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THE POLITICAL ECONOMY OF AID  
The Case of Suriname

by

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## THE POLITICAL ECONOMY OF AID: THE CASE OF SURINAME

### I. Introduction

Probably the one dominant feature of the economic, cultural and political relationship between the industrial world and the developing world during the era following World War II is official development aid, also referred to here as foreign aid, development assistance, concessional flows or simply aid. Aid occupies a central and institutionalised role in the world economy, not only in financing a significant portion of imports and projects in the recipients, mostly developing countries, but also often certifying good behaviour that, as former IMF Managing Director, Jaques de Larosieres of France used to say, "unlocks vast other resources to the recipient countries" (IMF Survey: 1983)

Having its origins in the Marshall Plan of the USA which worked wonders in the reconstruction of war-stricken Europe, aid, totally about \$35 billion in 1987 is, by and large, still being regarded as a development-enhancing instrument, as a means to ameliorate or eradicate pauperisation or deprivation in the receiving countries. Not only is the positive relationship between aid and development taken for granted but also some kind of altruism on the part of aid donors - mostly richer and industrialised countries. These are assumed to be guided in their aid-giving activities principally by such noble issues as need, humanitarian and welfare aspects of their prospective aid recipients quite divorced from pursuance of self interest.

Literature on aid is, however, replete with observations refuting any consistent and conclusive results of the positive relationship between aid and development and that aid donors particularly individual governments brand their aid as earmarked for development in the recipient countries probably only to mask what in essence serves as an effective instrument of their foreign policy. As such, aid subserves their political, strategic, commercial and economic interest more effectively than straight doles, subsidies or bribes. This leverage aspect of aid has come much to the fore in recent times. Quite apart from the role of other instrumentalities - military aid and intervention, covert operations, diplomatic and economic sanctions and rewards - the rules of access to aid have themselves made alternative development strategies especially the socialist and autarcic ones costly if not very difficult to pursue in the recipient countries. The aid option can thus in the current international economic order be viewed as fundamentally affecting the viability of alternative development choices open to the developing countries.

In general, the aid regime poses a complex of combination of possibilities and constraints for developing countries and thereby plays a central role in shaping the nature of development strategies and processes. This highlights the profoundly important relationship between aid, conceptualized as structured access to concessional external financing, and basic features of the kind of development that has characterised most developing societies and the overall world economy over the past forty years. Even the origins of the devastating debt crisis sweeping the Third World today can be traced back partly to the aid structure prior to the surfacing of the crisis in 1982 in Mexico -both because most aid itself created debt and because the aid regime constraint on development choices were major factors in providing Third World countries an incentive to turn to the less concessional financing available from commercial lenders flooded with petrodollars in the 1970's. This was particularly the case for those countries pursuing policies which can be regarded as "state capitalist". Changes in the world economy by the early 1980's threw both state capitalism and aid regime into crisis. (Wood, R, 1986: 10)

Probably as a result of the form and conditions under which aid is given coupled with the way it is utilized in the recipient countries, the otherwise substantial transfers of nominal aid to the Third World countries, in the preceding four decades since the 1950's have failed to reduce to acceptable proportions the plight of the majority of the people in these recipient countries. The basic manifestations of underdevelopment, deprivation and pauperisation, still menace an estimated two-thirds of the world's population today - prevalence of hunger and famine, illiteracy, deficient and inadequate health, education and housing facilities, rising levels of under- and open unemployment etc.

Adherents and opponents of aid would agree however, that if aid is to have any positive effects on recipients economies, it should be given in the right forms and under the right conditions. Besides, the donor as well as the recipient should view aid as a "tide over" to cover resource shortfalls in the development process and not as a permanent source of development resources.

The view taken here is that aid can fulfill two basic functions in the development process. Firstly, aid can assist the recipient in implementing measures which will mobilize and reallocate its human and material resources for social and economic transformation by overcoming temporary shortages in specific human, monetary and material resources. Aid is in this sense a "pump - priming" instrument. The medicine eventually becomes poison if the recipient comes to rely on foreign



resources as a lasting source of resources, thereby thwarting every effort to implement such policy measures as to make the same aid redundant in the long run and graduate the country from an aid-receiving to a middle-income country having direct access to the commercial money markets. Secondly, aid can be seen as supplementing rather than substituting a recipient's domestic resources for higher rates of growth and social progress. Usually, countries that are not making satisfactory progress, regardless of their per capita income, have failed to achieve the potential returns from their own resources. What is required are policies and programmes designed to mobilize, adapt, and reallocate these resources, including the training of human resources. The disgruntling performance of aid in fulfilling these functions in the preceding four decades can therefore be attributed not only to the forms and conditions under which aid has been given but also to the manner in which these resources have been utilized in the recipient society.

Today much attention in literature is given to such themes as effectiveness of aid, support for aid in donor countries where support seems to have declined among the electorate and the government; the volume of aid and increase politisation of aid and the mixing of aid with foreign policy and commercial objectives of the donor. Unfortunately the current debt crisis has not evoked much interest among researchers to look at the role aid might have played in precipitating and reinforcing increased indebtedness of much of the developing world. While earlier works tended to view foreign capital as "aid" (Mc Kinnon, 1964; Chenery and Strout, 1966), it was then already recognised that most of the funds obtained by developing world are in the form of loans and not grants. This implies that the development process is almost inevitably accompanied by indebtedness. Indeed the external debt of developing world has grown from less than \$ 50 billion in 1967 to \$ 250 billion in 1978 and \$1245 billion in 1981. Although the most immediate factors precipitating the prevailing debt crisis which surfaced in 1982 with Mexico's huge debt, are related to the two oil crises in the late seventies

and to the economic policies pursued by the industrialised capitalist countries, there is evidence to show that the prevailing aid regime has had much to contribute to this debt crisis.<sup>2</sup>

This paper dwells on the political economy of aid as it applies to the small Caribbean and South-American country of Suriname in the post-independence period, 1975-1988.

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<sup>1</sup>The figures for 1967 and 1978 refer to non-oil-exporting developing countries.

<sup>2</sup>For a thorough account of the role of aid in this respect see, for example, Wood R, 1986.

## II. A SHORT HISTORY OF SURINAME

With a population of about 380.000, Suriname is one of the smaller countries (62.000 square miles) on the South American continent, bordering equally small countries of Guyana and French Guyana. This former Dutch colony has an interesting colonial history in that it changed hands between the British and the Dutch for two centuries until it became permanently Dutch in 1816. It was a fully dependent territory until 1954 when it attained self-rule through the formation of the Tripartite Kingdom of the Netherlands, comprising the metropole itself, Suriname and the Netherlands Antilles. Midway in the seventies, in 1975, Suriname attained her flag independence. The Government was led by a Prime Minister and comprised of an elected President, a Council of Ministers and a one chamber Parliament consisting of 39 members who were elected partly by a proportional and partly by a district representation. In 1980 the military took over power until in 1987 when a new constitution was approved and ensuing elections returned a civilian government led by an executive President and a 51 (fifty-one) member National Assembly.

For over two centuries the plantation system thrived (as in the other Caribbean countries) using cheap negro slave labour from West-Africa until increased competition from other areas and the abolition of slavery in 1863 reduced its profitability. Plantation owners then successfully contacted Indonesian<sup>3</sup>, Indian and Chinese labour to work on the plantation, giving rise to ethnic and cultural diversity characterising the Surinamese society today<sup>4</sup>.

Although Suriname is richly endowed with natural resources and agricultural raw materials, it has proved very difficult to exploit these for the material benefit of the majority of the population. The economy is small, highly open, and heavily dependent on the enclave bauxite sector (since 1967) and infusion of Dutch aid both for foreign exchange and Government revenues. As a result, her economic situation both before and after independence has been quite sensitive to international prices and demand bearing on its bauxite sector and to international politics especially that of its former colonial power, the Netherlands, on issues involving aid disbursements.

Indeed the post independence period has exposed much of Suriname's extreme dependence on foreign aid to marshall its development. This paper will deal with some of the unpalatable effects of this dependence on the economy and the society.

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<sup>3</sup> Indonesia was also a Dutch colony up to 1949

<sup>4</sup> The population comprises thus of the following groups: Africans and Indians each making up about 45% of total population, the Indonesians, the Chinese, the Libanese and Syrians, some Europeans and the native Amerindians.

### III. THE DUTCH-SURINAME LONG TERM AID AGREEMENT 1975-1985/90

#### Conceptualisation and magnitude

Few decolonization processes in recent times have captured the attention of the world community in the manner the Dutch-Suriname decolonization did. It was not because of the the usual struggle ( at times armed struggle) demonstrated by the colonised to disentangle themselves from the colonial yoke as this was visibly absent in the case of Suriname. In fact it is contended that the most important push to give Suriname political independence was taken at a party convention of the Dutch Labour Party in 1973. Of course there were a handful of nationalists in Suriname propagating independence in the same period but "independence fever" never really caught on largely on account of the existing strong ties between the mother country and its colony. These effectively thwarted any serious attempts at sustaining a strong anticolonial climate or freedom movement in Suriname.

What captured world attention most was actually the magnitude of the committed aid. The Dutch Aid Commitment to Suriname for a period of ten to fifteen years beginning in 1975<sup>5</sup>, amounted to 2.2 billion Surinamese guilders (Sf) in 1975 prices, on a population of barely 400.000. It was grant aid. No other colonial power has been known to commit itself this much - not England, Spain, Portugal or France - to name but four of the most important colonial powers in recent history. It is for this reason that this agreement signed at the occasion of Suriname's attainment of her political independence in November 1975 was unique and hailed as an unparalleled "golden handshake" in the history of decolonization. The basis of the Dutch-Suriname long term aid agreement was the Multi-Annual Development Programme (M.A.D.P.) 1975-85/90 drawn up specially for this purpose by a joint Dutch-Suriname Commission prior to independence in 1974. The envisaged M.A.D.P drawn up for the small undiversified economy required a staggering 4.5 billion Surinamese guilders at 1974 prices. The Dutch contribution was thus intended to finance the lion's share of the programme, leaving Suriname herself and such other aid sources as the E.E.C. to fill in the gap. Assuming an average population of 373.000 during a ten year period 1976-1985 and 370.000 in a fifteen-year period (1976-1990), and a uniform annual investment pattern in these periods, this aid commitment came to an average Sf 610 per capita per annum for the ten-year period and to Sf 407 per capita per annum when the

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<sup>5</sup> The Surinamese guilder (Sf) is pegged to the U.S.dollar at Sf1.80 : 1\$ since 1971

aid disbursement period and is extended to fifteen years. Suriname would thereby be receiving the highest aid per capita, a "golden handshake" thus. In the pre-independence period Suriname received, predominantly from the Netherlands, an average annual per capita aid of about Sf 92.2. Comparing this figure with the prospective aid figures in the post-independence period, one notes an almost overnight surge in the amount of funds at Suriname's disposal of no less than 300% or 600%, depending on whether the draw down period is 15 years or 10 years. See Table 1. What is more, post-independence aid was, unlike pre-independence aid, grant aid.

**TABLE I: AID PER CAPITA PER ANNUM IN THE PRE- AND POST-INDEPENDENCE PERIODS: 1966-1974 AND 1976-1990**

Period	Total Aid* (in million)	Average Per Capita Aid per Annum (in Sf)
1966-'74 (actual)	310	92.2
1976-'85 (ten years)	2259	610**
1976-'90 (fifteen years)	2259	407***

Source: National Planning Office of Suriname, Annual plan 1977; World Bank, Suriname: Economic Position and Prospect, 1976.

\* : The total of Sf 310 millions refers to actual aid receipts and disbursements while Sf 2259 millions is committed aid.

\*\* : Average population of 373.000 assumed

\*\*\* : Average population of 370.000 assumed, incorporating decreases due to net emigration to the Netherlands

#### Motivation

The question that immediately comes to mind is whether Suriname's level of development and diversification of its

economic structure in 1975 justified this much aid commitment on the part of the donor. In other words can justification be found in the "need" and "absorptive capacity" levels of the economy? In a separate study by the author (Mhango, 1984: 9-15) neither the need nor absorptive capacity arguments seemed compelling. Firstly, Suriname noted in 1975 a per capita GDP income of US \$ 1183, bringing it among the top group of middle income developing countries. Scores of other emerging nations had a much lower per capita income in the same year, indicating, however crudely, a lower range of goods and services at the command of their populations. These included, to name a few, Bangladesh (\$120); Somalia (\$130); India, Mozambique, Colombia (\$140) and Guyana (\$640).

Secondly, Suriname's absorptive capacity at the time hardly qualifies as the motivating factor behind large aid commitments. In another study by the author (Mhango, 1980) development in Suriname over the preindependence period 1966-1976 had been shown to be constrained by, among others, lack of absorptive capacity - lack of a whole range of factors, which enhance productive use of resources in an economy. They included: the degree of industrialisation (indicating productive capacity in place); infrastructure; managerial, organizational and technical skills, size and quality of the labour force, size of the domestic market ability to plan and execute the plans; and commitment, intelligence and will of the political leadership. Even at independence therefore, it must have been abundantly clear that Suriname's small economy could not realistically be expected to absorb funds at the envisaged rate without undue waste even when allowance would be made for slack in the government controlled sector of the economy. It is the contention here that the parties signing the aid agreement in 1975 were knowledgeable of the ambitiousness of the Multiannual Development Programme on which the Dutch aid commitment was based. Probably they failed to appraise the development-retarding effects which the availability of a large amount of unallocated aid was likely to bear on development in general.

If "need" and "absorptive" capacity issues do not quite justify the large Dutch grant aid commitment, what could be advanced as plausible explanation? Three factors are advanced here.

The first factor is, in our view, two-edged, a mixture of two issues. The first of these is related to the apprehension on the part of the Dutch Government of its inability to contain the social and economic consequences in the Netherlands of an increasing inflow of Surinamese immigrants fleeing from political and socio-economic malaise at home. Suriname's worsening internal problems in the early seventies with respect to the lack of

productive employment, surfacing in rising levels of unemployment, to lack of or deficiency in the supply of basic goods and services, and all this exacerbated by a potentially explosive political structure organised predominantly along ethnical lines, all contributing to the growing exodus of people to the Netherlands. As Dutch citizens they were additionally pulled by economic benefits which the mother country had to offer, even when this meant their alienation and subjection to an uninviting social climate.

Secondly, the then Socialist government projected through its Minister of Development Cooperation, Jan Pronk, an image as "friend of the under-privileged". At international fora such as the United Nations, UNCTAD etc., it demonstrated an unprecedented solidarity with the poor, the colonised, the racially oppressed and in general with the Third World. Keeping a colony at that time already was considered unfashionable and an expression to perpetuate colonial exploitation.

Thus, granting of independence with a "golden handshake" would serve concomittantly two goals of ridding the government of guilt arising from the maintenance of a colony and brighting its international image, while shifting the social and economic battle field back to Suriname itself by dampening emigration from the colony through the creation of employment and increase in the general well-being of the population in the country.

The second factor probably follows logically from the first. Unlike most independent nations, Suriname did not have to wage a war or even needed a freedom movement in order to wrench its political independence from the colonial power. In fact as we alluded to earlier it is generally accepted both in Suriname and in the Netherlands that the big push to "independence thought" was given at a Socialist Party Convention in 1973 in the mother country and not in Suriname.

Yet a third reason, accounting for the relatively large magnitude of Dutch aid to Suriname must be sought in the relative small size of the Dutch Colonial Empire in recent history. Unlike England, France, Portugal or Spain whose emperiums characteristically subsumed several countries on each continent, the Dutch Empire has been limited to only three important colonies, viz, Indonesia (independent in 1949), Suriname (1975), and Dutch Antilles (still a colony with self government). Thus the Netherlands could afford the luxury of appropriating a large sum of funds to anyone of its colonies.

In this weird set of circumstances it is not all bewildering that when "divorce de raison" had to be settled in 1975, Suriname exploited the situation (the other party willingly

accepting) and bargained for an aid - commitment by the Dutch Government that was not only much higher than "need" in Suriname would dictate. It was also one far too high for the narrow economy with its rudimentary industrial base to effectively and efficiently absorb in the projected period of ten to fifteen years after independence, the period 1975-85/90. The golden handshake marked therefore the price the incumbent Socialist government in the Netherlands had to pay for "pushing" independence but also for ridding itself of guilt arising from keeping a colony and of relinquishing responsibility over the territory.

### Donor's influence

The one notable aspect of the Dutch-Suriname aid agreement, quite apart from the size of the "golden handshake" but which somehow escaped the world attention, was the unprecedented donor's influence on the total development strategy and development policies of Suriname, the recipient. This was made possible as the aid was bilateral and financed more than 90% of the government's investment programme during the execution of the Development Plan. Most aid is bilateral (about 75% of the total in 1988) for the simple reason that bilateral aid accords the donor a maximum of influence in the way aid is being disbursed through such practices as: aid-tying by source or by end-use, operational control over project execution and leverage, the act of providing leverage or withholding aid to influence economic, political or overall development policies of the recipient. Perceived donor's influence in the donor country serves the function of a political palliative to cool-down anti-aid voters who then see increased donor influence as a guarantee for the efficient and effective use of aid for maximum development in the recipient. What these critical or uncritical voters may overlook is the ever present divergence in views between the donor and the recipient as to what path development should take in the latter and that certainly not all aid-financed projects or activities are development enhancing.

Noteworthy of the tying feature in the Dutch-Suriname aid agreement was the institutionalised tying in the decision process. The most exemplary tying clause in the agreement speaks of the institutionalisation, on parity basis, of a Joint

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<sup>6</sup> The JC is referred to in Suriname as: "de CONS: de Commissie van Surinaamse en Nederlandse Deskundigen".

Commission of Dutch and Surinamese planning experts (JC)<sup>6</sup> appointed by their governments. With a three to three representation, the JC was given an enormous task of final approval and partly monitoring on the behalf of their respective governments of all development projects financed by Dutch aid.

This institution, in which the Dutch Government, the aid donor, is accorded an "equal" say in planning and execution of Suriname's development policy must be seen as the most important impediment Suriname was confronted with in mapping her growth-cum - development path independently. If at first thought, the parity composition of the JC might seem neutral and therefore acceptable, it represents, at second thought, a far-reaching intention on the part of the Netherlands to influence the ultimate use to which aid monies would be put in Suriname. Given that the aid donor is always in a stronger bargaining position vis-a-vis the recipient, this parity composition of the JC demonstrated a strong donor-tying in the decision-making process, thereby manoeuvring the recipient into an extremely weak, vulnerable and dependent position.

In addition, Dutch aid typically financed more than eighty percent of all development projects in the pre-independence period. With Dutch share exceeding ninety-five percent in the post independence period covered by the aid agreement, Suriname's dependence on Dutch aid in the latter period was much greater. If added to this, decisions regarding project approval and project implementation were strongly influenced by the donor, Suriname's political independence could not be said to have been translated into independence and discretion in choosing her development path and destiny for her people; instead, this independence had been lost to the aid donor which happened ironically to be her former colonial power. The signing of the aid agreement in 1975 can be seen therefore as marking the birth of a neo-colonial state, Suriname.

Besides tying in the decision-making process, tying by source, also called procurement tying, typified the aid agreement. Formalization of the tying by source is stated in Article 13 of the aid agreement in which the recipient, Suriname, agrees to show preference for the procurement of all capital goods and services - in essence all imported inputs into the aided projects - from the Netherlands above those from other industrialised countries. In addition all Dutch goods were to be imported into Suriname taxfree, introducing hereby a technological bias in future development of Suriname. It made the attainment of the objective of self-reliance and the means for attaining it difficult to reconcile; Suriname became an easy product market for Dutch products including capital goods.



#### **IV. THE LONG TERM DEVELOPMENT PROGRAMME 1975-1985/90**

Developing countries have in the preceding (nearly) four decades increasingly resorted to development planning in their attempt to "guide" the development process. Despite wide acceptance of the planning and the frenzy to plan, however, most countries have failed to meet their planned target either because the plans have been suboptimal or probably also injurious to the very process they were meant to enhance. This has sprouted from the lack of proper preparation of the plans in the sense that they have not been carefully checked for feasibility and internal consistency, inadequate incorporation of the human factor and the lack of will and/or courage on the part of the state to execute the plans. The result has been frustration and eventual disaffection with planning and the planners. All developing countries experience such frustrations in varying degrees.

##### **Elements of the Development Plan**

As we have alluded to earlier, the basis of the Dutch-Suriname aid agreement was the Multiannual (long term) Development Programme, M.A.D.P. 1975-1985/90, drawn up in 1975. This programme was designed to put Suriname eventually on the self-sustaining development-cum-development path in a period of ten to fifteen years. The very first Article of the Agreement reads as follows:

The Kingdom of the Netherlands and the Republic of Suriname will cooperate as much as possible in all fields in order that the economies of the two countries shall be mutually supportive in such a way as to bring about a reduction in the welfare gap between them and enhance economic growth and bring about an acceptable distribution of welfare within the Republic of Suriname so that economic viability of Suriname can be achieved effectively and in the short run (own translation) .

Taking the Dutch welfare level as the frame of reference, this article portrays the desire on the part of the two governments to raise Suriname's welfare level to approximate that of the Netherlands at the lapse of the plan period. This desire for a close economic relationship between Suriname and the Netherlands must be contrasted with the achievement by Suriname's central objective of "self-reliance" as stipulated in the first article of the protocol of this bilateral agreement.

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<sup>7</sup> The Dutch-Suriname Aid Agreement, Article I.

