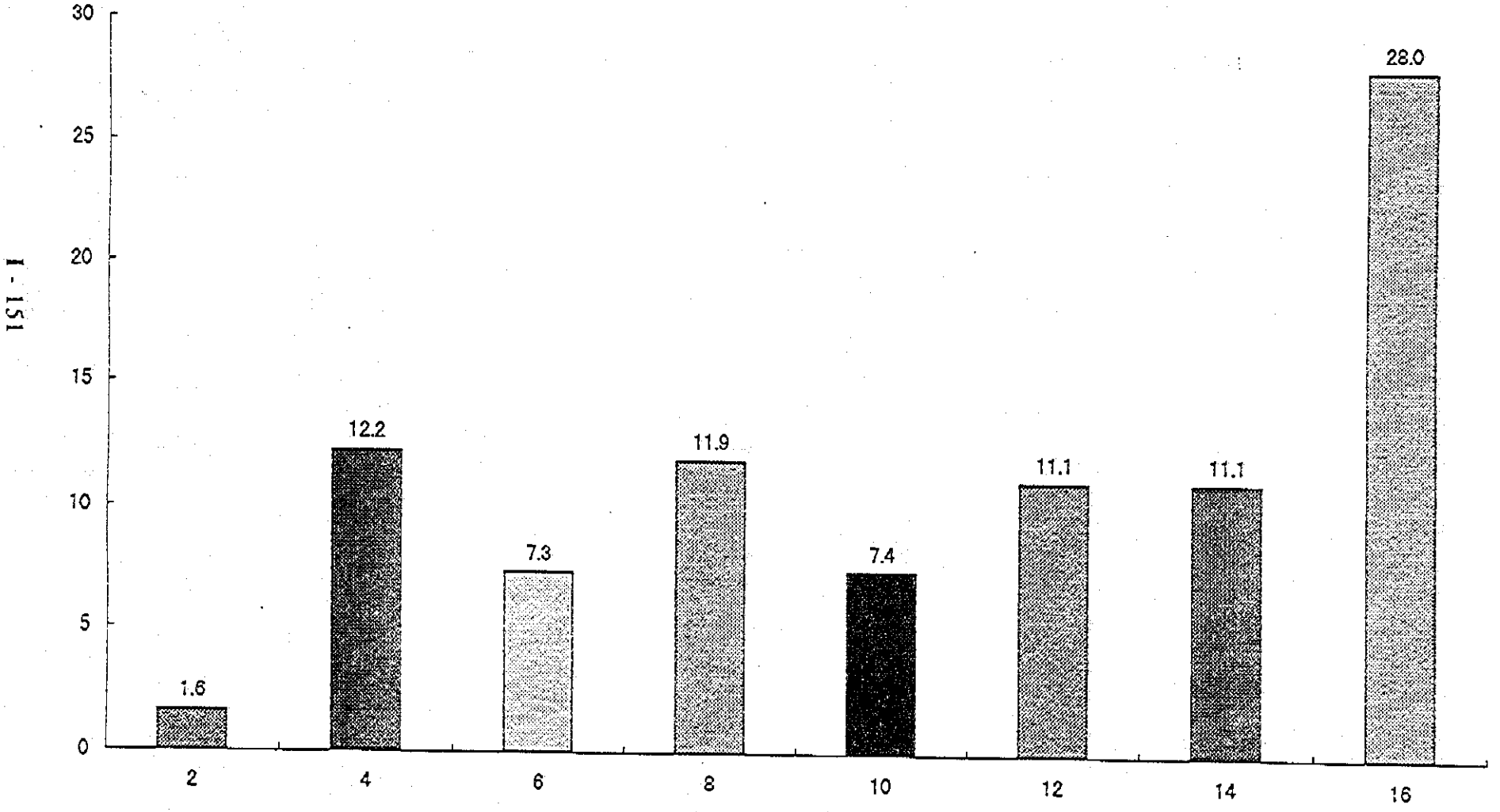


Monetary Model 2



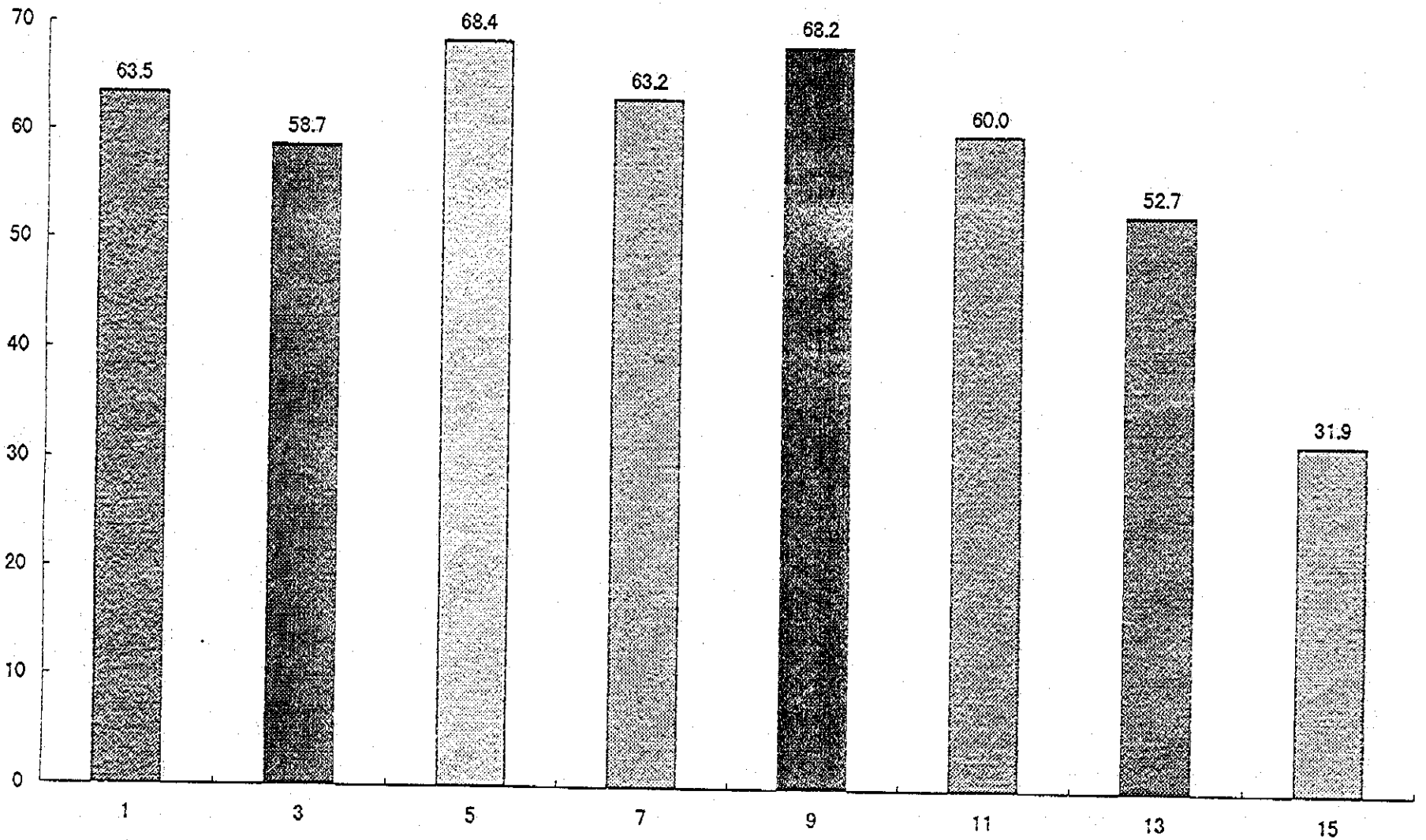
Monetary Model 2

Inflation Rate(%)



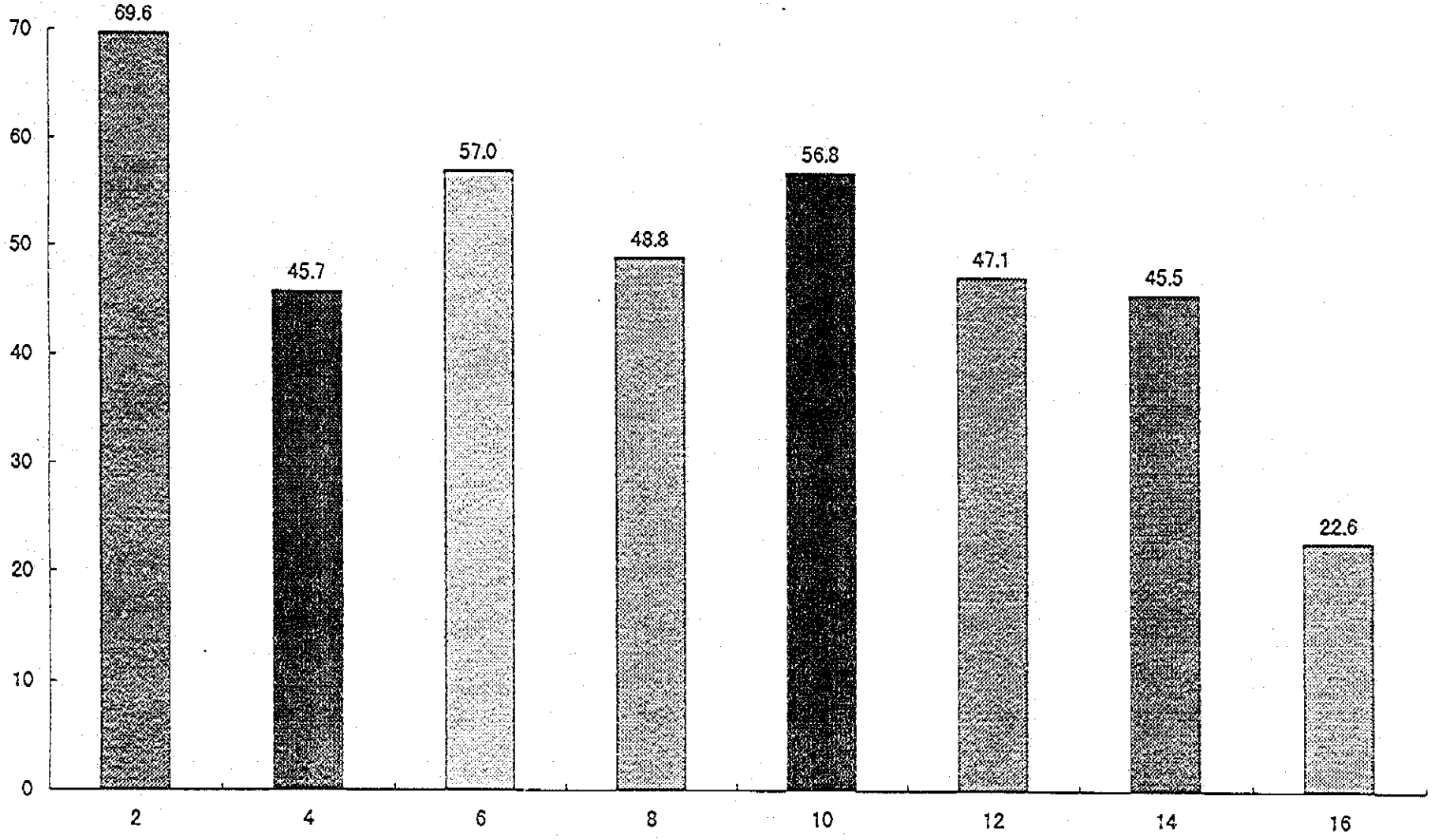
Monetary Model 2

Current Account Balance(Deficit), accumulated value from 1996 to 2000, as % of nominal GDP in 2000



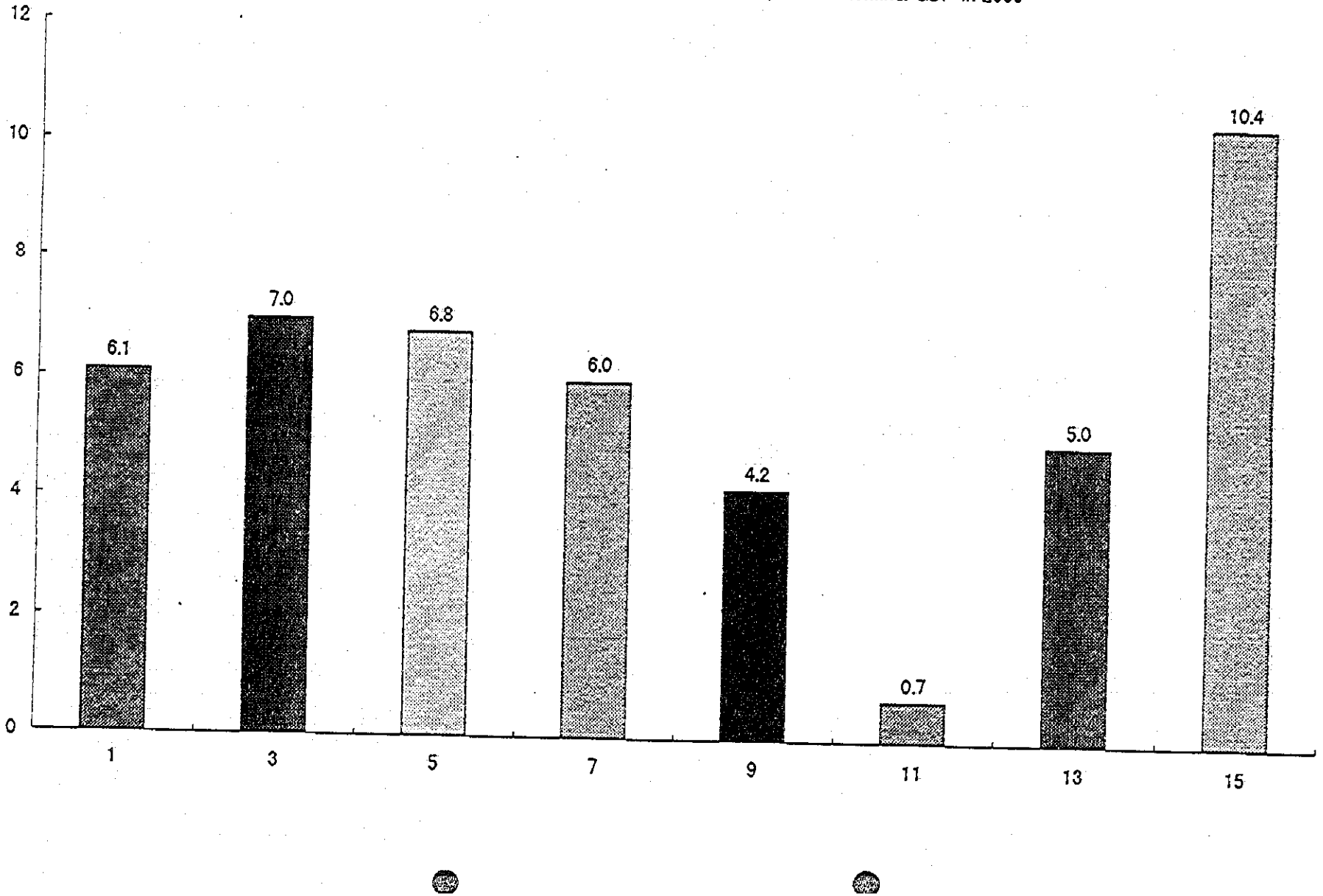
Monetary Model 2

Current Account Balance(Deficit), accumulated value from 1996 to 2000, as % of nominal GDP in 2000



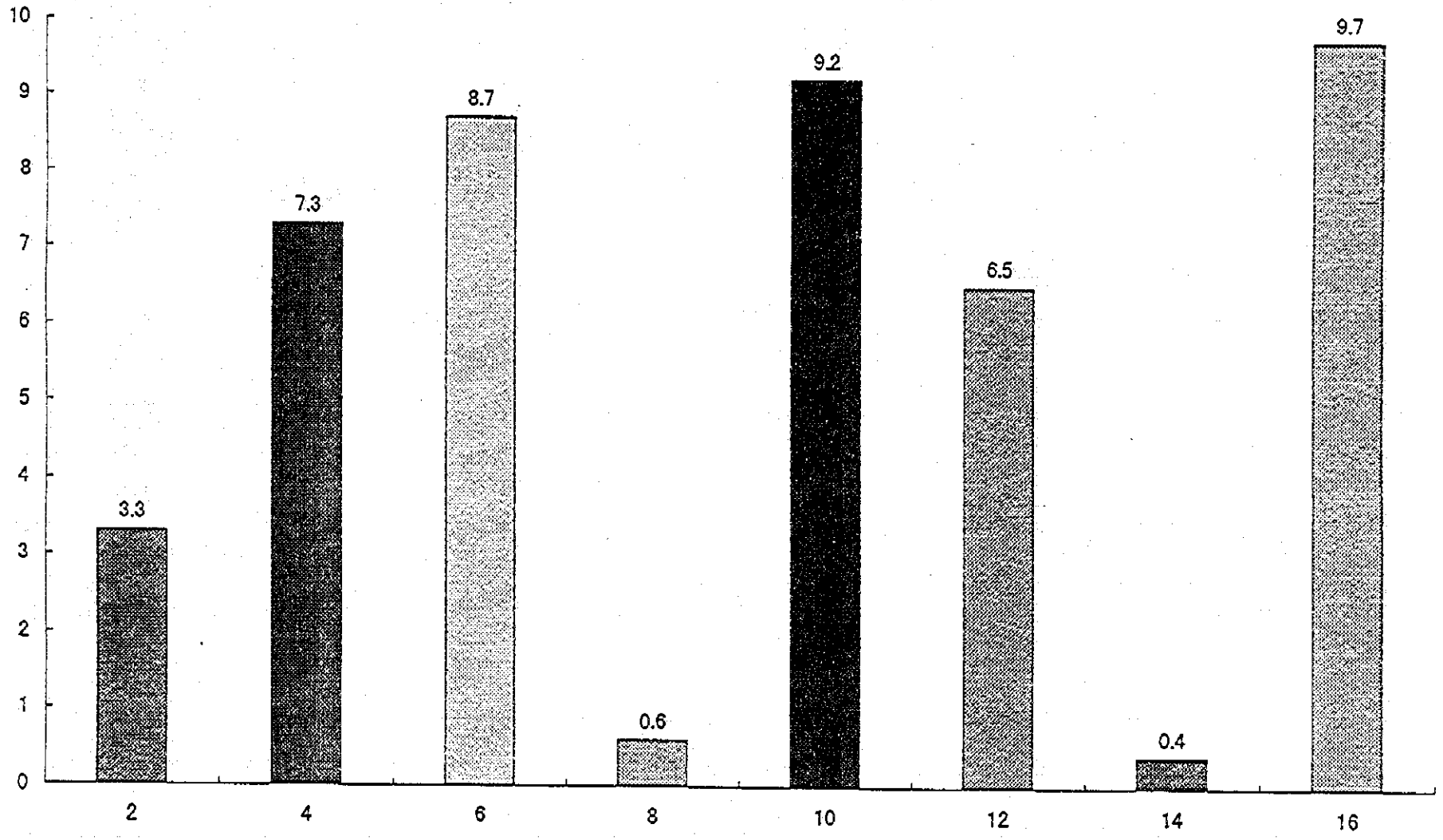
Monetary Model 2

Budget Deficit, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



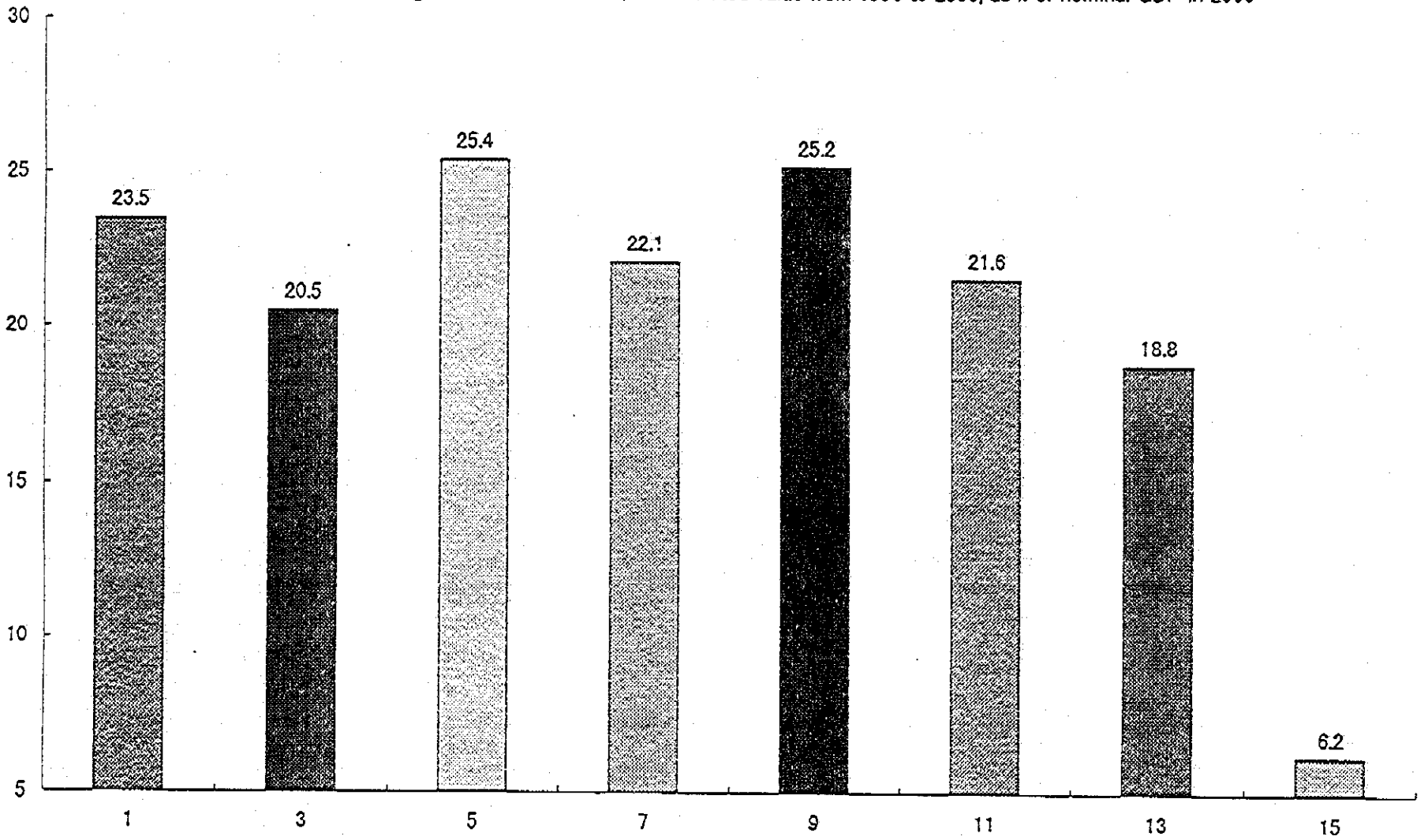
Monetary Model 2

Budget Deficit, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



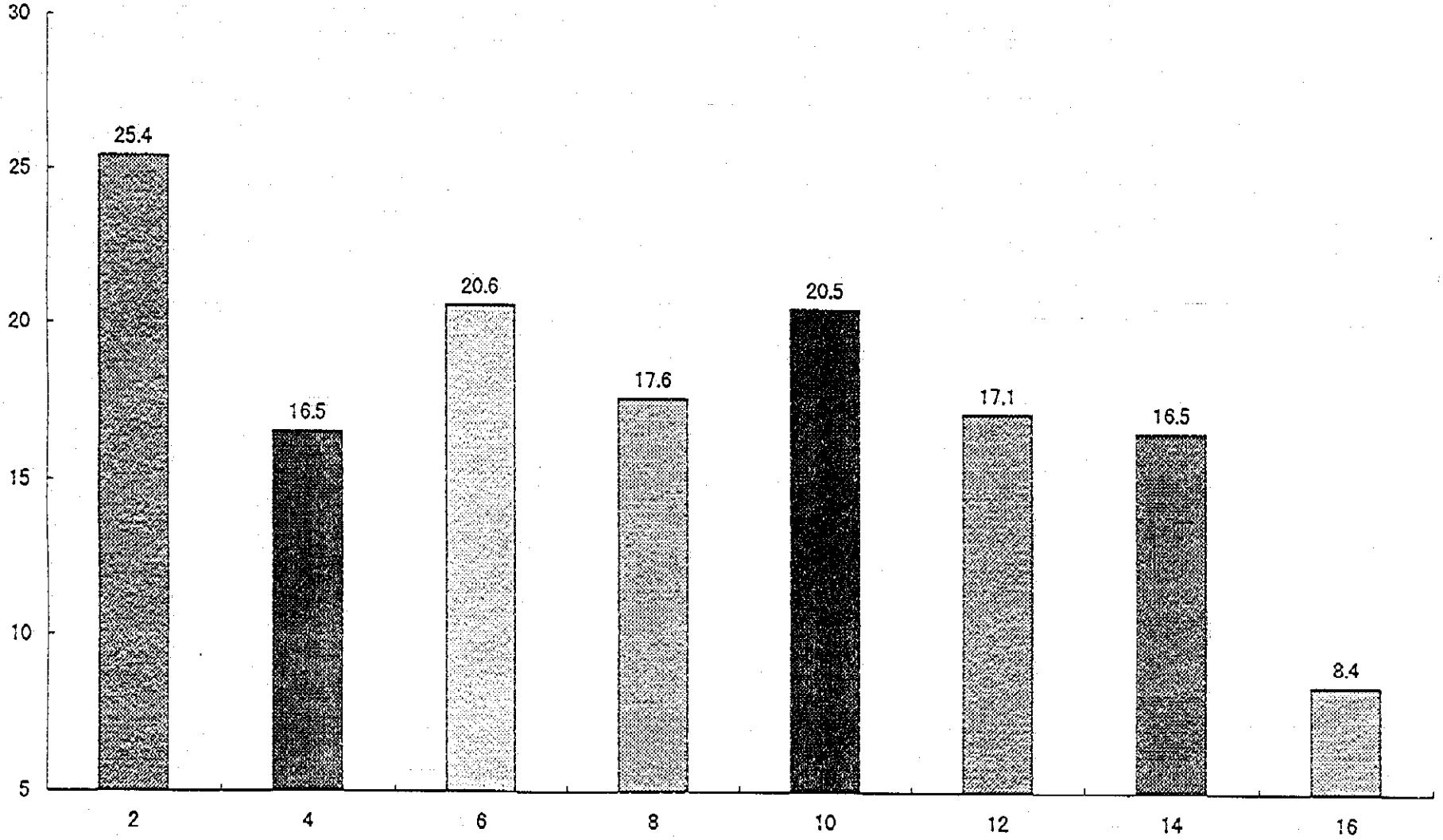
Monetary Model 2

ODA and Loans less Change in FOREX Reserves, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



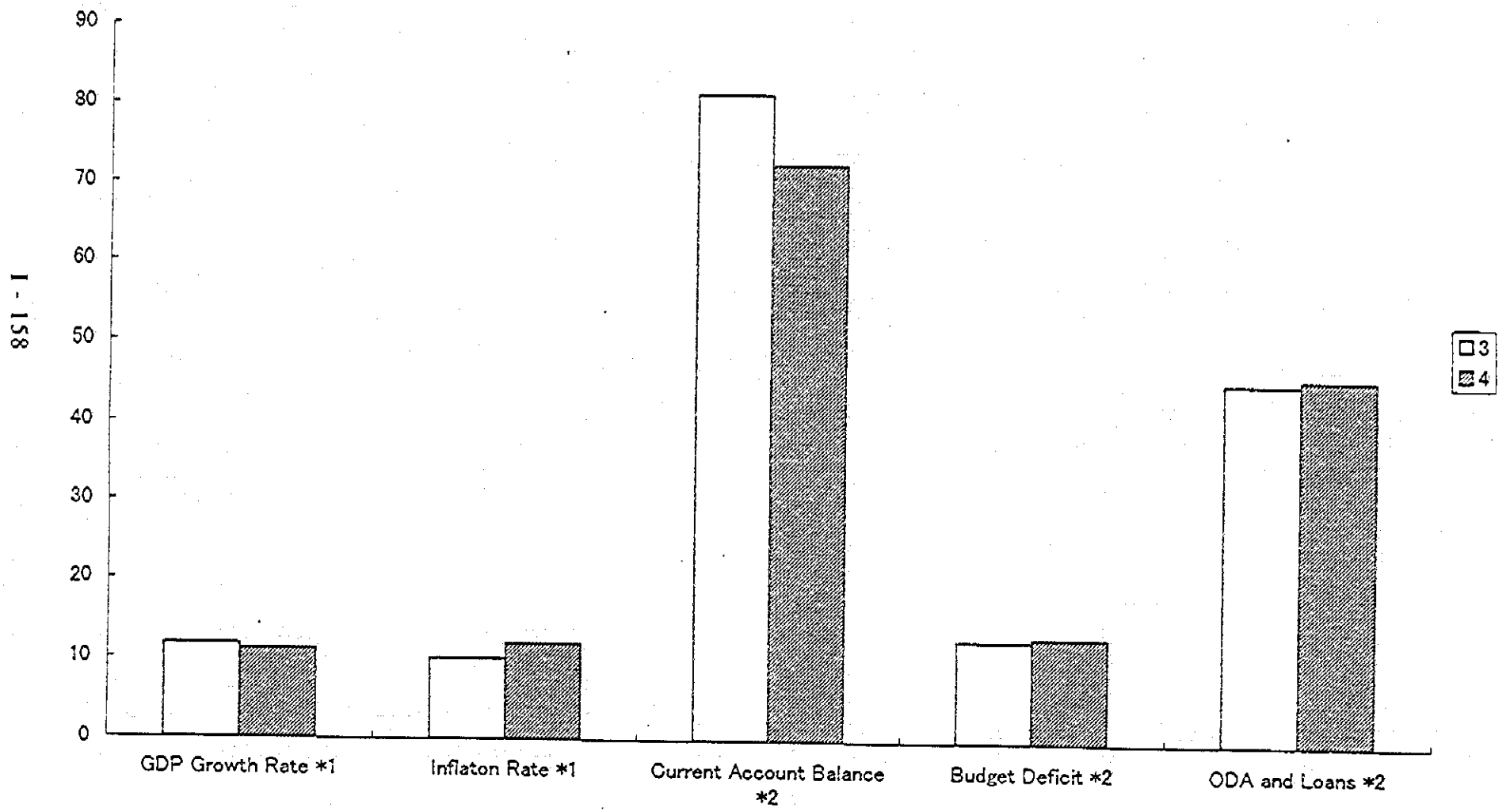
Monetary Model 2

ODA and Loans less Change in FOREX Reserves, accumulated value from 1996 to 2000, as % of nominal GDP in 2000