On the long term goals of development, the M.A.D.P. was forthright in pointing to an optimal combination of the three broad government policy goals at the time, namely: economic growth, employment and welfare distribution with concomitant fundamental changes in the society designed to achieved these goals. More specially the M.A.D.P. was entrusted with the potential to achieve the following six subobjectives:

1. diversification of the economy in order to neutralize the dominance of the bauxite and the rice in the economy's production structure;
2. self-sufficient in food supply and improve the country's food balance with the world;
3. growth of domestic savings so that future development activities would be financed increasingly from own savings and less from foreign savings;
4. through a critical appraisal of the direct foreign investment and contracts with foreign companies, Suriname should be guaranteed of an adequate share of the benefits ensuing from their operations in the country;
5. through intensive education and training at all levels, Suriname should achieve self-sufficiency in expertise and know-how;
6. Suriname's one-sided orientation on the Netherlands should undergo a change in favour of a wider reorientation towards the Caribbean region and Latin America in the economic, social and cultural fields. (National Planning Office: 1979, pp 3-6)

Although the definitive allocation of funds among specific projects (ends) was to be done by the JC, the parity Joint Commission of the Surinamese and Dutch experts installed at the signing of the aid agreement in 1975, a long term investment plan was already drawn up, with its projected sectoral and spatial income and employment effects. This investment programme was designed to achieve the stipulated development objectives. Tables 4, 5 and 6 below summarise this investment programme with its income and direct employment effects. The ratio of directly productive investments, infrastructural investment and socio-educative investment, in total aided investment was agreed to 50 : 25 : 25, which division is also reflected in the sectoral distribution of planned investments.

Table 2 giving sectoral and regional allocation of planned investments in the plan period 1975-1985 shows that while investments in the agricultural and forestry sectors were spread out among concentration areas, investments in mining sector were concentrated in the Apoera region in the West of Suriname. The

Table also indicates that at the time little was known about the future sectoral and regional distribution of industrial activities in Suriname. This is indicated as p.m. in the Table.

**TABLE 2: SECTORAL AND REGIONAL DISTRIBUTION OF PLANNED INVESTMENT OF THE MULTI-ANNUAL DEVELOPMENT PROGRAMME**  
(In millions of Surinamese guilders of 1974)

	Paramaribo	Nickerie Coronie	Apoera	Tibiti	North Marowijne	Others <sup>****</sup>	General	Total
Agricultural sector	160.1	199.0	119.5	286.5	124.0	45.9	6.2	941.2
forestry	405.0	-	132.5	60.7	115.2	8.5	50.0	771.9
Mining	-	-	875.1	p.m. <sup>***</sup>	p.m.	p.m.	-	875.1 + p.m.
Water power	-	-	361.0	-	-	-	-	361.0
Industry	22.8+p.m.	p.m.	p.m.	p.m.	3.5	1.0	310.0 <sup>**</sup>	337.3 + p.m.
SocialCultural	190.0	48.0	40.3	39.0	44.9	53.0	60.0	475.2
Infrastructure	79.1	53.0	219.2	68.1	15.4	61.1	104.5	600.4
Other	-	-	-	-	-	-	105.0+p.m.	105.0 + p.m.
<b>Total</b>	<b>857.0</b>	<b>300.0</b>	<b>1747.6</b>	<b>454.3</b>	<b>303.0</b>	<b>169.5</b>	<b>635.7</b>	<b>4467.1</b>

Source: Multi-annual development Programme 1975

\* includes the livestock and fisheries sectors

\*\* Sf 250,- millions of this earmarked for participation inexistent industries

\*\*\* p.m. means per memorie (unspecified)

\*\*\*\* Others include Brokepondo, Sarawacca and Upper Marowijne

**TABLE 3: SECTORAL AND REGIONAL INCOME EFFECT OF THE M.A.D.P.**  
(in millions of Surinamese guilders of 1974)

	Paramaribo	Nickerie Coronie	Apoera	Tibiti	North Marowijne	Others <sup>***</sup>	General	Total
Agricultural Sector	38.5	46.8	51.7	60.7	56.0	13.8	---	267.5
Forestry	100.0	---	145.8	62.0	117.8	9.5	---	435.1
Mining	---	---	302.4	p.m.	p.m.	p.m.	---	302.4 + p.m.
Water power	---	---	155.0	---	---	---	---	155.0
Industry	6.6	p.m. <sup>**</sup>	p.m.	p.m.	---	---	27.3	33.9 + p.m.
Social-Cultural	---	---	---	---	---	---	---	---
Regional	---	---	---	---	---	---	23.0	23.0
Infrastructure								
Total	145.1	46.8 + p.m.	654.9 + p.m.	122.7 + p.m.	173.8 + p.m.	23.3	50.3	1216.9 + p.m.

Source: Multiannual Development Programme 1975

\* includes the livestock and fisheries sector

\*\* p.m. means per memorie (unspecified)

\*\*\* Others include Brokopondo, Upper Suriname and Upper Marowijne

**TABLE 4: SECTORAL AND SPATIAL DIRECT EMPLOYMENT OF THE M.A.D.P.**

	Paramaribo	Mickerie Coronie	Apoera	Tibiti	North Marowijne	Others**	General	Total
Agricultural Sector	3,285	3,570	3,620	3,050	2,330	1,329	---	17,184
Forestry	1,050	---	3,880	2,300	3,376	700	500	11,806
Mining	---	---	3,000	p.n.	p.n.	---	---	3,000
Water power	---	---	56	---	---	---	---	56
Industry	242	---	p.n.***	p.n.	150	---	3,475	3,867
Social-Cultural	3,930	855	2,539	1,341	913	1,268	490	11,366
Regional	845	845	1,455	2,338	774	1,156	300	7,713
Infrastructure								
Total	9,352	5,270 p.n.	14,550 p.n.	9,029 p.n.	7,543 p.n.	4,453	4,765	54,992

Source: Multiannual Development Programme 1975

\* includes the livestock and fisheries sector

\*\* Others include Brokopondo, Upper Suriname and Upper Marowijne

\*\*\* p.n. means unspecified

This investment plan was the best hope the planners held for the Surinamese economy to achieve self reliance and economic viability by 1985/90. A planned average annual growth rate of the Gross Domestic Product of 10.5% would lead to a total growth of national product of Sf 1.2 billion by 1985, with the most important propellers being the Apoera region contributing Sf 654.9 millions to total growth in the ten year period. See Table 3.

As regards employment, the Sf 4.5 billion investment programme was expected to create an estimated 55.000 permanent jobs, with the largest contribution originating from the agricultural sector (17,184) and, again, from the Apoera region (14,550). See Table 4.

To outsiders, the prominence given in the Multi-annual Development Plan to the Apoera region, an area inhabited by barely five hundred Amerindians at the time, was void of any realism. To insiders including the planners, however, the Apoera region contains probably the country's most important resource potentials: electric power potential from the Kabalebo water reservoir. Less potential also exist in agriculture as well as forestry. The effects of these resources especially bauxite and the accompanying linkage and external effects had been exalted to the height of a national ideal long before independence in 1975, both by the incumbent governments and by prominent personalities in the country.

In their conception of post-independence Suriname, the Paramaribo area would be more of a governing, commercial and service centre; Nickerie and the adjoining areas would remain as the centre for agriculture (rice) production, while the Apoera (West Suriname) region would be transformed into the centre of mining, industry and energy supply<sup>8</sup>. The three formed the so-called "complementary triangle" as the three most important growth poles of the Surinamese economy. Unmistakably Apoera was seen as the power from which the economy would derive its bouyance in its future transformation. This explains also the prominence given to the Apoera region in the investment programme. The Sf 875 millions investment would not only cater for necessary infrastructural construction in a hitherto largely unpenetrated forest area, and initiate mining and other industrial production, but also transform Apoera from a native dwelling place into a thriving industrial centre of several thousands of people. In short, the activities in and round Apoera could be described as follows. Bauxite would be mined in the Bakhuis Mountains, transported along an 85 km railway to the port of Apoera on the Corantijn river, thus transforming Apoera to a harbour town. The mined bauxite ores would find, through the deepened Corantijn river, ready markets in Trinidad and Tobago, Venezuela and the United States. Further processing of bauxite into aluminium would require an immense amount of energy. This energy would be forthcoming by harnessing the Kabalebo water reservoir for hydroelectric power which besides meeting Apoera industrial energy needs would also serve the country as a whole.

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<sup>8</sup> Refer to the lucid exposition of the logic behind this constellation of Suriname's post-independence development in Essed et al, pp 22-28.

Yet, apart from the exploratory studies done on the existence of bauxite and energy potential of Kabalebo, no serious study had been executed to appraise the longterm marketability of bauxite and its products and with respect to the energy needs and distribution within Apoera and in the rest of the economy. In other words, the extreme reliance on Apoera as the future exponent of economic development in Suriname was not backed by a serious appraisal of the long term prospects of the activities in this new growth pole and their linkages effects in the rest of the economy.

Ones observation at this juncture is that the planner's view of development in Suriname in 1975 coincided with the capital supremacy view which has its theoretical underpinning in the "growth-pole" theory.

Indeed, Suriname's post-independence development strategy showed marked similarities with the strategy pursued during the colonial period. In both cases the strategy was capitalist; much emphasis is laid on the provision of capital to spur the development process and on the belief in the market mechanism to distribute the benefits accruing from this process to the majority of the poor. Even though the colonial development strategy clearly failed to deliver the goods, the Multiannual Development Programme emphasizing capital intensive infrastructural activities is clearly a perpetuation of the same capitalist strategy. As Breman refers to the M.A.D.P.:

"Its arbitrariness, the random estimates and calculations, the dubious prognoses and assumptions, and the vagueness of the whole exercise give this new plan an almost megalomaniac character and its reception has consequently not been very favourable". (Breman J.: 3)

What the planners probably failed to see is that such an extreme emphasis on one commodity, bauxite, was at variance with the policy objective to diversify the economy's dependence on the bauxite and rice for its bouyancy in the plan period. Instead of making a fully-fledged industrial plan utilising especially the agricultural, forestry, fisheries and other mining resource potentials, a bauxite-dominated and infrastructural plan was drawn up at a time when the future of the bauxite market including that of its derivatives was far from promising. Besides, it was apparent that Suriname would have to rely heavily on the two foreign companies to mine and market the bauxite and its derivatives, implying that even a larger share of production would be foreign owned. This development would be excusable only to the extent that Suriname had no alternative resources which could be profitably exploited and at the same time help diversify

the economy. In essence, as we alluded to earlier, Suriname is rich in agricultural, forestry and fisheries resources, which could constitute bases for a viable resource-based industrial development. Such a development would impart genuine substance to the objective of self-reliance and transforming the production structure so that it became diversified.



## V. EVALUATION OF THE M.A.D.P. (1975-1982)

Suriname's M.A.D.P. was in its seventh year of execution when in December 1982, the Netherlands unilaterally and abruptly suspended all aid flows to its small former colony. The direct reason for the suspension was the elimination of sixteen political opponents by the incumbent military top which first took state control after a bloodless coup on 25 February 1980. Since almost the whole of this plan up to that point was financed by Dutch aid, suspension meant a virtual stop to plan activities. The brief evaluation that follows pertains therefore to the period 1975-1982.

A macro-economic evaluation of any plan of this sort (in terms of its financing and extensiveness) runs into methodological difficulties. Firstly, at the time when the M.A.D.P. was drawn up in 1974, no projections were made to reflect the macro-economic picture without the infusion of the massive grant aid. But ex post too, it is not always unequivocally clear whether or not any development in Surinamese economy follows directly from aid utilization or is the result of endogenously determined factors, or an interaction of both. The method followed here is to refer to the most important stipulated development goals set in the M.A.D.P. and then to appraise to what extent Dutch aid enhanced their realization in the shortened plan period, taking into account the initial socio-economic conditions and the significance of this aid in total government development expenditure and the fact that the end of the shortest plan period 1975/85 was still three years down the road. Reference will be made to the following: growth of the economy and employment; government finances; balance of payment; consumption investment and saving; availability of commercial bank credit; transformation of economic structure.

The M.A.D.P. gives two scenarios of not only the growth rate and the absorptive capacity, but also of employment and labour productivity, gross investment, ICoR, and population, depending on the length of the plan period and the party making the estimates. These are summarised in Tables , together with a comparison of performance in the two previous plan periods 1963-67 and 1967-1974/75. The first scenario is Suriname's which assumed that the Sf 4½ billion, the total financing of the Plan, would be fully absorbed in the time span of ten years 1975-1985, so that the effects would be as summarised in the Table: 10% growth of GNP, 4½% employment growth rate with a concomittant growth of labour productivity of 5½% and a 3.6% growth of population. The Dutch estimates, on the other hand were less optimistic with regard to absorptive capacity and growth rates: 15 years plan horizon, and lower growth rates (except for population growth rate) of macro magnitudes. While the Surinamese estimates put unemployment at the end of the plan period at zero, the Dutch ones, however, put it at 17% by 1990.

TABLE 5:

## GROWTH AND WELFARE

	REALISATIONS			M.A.D.P.	
				Suriname	Dutch
	1963-67	1967-75	1975-82	1975-85	1975-90
	Annual	changes	(%)		
Gross National Product (GNP) (market prices)	13.8	4.9	2.5	10	7
GNP per capita	11.4	4.3	2.7	6.4	3.4
Employment:	2.0	1.2	1.8		
Government	(4.9)	(6.0)	(3.9)		
Private	(1.2)	(-0.6)	(0.7)		
Labour productivity	11.8	3.7	0.7	5.5	3.5
Gross Investment:	10.2	6.2	-5.6	18.0	9.5
Government	(7.8)	(6.3)	(8.2)		
Private	(-0.9)	(12.4)	(-13.0)		
Population	2.4	0.6	-0.2	3.6	3.6
	AVERAGE LEVELS				
Gross Investmentquote	45.0	25.0	27.0	33.0	25.0
Marginal Capital Coefficient	3.3	5.1	11.2	4.0	4.0
Share Dutch Aid in total Aid	81.0	80.0	97.0		

Source: De Roy and Van Schaaik M, "Suriname's Economie en de Ontwikkelingssamenwerking tussen Nederland en Suriname", Economische Statistische Berichten, November 1984, Table 1; Mhango B, Aid and Dependence, SWI, Paramaribo, 1984

The picture Table 5 portrays is clear and emphatic. Performance in the economy during the 1975-82 period has both been far below planned targets and gravely disgruntling in relation to the previous two plan periods. A few features of table 5 are noteworthy:

- the surge in the consumption level from a quota of 72 (1967-75) to 93 in the 1975-82 period;
- preponderance of Dutch aid and exodus of trained and disillusioned labour force to the Netherlands resulting in an absolute reduction of the population by an average of 0.2% per year in the 1975-82 period;
- the infusion of aid led to marked reduction in domestic saving and private investment, a clear example of substitution notorious with aid inflows into the economy;
- The high capital coefficient indicating either inefficiency or the infrastructural nature (longer gestation period) in connection with the bauxite-dominated activities of the plan.

There is more to be said, however, about the market difference in performance (especially in the growth of aggregate and per capita GNP) in the 1975-82 period as compared to the previous two plan periods.

The very high growth of 13.8% and 11.4% of GNP and per capita GNP in the 1963-67 period is attributable to what is called in Suriname the "Brokopoondo Push" which marked the era when the huge hydroelectric powerstation at Brokopoondo about 95 km off the capital city Paramaribo was first harnessed to supply energy for processing of the country's most important mineral resource, bauxite into alumina and aluminium by two wholly foreign-owned companies: Alcoa of the USA and Billiton (now Shell). The initial impact of these investments were marked at least up to the early seventies, through the growth of GNP, consumption etc.. Although the bauxite sector led growth was showing signs of waning at the time when the M.A.D.P. was conceptualised and drawn-up, the planners had the success of the Brokopoondo investment in their mind. They were convinced that that episode could be repeated and came up with a plan utilizing massive Dutch aid to harness the hydroelectric potentials in West Suriname to mine and process and transport the extensive bauxite deposits there. The only but perhaps crucial difference here is that the M.A.D.P. relied on official (aid) funds rather than private capital and that the push behind it all would be the government rather than the existent foreign bauxite companies. The growth rates in Table 5 attests to the failure of this analogy between the effects on the economy of the infrastructural investment in Brokopoondo and those in West Suriname.

## Actual Aid Expenditure

The M.A.D.P. was designed to transform the small, dependent and undiversified primary-based economy to available, self-reliant and diversified one by the end of the plan period. The prime or catalyst mover of this transformation was meant to be, according to the planners, the massive Dutch aid.

With shares of the primary, secondary and tertiary (services) sectors in total GDP of respectively 42%, 11% and 47% the economic structure was slightly dominated by services in 1974.

But by end 1982, about three years before the lapse of the ten year plan period, not even half of the committed Dutch aid was actually disbursed, viz, Sf 1013 millions as against the total commitment of Sf 2259 millions aid, attesting to the grossly exaggerated absorptive capacity assumed in the plan. See Table 6. The average investment rate in the 1976-82 period averaged no more than Sf 132 millions per year although the rate based on the committed funds should have been in excess of the Sf 200 millions per year. The bulk (33.6%) of the expenditure was done in the transport sector on account of the infrastructure activities while the government sector used up 21.5% of total aid inflow in the period. The table also shows to what extent the sectors forestry, mining (other than bauxite) and industry were virtually neglected, receiving 2%, 0.4% and 5.3% respectively of the total disbursed aid monies. With this expenditure pattern, the rate at which aid was being disbursed and even allowing for the premature and abrupt end to the aid agreement between Suriname and the Netherlands, it was to be expected that none, if at all, of the plan objectives were to be achieved, not the transformation of the economic structure, creation of permanent jobs, drastic improvement in the situation of the balance of payments and public finances, or the achievement of the central objective of the M.A.D.P., namely self-reliance.

**TABLE 6: SECTORAL DISTRIBUTION OF ACTUAL EXPENDITURE FROM  
DUTCH AID 1976-82**  
(in millions Sf and percentage of total)

	1976		1978		1980		1982		1976-82	
	Abs	%	Abs	%	Abs	%	Abs	%	Abs	%
Agriculture, Fisheries Animal Husbandry	3.9	3.1	18.5	13.1	26.0	22.0	43.0	22.7	162	15.8
Forestry	7.6	6.0	2.3	1.6	0.4	0.3	0.2	0.1	20.6	2.0
Mining	1.1	0.9	0.6	0.4	0.7	0.6	0.3	0.2	4.7	0.4
Industry	4.4	3.5	5.1	3.6	16.7	14.2	12.4	6.6	54.8	5.3
Energy and public Utilities	16.4	13.0	6.7	4.7	1.8	1.5	7.7	4.1	58.5	5.7
Transport and Communications	65.6	51.7	51.1	36.2	34.5	29.1	40.3	21.3	345.2	33.5
Housing Services	10.1	7.9	16.4	11.5	8.4	7.1	23.0	12.1	128.3	12.5
Government	16.7	13.2	39.0	27.5	23.6	20.0	48.2	25.5	220.6	21.3
Private Organizations	0.9	0.7	2.0	1.4	6.1	5.2	14.1	7.4	36.3	3.5
<b>TOTAL</b>	<b>126.7</b>	<b>100.</b>	<b>141.7</b>	<b>100.</b>	<b>118.2</b>	<b>100.</b>	<b>189.2</b>	<b>100.</b>	<b>1031.5</b>	<b>100.</b>

Source: National Planning Office

### Transformation of the Economic Structure

Analysis of the composition of the Gross Domestic Product (GDP) and of the main sectors contributing to its growth gives some insight into the probable effect of the sizable grant aid on the transformation of the economic structure against the background of actual aid expenditures and plan estimates. Table 7 shows that while growth of nominal GDP at factor cost during the 1976-82 period has certainly been impressive, almost doubling in the period from Sf 87 millions in 1976 to Sf 1724 millions in 1982, the source of this growth was not the productive sectors but the services with the government and financial intermediaries (not shown) featuring most prominently. This is quite at variance with the M.A.D.P. which projected almost the

sectors but the services which the government and financial intermediaries (not shown) featuring most prominently. This is quite at variance with the M.A.D.P. which projected almost the opposite - a preponderance of production 46% while the government would see its influence curtailed to no more than 10% & 11% of total GDP. The governments' share of 25% in 1982, for example, represented Sf 431 millions expenditure of which about 60% went to pay salaries and wages.

**TABLE 7.: CONTRIBUTION OF PRIMARY, SECONDARY AND SERVICES SECTORS TO GROSS DOMESTIC PRODUCT AT FACTOR COST AND PLAN ESTIMATES**  
(in millions Sf and percentage of total)

	1975		1978		1980		1982		1976-82	Plan Estimates	
	Abs	%	Abs	%	Abs	%	Abs	%	Abs	1975/85	1975/90
Total primary	290	33	403	31	438	29	439	26	149	46	45
Total Secondary	114	13	187	14	228	15	259	15	145	19	19
Total Services	467	54	733	55	868	56	1026	59	559	35	35
(Government)	(192)	(22)	(291)	(22)	(381)	(21)	(431)	(25)	(239)	(10)	(10)
Total GDP	871	100	1323	100	1534	100	1724	100	953	100	100

Source: National Planning Office

### Employment and Emigration

The whole Multiannual Development Programme 1975-1985/90 would have been rendered worthless if no explicit emphasis was laid on the creation of productive employment now regarded as an important basic need or right in any economy. Employment projections in the M.A.D.P. were astoundingly optimistic, and unemployment would decrease appreciably to the "friction level" of 2% by 1985 (Suriname's estimates) down from an estimated unemployment rate of 23.5% in 1974.

<sup>9</sup> M.A.D.P., Part I, chapter 7 and Essed F Dr. et al p.107.