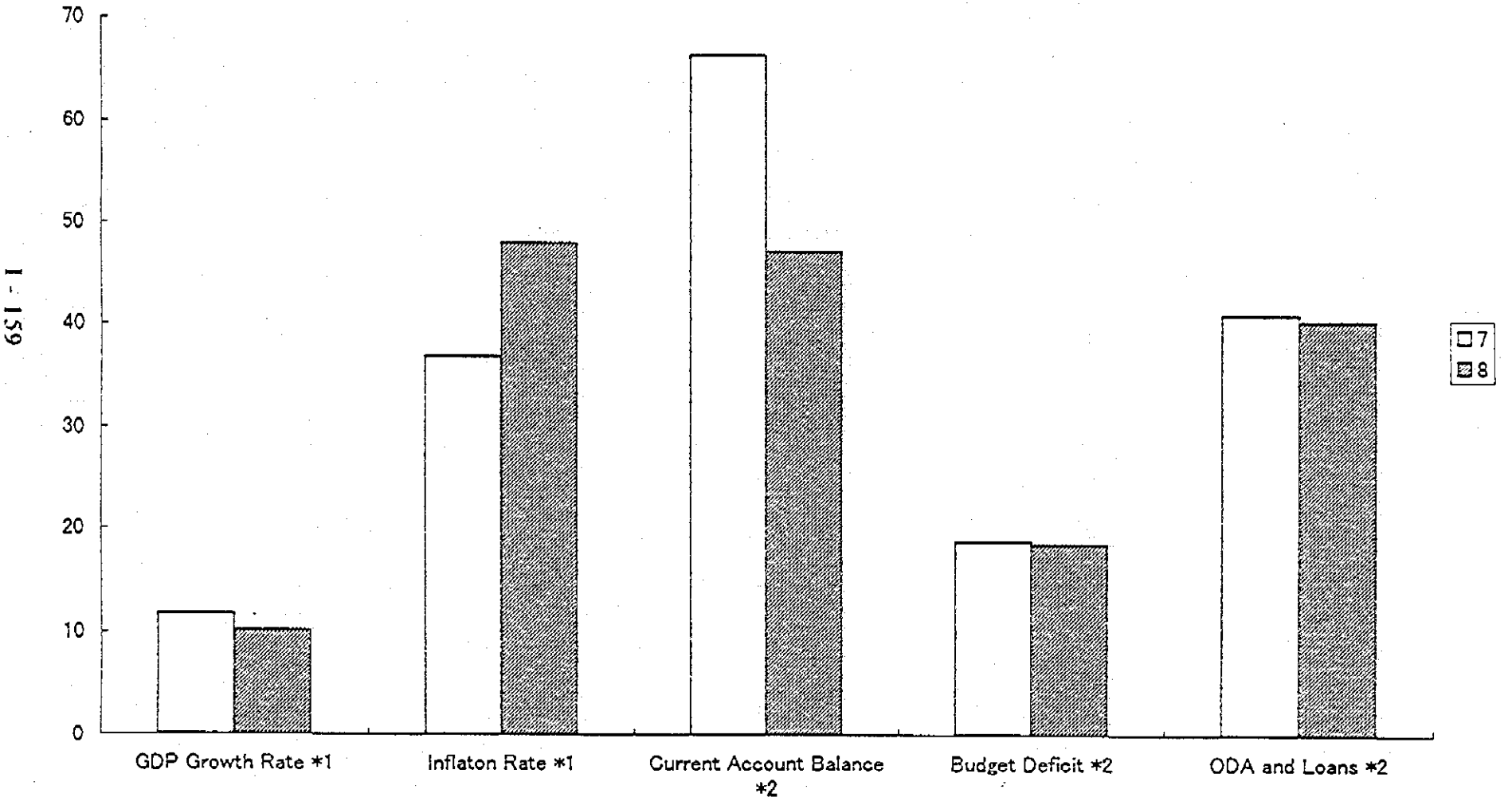
Monetary Model 1

Case 3 VS Case 4



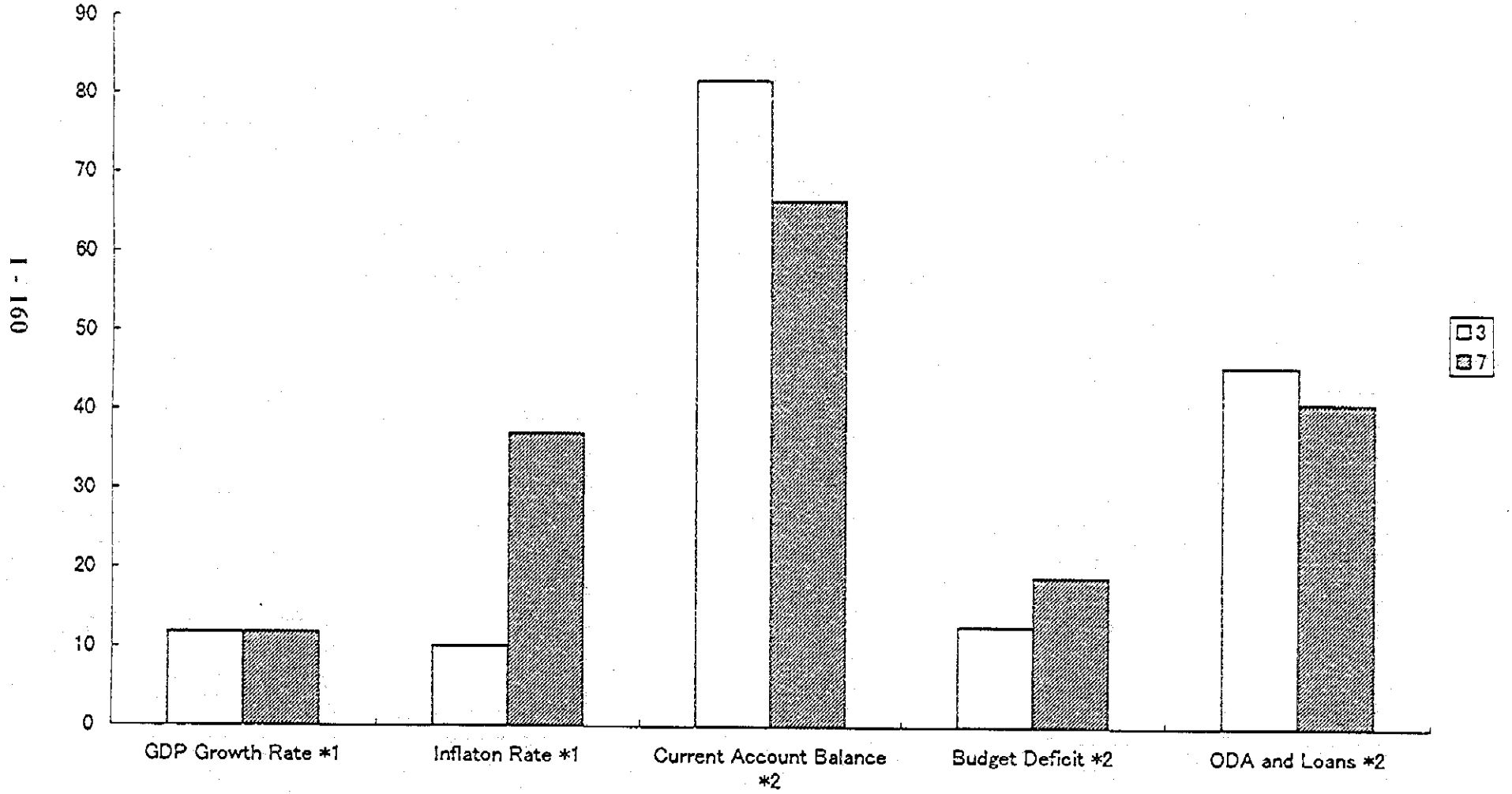
Monetary Model 1

Case 7 VS Case 8



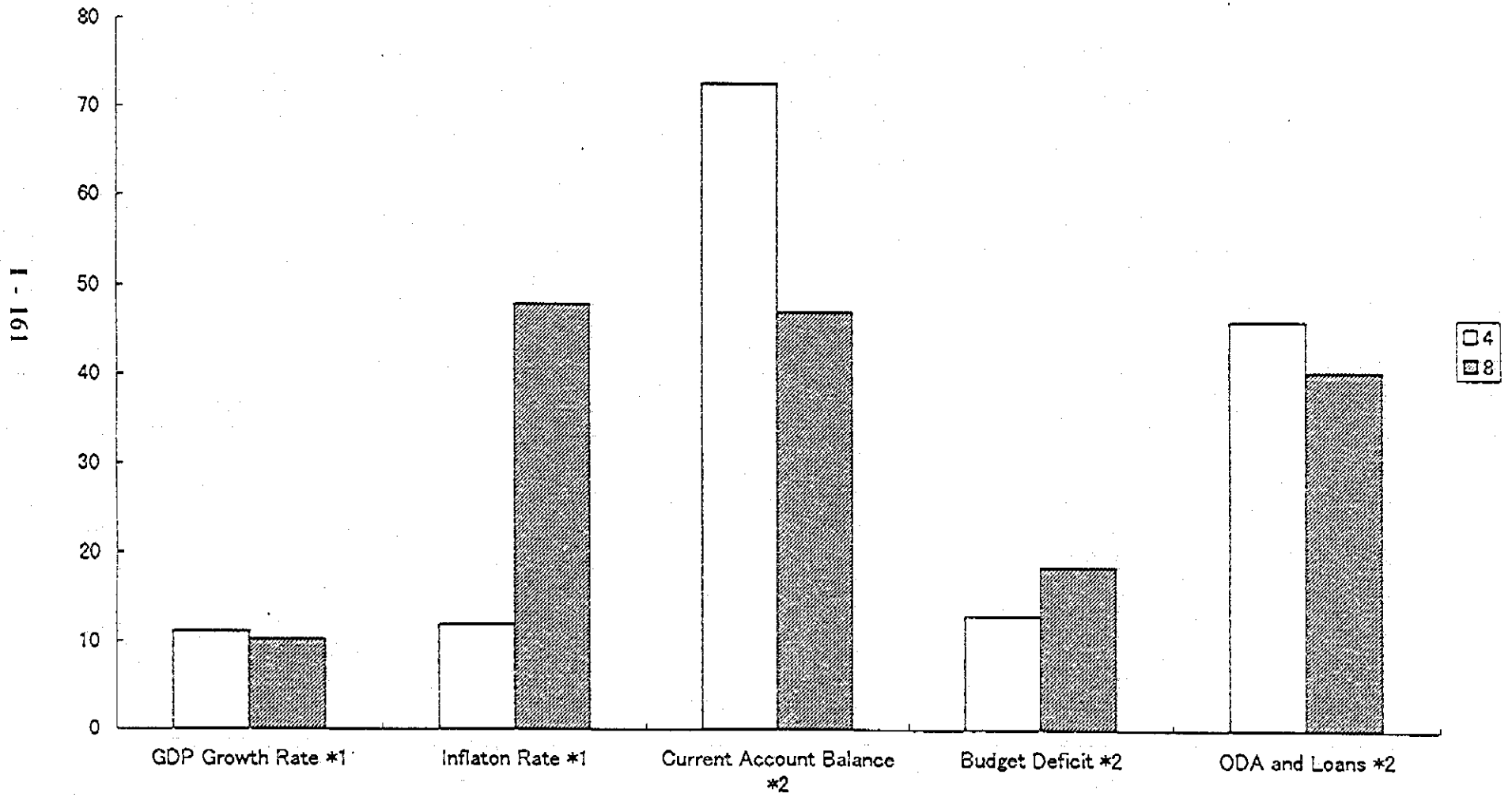
Monetary Model 1

Case 3 VS Case 7



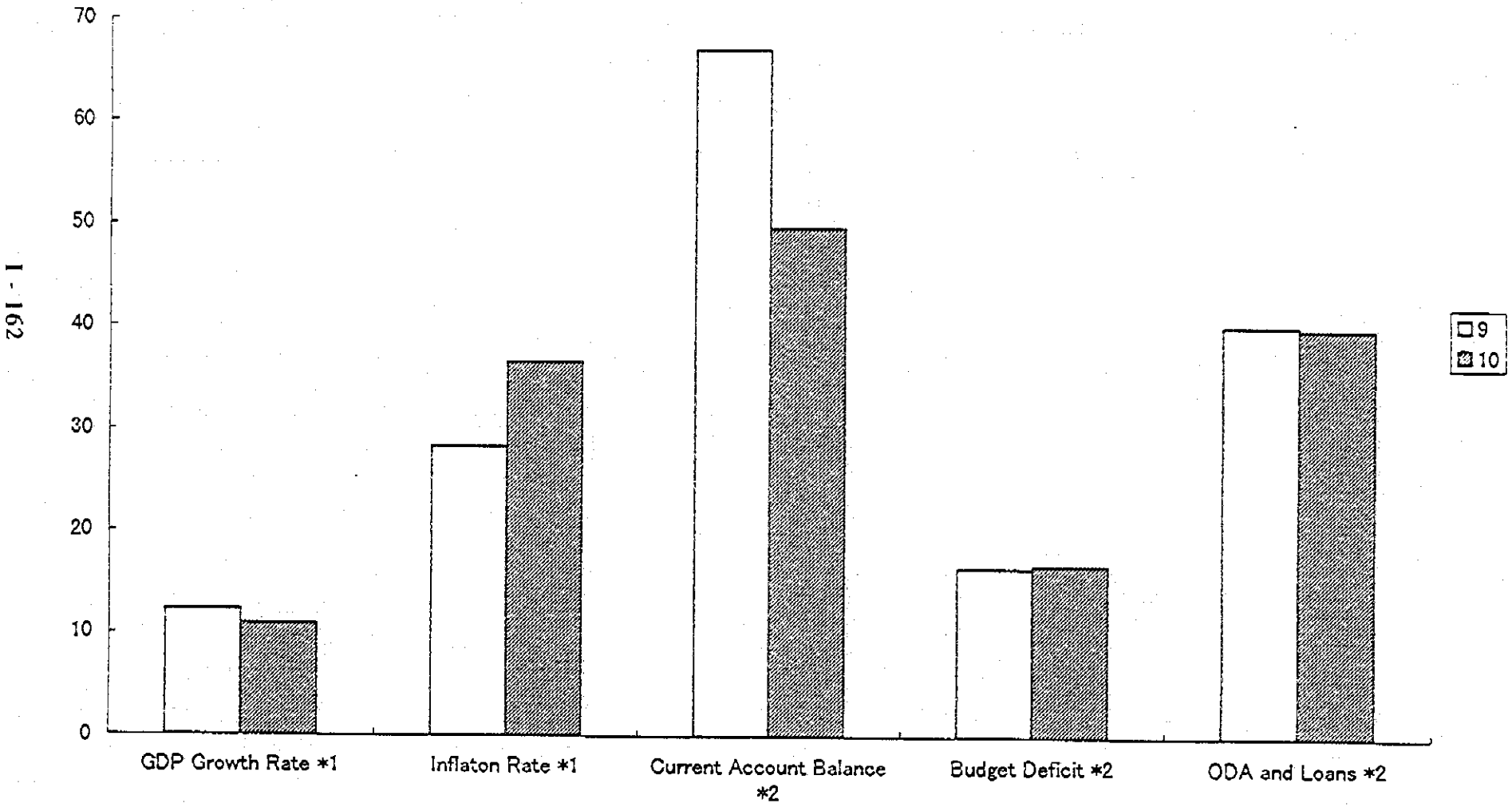
Monetary Model 1

Case 4 VS Case 8



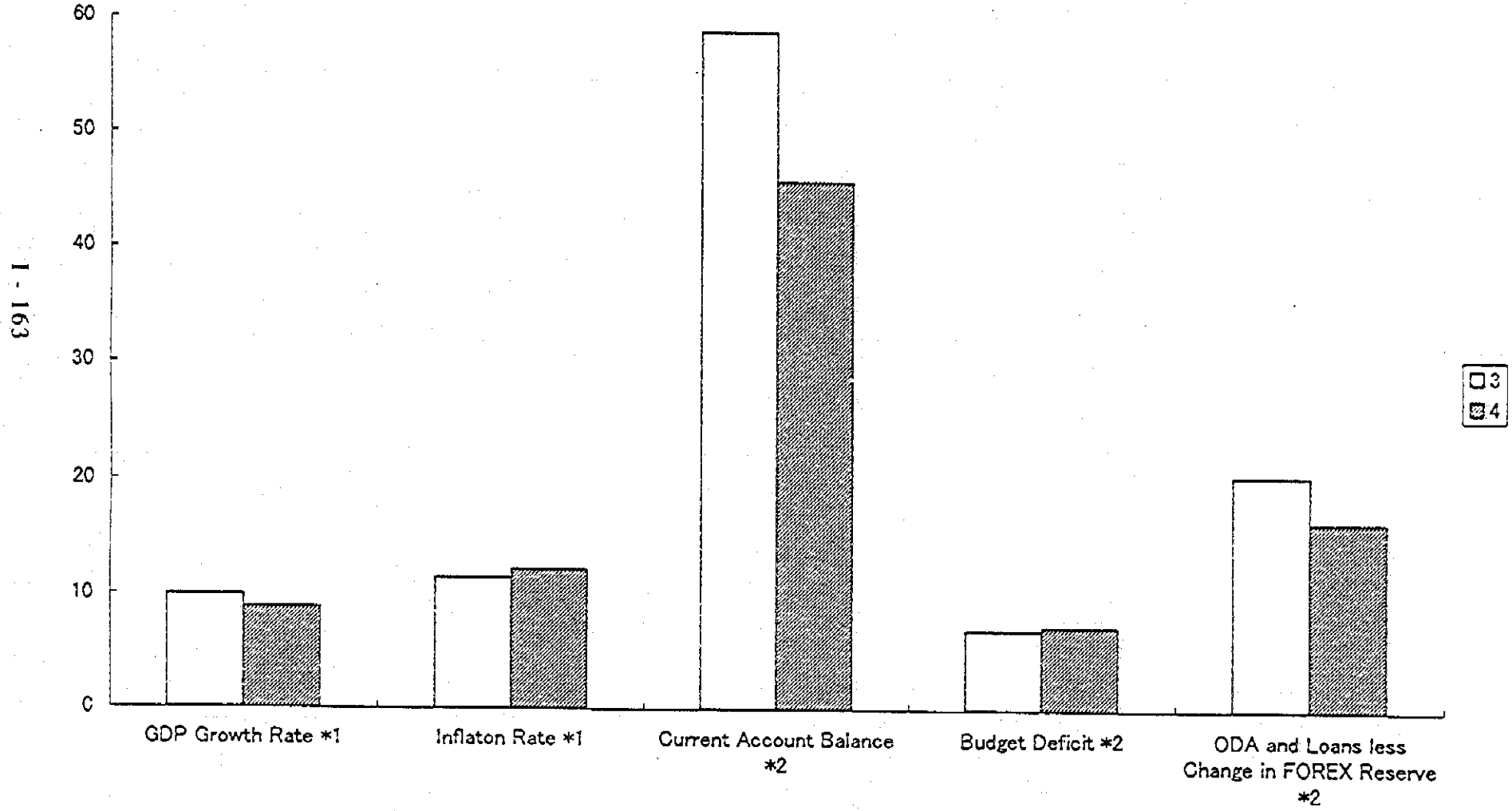
Monetary Model 1

Case 9 VS Case 10



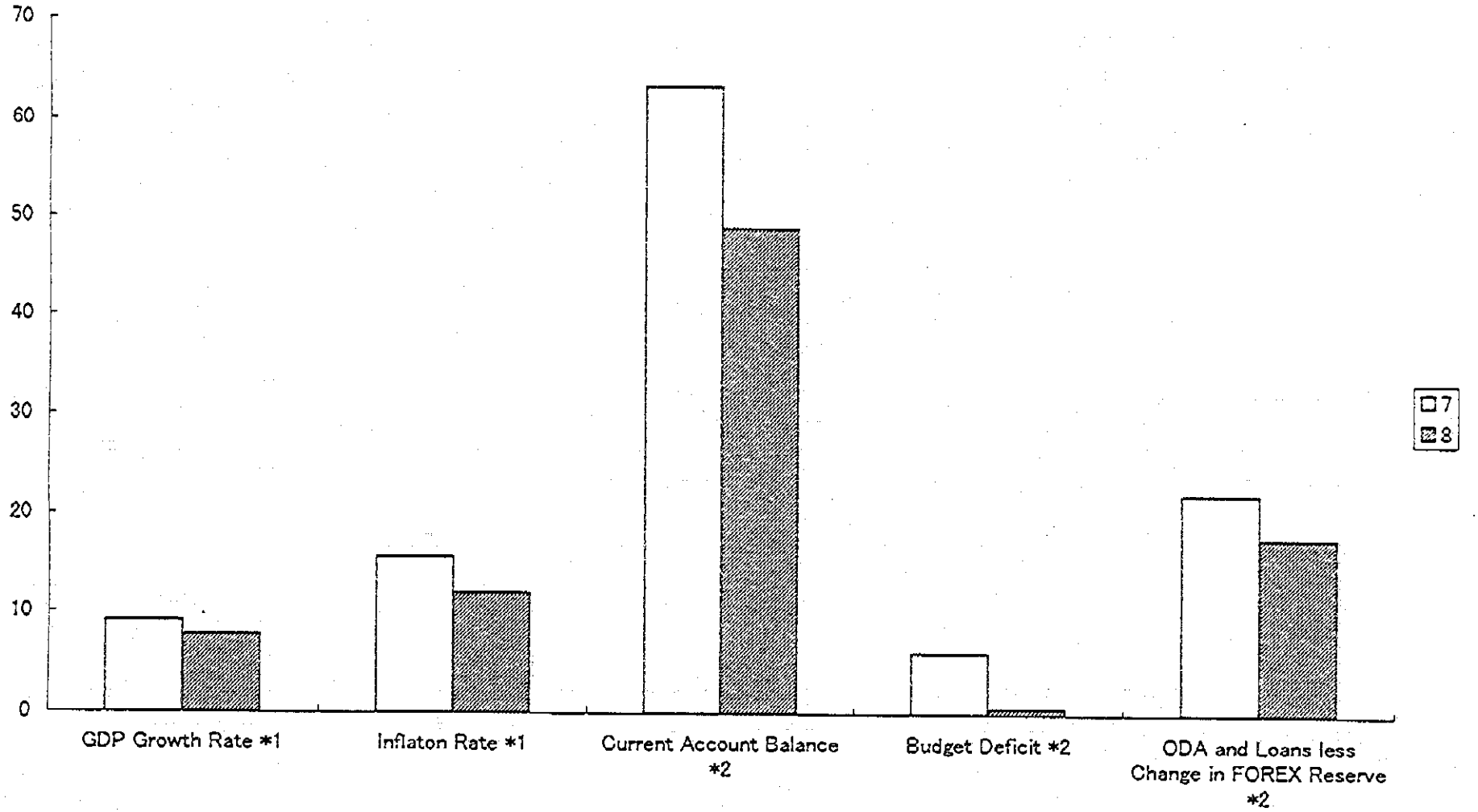
Monetary Model 2

Case 3 VS Case 4



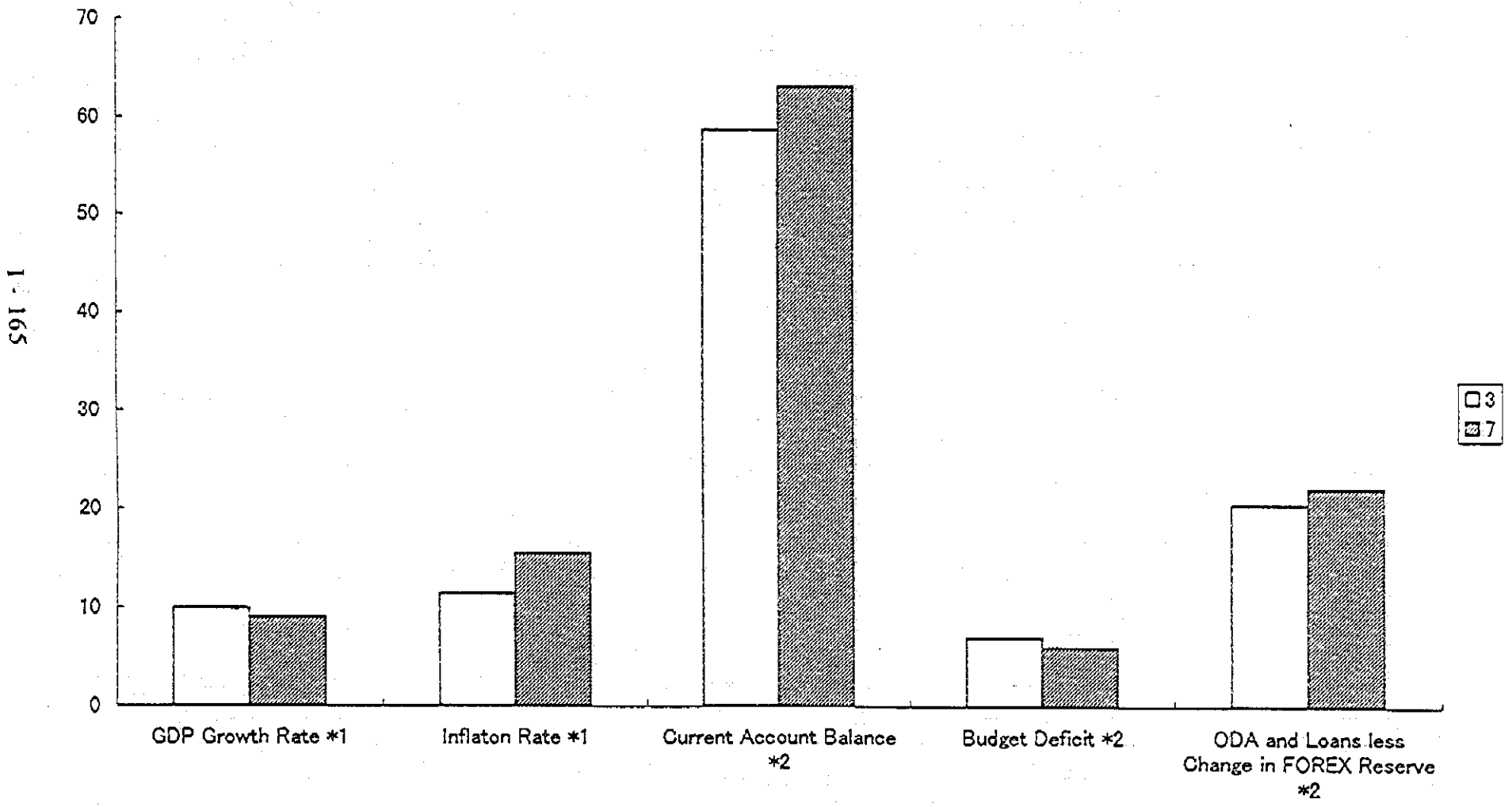
Monetary Model 2

Case 7 VS Case 8



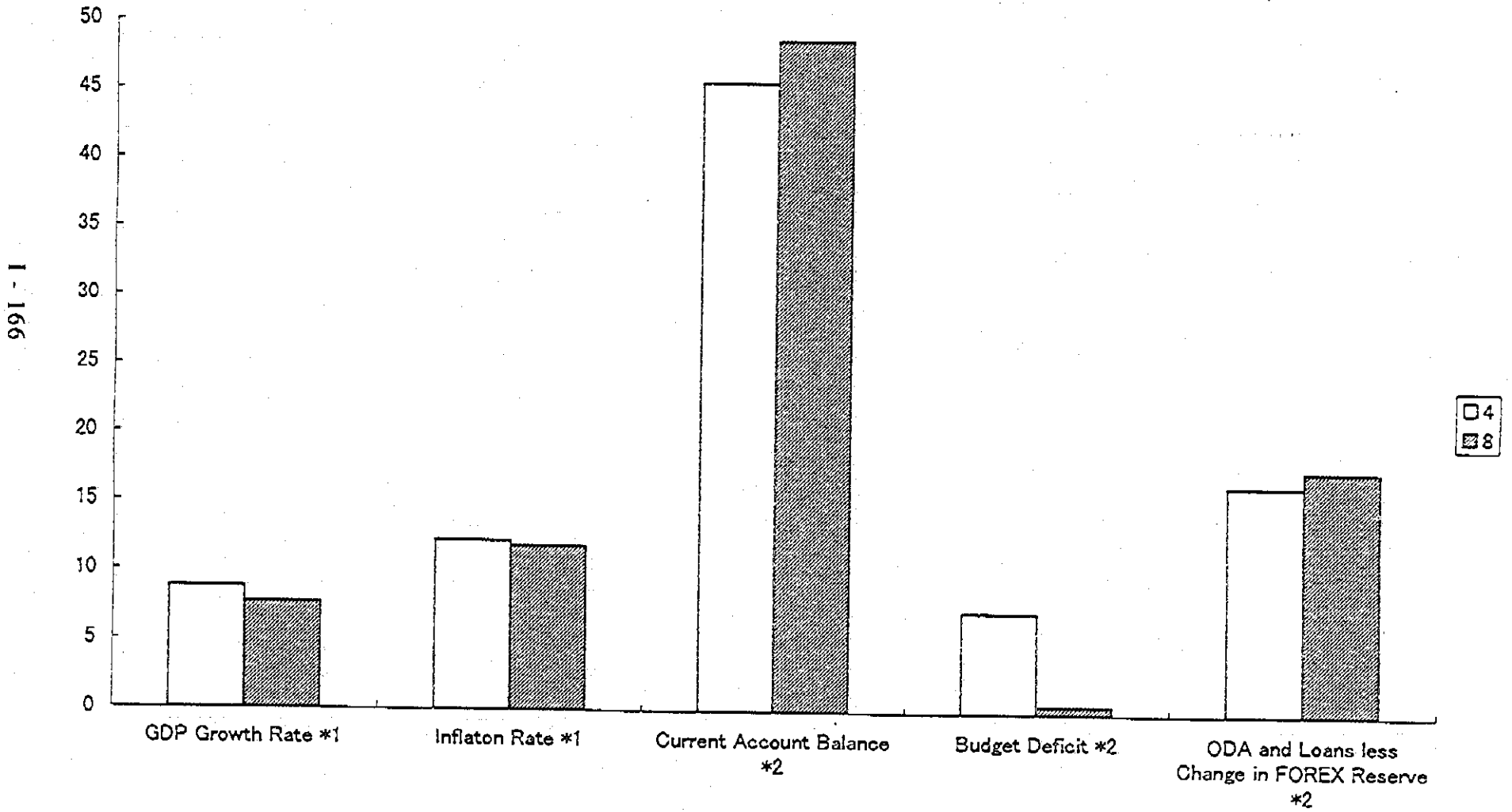
Monetary Model 2

Case 3 VS Case 7



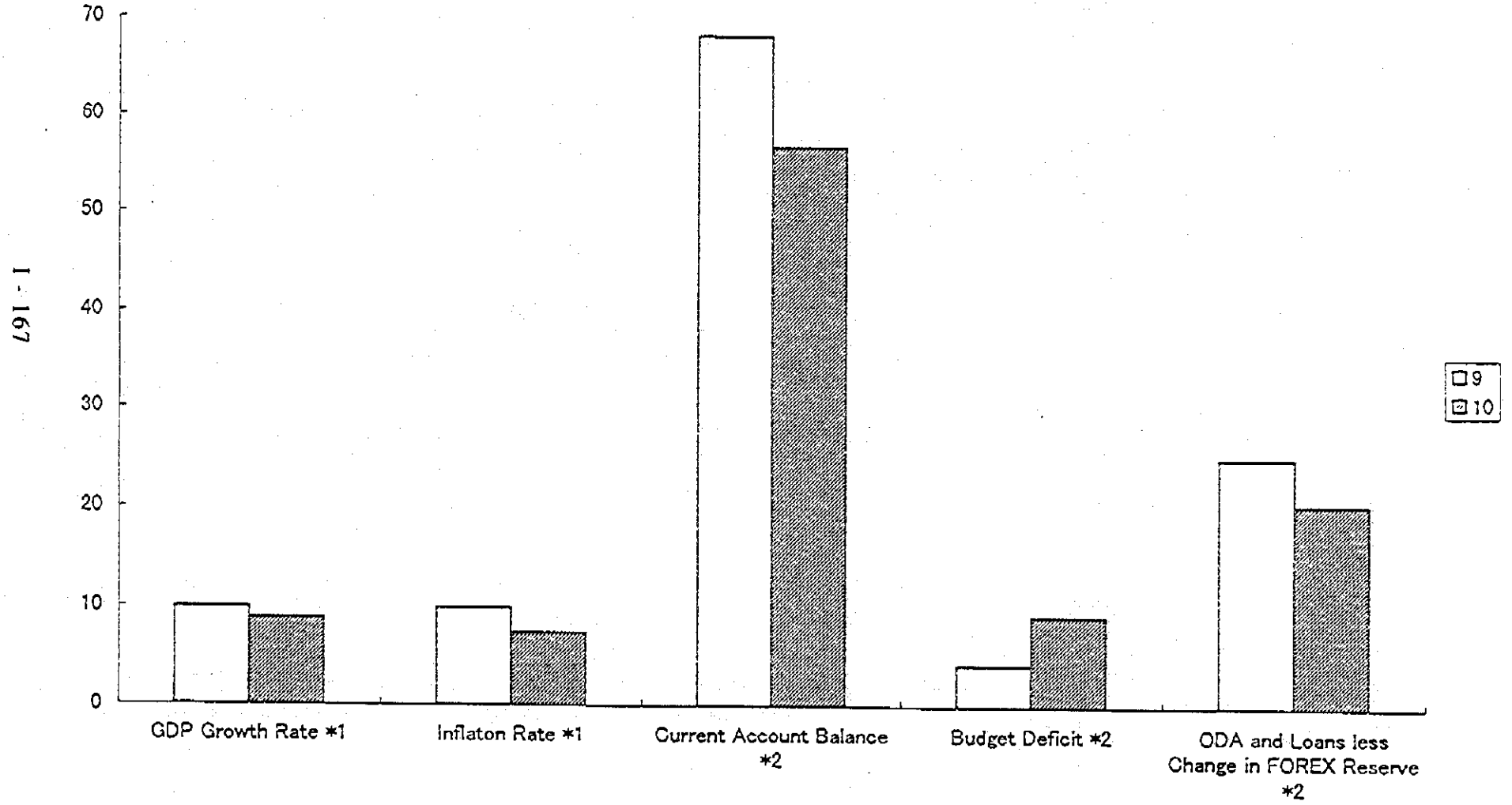
Monetary Model 2

Case 4 VS Case 8



Monetary Model 2

Case 9 VS Case 10



Monetary Model 1 (5)

	GDP Growth Rate *1	Inflaton Rate *1	Current Account Balance *2	Budget Deficit *2	ODA and Loans *2	Comments: *3
13-1	11.8	21.8	52.8	11.2	22.8	A,F,H
13-2	9.8	13.0	40.2	14.0	4.1	B,F,H
13-3	10.2	14.7	43.2	13.3	8.4	C,F,H
13-4	10.7	17.0	46.1	12.7	13.0	D,F,H
13-5	11.2	19.2	49.3	11.9	17.8	E,F,H
14-1	10.6	27.8	37.7	11.6	23.6	A,G,H
14-2	9.0	15.8	29.8	14.3	5.1	B,G,H
14-3	9.3	18.3	31.3	13.7	9.4	C,G,H
14-4	9.7	21.0	33.2	13.0	13.9	D,G,H
14-5	10.1	24.2	35.3	12.3	18.7	E,G,H

Notes:

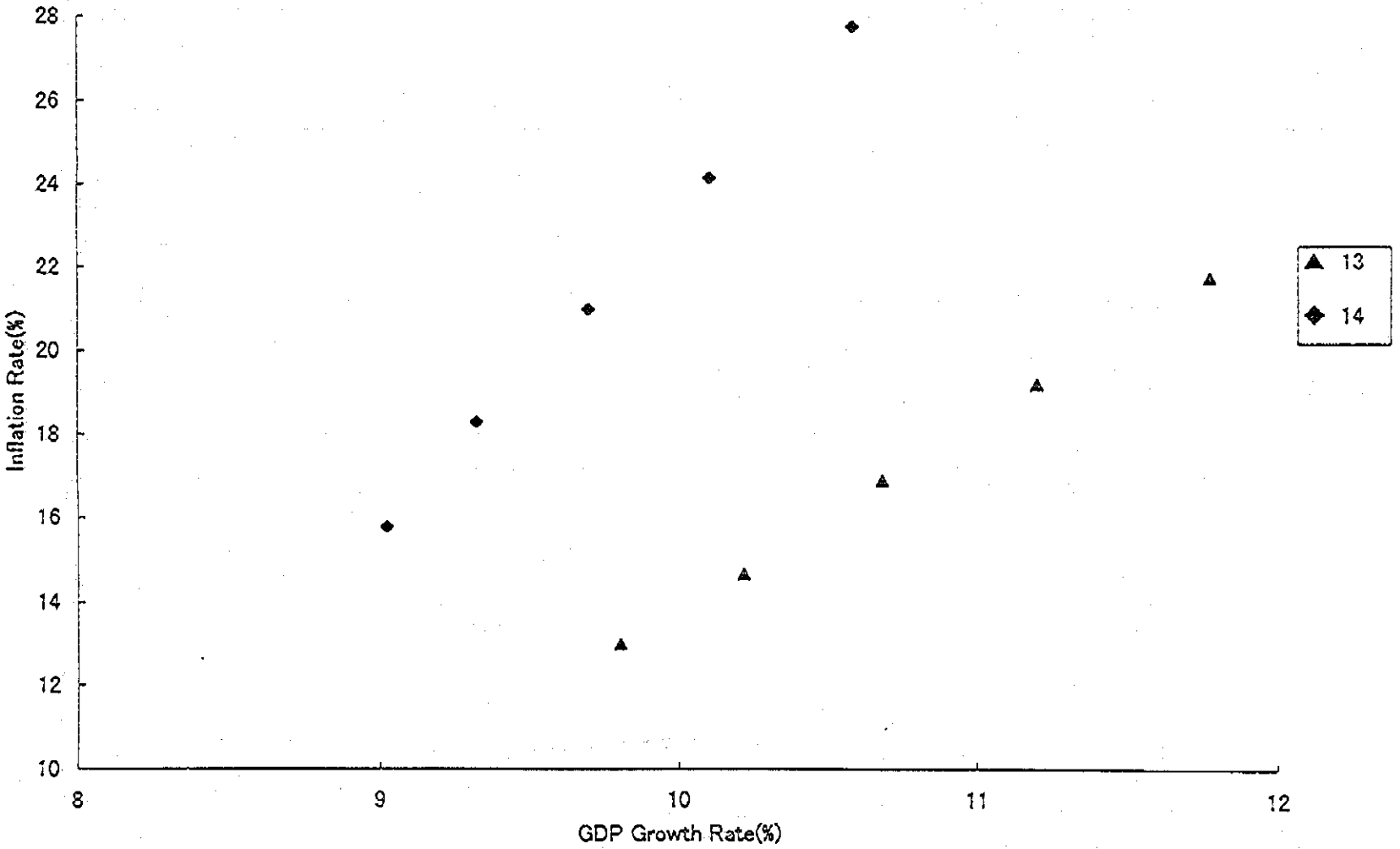
*1
average rate from 1996 to 2000

*2
accumulated value from 1996 to 2000
as % of nominal GDP in 2000

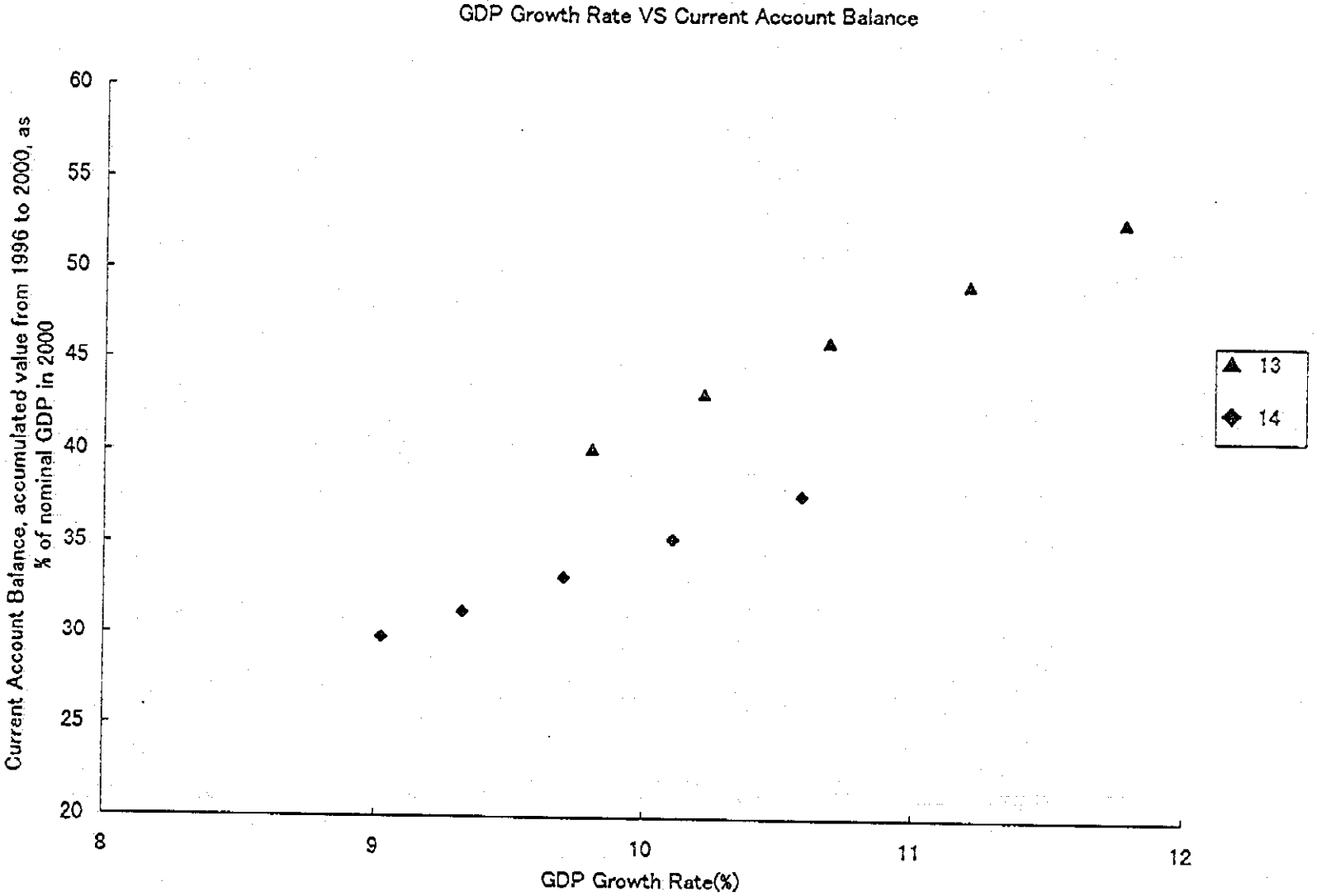
*3
A: Real other IP growth rate: 20%
B: Real other IP growth rate: 0%
C: Real other IP growth rate: 5%
D: Real other IP growth rate: 10%
E: Real other IP growth rate: 15%
F: Fixed real exchange rate
G: Nominal exchange rate is depreciated at 4% per annual.
H: SP/YP increases gradually to 0.20

Monetary Model 1 (13,14)

GDP Growth Rate VS Inflation Rate

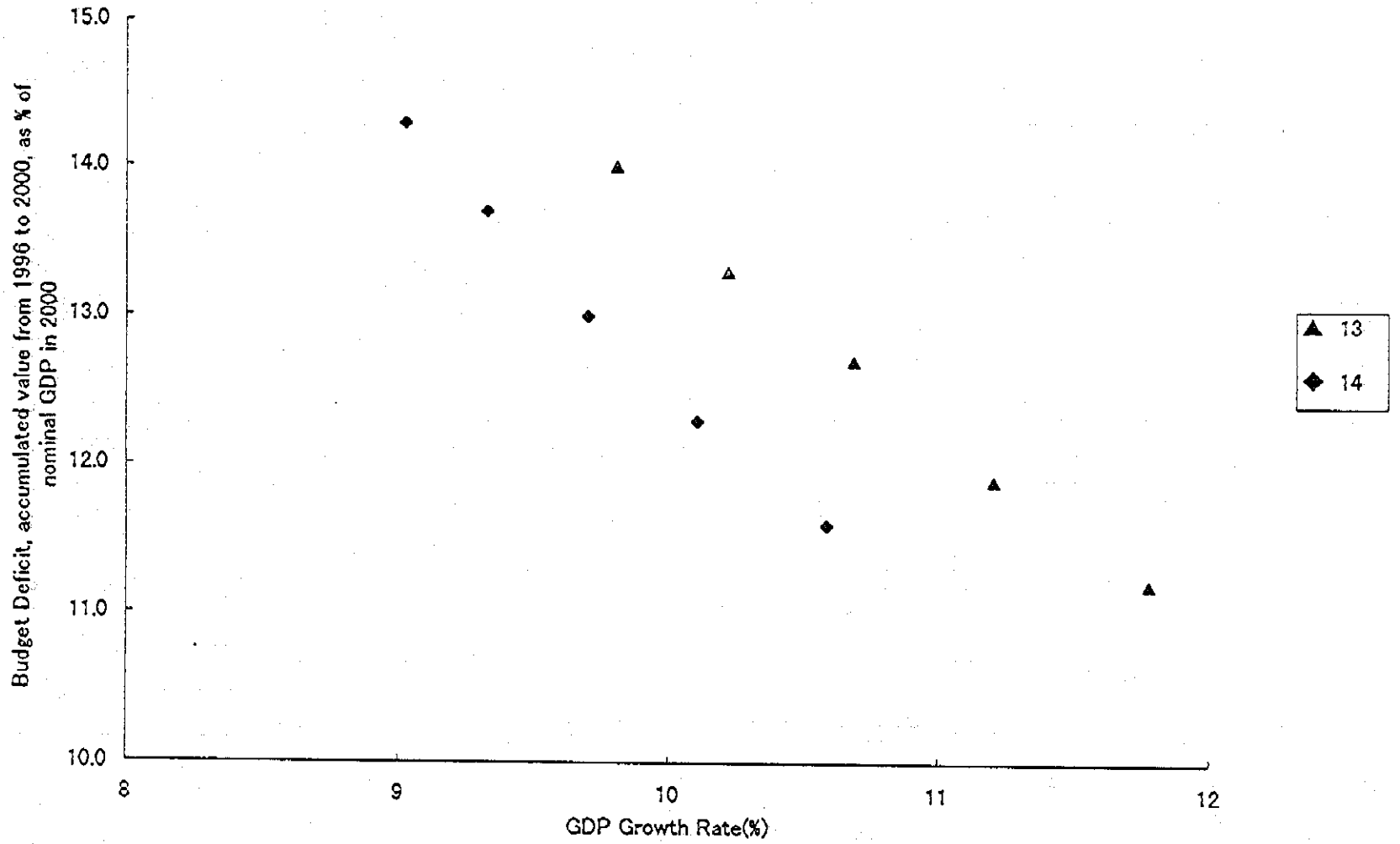


Monetary Model 1 (13,14)

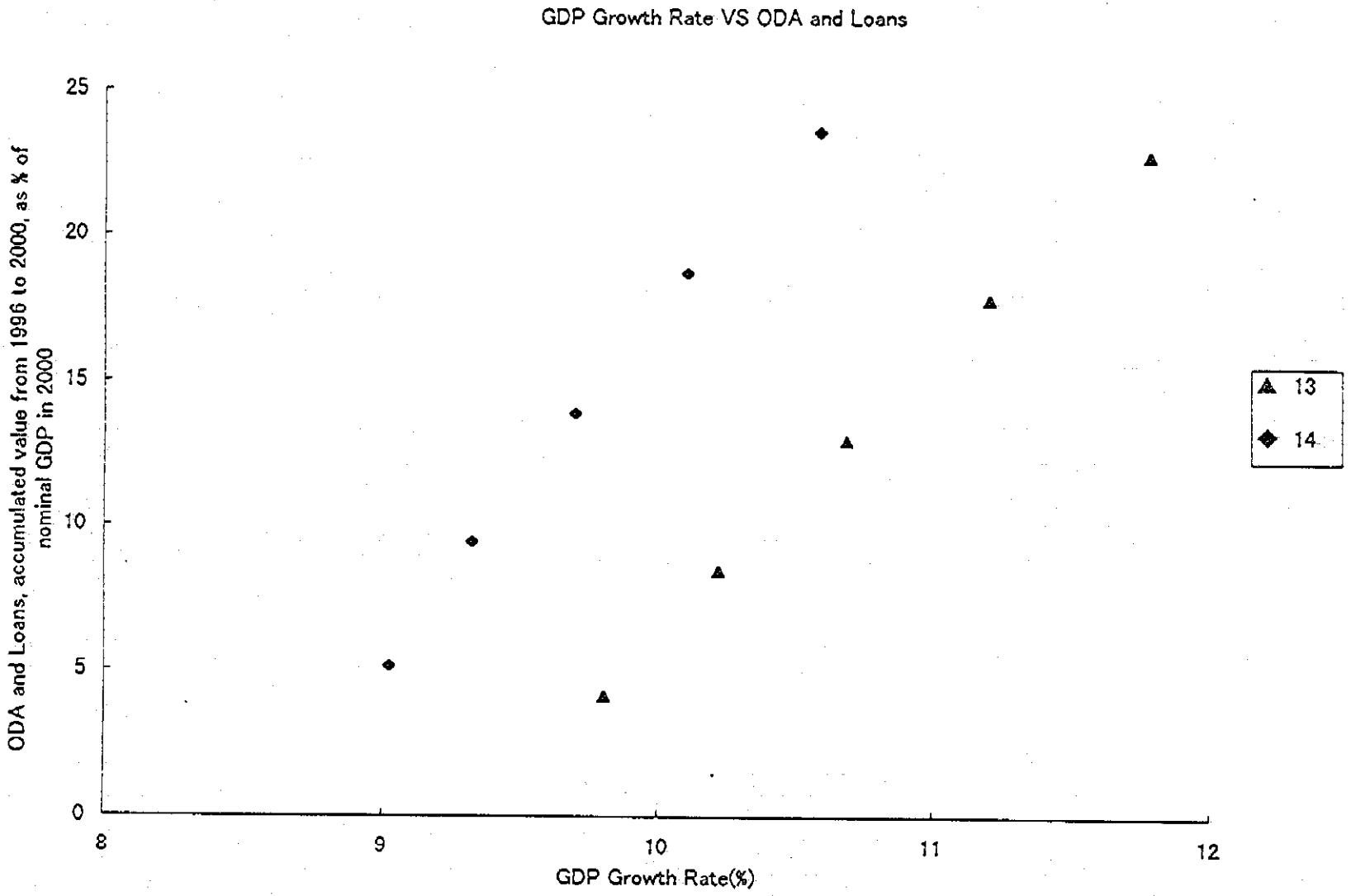


Monetary Model 1 (13,14)

GDP Growth Rate VS Budget Deficit

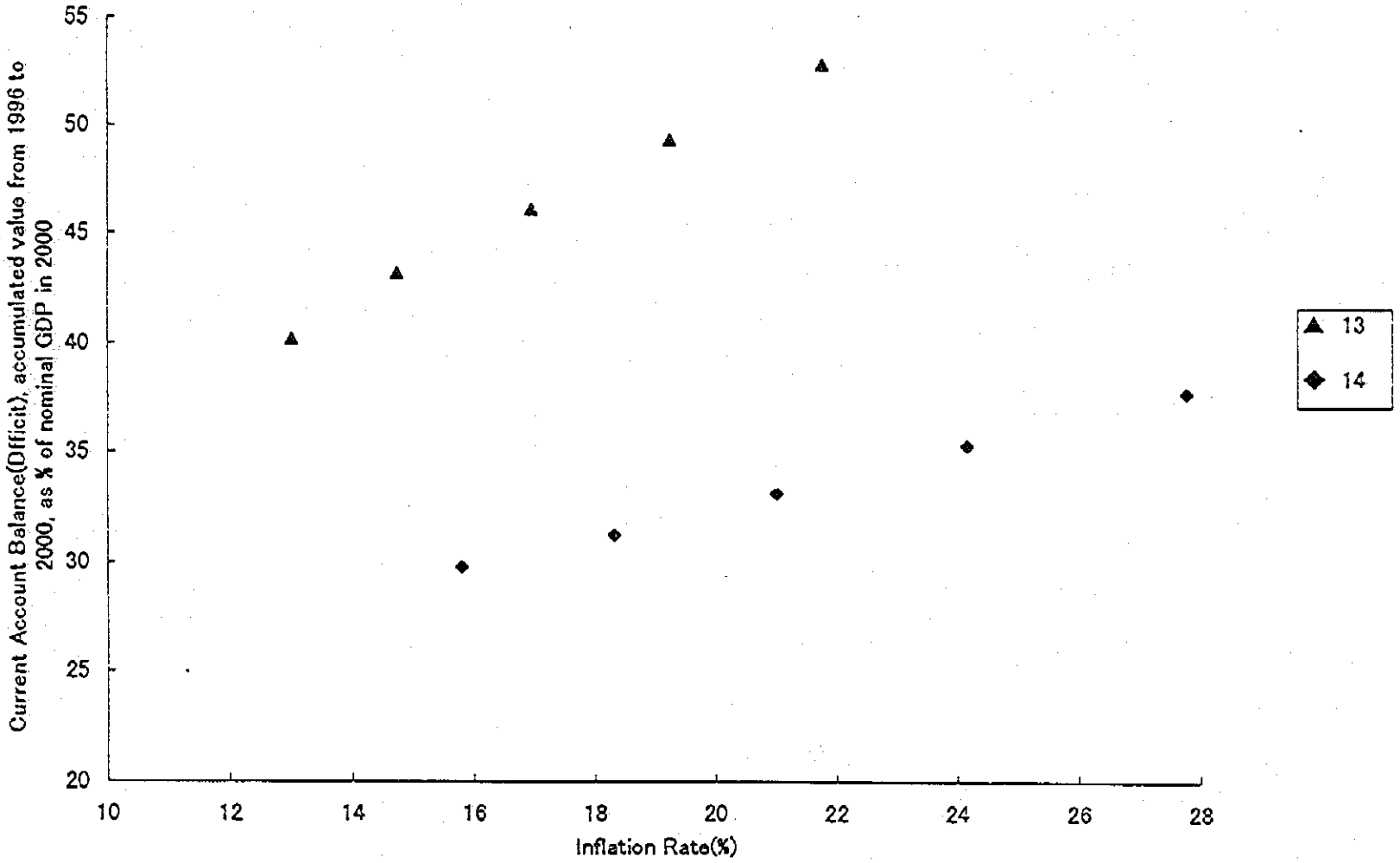


Monetary Model 1 (13,14)

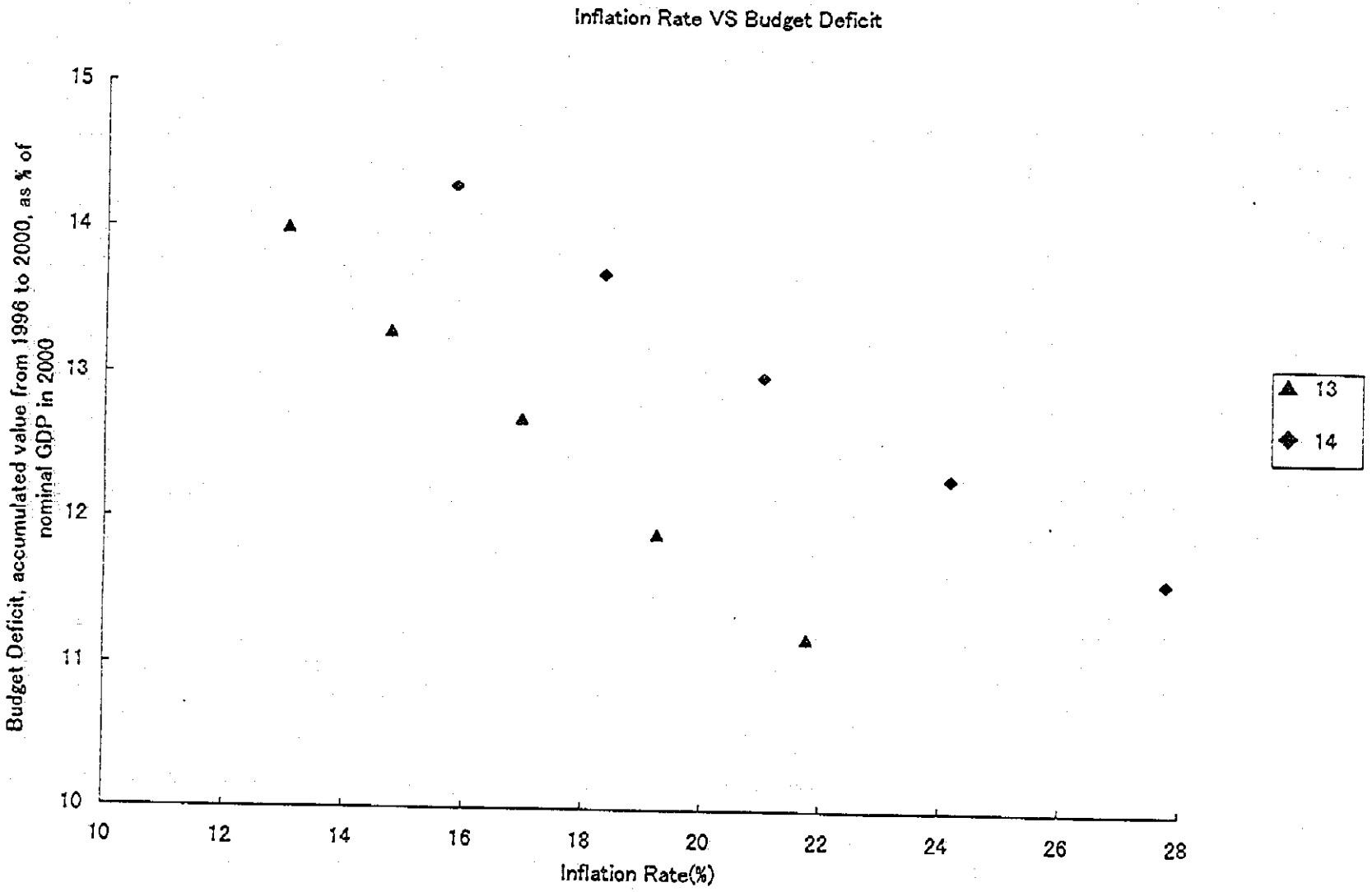


Monetary Model 1 (13,14)

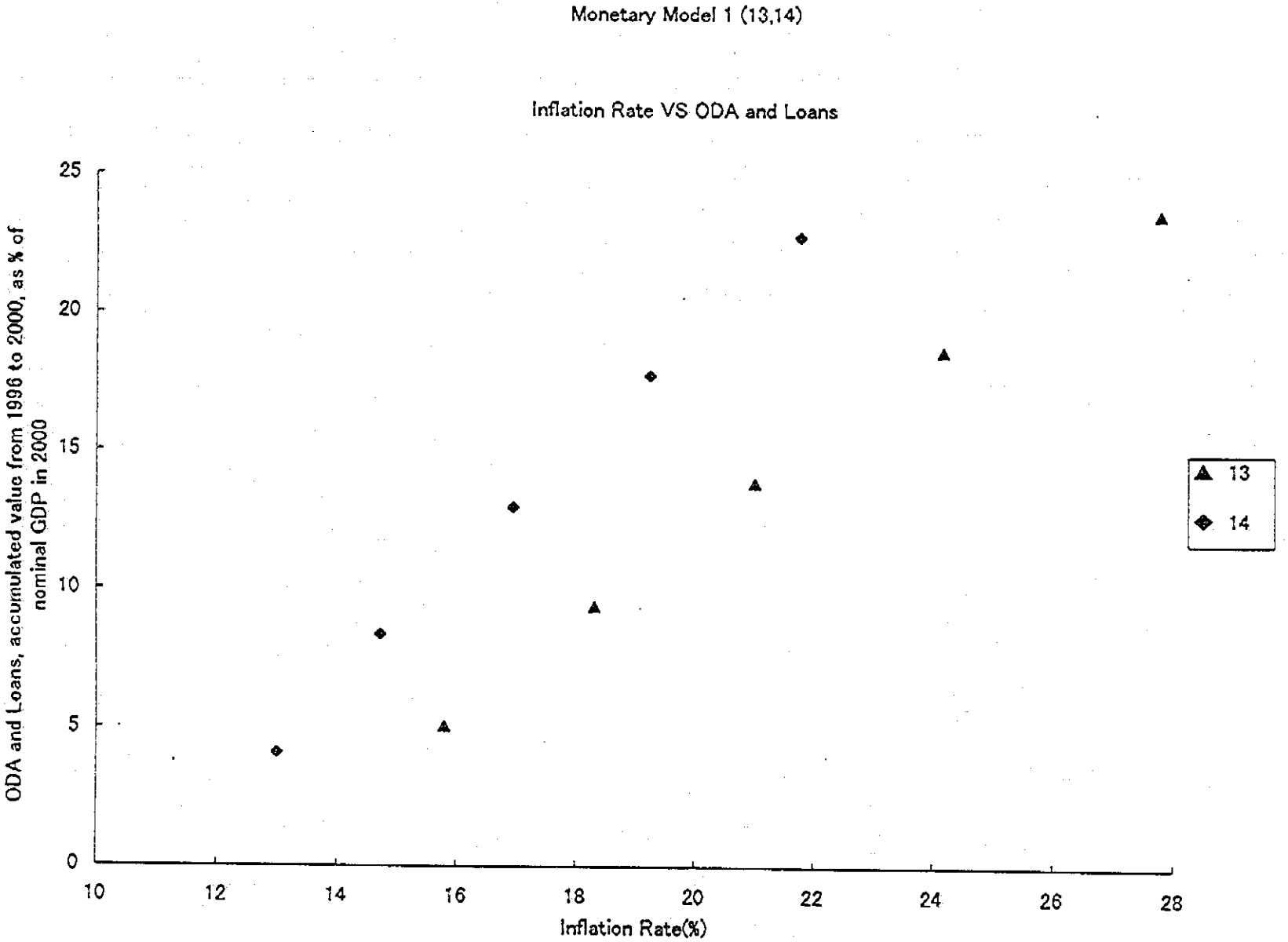
Inflation Rate VS Current Account Balance



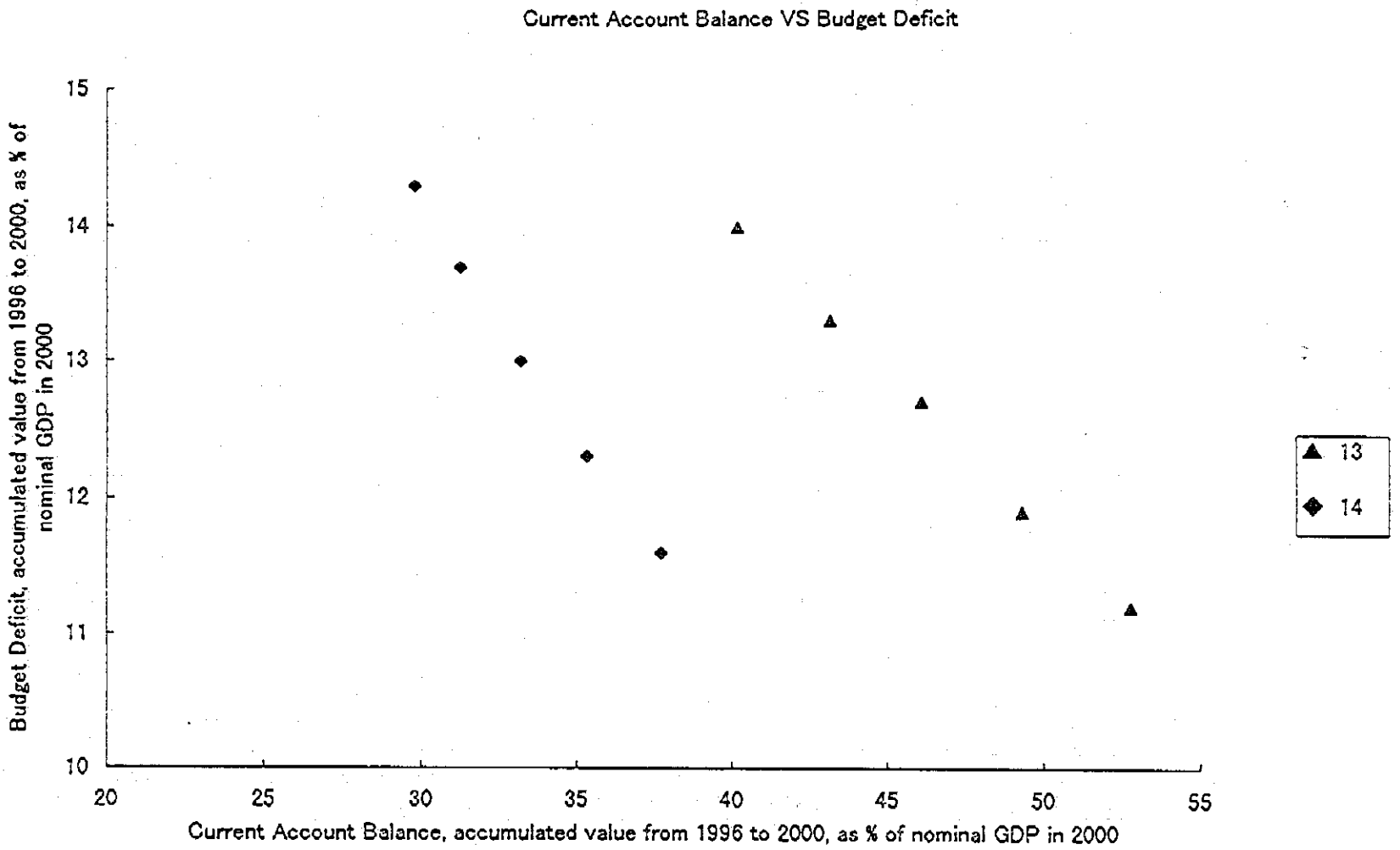
Monetary Model 1 (13,14)



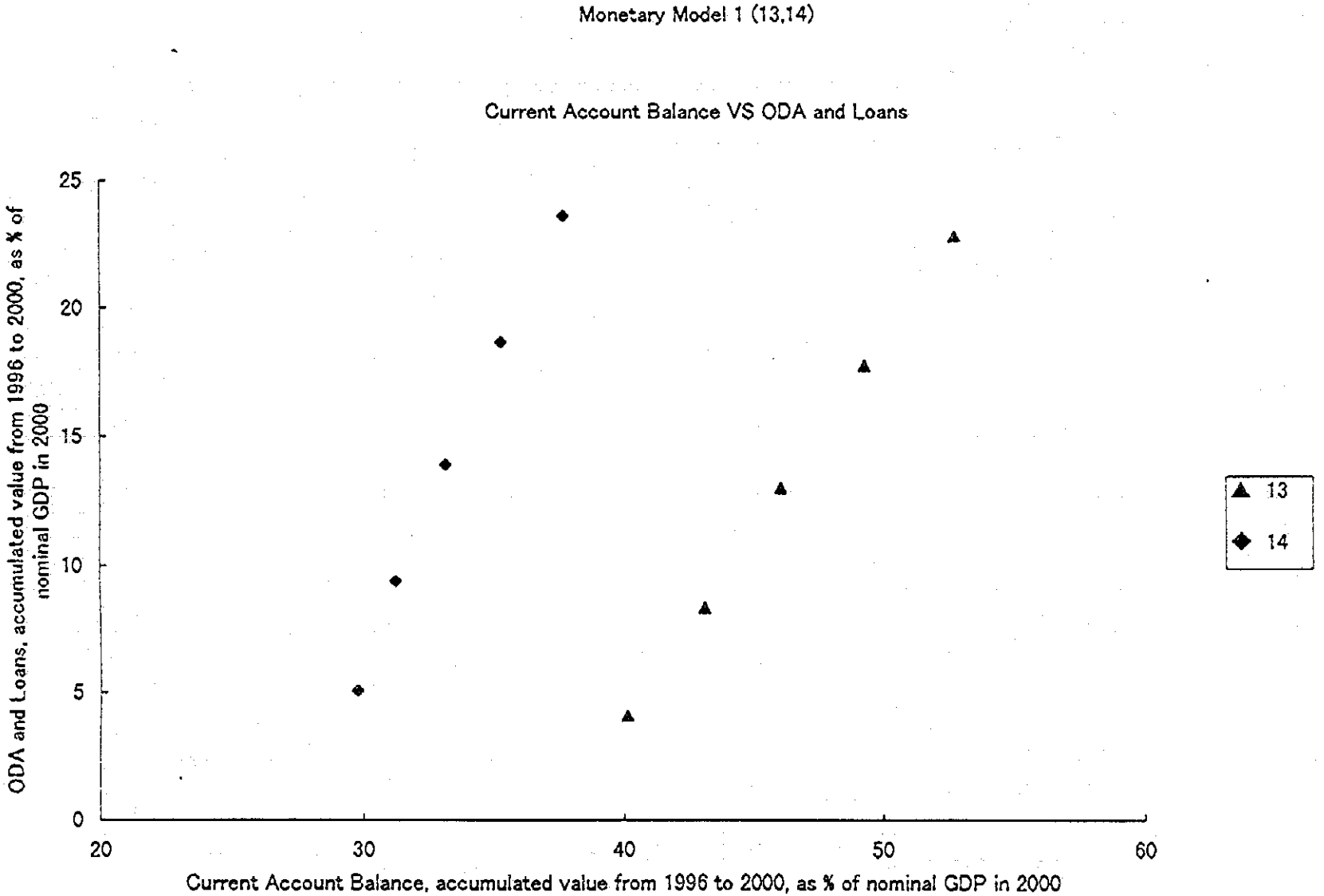
Monetary Model 1 (13,14)



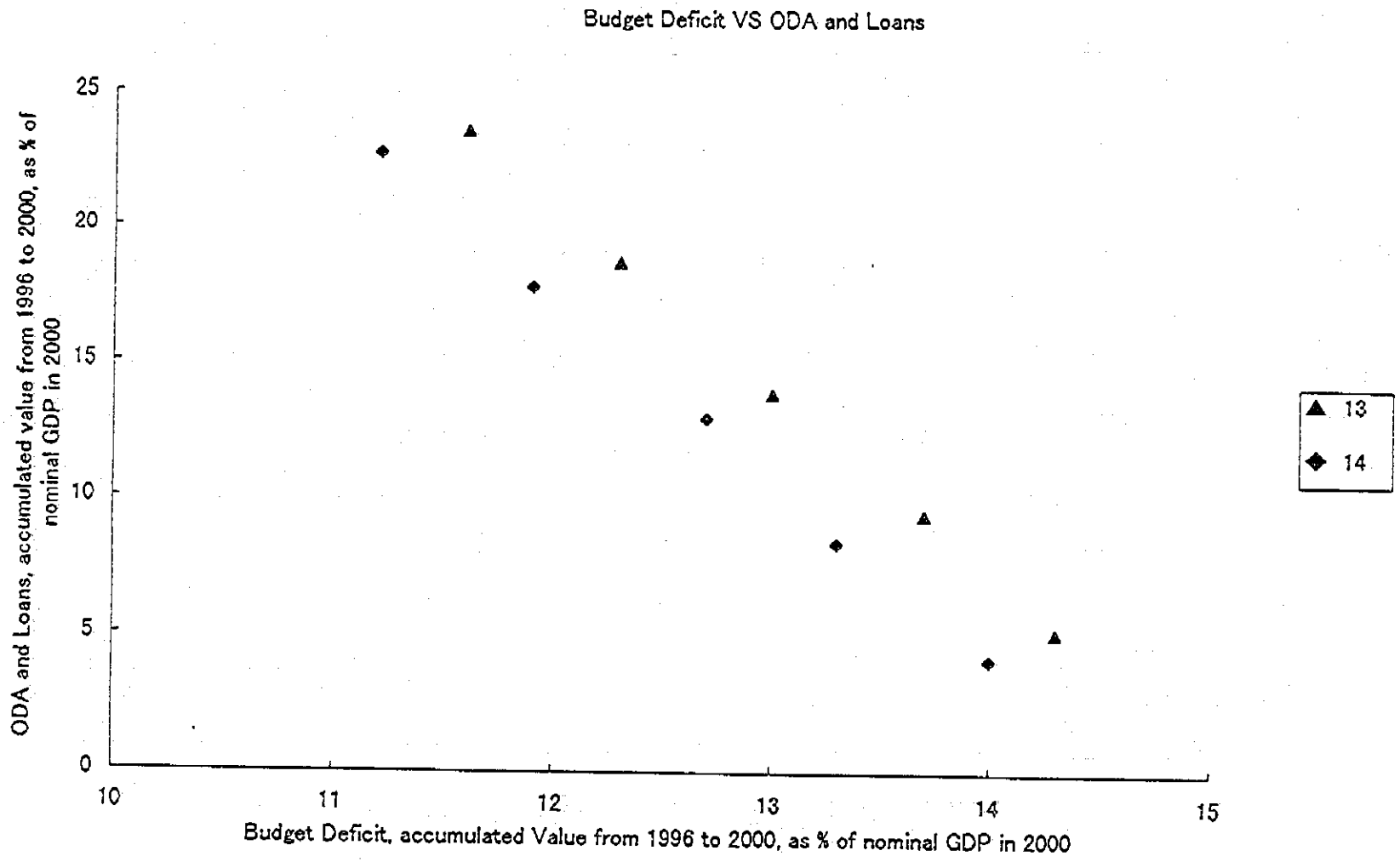
Monetary Model 1 (13,14)



Monetary Model 1 (13,14)



Monetary Model 1 (13,14)



Monetary Model 2 (5)

	GDP Growth Rate *1	Inflaton Rate *1	Current Account Balance *2	Budget Deficit *2	ODA and Loans *2	Comments: *3
13-1	11.3	17.5	52.7	5.0	18.8	A,F,H
13-2	9.8	13.0	40.2	14.0	4.2	B,F,H
13-3	10.2	14.8	43.1	13.3	8.4	C,F,H
13-4	10.7	16.9	46.1	12.7	13.0	D,F,H
13-5	11.2	19.2	49.3	11.9	17.8	E,F,H
14-1	10.4	11.1	45.1	0.4	16.5	A,G,H
14-2	8.2	30.5	20.1	14.9	6.0	B,G,H
14-3	8.9	23.1	29.2	14.9	10.9	C,G,H
14-4	9.4	18.8	34.0	10.6	12.6	D,G,H
14-5	9.9	14.7	39.4	5.8	14.5	E,G,H

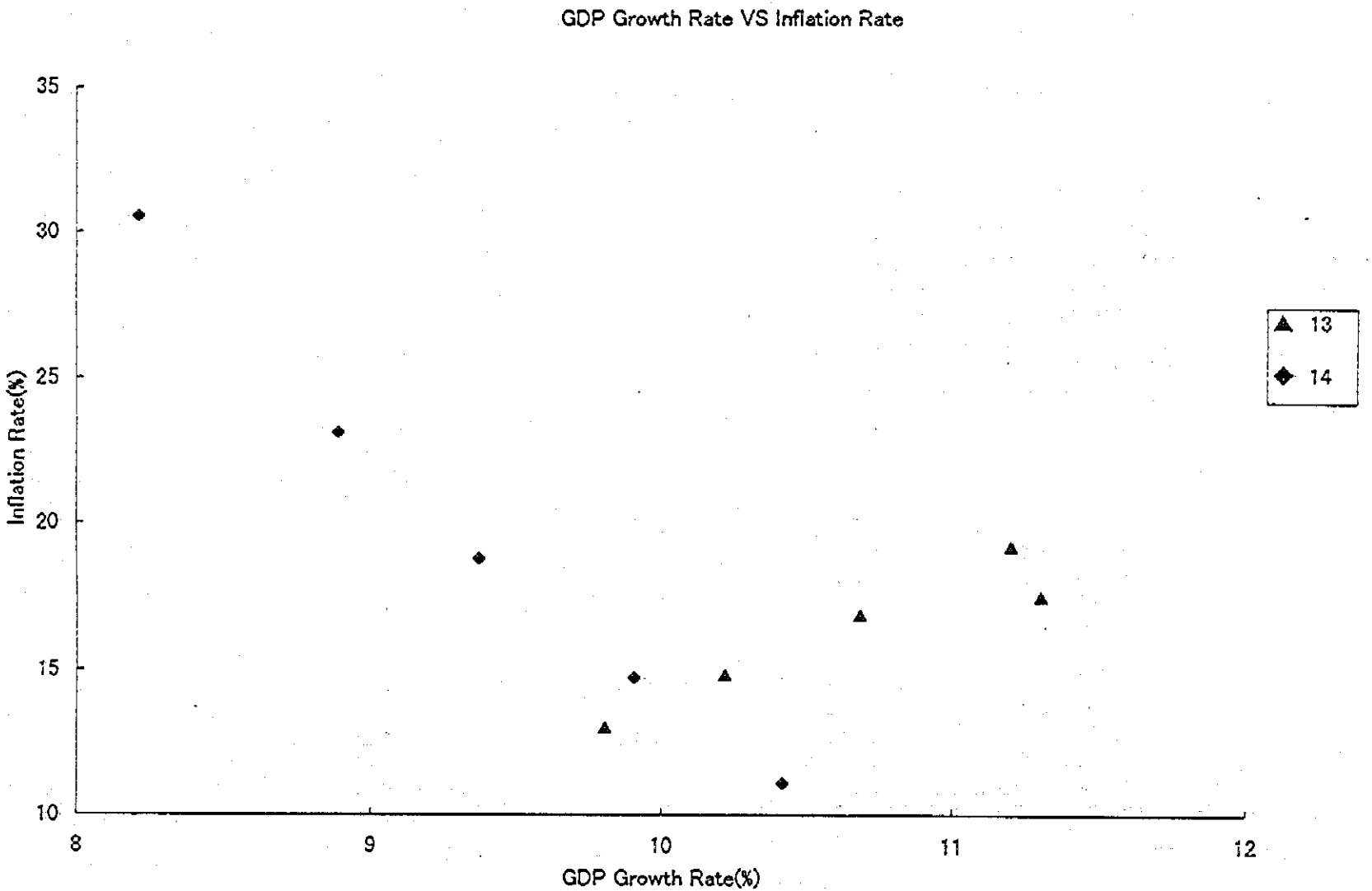
Notes:

*1
average rate from 1996 to 2000

*2
accumulated value from 1996 to 2000
as % of nominal GDP in 2000

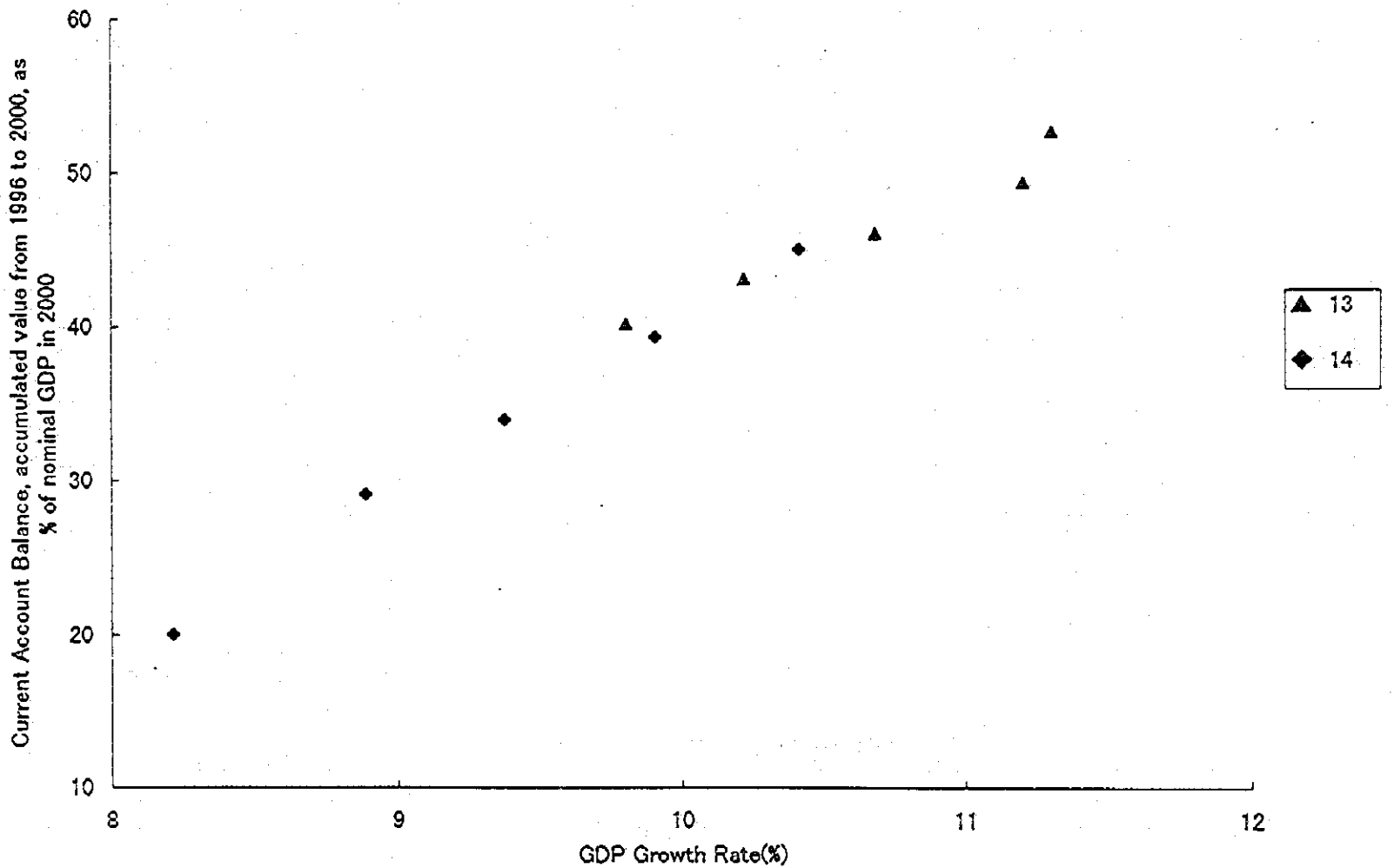
*3
A: Real other IP growth rate: 20%
B: Real other IP growth rate: 0%
C: Real other IP growth rate: 5%
D: Real other IP growth rate: 10%
E: Real other IP growth rate: 15%
F: Fixed real exchange rate
G: Nominal exchange rate is depreciated at 4% per annual.
H: SP/YP increases gradually to 0.20

Monetary Model 2 (13,14)



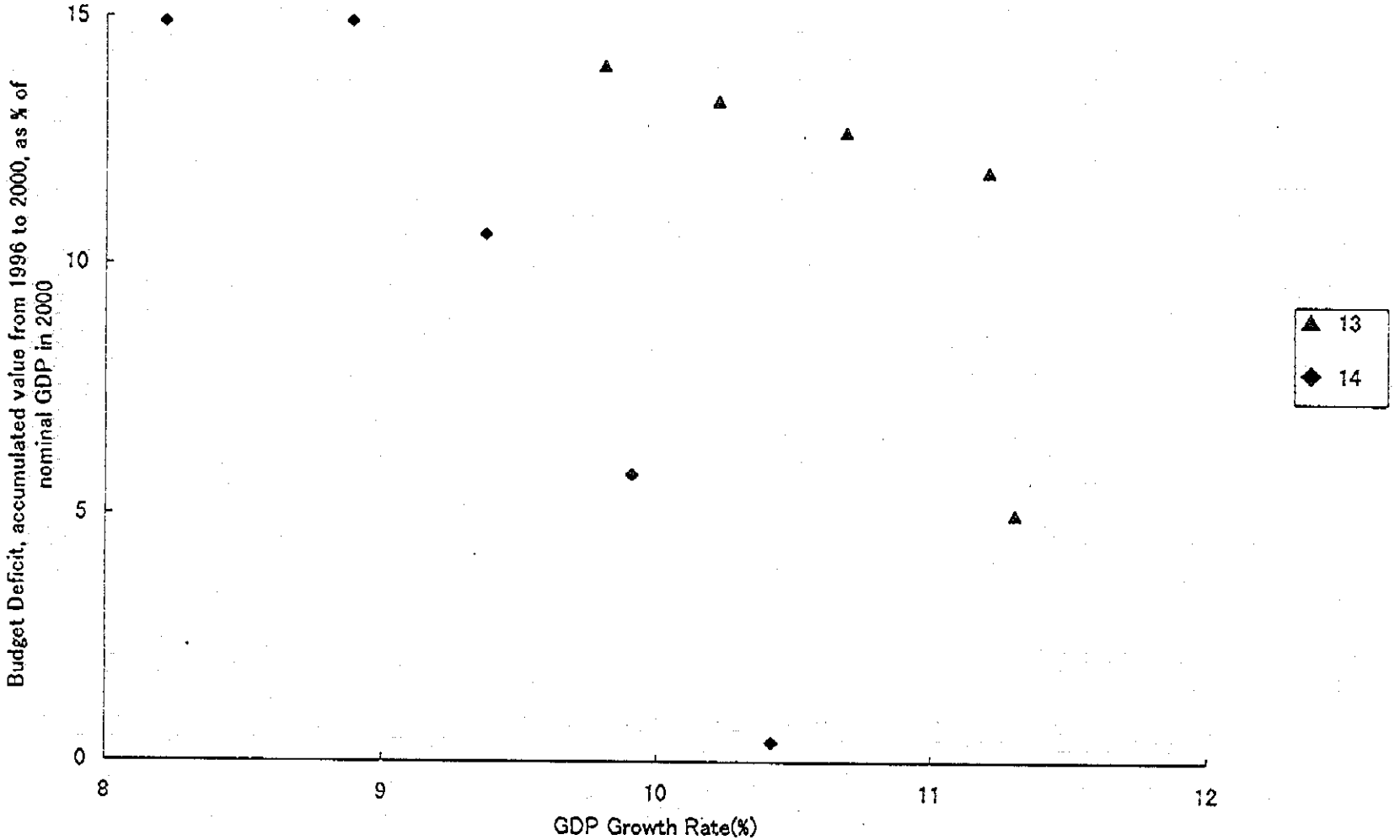
Monetary Model 2 (13,14)

GDP Growth Rate VS Current Account Balance

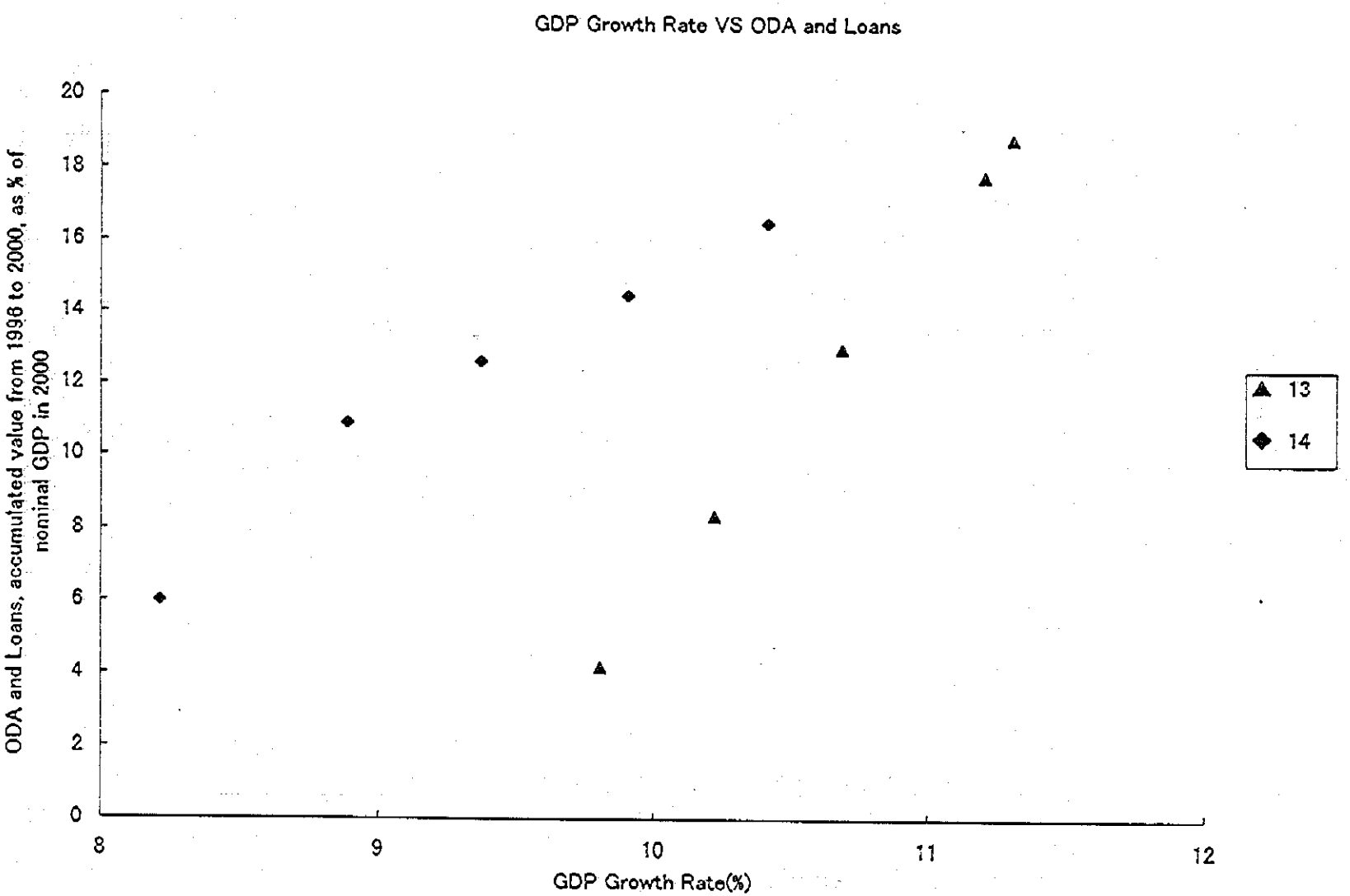


Monetary Model 2 (13,14)