TABLE 8 :

## EMPLOYMENT BY SECTOR 1975 AND 1982

	1975	1982
Agriculture, Fisheries and Animal Husbandry	15,300	13,061
Forestry	3,500	1,671
Mining	6,000	5,671
Industry	9,800	9,427
Gas, Water & Electricity	1,100	1,497
Building and construction	4,300	5,780
Trade, Hotels and Tourism	14,200	17,309
Transport and Communication	3,500	3,641
Financial Institutions	1,700	2,680
Government	25,808	38,573
Other Services	3,400	3,486
TOTAL	88,608	102,822

Source: National Planning Office, Statistical Bureau and Ministry of Finance

Table 8 shows however that the M.A.D.P. has not fared well in its employment-creating effect either. As expected, the performance of the primary and secondary sectors in term of their contribution to GDP also seems to match their performance in creating employment. With only the Utilities and Building and Construction sectors showing slight improvement between 1976 and 1982, all the other productive sectors showed significant decreases in their employment. Thus total employment in the primary sectors was down to 20,429 in 1982 as against 24,800 in 1975 and that of the secondary sectors increased on account of

the two sectors by about 10% from 15,200 in 1975 to 16,704 in 1982. The sectors which have shown most improvement in their employment creating capacity are the government and the other services sectors of banking (financial institutions) and trade, hotels and restaurants. In other words, if the M.A.D.P. has had any impact on employment, this effect has been most notable in the non-productive sectors or the sectors other than the primary and secondary sector. This performance stands at sharp variance with the plan which envisages a surge in productive employment at the expense of non-productive employment. While the banking system and the trade and hotel sectors derived its bouyancy mainly from infusion of Dutch aid, the central government had increasingly been identified as "employer of the last sector". As of 1981-1982, the government was the largest employer (38,573) putting hereby enormous strains on its finances. Its ability to employ was also directly related to Dutch aid.

With this disgrunting performance of the M.A.D.P. in employment creation it is not surprising that as of 1982 the National Planning Office estimated an unemployment rate of 18% concentrated in and around the capital city Paramaribo where an estimated 70% of Suriname's population resides. This unemployment has, however, existed along side with an influx of Guyanese and Haitian labour who have increasingly been relied upon to sustain production in such sectors as building and construction, rice and sugar production and in the wood processing industries. Although official figures put their numbers at about 7,000, it is widely held that the exact figure is many times higher owing to illegal residence. The existence of this foreign labour component has also enabled the economy to fill in holes created by emigration to the Netherlands most notable in the 1976-1980 period<sup>10</sup>.

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\* For a detailed study of the significance of Guyanese imported labour in the Surinamese economy, see for example, Menke J and Mhango et al, The impact of migration on the social and Economic Transformation of Suriname and Guyana, report of an IDRC (Canada) funded joint study of the Universities of Guyana and Suriname, July 1983.



## Population and Emigration

It may not be apparent at first sight that increased emigration in the 1975-1980 period had anything to do with Dutch aid to Suriname. A closer look at the factors governing waves of emigration, however, indicates some relationship between the two.

As indicated elsewhere in this paper, the mass emigration to the Netherlands in the 1973-1975 period was predominantly politically motivated in the sense that political and social malaise at home reinforced the fear among some sections of the population of consequences of a politically and ethnically dissected independent Suriname. Thus an estimated net emigration of 51,499 was recorded in the 1974-1975 period. One of the objectives of Dutch aid to Suriname was, at least viewed from the donor's side, to dampen this exodus by improving the country's economic outlook, and indeed it seemed as though the objective was being met in the first three years of execution of the M.A.D.P. 1976-78 when the annual net emigration averaged only 2,247. Surinamese net emigration to the Netherlands between 1974 and 1980 developed as follows:

1974	1975	1976	1977	1978	1979	1980
14,836	36,663	615	1,356	4,770	15,790	16,704

By 1978, the exodus picked up again although not quite reaching the peak of 1974-75. Certainly the political factors of 1975 still persisted, but one dimension had been added to the grievances accounting for increased emigration to the Netherlands. This had to do with the M.A.D.P. whose execution up to the time failed to inspire confidence in a substantial portion of the population - in its ability to deliver the much published positive effects like the initiation of productive investments, creation of permanent employment, and ameliorating deprivation of basic goods and services. In other words, the common man on the street, the unemployed, the street vendor or the poor generally failed to partake of the benefits delivered by the M.A.D.P..

Emigration at the scale experienced in Suriname in the 1970-80 decade could not however, have spared the economy of its adverse effects. In the first place, population size and fertility have declined considerably owing to emigration. Even though the M.A.D.P. projections put total population of Suriname at 605,200 by 1985 (Suriname's projections), total population decreased by 7.1% in the 1970-1980 period so that in 1980 the population size was down to its 1967 level of 352,000. Secondly and probably the most consequential aspect of emigration has been the decimation of the country's limited entrepreneur and manpower resources so that in this respect it has been prejudicial to the

economic development of the country. That production did suffer major set backs, however, must be credited to the influx of foreign labour predominantly Guyanese, after 1978.

### Government Finances

An analysis of the probable effects of aid on government finances necessarily entails an appraisal of the behaviour of the government in its handling of its finances in the light of receipt of this aid. If we are talking in terms of achieving self-reliance and viability of the economy, what we are looking for is the ability of the government to invest increasingly from its own savings. Because it is the shortage of own savings in relation to required investments which prompts many a government in the developing nations to seek aid and puts them in a very dependent and vulnerable position vis-a-vis the aid donors.

If aid is secured, the obvious expectation is that the recipient government sees the availability of aid primarily as gained time and opportunity to use it to restructure its finances and the economy as a whole in such a way as to make the same aid eventually redundant. Of course the real situations might render this expectation theoretical; especially when the size of the aid may be too small to effect the required reconstructing or, as usually encountered, the very conditions under which it is given effectively prevent this aspiration to be achieved. If indeed aid enables a government, for example, to increase its own income and savings resulting from a better tax administration or from implementation of own austerity measure, we can say that aid supplements domestic resources in bringing about necessary structural changes.

TABLE 9 : GOVERNMENT CURRENT ACCOUNT AND SAVINGS  
(Sf millions and as percentage of GNP at market prices)

	1976		1977		1978		1979		1990		1981		1982	
	Abs	%	Abs	%	Abs	%	Abs	%	Abs	%	Abs	%	Abs	%
Current Revenue	284.6	27.6	335.7	25.4	441.0	28.3	429.8	25.8	480.4	27.1	527.0	27.8	556.8	28.0
Current Expenditure	285.0	27.6	358.9	27.2	397.2	25.5	412.5	24.8	460.7	26.0	569.7	30.0	657.9	33.1
Savings	-0.4	0.0	-23.2	-1.8	43.8	2.8	17.3	1.0	19.7	1.1	-42.7	-2.3	-101.1	-5.1
GNP	1030		1320		1557		1663		1770		1986		1987	

Source: Ministry of Finance, Economic affairs

**TABLE 10: DEVELOPMENT EXPENDITURE AND AID INFLOWS 1975-1982**  
(in millions Sf)

	1975	1976	1977	1978	1979	1980	1981	1982
Government Savings		-0.4	-23.2	43.8	17.3	19.7	-42.7	-101.1
Dutch Aid Inflows	319.2	159.1	138.4	99.0	144.1	131.6	169.0	172.0
Development Expenditure		159.2	138.4	139.0	144.1	131.2	176.5	174.6

Source: Central Bank of Suriname; Ministry of Finance, Economic Affairs Department

Table 9 reveals clearly that in the post-independence period up to 1982, the Surinamese Government has succeeded in only three years in recording some surplus on its current account ranging from a high of Sf 43.8 millions in 1978 and a low of Sf 17.3 millions in 1979. The remaining four years depict deficits of Sf 0.4 millions, Sf 23.2 millions, Sf 42.8 millions and Sf 101.1 millions in 1976, 1977, 1981 and 1982 respectively. Surpluses on the current account are government savings and as such show the government's efforts to contribute to its own capital formation or investment expenditures. These surpluses never exceeded Sf 43.8 millions or 2.8% of GNP at market prices.

An appreciation of the government's extreme dependence on the aid inflows althroughout this period to finance its investment outlays and other expenditures is gained by comparing the magnitudes of aid inflows, government outlays and government savings (current account balances). This is given in Table 10 which reveals that government investments have almost wholly been financed with Dutch aid. Evidently, this is a perpetuation of the pre-independence situation. Without going into detail regarding the development of current income and current expenditure, it can be reiterated that dependency of this magnitude simply reveals serious shortcomings in management of government finances. However poor a country is, it must always strive to organise its economy in such a way that it consumes less than it spends.

The observed abysmal performance in mobilising domestic resources for development attests to the fact that the government eschewed the implementation of the appropriate policies especially in the 1975-1980 period. The government has been relying on the self-derived assurance drawn from the experiences of the colonial period that if anything goes wrong the Dutch government would come to its aid. Politicians at times made no secret of this and even muttered at the security enjoyed hereby. One got the feeling that even the population was attuning itself squarely to these expectations of the politicians, with the

effect that they too, as the electorate, did not see the urgency and necessity to impress on the government to raise national savings; this could be attained through such known production patterns, curbing import of development-irrelevant goods and services, or allocating the available resources (savings in particular) to initiate and sustain the exploitation of the economy's own productive capacity.

### **The Balance of Payments**

In general, the structure of balance of payments is a reflection of the degree to which an economy relies on the outside world for the provision of the goods and services it requires as well as its capacity to pay for these using its export proceeds. As such the balance of payments can be seen as a very important indicator of the degree of diversification and achievement of self-reliance within the domestic economy. The usual small and undiversified economy exhibits a high degree of openness represented by a large import and export ratio (merchandise imports and exports as percentage of GDP) of, say, 80% or more. The higher this ratio, the more the economy exposes itself to the hazards and uncertainties of imports or introduces instability in the income accruing to export producing industries.

Prior to independence, the structure of the balance of payments depicted a high degree of openness which resulted directly from the undiversified nature of the entire economy and it also showed persistent deficits on the current account which were offset by inflow of foreign (mostly public) capital. Besides, Suriname's foreign trade was both geographically and commodity concentrated, meaning that Suriname traded with only a few countries in the world while the number of traded goods was also limited to a few products. Export trade, for example, relied primarily on bauxite and its derivatives. The question arises whether or not the execution of the M.A.D.P. has in whatever way been instrumental in changing or initiating changes in this structure of balance of payments in accordance with what would be expected in a self-reliant economy.

A cursory inspection of the post independence structure of the balance of payments shows, however, no discernable improvement on the pre-independence structure. Instead we see that between 1976 and 1982 the economy has been experiencing a more than ten-fold widening of the current account deficit from Sf 23.7 millions in 1976 to Sf 273.7 millions in 1982. Aid inflows predominantly from the Netherlands continued to rescue

the situation by fully financing this deficit in all but two years, 1977 and 1982 when the total balance of payments showed deficits of Sf 31.2 millions and Sf 66.6 millions respectively (See Table 11). The fact that the total account registered sizable surplus for all but two years meant that monetary reserves rose steadily althroughout the 1976-1982 period. The build-up of foreign reserves was from sf 243 millions in 1976 to Sf 383 millions in 1980 but down to sf 334 millions in 1982.

**TABLE 11** **THE BALANCE OF PAYMENTS**  
(in Sf millions at cash basis)

	1976	1977	1978	1979	1980	1981	1982
Trade Balance	37.2	-24.8	21.1	59.2	17.9	-168.0	-156.1
(Exports and Imports)							
Balance Services Account	-39.0	-62.0	-55.0	-64.1	-102.9	- 80.3	-125.2
Balance Primary Income	65.6	-61.3	-55.2	-73.7	- 30.7	- 23.0	- 12.3
Balance Unilateral Transfer	43.7	3.8	7.0	12.5	11.7	6.6	- 4.7
Balance Current Account	<u>-23.7</u>	<u>-144.8</u>	<u>-82.1</u>	<u>-56.1</u>	<u>-104.0</u>	<u>-218.7</u>	<u>-273.7</u>
Balance Private Capital	-93.5	- 21.1	- 8.2	-30.6	- 33.0	- 71.4	33.7
Balance Public Capital	154.0	134.0	135.8	143.3	127.5	169.3	173.3
(Grants)	(159.1)	(138.4)	( 99.0)	(144.1)	(131.6)	(169.0)	(172.9)
Balance Capital Account	<u>60.5</u>	<u>112.9</u>	<u>127.6</u>	<u>112.7</u>	<u>160.5</u>	<u>240.7</u>	<u>207.0</u>
Omissions	0.1	- 0.7	0.6	- 0.3	1.4	- 0.1	- 0.1
Balance Total	36.9	-31.2	46.1	46.3	57.9	21.9	66.6

Source: The Central Bank of Suriname

Also in the case of the balance of payments it can be asserted that contrary to plan estimates, the guaranteed availability of foreign exchange for a newly independent nation had the effect much similar to that on public finances. The long term foreign exchange assurance has effectively retarded institutional reforms required to restructure the balance of payments in a manner that would be conducive to the attainment of the central objective of the aid agreement and the M.A.D.P.: self reliance. It is an opportunity foregone.

## Consumption, Saving, Investment and Bank Credit

The development of consumption, savings and investment in the 1976-1982 period reiterates once again the demotivating effect of inflows of sizable amounts of aid. Aid has been depended on as a permanent sources of development funds rather than as a pump-priming instrument in the transitional period to the achievement of self-reliance. As result necessary measures intended to reorient the economy's consumption and production patterns or boost government or private savings have not been implemented. Instead, aid has helped to sustain the spending spree and acted as an effective substitute for domestic resource.

If a population cannot be accorded the opportunity to experience the toils and pains inherent in their participation in the development process, they cannot be vanguard and act in defence of their own development. Any factor depriving them of such an opportunity by making them believe that development is a smooth and easy-going process - one in which no hardships or sacrifices need to be endured - can only be an effective instrument for a perpetuation and accentuation of the dependent nature of their development. It is clear that our study singles out this one factor as the golden handshake itself. Its size and conditions under which it was given and the manner in which the M.A.D.P. was being executed, at least up to 1982, has tended to undermine its own paramount objective of attainment of self-reliance by choking domestic effort on almost all fronts and by weakening belief in own capabilities and achievement.

The intermediary role of the banking and other financial institutions in an economy derives from their ability, among others, to mobilize private (household and company) savings and to channel these resources to varying end-uses. These uses can either be productive or consumptive. In the 1975-1982 period, an average of 38% of the total bank credit was ear-marked for the productive sectors while no less than 62% was used to support activities in the services sectors, with the lion's share going to the trade sector, 31% on average.

As we have seen above, one of the bouyant sectors in the economy in the 1976-1982 period has been the banking sector which can be said to have benefited from the infusion of Dutch aid. Yet its most conspicuous concern appears to have been the supplying of low-risk and short-term credit to the foreign-oriented trade and other services sector at the expense of its supporting productive (read resource-based) activities. The more risky agricultral, forestry or other industrial investments have been supported by the smaller and specialised banks, viz, the National Development Bank and the Agricultural Bank.

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\* See Mhango B, 1984

Clearly, the monetary authorities, that is the Central Bank of Suriname and the Ministry of Finance, made no effort to pursue such a credit policy as would spur development of the country's rich resources. Expectedly, the urgency to do so was not felt, as the golden handshake seemed to provide the required resources<sup>11</sup>. The authorities have seen monetary policy primarily as an instrument to protect the foreign reserve position. Owing to an unfavourable balance of payment position resulting from the inflow of Dutch aid, considerably less attention has been given to the ultimate use of bank credit.

### **The Operation of the Joint Commission (JC)**

Lastly, through its organisational structure and working manner, the JC came to exercise such power and influence that it was at times regarded as a super government which subjected Suriname's development strategy and policies to its obscure criteria and scrutiny, rather than the other way around. This institution acted too as a substitute for the National Planning Office, which was effectively relegated to the status of an office administering aid funds and routing projects to the JC for final approval. The Planning Office had never been accorded the opportunity to select, appraise and implement projects. This is seen here as an opportunity foregone for Suriname to acquire planning expertise. The qualifications of the JC members notwithstanding, it was observed that this institution was gravely ill-equipped to streamline the planning activities to successful completion in line with plan objectives.

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<sup>11</sup> Actually the National Development Bank and the Agricultural Bank however have been supported by Dutch aid.

## VI. POLITICAL LEVERAGE AND THE CRISIS

The 1980's will go down in history as having brought to Suriname a mixture of hope and despair.

The decade broke with the take-over on 25th february 1980 of the government by the military in a bloodless coup, as the result of a prolonged dispute between the union of the military sergeants and the civilian government led by Prime Minister Henck Arron. Since an increasing proportion of the population had come to lose faith in the ability of the incumbent political structure to utilize the available grant aid for the betterment of its material welfare, culminating in a record emigration to the metropole in 1979, the take over was generally welcomed in the country. It inspired new hope after four years of independence and execution of the development plan.

The new government, unlike the usual situation in many other countries, was predominantly civilian but dominated by elements of small nationalistic and left of centre political parties which either in parliament or outside it had previously voiced strong dissatisfaction at the letter and content of the Dutch-Suriname Aid Agreement and at the way the M.A.D.P. was being executed with considerable donor influence up to 1979. A climate had therefore been created for an appraisal of the whole aid agreement and the development plan it was financing.

The new government was quick to present on labour day in 1981 a new development strategy and an alternative Emergency Programme designed to redress some of the inherent neglect in the M.A.D.P. of small less ambitious and quick-yielding projects in production, energy, infrastructure and social sectors in the economy. This would ease the strain on the government finances and generally enhance generation of lasting linkage effects. It succeeded in persuading the Dutch government to divert no less than Sf 500 million of the remaining committed funds for this emergency programme. But as it will be made clear shortly, the programme would be short-lived.

Things turned really sour for the new military backed government in 1982. The overthrow in 1980 marked the start, however, of Suriname's repeated subjection to threats by the aid donor, the Netherlands, to suspend aid. these dire threats were uttered at times when it could not be shown that such were provoked by Suriname's breach on any part of the 1975 aid agreement. Rather, they followed from the fact that the new political setting did not match the donor's ideas regarding the upholding and practicing of democratic and human-rights principles. In addition, persistent countercoup attempts were made between 1980 and 1982, inspired by elements of the deposed



economic and political elite', and, it is right to assume, by the former colonial power. This mixture of factors instigated the elimination by the military of sixteen of their most staunch opponents in December 1982. It is that one event which marked the precipitation of Suriname's gravest crisis in her history as the aid donor, the Netherlands, unilaterally and indefinitely suspended the internationally-hailed aid agreement with Suriname. The donor had used aid as a leverage - as an instrument to influence the political and economic developments in the recipient country, a right reserved to any bilateral aid donor in the current international economic order. The extent to which the aid donor succeeds in using aid as a lever to exert whatever pressure on the aid recipient, depends crucially on the indispensability of the aid to the recipient. This indispensability can be shown as the share of aid from the one source in the total aid recipient, or as a proportion of the development programme being financed by this one source. With an average of over 95% of her development expenditure financed by Dutch aid, Suriname can be seen as having been extremely vulnerable to this donor's influencing. Up to 1982 this influence was channeled through the Joint Commission in its allocation of the aid funds.

The view taken here is that the reason for the aid donor ultimately resorting to aid suspension in the wake of 1983 must be sought in her exasperation at the independent line Suriname had been taking since 1980, which line understandably did not coincide with the donor's economic, commercial or even political interest in the former colony. This increasingly independent line had clearly implied Suriname's effective pull away from the orbit of direct influence of the Netherlands, the first time in the history of the relationship between the two countries. The donor lost its effective influence on Suriname's social, economic and political development. This experience was probably so unprecedented and dramatic that the Dutch government had since then mounted a campaign designed to rally not only the support of the other industrialised countries, international organizations but also that of international fora, to isolate the small country economically and politically. This went on even after its own aid flows had already been suspended.

Indeed Suriname still suffers an economic set back as the abrupt suspension of all aid flows meant that a stream of projects which either were executed or were about to start could not be funded. The consequent loss of purchasing power, employment etc. could be expected to instigate a recession in an economy which already felt the burden of international recession besetting the bauxite and aluminium sector which is still the economy's backbone. With own savings almost non-existent, the Surinamese government could not possibly have found an alternative source for that magnitude of funds in the short run so that a number of the aided projects had to stagnate.

On the political front however, the small country had resisted to succumb to donor pressure and had even succeeded in rallying international support in denouncing the Dutch move in suspending the aid agreement unilaterally and attempting to rally world opinion against her.

### **The Crisis and Underlying Causes**

The fundamental cause of the deepest socio-economic crisis in Suriname's history as of 1983 must be sought in the structural imbalance and deformity of the economy, sacrificing resource-based industrial production at the altar of primary production and export (rice, bananas, shrimp, mining) and services (trade, banking and government). This must be seen as an ignominious failure of the consecutive governments both before and after independence to take such policy measures as would truly transform the economy and decrease extreme dependence on aid. The most immediate causes have been, however, both ironically pillars of bouyancy of the economy before and after independence, namely,

1. the bauxite sector
2. development aid.

### **The Bauxite Sector**

The international bauxite sector has since 1973 been experiencing a structural reduction in demand, largely sprouting from technological changes enabling substitution of aluminium products by others, from the two oil crises of 1973 and 1979, and from the most recent international recession as of 1980. Reacting to this situation, the bauxite multinationals are, for example, in the process of shifting their production activities from the relatively high cost production area of the Caribbean to the relatively lower areas of Brazil, Australia and Guinea. Suriname has felt the impact of recession in the bauxite sector through reduced export proceeds, transfer payments to Suriname government current income and layoffs in the period since 1980 (Ten Berge 1989; Kalpoe R, 1987).

**TABLE 12: BAUXITE SECTOR: EXPORT, TRANSFER PAYMENTS, TAX REVENUES AND EMPLOYMENT FOR THE YEARS 1980, 1985 AND 1987**  
(in millions Sf)

	Export	Transfer Payments	Levy + Income tax	Employment
1980	754	369	145	6,000
1985	437	274	55	4,263
1987	365	153	9	3,700

Source: Bauxite Institute, Suriname

Table 12 shows that in terms of the contribution of the (still) foreign-owned bauxite sector to total export earnings, transfer payments to pay for salaries and local purchases, tax payments, and to total employment, there is a marked fall in the significance of the sector in the economy during the 1980-87 period, which tallies up with the observed considerable decline in its contribution to GDP at factor cost.