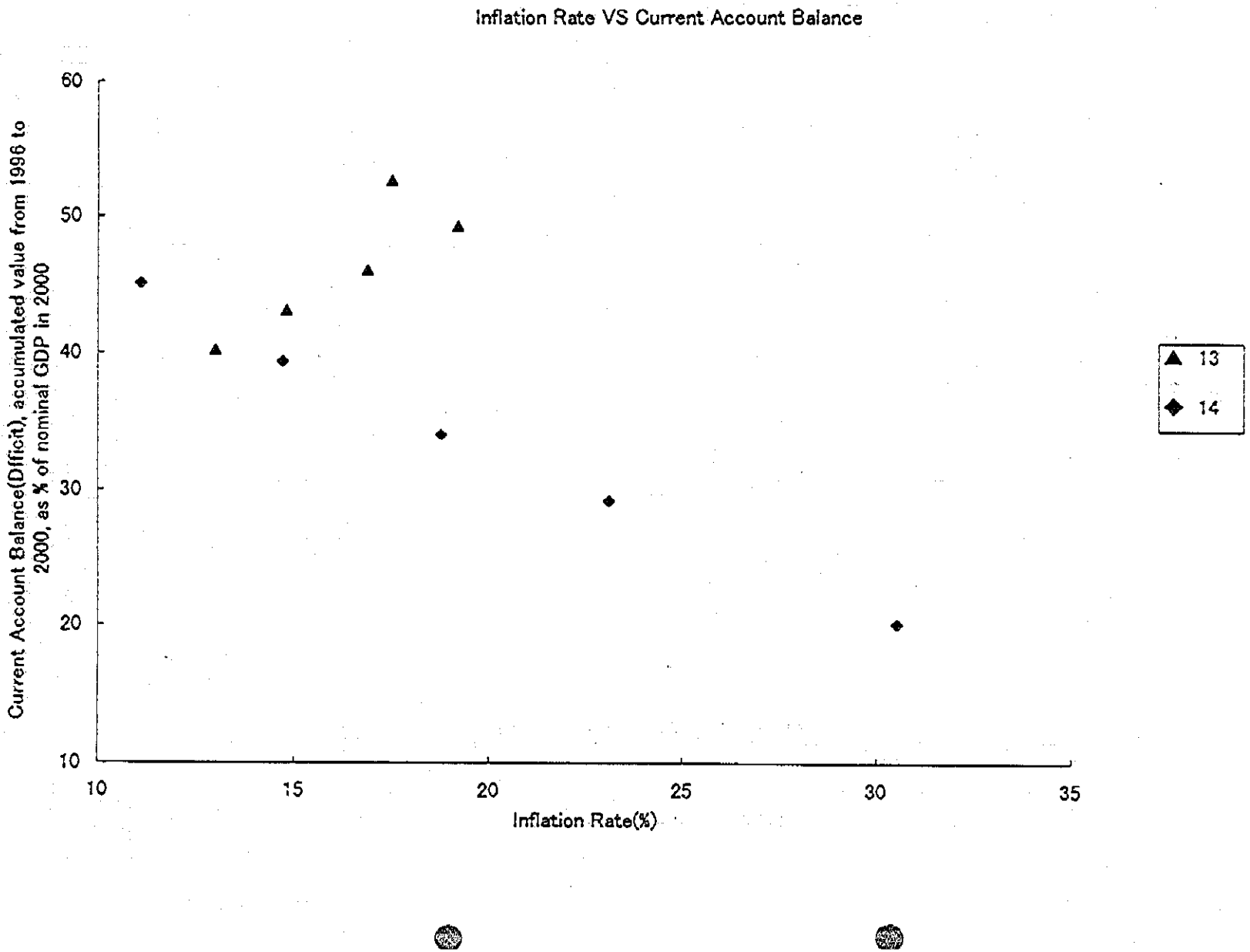
GDP Growth Rate VS Budget Deficit



Monetary Model 2 (13,14)

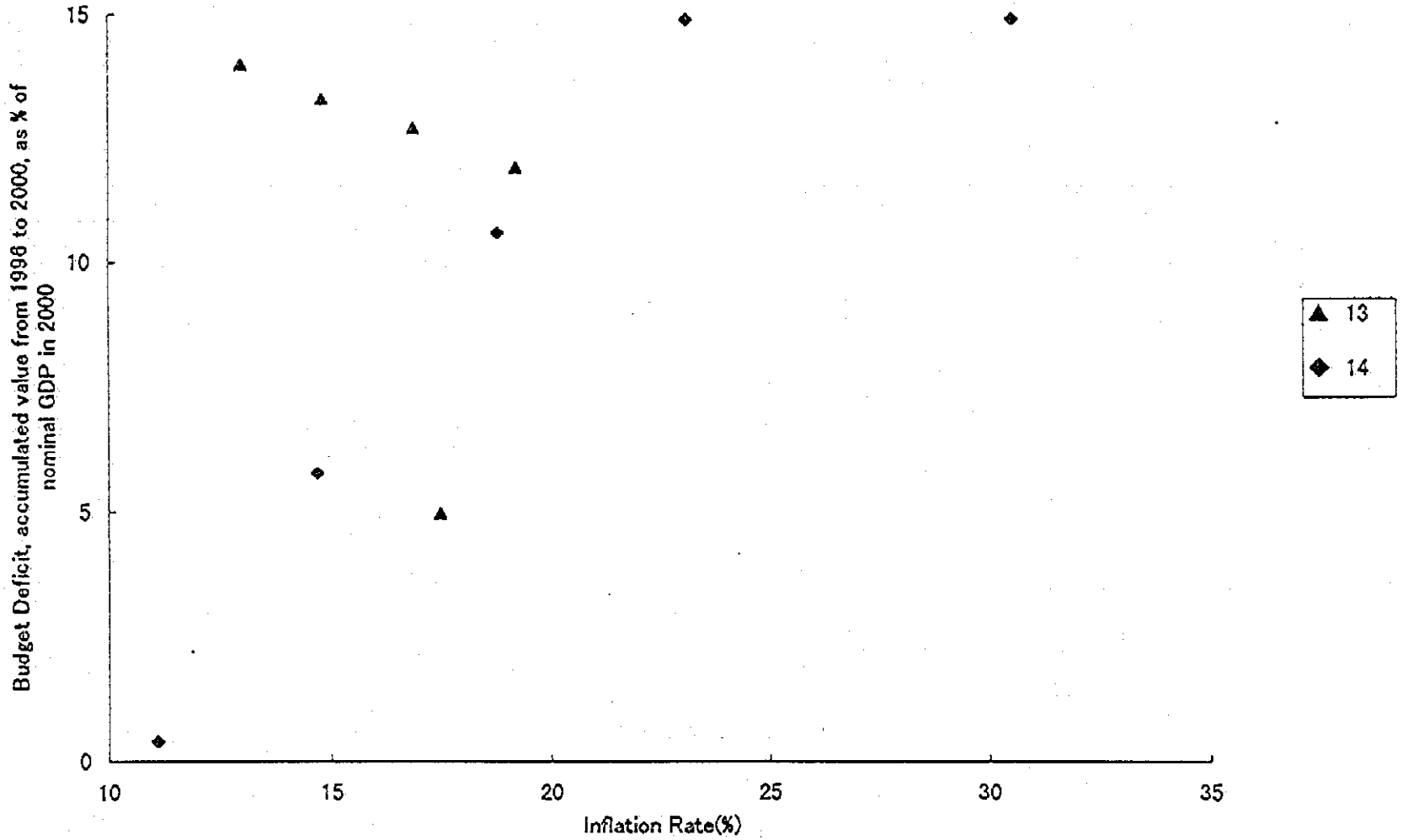


Monetary Model 2 (13,14)

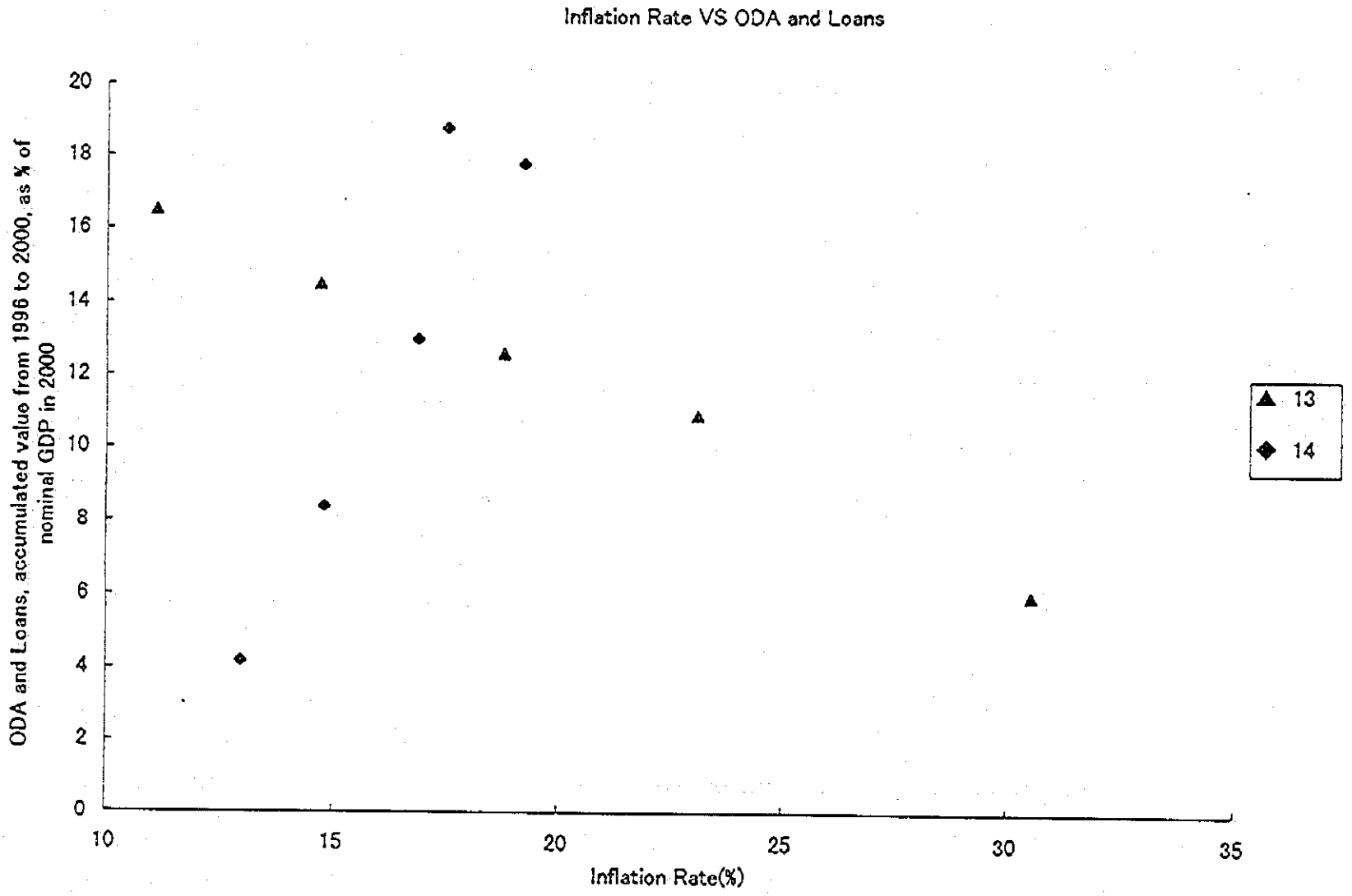


Monetary Model 2 (13,14)

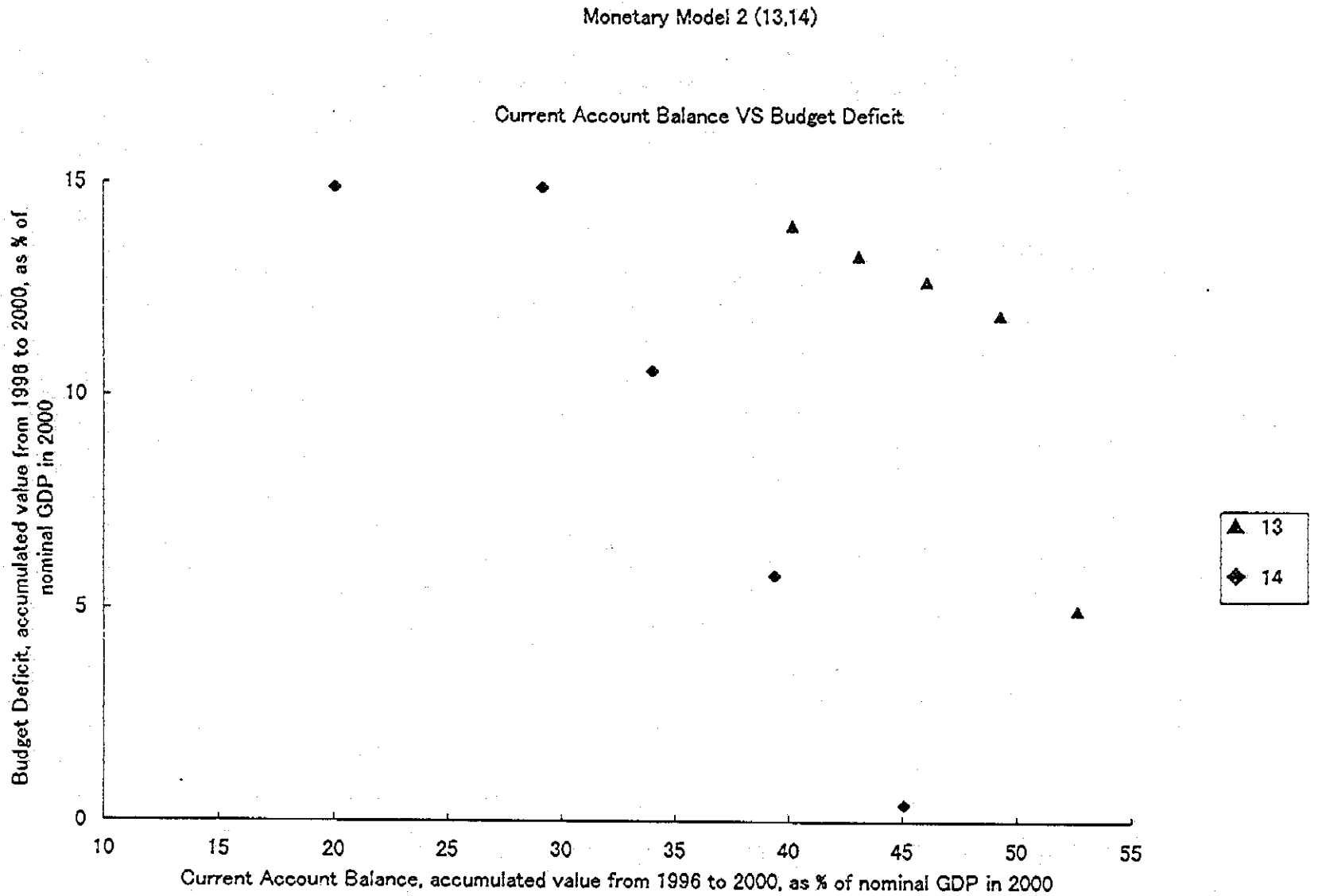
Inflation Rate VS Budget Deficit



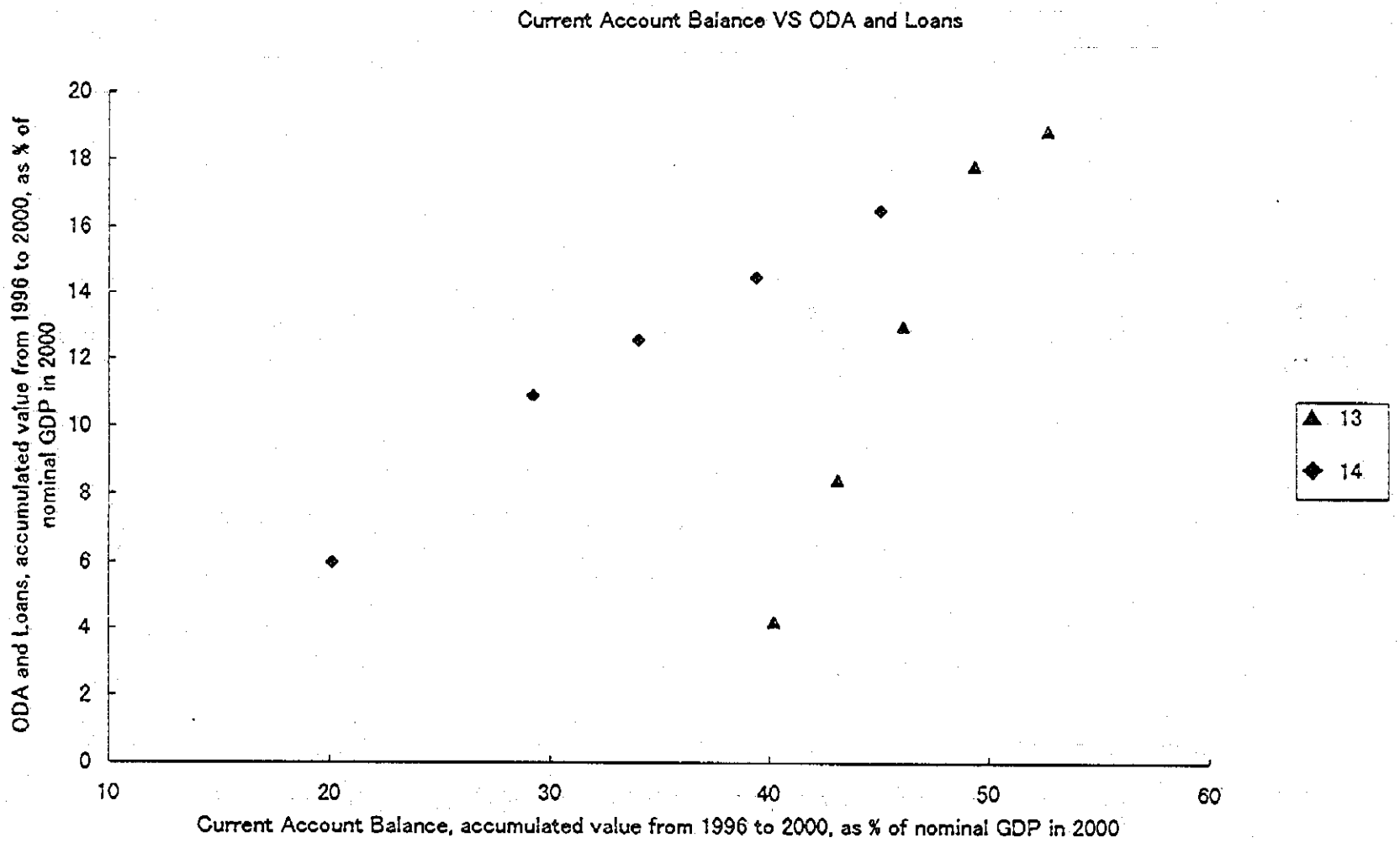
Monetary Model 2 (13,14)



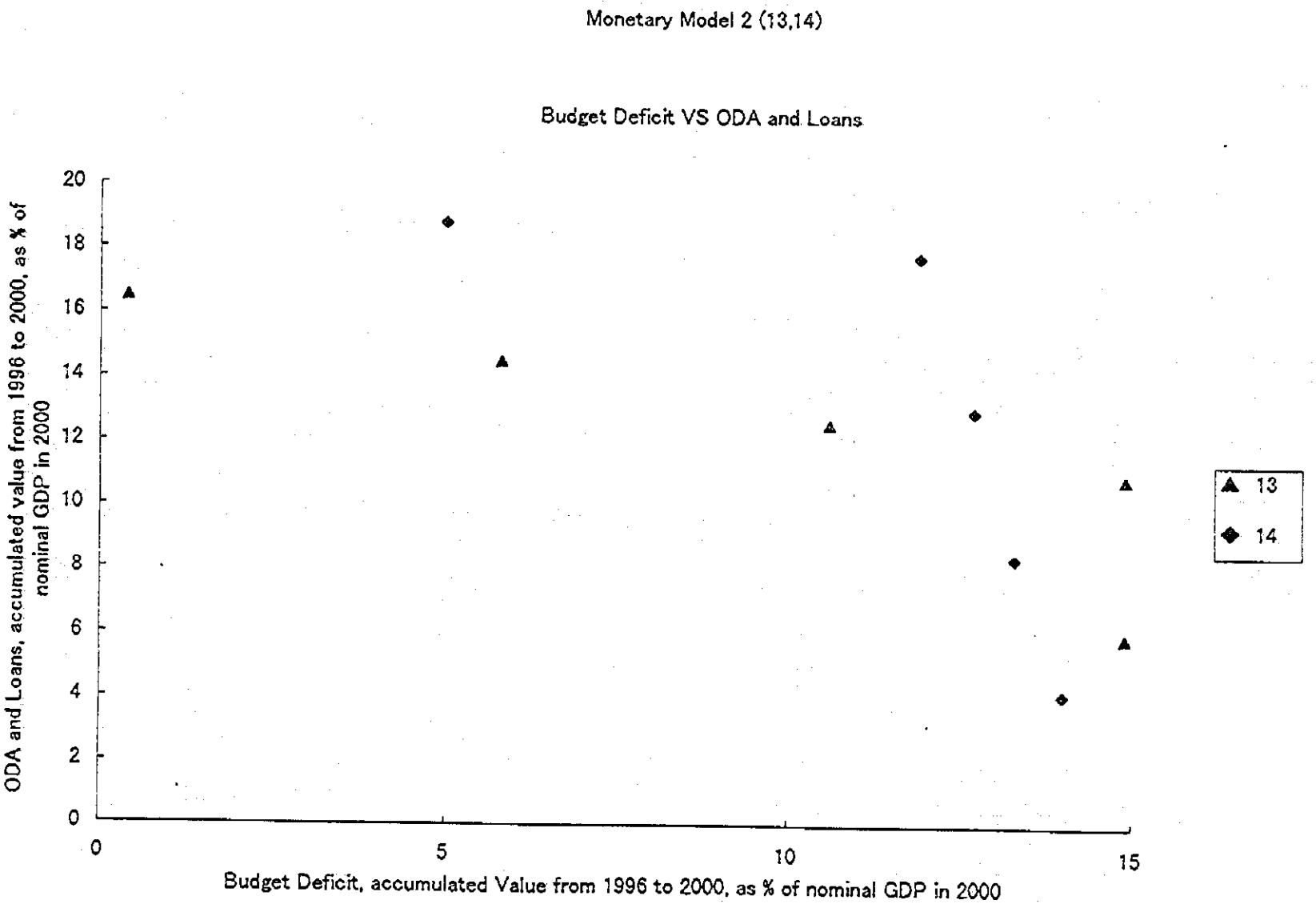
Monetary Model 2 (13,14)



Monetary Model 2 (13,14)



Monetary Model 2 (13,14)



Monetary Model 2 (6)

	GDP Growth Rate *1	Inflaton Rate *1	Current Account Balance *2	Budget Deficit *2	ODA and Loans *2	Comments: *3
1-1	10.0	1.5	63.5	-6.1	23.5	A,F,H
1-2	9.8	14.6	65.7	15.8	24.1	B,F,H
1-3	9.9	10.0	65.9	9.8	24.4	C,F,H
1-4	9.9	6.4	64.2	2.7	23.6	D,F,H
1-5	9.9	3.9	63.5	-1.4	23.4	E,F,H
2-1	10.6	1.6	69.6	-3.3	25.4	A,G,H
2-2	8.8	9.8	51.6	9.8	19.1	B,G,H
2-3	9.3	7.3	56.7	5.8	20.8	C,G,H
2-4	9.8	5.0	61.5	2.2	22.5	D,G,H
2-5	10.2	3.3	65.5	-0.5	23.9	E,G,H

Notes:

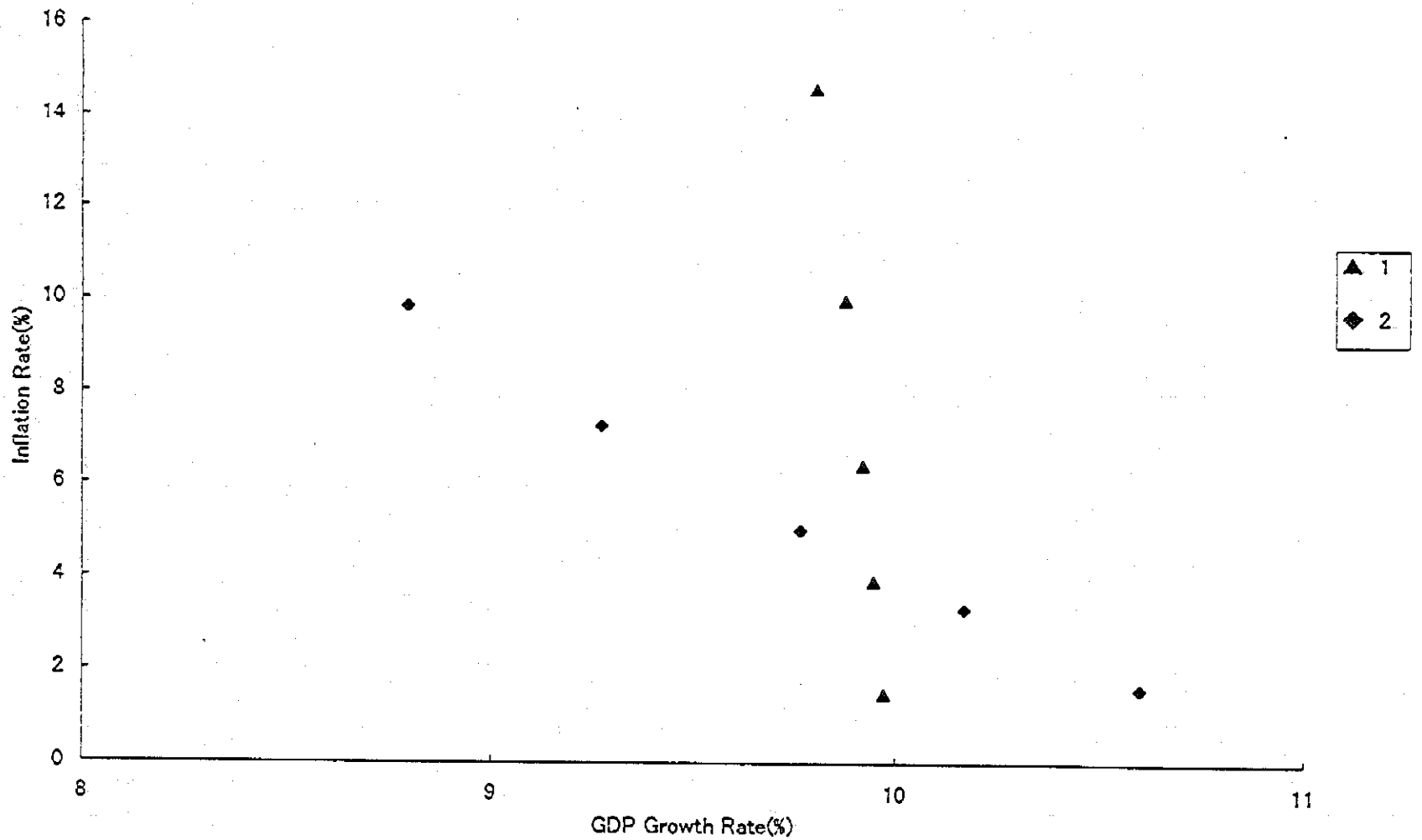
*1
average rate from 1996 to 2000

*2
accumulated value from 1996 to 2000
as % of nominal GDP in 2000

*3
A: Real other IP growth rate: 20%
B: Real other IP growth rate: 0%
C: Real other IP growth rate: 5%
D: Real other IP growth rate: 10%
E: Real other IP growth rate: 15%
F: Fixed real exchange rate
G: Nominal exchange rate is depreciated at 4% per annual.
H: SP/YP remains at 0.10

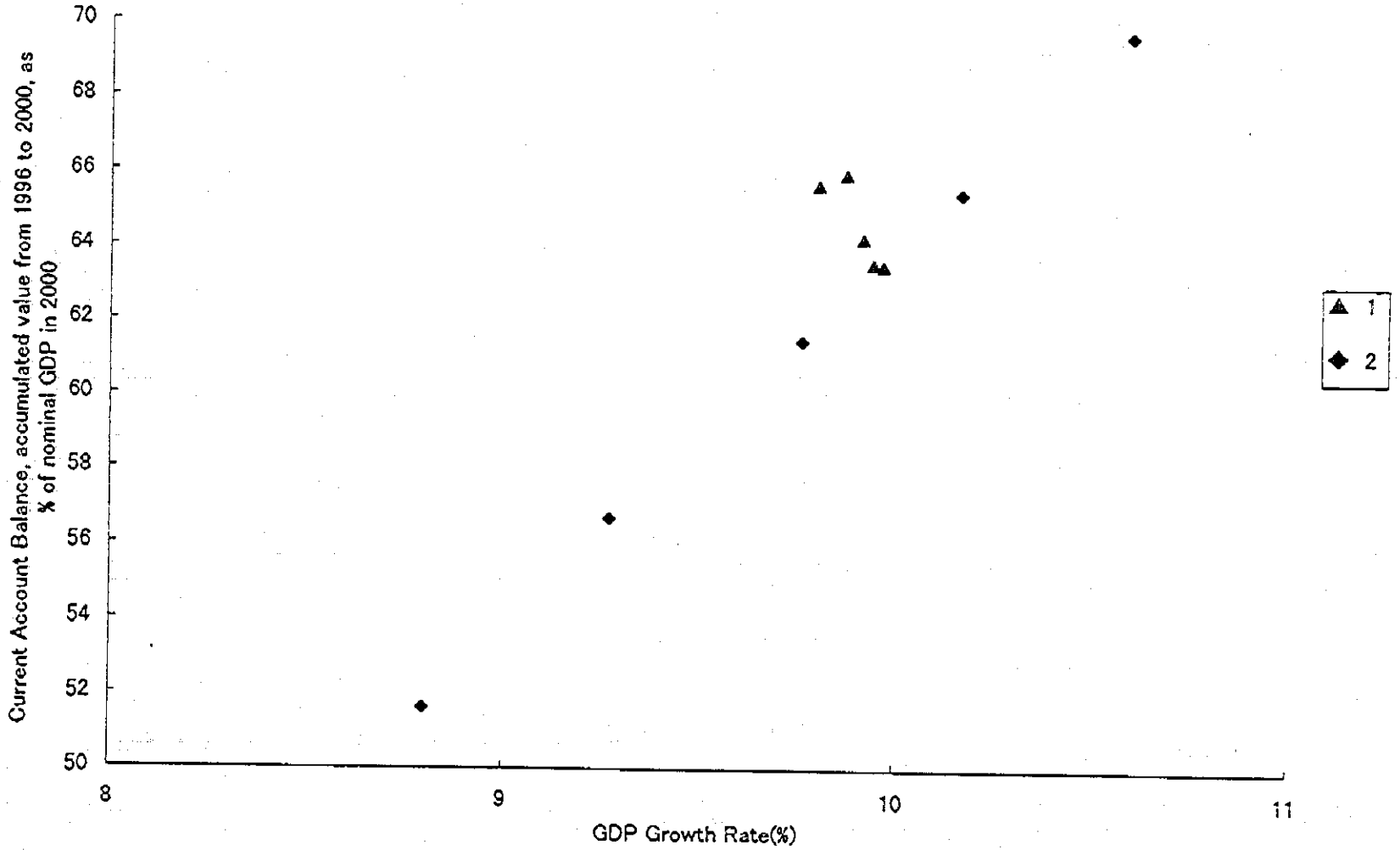
Monetary Model 2 (1,2)

GDP Growth Rate VS Inflation Rate



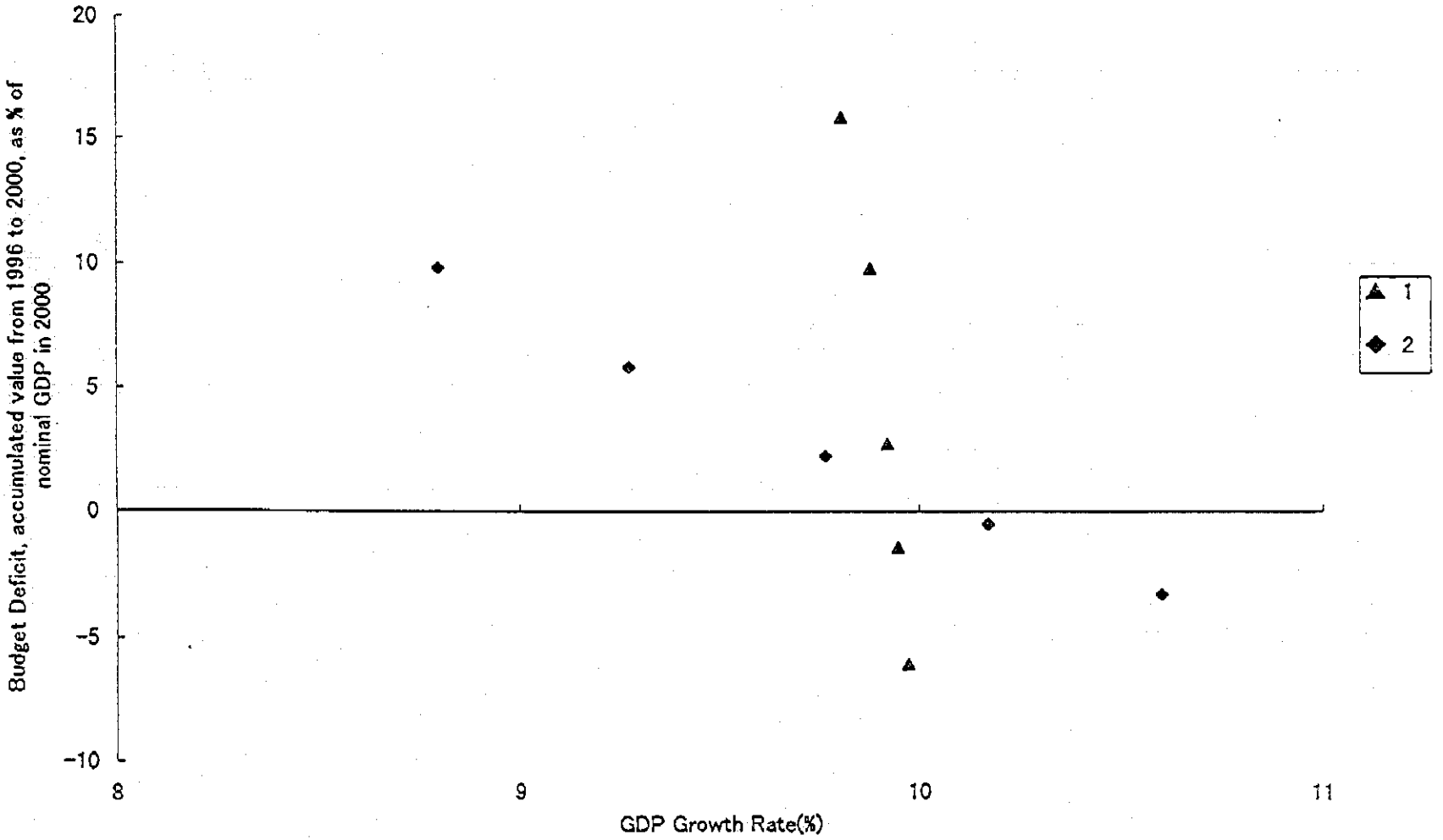
Monetary Model 2 (1,2)

GDP Growth Rate VS Current Account Balance



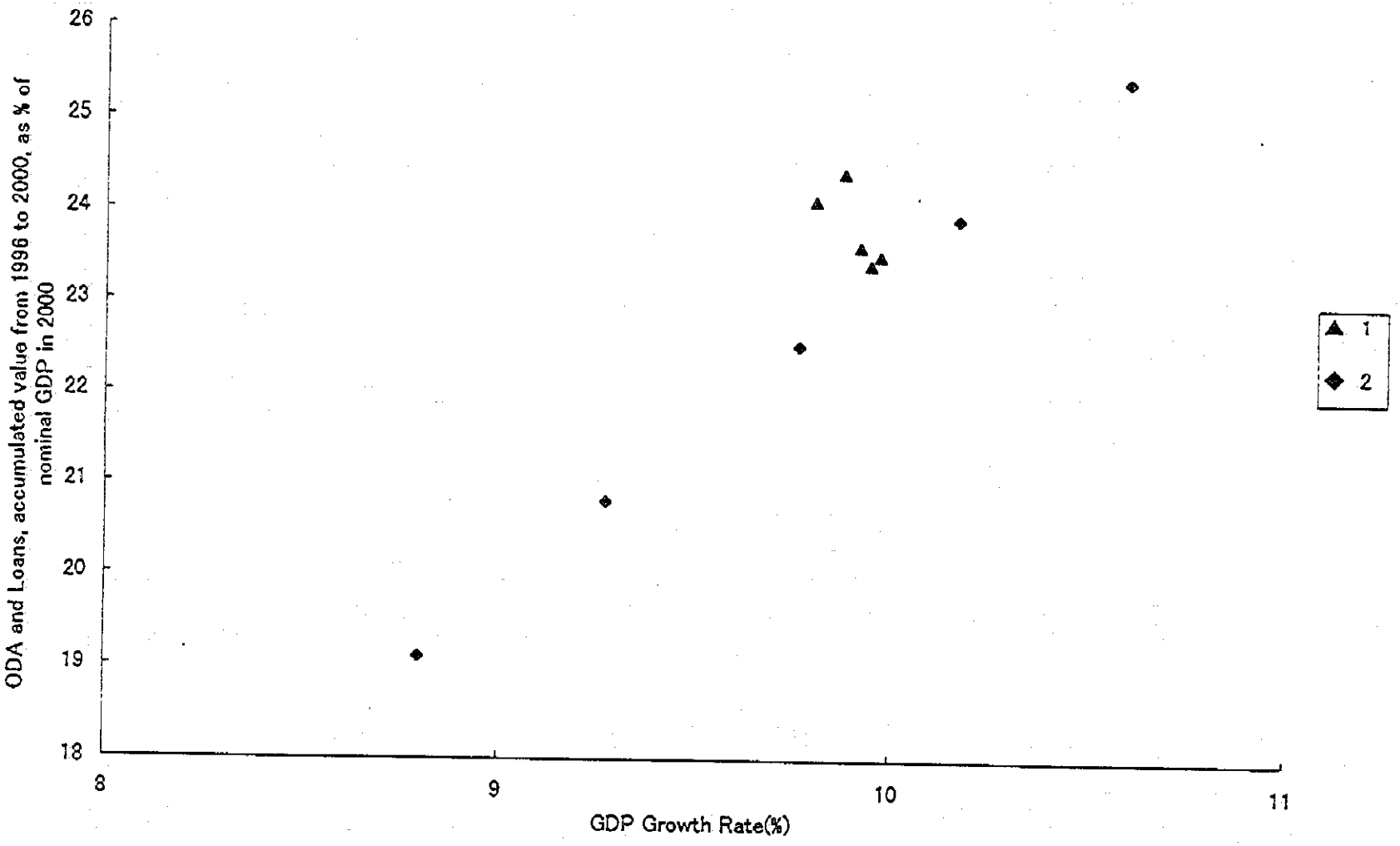
Monetary Model 2 (1,2)

GDP Growth Rate VS Budget Deficit

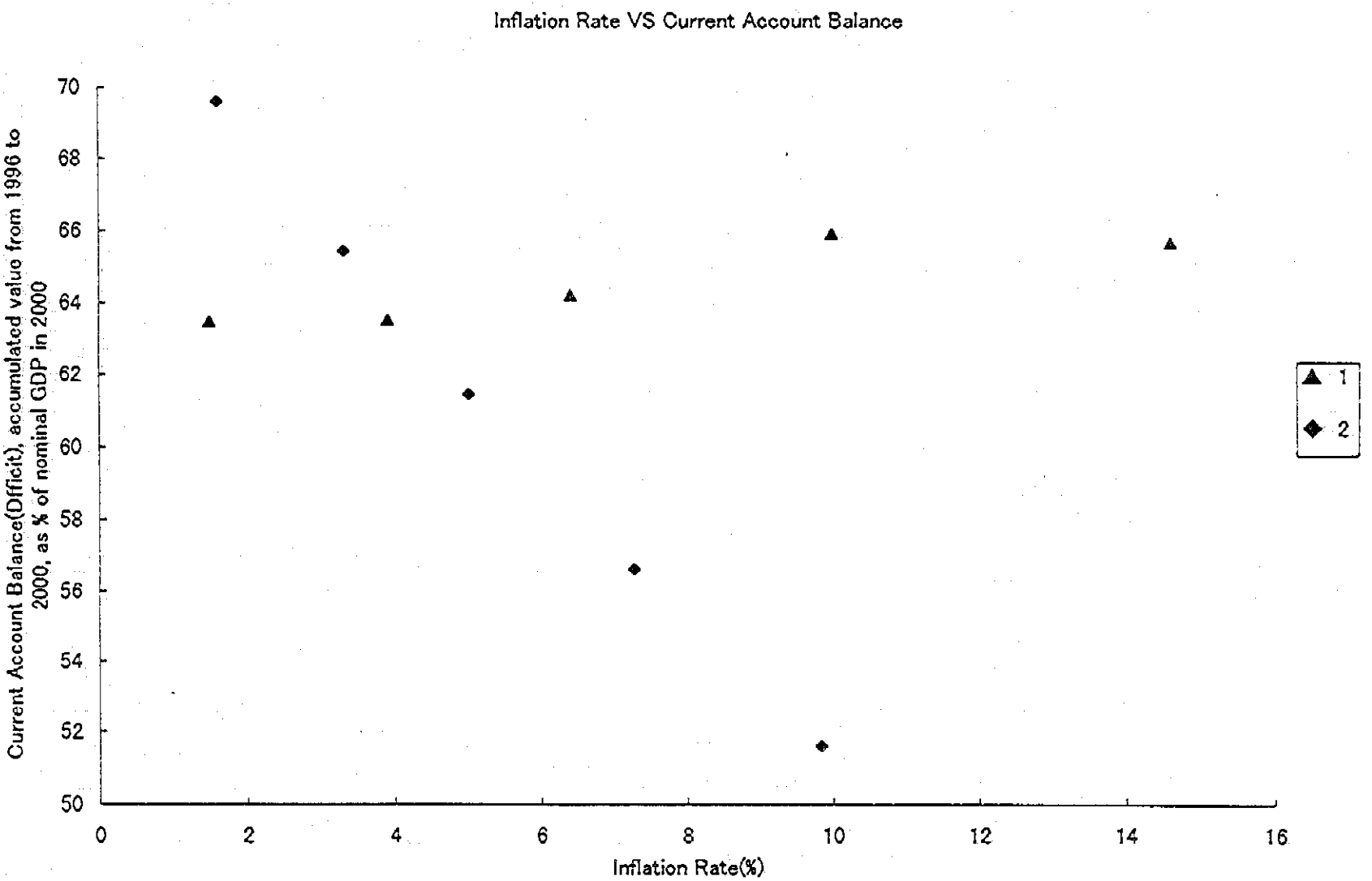


Monetary Model 2 (1,2)

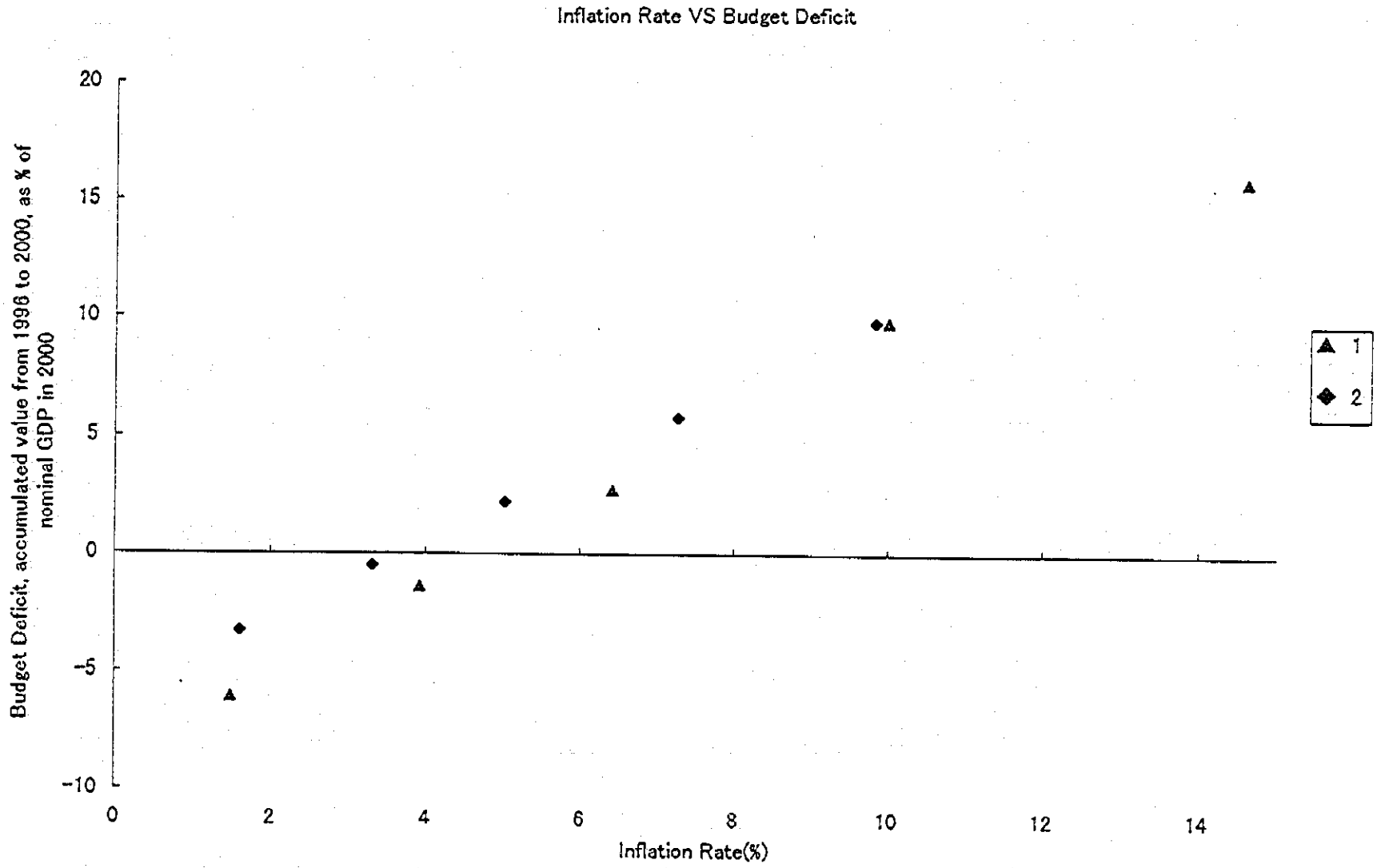
GDP Growth Rate VS ODA and Loans



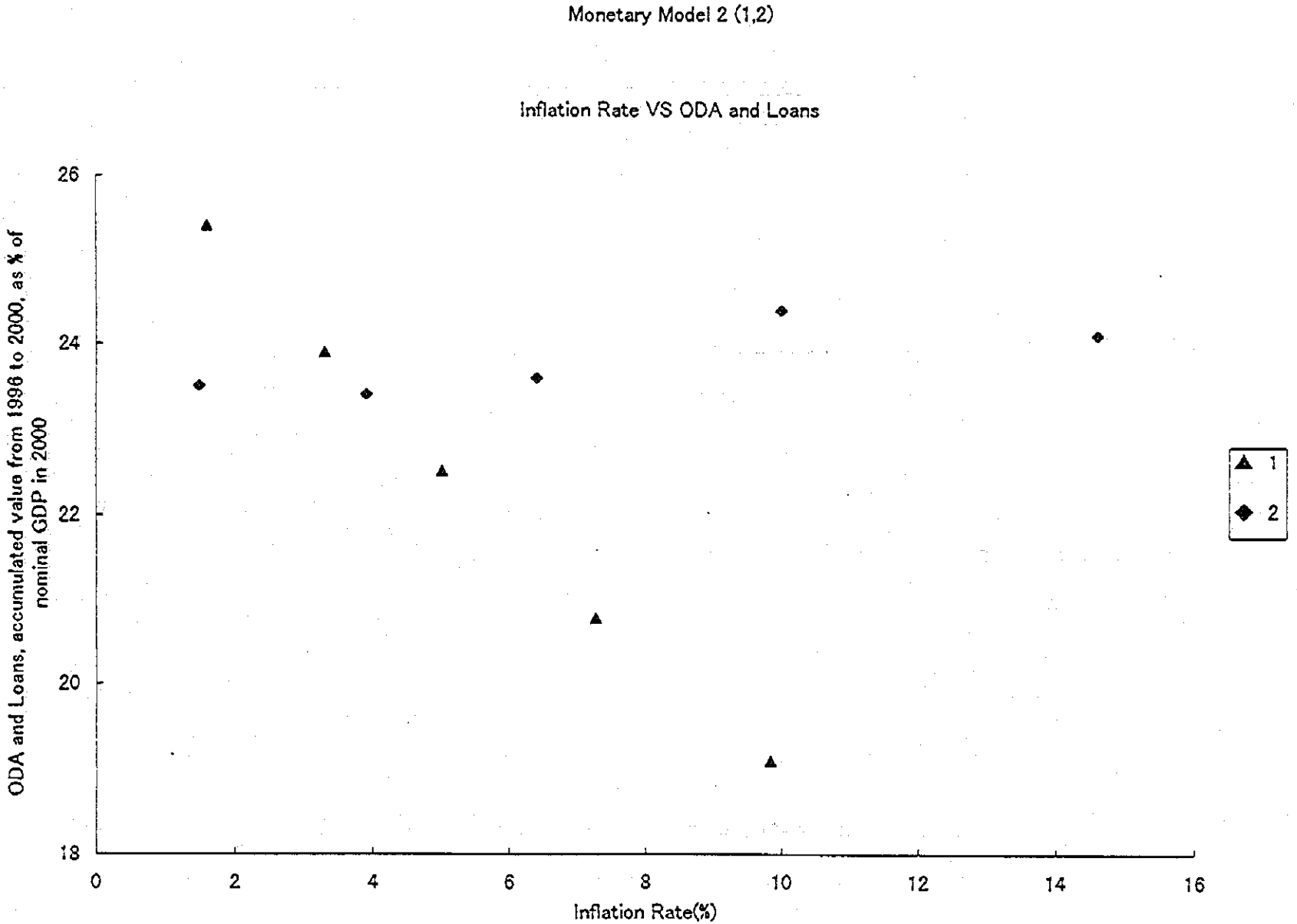
Monetary Model 2 (1,2)



Monetary Model 2 (1,2)



Monetary Model 2 (1,2)



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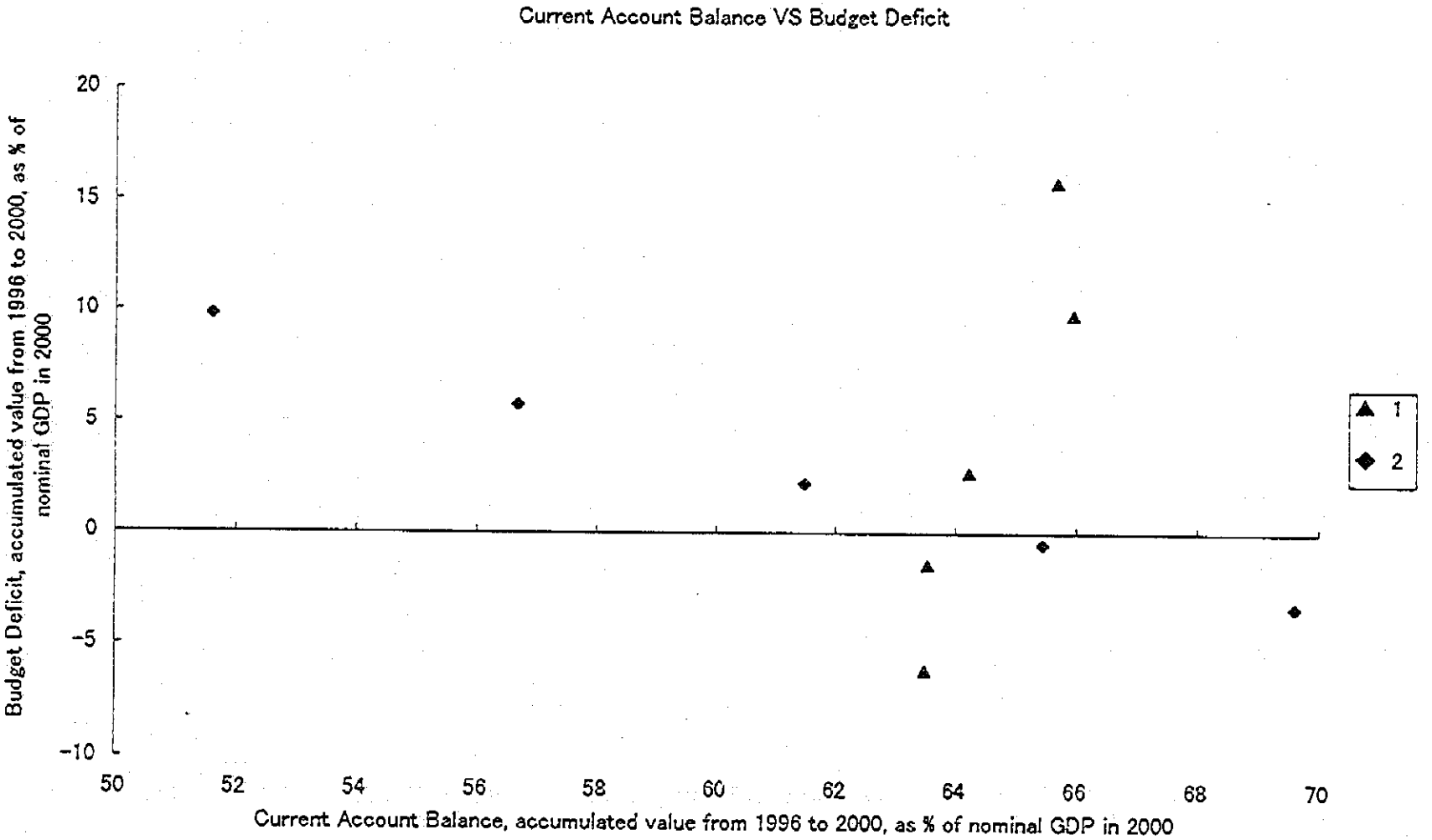

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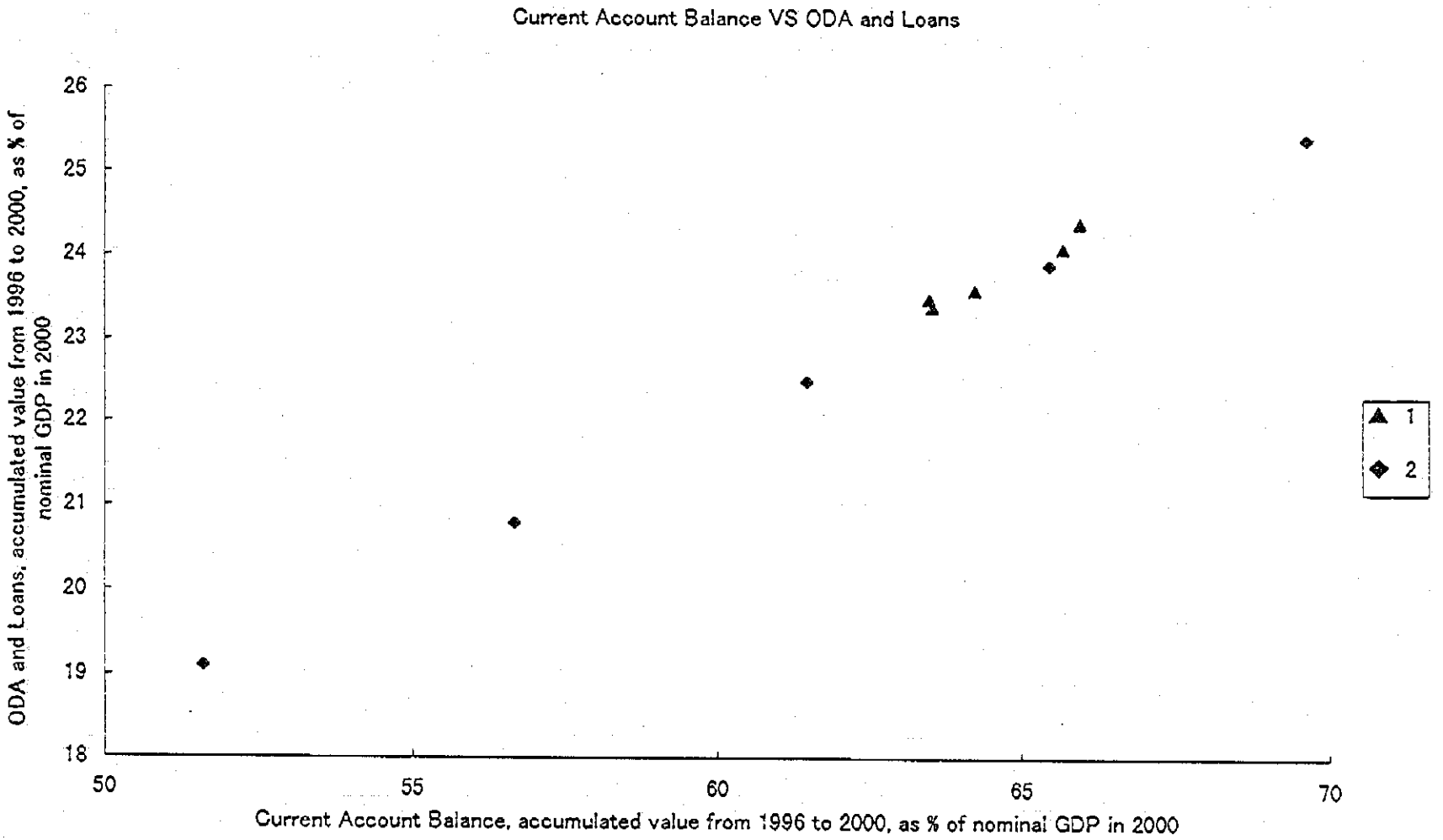

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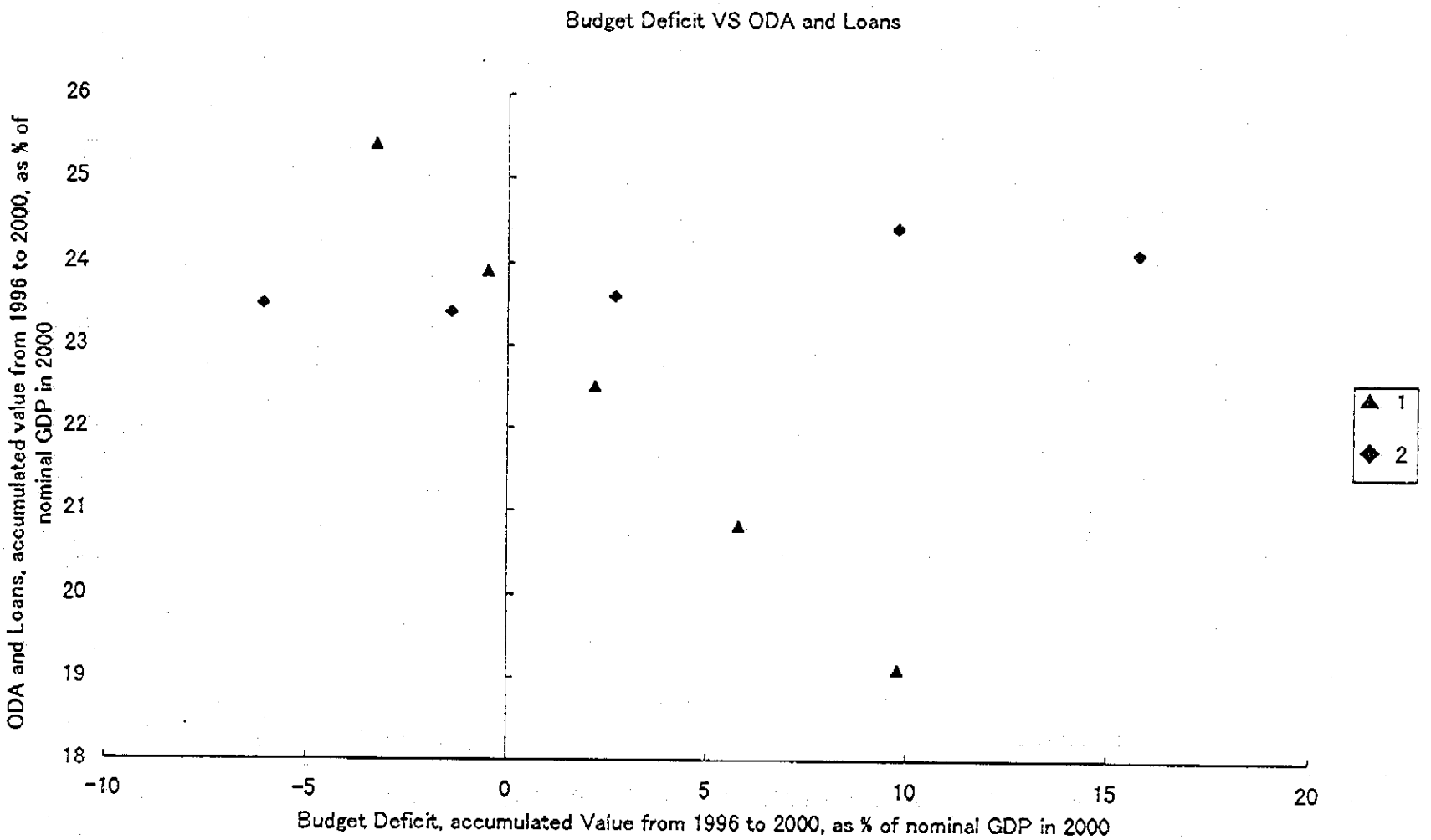


1-3 Supplementary Note on Macroeconomic Statistics of Viet Nam

It is widely considered that economic statistics are essential to any kind of macroeconomic study. In Viet Nam, where striking economic reforms have been undertaken in the past decade, its statistical system is in the process of reform. The provision of economic statistics on an established basis is inevitably required for economic management by the government and macroeconomic research, both inside and outside the country.

The objective of the present study is (a) to survey the present status of Viet Nam's statistical systems; (b) to identify the major problems facing each of major economic statistics, considering the transition to a market economy and corresponding statistical system; and (c) to raise some suggestions for further improvement.

Part of the information on Viet Nam's statistics referred to here was obtained from the final report of the consignment work conducted by the Viet Nam's side of this project.

(1) Statistics in Transition

Statistical System of the Country

Viet Nam has a kind of centralized statistical system, which is to some extent similar to those of former centrally planned economies. The General Statistical Office (GSO) has the predominant functions and responsibility relating to government statistics. At present, statistical data are collected through two channels: (a) statistical departments of ministries and agencies collect data mainly in the form of statistical reports from the economic sectors controlled by the central government, centering on large-scale economic units like SOEs, and submit them to the corresponding departments of GSO; and (b) local governments (provinces, districts, etc.) collect data covering small-scale economic units, part of which are taken from statistical surveys, and submit them to GSO. GSO is solely responsible for the compilation and publication of statistics.

An organization chart of GSO is shown in Chart I- 21.

National Account Statistics

GSO is in the process of implementing the UN System of National Accounts (SNA). At present, only limited indicators like GDP are published annually.

SNA, the international standard regarding the definition and the accounting system of national accounts recommended by the UN for the purpose of promoting international comparability, is to be estimated based on macroeconomic statistics which record the entire economic activity of the country. In Viet Nam, GSO has started to use SNA with the help of UNSO in 1990. In 1992 it was decided to replace "a system of the balances of the national economy", commonly called MPS (material product system), with SNA. Since then GSO has been attempting to use the new account system.

A sample survey was conducted from 1989 to 1991 with the help of the UN. As a result, 1989 SNA figures were calculated. 1989 Input-Output table was also compiled, which was the only attempt at such compilation up to the present. Figures for the years after 1989 were estimated based on the results of business surveys in 1992 and 1994, statistical reports for the Ministry of Finance (MOF) and the State Bank of Viet Nam (SBV), and the 1989 survey results. Another sample survey for SNA is planned to be carried out in 1997.

Published in the Statistical Yearbook by GSO are GDP by industrial sector both at current prices and at constant 1989 prices, GDP by ownership and sector both at current prices and at constant 1989 prices, and "the balance of GDP" by sources and use at current prices. For this project GSO provided us with nominal GDP and nominal and real GDE (gross domestic expenditure) and their breakdown for 1986-94 (partly 1995). Figures not shown in official publications were estimated using unpublished data.

As for capital stock data, figures for SOEs are published in a report published by GSO and those for others are held by the General Office of Public Assets and the General Office of Capital and Investment, MOF, the latter not being published by GSO.

Price Statistics

GSO currently publishes a monthly Consumer Price Index and a quarterly Export-Import Price Index. And they have just started the calculation of Production Price Index and Transport Price Index (1996-).

The system of compiling CPI has recently been revised aiming at a more accurate grasp of price levels, or inflation. Under the new system from 1996, price data for around 300 items are collected by a retail price survey. The survey covers all 53 provinces and major cities. The largest five markets are selected in five major cities including Hanoi and Ho Chi Minh City, while three markets are selected in each province. Only two markets are selected for mountain provinces. In each market, prices are surveyed daily, the ratios of the average prices to those in the previous year calculated every 5 days, and a report submitted to GSO on the 25th of each month. The index weights are obtained from household surveys conducted every five years. The survey samples 10% of households in urban areas, 5% in rural areas. Then a Laspeyres-like index is calculated. An index based on month-to-month changes is published monthly, and a year-to-year one in December. Approximate estimates for the Laspeyres index can be calculated from the original series.

CPI from 1990 to 1995 was calculated with 175 items and fixed weights. Consumer durables such as washing machines and air conditioners, which have become popular in recent years, were not included. Motor cycles were included but given a very small weight. It is pointed out that for this period the price of rice had a large weight which influenced CPI movement.

For 1980 to 1988, the Retail Price Index was compiled by GSO in such a way that the General Price Index is calculated as a weighted sum of the Official Price Index and the Free Market Price Index. With price reform in 1989, there was no longer any distinction between official and free market prices after 1989. The Free Market Price Index may not indicate the real situation for this period since it probably lacks reliability and validity because price data were collected in a restrictive way.

The Export/Import Price Index is calculated based on a report of fob/cif prices of major items from trading companies through the Ministry of Trade. The Producer Price Index is compiled from the survey results of around 600 items, provided by ministries in charge of respective items.

The State Price Commission (SPC) at present has two functions; (a) to assist the government to control the price level in general; and (b) to control the price of SOE products, particularly monopoly goods. It collects daily retail prices for major items and publish them in a daily magazine. It also surveys production prices for major items but does not publish them because the discrepancy from retail prices is considered delicate at this stage of economic development.

Monetary and Financial Statistics

Money stock is reported by the State Bank of Viet Nam (SBV). Figures for aggregate cash currency is available from 1986, and for demand deposits and bank reserves from 1989. The General Customs Office, SBV, the Bank for Foreign Trade of Viet Nam, and the Ministry of Finance (MOF) have attempted to estimate the US dollars in circulation. However, the estimates are regarded as being far from the reality. The government is equipped with very little means to gauge the amount remitted by 2 million Viet Nam's living abroad and the amount brought into the country by 1 million tourists a year.

To make interest rates an instrument of monetary policy, SBV has taken initial steps including the transformation from direct lending to commercial banks to a rediscount system. However, this tool is still in a crude form in Viet Nam due to the lack of instruments such as the commercial paper of enterprises. Rediscount rate figures from 1992 are available from SBV. The short-term money markets were formed by SBV at the end of 1994. These newly operated markets are still to be developed and interest rate figures will be published by SBV.

The government deficit is calculated by the Government Budget Department, MOF, on the basis of estimation.

Balance of Payments

GSO is only responsible for trade statistics. These are compiled based on the report of the Ministry of Trade, which combines reports submitted by companies and local governments. Other parts of international balance of payments are shared by the Ministry of Trade, SBV, and MOF.

Labor Statistics

In 1989, a large-scale labor force survey was conducted by GSO. Since then, a number of small-scale sample surveys that staff visit sample households and conduct interviews have been conducted by the Ministry of Labor (MOL) and GSO. Employment and unemployment are surveyed by GSO. Data on working hours are collected by MOL from enterprises and local governments. Wages are gauged by GSO with reports from ministries and local governments. The statistical definition of "wage" corresponds to wage and income in the public sector. For the private sector, including manufacturing and service industries, "income" is surveyed.

(2) Problems

National Account Statistics

As the implementation of SNA in Viet Nam is still to be promoted, GDP figures should be read with some caution. One should bear three points in mind to understand the economic development of Viet Nam and its GDP.

First, it is not acceptable to use the series of annual GDP figures as usual time series data. Up until 1989 or 1990, GDP indicators are officially not available. Some existing figures are estimated from an experimental computation in the framework of a UNDP funded project or estimated in research papers by academics. Even for the period after 1991, GDP does not necessarily stand for the same object, because of insufficient coverage and methodological change, although the situation has probably improved year by year.

Second, there remain some discrepancies between the system of calculating GDP in Viet Nam and SNA standards. For example, nominal GDP is not equal to, probably not equivalent to, nominal GDE. Of course, in any country GDP and GDE are subject to some statistical discrepancies due to differences in estimation methods and basic data, etc. This discrepancy should be included in the GDP tabulation in order to adjust for the difference between GDP and GDE. In Viet Nam, however, it seems necessary to take substantial steps to fill the substantial gap. The gap between the figures becomes even larger in real terms, resulting from other difficulties in estimating deflators. In short, GDP indicators are compiled not from the harmonized system of national accounts, but from the limited basis of production accounts without coordination with other accounts.

Third, the reliability of the estimates suffers from insufficient coverage. The scope of calculation does not yet cover all industrial and economic sectors. It excludes production activities of the Ministry of Home Affairs and the Ministry of Foreign Affairs and activities of non-profit organizations. It admittedly fails to collect a complete set of data from non-state economic sector activities, export and import activities through unofficial channels, or underground economic activities of households. The lack of such information may significantly distort the aggregates and lower their reliability and validity.

GSO carried out two surveys in 1993 and 1995, aiming at a more accurate estimation of GDP indicators. Intermediate input by each sector, key information for the calculation of value added, is estimated based on the results of the surveys. The surveys must contribute to the improvement of accuracy, but biennial surveys are not sufficient for annual tabulation.

As for the breakdown of GDP, there are some shortcomings. GDP is not broken down by institutional sector. Also, the breakdown by industrial sector is not complete. For example, "Fishery" was previously classified under three different sectors: seafishing belonged to Industry; aquaculture in lakes, ponds, and rivers belonged to Agriculture; and catching crabs and shellfish come under the other material production sectors. The three sectors are presently classified together under Fishery. In consequence, indicators of gross output, intermediate expenditure, and value added for Fishery have not yet officially been made public.

There is another issue to be noted concerning the GDP indicator. Every province and city calculates GDP for its own locality, which is often arbitrary due to methodological

problems and the intention of proving economic achievements. This explains why the GDP growth rates of most of the localities are usually higher than that of the whole country.

CPI

The history of CPI stated above suggests that one should observe the inflation indicator of Viet Nam with great care. First, validity of CPI figures is not assured due to the limited coverage and the transition of methodology. Second, the economic meaning of price, not the statistical definition of price, comes into question when one sees the series for the 1980's.

Besides the time series problems, some points are to be noted about the procedures for CPI compilation. The present CPI is actually a retail price index. In the markets in Viet Nam, "retail prices" surveyed may be different from actual consumer prices. It is possible that there is some difference in price levels between the largest markets selected for the CPI compilation and smaller stores. The difference, if any, imposes a bias on the index. At present, limited measures are being taken to accommodate the goods/services differently consumed by season and region.

Trade Statistics

Figures for both exports and imports are unreliable. Official statistics are compiled based on data from local governments and trading companies. As matters stand, however, it is difficult for the authorities to cover all the dispersed organizations relating to international trade. Moreover, it is widely recognized that a large amount of goods is smuggled in and such unofficial activities tend to be extensive. There is no quantitative information about contraband with the exception that the General Customs Office once made an estimate for 1991. Regarding exports, GSO reckons that local governments often control their exports in such a way that the central authorities can not grasp the situation.

Labour Statistics

The definitions of employment and unemployment are as follows: employment is defined as people who have stable jobs for six months or longer; unemployment as people of working age who have no stable job and want to work. With these definitions, the official unemployment rate does not necessarily show the real situation of the labor market. For example, in rural areas people often share a portion of work and go to the cities to find simple jobs or day labor. Many university graduates are unable to find jobs. Since there is no unemployment allowance in Viet Nam, everyone has to make his/her own living somehow.

There have been many surveys conducted to determine income, but the results are different from one survey to another and are probably lower than the real figures. One reason for this is that Vietnamese are not familiar with income surveys and income declaration and have not fully forgotten past history. On the other hand, it is common for one person to have many sources of income to supplement low income from a main job. This often makes it difficult to grasp total income because people tend not to mention their extra income.

(3) Conclusions and Implications

It is essential for government statistics to have a firm basis with clear definitions and suitable methods. To set up the conceptual basis, accumulating theoretical knowledge and practical experience is most important. This cannot be accomplished without writing all the necessary documents and manuals, and exchanging relevant information within the government. The information should be shared and belong to offices, not to individuals. Also, it is unfortunate if the fruit of joint projects with foreign institutions is not applied to statistics on a regular basis. Once the methodology is established, its basic part must be made public. Figures accompanied by no proper information are of no use for those inside/outside the government.

The tough budget constraint is a serious problem for the development of the statistical system of Viet Nam. It is hoped that the importance of statistics and needs for long-term efforts will be recognized by the budget authority of the country or foreign sponsors.

The present brief study suggests several implications:

One of the important elements of the statistical system is the total coordination of government statistics. It includes establishing a statistical classification. Basic classification systems of industry sectors, commodities, etc. should be immediately set up for common use in government statistics. It also includes the management of the entire statistical activities undertaken by GSO and other governmental organizations. Overlapping and lack of surveys and statistical reports should be resolved to improve the coverage of government statistics.

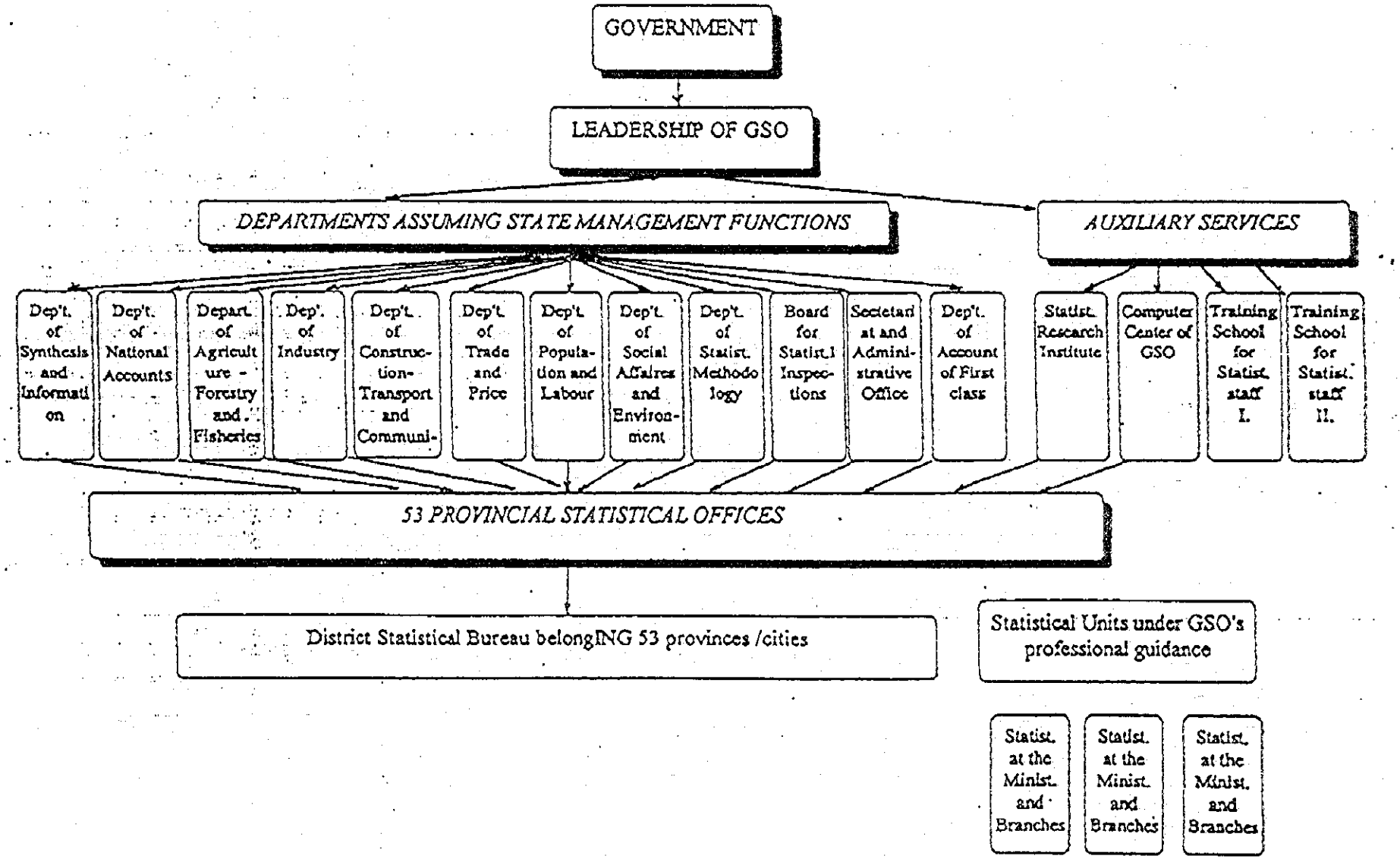
Fundamental statistics such as GDP with a firm basis are needed. Many of them are within the scope of SNA. An Input-Output table, the core of SNA, would be very helpful to summarize the entire economic activity of the country. In this field, however, there is an almost unsolvable problem, the existence of a significant underground economy including smuggling.

For macroeconomic and econometric studies, time series data are strongly needed. Regarding the rapid change of the economic and statistical environment in Viet Nam, it is absolutely necessary to document and publish, if possible, the transition of concepts and methodology, based on the latest framework. It is almost impossible to correctly revise the past series of figures with limited information. A balance between conservatism and progressiveness is always a question in government statistics.

International comparability should be secured in the process of developing statistical systems. It is desirable to organize within the government a system of statistical standards including definitions, classifications, and calculation formula, etc. according to the recommendations of international organizations such as the UN, IMF, ILO, etc. It is also recommended to fully participate in international activities such as the International Comparison Programme organized by UN.

In conclusion, one can see that the Viet Nam's statistical system is developing and is now at a crucial stage for the establishment of reliable basics. Much will depend on how efficiently it can absorb existing systems.

Chart I - 21 ORGANIZATIONAL SCHEME OF THE GENERAL STATISTICAL OFFICE VIETNAM



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Chapter 2. SOCIO-ECONOMIC DEVELOPMENT WITH PARTICULAR EMPHASIS ON THE ENVIRONMENT

2-1 Industrialization and the Environment in Viet Nam

(1) Present Status of the Environment in Viet Nam

1) General

Viet Nam is presently faced with serious environmental problems such as deforestation, soil erosion, over-exploitation of natural resources, threats to ecosystems, and industrial pollution. In response, the Vietnamese National Assembly passed the Law on Environmental Protection on 27 December 1993 which went into force on 10 January 1994.

Based on this law, the first report on the status of the environment was prepared in 1994. This report states that the main environmental issues warranting concern are those related to:

- Intensification of industrialization in terms of scope and pace,
- Transformation of the agricultural structure,
- Intensified urbanization, and
- Intensified exploitation of sea resources.

Also, the geographical areas most critical in regard to the environment are:

- Cities and industrial zones around major cities such as Hanoi, Hai Phon, Ho Chi Minh City, Bien Hoa, Vung Tau, and Ha Long,
- Sensitive coastal ecosystems,
- Mountain areas and the midland,
- Sea areas and the continental shelf where oil and marine products are exploited, and
- Areas of special ecological value.

In order to solve the problems, it is necessary to develop a national strategy on environmental protection vis-à-vis industrialization and modernization so as to ensure fast and vigorous, but environmentally sustainable, development on a nationwide scale.

2) Source of Pollution

A. Industry

In comparison with other ASEAN countries, Vietnamese industry is still not developed. In 1993 material production was about US$ 2 billion, the second source of GDP after agriculture. In Viet Nam, the big industrial centers are Ho Chi Minh City, Hanoi, and Bienhoa.

a. Ho Chi Minh city

In 1994, industrial production of Ho Chi Minh City amounted to US$ 710 million or 29% of the total production of Viet Nam. The most developed industries are textile, garments, food processing, cement, electronics, ship repairing, and machinery. They are concentrated mainly in industrial areas, and also distributed in several residential areas.