#### Suspension of Aid Flows

The one most important precipitator of Suriname's crisis in the eighties must, however, be the abrupt suspension of aid flows per ultimo 1982. This meant that the average annual aid flow of about Sf 145 millions up to that time suddenly vanished. Expectedly the dislocating effects were felt most, but not only, in the government sector and on the balance of payments.

The two enumerated extenally activated factors - recession in the bauxite sector and suspension of aid flows combined tp precipitate and sustain the foreign exchange crisis which has plagued and continues to plague, as of 1989, the whole society through:

- acute shortage of basic consumption goods and raw materials;
- closing down or suboptimal operation of a multitude of businesses and the ensuing layoffs and retarded growth in production;
- grave crisis in the management of government finances;

- rampant inflation, although official figures fail to capture the proper magnitude;
- a thriving blackmarket in commodities and foreign exchange.

Out of this socio-economic malaise has grown, to make things worse still, a politically-instigated internal strife. Ronnie Brunswijk, a former body-guard of the Commander of the Surinamese Army, Desi Bouterse, and at the time also Head of the military backed government up to 1987, has been waging a guerilla warfare in the eastern districts of the country since 1986. He has virtually terrified the country at times and effectively hindered production of vital palm oil and logging of some timber species. Sabotage done to electricity masts, bridges, roads, buildings and dislocation of other economic activities, not to mention the need to maintain the defence apparatus at the required level have put extra and unduly strain<sup>12</sup> on government finances and the scarce foreign exchange reserves<sup>12</sup>. The guerilla warfare leader who prefers to call himself Commander of the "Jungle Commando" is not doing it alone. While using white French and English mercenaries, he gets his logistic and material assistance from opponents of the military regime now residing in the colonial metropole, the Netherlands, and also from the local French government in Cayenne (French Guiana)<sup>13</sup>. The latest revelations point to Brunswijk's connection with South American cocaine kings to help finance what he regards as a struggle to restore democracy and human rights in Suriname. As of April 1989, the internal war situation persists, about one-and-a-half years after elections and the installation of a civilian government headed by an elected President and Vice President (by the National Assembly). Peace talks have up to date produced no tangible effects on the war situation. Thus, effectively eastern Suriname cannot be governed by the incumbent civilian government.

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<sup>12</sup> The damage to the oil palm production alone is in excess of Sf100 million

<sup>13</sup> The French government continues to deny their support for Brunswijk, but actions speak louder than words.

## VII. MANAGEMENT AND MANIFESTATION OF THE CRISIS 1983-1988

What the previous military-backed government and the incumbent civilian government have done to date to contain this foreign exchange crisis and its overall effects has been a series of import and foreign exchange control measures to curb drastically demand of foreign exchange. Also they have sought credit lines from friendly nations: Brazil, Korea, Taiwan, Republic of China, Venezuela and Italy. They have, however, done next to nothing to boost traditional and non-traditional exports. The government institution INDEX which was created in 1981 during the military-rule period to boost among others industrial production and export has been laying disproportionate emphasis on import substitution production to "save" foreign exchange at the virtual neglect of resource-based industrial export production of which the country has immense potentials.

The foreign exchange option involving devaluation has up to date been shunned by all governments, although there is considerable pressure on the government to resorting to it, especially as assistance may have to be sought from the I.M.F. in due course. The appalling effects of the I.M.F. medicine as have been experienced by those Third World countries taking it is probably the most important factor making the government take a "wait and see" attitude in this regard.

The gravity of the foreign exchange crisis in Suriname is conveyed in the two tables on government finances and balance of payments.

Table 13 confirms the heavy burden the government had to surmount in order to sustain level of activity in the economy, carry on on-going Dutch aided projects and limit excessive destruction of capital already in place when aid flows were suspended in 1982. But with its deficit on the current account widening, the government came to rely increasingly on the press. Thus its debt with the Central Bank soared annually to reach a record high of Sf 2.4 billion at the end of 1989. Its foreign debt has, however, been modest by international standard.

The crisis was even more seriously felt on the balance of payments. The current account could no longer be fully covered by Dutch aid. The stringent foreign exchange control measures did bring forth some results by decreasing the deficit considerably from -Sf 273 millions in 1982 to +Sf 57 millions in 1988. But these figures conceal the underlying problem as this decrease has been achieved also at the cost of import of vital raw materials and inputs into the production process so that it has been prejudicial to the growth of GDP, not shown in Table 14.

TABLE 13: GOVERNMENT FINANCES FOR SELECTED YEARS  
(Sf millions)

	1982	1985	1987	1988*
Current Account Deficit	-272	-359	-473	-490
Dutch Aid Inflows	+173	0	0	0
Liquidity Creation	-100	-352	-465	-483
Debt with Central Bank (cumulative)	169	1046	1978	2455
External Debt	45	55	145	175
<b>TOTAL DEBT</b>	<b>245</b>	<b>1205</b>	<b>2189</b>	<b>2691</b>

Source: Ministry of Finance  
\* preliminary figures

**TABLE 14 : BALANCE OF PAYMENTS AND NOMINAL GNP  
FOR SELECTED YEARS 1982, 1985, 1987 AND 1988**

	1982	1985	1987	1988
Export of Goods	765	563	464	441
Import of Goods	921	553	382	292
Trade Balance	-156	+10	+82	+149
Current Account Balance	-273	-65	+87	+ 57
Balance of Capital Account	+203	42	-106	- 77
Balance Government Grants**	+173	6	8	6
Balance Total Account	- 66	-14	-3	-20
Monetary Reserves	335	52	32	15
Money Supply (M2) (1)	480	995	1600	2034
Nominal GNP at market prices (2)	1861	1740	1914	2177
Liquidity quota (1) as % of (2)	26	55	87	93
Monetary Reserves as % of M2	70	5	2	1
Monetary Reserves as % of import	36	10	8	5

Source: Central Bank of Suriname

\* preliminary figures

\*\* up to 1982, grants were predominantly Dutch aid, ensuing from the Dutch-Suriname Aid Agreement of 1975.

Further, the few credit-lines the Central Bank managed to arrange with friendly nations were too insignificant to prevent a rapid depletion of the available foreign exchange reserves from a high of Sf 335 millions in 1982 to a record low of Sf15 millions in 1988. The other magnitudes in the Table speak their own clear language.

## VIII. POLITICS AGAIN: RESUMPTION OF AID FLOWS

Right from the time aid was suspended in December 1982, the Dutch government made no secret of the conditions that should prevail for the resumption of the development cooperation with Suriname and with it the aid-flows. These conditions boil down to the restoration of the democracy and human rights, and installation of a civilian government. This political leverage did somehow work as the military came to realize that holding on to power much longer meant a deeper depression and a further dislocation of the socio-economic life already perceived totally unacceptable by the majority of the population accustomed to abundance and luxury in the thriving years up to 1982.

After a referendum in September 1987 in which a new constitution for the young nation was approved, the people went to the polls on the Independence Day 25th November 1987 to elect a new National Assembly of 51 members, bringing back three most important political parties<sup>14</sup> which contested the election as one block: "the Front for Democracy and development". They won 41 of the 51 seats in the National Assembly, a clear mandate. The election of the Executive President and Vice President by the National Assembly followed in February 1988. The Vice President is the Chairman of the Council of Ministers. The handover of power by the military was hailed internationally as the most smooth of its kind.

So far so good, but anyone expecting that Dutch aid would start flowing immediately thereafter to reward a country which had succumbed to donor's political pressure was apt to be disillusioned. The Dutch government came up with new conditions including the internationalisation of the Aid Agreement to incorporate the role of the World Bank and/or the IMF to devise an "appropriate" adjustment programme for the Surinamese economy. To insiders, however, the Dutch government delaying tactics in resuming aid flows must be sought in its desire to see the military, especially its Commander in Chief, Desi Bouterse disappear completely from the political scene. It may be true that the military still have a lot of say in the day-to-day politics of Suriname but their role in the process is clearly demarcated in the new constitution which they themselves helped to draft. The new National Assembly may change parts of the constitution but not earlier than at the end of their first term in 1992.

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<sup>14</sup> These are the Creole-based National Party Suriname (NPS), the East-Indian-based party (VHP) and the Indonesian-based one (KTPI).



At the time of this writing in May 1989, the disagreement between Suriname and the Netherlands persists regarding the new fase of cooperation between the two countries after the very unpalatable (for Suriname) 5-year episode 1982-1987. Only Sf 100 million in Emergency aid has been released by the Dutch Government to relieve the most pressing consumption and production needs in the former colony. If and when the aid flows are resumed, the agreed annual disbursements are likely to be in the order of Nf 200 million. With the signalled delaying tactics and recent resignation of the Dutch Government, Suriname may have to wait much longer than it thought to receive its deserved award for returning to civilian rule.

## IX. CONCLUSION AND RECOMMENDATIONS

The Dutch-Suriname Aid Agreement of 1975, marking the birth of the independent Suriname of less than 400,000 inhabitants, must now be judged as a blessing in disguise. It evoked hopes within Suriname but also envy from other capital-poor developing countries as a guaranteed inflow of grant aid to the tune of an average of Sf 145 millions/was certainly unique in the history of decolonisation. If utilised properly it could have transformed within the plan period of ten to fifteen years the primary-based and services propelled economy to one whose bouyancy would derive from the utilization of its immense agricultural, mining, energy, fisheries and forestry resources.

Suriname's ambitious Multi Annual Development Plan 1975-1985/90 drawn against the assurance of the availability of Dutch grant aid totalling Sf 2.2 billion, however, failed bluntly to deliver the goods - the achievement of the plan's central objective of "self reliance", the transformation of the economic structure or the creation of meaningful or permanent employment. It has been the contention in this paper that the nature of the agreement, the ambitiousness of the plan and the manner in which both the agreement and the plan were carried out could not possibly have served the needs of Suriname and enhance structural transforamtion of the economy towards self-reliance.

Besides donor involment and influence through the Joint Commission of Suriname and Dutch planning experts, it must be reiterated that Suriname herself had an important stake in the grossly suboptimal use of aid funds. The "golden handshake" has had the detrimental effect that the Surinamese Government, cq. the elctorate came to view/as a permanent source of funds, rather than a "pump-priming" instrument or "tide-over", to cover inevitable shortfalls in the development process, especially in the initial phase. Aid took therefore pressure off the government

to effect institutional measures designed to genuinely restructure the economy. In acting as a substitute rather than a supplement to domestic resources, aid must be seen as having served the function of perpetuating the dependent nature of the Surinamese economy and people.

This extreme dependence of Suriname on Dutch aid was the most important leverage the Dutch Government had to influence developments in Suriname. The sudden suspension of aid flows during the military rule in 1982, the ensuing crisis and the delays in resuming aid long after the conditions of restoration of democratic rule in Suriname was met in November 1987, must be an unpalatable and lasting reminder of this dependence to the Surinamese population.

Out of the many possible lessons that can be derived from the Suriname-Dutch Aid Agreement four can be identified as follows:

- Eventhough a certain level of infrastructure is necessary to stimulate development, a proper project-mix between productive and infrastructural activities is imperative. The viability of any economy derives from productive activities. Other activities are at best complementary.
- Given that bilateral aid is notorious for its extreme tying and leverage, developing countries should avoid manoeuvring themselves in an extreme dependent position vis-a-vis the aid donor through critical appraisal of the conditions under which aid is given.
- In the current international economic order, very tight relationships between a developing country and an industrialised country facilitated by aid relationships cannot be conducive to independent development of the developing country. Forces are constantly at work which seek to subordinate the interest of the developing country to those of the more industrialised partner.
- If aid is to yield its well desired effects on development, not only should the form and the conditions be clearly favourable; but also both the donor as well as the recipient should view it as a supplement rather than a substitute to domestic recipient resources (both human and physical).

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DRAFT, not to be quoted  
(Comments are welcome)

**MACRO ECONOMIC MODELS FOR POLICY ANALYSIS**  
**WITH SPECIAL REFERENCE TO**  
**THE CARIBBEAN REGION**

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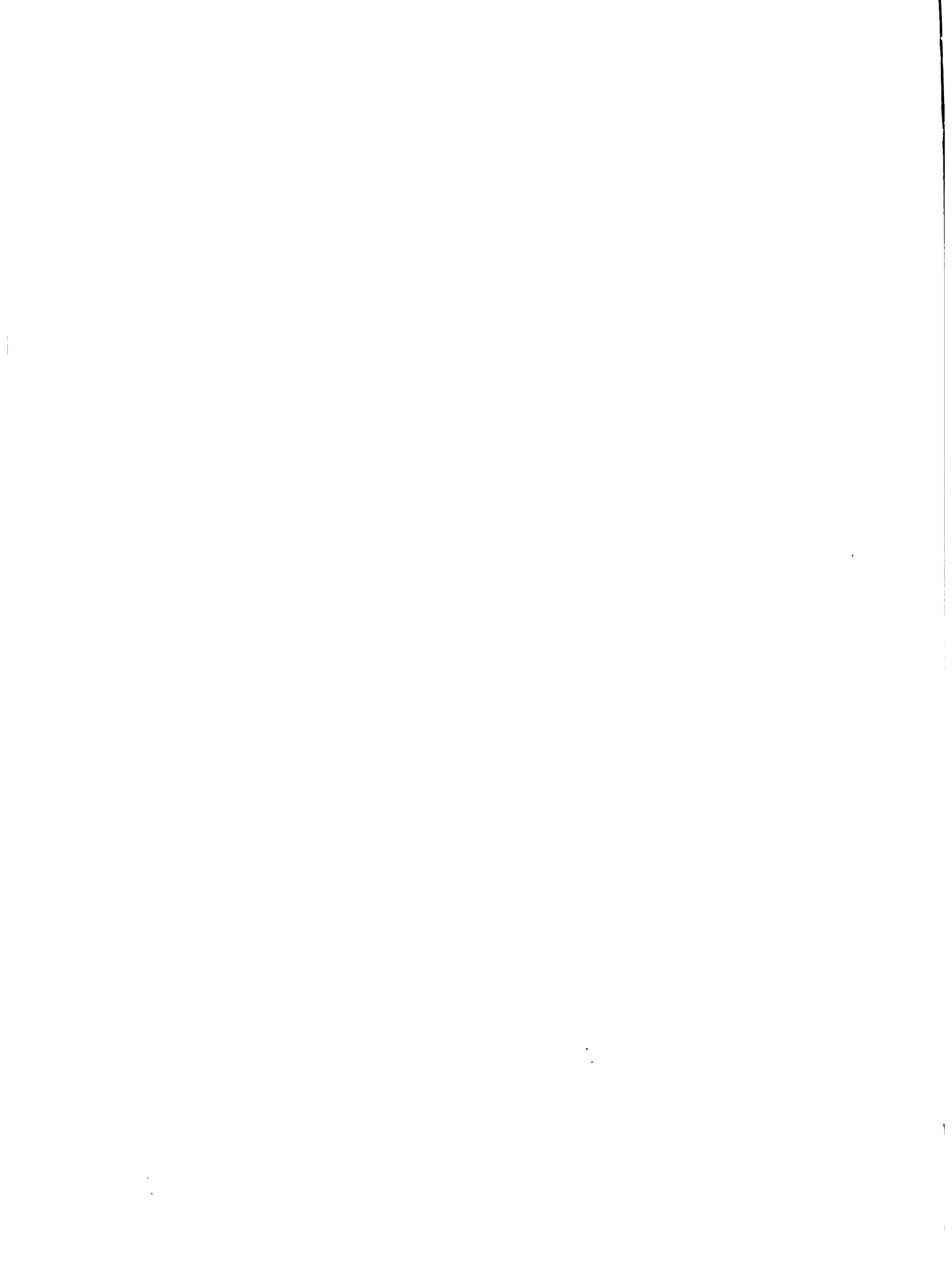
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## **I. INTRODUCTION TO MACRO MODELS**

### **1. Purpose of Economic Models**

Economic models are simple, usually mathematical, representations of complex economic realities. They establish a series of relationships (technological, institutional and behavioural) between variables and are used to explain and predict events and to design policies. Their scope can range from small microeconomic units, to entire sectors or to the whole economy.

For modeling purposes, an important distinction is made between exogenous variables, determined outside the model, and endogenous variables, the values of which are determined by solving the model. The exogenous variables represent assumptions made by the economist for events which the model does not seek to explain. They can be controlled to reflect different scenarios and policy paths. The determination of values for the endogenous variables is the major purpose of projection models, and that is made possible by the existence of enough exogenously determined variables.

Models can be used for projecting economic variables and for policy analysis. The World Bank models presented in this paper are essentially projection models. They constitute accounting frameworks of the national accounts and the balance of payments that, given a series of relationships and assumptions, allow projecting key economic variables into the future. For policy analysis purposes, one must distinguish between target variables, the policy objectives, and instrumental variables, that are controlled to achieve those targets. As will be seen later, policy issues are harder to specify in models given policy inherent discretionary and random factors. Those issues require the economist's judgement to incorporate them in the model's structure and assumptions.

Economic models usually fall into one or both of these two major kinds: (i) input-output models and (ii) simultaneous equation models of a behavioural nature. The input-output models are frameworks for determination of inter-sectoral flows and equilibria, and are obtained from proportionality rules regarding sectoral inputs and outputs. They are often represented in an input-output matrix format. The behavioural models attempt to explain relationships between variables through theoretical frameworks hypothesized in equation form. Usually models will share features from both these types and, in addition, the distinction between input-output and behavioural relationships is sometimes difficult. A model combining both (i) and (ii) can be characterized as "social accounting matrix approach".

## 2. Principles of macro models utilization

In recent years the increasing availability of computer resources has made model designing and application more accessible and widespread. Econometric regression and spreadsheet software are the most used means of model simulation. This paper concentrates on simple economic identity models that are quite adequate to spreadsheet format.

Briefly, the process of application of spreadsheet type macro projection models consists of:

- i) given the structural relationships represented by the equations embodied in the model,
- ii) data is then collected to specify those equations,
- iii) the necessary assumptions for the economic projection are determined,
- iv) some restrictions and/or exogenous values for some variables may be imposed along the projection period, and
- v) from this information the model simulates the values of the endogenous variables for the projection period and also provides a set of ex post ratios and economic indicators which permit the evaluation of the consistency of the projection.
- vi) Alternative scenarios can then be experimented by changing the basic assumptions.

## 3. Uses and limitations of macro models

Models are no more than quantitative attempts to translate complex social and economic realities into equation form. The resulting simplification of reality is quite useful for economic analysis but also implies the omission of several factors that do affect the results.

The models used by the World Bank allow projecting economic variables as far in the future as desired, and thus obtaining a dynamic picture of the economy and a substantiated basis for economic forecast. The advantage of these projections is that they are 'ceteris paribus', that is, they display a picture of the economy if everything goes according to an expected most-likely scenario regarding those variables that are exogenous to the model or according to policies adopted for the economy.

But one knows that economic realities are quite complex and often difficult to reproduce in a model. Discretionary policy and other factors external to the model can have an impact on the exogenously assumed variables and, consequently, on the endogenous ones. Thus, economists have to constantly test and review their models and, sometimes, adopt new ones.

In addition, one must always bear in mind that the quality of the projections can be affected by several factors inherent to economic modelling, namely: i) errors in the formulation of the model itself and/or omission of relevant variables; ii) problems with data quality; and iii) errors in the assumptions necessary for the projection and/or occurrence of unexpected events that make those assumptions inaccurate.

#### 4. Implications for policy analysis and structural adjustment exercises

The models presented in this paper are essentially projection models. They are based on simplifying assumptions to provide projections of macroeconomic and balance of payments accounts, but do not necessarily incorporate economic policy factors in their equation framework.

Even if economic policy choices are necessarily reflected in the targets implied by the growth rates assumed for the exogenous variables, these models are still handicapped by the failure to incorporate policy reactions to unexpected events or to new targets. Still, they remain useful projection tools and if different policies or changes in policies are foreseeable, then, one can simply simulate a different scenario for each case.

The World Bank has long been committed to the problems of structural adjustment of its member countries with internal and/or external economic desequilibria. Economic projections are quite useful in the diagnosis of those desequilibria and in the simulation of alternative scenarios.

Models such as the Revised Minimum Standard Model (RMSM), the Debt Burden Model (DBnt) and the Flow of Funds model have been widely used by the World Bank in country economic analysis and projections. The relatively simple data requirements and the standardized nature of these models promptly enable their application to most countries as well as international comparisons. In addition, the basic model formats can be developed to take into account specific factors and more complex relationships. The relative simplicity of these models' structures and the basic principles of economic equilibria embodied in them also make them a valuable pedagogical tool.

Still, there remains plenty of scope to further develop the World Bank's models. The problem is that greater macroeconomic expansion will imply a loss of simplicity and will make it harder to concentrate on given aspects of structural adjustment. Some of the relevant policy issues and variables that are not included in the models, and that can not be added easily, are for example: variable exchange rates, trade restrictions and incentives, price controls,

relative key commodity prices and government expenditure non-revenue constraints. Ideally, inflation should be determined endogenously within the model and linked to aggregate demand and to the monetary sector. The mechanisms of money supply could also be linked to the real side of the economy (which is achieved in the Flow of Funds model). The distributional effects of structural adjustment and institutional issues should also be included in an ideal policy model.

However, the RMSM-type models can not address these issues effectively. The economist or the model builder must have sound economic insight to feed in these factors that are not easily built into the RMSM frameworks.

## II. A TWO-GAP MODEL

### 1) Model structure of MINIRMSM model

The MINIRMSM (Y.K.Wen, EDI/World Bank, see Annex 1) is an elementary economic projection model and is most useful for pedagogical purposes. It is a simplification of the Revised Minimum Standard Model (RMSM) and follows the simplest Keynesian model of a small open economy facing perfectly elastic export-demand at given world prices, and with imports a direct function of national income.

The 'two-gaps' refer to the disequilibria situation that occurs when imports exceed exports and investment exceeds savings. The resulting level of domestic absorption will only be sustainable by resorting to foreign borrowing and/or by decreasing domestic foreign exchange reserves.