Over 90% of small enterprises are located in populated areas. Most industrial units do not have adequate pollution control facilities, and thus tend to cause serious environmental pollution problems.

b. Hanoi

The major industries in Hanoi are mechanical engineering, textile, food processing, chemicals and construction-material production. The biggest industrial park is Thuongdinh, located in the southwest of the city. It was established in the early 1960's. In 1993, there were 45 production units. Most of the existing plants do not install adequate pollution control facilities. As a result, environmental pollution has become serious.

c. Bienhoa

The Bienhoa industrial park, located in Dongnai Province 30 km away from the center of Ho Chi Minh City, was the biggest in the South of Viet Nam. This park was set up in the 1960's. The major industries are mechanical engineering, steel, pulp, food processing, chemicals, and wood processing. At present, the number of medium-sized and big industrial plants is over 60.

Because the park is isolated from the residential area, its pollution does not seriously impact the surrounding villages. However, it is close to the Dongnai River and plants lack adequate wastewater treatment facilities, hence causing water pollution.

As mentioned above, most existing industrial plants were constructed over 20 years ago, and the production technology is backward and productivity low. Besides most existing plants do not have effective pollution control facilities, and are located in or nearby residential areas. Thus, industrial pollution in Viet Nam is serious in some areas.

B. Transportation

Although transportation is still less developed, air and water pollution due to transportation in urban areas is serious. At present, there are about 500,000 cars and trucks in Viet Nam, and more than 2,000,000 motorbikes.

Because most cars and trucks were produced in the 1970's-1980's and some even in the 1950's, air pollution caused by particulate matter, such as SOx, NOx, hydrocarbons, and lead from exhaust gas are the major environmental problems in urban areas.

Water transport, particularly in the Mekong Delta, is very common. In the Mekong Delta, 10,000 power boats are the main means of transportation. They are the main sources of oil and grease pollution in rivers and canals in the region. Oil pollution caused by marine transport is also significant in harbor areas.

C. Domestic waste

The major source of pollution in Viet Nam now is domestic waste, including sewage and solid wastes. While pollution caused by industry and transport occurs mainly in urban and industrial areas, pollution caused by domestic waste is found over larger populated areas. The major reason is the lack of proper facilities for domestic waste control. Particularly in the Mekong Delta, most farms directly discharge wastewater and rubbish into rivers and canals, causing serious water pollution.

3) Present Situation and Causes of Environmental Problems

A. Air pollution

Air pollution becomes a serious problem in the big cities and industrial zones of Viet Nam. The major causes of air pollution are as follows :

a. Dense population in urban areas

Population density is quite high in some cities. For example, in the central district of Ho Chi Minh City it is over 100,000 inhabitants/km^2.

b. Location of industrial units

In Ho Chi Minh City, there are about 700 factories and 30,000 small industrial and handicraft production units, over 90% of which are located in residential areas and lack adequate air pollution control facilities.

c. Low vegetation coverage

Although located in the humid tropical region, most Vietnamese cities have very few gardens, parks and trees. Except for Hanoi, vegetation coverage is lower than 1 m^2/inhabitant in urban areas.

d. Old transport means

Most of the cars and motorbikes are old, causing serious air pollution and noise problems. Air pollution has a serious impact on health according to the medical statistics.

B. Water pollution

Air pollution mainly occurs in the cities and along the roads. To the contrary, water pollution is observed in almost all regions of the country.

a. Ho Chi Minh City

Acid sulphate soil (ASS) is found over a large part of the Plain of Reeds (in the North East Mekong Delta). The Saigon River has the highest acidity, especially the beginning of rainy season (May-July); pH values become lower than 6.0. BOD concentration is usually less than 10 mg/l. In the stretch from Saigon Bridge to Tanthuan, it is as high as 20 - 30 mg/l.

The major causes of water pollution is discharge of untreated domestic and industrial waste into the canals. Discharged water from industrial facilities is not only toxic to people, but harms aquatic creatures and then causes constraint for self- purification of the canal water. Attention should be paid to this point in planning environmental improvement program of the City.

b. Hanoi

The major pollution in the rivers and lakes of Hanoi is also organic matter from waste water, rubbish, and industrial effluent. Generally, the Red River and lakes are much less polluted in comparison with the Saigon River and canals in Ho Chi Minh City. Hoankiem, Thuyenquang, Baymau, and Trucbach lakes are evidently polluted by domestic wastewater and eutrophication has occurred.

C. Solid waste

Solid waste treatment and disposal is a great problem in Viet Nam. At present, most solid waste comes from domestic activities and the ratio of industrial waste is less than 20%. The capacity of solid waste collection in Hanoi is less than 50% and about 90% in Ho Chi Minh City. The remainingwaste is mainly dumped into canals, rivers or lakes.

Collected solid waste is mainly transported to landfills. Because landfills are made without any sanitation measures, air, soil, and ground water pollution occurs. Because of protests by local people, the former landfill sites in Ho Chi Minh City were moved to other places far from the city. There are no solid waste incinerators or recycling program. No city in Viet Nam has adequate facilities for disposing of hospital and toxic waste.

(2) Present Status of Industrial Pollution in Viet Nam[1)]

1) Energy Industry

Viet Nam has total electricity capacity of about 4,000 MW, of which hydroelectric accounts for 66%, thermoelectric power 21%, and diesel and gas turbine energy both 13%. In the last five years, the annual growth rate of hydroelectric product in Viet Nam was 13.3%. Nowadays, thermoelectric plants in northern Viet Nam still use coal for running generators. The coal consumed by three plants (Pha Lai, Ninh Binh, and Uong bi) was 480,000 tons in 1993. The sulfur concentration is 0.74%, and these plants discharged 6,713 tons of SO_2, 2,724 tons of NO_2, 278,000 tons of CO_2, 1,490 tons of dust particles, and 203,500 tons of refuse. In 1995, the amount of coal used by these plants had doubled the 1993 figure, and so did emissions. Although the plants use dust collection equipment, they do not have facilities to treat toxics like SO_2.

In the near future, hydroelectric plants will be built Hoa Binh, Da Nhim, Tri An, Yaly, and Hinh. In these, air, water, and solid waste will be treated like in other industrial plants. But environmental degradation regarding the ecological environment, exploitation of land, floods, and underground water may be significant. Thus, careful planning is needed in constructing them.

2) Metal Industry

Cast iron, steel, and some colour metals facilities have been developed. But, because their size is small and technology old, investment is incomplete and the level of pollution has reached an alarming level, especially in areas like Thai Nguyen, Bien Hoa, and Nha Be.

Dust and toxic substances are emitted from the cast iron and smelting plants, and pollute the air with CO, CO_2, SO_2, phenol, and SO_3. In Thai Nguyen, 11,115 tons of solid waste and 14,712,000 m^3 of waste water were discharged annually. The amount of steel increased to reach 40,000 tons in 1995. The emission and waste from the colour metal industry contains heavy metal, and thus the pollution level is increasing. Gold mining using mercury and cyanide has a long history. Thus, smelting substances tend to cause water pollution near the water resources.

3) Mining Industry

Viet Nam is potentially rich in minerals, and exploiting them in the past has had an environmental impact. The land surface has deteriorated severely in Cao Bang Tin Mine, which has 2,900 tons of pure ore (nearly 3 million m^3 of land has been excavated). The waste water contains heavy metal and other highly toxic chemical substances.

During oil surveys and exploitation, effluents discharged: the Bach Ho Mine discharges 3,370 tons of waste water daily, 53,529 m^3 of domestic waste water and 616 m^3 of solid waste annually. The mine also discharges 1,380 million m^3 of emission annually for burning off gas during exploitation. The emission contains CO_2, CO, NO and SO, and volume increases when oil and gas exploitation is expanded.

4) Chemical Industry

A. Chemical Fertilizers

In Viet Nam, there are three types of fertilizer, urea phosphates and mixed. In Ha Bac, a nitrogen fertilizer plant was built in 1970. It emits 212,000 m^3 of gas hourly, which contains CO, CO_2, NH_3, and SO_2. It also discharges 6,000 m^3 of waste water hourly, which contains phenol, NH_3, As, P, and solid waste.

Annual capacity of the Lam Thao Phosphate Factory is 160,000 tons of H_2SO_4 and 500,000 tons of phosphate. This area is the most polluted in Viet Nam. The plant emits 8,700 tons of gas containing SOx annually. The annual amount of waste is 7,573 tons, part of which is used to produce Na_2SiF_6 that is sometimes discharged into the air. The annual production of coal-mud is 105,846 tons, which contains 6,097 tons of sulfur, As_2O_3, fluor, and selen. The plant discharges 48,000 m^3/day of waste or 600 tons of H_2SO_4/year.

The total phosphate fertilizer of capacity of Van Dien, Thach Hoa, and Ha Bac is 240,000 tons/year. These discharge waste containing 151.1 tons/year of fluoride, and liquid waste containing 1,368 tons of fluoride. Currently, fuel used for production of urea is 150 kwh/ton, which is very high compared to the world level of 17 kwh/ton.

B. Basic Chemicals

The Tan Binh Chemical plant discharges sulfuric acid, alluvium, sulfur, and bauxite, and has caused water and air pollution. When it rains, sulfur acid is detected. The residue of waste water is as much as 3,000 to 4,000 mg/l, and makes canals red.

C. Rubber Industry

The major element of water pollution caused by this industry is COD that is as high as 26,000 mg/l, and no aquatic animal could live there.

D. Detergent Industry

Highly toxic characteristics like water glass causes water pollution. Many detergent plants have discharged waste water into regional water bodies, causing protests by people in the area.

5) Construction Material Industry

Industries producing cement, bricks, lime, glass for construction are causing air pollution. The total amount of coal used by this industry is 1.85 million tons/year. The emission contains 24,900 tons of SO_2, 3,500 tons of CO_2, 3,870 tons of CO, 9,026 tons of NOx, and 125,000 tons of dust. Dust collectors are used in these factories, but the toxic air components are not treated.

6) Light Industry

A. Textile Industry

In Viet Nam, there are 32 textile enterprises that belong to the Ministry of Heavy Industry. With aggregate capacity of 300 million meters per year, in addition to local production at 100 million meters. Together they produced 221 million meters of cloth in 1995. An ordinary plant uses 2,500 m^3 of dye and water for each million square meters of cloth. Then the total amount of waste water would be 552,500 m^3/year. This water has a severe impact on living conditions and also on land fertility, because it contains NH_3, NO_2, PO_4, and other toxic substances. About 25% of dye stuffs is discharged with waste water. It floats on the surface blocking out the air, thus damaging aquatic lives and the ecosystem. In addition, poisonous substances could directly harm the health of residents living in surrounding regions.

B. Paper Industry

Production increased 32% from 1994 to 203,900 tons in 1995. Large mills are found in Bai Bang, Viet Tri, Phu Tho in the north, and in Tan Mai, Dong Nai in the south. Many small mills are found in sugar-production plants and big cities. This industry causes pollution in two ways: so-called green pollution or deforestation, and brown pollution or chemical effluent from the factories.

Normally, one ton of paper is produced from 8 tons of wood and bamboo, which stands on 2 ha of forest. Thus the paper industry consumes 282,000 ha of forest resources every year. The amount of effluent discharged for producing one ton of pater is 500 m^3. This is too much when compared to the average level of 70 to 80 m^3 in other countries. The whole industry discharges 70.5 million tons of waste water every year, which contains toxics like organic sulfur, NaOH, and ClO.

C. Food Processing Industry

This industry has a large network and many kinds of products have recently been rapidly introduced. It discharges a huge quantity of organic waste. But the industry is growing so fast that planning cannot catch up with development. Waste water is not treated at any process because price competition is very severe.

In summary industry has rapidly developed in recent years, but techniques used by all industry sectors are old and inefficient. Furthermore, equipment is outdated, and a large amount of waste is generated, creating extremely polluted zones, especially in densely inhabited areas. All this has had a severe impact on the ecological environment and also living conditions, which will require adequate measures in the near future.

(3) Legal Framework of Environmental Protection in Viet Nam

1) Environmental Administration Organizations and their Work

A. Central Organizations

A new organization headed by the president was established under the new constitution of 1992. In October 1992, the Ministry of Science, Technology, and Environment (MOSTE), responsible for environment management at the central level, was established based on restructuring the former State Committee for Science.

The government decree provided Guidance for the Implementation of the Law on Environmental Protection (hereinafter refereed to as the Implementation Law). Article 4 stipulates that MOSTE is responsible for:

a. To work out and present to the Government to promulgate in accordance with its authority a legal document on environmental protection.

b. To work out environmental protection strategies and policies and present them to the Government for promulgation.

c. To present documents to the Government for decision and to coordinate in organizing implementation of long-term and yearly plans for preventing environmental deterioration.

d. To organize experimental observation of the environment.

e. To assess the environment status quo of the country and to periodically report to the National Assembly.

f. To appraise environmental assessment reports of projects.

g. To conduct research and provide guidance for the application of scientific and technological advances in the field of environmental protection; to organize the formation and application of a system of environmental standards; to organize training courses for environmental scientists and cadres of environmental management and protection.

h. To organize environmental inspection; to handle complaints.

i. To present to the Government all proposals on the participation of international organizations, the signing or participating in international treaties on environmental protection.

B. Local Organization

There are 50 provinces and three cities (capital Hanoi, Ho Chi Minh and Haiphong) as the first level local organization. The local administration is led by the provincial People's Committee followed by departments or offices. Among them, the Department of Science, Technology, and Environment (DOSTE) is responsible for the environmental administration. Article 6 of the Implementation Law stipulates that the role of the People's Committee in the provinces implements state management on environmental protection such as :

a. To issue legal environmental protection documents.

b. To direct and inspect the implementation of state and local regulations.

c. To appraise the environmental assessment reports of projects.

d. To issue withdraw certificates acknowledging environmental standards attained by producers, business enterprises, etc.

e. To coordinate with central offices in examining, inspecting, and dealing with environmental protection violations.

f. To receive and handle the disputes, complaints, charges and proposals on environmental protection.

2) Environmental Protection Law and Regulations

A. The Law on Environmental Protection

This law was promulgated on 27 December 1993, and enacted on 10 January 1994. It comprises the following 7 chapters.

Chapter 1 General Provisions

Chapter 2 Prevention and Combat against Environmental Degradation, Environmental Pollution, and Environmental Disasters

Chapter 3 Remedies for Environmental Degradation, Environmental Pollution, and Environmental Incidents

Chapter 4 State Management of Environmental Protection

Chapter 5 International Relations with Respect to Environmental Protection

Chapter 6 Rewards and Dealing with Breaches

Chapter 7 Implementation Provisions

The preface starts with the following statement: "The environment is of special importance to the life of humans and other living creatures as well as to the economic, cultural, and social development of the country, the nation and mankind as a whole." Article 2 stipulates "the environmental factors that constitute the environment are air, water, soil, noise, light, the earth's interior, mountains, forests, rivers, lakes, sea, living organisms, ecosystems, population areas, production centers, nature reserves, natural landscapes, famed beauty spots, historical vestiges and other physical forms." Article 16 describes that the Government shall stipulate the nomenclature of environmental standards. Articles 17 and 18 stipulate the basic concept regarding the environmental impact assessment.

3) Environmental Regulations for New Project Investment

A. Regulations for foreign investment

Regulations on the formation, evaluation, and implementation of foreign direct investment projects were promulgated on 28 December 1994. Article 5 stipulates that "the content of the evaluation of investment projects comprises expertise and applied technology, reasonable use and protection of resources, the protection of the environment and ecology." Article 15 states, "Investors shall be responsible for strictly complying with the stipulations of the laws on environmental protection. MOSTE shall provide standards on environmental protection, organize, and examine the implementation of the said standards and timely handle seriously breaches in accordance with the laws and cease operation of enterprises if such operation has a bad effect on the environment beyond permitted levels."

B. Regulations on industrial zones

This regulation was promulgated at the same time as the previous one, and stipulates that, " enterprises in an industrial zone shall be responsible to take measures to ensure labour safety, industrial hygiene, environmental protection, and fire and explosion prevention" (Articles 7 and 10) .

C. Regulations on special export processing zones

This was promulgated 18 October 1991, and includes requirements for investment in a SEPZ: products are to be sold in foreign markets, priority shall be given to the employment of Vietnamese, and production shall not cause pollution, Article (8)

4) System of Environmental Impact Assessment

A. Guideline for a detailed environmental impact assessment (EIA) report (MOSTE, 10 September 1993)

This shows the content of EIA reports such as impact on the physical environment, biological resources and ecosystems, resources used by humans, the economy, the culture, and others. Measures to mitigate the impact and suggestions on the alternatives should be also presented.

B. Law on environmental protection (Promulgated December 1993 and enacted 10 January 1994)

Submission of an EIA report is prescribed in Articles 17 and 18 for the existing and new activities:

Article 17

Organizations and individuals in charge of the management of economic, scientific, technical, health, cultural, social, security and defense establishments that have begun operation prior to the promulgation of this law must submit an EIA report for appraisal by the state management agency for environmental protection.

In the case of failure to meet environmental standards, the organizations or individuals concerned must take remedial measures within a given period of time as stipulated by the state management agency for environmental protection. Upon expiry of the stipulated time limit, if they still fail to meet the requirements, the state management agency for environmental protection, shall report to a higher state authority to consider and decide on the suspension of operation or other punitive measures.

Article 18

Organizations and individuals, when constructing and renovating production areas, economic, scientific, technical, health, cultural, social, security and defence facilities, and owners of foreign investment or joint venture projects and owners of other socioeconomic development projects must submit EIA reports to the state management agency for environmental protection for appraisal.

The result of the appraisal of EIA reports shall constitute one of the bases for the competent authorities to approve projects and authorize implementation. The Government shall stipulate in detail the formats for the preparation and appraisal of EIA reports and shall issue specific regulations with regard to special security and defence establishments mentioned in Article 17 and in this article.

The National Assembly shall consider and decide on projects having a major environmental impact. A schedule of such projects shall be determined by a Standing Committee of the National Assembly.

C. Guidance for the implementation of the environmental protection law(Promulgated 18 October 1994, the Implementation Law in short)

This decree aims to strengthen implementation of the law on environmental protection. It prescribes responsibilities of the related authorities, the EIA system, environmental degradation, prevention of pollution, financial resources for environmental protection and inspections in detail. It describes EIA in Chapter 3 (Articles 9 to 20). These articles, which are deeply related to EIA procedures are as follows:

Article 9

Investors concerned with the following have to conduct EIA :

a. Overall strategies for regional development, strategies and plans for the development of provinces and cities under the central government, strategies for urban and population development.

b. Economic, scientific, healthcare, cultural, social, security, and defence projects.

c. Projects being carried out in Viet Nam with funds invested, assisted, granted or contributed by foreign organizations or individuals or international organizations.

d. Projects mentioned in items a, b and c of this Article being approved before January 10, 1994 but not yet having assessed the environmental impact as required.

e. Economic, scientific healthcare, cultural, social, security, and defence units that have been operating since January 10, 1994.

Article 10

a. Scope for assessing environmental impact includes :

(a) To assess the current environment in the operating area of the project or unit.

(b) To assess the impact on the environment as a result of the activities of the project or unit.

(c) To present measures for environmental resolution.

b. All mentioned in this Article are presented in the form of a separate report called Report of Assessment on Environmental Impact.

Article 11

a. For the objectives mentioned in items a,b,c and d of Article 9, the compilations of environmental impact assessment reports shall be conducted in two stages : preliminary and detailed (for objectives exclusively mentioned in item d detailed assessment only).

b. For the objects mentioned in item 5 of Article 9, the contents of a report of assessment on environmental impact are stipulated in the tables.

D Investment projects

According to the governmental regulation for the appraisal of investment projects, managers of proposed projects should submit two documents to the Ministry of Planning and Investment (MPI), which is responsible for reviewing and providing investment licenses. They are a detailed feasibility study report and an EIA report. EIA reports are reviewed and approved by the National Environment Agency of MOSTE for high cost projects or those involving special problems. EIA reports on remaining projects are reviewed by DOSTE. In order to review EIA reports properly, MOSTE and DOSTE organize ad-hoc scientific committees with various experts from different fields. Based on evaluation of the

reviewing committees, leaders of MOSTE and DOSTE draw conclusions on the environmental problems of the project and reply to MPI for project approval.

5) EIA for Existing Projects

The Ministry of Industry asked all the plants under its control to submit an EIA report. It plans to classify them based on their replies into the following four categories:

A. plants which do not have problems and can continue operation,

B. plants which have minor problems and acquire some measures to continue operation,

C. plants which are polluting the environment and acquire prompt measures by stopping operation, and

D. plants which are seriously damaging the environment and must cease operation

(4) Development and Environmental Degradation in Other Countries

1) Japan

A. Industrial Pollution

Major environmental issues in the history of Japanese industrialization are summarized in Table I-1.

In 1868, when the last Tokugawa Shogun surrendered power to the Emperor during the Meiji Restoration, Japan opened the door to the outside world. This is the beginning of the modernization and industrialization of Japan.

In 1879, the Ashio Copper Mine, located about 110 km north of Tokyo, released effluent into a nearby river causing serious water pollution. This was the start of industrial pollution in Japan and related compensation continued until 1974, 95 years after from the start of operation.

In 1918, a fertilizer plant started discharging effluent into the ocean at Minamata. Mainly due to organic mercury, more than 1,220 people had died by 1990. This was called the Minamata disease. The pollution source was identified in 1956, but no comprehensive measure were taken. The same disease was then found in Niigata in 1965, nine years after identification of the decease. It took 77 years from the start of effluent discharge until the case was settled in 1995, or 39 years after disease was identified.

B. Legal Framework[2)]

At the start of the 1950's the government enacted laws to implement comprehensive national development plans. In 1955, the reconstruction period more or less came to an end, when the economy regained its prewar level. The next ten years saw a long boom in capital spending to introduce technological innovation, and economic growth accelerated to a double-digit rate. Industrial development became heavily concentrated in urban areas, drawing more and more people from the countryside to the city. Public works projects went forward to build roads and housing, improve ports and harbors, and lay railway tracks for the opening of

the *shinkansen* bullet train. The quality of the environment quickly deteriorated as a result of this development. One key concern was to have sufficient water for urbanization and industrialization.

One dispute that generated headlines in 1958 centered on a paper and pulp plant on the Edo River, which flows between Tokyo and Chiba prefectures into Tokyo Bay. When the plant introduced a semichemical pulp process, polluted waste water flowed downstream in large volume, damaging fishing at the river mouth. The local fishery associations repeatedly requested the plant owners to install pollution control equipment. When they did not receive satisfactory response, they staged a violent demonstration at the plant. Prodded into action by this disturbance, the government passed two major antipollution laws: the Water Quality Preservation Law and the Factory Effluent Control Law.

The Basic Law for Environmental Pollution Control was enforced in August 1967. This law divided the responsibility for antipollution measures among the central and local governments and the business community. It requires the central government to establish environmental quality standards for air, water, soil pollution, and also for noise. Setting these standards at a level desirable for safeguarding health and maintaining sound human habitat, it obliges the government to devise regulations for attaining compliance with its standards. The law also provides for arrangements to measure and monitor pollution and carry out inspections.

The Air Pollution Control Law and the Noise Pollution Control Law were enacted in 1968, and in the following year an ambient air quality standard for sulfur dioxide was decided by the cabinet.

The regulatory framework was greatly enhanced in December 1970 by what is known as the "pollution Diet," a session of the legislature devoted to environmental concerns. A total of 14 pieces of legislation were approved, six of which brought new laws into being, notably the Water Pollution Control Law. The eight other bills strengthened the standards and regulations for such measures as the Air Pollution Control Law.

The Environment Agency was set up in 1971, and its director general appointed to the cabinet as a minister of state. In addition to its responsibility for pollution, the agency was put in charge of conservation of the natural environment, and the director general soon used his power to cancel the construction of a highway in a national park.

Through the first and second oil crisis, Japan's industrial structure began to shift from heavy industry to such advanced technologies as consumer electronics, computers and telecommunications, bioengineering, and new materials. With encouragement from the planners of the country's industrial policy, regional authorities lost their previous enthusiasm for inviting the pollution-prone plants of heavy industry into their regions. They now began drawing up development plans aimed at upgrading the quality of local living standards, making use of regional characteristics, enhancing local traditions and culture, and preserving the rich natural environment. No longer was the relationship between development and the environment perceived as one of trade-offs; people instead see that if creative efforts are made to address development and environmental concerns together, progress on both fronts is possible. From this viewpoint, the government's medium- and long-term economic plans incorporated forecasts of the investments needed both to enforce pollution controls and to build up environment-friendly social overhead capital.

In 1993, the Environmental Basic Law replaced the Basic Law for Environmental Pollution Control, based on the recognition that pollution is over in Japan.

C. What we learned from the experience

From the experience of industrial pollution of Japan we learned that:

a. The government has always followed the sacrifice of people. Why not goes ahead.

b. The cost and time for rectifying the damage or injury is a lot more than those of measures taken beforehand.

c. The pollution impact expands as time elapses. Short-term measures must be taken immediately, and then log-term programs must be considered.

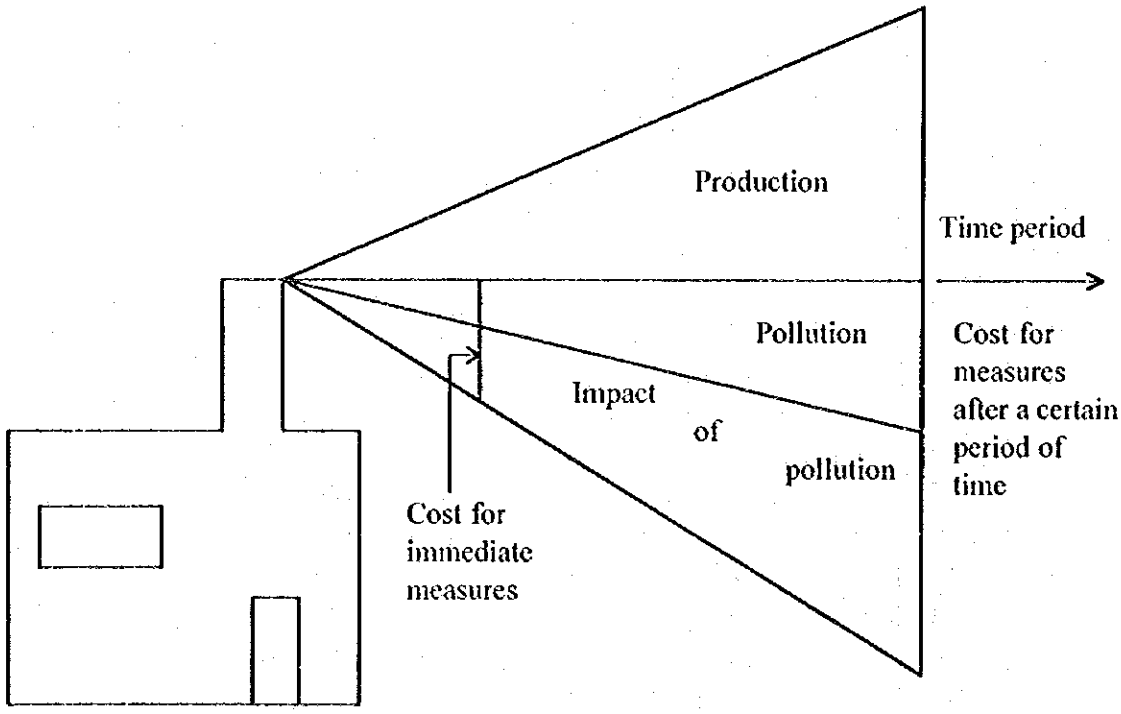

Figure I-1 Pollution Prevention Costs

2) Thailand[3)]

A. Economic Growth

In the 35 years since 1961, Thailand's economy has gown at an annual rate of over 7%. The Sixth Five-Year Plan (1987-91) recorded annual growth of 10.5%. The factors behind this high economic growth were exports, investment, and tourism. Growth in exports during the 6th Economic Plan averaged 24.5% a year. Direct investment from Japan, Taiwan, and NIEs increased rapidly, sparking an investment boom in Thailand itself. Tourism had been an important source of foreign currency, and in this period tourism revenues jumped by an annual average of 27.5%.

During this period of long economic development, the industrial structure also underwent a significant change. In terms of changes in domestic production by industry, the weight of the manufacturing sector, which accounted for 12.5% in 1960, increased, steadily outstripping the agricultural, forestry and fishery sectors in 1981. Manufacturing accounted for 28.2% in 1991. On the other hand, the weight of the agricultural, forestry and fishery sector, which was approximately 40% in 1960, fell to 12.8% by 1991. With respect to trade, enormous changes took place in the export structure. Transformation from a typical primary product exporting country to a manufactured product exporting country was achieved. The share of manufactured products to total exports surpassed that of agricultural products in 1985 and by 1993 rose to 80.8%.

B. Present State of Industrial Pollution

In the first half of the 1970's, pollution was caused by discharge from food-processing plants, and steps began to be taken to deal with water pollution, but in general there was not great interest in the problem. And, as can be seen in the case of air pollution in Bangkok, victims were not organized. Public concern over pollution has only grown since the end of the 1980's. With growing industrialization and the concentration of population in urban areas, air and water pollution in the capital, as well as general waste and industrial waste, have become problems that can no longer be ignored.

Industrial pollution is a big problem in the capital. Over 50% of all factories in the country are located in the Greater Bangkok area and they discharge 75% of the nation's industrial waste. The manufacturing industry is the largest polluter, accounting for 90% of the total.

According to statistics compiled by the Department of Industrial Works on pollution-producing factories, as of 1989, 20,221 factories were responsible for water pollution and 8,120 for air pollution, making for a total, excluding duplications, of 26,235 factories (51% of all factories, excluding rice mills), and, of these, 17,056 discharged moderate or large volumes of hazardous waste. Furthermore, pollution-producing factories are on the increase.

Air pollution (56%, sulfur dioxide, 21% of nitrogen oxide, and 12% of suspended particulate matter, is caused largely by industry (manufacturing, construction, and mining). The main pollution types in the manufacturing industry are non-metal minerals (including cement, glass and ceramics), food-processing, pulp / paper, and textiles, the first two being particularly bad. Under the Factories Act, industries are divided into 99 types, and 58 of

these profile air pollution. Fish flour processing, lead processing, battery manufacturing, metallurgy, and chemical industries are considered to be particularly big polluters. In terms of scale, generally speaking, small and medium-sized factories fail to take measures to control pollution, particularly those in densely populated areas.

The fuel used by factories is another reason for the pollution caused by the industrial sector, particularly coal and brown coal, which account for 15% of the total. The government's policy of holding down the price of brown coal as part of its domestic energy promotion policy is responsible for this. The percentage of brown coal used in thermal power generation will increase further in the future, burdening the environment even more. The same thing can be said about the fuel used for transportation. Because the price of diesel oil for industrial use has been held down relative to the price of gasoline, diesel oil, which emits large amounts of nitrogen oxide, accounts for a whopping 50%. The main culprit responsible for air pollution in the greater Bangkok area is the automobile.

With the progress of industrialization and urbanization, water pollution has also become a serious problem in the greater Bangkok area. Upstream, midstream, and downstream of the Chao Phraya River are rated 2, 3, and 4, respectively, in terms of water environmental standards. But none of these areas meets the standard for dissolved oxygen (DO), with pollution in the downstream area being especially bad. And because of inadequate sewerage systems and waste treatment facilities, untreated filthy water flows into the canals, making them so polluted that they can sustain no life.

Households are the main source of pollution in the Chao Phraya River (75%) and the Maeklong River (93%). Factories account for the rest. Factories used to be the main source of pollution in of the Chao Phraya River, but the installation of waste water treatment equipment, which has become obligatory, brought about the improvement. At present, 70% of factory discharge is treated. On the other hand, urbanization has resulted in the rapid increase in pollution from households, with the results cited above.

Nevertheless, most small and medium-sized factories do not have the space or the funds to install waste treatment equipment. Even if they have such equipment, because of a shortage of inspection officers, they may be in operation only on the rare occasion when an inspection is made by the Department of Industrial Works. According to data from the Department of Industrial Works, there are approximately 20,000 factories causing water pollution, with the food processing, distilling, pulp / paper, rubber products, tanning industries, etc., causing the most. The largest sources of water pollution in rural areas are agricultural waste and agricultural chemicals.

There is also the problem of hazardous and toxic waste. Changes in the industrial structure have brought about an increase in industries which produce hazardous and toxic waste. According to the Thailand Development Research Institute (TDRI), between 1979 and 1989 the number of factories producing moderate amounts of hazardous waste (spinning, dyeing, electroplating, etc.) increased from 6,600 to 16,000 and the number of those producing large amounts of hazardous waste (chemicals, fertilizers, pesticides, etc.) increased from 625 to 936. An analysis of the industries promoted by the Board of Investment shows that the percentage of capital-intensive industries that produce hazardous waste rose from 25% in 1986 to 55% in 1989.

In 1991, the total amount of hazardous waste was 2 million tons, and it is estimated that it will reach six million in 2001. Large factories have their own disposal equipment, and industries located in industrial zones can use waste treatment facilities provided. But small and medium-sized factories generally do not have waste treatment equipment and either bury their waste on factory sites or just leave it as is. Pollution from heavy metals is increasing, and metals such as chrome, copper, mercury, nickel, and lead have been detected in rivers and canals.

3) Indonesia[4)]

A. Economic Growth

Since the Suharto administration (inaugurated in 1966), Indonesia has made serious efforts to develop the economy. During the 26 years from that time until 1991, the country's gross domestic product (GDP) grew at an annual rate of 6.5 percent, (Table I-2), increasing five-fold. Expressed in U.S. Dollars at current prices, per capita GDP rose from the $60 level to $650 in 1991. In a speech in the People's Consultative Council on March 1, 1993, President Suharto boasted that such high growth had only been matched by ten other countries.

Of course, it was the manufacturing sector that propelled this high growth, posting annual growth of 11.2 percent. As a result, the industry share of GDP increased from 7.6 percent in 1965 to 21.3 percent in 1991, and in that year industry emerged with the largest share of all, just edging out the agriculture, forestry, and fishery sector. This 21.3 percent share is markedly below that in surrounding countries, but excluding the oil and natural gas sector the figure would be 24 percent, thereby indicating that Indonesia's industrialization has advanced so much that it actually does not lag behind neighbors.

Table I-3 shows that the biggest manufacturing sector in 1989 was food, beverages and tobacco (26.7 percent), followed by machinery (16.9 percent), chemical products (13.9 percent), wood products (12.0 percent), and basic metals (8.3 percent), with their total amounting to 93 percent. A comparison with 1975 shows that the four top industries retained their positions, but that there were major changes in the overall share composition. Food, beverages, and tobacco fell 16 points, from 43 percent in 1975 to 27 percent, which was absorbed by a 9-point increase in wood products and an 8-point increase in basic metals, while fluctuations in the other industries were only minor.

When estimating the environmental impact in view of this structural change, it seems reasonable to assume that if there was a problem with the food, beverage, and tobacco industries, it would be the discharge of organic matter, not hazardous chemical substances. In any case, this industry's share has consistently decreased.

Basic metals - specifically aluminum refining, direct-reduction steel making, electric furnace steel, tin refining, and others - had the highest growth rate (nominal), and production processes possibly emit toxic chemical substances.

Other industries' shares have hardly changed. But, since this means that they have achieved growth of at least 10 percent on average, their environmental burden has no doubt showed explosive growth. Especially paper, chemical products, and cement are the

industries calling for the greatest attention with regard to Indonesia's environmental problems, and such textile-related industries as dyeing, batik, and leather which produce toxic effluents.

B. Present State of the Environment

As industrialization and urbanization rapidly advance in Indonesia, the pollution of rivers near cities and factories has worsened. A look at average values from 1979 to 1984 shows that in the downstream area of Jakarta's Ciliwung River, the BOD concentration was 36 ppm and the COD concentration 40 ppm. In the downstream area of the Sunter River, BOD concentration was 33 ppm and COD concentration 100 ppm. One can see that pollution worsened beginning in the first half of the 1980's.

Contamination by heavy metals is also worsening. A survey conducted in 1977 and 1978 in Jakarta Bay by the National Atomic Agency and the Marine Research Institute revealed the presence of heavy metal contamination. At that time the mercury concentration of sea water was 0.003-0.035 ppm[2].

Along with factory effluents, domestic waste water is also a cause of water pollution. The installation of septic tanks and other facilities is not required in regions of low population density. But in densely populated Java only 17.5 percent of homes are equipped with septic tanks, and even in Jakarta the figure is only 52.5 percent. In some cases domestic waste water presents a greater pollution burden than factory effluent in terms of BOD and other indicators. Some measures are necessary to deal with domestic waste water.

Suspended particulates are major air pollution problems in Indonesia. It is thought that suspended particulate concentration higher than the annual average 100 ug/m^3, can cause respiratory disease. Indonesia's environmental standard is set at an average daily 260 ug/m^3. Monitoring results from 1990 and 1991 show that average annual total suspended particulates taken at all 17 monitoring stations in Jakarta exceeded 100 ug/m^3.

Solid waste processing is not so sufficient that it affects water and air pollution. The waste collection rate is estimated to be about 80 percent in Jakarta and about 70 percent in Bogor. Some uncollected waste is picked up and recycled by trash scavengers, but the rest is discarded in rivers, or burned at the side of roads and rivers. Burnable and unburnable trash is not separated, and thus the mixture of various substances creates the possibility that hazardous substances are being created during incineration.

The first final disposal site for industrial wastes was established in May 1994. Some factories still store hazardous waste on-site, but there is also concern about illegal dumping. If water and air pollution controls are strictly implemented and control devices installed, pollutants will be expelled as solid waste. Immediate countermeasures are needed.

Table I-1 Major Environmental Issues and Administration in Japan

Social/Economic Background	Major Pollution Problem	Comments / Administration
1868 Japan opened the door to the outside world (Meiji Restoration)	1879 Ashio copper mine pollution observed 1918 Fertilizer plant started discharging effluent into the ocean at Minamata	(Start of industrial pollution, latest compensation made in 1974 after 95 years from start of operation; main pollutant cadmium)
1950 Demand increase due to the Korean War	1955 Itai-itai disease identified 1956 Pollution source of Minamata disease identified but no comprehensive measures taken	(120 victims due to cadmium effluent) (more than 1,220 by 1990 due to organic mercury)
1960 Income-doubling Program Development of industries		1957 National Parks Law
1964 Tokyo Olympic Games Bullet train started High economic growth	1958 Tokyo Edo River Riot 1961 Yokkaichi air pollution 1965 Niigata Minamata disease	1958 Water Quality Preservation Law 1962 Emission Control Law 1967 Pollution Control Basic Law
1969 GNP is 2nd in the free world Tomei Expressway opened	(9 years since the disease was identified) 1969 Osaka airport noise case	1968 Air Pollution Control Law Noise Regulation Law 1969 Pollution Patients Relief Law
1970 Osaka Expo' Promotion of pollution control	1970 Photochemical smog	1970 14 pollution laws passed by the Diet 1971 Environmental Agency established Offensive Odor Control Law
1972 Stockholm Conference	1972 Red tide problem	1972 Nature Conservation Law amended the Air Pollution Control Law and Water Pollution Control Law
1973 1st oil crisis Stable economic growth		1973 Health Damage Compensation Law Aircraft Noise Standard
	1974 Bullet train case	1975 Bullet Train Noise Standard 1976 Vibration Regulation Law
1979 2nd oil crisis		1977 Long-term environmental protection program
1984 World Conference on Environment and Development	1995 Court declared the government responsible for the traffic noise and emission from Highway 43	1984 Water Quality Preservation Law of the Lakes and Ponds Cabinet decision on environmental impact assessment
1987 Montreal Protocol on ozone layer 1988 Intergovernmental Panel for Climate Change (Global warming)	1995 Minamata disease case settled	1993 Environmental Basic Law replaces Pollution Control Basic Law based on the recognition that pollution is over in Japan
1992 U.N. Conference on Environment and Development (Rio Declaration)	(77 years since the start of discharge 39 years since the disease identified)	1994 Environmental Basic Plan

Table I-2 Economic Growth and Structural Change in Indonesia and Neighboring Countries

Country	Industrial sector & GDP	Share 1965	Growth rate 1996-90	Share 1991
Indonesia	Agriculture, forestry, fishery	58.7	3.5	19.5
	Mining	2.5	5.8	13.6
	Manufacturing	7.6	11.2	21.3
	Others	31.2	7.8	45.6
	GDP	100.0	6.5	100.0
Thailand	Agriculture, forestry, fishery	40.2	4.6	11.9
	Manufacturing	12.0	9.4	27.3
	GDP	100.0	7.4	100.0
Malaysia	Agriculture, forestry, fishery	31.5	5.5	18.7
	Manufacturing	10.4	11.1	26.9
	GDP	100.0	7.0	100.0
Philippines	Agriculture, forestry, fishery	34.3	3.2	21.1
	Manufacturing	17.2	5.9	25.5
	GDP	100.0	4.2	100.0

Table I-3 Structural Change for Large and Medium-sized Manufacturing Industries

	Value added (Billion rupia)			
	1975	1980	1985	1989
Total	589(100)	2,480(100)	8,067(100)	19,046(100)
1. Food, beverages, tobacco	255(43.4)	939(37.9)	2,468(30.6)	5,080(26.7)
2. Textile, clothes, leather	87(14.8)	299(12.1)	964(11.9)	2,828(14,8)
3. Wood and wood products	17(3.0)	166(6.7)	711(8.8)	2,293(12.0)
4. Paper, printing	24(4.0)	63(2.5)	240(3.0)	720(3.8)
5. Chemicals	81(13.7)	384(15.5)	1,546(19.2)	2,644(13.9)
6. Non-metallic mineral products	26(4.5)	141(5.7)	454(5.6)	584(3.1)
7. Basic metals	3(0.4)	72(2.9)	529(6.6)	1,577(8.3)
8. Metal products, machinery	94(16.0)	407(16.4)	1,124(13.9)	3,218(16.9)
9. Other manufacturing	2(0.3)	9(0.4)	31(0.4)	102(0.5)

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2-2 Poverty Alleviation in Viet Nam

To contribute to a discussion on poverty alleviation in Viet Nam, this section is intended to present the following: (1) review of the current poverty situation in Viet Nam; (2) discussion on economic growth and poverty reduction; (3) identification of major problems which poor households are facing; (4) assessment of the impact of "Doi Moi" on poor households; and (5) policy implications and some comments on the Poverty Alleviation Program for Viet Nam 1996 - 2000, based on the major findings on the previous four points.

(1) The Current Poverty Situation in Viet Nam

1) Incidence of Poverty in Viet Nam

According to the results of the Viet Nam Living Standard Survey (VNLSS)[1], the incidence of poverty in 1993 was estimated at 51% based on the 2100 Calorie Poverty Line[2]. Such a high incidence stands out when compared with figures in other East Asian countries, based on a similar definition and criteria as used in VNLSS[3]. To identify those in a more severe poverty situation, VNLSS adopted two other poverty lines, namely, Lower Poverty Line and Food Poverty Line[4]. According to such criteria, it is estimated that the incidence of poverty is 41% and 25% respectively.

The General Statistics Office conducted a large Poverty Monitoring Survey (PMS) in 1993 with a sample of 91,732 households. This survey adopted a poverty line based on a requirement of 2100 calories per person per day, but without incorporating any allowance for non-food consumption unlike the 2100 Calorie Poverty Line of VNLSS. In monetary terms, this poverty line is slightly lower than the Food Poverty Line in VNLSS. The survey estimated that approximately 20% of the total population is poverty stricken. This estimate is somewhat closer to the estimate made by VNLSS based on the Food Poverty Line.

Viet Nam has not developed an official poverty line, but many government organizations and institutes have conventionally used so-called Rice Poverty Lines. Such Rice Poverty Lines are based on the following assumptions: 13kg of rice for food consumption, 2.1kg for exchange for clothing and shelter, and 1.1kg for cultural, health,

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1) VNLSS was carried out jointly by the General Statistics Office and the World Bank with a sample of 4800 households in 1993.

2) The 2100 Calorie Poverty Line was constructed on the basis of a basket of goods in which the food items reflect local consumption patterns (locally adjusted) and contain 2100 calories per person per day, and the non-food items reflect the cost of basic goods consumed by those who just attain such a poverty line.

3) According to the similar definition of poverty line used in the World Bank study, poverty incidence in other East Asian countries in 1990 are estimated as follows: 9% in China, 15% in Indonesia, 5% in Korea, 2% in Malaysia, 21% in the Philippines, and 16% in Thailand.

4) The Lower Poverty Line and Food Poverty Line were constructed on the same assumptions described in footnote 2 except that the Lower Poverty Line incorporates a minimal allowance for non-food consumption and that the Food Poverty Line does not allow for any non-food consumption.

educational and other needs, per adult a month to maintain a minimum standard of living[5]. Based on the Rice Poverty Lines, the incidence of absolute poverty (consumption of less than 15kg of rice per person per month) in 1993 was around 30%. This estimate of the "food poor" is higher than the ones made by VNLSS and PMS in spite of the fact that they used higher food poverty lines based on a 2100 per capita calorie requirement per day.

In summary, it is estimated that between 20 to 30% of the total population cannot meet their daily basic calorie requirements, even if they were to spend all of their income on basic food. Table 1 summarizes poverty in Viet Nam in 1993 based on three different measures.

2) Calorie Intake and Nutritional Status

Viet Nam has achieved substantial progress in terms of basic health and education. Nevertheless, nutrition-related data suggest the existence of a relatively large population which might be facing household food insecurity[6].

Calorie Intake: The average energy intake in 1993 was 1,932 Kcal per head per day while average calorie intake in Southeast Asian countries in the period of 1984-1986 was 2,213 Kcal, and in China 2,564 Kcal[7]. According to a survey of the Institute of Nutrition, in about 8.5% of households, adults have an energy intake of less than 1,500 Kcal which is classified as famine level. The proportion of households which have average adult calorie intake between 1,500 and 1,800 was estimated at around 14%[8]. This means that about a quarter (22.5%) of rural households often suffer from severe food shortages.

Protein and Energy Malnutrition: Nutrition status among children under five reveals that the prevalence of malnutrition in Viet Nam is high. While figures for average prevalence of underweight, stunting, and wasting for all developing countries are 35.7%, 39.0,% and 8.4% respectively, corresponding prevalence in Viet Nam is 44.9%, 46.9%, and 11.6% respectively. The incidence of malnutrition in selected Asian countries is presented in Table 2.

3) Poverty Distribution

Recent studies and nutrition data identify the following features: the incidence of poverty is much higher in rural areas than in urban areas; the poverty situation is more widely spread and severe in the northern mountainous region, the north central coast, and Central Highlands; a higher poverty incidence is recognized particularly among the rural population whose income and livelihood totally rely on agriculture and among ethnic minorities living in the midlands and highlands. It is also believed that poverty becomes acute just before the harvest when the stock of rice from the previous harvest is depleted.

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5) According to the Ministry of Labor, War Invalids and Social Affairs, such criteria are under review. It seems that new criteria will be based on the same concept, but will be set higher in terms of the amount of rice necessary for maintaining the minimum standard of living.

6) Household food insecurity is defined as "access to food, adequate in quantity and quality, to fulfill all nutritional requirements for all household members throughout the year."

7) Tu Giay, "Economic Access to Food and Nutrition Problems: the Case of Viet Nam", a paper presented to the National Food Security Seminar held in Hanoi, 11-13 February, 1993 p.3

8) UNICEF ed., Viet Nam, Women and Children, a Situation Analysis, Hanoi, Viet Nam, 1994 p.18

Urban-Rural and Regional Distribution : A much higher poverty incidence is seen in rural areas than in urban areas. VNLSS and PMS results show that 90% of the poor reside in rural areas. Although urban poverty seems to have begun to emerge, it can be said that poverty is essentially a rural problem in Viet Nam. The northern mountainous region, the north central coast region, and the Central Highlands region are the three regions where the highest poverty incidence is recognized among the seven ecological regions (Figure 1).

Nutrition data present a similar picture (Figure 2). The prevalence of malnutrition among children under five is higher in the North Uplands and north central coast. Food balance sheets show an availability of energy of more than 2,250 kcal/capita/day, which is higher than the recommended level of 2,100 kcal by the National Institute of Nutrition. This indicates that under-nutrition in Viet Nam is not a problem of availability but rather distribution and access.

Occupational Distribution and Sources of Income: Analysis of poverty distribution by the occupation of heads of households in VNLSS indicates that 60% of those who are engaged in agriculture are in poverty. In comparison, among households whose heads have white-collar jobs, or are engaged in trade and services, only 16% and 26% are in poverty, respectively. Analysis of poverty distribution by source of household income suggests that the more diversified the sources, the higher the standard of living. Even among households whose incomes rely on agricultural activities, the more diversified agricultural activities are (food and grain production and higher value-added crops such as vegetables, fruit, legumes, etc.), the higher their living standards. On the contrary, those households with lower living standards are mostly engaged only in food and grain production, and those who are engaged in upland food crops such as cassava, maize, and sweet potatoes tend to have the lowest living standards; and thus live in poverty. This trend is also evident in other smaller-scale surveys and studies[9].

Ethnic Distribution: As might be expected from the regional distribution of poverty, the poverty incidence is much higher than the average among the ethnic minority populations (except for the Chinese)[10]. Other social data, such as literacy rates, nutrition status, and population growth rates all indicate their disadvantageous situation[11]. The ethnic minorities comprise only 13% of the total population in Viet Nam. Nevertheless, the security and improvement of their livelihood is essential due to the following reasons: the importance of political stability in the highlands which form the national borders; and concern over deforestation being partly accelerated by the high population growth of 3.4% and the practice of shifting the cultivation of some ethnic minorities; and potential increase in poppy production and opium consumption among the minorities.

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9) For example, Policy and Management Department of the Ministry of Agriculture (1994), Action Aid (1995)

10) While the poverty incidence among Kinh and Chinese is estimated at 48.3% and 14.1% respectively, the incidence among other major ethnic minorities are estimated by VNLSS as follows: 65.9% (Tay), 67.1% (Thai), 76.2% (Khome), 75.2% (Muong), 69.8% (Nung), 100% (H'mong), 88.5% (Dao) and 78.5% (others).

11) For example, according to the General Statistics Office, female illiteracy rates by ethnicity are presented as follows: 16% (Kinh), 22% (Chinese), 35% (Nung), 52% (Thai), 56% (Khmer), 66% (Ede), 75% (Dao), 88% (Giarai and Bana) and 97% (H'mong). Such high female illiteracy rates among ethnic minorities are believed to reflect the fact that the media for instruction in schools is Vietnamese.

Gender Distribution: Many agencies share a view that female-headed families are among the poorest. According to the population census of 1989, it is estimated that 48% of households in urban and 28% in rural areas are headed by the female. However, in these estimates only those female-headed households which are officially registered as such are included, and thus de facto female-headed families are excluded. If the latter group were included, the estimate would be much higher[12]. Whatever the estimates, the portion of female-headed families is higher in Viet Nam due to the unique sex-ratio (94.7 males per 100 females in 1989) caused by the prolonged war. It is most likely that the incidence of poverty is higher among those de facto female headed households which are composed only of women and children (high dependency ratios).

Seasonal Factor: Anecdotal evidence implies that poverty becomes acute just before harvest when the stock of rice from the previous harvest in poor households is depleted. Very little quantitative information is available. The only data available on this issue are from the results of a survey in Ha Nam Ninh Province in 1987, which indicates such a trend with a decline in calorie intake in April and again between July and October (Figure 3).

(2) Economic Growth and Poverty Reduction

Recent studies indicate a strong connection between economic growth and poverty reduction. Based on experience in Asia, some policy implications will be derived in this regard[13].

1) Poverty Reduction in Asia

Figure 4 and Table 3 show the rapid decline in incidence of poverty in selected Asian countries[14]. It is estimated that the number of absolute poor in East Asia has fallen from 400 million in 1970 to 300 million in 1980, and to 180 million in 1990. China and Indonesia, two of the most populous countries, made the most progress. Between 1970 and 1990, in spite of an estimated population increase of 298 million, China has lifted an estimated 175 million out of poverty. There is practically no urban poverty problem. In its rural areas, China started with 275 million absolute poor in 1970, that means one of every three persons. Since then progress has accelerated, and the incidence of rural poverty shrank to 11% or one person in every ten. Indonesia lifted over 40 million out of poverty and added 60 million above the poverty line. Indonesia started the 1970's with more than half its population in poverty, some 70 million, but by 1990 the figure came down to 15% (about 27 million people). In Korea and Malaysia, considerable achievements had already been made by 1970. They ended the 1980's with fewer than 5% in poverty, succeeding also in reducing the

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12) UNICEF pointed out that such estimates would become higher than 40% in some regions in its report *Situation Analysis of Women and Children 1994*

13) The discussion in this section is mainly based on the following two studies: Frida Johansen, *Poverty Reduction in East Asia - the Silent Revolution*, World Bank Discussion Paper, 203, East Asia and Pacific Region Series, the World Bank, Washington, D.C, USA 1993, and Asian Development Bank ed., *Escaping the Poverty Trap - Lessons from Asia*, Manila, Philippines 1995

14) In its estimates on poverty incidence, the World Bank adopted a common definition of absolute poverty, and used an equivalent absolute poverty line 2150 calories per day, 90% from grains and essential non-food needs for the six East Asian countries. The poverty line in money terms varies over space and time. The poverty line which was adopted in VNLSS was based on the same definition except that the calorie level was set at a slightly lower level of 2100 calories per day.

number of absolute poor. By contrast, Thailand and the Philippines were unable to shrink the number of poor in the last decade. Through the 1980's Thailand had some 9 million absolute poor, and the Philippines 13 million. The Philippines reduced the incidence of absolute poverty by about a third in the 1980's, to 20% of the population. Thailand's incidence was about 16% in the 1980s. This represented a substantial reduction from the previous decade, but it was as high as Indonesia's, even though Thailand's average GNP per capita was 2.5 times higher.

2) Economic Growth and Poverty Reduction: General Lessons Derived from Experiences in Asia

A. Economic Growth and Poverty Reduction: A strong connection is recognized between economic growth and poverty reduction. Cross-section evidence shows that a country's poverty incidence is lower the faster its economic growth has been previously (Figure 5). Such a strong connection between rapid economic growth and fast poverty reduction is also highlighted in the World Bank study. The fastest economic growth in the 1980's (averaging 8.5%) and the most spectacular poverty reduction (declining from about one-third in 1980 to barely 10% by 1985 and beyond) was seen in China. In Korea and Malaysia, with their GNP growth rates averaging 6% to 8% in the 1980's, the incidence of poverty was more than halved, to less than 5%. In Indonesia, as economic growth averaged 6%, households below the poverty line decreased by one-third (to 15%) in the six years between 1984 and 1990.

However, there is also counter evidence which indicates that poverty does not always decline when growth occurs. In the Philippines, from 1961 to 1971, real GDP grew at an average annual rate of 5.5%, amounting to 2.2% growth per annum on a per capita basis. Despite this positive economic growth, there is a calculation which shows that the poverty headcount ratio increased between 1965 and 1971 (the years of successive household surveys)[15]. Capital-intensive, low-employment growth and political and social factors are identified among the reasons for the failure of the economic growth in the Philippines to reduce poverty in those years. Thailand achieved rapid economic growth of 7.5% a year in the 1980's, but its poverty reduction rate was minimum as Table 3 indicates. It is pointed out that economic growth was not broad-based but was instead concentrated in the modern sector in and around the capital. It thus did relatively little to reduce poverty concentrated in the rural north.

General Lessons Derived from Experience in Asia: The following conclusion and general lessons are derived based on the findings of the recent two studies. Poverty reduction was accelerated at dramatic rates when economic growth was high and broad-based (defined as leading to raising standards of living at all socioeconomic levels). As general lessons the following are important for rapid poverty reduction: rapid and sustainable economic growth is essential; for enabling such economic growth, sound macroeconomic management is a prerequisite; strategic industrial policy is necessary both for achieving high economic growth and for providing significant employment opportunities to the poor. On the other hand, some mechanisms are necessary to enable the poor to participate in the growth process, in other words, to enable the more broad-based distribution of benefits of economic growth.

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[15] Asian Development Bank (1995), p66.

These include the provision of basic social services, targeted intervention for the poor, and investment in agriculture and rural areas where most of the poor are to be found. It seems that these should be pursued in a package, should expected rapid poverty reduction occur.

3) Economic Growth and Prospects for Poverty Reduction in Viet Nam

The experiences in Asia clearly highlight the importance of broad-based rapid economic growth for rapid poverty reduction. In this connection, the World Bank carried out some simulations in 1993 on prospects for poverty reduction in Viet Nam under different growth scenarios utilizing VNLSS data. The results are presented in Table 4. They show that if the economy grows 8% annually, and if the unequal growth of different regions continues, then the national poverty incidence would decline to 29% by the year 2000. With 10% annual economic growth poverty incidence would be almost halved to 25%. With slower economic growth of 6%, poverty incidence would only decrease to 35%. In short, the higher economic growth, the faster is poverty reduction. The simulations also present an interesting result which shows that poverty reduction will be quicker if regional growth is more evenly distributed. As already noted, if the economy were to grow at an annual 8%, and all regions continue to grow the same as in 1993, then poverty incidence would decline to 29% by the year 2000. However, if all regions grew at the national average of 8%, poverty incidence would decline to 23%.

The data obtained from the Development Strategy Institute (DSI) are included in Table 4 which shows regional disparities in economic growth patterns for the last five years. It is recognized that economic growth in regions with high poverty incidence is among the slowest (northwest, north central and central highlands). This implies that even if high economic growth is attained at the national level by the year 2000, if such unequal distribution continues, then the impact on poverty reduction would be minimum in those three regions, and thus could generate only a limited impact on overall poverty incidence. The current GDP growth target for the period between 1996 and 2000 is between 9 and 10% annual growth. Also, the draft five-year plan targets more evenly distributed economic growth pattern between regions. If such rapid and more evenly distributed economic growth took place, it would have a strong impact on poverty in Viet Nam; i.e., much faster poverty reduction is anticipated than that estimated in a World Bank simulations. Regionally speaking this suggests the need for special efforts to induce high economic growth in the North Uplands, north central coast and Central Highlands.

(3) Major Problems Facing Poor Households

The experience of poverty reduction in Asia also illuminates the importance of targeted intervention for the poor so as to accelerate poverty alleviation efforts. To identify areas for such intervention, major problems which poor households face (based on recent surveys, studies, and hearings by agencies concerned) are presented below:

Vulnerability to changes in climate and natural conditions: Natural calamities are one of the biggest causes for prevailing poverty in Viet Nam. Though different from one region to another, there is an estimate that on average approximately 1 million were affected annually by natural calamities between 1990 and 1994. Both the Mekong and Red River

deltas are periodically affected by major floods while the north central coast suffers major typhoons four to six times a year often followed by severe drought. Even when or where there are no major natural calamities, poor households are vulnerable to changes in climate and natural conditions since their farming and livelihood rely mostly on their labor and nature. Poor communities are often located in isolated places where basic infrastructure has yet to be constructed such as irrigation, clean water supply etc.

Limited assets and capital, lack of access to credit at or below market interest rate: As already pointed out, one-quarter the population is estimated to live in a food poverty situation. It is assumed that they are resource poor lacking assets and capital. According to a survey conducted by the Ministry of Agriculture in 1991, about 70% do not have access to credit from formal channels, even if they desire it. In particular, access of poor households to such credit is limited due to lack of assets that can be offered as collateral, and also because their reasons for borrowing are often to meet immediate consumption needs such as food or cost of medical care.

Lack of job opportunities: Lack of job opportunities is one of the biggest problems for the rural poor. Except for those with high dependency ratios, many rural households seem to have unused labor. One survey covering selected districts in seven provinces, estimated that an average 108 days of labor in each household remain idle[16] per year. The VNLSS results imply that underemployment is more serious in the North, and the availability of off-farm employment is much lower in poor communities. For at least some part of the year, the availability of off-farm wage employment could be as low as 49% and 53% of the population in the north central coast and Northern Uplands regions where the highest poverty incidence is found.

Isolation, lack of access to knowledge, skills, and market: It is suggested that many of the poor households reside in remote areas or isolated communities, and therefore, cannot take advantage of economic opportunities, or have difficulty of having access to information and skills necessary for improving their livelihood. According to the statistics provided by the Ministry of Transport and Communication, there are four district towns and 1,250 communes which cannot be reached by automobiles. Even if car-passable roads are available, many of them become impassable when the rainy season arrives. Further, each household is assumed to shoulder all responsibilities in making decisions regarding production and marketing after the introduction of "Doi Moi", and thus access to information, skills, and market becomes particularly important .

Low education level and physical weakness: Recent studies indicate co-relations between the education level of household members and living standards. Although no substantial difference in adult literacy rates was obvious, in VNLSS, the average number of years for schooling among the household heads of the lowest quintile (the lowest 20% of households) was five years while the corresponding number of years was eight for the highest quintile (the highest 20% in terms of living standards). The same survey shows that the low-birth rate among the lowest quintile was 7%, while it was 4% among the top quintile. This implies that poor households tend to have low educational attainment and physical weakness.

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16) Nguyen Van Thu (1992), p.9

(4) The Impact of "Doi Moi" on Poor Households

Any attempt to assess the impact of "Doi Moi" on poor households is extremely difficult due to a shortage of literature and research, particularly that which includes qualitative analysis on what is actually happening at the household level. Bearing in mind the limitation of the analysis, this section tries to present some pictures on the impact of "Doi Moi" on poor households. The discussion will be limited mainly to rural settings since the majority of the poor are rural based.

1) Background

Before the introduction of "Doi Moi" in 1986, the following services were provided to individual households through cooperatives: As regards production, agricultural inputs such as seed, fertilizer, and insecticides were provided by the cooperatives. Services related to draft power, irrigation, and water supply were also extended to individual cooperative members. Also, in collaboration with people's committees, they provided basic social services free of charge such as basic education for children, creches and day care centers, public health care, assistance to the very poor (food rations etc.), local road upgrading and maintenance, etc. This meant, in theory, that the collective system before "Doi Moi" assured all households access to basic production resources and services as well as to basic social services such as household food security, basic education and health services, and child care.

However, in reality, the extent and the quality of such services seems to have varied from one region to another. The extent of collectivization was much lower in the South, and many cooperatives there existed only on paper. Social services were directly provided by the local authorities, not so much through the cooperatives. Probably, both for production activities and the social sector, the extent of services provided via cooperative channels was much smaller in the South. It was in the North, in particular the Red River Delta, where the process of collectivization was intensified until the 1980's. Most production-related services and basic social services were provided by cooperatives in close collaboration with local people's committees. In the midlands and mountainous regions, the situation seems to have been more complicated. In the northern mountainous region, there was a certain degree of collectivization, but the services provided were less extensive and less effective for the ethnic minorities who reside there. Some literature points out that the supposed food distribution and assistance mechanism for communities experiencing food shortages might not have functioned[17].

In late 1986, the new "Doi Moi" economic strategy was introduced. Resolution # 10 (1988) of the Communist Party recognized that it is the household, and not the cooperative, which is the basic unit of agricultural production. Two land laws, promulgated in 1988 and 1993, have accelerated the decollectivization process. As a result, the number of cooperatives has sharply declined. Among the existing ones, there are some which primarily function as agents to collect government agricultural taxes, and others providing some services in providing inputs and in marketing. Such changes in economic and agricultural policies

17) Action Aid (1995) and Smith (1993).

have provided great autonomy and freedom, but they also mean greater responsibilities for each individual household in all stages of the production cycle as well as marketing. In the area of social services, a number of policies and guidelines were promulgated during the 1989-1991 period. For primary and secondary education, the government provides only partial subsidies; and thus parents have to contribute except in isolated upland areas where ethnic minorities reside. In the health area, fees were introduced; Upland areas are exempt. Along with public services, private doctors, private pharmaceutical producers, pharmacies and healers are also allowed to provide services. As for child care services, parents have to shoulder the cost which ranges between 3 -10 kg paddy rice per month per child. It is in this context where we have to assess the impact of "Doi Moi" on poor households.

2) The Impact of "Doi Moi" on Poor Rural Households

Research by the General Statistics Office indicated that poverty was reduced by 6% between 1992 and 1994. The World Bank estimates that poverty was reduced from over 70% of the population in the mid-1980's to around 50% in 1993. However, there are indications that there are adverse effects on the poor, making their livelihood more insecure and vulnerable even to minimal shocks such as the illness of a family member. Recent economic reform has increased social mobility both upward and downward, and, of those poor households which benefit little from the recent expansion of economic opportunities, poverty might have intensified during the decollectivization process. Following are some indications which raise concern of such a trend.

Access to basic production services: Such services as seed production and provision, plant protection, land preparation, water and irrigation used to be provided through the public channel of the cooperatives. In some communities, public services simply stopped though often the private sector stepped in; in others, they continue on the basis of user fee payments. The poor who might not be able to shoulder such costs may be worse off. Hearings in the Women's Center revealed that due to lack of access to draft power, there emerge women who rely entirely on their labor for land preparation, which was never the case in the past.

Access to food: In terms of national production there have been consistent and substantial increases in food-grain availability per capita: from 267 kg per paddy (equivalent in 1979 to 304 kg in 1985) to 341 kg in 1993[18]. Nevertheless, the nutritional status has not improved as much as had been expected. According to nutrition surveys by the National Institute of Nutrition, the prevalence of underweight declined from 51.5% to 44.9% in 1990, but remained at the same level of 44.9% in 1995. Stunting declined modestly from 59.7% in 1985 to 56.5% in 1990, and was reduced to 46.9% in 1995. However, the change in the wasting level shows an upward shift, from 7.0% in 1985 to 9.3% in 1990, and again to 11.6% in 1995 (Figure 6). Such a trend raises concern about possible adverse effects on some segments of the population in terms of household food security. Data available at this moment do not allow for analysis of changes in nutritional status by socioeconomic characteristics of households.

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[18] However, looking into changes in food grain production by region, increases in per capita production can be only recognized in two deltas. In other regions, per capita food grain availability from national production has been maintained at the same level or has declined.

Some small-scale studies in the Northern Uplands show that poor households are facing a more difficult situation in coping with the food production shortage. Besides declining land productivity due to ecological degradation, the land law, which in principle inhibits the usage of upland for annual crop cultivation, has reduced the access of the poor (ethnic minorities) to land for food production in certain areas. Newly established families seem to be particularly vulnerable since there is almost no wet riceland available to be allocated to them. The land law has also increased the feeling of insecurity regarding their right to use mid-lands, since many of the ethnic minorities let a certain portion of their land lie fallow for three to four years. Land unused for a certain period might be taken away under the present land law.

Health: There are no data available to examine changes in mortality and morbidity patterns by socioeconomic characteristics of households. There are, however, indications that the utilization of health services by the poor might have declined, or that health and medical costs might become a burden for the poor to shoulder. VNLSS data present the heavy reliance on self-medication of the poor. Less than 4% of the poorest (that is, the poorest 20% of the population) sought treatment, 70% self-medicated. Even among the richest (the wealthiest 20% of the population), 55% chose self-medication. However, the proportion of the poor who rely on self-medication is higher, which raises concerns about the limited access to health services by the poor.

A study in Quang Ning Province pointed out that 36% of families experiencing a shortage paid for ambulatory care by selling assets, borrowing and paying back later while the proportion of such families among those with sufficient food was 14%. Among those who received inpatient care, 56% of food shortage families had to meet such costs by selling assets, borrowing, or delaying payment while only 15% of food-sufficient households did so. This implies that medical costs impose a great burden on the poor. Another survey on 498 poor households in nine provinces shows that 60% of them cannot afford medical treatment even when they have sick members at home[19]. Small studies conducted in selected poor communities in the northern mountainous region also suggest that an unforeseen crisis such as illness of a family member tends to push the resource poor households into indebtedness[20].

Education: A number of hearings from concerned agencies expressed concern about the deteriorating educational situation, particularly the declining enrollment and increasing drop-out rate among poor children and girls. According to Ministry of Education statistics, the drop-out rate of primary school students increased from 8.32% in 1985 to 12.35% in 1990. The situation in elementary schools has deteriorated even more; the drop-out rate increased from 11.35 in 1985 to 21.23% in 1990, and even the absolute number of enrollments in elementary schools substantially decreased from 1,098,377 in 1985 to 882,340 in 1990 (FigureÊ7). It is unclear whether those students who dropped out are from poor families; however, some studies and hearings reveal the following as the two main reasons for dropping out: costs (textbooks, contribution to schools etc.)[21], and increased demand for labor both for

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[19] Policy and Management Department, Ministry of Agriculture (1994), form no. 158

[20] Action Aid (1995), Rutherford (1992), Stephan (1994)

[21] Based on informal hearings, in rural areas in the Red River Delta, parents have to contribute VND 80,000 - 100,000 at the beginning of school year as school fees and textbooks per pupil, then pay monthly VND 40,000 - 50,000 as school fees. On average, a rural family having two school-aged children has to spend about VND 1,000,000 for a school year.

domestic chores and production. It seems that the children from poor households are most likely to lose chances to continue studying. One survey identified 46.3% of the poor households studied in nine provinces had to pull their children out of schools due to poverty [22].

Cooperatives used to provide creches and day care centers for infants and pre-school children. In 1985, there were 41,502 creches and day care centers accommodating 1,157,385 children. In 1990, the number was reduced to 28,808 with only 528,012 children enrolled. In some communities, home-based child care centers are emerging, but in many communities there is a vacuum, which means young girls have to take care of their siblings. Moreover, even in those communities where private home child care centers are emerging, parents have to contribute between 4-10 kg of paddy rice per child per month. Such cost might be a burden for poor households; and thus do not benefit from such new services. Those poor households who have high dependency ratios are most likely facing difficult times as a result of losing access to such child care services.

Indebtedness and loss of assets: Although there are many anecdotal stories on indebtedness and consequent loss of assets such as animals, houses, even land, the scale is unclear.

Small-scale studies in the northern mountainous region show that food poor households are easily indebted if they cannot obtain interest-free rice loans from their relatives, or if there are no opportunities for day-laboring to see them through the food poor period. Since the purpose of their borrowing is mainly for consumption (to buy food or to pay for medical treatment), there are no other channels for receiving loans (usually rice loans) except from informal channels where interest rates are much higher than market rates. This in turn tends to push them into heavy indebtedness[23]. The studies implied that the poorest of the poor cannot gain access to loans, even from money lenders, since they are regarded as being high-risk groups.

In some communities, households are subject to land penalties if they cannot meet their taxes and cooperative fees. Such forfeited land seems to be relinquished to the subcontract fund of the cooperatives for reallocation. One survey in selected districts in Vinh Phu province showed that as many as 40% of households lost land for this reason[24]. Hearings from some officials of the Ministry of Agriculture suggest about 10% of households in the rural area might have experienced such loss of land (partially or totally). Poor households tend to have smaller land holdings and these are at constant risk if they encounter difficulties in paying agriculturaltaxes or cooperative fees.

Although reasons for loss of land are not specified, another survey in nine provinces shows that of the 498 poor households studied, 36.5% lost their land recently due to debt or other reasons (Hoa Binh: 40.0%, Ha Bac 35%, Nam Ha 44%, Thanh Hoa: 27%)[25]. As already mentioned, the loss of assets to pay medicalcosts also seems to be occurring[26].

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[22] Policy and Management Department, Ministry of Agriculture (1994)
[23] Action Aid (June 1995), Turk (1994) and, Rutherford (1992)
[24] Quang and Buse (1992) quoted in Smith (1993), p.28
[25] Policy and Management Department, Ministry of Agriculture (1994), form No.154
[26] Medical Publishing House (1995), p.31

3) Increased Vulnerability of Poor Households and Emerging Poverty Ratchet Effects

The above discussions illuminate some possible adverse effects of "Doi Moi" on specific aspects of the well-being of the poor such as health or loss of assets. They, by themselves, raise concerns about the deteriorating situation of the poor. However, it is a series of consequences that specific impact might bring about which raises a major concern. Information is too limited to draw any conclusion on this aspect, but some documents and discussion reveal that so-called "poverty ratchet effects" are emerging, at least in some localities. Based on discussion presented above, a hypothetical diagram will be presented to show how each specific impact of "Doi Moi" could create poverty-ratchet effects leading to further impoverishment of the poor (Figure 8).

Poor households tend to be resource poor: have smaller landholdings, higher dependency ratios, and little or no capital. Such situations often mean only low production and low income which could see the household experiencing a food shortage. The result would be either or both physical weakness and borrowing rice at interest rates higher than the market rates. Physical weakness tends to increase the risk of becoming ill; this could lead to both unforeseen expenditure and temporary or permanent loss of labor, which might require further borrowing or sale of assets which tend to be distress sales. Loss of labor on the other hand could lead to a further production decline. Borrowing at higher interest rates than market rates would increase the vulnerability of the poor to fall into heavy indebtedness which might result in further loss of assets. This all goes back to being resource poor.

Under the collective system there was, in principle, a social safety net which assured access of all households to basic production resources, and minimum consumption of basic food and basic social services. To what extent such a social safety net was in reality functioning seems to differ depending on region, as already discussed. However, it might be fair to say that under the collective system, there was not that much of a poverty-ratchet effect as at present. While there was little prospect of improving one's lot there was less risk of falling into deeper poverty. Currently, social mobility is accelerating both upward and downward. Therefore, those who can seize the opportunities could climb the social ladder rather quickly, but those who cannot could easily fall into the deprivation trap. In short, the vulnerability and insecurity of the latter group has increased, becoming more impoverished.

4) Factors Affecting the Impact of "Doi Moi" on Poor Rural Households

Poverty-ratchet effects, and the subsequent deprivation trap, are developing in some localities. Nevertheless, the impact of "Doi Moi" both positively and negatively, in other words the development or non-development of poverty-ratchet effects, appears to differ from one location to another. There are many factors influencing the outcome of "Doi Moi" on the livelihood of the poor. To identify those factors and to understand why such differences are occurring is essential since it will provide valuable insights as to where and how the government should intervene and provide safety nets, particularly for the rural poor.

In the current situation, poor households are commanding necessary goods and services through three different channels: market mechanisms, public channels, and informal networks such as kinship relations and community support. In the South, market development is

faster than in the North. More employment opportunities and more goods and services are available, probably even for the poor. In the North, the pace of market development is slower, but there are indications many spontaneous groups are emerging, mainly for production activities, to make up for the vacuum created by the collapse of the cooperatives[27]. These groups tend to operate at the traditional ("thong", "lang") level, not at the administrative commune ("xa")[28] level. This implies that the sense of belonging among members is stronger; and thus there might be an informal safety net which is being provided through mutual help. In the midlands and uplands, the situation seems more complicated. Market development is slowest, and the public channeling of services seems to be weak. Population in many communities is not homogenous in terms of either ethnicity or farming practice. How poor communities and poor households are responding to the changing situation is not clear. This aspect of the impact of "Doi Moi" and the strategies of the poor and communities in response requires further investigation.

(5) Policy Implications and Some Comments on the Poverty Alleviation Program for Viet Nam 1996-2000

This section will present some policy implications derived from discussions in the previous sections, as well as some comments on the Poverty Alleviation Program for Viet Nam 1996 - 2000[29].

1) Policy Implications on Effective Poverty Alleviation Strategies

Need for rapid and broad-based economic growth: Both estimated poverty incidence and nutrition data suggest that poverty is a prevailing problem in Viet Nam and that its scale is greater than in other Asian countries. Therefore, rapid economic growth is a prerequisite to improve the general standard of living. As already discussed, the experiences in other Asian countries indicate that high and broad-based economic growth (defined as leading to raising standards of living at all socioeconomic levels) is a key for rapid poverty reduction. Sound macroeconomic management as well as strategic industrial policy is essential both for achieving high economic growth and for providing significant economic opportunities to the poor. (These two issues are discussed in other parts of this report). In this connection, it was also suggested that poverty reduction would be quicker if regional growth were more evenly distributed. This leads to the need for special attention to three regions: the northern mountainous region, the north central coast, and the Central Highlands. These three regions have the highest incidence of poverty and lower nutrition status among the population. Strategies to induce rapid economic growth in the regions must be rigorously sought.

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[27] Dau Quoc Anh suggests that informal and self-help groups are emerging with respect to technology transfer, coordination of irrigation, soil preparation, and credit activities. In his observation, he pointed out that the soil preparation group tried to persuade all farmers living in a certain part of the village containing big parcels to allow their land to be ploughed regardless of boundaries. Hearings from farmers from Ghe An province revealed that the tradition of "Doi Cong" (labor exchange) re-emerged in his village which seemingly benefited poor households without access to draft power.

[28] Iwai (1994)

[29] The comments are in the summary of the Poverty Alleviation Program for Viet Nam which was attached to the document distributed during the Paris Conference in December, 1995.

Need for targeted intervention: Experiences in other countries also suggest the need for targeted intervention to accelerate poverty alleviation efforts. In Viet Nam between 20 and 30% of the population are estimated to be food poor. There are multiple causes for their poverty and hence they do not benefit as much from general economic growth. Special poverty alleviation measures are required. Among the target population are the rural poor (90% of the poor reside in rural areas), the ethnic minorities in the uplands[30], and those de facto female-headed families who do not have adult male labor.

A. Areas for intervention: Considering the problems of poor households, the following intervention is suggested: (a) Small-scale rural infrastructure construction, such as village roads, water supply and small-scale irrigation etc. which has a direct impact on improving the livelihood of the poor. Village roads are particularly important to enhance their access to economic opportunities and basic social services. (b) Provision of credit for the poor. It should be emphasized, however, that it is not only the availability of credit which matters. The mode of operation matters, through which credit is channeled. The fundamental premise is that the poor cannot bear risk. (c) Dissemination of knowledge (extension service) both in production and the social sector. Knowledge is far more important than before in the transitional period to sustain and improve livelihood. (d) Provision of seasonal employment opportunities to assure a stable livelihood and household food security throughout the year. Such employment opportunities could be generated through public work schemes related to rural infrastructure building.

B. Mode of operation for targeted intervention: The situation which poor households face is different from that faced by the non-poor. The most prominent difference is that the poor are extremely vulnerable to risks. Therefore, any poverty alleviation activities should target minimizing risks and increasing the stability of their livelihood. This should come before the norm of maximization of their production or income particularly when the activities target the food poor. Such an understanding leads to the importance of two other points. Firstly, the importance of an integrated approach to poverty alleviation, and secondly the importance of the participation of the poor in planning and implementing any activities. These two are essential to make poverty alleviation activities better suit the situation of the poor not to mention avoiding any unintentional increase in risks.

Re-allocation of resources in the social sector and provision of social safety net for the rural poor: Recent economic reforms have increased economic opportunities as well as the vulnerability of the poor to risks. There are already indications that so-called "poverty ratchet effects" are emerging which tend to push the poor into deeper poverty. To prevent further impoverishment of the poor, a social safety net has to be provided to assure the stability and minimum standard of living with access to basic social services. Given the government resource constraints, two issues need to be looked into: resource re-allocation within the social sector; and provision of a social safety net for the rural population.

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30) For ethnic minorities, a different and careful approach is required due to their languages, farming practices (shifting cultivation), and culture.

Government spending per capita in the social sector[31] more than quadrupled between 1986 and 1995 in real terms (Figure 9). However, the current budget allocation and provision of subsidies are not efficiently and effectively pro-poor. VNLSS estimated the amount of subsidies per capita based on the degree of utilization/attendance of particular type of facilities by different quintile of the population surveyed. It suggests that the subsidy for a student from the top 20% quintile is more than ten times that of the lowest quintile with respect to upper and post-secondary education (Table 5). In health, it found that only 2% of government spending was spent on commune health centers, which are more often than not used by the poor than the rich. Estimated per capita subsidies in health indicates strong pro-well-off bias (Figure 10). Probably some efforts are required in both the education and health sector to make government resource allocation more pro-poor. In the area of social protection, more than 80% is spent on pensions and disability payments (Table 6) in the public sector. That is, very little is available for the rural population who are outside the system, and more likely to be poor and vulnerable. How such a safety net could be provided to the rural poor is one area which requires urgent investigation.

Need for research on the impact of "Doi Moi" and on the coping strategies of poor households and communities: Related to the above point, there is an urgent need for research on the impact of "Doi Moi" and the coping strategies of the poor and communities. The impact of "Doi Moi" varies from one place to another. Four factors seem to influence the nature and extent of the impact: (a) extent of collectivization before "Doi Moi" and the quantity and the quality of services which were provided under the system; (b) extent and nature of market development; (c) commitment and resources of local government; and (d) nature and responses of communities. Poor communities tend to be isolated, and thus have slower market development and receive less assistance from public channels than before. There, the role of community seems to be essential. How poor communities and poor households are coping with the changing situation needs to be looked into since it could provide ample insights for formulation of effective poverty alleviation strategies. This issue could be taken up in Phase II of the study.