### 2) National accounts

The MINIRMSM is built upon the basic identity of the national accounts, i.e. (for variable names, see Annex 1)

$$1) Y = C + I + X - M \quad \text{where,}$$

$$2) C = (\text{Consumption Propensity}) * \text{GDP}$$

$$3) M(t) = M(t-1) * (1 + (M \text{ elast}) * \text{GDP growth rate})$$

One should notice that this model represents an open economy and that it does not separate the government sector from the rest of the economy. Exports and Investment are set exogenously.

### 3) Resource Gap

The above equation can be manipulated to obtain some important results. Thus, we have:

$$1 a) \quad Y - C = I + X - M$$

and since,

$$1 a') \quad Y - C = S$$

where S - Savings

then  $1 b) \quad I - S = M - X$

Therefore, we would have a savings gap if actual investment was in excess of savings which would require external financing through the balance of payments.

#### 4) External Financing Requirements

As derived from the equation above, an excess of savings over investment is necessarily associated with an excess of imports over exports. Thus when the resource gap occurs a trade gap will also take place. Such situation will require a net inflow of capital from abroad in the amount of the trade gap, i.e.

$$4) \quad F = M - X$$

Foreign debt financing will result in debt service commitments that constitute the final 6 equations of the model:

- |   |                       |
|---|-----------------------|
| 5) $dRES = 3/12 * M(t) - RES(t-1)$              | Change in reserves    |
| 6) $DOD(t) = DOD(t-1) + NF(t)$                  | Debt Outstanding      |
| 7) $NF = F + INT$                               | Net Flows             |
| 8) $GF = NF + AMT + dRES$                       | Gross Flows           |
| 9) $INT(t) = (\text{Interest rate}) * DOD(t-1)$ | Interest Payments     |
| 10) $AMT(t) = A0(t) + A1(t) + A2(t) + \dots$    | Amortization on loans |
- made in year t where  $A_i(t)$  ( $i=0,1,2,\dots$ ) indicates amortization of loans contracted at year i

Notice that existing debt flows are not calculated by the model and are entered exogenously. The model will project new commitments based on the projected trade gaps and existing debt outstanding and debt service.

#### 5) Assumptions

To solve the national account identity (eq. 1), since Consumption (eq. 2) and Imports (eq. 3) are already defined as a function of GDP, only two more restrictions have to be added to the model. Thus, fixed rates of growth for exports and investment are assumed.

Additional assumptions are made regarding macroeconomic and policy variables: (i) inflation is ignored in this simple model, which means that projections are made at current prices, or it can be included in the model if estimates are available, and (ii) reserve levels are fixed at three months of imports worth, which means that balance of payments deficits may require external borrowing since there are restrictions on financing with accumulated reserves.

Other relevant assumptions or constraints on the projected variables can easily be added to the model.

#### 6) Simulation

Once the data for the base year has been collected (including the consumption propensity, import elasticity, average interest rate and average maturity) and the assumptions have been specified, they are entered into the computer in a spreadsheet format using the appropriate software. Then, the computer instantly projects the model's economic variables for the desired period.

The consistency and plausibility of the projected figures can be checked through the analysis of some ratios that are also included in the projections.

Sensitivity analysis is also practically instantaneous as assumptions can be changed and their impact on projections immediately discerned.

#### 7) Diagnoses

The ratios supplied to verify the projections concentrate on the realism of projected debt burden and of the projected trade levels relative to GDP. Consumption, savings and investment are also projected relative to GDP.

The share in GDP of export and imports is projected to avoid obviously unrealistic scenarios where those shares might reach absurd proportions.

The measures of debt burden usually consist of interest, debt service and total debt outstanding relative to export earnings and GDP. Again, one should reject scenarios where these ratios reach unsustainably high or low levels. Ratios of reserves to external debt and to imports may also be relevant.

### III. The expansion of MINIRMSM to RMSM

#### 1. Model structure

The Revised Minimum Standard Model (RMSM) is the model most frequently used by the World Bank in its country economic analyses and projections. It is a compact accounting consistency framework of the national accounts and the balance of payments. It is a more sophisticated projection tool than its simplified adaptation MINIRMSM, but it still remains a basic macroeconomic framework and its application is quite simple and flexible. Equations or blocks of equations can be added to the model for more sophisticated and detailed analysis.

#### 2. The RMSM model

There are two versions of the RMSM: the required version and the availability version. For the required version a growth rate for GDP (or its components) is assumed and then the model determines the amount of external financing necessary to achieve that growth rate. In the availability version the growth rate of GDP is subject to the availability of external financing. In some cases, the exogenously determined growth rate of GDP may already reflect foreign borrowing constraints, and that may be the reason why the required version has been predominantly used in World Bank operations. (See The Revised Minimum Standard Model, Revised May 1980, World Bank.)

The main points of RMSM are outlined here.

##### 1) National accounts

GDP is disaggregated into three basic sectors : agriculture, industry and other (eq. 1-3). For projection purposes the growth rates of these sectors are determined exogenously. To obtain GDP at market prices indirect taxes minus subsidies are also exogenously projected as a percentage of GDP at factor cost (4-6).

The RMSM is not designed to project GDP from its expenditure components as consumption is determined residually from the other national accounts. The other variables are determined in the following ways:

- i) Investment is directly linked to GDP through a gross and an incremental capital-output ratios (eq.7-11);
- ii) Imports are classified according to six categories and the respective growth rates are computed taking into account the exogenously determined elasticities of demand and projected changes in prices (12-18);

- iii) Exports are, similarly, disaggregated into appropriate categories or merchandises and growth rates and prices projected (19-22).  
As in the case of imports, some restrictions linking exports with sectoral growth may be relevant to the consistency of the projections;
- iv) An international inflation index (23) and export commodity price indexes (26) are exogenously determined to allow exports to be projected at current prices (24-25, 27-28);
- v) Import price indexes (29) are similarly assumed to determine imports at current prices (30-33);
- vi) the export and import indexes are then used to adjust the exports for changes in the terms of trade (34-35) and to determine gross domestic income (36);
- vii) private consumption (39) is computed as the difference between residually determined total consumption (37) and government consumption (38), for which an exogenous growth rate is defined;
- viii) Net factor income (40) and transfers from abroad (44) are deflated by the international price index and are used in determination of income accounts (41-43,45-46).
- ix) GDP can be projected at current prices (48) with the aid of an implicit price deflator for which a price growth rate is assumed(47).  
Calculation of GDP per capita requires Population estimates that are obtained with an exogenous population growth rate(?).
- x) Finally, Government Revenue is assumed to grow proportionately to GDP (49) while expenditures grow at an assumed real rate of growth times the implicit price deflator (50).

## 2) Balance of Payments

We have seen how exports and imports are projected and how they can be disaggregated. The RMSM also projects other Balance of Payments accounts:

- i) for other current account items, growth rates or given values are set exogenously (51-57) and the current account balance is determined (63-73);
- ii) similar exogenous growth rates are used for capital account items (63-68);
- iii) existing debt and its service are treated as inputs; for new debt the disbursement, amortization and interest flows are computed given assumptions for projected levels of commitments, disbursement patterns and loan terms (this is computed through a debt module);



- iv) new debt is also classified by type of lender and by its terms: concessional and non-concessional (table ?);
- v) the expected change in reserves is also assumed exogenously as a function of imports (58-59). Interest earned on reserves is obtained by setting the corresponding interest rate (60).

### 3) Gap-Filling

If a trade gap occurs, equilibrium of the balance of payments can still be achieved with inflows of short term and/or long term capital. In addition, a balance of payments deficit can also be sustained with a decrease in reserves.

However, if ordinary capital inflows and reserves are insufficient, there will remain a balance of payments residual to be financed. That residual is the gap that has to be 'filled' through additional external borrowing, which is assumed to be available in unlimited amounts and at exogenously given terms.

Conversely, in the case of a balance of payments surplus the gap would be 'emptied' to build up reserves or to increase foreign lending.

Once the projections for all the components in the balance of payments are available, one can calculate the balance of payments residual, GAPFIL, that requires additional external financing (74). Resulting amortization and interest commitments will also be projected (75-76).

A debt service ratio and other ratios will be available to detect if the gap fill measures are adequate.

### 4. Illustration - The case of Barbados

Annex 2 displays the application of the RMSM model to the case of Barbados. A sequential presentation of the various projection blocks will now be made.

The first lines of the spreadsheet are used for the title, for the sequence of base and projection calendar years and for two exogenous economic variables of crucial importance in the projections: the exchange rate (that allows projecting in Barbados and in US dollars) and the inflation rate (necessary for the projection of economic aggregates at current prices). In this case, the exchange rate forecasts are quite reliable given the dollar linkage of the local currency, while the estimates of the inflation rate carry more uncertainty as they should account for domestic and external real shocks, fiscal and monetary policies and other factors of a discretionary and hard-to-predict nature.

Next, we have the export blocks. Exports are disaggregated by main categories (sugar, electricity, tourism and non-factor services) and also by destinies (USA, EEC). Volume growth rates and commodity price indexes are then determined exogenously to allow the projection of export earnings at current prices.

After obtaining these first block of export projections, the spreadsheet projection mechanism should have become clear to the less experienced user .

The import blocks follow and, similarly, a disaggregation is made according to the nature of the items (fuel, intermediate goods, consumption goods, non factor services,...). Import price indices and volume growth rates are also determined.

Then, we have the balance of payments block. Projections for exports and imports are already available. Projections for existing debt related capital movements are exogenously made or, as in this case, obtained from the World Debt Tables (displayed on 'Existing Loan' block). Notice that debt service of subsequent Balance of Payments financing commitments are also displayed. Thus, only a few more assumptions are necessary: direct foreign investment was assumed constant, net current transfers grow at exogenously assumed rates and reserves change by the amount necessary to keep total reserves at their initial level relative to imports (about three months of imports).

We are now in a position to determine the amount of additional external borrowing that is necessary to equilibrate the Balance of Payments - the GAPFIL. This is simply the amount by which the money outflows exceed the inflows. The GAPFIL block shows those amounts plus the resulting debt service. An interest rate of 10% and an amortization horizon of 6 years were assumed. In addition, if sources of external financing are known, e.g., from multilateral or bilateral lenders, the debt equations can be added to the model before calculating the gapfill. (See Annex 3 for another country example.)

Finally, a block of nominal growth rates in balance of payments items, determined directly from the projections in the balance of payments, is available for consistency checking.

We proceed with the National Accounts block, where the main macroeconomic aggregates are projected using exogenously determined growth rates. Sectorial projections are similarly simulated and are useful to obtain a more complete picture of the economy. Population figures are also introduced to project per capita income and consumption.

A series of ratios of projected variables is also made available to verify the realism of the projections. Special attention should be paid to the debt burden ratios that should have plausible values.

Finally, some of the projected figures are displayed in more conventional and succinct balance of payments and national account formats. Such is the purpose of the three tables at the end of Exhibit ???, that outline the major projection results in terms of the balance of payments and main macroeconomic aggregates.

#### IV. Flow of funds model

##### 1. An integrated inter-sectoral model

The Flow of Funds Model (John Holsen, Notes to Accompany "Illustrative Country Economic Projection Using a Sources and Uses of Funds Accounting Framework", October 26, 1986) is a Sources and Uses accounting framework based upon five sectors in the economy: (i) the Public Sector, (ii) the Private Sector, (iii) the Monetary System, (iv) the Balance of Payments, and (v) the National Accounts (which are disaggregated into Consumption and Savings).

It has several features that are useful in complementing the RMSM. First, the economy-wide nature of the model allows to integrate national accounts, fiscal accounts, monetary accounts, balance of payments and external debt into a consistent framework. Second, the sources and uses format provides intersectoral flows in the economy that are usually unrecognizable in aggregate national accounts. Third, the distinction between current and capital flows allows an even more complete picture of the economy. Fourth, the simultaneous existence of three management accounts - the government sector, the balance of payments and the monetary sector (inexistent in the RMSM) - makes this model quite useful for policy analysis.

The minimum data requirements for this model are more extensive than for the previous ones, and data gaps are not easy to cover or ignore if intersectoral equilibria are to be achieved. Although figures for only twenty five variables are strictly required to set up this model, they are of a more 'hard-to-find' nature since they include government expenditure and monetary flows that are not always available for less developed countries with unsophisticated statistical surveys.

The assumption block is also more elaborate, especially if one is to implicitly incorporate sectoral policy targets. The wider economic scope of this model requires, besides the usual assumptions on GNP growth, inflation and the balance of payments, additional assumptions on fiscal and monetary policy parameters which can be of a

discretionary nature. Also, the existence of five interrelated sectors makes it harder to adjust a given exogenous variable without taking into consideration the impact of that adjustment on the other exogenous variables.

## 2. Interrelationships between the various blocks

The formal relationships between the five sectors in the model is given in matrix and equation formats (see p. 2, Holsen's paper). The most important points to be noticed are:

- i) in the matrix presentation the total for each row (sources) is equal to the total for the corresponding column (uses) and, in the equation form, the identities are simply the variables in the rows and columns;
- ii) the five sectors produce twenty five intersectoral flows among themselves;
- iii) a distinction is made between current and capital accounts which produces nine identities in the model (for the monetary system only a capital account is included);
- iv) the Private Sector is determined residually, from the other accounts and from the relationships in the model, to allow for a clear identification of the results of the policies affecting the other economic management accounts (however, consumption and savings functions can be added or additional relationships specified to directly determine the private sector);
- v) the private sector also includes the public sector non budget activities, the current account of the monetary sector and 'errors and omissions' that arise in the process of reconciliation of intersectoral data.
- vi) the nature of the model allows the introduction of other sectors and the disaggregation of existing ones into relevant subsectors. Conversely, consolidation of consumption and savings in the National Accounts sector is also possible.

## 3. Simulations

The procedures for simulation are quite similar to those employed in the previously presented models.

First, there are a few initial simplifying assumptions regarding a series of economic variables such as the mechanisms of interest payments and net factor transfers, external financing sources, inflation, velocity, exchange rates and so on. These variables can also be included in the model given the appropriate specifications.

Then, the economic assumptions necessary for the projection are formulated for all the sectors (but the Private Sector if determined residually). The structure of the assumptions is quite similar to those of the RMSM and Debt Burden Model. A comprehensive list of those assumptions is given in Holsen's paper.

The next step is to collect the base year data for the three economic management accounts, for GDP and for total investment. That data is then entered, in a matrix and/or equation format, into the model spreadsheet. Some adjustments may be necessary to make the identities consistent.

Then the projection results will be obtained through simulation. Usually, the most relevant projection variables will be the gaps between the current sources and uses of funds in the economic management sectors and the national accounts, i.e., the budget deficit, the current account deficit and savings gap. The analysis of the projected sources for the financing of those gaps is also of interest. Net domestic credit is thus another important projected variable.

Once again, a series of economic ratios is supplied along with the simulation results, to verify the consistency and plausibility of the model's projections.

## V. Software

### 1. How to run the models in LOTUS

Running spreadsheet type models in LOTUS is a quite simple process. For those not already familiar with the LOTUS software it is advisable to assure prompt access to a LOTUS manual. However, the self explanatory nature of the LOTUS routines makes the use of this package a 'learn-by-doing' exercise that requires little knowledge of computers. Remember that LOTUS functions on three basic principles:

- i) The cells are used to enter words, figures or formulas and are accessed by using the direction keys (the 'arrows').
- ii) The menu on the top of the screen (which is invoked by pressing the '/' key) displays the available functions that can be performed by entering the first letter of the desired function or by moving the highlight cursor to the desired function using the direction keys. A brief description of the function will appear underneath when it is highlighted.
- iii) If something 'unexpected' happens, one can usually get back in touch by pressing the 'Escape' key (Esc).

To use the models presented in this paper, there are two possible starting points: (i) from a blank floppy diskette, or (ii) from a model that is already set up in a diskette.

If one is starting from scratch, then, the first thing to do is to set up the model in a spreadsheet format. The following steps should be taken:

- i) On the first lines and columns of the spreadsheet, the file's title is entered and, right below, a line should be reserved for the sequence of the calendar years to be projected (1986, 1987, 1988,...);
- ii) then, as a memo option, a list of the basic exogenous variables and assumptions (inflation, exchange rate,...) necessary to understand the model can be entered in a column. The assumed values for those variables would then be entered in the row cells to the right;
- iii) then, still going down on the spreadsheet, the projection variables and the consistency ratios are entered. In the cells immediately to the right the base year data is entered for those variables.
- ii) below (or above) the projection block(s) the relevant assumption block(s) should be set up. Growth rates and other exogenous constraints are entered in the cell for the corresponding variable and year.
- iv) finally, the projection parameters are entered to the right of the base year data and below the corresponding year. Those parameters take the form of formulas that refer to the base year data and assumption cells (ex.:  $+(b54+b55)/b20*(1+b17)$ ). Obviously, the content of those formulas derives from the equations in the model.

If one already has the model set up on a floppy or hard disk then the procedures are much fast. One can simply change the values of the assumptions to run alternative scenarios, or update the base year by entering more recent data in the respective cells.

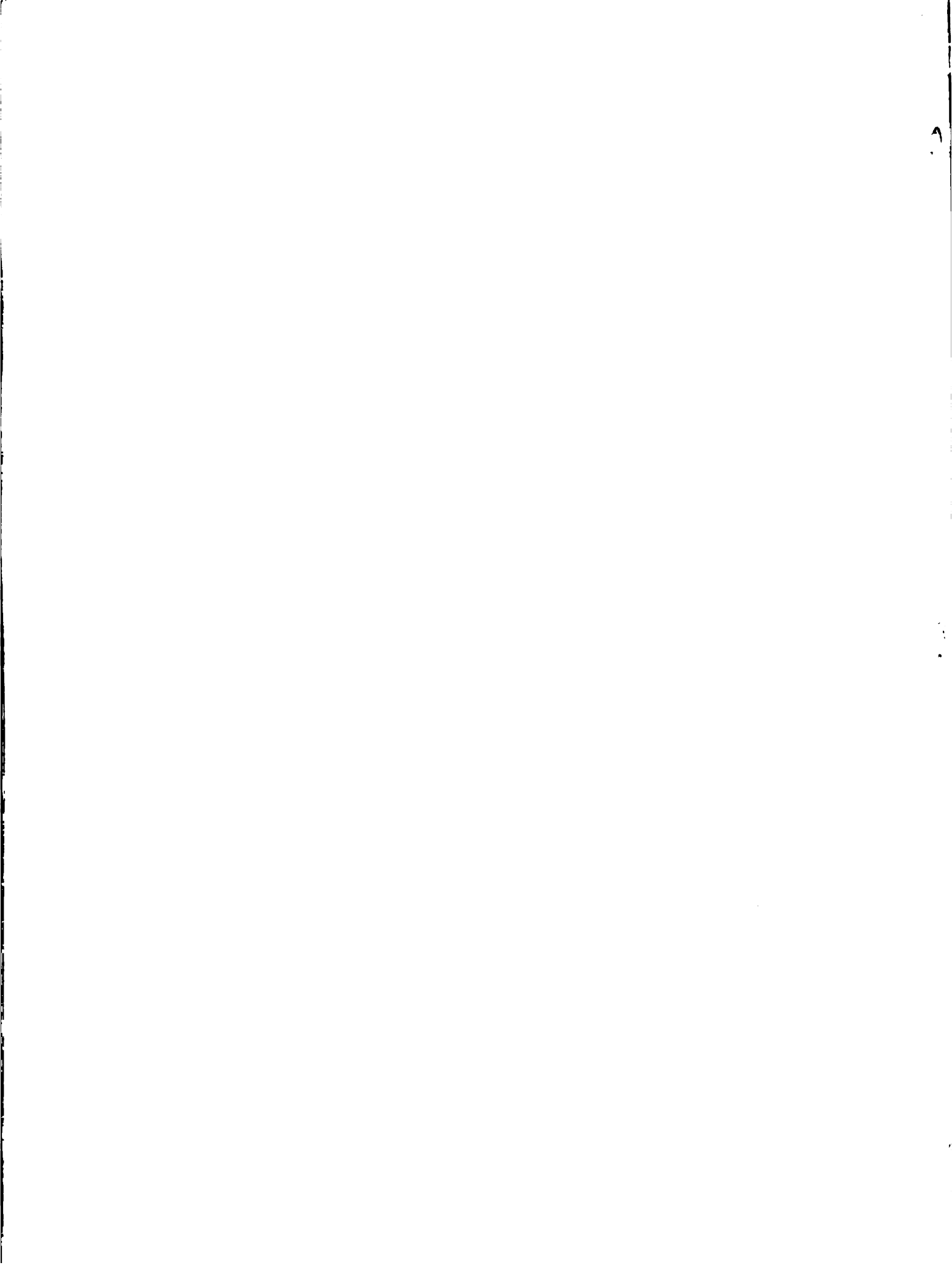
Once the data base is complete, LOTUS does the rest. The projection values, that result from the formulas entered in the cells, are automatically displayed on the screen (after pressing the adequate perform command key). Then, one may want to access the PRINT and GRAPHIC options to get the projection results in document form.