2) Some Comments on the Poverty Alleviation Program for Viet Nam 1996-2000

The new government strategy is based on the premise that economic development is the basic and decisive factor for poverty alleviation, but it cannot achieve this on its own, and thus, targeted and more direct poverty alleviation efforts are required. The government sets two objectives: (a) to reduce poverty incidence rate from 20% to 10% by the year 2000; and (b) to concentrate on the elimination of chronic hunger in the first two to three years, firstly in regions where ethnic minority groups live, the highlands, remote areas, and in areas which are prone to natural disasters. Policy measures include the following: (a) job creation policies, which are mainly composed of land allocation and provision of credits with a preferential interest rate; (b) investment in infrastructure construction such as roads, commune health clinics, facilities for clean water supply, power supply stations, primary and

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[31] Social sector covers health, education and social protection which includes (1) social security for public sector employees; (2) allowances for some 400,000 handicapped war veterans and one million martyrs' families; and (3) social relief measures targeted at victims of sudden natural disasters, starvation, and "social evils".

secondary schools, and communal or inter-communal market places; (c) assistance in the provision of free education and health care services which includes the granting of health insurance.

The objectives evidence the strong government commitment in this area. The target areas which are identified as being a priority rightly reflect the current situation, and measures proposed are effective in relation to the problems and the needs of the poor. Nonetheless, there are some areas and issues which might require further thinking. These are mainly related to the fact that the 20% of the people which are identified as being the poor, and thus the target population, have the following characteristics: (a) they are basically food poor and extremely vulnerable to risks[32]; (b) they tend to live in remote areas, or in isolated places, and are therefore difficult to reach; and (c) they often face multiple problems which cause poverty.

Operational mode of the Bank for the Poor (BFP): Three areas require further discussion: the need for careful extension services, the need for narrowing the gap between the Bank and the poor, and need for setting an optimal interest rate. The poor are extremely vulnerable, and thus risk-averse. Unless the poor are convinced that foreseen risks are small enough to cope with, they might not be able to take advantage of the credit offered for their production activities. Provision of credit and prudent extension services might be better offered in a package. There are a number of credit schemes being operated, though on a small scale. The successful ones tend to have the following operational mode: technical extension service; regular and frequent visits by field workers for collection of small interest and principal; payments formation of small liability groups among homogeneous members; and introduction of savings schemes. These all minimize the risk that the poor will fall into heavier indebtedness. At this moment, linkage between potential users (the poor) and the BFP still seems weak, and the lessons from other experiences must be exploited to narrow the gap. Finally, in order for the BFP to operate successfully, the cost of extension services, of the services delivered by field workers which will be required, have to be included in the calculation of recurrent costs. This raises concerns about what should be the optimal interest rate to sustain the operation. Preferential interest rates for the poor are appealing. However, in Viet Nam, where available credit is very limited, preferential credit might be used by other segments of the population, bypassing the poor. Targeting will be extremely difficult. All the above points require careful thinking about the operational mode of the BFP if it is genuinely intended to benefit the 20% of the population whom the program targets.

Increased flexibility and improved quality of services: Recognizing the importance of basic health and education services, the program plans to invest in rural infrastructure, such as commune health clinics as well as primary and secondary schools. Moreover, there is a plan to provide free education and health insurance to poor families. It is also important,

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[32] The government estimates the current poverty incidence at 20% and sets the target of reducing this incidence to 10% by the year 2000. This estimate was made in the Poverty Monitoring Survey (PMS) conducted by the General Statistics Office in 1993. According to the definition of the criteria used in PMS, the target population are the food poor in the sense that they could not meet the minimum calorie requirement of 2100 kcal per day per person even if they were to expend all their income for the basket of basic food items.

however, to pay attention to the quality of the services and to the flexibility in the mode of provision. Availability and accessibility (cost factor) matter but the quality of services is also important. In the health field, VNLSS found that among the minority who chose treatment from formal service providers, the private sector (16%), whose charges are often higher, was more important than the public sector (11%), even among the poor. The study in Quang Ninh province suggests that not only cost, but quality and convenience (flexibility in payments, service delivery hours etc.) play important roles in health care decisions by poor households. In the education field too, facilities and costs matter, but there is another factor pulling out children from schools, increased demand for labor for domestic chores and production. Therefore, unless there are some changes in school hours and/or curriculum, it might be difficult for children to continue studying. In addition, one of the biggest constraints on education in the highlands appears to be the language of instruction, Vietnamese, which is not the mother tongue of most of the ethnic minorities residing there. To enhance accessibility of the ethnic minorities in the highlands, the curriculum and teaching media might have to be modified.

Provision of seasonal employment opportunities through public work schemes: As already discussed, one of the biggest problems facing the poor is the lack of job opportunities, especially in slack seasons. Household food security is at a low just before harvest when food stocks from the previous harvest are depleted. Providing seasonal job opportunities through public work schemes could be included as an effective means of alleviating poverty. Public works schemes for building rural infrastructure, such as roads and water supply and irrigation facilities, could generate seasonal employment opportunities if they are organized in agricultural slack seasons. This could increase the income stability throughout the year and access to food, particularly when the activities are carried out through "food for work" schemes. Wage rates (could be in terms of rice) could be set low to attract only the poor, so that the schemes could be self-targeting. This would avoid the difficulties involved in targeting beneficiaries, as in the case in providing preferential credits to the poor. Such schemes could contribute to building rural infrastructure and increasing income stability to assure household food security throughout the year.

Table 1 Comparison of Poverty Incidence Estimates using Three Different Poverty Measures

Viet Nam Living Standard Survey Estimates			Poverty Monitoring Survey Estimates			Estimates based on Conventional Rice Poverty Lines		
Measure	Definition, monetary unit for poverty line (dong)	poverty incidence (%)	Measure	Definition, monetary unit for poverty line (dong)	poverty incidence (%)	Measure	definition, monetary unit for poverty line (dong)	Poverty incidence (%)
Poverty Line	*2100 calories consumption and non-food consumption*		*Food Poverty Line*	*2100 cal. food consumption*		*Absolute Poverty Line*	*Consumption of 15kg of rice per person per month (1500 - 1800 cal.)*[a]	
National	1,090,000	50.9	National	-	20	National	-	
Rural	1,040,000	57.2	Rural	600,000	22	Rural	300,000	29.96-35.61[b]
Urban	1,293,000	25.9	Urban	840,000	10	Urban	360,000	8.11
Lower Poverty Line	*2100 calories consumption and minimal non-food consumption*					*Chronic Hunger Line*	*Consumption of 12kg of rice per person per month (1500 calories)*[a]	
National	955,000	41.2				National	-	-
Rural	914,000	46.5				Rural	204,000-245,000	16.30-20.05[b]
Urban	1,122,000	19.6				Urban	245,000-294,000	6.45
Food Poverty Line	*2100 calories consumption only*					*Chronic Severe Hunger Line*	*Consumption of 8kg of rice per person per month (950 calories)*[a]	
National	748,000	24.5				National	-	-
Rural	710,000	28.2				Rural	136,000-163,000	5.7-7.96[b]
Urban	902,000	9.9				Urban	163,000-196,000	4.42

a: Calorie consumption levels are estimated based on a conversion rate of 3530 calorie per kg of rice, as in Table 1, Annex 1.1 of the World Bank Report (1995).

b: The ranges show estimates in different locations.

Note: Refer to section I of the main text of the interim report for further explanation of different poverty measures.

Source: World Bank, *Poverty Assessment and Strategy*, Washington D.C., USA, 1995, Nguyen Thi Hang and Nguyen Van Thien, 'Poverty Status in Viet Nam', Center for Population and Human Resource Studies and Centre for the Development of Human Resources in Rural Asia, *Proceedings of the International Seminar on Poverty Alleviation and Informal Sector in Viet Nam*, Hanoi, Viet Nam, 1998, and [illegible] from the General Statistics Office.

Table 2 Comparison of prevalence of malnutrition among children under five in selected Asian countries (% < -2SD)

Country	Underweight (%)	Stunting (%)	Wasting (%)
All developing countries	35.7	39.0	8.4
Bangladesh (1990)	65.8	64.6	15.5
Laos	37	40	11
Cambodia	40	38	8
China (1987)	21.3	32.1	3.6
Philippines (1987)	32.9	38.6	4.5
Thailand (1987)	25.8	22.4	5.7
Vietnam (1995)	44.9	46.9	11.6

Sources: National Institute of Nutrition;
UNICEF, *the State of the World's Children 1996*

Table 3 Estimated Absolute Poverty, 1970-1990: Selected East Asian Countries

		Population			Number of Absolute Poor				Incidence of Poverty		
		1970	1990	Increase	1970	1980	1990	Decrease 1970-90	1970	1980	1990
		Million			Million				Percent		
China:	Total	836	1134	298	275	220	100	175	33	28	9
	Rural	686	834	148	267	211	95	172	39		11
	Urban	150	300	150	8	9	5	3	5		2
	% Poor in Rural Areas								97	96	95
Indonesia:	Total	115	178	63	70	42	27	43	60	29	15
	Rural	96	123	27	56	33	18	38	58	28	14
	Urban	19	55	36	14	9	9	5	73	29	17
	% Poor in Rural Areas								82	80	66
Korea:	Total	32	43	11	7	4	2	5	23	10	5
	Rural	22	12	-10	6	1.5	0.4	5.6	28	9	4
	Urban	10	31	21	1	2.5	1.6	-0.6	16	10	5
	% Poor in Rural Areas								84	37	20
Malaysia:	Total	11	18	7	2	1	0.4	1.6	18	9	2
	Rural	8	10	2	1.7	0.9	0.3	1.4	21		4
	Urban	3	8	5	0.3	0.1	0.1	0.2	10		1
	% Poor in Rural Areas								85	85	85
Philippines:	Total	37	62	25	13	14	13 a/	0	35	30	21 a/
	Rural	25	35	10	11	11	10	1	42	35	27
	Urban	12	27	15	2	3	3	-1	20	18	11
	% Poor in Rural Areas								85	75	77
Thailand:	Total	36	56	20	9.5	7.9	9.0	0.5	26	17	16 a/
	Rural	31	43	12	9.0	7.4	8.5	0.5	30	19	20
	Urban	5	13	8	0.5	0.5	0.5	0.0	9	5	4
	% Poor in Rural Areas								94	94	94
Six Countries:	Total	1067	1491	424	377	289	152	225 (-60%)	35	23	10
	Rural	668	1057	189	351	265	132	219 (-62%)	40	27	12
	Urban	199	434	235	26	24	20	6 (-23%)	13	9	5
	% Poor in Rural Areas								93	92	87
	% Urban	19	29	55							

Note: Except for China, estimates for 1990 are projections. The incidences are based on official poverty lines for China, Indonesia, Korea, and Malaysia; official subsistence lines for the Philippines; and lines slightly lower than the official ones for Thailand. Absolute poverty lines allow 2150 calories per/day, 90% from grains, and non-food basic needs or other baskets costing the same.

a/ Based on 1988 incidence and distribution of poverty and 1990 population estimates.

Souse: estimates.

Source: World Bank (1993), p4

Table 4 Regional Growth and Poverty Incidence under Different Growth Scenarios (Headcount Incidence)

Region		Regional Growth (1993)[a]	Regional Growth (1991-1995)[b]	Poverty Incidence (%)			
				1993	2000		
					6% Growth	8% Growth	10% Growth
Northern Upland	Rural	3.08	4.30 (Northwest)	62.8	56.9	50.8	45.0
	Urban	3.08	6.83 (Northeast)	34.3	27.8	23.8	20.3
Red River Delta	Rural	4.60	9.60	55.0	43.8	36.2	29.0
	Urban	4.60		15.4	11.2	8.2	5.7
North Central	Rural	2.50	6.14	73.6	71.9	67.7	66.3
	Urban	2.50		42.4	34.2	30.9	27.8
Central Coast	Rural	6.28	6.35	54.0	32.9	28.3	20.9
	Urban	6.28		36.0	19.1	14.5	10.6
Central Highlands	Rural	11.34	5.40	50.1	15.1	9.6	6.0
Southeast	Rural	14.30	12.69	45.2	4.5	1.4	0.6
	Urban	16.15		17.1	1.4	0.5	0.2
Mekong Delta	Rural	7.73	6.16	52.0	24.3	16.7	10.8
	Urban	7.73		28.4	15.4	11.0	7.5
		7.5	8.76	50.9	35.0	29.0	25.0

a World Bank estimates

b Development Strategy Institute

Sources: World Bank (1994), p.83;
Development Strategy Institute

Table 5 Public Subsidies in Education (Thousand Dong Per Capita) and Gross School Enrolment Rates by Expenditure Quintile, 1993

Item	Expenditure Quintile					Viet Nam	Urban	Rural
	I	II	III	IV	V			
Subsidies								
Primary	11.9	12.6	11.4	9.8	8.9	10.9	8.6	11.5
Elementary (lower second.)	2.3	3	4.6	5.8	6.7	4.5	5.9	4.1
Secondary	0.3	0.4	1.2	2.2	4	1.6	4	1
Post Secondary	na	2.6	4.2	8.4	29.4	9	26.4	4.6
Gross Enrolment %								
Primary	88.2	100	105.4	109.6	106.8	100.8	99.3	101.1
Elementary	24.2	32.8	47.5	59.9	77.1	48.2	74.8	42.5
Secondary	3	4	10.1	17.4	34.9	15	38.1	9.3
Post Secondary	0	1	1.3	2.4	8.8	3	8.2	1.6

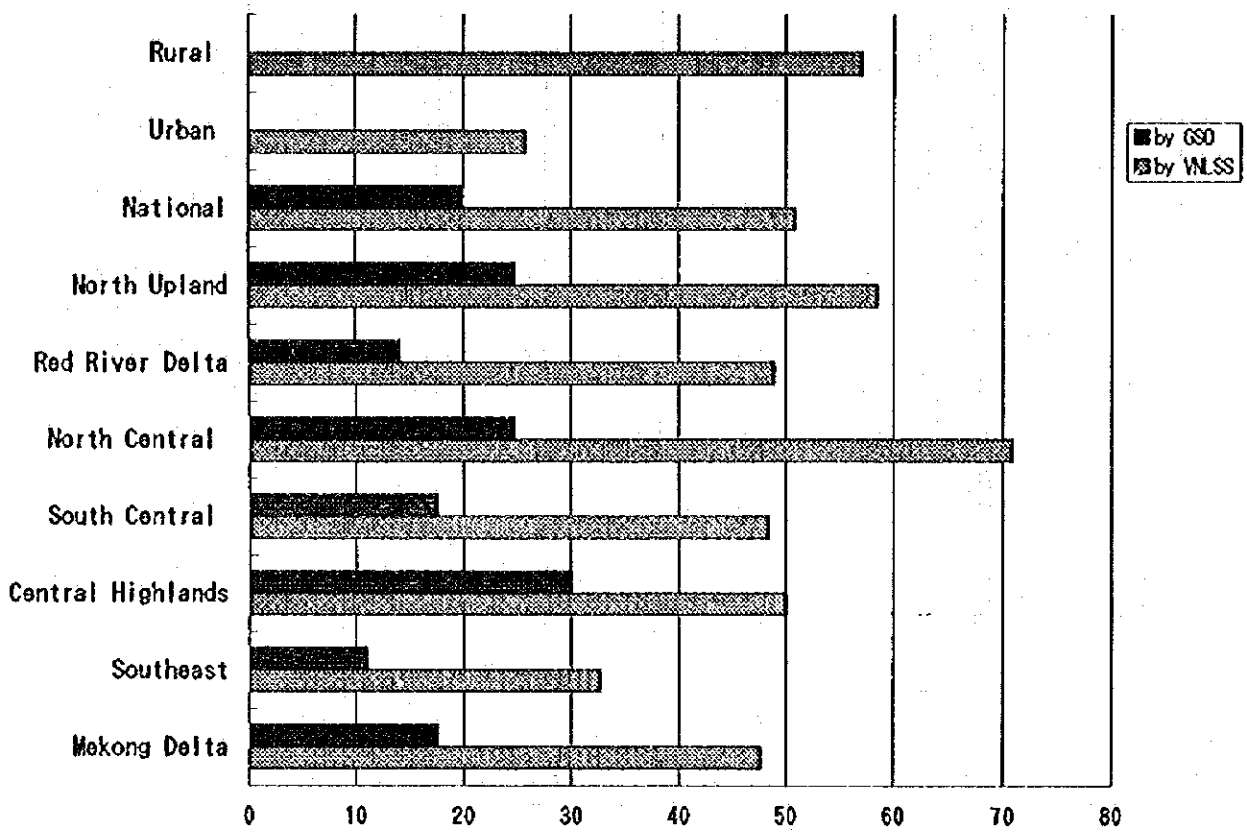
Source: World Bank (1995), p.186, p.193.

Table 6 Expenditure on Pension and Social Relief, 1994

	Budget (billions)	Recipients (millions)	Expenditure per recipient (thousands)
Pensions	2634	1155	2281
Disability	1536	0.500	3072
War Invalids	371	1400	265
Natural Calamities	400	2000	200
Regular Relief	63	0.140	450
Social Evils	70	-	-
Total	5074	5195	

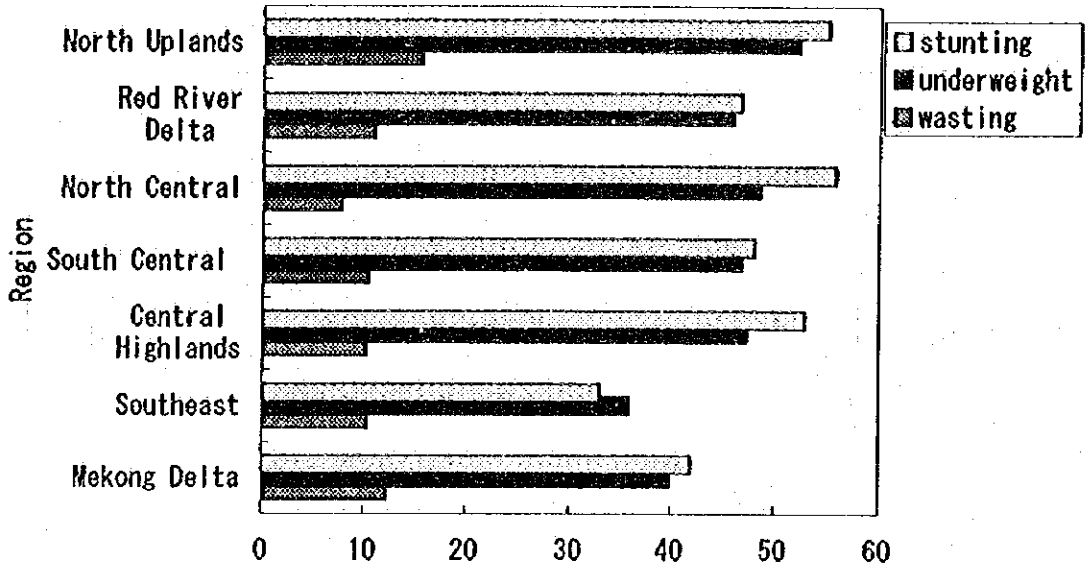
Source: World Bank (1995), p.105.

Figure 1 Poverty Indidence by Region (%) (1993)



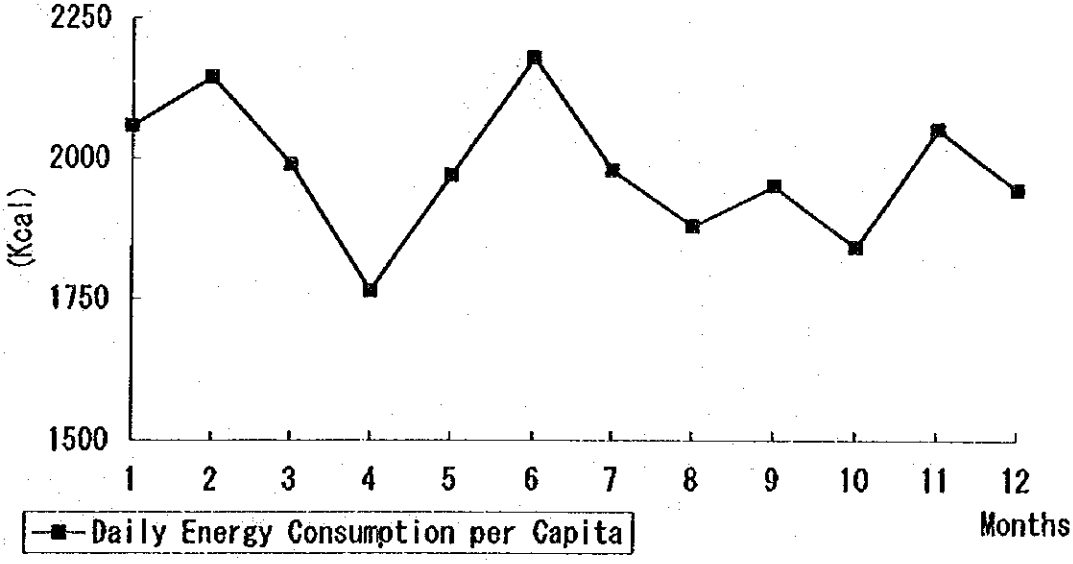
Sources: The World Bank (1995); General Statistics Office (1994).

Figure 2 Prevalence of Protein and Energy Malnutrition among Children under five by Region (%<-2sd)



Source: National Institute for Nutrition.

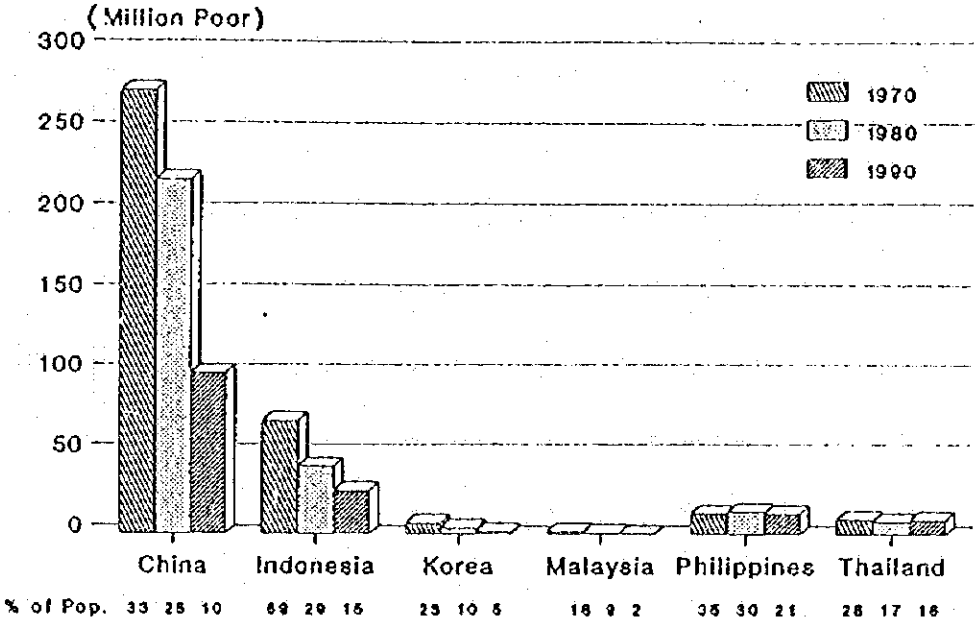
Figure 3 Seasonal Variation in Daily Energy Consumption per Capita in Ha Nam Ninh Province

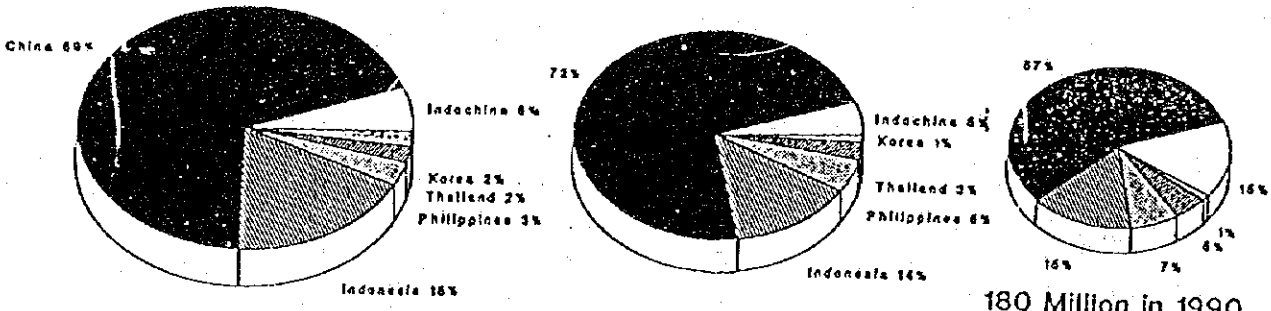


(1987)

Source: Tu Giay (1991), quoted in Smith (1993).

Figure 4 Reduction in Absolute Poverty, 1970-90



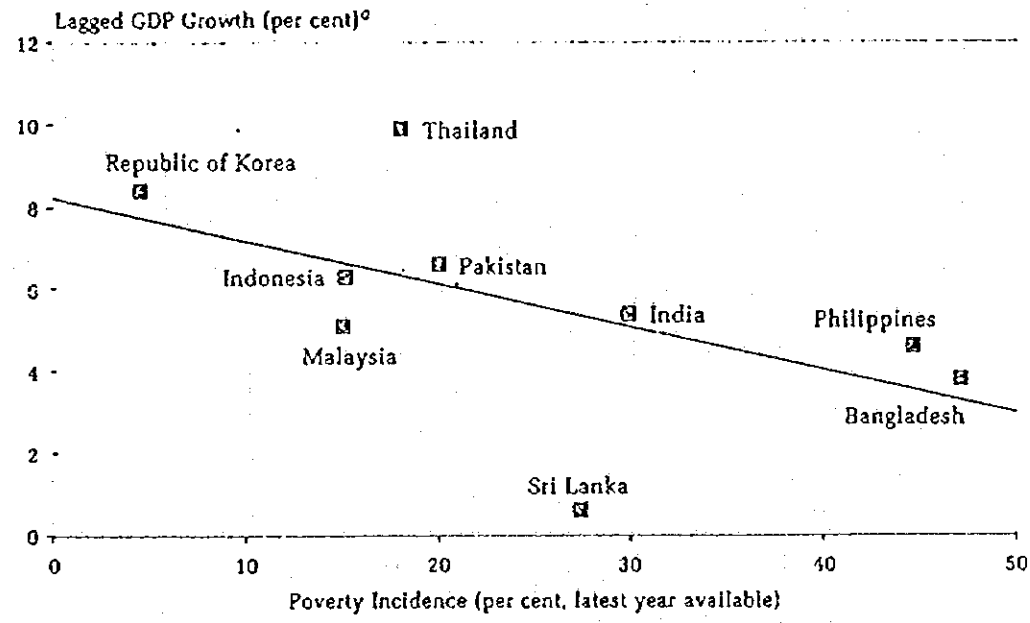


400 Million in 1970 300 Million in 1980 180 Million in 1990

Source: Estimates based on country data; some figures for 1990 are projections;

World Bank (1993), p.xi.

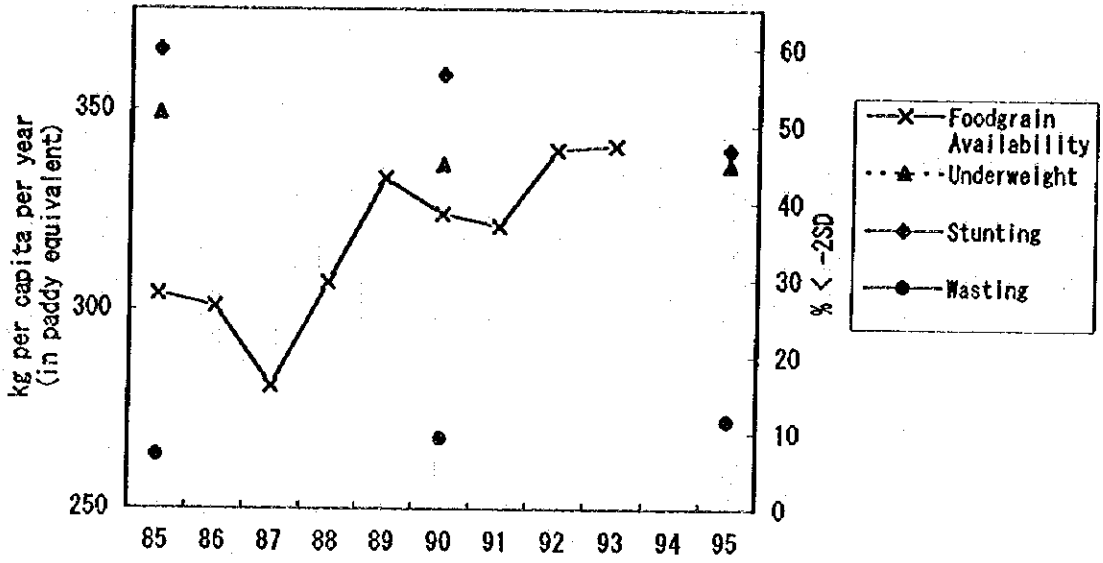
Figure 5 Poverty Incidence and GDP Growth



a Average growth during the five-year period preceding the latest year for which data on poverty incidence is available.

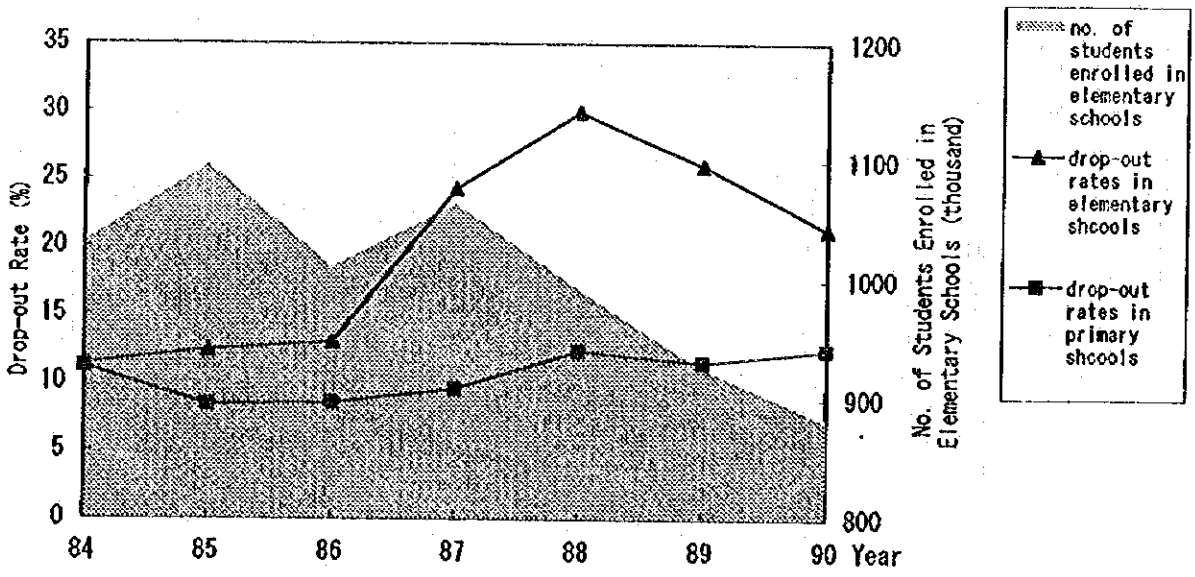
Source: Mills and Pernia (1993), quoted in Asian Development Bank (1995), p.67.

Figure 6 Food/grain Availability from National Production and Prevalence of Malnutrition among Children under five



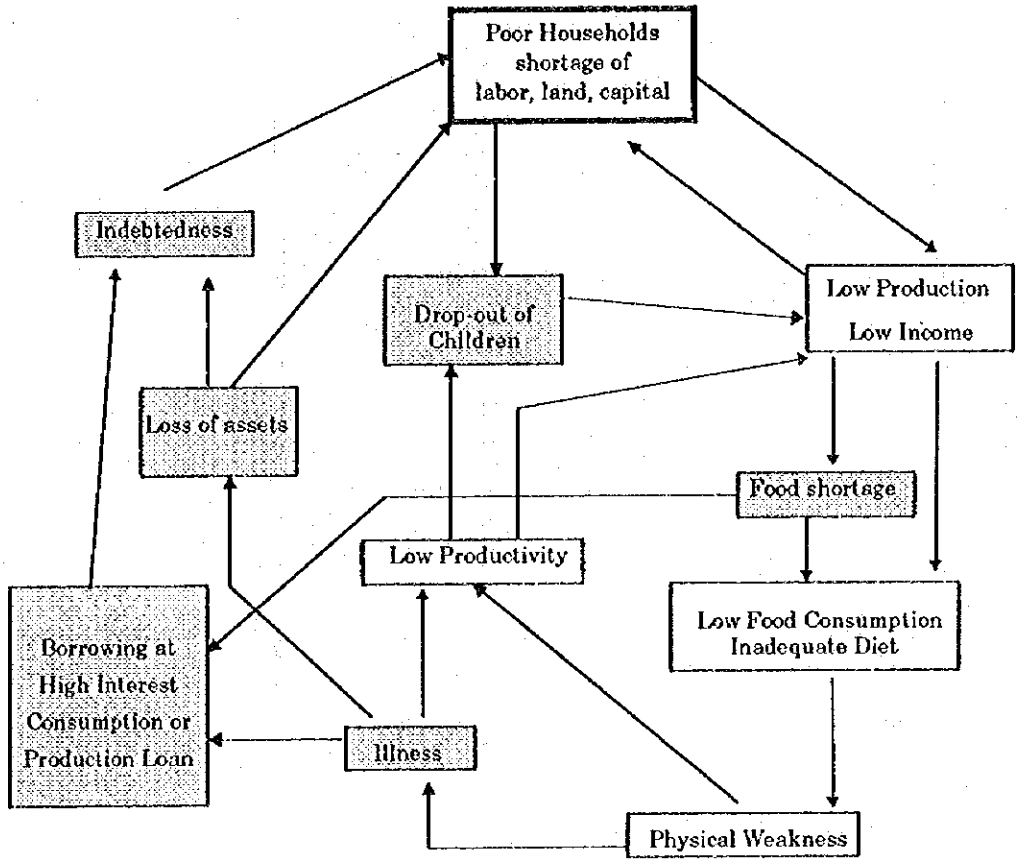
Sources: Ministry of Agriculture; National Institute for Nutrition.

Figure7 Changes in Drop-out Rates and Number of Students Enrolled in Elementary Schools



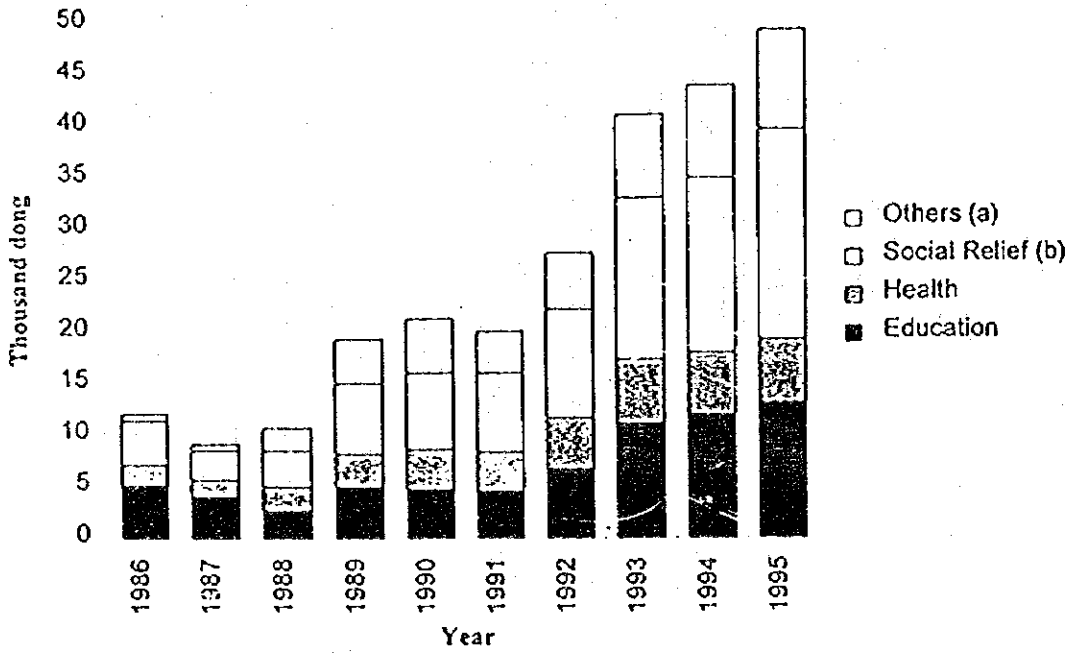
Source: Ministry of Education.

Figure 8 Poverty Ratchet Effects



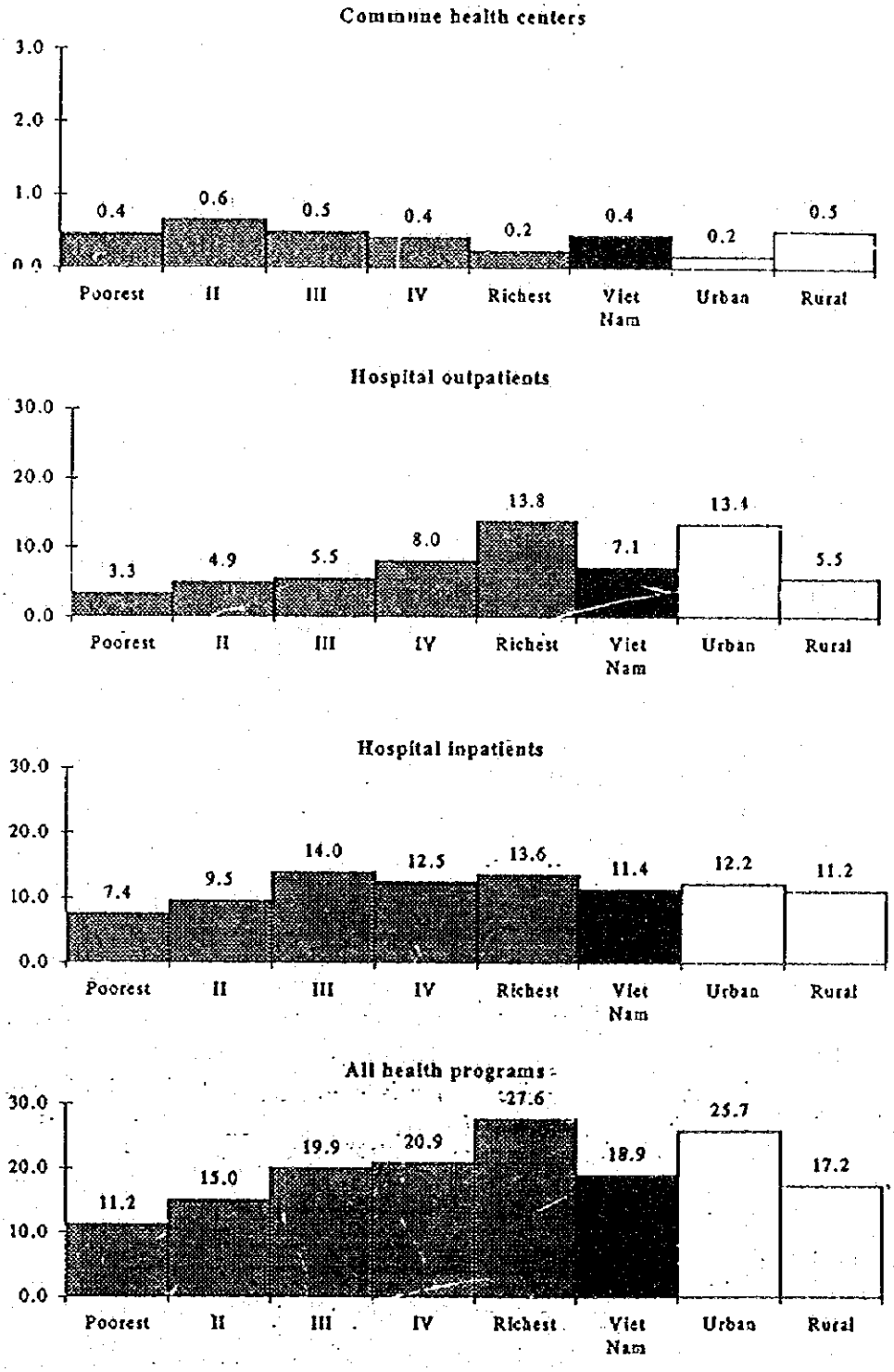
Areas or phenomenon which seem to have newly emerged or intensified due to decollectivization

Figure 9 Trends in Social Sector Spending 1986-1995
(Thousand dong per capita, 1989 prices)



Source: UNDP (1995), p.57.

Figure 10 Per Capita Subsidies for Health, 1993
(in thousands of dong)



Source: World Bank (1995), p103.

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