## 2. File Names

(To be inserted)

MINIMUM WITH INTERNATIONAL RESERVES

	B	C	D	E	F	G	H	I	J	K	L
TWO-GAP MODEL WITH EXTERNAL DEBT V.2 (A Simplified Version of the World Bank's RMSM Model)											
7 ASSUMPTIONS											
9	-----										
9	Investment growth rate		0.05								
10	Exports growth rate		0.05								
11	Consumption propensity		0.8								
12	Months of imports		3								
13	Import elasticity		1								
14	Average interest rate		0.1								
15	Average maturity(years)		10								
16	-----										
17	-----										
18	-----										
19			1985	1986	1987	1988	1989	1990	1991	1992	
20			(BASE YEAR)								
21	-----										
21	MACRO VARIABLES										
22	Investment	I	100	105.0	110.3	115.8	121.6	127.6	134.0	140.7	
23	Exports	X	70	73.5	77.2	81.0	85.1	89.3	93.8	98.5	
24	GDP	GDP	425	446.3	468.6	492.0	516.6	542.4	569.5	598.0	
25	Consumption	C	340	357.0	374.9	393.6	413.3	433.9	455.6	478.4	
27	Imports	M	85	89.3	93.7	98.4	103.3	108.5	113.9	119.6	
29	Net transfer(resource gap)	M-X	15	15.8	16.5	17.4	18.2	19.1	20.1	21.1	
31	Reserves	RES	20	22.3	23.4	24.6	25.8	27.1	28.5	29.9	
32	Change in Reserves	dRES		2.3	1.1	1.2	1.2	1.3	1.4	1.4	
33	-----										
34	-----										
35	EXTERNAL DEBT STRUCTURE										
36	Debt outstanding	DDO	50	73.1	98.0	126.4	158.5	194.7	235.7	281.8	
37	Interest payment	INT		5.0	7.3	9.8	12.6	15.8	19.5	23.6	
38	Net flows	NF		23.1	25.0	28.3	32.1	36.3	40.9	46.1	
39	Gross flows	GF		28.1	32.8	39.4	47.1	56.0	66.3	78.1	
40	Amortizations total	AMT		5.0	7.8	11.1	15.0	19.7	25.3	32.0	
41	-----										
42	A0 Pipeline in the base year		1985	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
43	A1 Loans borrowed in		1986		2.8	2.8	2.8	2.8	2.8	2.8	
44	A2		1987			3.3	3.3	3.3	3.3	3.3	
45	A3		1988				3.9	3.9	3.9	3.9	
46	A4		1989					4.7	4.7	4.7	
47	A5		1990						5.6	5.6	
48	A6		1991							6.6	
49	-----										
50	act service	DS		10.0	15.1	20.9	27.7	35.6	44.8	55.5	
51	-----										
52	CURRENT ACCOUNT										
53	Trade balance	X-M		-15.8	-16.5	-17.4	-18.2	-19.1	-20.1	-21.1	
54	Intrrest payment	INT		-5.0	-7.3	-9.8	-12.6	-15.8	-19.5	-23.6	
55	Curr. act. balance	CURBAL		-20.8	-23.8	-27.2	-30.9	-35.0	-39.6	-44.7	





MINIRISM WITH INTERNATIONAL RESERVES

2

56	Net borrowing	NF	23.1	25.0	28.3	32.1	36.3	40.9	46.1
	Change in reserves	-dRES	-2.3	-1.1	-1.2	-1.2	-1.3	-1.4	-1.4

58

59	RATIOS									
60	GDP growth rates	GDP/GDP(t-1)-1	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
61	Debt service ratio	DS/X	13.6%	19.6%	25.8%	32.5%	39.8%	47.8%	56.4%	
62	Debt/exports	DOD/X	99.4%	127.0%	155.9%	186.2%	218.0%	251.2%	286.1%	
63	Debt service/GDP	DS/GDP	2.2%	3.2%	4.2%	5.4%	6.6%	7.9%	9.3%	
64	Debt/GDP	DOD/GDP	16.4%	20.9%	25.7%	30.7%	35.9%	41.4%	47.1%	
65	Consumption/GDP	C/GDP	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	
66	Exports/GDP	X/GDP	16.5%	16.5%	16.5%	16.5%	16.5%	16.5%	16.5%	
67	Imports/GDP	M/GDP	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
68	Domestic saving/GDP	S/GDP	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	
69	Investment/GDP	I/GDP	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	
70	Reserves/Imports	RES/M	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	

71

72

73 Model Structure

74

75	1. $Y=C+I+X-M$	National income
76	2. $F=M-X$	Net transfer of external capital
77	3. $DOD(t)=DOD(t-1)+NF(t)$	Debt outstanding
78	4. $NF=F + INT + dRES$	Net flows
79	5. $GF=NF+ AMT$	Gross flows
80	6. $AMT(t)=A0(t)+A1(t)+A2(t)+A3(t)+...$	Total amortization is the sum of amortizations of all
81	7. $INT(t)=(Interest\ rate)*DOD(t-1)$	Interest payment
82	8. $C=(Consumption\ propensity)* Y$	Consumption
83	9. $M(t)=M(t-1)*(1+(Import\ elasticity)*(Y\ growth\ rate))$	Imports
84	10. $dRES = (Months\ of\ imports/12)*M(t) - RES(t-1)$	Change in reserves

85

86 Also assume:

87

- 88 a. Exports(X) grows at a fixed rate per annum
- 89 b. Investment grows at a fixed rate per annum
- 90 c. No inflation factor
- 91 d. Total reserves does not bear interest receipts

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Developed by Y.K.W  
 EDI/World Bank  
 9/26/1985



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2														
3	BARBADOS PROJECTIONS—AN ILLUSTRATION EXAMPLE (based on 1985 data)													
4			1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
5			ACTUAL											
6	130	EXCHR	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
7		IPI	100.00	105.00	112.87	121.90	131.66	142.19	153.57	161.24	161.24	177.77	186.66	
8		IPIGR	4.00	1.30	7.50	8.00	8.00	8.00	8.00	5.00	0.00	10.25	5.00	
9														
10	EXPORTS AT CONSTANT PRICES (US\$ million)													
11	-----													
12	133	XSUGeec	20.84	20.84	20.84	20.84	20.84	20.84	20.84	20.84	20.84	20.84	20.84	20.84
13	134	XSUGus	5.78	4.97	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29	4.29
14	135	SUGoth	2.33	3.59	5.09	5.89	6.70	7.10	7.31	7.46	7.59	7.73	7.87	
15	136	XSUGtot	28.95	29.40	30.22	31.02	31.82	32.23	32.44	32.58	32.72	32.85	32.99	
16	137	Yeiec	152.10	197.73	257.05	269.90	283.40	297.57	312.44	328.07	344.47	361.69	379.78	
17	138	Xother	67.20	67.20	67.20	69.22	71.29	73.43	75.63	77.90	80.24	82.65	85.13	
18	139	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	140	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20		Tourism	275.80	292.90	335.82	362.45	380.58	399.61	419.59	440.57	462.59	485.72	510.01	
21	141	INFS	96.00	73.58	88.62	92.53	96.63	100.81	105.13	109.64	114.36	119.30	124.47	
22														
23		Tourist days	2375.00	2995.77	3434.77	3707.22	3892.58	4087.21	4291.57	4506.15	4731.46	4968.03	5216.43	
24		Stayover Arr	359.10	395.01	442.41	477.80	501.69	526.78	553.12	580.77	609.81	640.30	672.32	
25		Cruise Arr	112.20	112.20	116.69	123.69	129.87	136.37	143.19	150.35	157.86	165.76	174.04	
26		L of stay	6.30	7.30	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	
27		Exp./day	116.10	99.90	103.00	106.00	118.83	133.22	148.81	156.25	164.06	172.27	180.98	
28														
29	EXPORTS GROWTH RATES %													
30	-----													
31		XSUGeec		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32		XSUGus		-14.04	-13.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33		SUGoth		54.02	41.79	15.79	13.64	6.00	3.00	2.00	1.80	1.80	1.80	
34		XSUGtot		1.54	2.79	2.66	2.59	1.26	0.66	0.45	0.41	0.42	0.42	
35		Yeiec		30.00	30.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
36		Xother		0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
37		Xnonsug		20.81	22.39	4.59	4.59	4.60	4.60	4.61	4.62	4.62	4.63	
38		X		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
39		Tourism		6.20	14.65	7.93	5.00	5.00	5.00	5.00	5.00	5.00	5.00	
40		INFS		-23.35	20.43	4.42	4.42	4.32	4.29	4.29	4.30	4.32	4.34	
41		IDOMESTIC		18.56	20.43	4.42	4.42	4.32	4.29	4.29	4.30	4.32	4.34	
42														
43	EXPORT PRICE INDECES													
44	-----													
45	143	XSUGeec	100.00	105.00	112.87	121.90	131.66	142.19	153.57	161.24	161.24	177.77	186.66	
46	144	XSUGus	100.00	100.00	105.00	110.25	115.76	121.55	127.63	134.01	140.71	147.75	155.13	
47	145	SUGoth	100.00	118.00	147.50	182.90	226.80	281.23	348.72	443.80	616.85	920.42	1091.15	
48	146	XSUGtot	100.00	105.74	117.59	131.88	149.53	170.07	194.12	226.90	264.25	324.99	398.20	

49	147	Xelec	100.00	105.00	112.88	121.91	129.22	135.68	141.11	146.75	152.62	158.73	165.08
50	148	Xother	100.00	105.00	112.87	121.90	131.66	142.19	153.57	161.24	161.24	177.77	186.66
51	149	X	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
52	150	X	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
53		Tourism	100.00	102.18	105.35	108.42	121.54	136.26	152.20	159.81	167.81	176.20	185.01

54

55 EXPORTS IN CURRENT PRICES

56

57	152	XSUGeec	20.84	21.88	23.52	25.40	27.44	29.63	32.00	33.60	33.60	37.05	38.90
58	153	XSUGus	5.78	4.97	4.50	4.73	4.96	5.21	5.47	5.75	6.03	6.34	6.65
59	154	SUGoth	2.33	4.23	7.51	10.78	15.19	19.96	25.49	34.58	46.82	63.39	85.23
60	155	XSUGtot	28.95	31.09	35.53	40.91	47.59	54.80	62.97	73.93	86.46	106.78	131.38
61	156	Xelec	152.10	207.62	290.14	329.02	366.20	403.74	440.88	481.44	525.74	574.10	626.92
62	157	Xother	67.20	70.56	75.85	84.38	93.86	104.41	116.15	125.61	129.38	146.92	158.89
63	158	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	159	X	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
65		Tourism	275.80	299.28	353.78	392.97	462.56	544.50	638.63	704.09	776.26	855.82	943.55
66	160	XNFS	96.00	77.32	100.38	113.58	126.91	140.74	155.00	122.58	133.48	149.00	165.10

67

68 EXPORT TOTALS IN US\$

69

70	161	XGOODS	248.25	294.33	354.47	370.14	386.51	403.22	420.52	438.55	457.43	477.20	497.30
71	162	XNFS	371.80	366.48	424.43	454.99	477.21	500.41	524.72	550.20	576.95	605.02	634.49
72	163	EXPG	248.25	309.26	401.52	454.31	507.65	562.96	620.00	680.99	741.58	827.80	917.20
73	164	EXPNFS	371.80	376.59	454.16	506.54	589.47	685.24	793.63	826.67	909.74	1004.83	1108.64

74 Note: Export values do not include re-exported goods

75

76 EXPORT TOTALS IN BD\$

77

78	300	XGOOD	496.50	588.65	708.93	740.27	773.02	806.45	841.03	877.11	914.86	954.39	995.80
79	301	XNFS	743.60	732.96	848.87	909.98	954.41	1000.82	1049.43	1100.41	1153.90	1210.05	1268.97
80	302	XGNFS	1240.10	1321.61	1557.80	1650.25	1727.44	1807.27	1890.47	1977.52	2068.76	2164.44	2264.77
81	303	EEXPG	496.50	618.52	803.05	908.62	1015.30	1125.91	1240.01	1361.78	1483.16	1655.60	1834.40
82	304	EEXPNF	743.60	753.19	908.32	1013.08	1178.94	1370.47	1587.26	1653.33	1819.48	2009.66	2217.29
83	305	EEXPGN	1240.10	1371.71	1711.37	1921.70	2194.24	2496.38	2827.26	3015.31	3302.64	3665.26	4051.68

84

85			1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
86			ACTUAL										

87 IMPORTS IN CONSTANT PRICES

88

89	165	MNFUEL	26.50	27.03	27.84	28.82	29.97	31.47	33.04	34.69	36.43	38.25	40.16
90	166	MNBOTHERIG	180.20	234.26	304.54	319.76	335.75	352.54	370.17	387.23	405.11	423.83	443.45
91	167	MNBConG	176.90	178.67	187.60	189.48	195.16	201.02	208.05	216.38	225.03	232.91	241.06
92	168	MNCapG	110.05	111.15	116.71	117.88	121.41	125.05	129.43	134.61	139.99	144.89	149.96
93	169	MNother	14.15	14.29	15.01	15.16	15.61	16.08	16.64	17.31	18.00	18.63	19.28
94		MN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	170	MNFS	106.30	117.13	132.64	136.47	141.72	147.23	153.29	126.37	132.60	138.23	144.50

96

grow by goods imports

97	IMPORT GROWTH	--									
98		-----									
99	ENBFUEL	2.00	3.00	3.50	4.00	5.00	5.00	5.00	5.00	5.00	5.00
100	MBOtherIS	30.00	30.00	5.00	5.00	5.00	5.00	0.80	0.80	0.80	0.80
101	MNBCong	1.00	5.00	1.00	3.00	3.00	3.50	0.80	0.80	0.80	0.80
102	MNCap6	1.00	5.00	1.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
103	MNothor	1.00	5.00	1.00	3.00	3.00	3.50	4.00	4.00	3.50	3.50
104	Mgoods	10.19	13.24	2.89	3.84	3.89	4.12	4.16	4.16	3.95	3.96

108 VALUE ADDED AND PUBLIC CAPITAL FORMATION (B\$ million)

109	-----											
110	VABSUG	70.80	72.22	74.60	77.06	79.60	82.23	84.94	87.75	90.64	93.63	96.72
111	VAAGRI	89.30	91.09	94.73	99.47	105.43	113.87	119.56	125.54	131.82	138.41	145.33
112	VAMFG	231.70	228.69	228.69	237.15	246.64	258.97	271.92	285.51	299.79	314.78	330.51
113	VATOUR	214.00	226.84	244.99	267.04	285.73	305.73	324.07	343.52	364.13	385.99	409.14
114	VAuthor	1604.00	1643.02	1686.81	1714.13	1744.17	1765.26	1787.60	1811.28	1836.41	1863.11	1891.51
115	PKTALF US	200.35	42.00	41.03	41.45	42.69	43.97	45.51	47.33	49.22	50.94	52.73
116	PKTALF BD	400.70	75.00	73.28	74.01	76.23	78.52	81.26	84.51	87.90	90.97	94.16
117	GDP	2303.20	2326.23	2442.54	2466.97	2540.98	2617.21	2708.81	2817.16	2929.85	3032.39	3138.53

120 IMPORT PRICE INDICES

121	-----											
122	173 MPFUEL	100.00	100.00	100.00	109.00	118.81	129.50	141.16	159.37	179.93	203.14	229.34

124 Note: all other commodities price indices are the MUV

126 IMPORTS IN CURRENT PRICES

127	-----											
128	178 MBFUEL	26.50	27.03	27.84	31.41	35.61	40.75	46.64	55.29	65.54	77.69	92.10
129	179 MBOtherIS	180.20	245.97	343.73	389.80	472.04	501.28	568.47	624.39	653.22	753.44	827.73
130	180 MNBCong	176.90	187.60	211.75	230.98	256.94	285.83	319.51	348.89	362.85	414.03	449.95
131	181 MNCap6	110.05	116.71	131.73	143.69	159.85	177.82	198.77	217.05	225.73	257.57	279.92
132	182 MNothor	14.15	15.01	16.94	18.48	20.55	22.86	25.56	27.91	29.02	33.12	35.99
133	MN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	183 IMPNFS	106.30	122.99	149.71	166.36	186.58	209.35	235.41	263.77	213.32	245.74	269.71

136 IMPORT TOTALS IN US

137	-----											
138	MBSEC	206.70	261.29	332.38	348.58	365.72	384.01	403.21	421.93	441.54	462.08	483.61
139	MNBSEC	301.10	304.11	319.32	322.51	332.19	342.15	354.13	368.29	383.02	396.43	410.30
140	MGOODS	507.80	565.40	651.70	671.09	697.91	726.16	757.33	790.22	824.56	858.51	893.91
141	MGNFS	614.10	682.53	784.33	807.56	839.62	873.39	910.62	916.59	957.16	996.74	1038.41
142	IMPBSEC	206.70	273.00	371.57	421.21	477.65	542.03	615.11	679.68	718.76	831.13	919.83
143	IMPNBSEC	301.10	319.32	360.41	393.15	437.34	486.51	543.93	593.85	617.60	704.72	765.86
144	IMPGOOD	507.80	592.32	731.99	814.36	914.99	1028.54	1158.94	1273.53	1336.36	1535.85	1685.68

145	IMPGNFS	614.10	715.31	881.70	980.73	1101.57	1237.89	1394.35	1477.30	1550.18	1781.59	1955.39
146												
147	IMPORT TOTALS IN BD\$											
148	-----											
149	MMS	1015.60	1130.80	1303.39	1342.18	1395.81	1452.32	1514.67	1580.43	1649.12	1717.02	1787.82
150	MNNFS	212.60	234.26	265.28	272.94	283.43	294.46	306.58	252.74	265.21	276.47	288.99
151	MNGNFS	1223.20	1365.06	1568.67	1615.12	1679.24	1746.78	1821.25	1833.17	1914.32	1993.49	2076.81
152	IIMPG	1015.60	1184.64	1463.98	1628.72	1829.98	2057.08	2317.87	2547.06	2672.72	3071.71	3371.37
153	IINPNFS	212.60	245.97	299.42	332.73	373.16	418.70	470.82	407.53	427.64	491.47	539.42
154	IIMPGNFS	1228.20	1430.61	1763.40	1961.45	2203.14	2475.78	2788.69	2954.59	3100.36	3563.18	3910.79
155												
156	PRICE INDICES											
157	-----											
158	188 XPRICE	100.00	105.07	113.28	122.74	131.34	139.61	147.44	155.28	162.12	173.47	184.21
159	189 MPRICE	100.00	104.76	112.32	121.35	131.10	141.64	153.03	161.16	162.07	178.90	188.57
160	190 TTINDX	100.00	100.30	100.85	101.15	100.18	98.57	96.35	96.35	100.03	96.97	97.69
161	XPIGNFS	100.00	103.79	109.86	116.45	127.02	138.13	149.55	152.48	159.64	169.34	178.90
162	MPIGNFS	100.00	104.80	112.41	121.44	131.20	141.73	153.12	161.17	161.96	178.74	188.31
163												
164		1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
165	-----											

166	BALANCE OF PAYMENTS (US\$ million)											
167	-----											
168												
169	164 EXPGNFS	620.05	685.85	855.68	960.85	1097.12	1248.19	1413.63	1507.66	1651.32	1832.63	2025.84
170	187 IMPGNFS	614.10	715.31	881.70	980.73	1101.57	1237.89	1394.35	1477.30	1550.18	1781.59	1955.39
171	208 RESBAL	5.95	-29.45	-26.01	-19.88	-4.45	10.30	19.29	30.36	101.14	51.04	70.45
172	194 NETCTR	18.90	21.36	23.92	26.31	28.42	30.69	32.22	33.84	35.53	37.30	39.17
173	205 NETFSY	-10.20	-19.90	-23.73	-28.80	-32.26	-33.46	-36.45	-53.63	-54.00	-46.84	-47.65
174	Interest	-19.70	-25.90	-29.73	-34.80	-38.26	-39.46	-42.43	-43.63	-44.00	-36.84	-37.65
175	Committed	-19.70	-25.90	-24.30	-22.20	-20.40	-17.10	-13.10	-11.20	-9.50	-8.20	-6.90
176	f.GAPFIL	0.00	0.00	-5.43	-12.60	-17.86	-22.36	-29.35	-32.43	-34.50	-28.64	-30.75
177	OtherNFS	9.50	6.00	6.00	6.00	6.00	6.00	6.00	-10.00	-10.00	-10.00	-10.00
178	209 CURBAL	14.65	-27.99	-25.83	-22.36	-8.29	7.53	15.06	10.56	82.67	41.50	61.97
179	197 NETDFI	15.00	15.00	15.00	15.00	15.00	15.00	15.00	10.00	10.00	10.00	10.00
180	92 DEBT PUB	72.10	21.50	21.70	17.60	14.80	9.50	6.60	4.70	2.50	0.76	0.00
181	AMT PUB	23.20	39.00	43.30	48.56	59.10	101.07	72.88	85.54	90.72	94.40	83.15
182	95 Committed	23.20	39.00	43.30	39.50	38.10	69.80	30.60	26.40	19.40	18.93	17.40
183	fr.GAPFIL	0.00	0.00	0.00	9.06	21.00	31.27	42.28	59.14	71.22	75.57	65.75
184	102 NETPUB	48.90	-17.50	-21.60	-30.96	-44.30	-91.57	-66.29	-80.84	-88.22	-93.64	-83.15
185	201 CHGRES	-14.40	-23.85	-39.21	-23.33	-28.47	-32.12	-36.87	-19.55	-17.17	-54.53	-40.95
186												
187	RESLEV	144.70	168.55	207.75	231.09	259.56	291.68	328.55	348.09	365.27	419.79	460.75
188												
189	210 GAPFIL		54.34	71.63	61.65	66.06	101.16	73.09	79.83	12.73	96.66	52.14
190												
191												
192	Existing loan (US\$ millions)											

193	Disb	72.10	21.50	21.70	17.60	14.80	9.50	6.60	4.70	2.50	0.76	0.00
194	Asort	23.20	39.00	43.30	39.50	38.10	69.80	30.60	26.40	19.40	18.83	17.40
195	DOD	351.90	334.40	312.80	290.90	267.60	207.30	183.30	161.60	144.70	126.63	109.23
196	Non-con	176.33	167.56	156.74	145.76	134.09	103.87	91.85	80.97	72.51	63.45	54.73
197	Concess	175.61	166.88	156.10	145.17	133.54	103.45	91.47	80.64	72.21	63.19	54.51
198	Interest	19.70	25.90	24.30	22.20	20.40	17.10	13.10	11.20	9.50	8.20	6.90
199												
200	Gapfil											
201	Disb		54.34	71.63	61.65	66.06	101.16	73.09	79.83	12.73	96.66	52.14
202	Asort				9.06	21.00	31.27	42.28	59.14	71.32	75.57	65.75
203	DOD		54.34	125.98	178.57	223.63	293.52	324.33	345.02	286.42	307.51	293.90
204	Int			5.43	12.60	17.86	22.36	29.35	32.43	34.50	28.64	30.75

205

## 206 GROWTH RATES OF EXPORTS AND IMPORTS

207

208	XGRG		18.56	20.43	4.42	4.42	4.32	4.29	4.29	4.30	4.32	4.34
209	XGRNFS		-1.43	15.81	7.20	4.88	4.86	4.86	4.86	4.86	4.87	4.87
210	XGRGNFS		6.57	17.87	5.93	4.68	4.62	4.60	4.60	4.61	4.62	4.64
211	MGRGOOD		11.34	15.26	2.98	4.00	4.05	4.29	4.34	4.35	4.12	4.12
212	MGRNFS		10.19	13.24	2.89	3.84	3.89	4.12	-17.56	4.93	4.25	4.53
213	MGRGNFS		11.14	14.92	2.96	3.97	4.02	4.26	0.65	4.43	4.14	4.18

214

215

## 216 NATIONAL ACCOUNTS in Constant B\$

217

218	226 GDP	2441.80	2466.22	2589.53	2615.42	2693.89	2774.70	2871.82	2986.69	3106.16	3214.87	3327.39
219	228 TTADJ	0.00	-12.75	-35.41	-67.86	-54.97	-45.95	-44.03	-106.67	-29.54	-113.84	-113.13
220	237 GDY	2441.80	2453.46	2554.12	2547.56	2638.91	2729.75	2827.79	2880.02	3076.62	3101.03	3214.26
221	185 MGNFS	1228.20	1365.06	1568.67	1615.12	1679.24	1746.78	1821.25	1833.17	1914.32	1993.49	2076.81
222	229 YTTADJ	-1240.10	-1308.86	-1522.39	-1582.39	-1672.46	-1761.32	-1846.44	-1870.84	-2039.22	-2050.60	-2151.64
223	238 RG	-11.90	56.20	46.28	32.73	6.78	-14.54	-25.19	-37.67	-124.90	-57.11	-74.82
224	T RES.	2429.90	2509.67	2600.40	2580.30	2645.70	2714.21	2802.60	2842.34	2951.72	3043.92	3139.44
225												
226	239 C	2044.90	2078.08	2134.28	2096.44	2133.86	2159.27	2228.24	2543.68	2641.11	2722.44	2806.70
227	236 I	385.00	431.59	466.12	483.85	511.84	554.94	574.36	298.67	310.62	321.49	332.74
228	PI	269.00	302.11	326.28	338.70	358.29	388.46	402.05	214.15	222.72	230.52	238.58
229	GI	116.00	129.48	139.83	145.16	153.55	166.48	172.31	84.51	87.90	90.97	94.16
230	241 GDS	396.90	375.39	419.83	451.12	505.06	569.48	599.56	336.34	435.52	378.60	407.56
231	242 FSY	-18.21	-33.84	-37.55	-42.18	-43.75	-42.03	-42.39	-59.40	-59.80	-47.05	-45.59
232	243 TR	33.75	36.32	37.84	38.54	38.54	38.54	37.47	37.47	39.35	37.47	37.47
233												
234	245 GNS	412.44	377.86	420.13	447.48	499.85	566.00	594.64	314.42	415.06	369.02	399.45
235	246 GNP	2457.34	2468.70	2589.82	2611.78	2688.68	2771.22	2866.90	2964.77	3085.70	3205.29	3319.28
236	247 GNY	2457.34	2455.94	2554.41	2543.92	2633.70	2725.27	2822.88	2858.09	3056.16	3091.45	3206.15

237

238

239

240

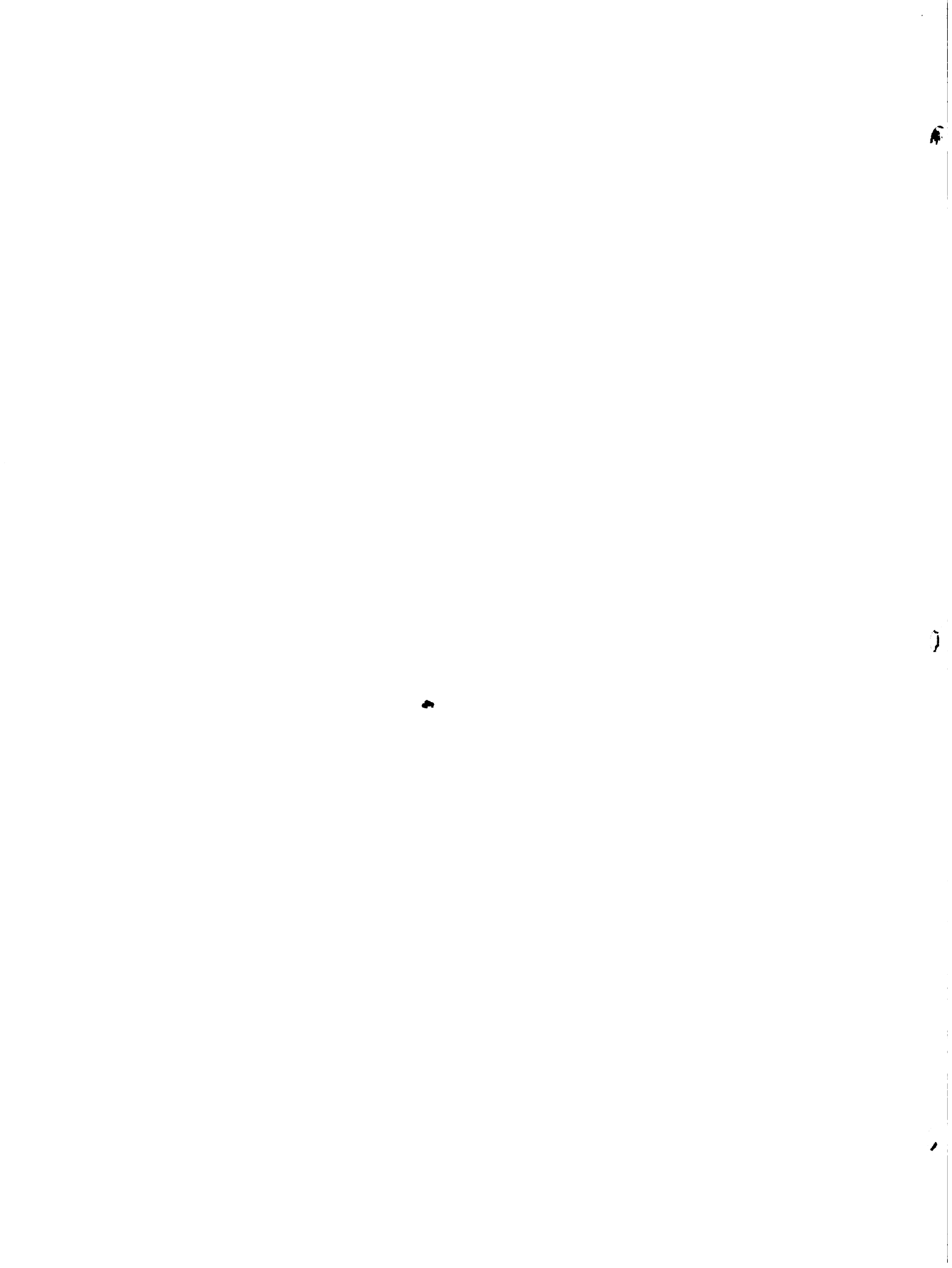
241	GROWTH RATES in Constant prices										
242	-----										
243	GDP	1.00	5.00	1.00	3.00	3.00	3.50	4.00	+1.00	3.50	3.50
244	T RES GR	3.28	3.62	-0.77	2.53	2.59	3.26	1.42	3.85	3.12	3.14
245	IGR	12.10	8.00	3.81	5.78	8.42	3.50	-48.00	4.00	3.50	3.50
246	CGR	1.62	2.70	-1.77	1.78	1.19	3.19	14.16	3.83	3.08	3.10
247	VABXGR	2.00	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30
248	VAAGRIGR	2.00	4.00	5.00	6.00	8.00	5.00	5.00	5.00	5.00	5.00
249	VAINDGR	-1.30	0.00	3.70	4.00	5.00	5.00	5.00	5.00	5.00	5.00
250	VAGIINDGR	6.00	8.00	9.00	7.00	7.00	6.00	6.00	6.00	6.00	6.00
251											
252											
253	PERCENTAGES OF GDP										
254	-----										
255	Based in constant B0\$										
256	I/GDY	15.77	17.50	18.00	18.50	19.00	20.00	20.00	10.00	10.00	10.00
257	GDS/GDY	16.25	15.22	16.21	17.25	18.75	20.52	20.88	11.26	14.02	11.78
258	GNS/GDY	16.89	15.32	16.22	17.11	18.55	20.40	20.71	10.53	13.36	11.48
259	C/GDY	83.75	84.26	82.42	80.16	79.21	77.82	77.59	85.17	85.03	84.68
260											
261	Based on current US\$										
262	GDPU\$	1367.41	1450.14	1636.77	1785.44	1986.14	2209.42	2469.74	2696.90	2804.77	3200.40
263	I/GDP	45.34	47.30	52.28	53.82	55.24	56.49	57.24	55.90	58.88	57.26
264	M/GDP	44.91	49.33	53.87	54.93	55.46	56.03	56.46	54.78	55.27	55.67
265	RB/GDP	0.44	-2.03	-1.59	-1.11	-0.22	0.47	0.78	1.13	3.61	1.59
266	CB/GDP	1.07	-1.93	-1.58	-1.25	-0.42	0.34	0.61	0.39	2.95	1.30
267	DS/GDP %		0.90	0.83	0.26	-0.01	1.37	-0.48	-0.64	-0.88	-0.56
268											
269	OTHER RATIOS										
270	-----										
271											
272	263 RESLEV AS										
273	MO. OF M	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
274	264 DS/IGNFS %		9.46	8.54	7.73	6.96	8.75	5.17	4.65	3.84	3.04
275	IMPELAST.		11.14	2.98	2.96	1.32	1.34	1.22	0.16	1.11	1.18
276	ICOR		15.77	3.50	18.00	6.17	6.33	5.71	5.00	2.50	2.86
277											
278	POPULATION										
279	-----										
280	POP	0.253	0.260	0.268	0.276	0.284	0.292	0.300	0.309	0.318	0.327
281	GDP/POP	9651.38	9473.18	9666.51	9488.02	9497.24	9506.47	9561.90	9664.12	9767.43	9924.38
282	GNP/POP	9712.79	9482.69	9667.60	9474.81	9478.88	9494.54	9545.53	9593.17	9703.09	9795.10
283	C/POP	8082.61	7982.27	7967.11	7605.30	7522.87	7397.91	7419.05	8230.64	8305.05	8319.53
284											
285											
286											
287											
288	BARBADOS										



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	
289												
290												
291												
292	VASUS	70.80	72.22	74.60	77.06	79.60	82.23	84.94	87.75	90.64	93.63	96.72
293	VADAGR	89.30	91.09	94.73	99.47	105.43	113.87	119.56	125.54	131.82	138.41	145.33
294	VAMFG	231.70	228.69	228.69	237.15	246.64	258.97	271.92	285.51	299.79	314.78	330.51
295	VATOUR	214.00	226.84	244.99	267.04	285.73	305.73	324.07	343.52	364.13	385.99	409.14
296	VAM&E	44.00	50.60	58.19	66.92	76.96	84.65	93.12	102.43	112.67	123.94	136.33
297	VACONSTR	117.90	122.62	134.88	148.37	163.20	171.36	179.93	188.93	198.37	208.29	218.71
298	VAGOV	344.00	351.91	355.43	358.99	362.58	366.20	369.86	373.56	377.30	381.07	384.89
299	VAE&GLW	74.70	76.57	77.33	78.88	80.46	82.07	83.71	85.38	87.09	88.83	90.61
300	VAM&R	451.00	462.28	476.14	476.14	476.14	476.14	476.14	476.14	476.14	476.14	476.14
301	VATRANSP	185.00	187.78	189.65	189.65	189.65	189.65	189.65	189.65	189.65	189.65	189.65
302	VAOTH	387.40	391.27	395.19	395.19	395.19	395.19	395.19	395.19	395.19	395.19	395.19
303	GDPfc	2209.80	2261.85	2329.82	2394.84	2461.58	2526.06	2588.10	2653.60	2722.79	2795.91	2873.21
304												
305	GDPgr		2.36	3.01	2.79	2.79	2.62	2.46	2.53	2.61	2.69	2.76
306	GDPgr1		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
307	GDPgr2		3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
308	GDPgr3		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
309	GDPgr4		2.00	2.50	2.50	2.00	2.00	2.00	2.00	2.00	2.00	2.00
310												
311	BD\$ GDP at mp	2441.80	2466.22	2589.53	2615.42	2693.89	2774.70	2871.82	2986.69	3106.16	3214.87	3327.39
312	BD\$ GDPcur	2441.80	2589.53	2922.81	3188.29	3546.67	3945.39	4410.25	4815.89	5008.52	5715.00	6210.79
313		48.84	51.79	58.46	63.77	70.93	78.91	88.20	96.32	100.17	114.30	124.22
314	US\$ GDPcur	1220.90	1294.76	1461.41	1594.14	1773.34	1972.69	2205.12	2407.94	2504.26	2857.50	3105.40
315	GDPcur6r		6.05	12.87	9.08	11.24	11.24	11.78	9.20	4.00	14.11	8.68
316			6.05	12.87	9.08	11.24	11.24	11.78	9.20	4.00	14.11	8.68
317												
318												
319	Table 1: BARBADOS - ACTUAL AND PROJECTED BALANCE OF PAYMENTS, 1984-90											
320	-----											
321	(US\$ million)											
322	-----											
323		Prel.		P R O J E C T E D								
324		-----		-----								
325		1985	1986	1987	1988	1989	1990	1991	1992	1993		
326		-----										
327	Domestic Exports, GNFS		620.05	685.85	855.68	960.85	1097.12	1248.19	1413.63	1507.66	1651.32	
328		-----										
329	Goods		248.25	309.26	401.52	454.31	507.65	562.96	620.00	680.99	741.58	
330	NFS		371.80	376.59	454.16	506.54	589.47	685.24	793.63	826.67	909.74	
331	(of which: travel)		275.80	299.28	353.78	392.97	462.56	544.50	638.63	704.09	776.26	
332		-----										
333	Retained Imports, GNFS		614.10	715.31	881.70	980.73	1101.57	1237.89	1394.35	1477.30	1550.18	
334		-----										
335	Goods		507.80	592.32	731.99	814.36	914.99	1028.54	1158.94	1273.53	1336.36	
336	NFS		106.30	122.99	149.71	166.36	186.58	209.35	235.41	203.77	213.82	

337										
338	Resource Gap	5.95	-29.45	-26.01	-19.88	-4.45	10.30	19.29	30.36	101.14
339	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
340	Net Factor Services	-10.20	-19.90	-23.73	-28.80	-32.26	-33.46	-36.45	-53.63	-54.00
341	Interest	-19.70	-25.90	-29.73	-34.80	-38.26	-39.46	-42.45	-43.63	-44.00
342	Other	9.50	6.00	6.00	6.00	6.00	6.00	6.00	-10.00	-10.00
343										
344	Current Transfers (net)	18.90	21.36	23.92	26.31	28.42	30.69	32.22	33.84	35.53
345										
346	Current Account Balance	14.65	-27.99	-25.83	-22.36	-8.29	7.53	15.06	10.56	82.57
347	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
348										
349	Direct Foreign Investment	15.00	15.00	15.00	15.00	15.00	15.00	15.00	10.00	10.00
350										
351	Net Public Capital	48.90	-17.50	-21.60	-30.96	-44.30	-91.57	-66.28	-80.84	-98.22
352	Amortization	23.20	39.00	43.30	39.50	38.10	69.80	30.60	26.40	19.40
353										
354	Errors & omissions	-64.15	-	-	-	-	-	-	-	-
355										
356	Change in Reserves	-14.40	-23.85	-39.21	-23.33	-28.47	-32.12	-36.87	-19.55	-17.17
357	(- = increase)									
358										
359	Memo items:									
360	-----									
361	Debt service ratio (%)	8.19	10.66	9.67	8.77	7.87	9.87	5.80	5.06	4.18
362	(as percent of Exports) a/									
363	Reserve level as number of									
364	months of imports	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
365										
366	-----									
367	a/ Goods plus tourism only.									
368										
369	Sources: Central Bank of Barbados; and mission estimates.									
370										
371										
372	Check	-64.15	54.34	71.63	61.65	66.06	101.16	73.09		
373										
374	Current acct. balance/GDP	1.20	-2.16	-1.77	-1.40	-0.47	0.38	0.68		
375	Other/GDP	4.05	-2.03	-3.13	-2.46	-3.26	-5.51	-4.00		
376										
377										
378										
379	Table 2: BARBADOS - ACTUAL AND PROJECTED USE OF RESOURCES, 1984-90									
380	-----									
381	(BDS\$ million at 1984 prices)									
382	-----									
383		Prel.								
384		-----								

	1985	1986	1987	1988	1989	1990	1991	1992	1993	
385										
386	-----									
387	GDP at market prices	2442	2466	2590	2615	2694	2775	2872	2987	3106
388	Terms of Trade Adjustment	-	-13	-35	-68	-55	-46	-44	-107	-30
389	GDP at market prices	2442	2453	2554	2548	2639	2729	2828	2890	3077
390										
391	Resource Balance	-12	56	46	33	7	-15	-25	-38	-125
392	Imports, GNFS	1228	1365	1569	1615	1679	1747	1821	1833	1914
393	Exports (capacity to import)	-1240	-1309	-1522	-1582	-1672	-1761	-1846	-1871	-2039
394										
395	Total Resources	2430	2510	2600	2580	2646	2714	2803	2842	2952
396	-----									
397										
398	Fixed investment	385	432	466	484	512	555	574	299	311
399	Public	116	129	140	145	154	166	172	85	88
400	Private	269	302	326	339	358	388	402	214	223
401										
402	Consumption	2045	2078	2134	2096	2134	2159	2228	2544	2641
403										
404		(as % of GDP)								
405										
406	GDP at market prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
407	Terms of Trade Adjustment	0.0	-0.5	-1.4	-2.6	-2.0	-1.7	-1.5	-3.6	-1.0
408	GDP at market prices	100.0	99.5	98.6	97.4	98.0	98.3	98.5	96.4	99.0
409										
410	Resource Balance	-0.5	2.3	1.8	1.3	0.3	-0.5	-0.9	-1.3	-4.0
411	Imports, GNFS	50.3	55.4	60.6	61.8	62.3	63.0	63.4	61.4	61.6
412	Exports (capacity to import)	-50.8	-53.1	-58.8	-60.5	-62.1	-63.5	-64.3	-62.6	-65.7
413										
414	Total Resources	99.5	101.8	100.4	98.7	98.2	97.8	97.6	95.2	95.0
415	-----									
416										
417	Fixed investment	15.8	17.5	18.0	18.5	19.0	20.0	20.0	10.0	10.0
418	Public	4.8	5.3	5.4	5.6	5.7	6.0	6.0	2.8	2.9
419	Private	11.0	12.3	12.6	13.0	13.3	14.0	14.0	7.2	7.2
420										
421	Consumption	83.7	84.3	82.4	80.2	79.2	77.8	77.6	85.2	85.0
422										
423	Base items:									
424	-----									
425	Export price index	100.00	103.79	109.86	116.45	127.02	138.13	149.55	152.48	159.64
426	Import price index	100.00	104.80	112.41	121.44	131.20	141.73	153.12	161.17	161.96
427	Terms of trade index	100.00	99.04	97.73	95.89	96.82	97.46	97.67	94.61	98.57
428										
429	GDP growth	.	1.00	5.00	1.00	3.00	3.00	3.50	4.00	4.00
430										
431	-----									
432	Sources: Barbados Statistical Service; and mission estimates.									



## STANDARD RSM: COUNTRY X

Annex 3

Model for Country X

	Date: 01-Jan-80								
	1984	1985	1986	1987	1988	1989	1990	1991	1992
	( RSM ALT D )								
	Exchange Rate in US\$ per Local Currency and other Indicators								
130 EXCHR	9.921	6.999	5.127	4.151	3.503	3.020	2.854	2.219	1.905
135 EXCHBS	9.921	9.921	9.921	9.921	9.921	9.921	9.921	9.921	9.921
IPI_GR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011
131 IPI	100.00	100.700	111.880	113.110	119.330	124.220	126.210	127.598	129.002
POP_GR		0.000	0.020	0.020	0.020	0.020	0.020	0.018	0.018
126 POP	27894.000	28418.000	28986.360	29566.087	30157.409	30760.557	31375.768	31940.532	32515.462
127 SNPPC	1321.118	1326.634	1378.385	1414.925	1440.559	1468.524	1495.986	1529.128	1562.255
ENERGY_EL		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
128 ENERGY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

134 CURRENCY 2

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Export Growth Rates								
XCOFFE_GR		0.000	0.000	0.000	-0.093	0.010	0.010	0.010	0.010
XPETRO_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XCOAL_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.030
XGOLD_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.051	0.059
XCOMDS_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XNICKL_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.096
XCOMD7_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XMANUF_GR		0.000	0.121	0.115	0.150	0.000	0.140	0.140	0.140
XOTH69_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.070
XNFS__GR		0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.070

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Exports in Constant Prices								
132 XCOFFE	1764.500	1724.480	1954.000	1901.000	1743.217	1760.649	1778.256	1796.038	1813.999
133 XPETRO	479.600	422.200	1457.000	2519.400	2945.100	2970.600	2970.630	2970.659	2970.956
134 XCOAL	33.890	147.000	294.000	511.000	558.300	818.400	933.200	998.631	1028.590
135 XGOLD	244.000	362.500	411.000	336.000	341.000	351.000	370.000	399.870	411.213
136 XCOMDS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
137 XNICKL	62.360	52.340	60.000	104.000	110.000	71.000	123.000	134.070	146.136
138 XCOMD7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
139 XMANUF	511.480	681.540	754.006	851.867	979.647	1078.000	1228.920	1400.959	1597.104
140 XOTH69	4.070	501.000	520.000	606.000	578.000	605.000	634.000	672.040	719.063
141 XNFS	593.000	1123.140	394.700	927.000	913.000	916.000	944.000	1010.090	1030.786

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Growth Rates of Export Price Indices								
PICOF_GR		0.000	0.000	0.000	0.220	0.040	0.039	0.039	0.039
PIPETR_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.045
PICOAL_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.026
PIGOLD_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011

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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XPICM5_GR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
XPICM6_GR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
XPICM7_GR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011
XPIAN_GR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011
XPIGD_GR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011

1984 1985 1986 1987 1988 1989 1990 1991 1992

Export Price Indices

142 XPICOF	100.000	101.220	140.000	74.300	90.646	94.272	97.854	101.573	105.432
143 XPIPET	100.000	97.100	41.460	50.170	56.840	60.190	66.870	69.879	73.024
144 XPICOL	100.000	82.230	64.730	53.030	48.460	50.830	51.750	53.075	54.434
145 XPIGOL	100.000	100.700	111.880	113.110	119.330	124.220	126.210	127.598	129.002
146 XPICM5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
147 XPINIC	100.000	104.380	69.540	69.070	66.470	65.830	68.940	69.078	69.216
148 XPICM7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
149 XPIAN	100.000	100.700	111.880	113.110	119.330	124.220	126.210	127.598	129.002
150 XPIGD	100.000	100.700	111.880	113.110	119.300	124.220	126.210	127.598	129.002

1984 1985 1986 1987 1988 1989 1990 1991 1992

Exports in Current Prices

151 EXPCOF	1764.500	1745.519	2735.600	1412.443	1580.156	1659.796	1740.097	1824.283	1912.542
152 EXPPET	479.600	409.956	604.072	1263.983	1673.995	1788.004	1986.460	2075.872	2169.503
153 EXPCOL	33.890	120.878	190.306	270.983	319.012	415.993	482.983	530.021	559.898
EXP6OL	244.000	365.038	459.827	380.050	406.915	436.012	466.977	496.192	531.247
155 XPCM5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
156 EXPNIC	62.360	54.632	41.724	71.833	73.117	46.739	84.796	92.613	101.150
157 XPCM7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
158 XPIAN	611.480	686.311	854.770	963.547	1169.013	1339.092	1551.020	1787.613	2060.295
159 XPIGD	4.070	504.507	581.776	685.447	689.554	751.531	800.171	857.512	927.650
160 EXPNFS	983.000	1131.002	1000.990	1048.530	1089.483	1137.855	1191.422	1288.845	1394.234

1984 1985 1986 1987 1988 1989 1990 1991 1992

Export Totals

161 XGOODS	3199.90	3891.06	5460.01	6829.27	7355.26	7654.65	8038.11	8361.28	8687.68
162 XGNFS	-421.62	-505.41	-640.53	-781.80	-833.41	-863.89	-905.36	-944.60	-984.63
163 XPG	3199.90	3886.84	5468.08	5048.29	5911.76	6437.17	7112.50	7664.10	8262.26
164 XPGNF	4182.90	5017.84	6469.07	6096.81	7001.25	7575.02	8303.93	8952.95	9656.50
270 PRIMRX	2588.42	3209.52	4696.00	5977.40	6375.62	6576.65	6809.19	6960.31	7090.59
297 EXPSS	4306.90	5121.57	6602.70	6291.07	7177.80	7751.57	8480.48	9129.50	9833.05
298 XGNFS	4182.90	5014.20	6354.71	7756.27	8268.26	8570.65	8982.11	9371.36	9768.47

1984 1985 1986 1987 1988 1989 1990 1991 1992

Import Elasticities

MFOOD_EL	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.060	0.070
MOCGP_EL	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.100	0.100
MPET_EL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000
MINT_EL	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.090	0.100
MCAP_EL	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.100
MNFS_EL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1.000

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Imports in Constant Prices								
165 MFOOD	201.000	214.000	369.000	442.000	451.000	473.550	477.228	527.061	563.955
166 MOCGP	186.000	121.100	166.000	215.000	236.000	242.000	258.940	284.834	313.317
167 MPET	445.000	472.700	321.000	354.000	408.000	376.000	409.000	425.139	441.993
168 MINT	1786.000	1638.000	1325.000	1506.000	1559.000	1612.000	1724.840	1880.076	2068.083
169 MCAP	1409.000	1308.000	1227.000	1395.000	1438.000	1482.000	1600.560	1744.610	1919.071
170 MNFS	1871.000	1813.000	1901.000	1984.000	2067.000	2103.000	2145.000	2229.640	2318.034
171 MOCSS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
172 MOCMG	186.000	121.100	166.000	215.000	236.000	242.000	258.940	284.834	313.317

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Imports in Current Prices								
CI.									
178 IMPFOOD	201.000	188.684	290.071	305.201	311.416	337.073	370.385	395.749	426.839
179 IMPOCS	186.000	121.948	185.721	243.187	281.619	300.612	326.808	363.443	404.185
180 IMPPET	445.000	458.992	133.087	171.230	207.754	186.007	206.790	224.558	243.897
181 IMPINT	1786.000	1597.050	1482.410	1703.437	1860.355	2002.426	2176.921	2398.945	2667.866
182 IMPCAP	1409.000	1275.300	1372.768	1577.885	1715.965	1840.940	2020.067	2226.093	2475.638
183 IMPNFS	1871.000	1825.691	2126.839	2244.102	2466.551	2612.347	2707.205	2844.983	2990.307

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Growth Rates of Import Price Indices								
MPIFOD_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.008
MPIOCS_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011
MPIPET_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.045
MPINTI_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011
MPICAP_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.011

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Import Price Indices								
173 MPIFOD	100.000	88.170	78.610	69.050	69.050	71.180	74.490	75.086	75.687
174 MPIOCS	100.000	100.700	111.880	113.110	119.330	124.220	126.210	127.598	129.002
175 MPIPET	100.000	97.100	41.460	48.370	50.920	49.470	50.560	52.820	55.181
176 MPIINT	100.000	97.500	111.880	113.110	119.330	124.220	126.210	127.598	129.002
177 MPICAP	100.000	97.500	111.880	113.110	119.330	124.220	126.210	127.598	129.002

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Price Indices								
188 XPRICE	100.000	99.892	100.148	73.921	80.375	84.095	88.485	91.662	95.103
189 MPRICE	100.000	97.021	101.645	102.273	106.967	111.504	113.593	115.366	117.187
190 TTINDX	100.000	102.959	98.527	72.278	75.139	75.419	77.896	79.453	81.155

	1984	1985	1986	1987	1988	1989	1990	1991	1992
	Import Totals								
184 MGOODS	4027.0	3753.8	3408.0	3912.0	4092.0	4185.6	4490.6	4861.7	5306.4
185 MNFS	594.5	561.1	535.1	594.3	620.8	633.9	668.8	714.8	768.5
186 IMPG	4027.0	3642.0	3464.1	4000.9	4377.1	4667.1	5101.0	5608.8	6218.4
187 IMPGNF	5898.0	5467.7	5590.9	6245.0	6843.7	7279.4	7808.2	8453.8	9208.7

..... model for Country X

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	1972.0	1759.1	1491.0	1721.0	1795.0	1854.0	1983.8	2164.9	2381.4
271 OTHERM	1972.0	1759.1	1491.0	1721.0	1795.0	1854.0	1983.8	2164.9	2381.4
299 IMPGS	7154.3	6927.3	6943.3	7640.8	8392.8	8925.7	9559.5	10219.7	11029.7
300 MGNFSS	5898.0	5366.8	5309.0	5896.0	6159.0	6288.6	6635.6	7091.4	7624.5

	1984	1985	1986	1987	1988	1989	1990	1991	1992
Growth Rates of some B.O.P. variables									
DIIP_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WRKMR_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHFSR_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NETCTR_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WRKMP_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHFSP_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NETDFI_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SHTERM_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CAPNEI_GR		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	1984	1985	1986	1987	1988	1989	1990	1991	1992
Balance of Payments variables									
191 DIIP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192 WRKMR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
193 OTHFSR	14.00	5.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00
194 NETCTR	299.00	464.00	774.00	499.00	450.00	400.00	400.00	430.00	510.00
195 WRKMP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196 OTHFSP	-300.00	-260.00	0.00	0.00	0.00	0.00	-60.00	-22.00	-34.00
NETDFI	561.00	729.00	673.00	428.00	393.00	345.00	366.00	500.00	500.00
SHTERM	-390.00	200.00	-1266.00	-366.00	0.00	0.00	0.00	0.00	0.00
199 CAPNEI	-772.90	-443.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200 NETIMF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	1984	1985	1986	1987	1988	1989	1990	1991	1992
Derived B.O.P. Indicators									
201 CHGRES	1284.00	-271.00	-1466.00	322.00	0.00	0.00	0.00	0.00	0.00
202 RESLEV	1795.00	2066.00	3532.00	3210.00	3210.00	3210.00	3210.00	3210.00	3210.00
203 INTRES	110.00	98.73	113.63	194.26	176.55	176.55	176.55	176.55	176.55
265 INTSTR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
266 INTSTP	-331.00	-320.00	-313.00	-200.00	-316.00	-365.00	-365.00	-400.00	-400.00
267 INTST	-331.00	-320.00	-313.00	-200.00	-316.00	-365.00	-365.00	-400.00	-400.00
204 FSR	124.00	103.73	133.63	194.26	176.55	176.55	176.55	176.55	176.55
207 FSP	-1256.27	-1459.62	-1352.37	-1395.73	-1549.11	-1646.30	-1751.34	-1765.96	-1820.97
205 NETFSY	-1132.27	-1355.90	-1218.74	-1201.47	-1372.56	-1469.75	-1574.79	-1589.41	-1644.42
268 NETTRM	299.00	464.00	774.00	499.00	450.00	400.00	400.00	430.00	510.00
206 NTRDFI	561.00	729.00	673.00	428.00	393.00	345.00	366.00	500.00	500.00
269 OTHCAP	-1162.90	-243.20	-1266.00	-366.00	0.00	0.00	0.00	0.00	0.00
208 RESBAL	-1715.10	-449.82	878.17	-148.23	157.59	295.62	495.75	499.18	447.77
129 GSBAL	-2847.37	-1805.72	-340.57	-1349.70	-1214.97	-1174.13	-1079.04	-1090.23	-1196.65
209 CURBAL	-2548.37	-1341.72	433.43	-850.70	-764.97	-774.13	-679.04	-660.23	-686.65

	1984	1985	1986	1987	1988	1989	1990	1991	1992
Gapfiller									
210 GAPPIL	490.24	-144.34	-26.86	99.84	-125.29	124.40	320.96	-116.03	38.87
211 AMTGAP	0.00	0.00	0.00	0.00	-81.71	-57.65	-53.17	-69.81	-48.93
212 INTGAP	0.00	0.00	-51.48	-36.32	-33.50	-41.84	-20.73	-27.86	-55.54



RMSH model for Country X

	Date:			01-Jan-80	< RMSH ALT D >					
213 NETGAP	490.24	-144.34	-26.86	99.84	-207.00	66.75	267.79	-185.85	-10.06	
214 NTRGAP	490.24	-144.34	-78.33	63.52	-240.50	24.91	247.05	-213.71	-65.60	
215 GAPDSI	0.00	0.00	0.78	0.58	1.61	1.28	0.87	1.07	1.06	
	1984	1985	1986	1987	1988	1989	1990	1991	1992	
	Growth Rates by Sector									
218 YINDR		0.0563	0.0840	0.0651	0.0530	0.0520	0.0507	0.0515	0.0519	
219 YAGRR		0.0294	0.0491	0.0321	0.0201	0.0188	0.0143	0.0127	0.0120	
220 YOTHR		0.0110	0.0310	0.0373	0.0384	0.0392	0.0415	0.0412	0.0412	
	1984	1985	1986	1987	1988	1989	1990	1991	1992	
	GDP and Value Added by Sector									
221 YIND	1042.50	1101.22	1193.73	1271.44	1338.82	1408.44	1479.85	1536.06	1636.82	
222 YAGR	683.90	704.01	738.57	762.28	777.60	792.22	803.55	813.76	823.52	
223 YOTH	1741.30	1760.45	1815.03	1882.73	1953.03	2031.66	2115.98	2203.15	2293.92	
224 GDFC	3467.70	3565.68	3747.33	3916.45	4071.45	4232.33	4399.38	4572.98	4754.27	
INTXRATE		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
225 INDATX	360.90	370.08	389.72	407.31	423.43	440.16	457.54	475.59	494.44	
226 GDP	3828.60	3935.77	4137.05	4323.76	4494.89	4672.49	4856.92	5048.56	5248.71	
227 GDFGR	0.000	0.028	0.051	0.045	0.040	0.040	0.039	0.039	0.040	
TTADJ	0.00	11.60	-8.11	-190.83	-184.31	-189.66	-179.09	-173.17	-165.02	
XTTADJ	-421.62	-517.02	-632.43	-590.98	-649.10	-674.23	-726.28	-771.43	-819.60	
	1984	1985	1986	1987	1988	1989	1990	1991	1992	
	Investment Parameters									
CHSTRATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
230 CHGSTK	76.926	77.700	75.500	74.400	91.000	84.900	83.000	84.670	125.410	
231 A10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
232 A20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
233 A30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
234 K0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
235 IFIXED	640.090	623.868	655.200	707.600	781.900	828.200	874.900	947.000	957.850	
236 I0	717.016	701.568	730.700	782.000	872.900	913.100	957.900	1031.670	1083.260	
	1984	1985	1986	1987	1988	1989	1990	1991	1992	
	National Accounts									
237 GDY	3828.6	3947.4	4128.9	4132.9	4310.6	4482.8	4677.8	4875.4	5083.7	
238 RG	172.9	44.1	-97.3	3.3	-28.3	-40.4	-57.4	-36.6	-51.1	
216 RGITT	172.9	55.7	-105.4	-187.5	-212.6	-230.0	-236.5	-229.8	-216.1	
239 C0	3284.5	3289.9	3300.9	3354.3	3409.4	3529.4	3662.5	3787.1	3949.3	
240 RA	4001.5	3991.5	4031.6	4136.3	4282.3	4442.3	4620.4	4818.7	5032.6	
241 GDS	544.1	657.5	828.0	778.7	901.2	953.5	1015.3	1088.3	1134.3	
242 FSY	-114.1	-135.7	-109.8	-107.1	-115.9	-119.3	-125.8	-125.6	-128.5	
243 CT	30.1	46.4	138.2	74.4	67.3	74.7	79.9	103.5	123.2	
244 MAXMSR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
245 GNS	460.1	568.2	856.4	746.0	852.6	908.9	969.5	1066.2	1129.1	
GNSITT	460.1	556.6	864.5	936.8	1036.9	1098.6	1148.6	1239.4	1294.1	
GMP	3714.5	3800.0	4027.3	4216.7	4378.9	4553.2	4731.1	4923.0	5120.2	
247 GMY	3714.5	3811.7	4019.1	4025.9	4194.6	4363.6	4552.1	4749.8	4955.2	
GC_GR		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
248 GC	421.6	400.1	416.1	416.1	416.1	416.1	416.1	447.3	480.9	

WISN model for Country X

	Date: 01-Jan-80									
	( WISN ALT B )									
249 PC	2862.8	2869.8	2884.8	2938.2	2993.3	3113.3	3246.4	3339.8	3468.5	
IPD_GR		0.24	0.24	0.22	0.21	0.20	0.20	0.20	0.20	0.20
250 IPD	100.00	124.00	153.76	187.59	226.98	272.38	326.85	392.22	470.8	
251 GDP_CUR	3828.60	4880.35	6361.13	8110.82	10202.51	12726.77	15874.92	19801.60	24703.95	
GR_EL		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
252 GR	772.00	962.9	1225.8	1529.3	1884.2	2303.8	2816.6	3443.7	4211.0	
253 GE	1054.30	1240.6	1599.8	1951.8	2361.6	2834.0	3400.8	4387.0	5659.2	

	1984	1985	1986	1987	1988	1989	1990	1991	1992	
	Ratios									
254 M/GDP	15.5	14.3	12.9	13.7	13.8	13.6	13.8	14.2	14.6	
255 I/GDP	11.0	12.8	15.5	18.1	18.5	18.5	18.6	18.7	18.8	
256 C/GDY	85.8	83.3	79.9	81.2	79.1	78.7	78.3	77.7	77.7	
257 I/GDY	18.7	17.8	17.7	18.9	20.3	20.4	20.5	21.2	21.3	
258 DS/GDY	14.2	16.7	20.1	18.8	20.9	21.3	21.7	22.3	22.3	
259 NS/GNY	12.4	14.9	21.3	18.5	20.3	20.8	21.3	22.4	22.8	
260 MELAS	0.0	-2.0	-0.9	2.4	1.1	0.5	1.4	1.7	1.9	
261 GNSMR	0.0	-1.1	1.4	-16.4	0.6	0.3	0.3	0.5	0.3	
262 ICOR	0.0	6.7	3.5	3.9	4.6	4.9	5.0	5.0	5.2	
273 ICORSY	0.0	0.0	0.0	0.0	0.0	4.5	4.3	4.7	4.9	
263 RES/M	3.0	3.6	6.1	5.0	4.6	4.3	4.0	3.8	3.5	
264 DS/XBS	30.5	31.8	32.2	42.0	41.5	43.5	40.7	36.4	34.3	

	1984	1985	1986	1987	1988	1989	1990	1991	1992	
	Debt Indicators									
45 COMIDA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
46 COMCDA	11.673	2.270	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
47 COMCOP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
48 CONCOT	26.636	6.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
49 COMWBK	740.700	489.500	640.000	-550.000	550.000	650.000	100.000	450.000	537.000	
50 COMOEC	588.346	139.638	10.000	0.000	168.000	230.000	275.000	300.000	300.000	
51 COMNCO	581.100	309.500	350.000	0.000	0.000	15.000	0.000	0.000	0.000	
52 CONSC	117.922	111.370	169.000	0.000	163.000	204.000	170.000	367.000	301.000	
53 COMOPG	693.804	1541.853	358.000	0.000	593.000	775.000	770.000	737.000	687.000	
54 COMNGP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
55 DBTIDA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
56 DBTCDA	7.539	2.571	13.661	8.714	5.696	2.915	0.937	0.445	0.172	
57 DBTCOP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
58 DBTCOT	31.675	42.053	28.464	58.272	52.605	22.311	10.611	4.038	1.651	
59 DBTWBK	461.504	589.216	537.137	548.101	538.596	547.236	448.185	523.678	522.663	
60 DBTOEC	250.831	386.000	302.144	285.820	305.944	300.811	302.781	300.000	300.000	
61 DBTNCO	109.000	264.000	201.681	252.644	223.778	212.986	146.650	103.394	75.867	
62 DBTSC	288.000	135.621	219.328	45.673	200.243	229.962	182.454	367.000	301.000	
63 DBTOPG	617.000	376.000	1264.954	398.722	820.119	936.551	842.040	756.009	687.000	
DBTNGP	300.000	225.000	221.000	250.000	213.000	239.000	255.000	300.000	350.000	
65 AMTIDA	-0.707	-0.353	-0.550	-0.550	-0.550	-0.550	-0.550	-0.550	-0.550	
66 AMTCDA	-30.656	-28.905	-39.468	-39.219	-38.478	-38.376	-37.770	-36.299	-33.7	
67 AMTCOP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

SM model for Country X	Date: 01-Jan-80									
	(RMSH ALT D)									
68 ANTCOT	-3.842	-6.338	-14.853	-24.641	-28.261	-29.880	-29.882	-31.154	-32.994	
69 ANTWBK	-136.390	-170.475	-208.429	-211.052	-232.087	-279.040	-354.345	-403.572	-441.205	
70 ANTOEC	-46.228	-49.680	-98.648	-108.943	-113.326	-201.411	-194.262	-170.199	-182.018	
71 ANTNCO	-25.020	-39.421	-58.163	-67.821	-88.920	-97.848	-129.312	-148.545	-156.233	
72 ANTSC	-77.993	-74.000	-128.029	-110.540	-106.888	-98.448	-102.881	-96.647	-94.431	
73 ANTOP6	-204.722	-285.034	-388.325	-602.000	-859.000	-983.000	-909.667	-723.656	-654.965	
74 ANTNGP	-142.000	-96.000	-148.000	-280.000	-280.000	-359.000	-364.000	-370.000	-390.000	
75 INTIDA	-0.144	-0.070	-0.137	-0.133	-0.129	-0.125	-0.121	-0.117	-0.111	
76 INTCDA	-19.581	-18.310	-20.777	-19.905	-18.920	-17.858	-16.784	-15.721	-14.723	
77 INTCOP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
78 INTCOT	-3.438	-4.135	-6.017	-6.961	-8.207	-8.565	-8.090	-7.262	-6.196	
79 INTWBK	-120.865	-153.208	-218.461	-241.958	-263.383	-283.722	-300.518	-303.271	-309.287	
80 INTOEC	-42.222	-117.540	-142.646	-164.128	-172.682	-181.993	-183.301	-186.642	-192.392	
81 INTNCO	-34.466	-57.389	-81.873	-98.991	-115.186	-126.810	-133.731	-132.014	-126.045	
82 INTSC	-32.026	-33.443	-48.905	-61.815	-56.371	-67.035	-81.028	-89.565	-118.318	
83 INTOP6	-294.417	-375.528	-380.555	-431.838	-401.229	-399.189	-406.772	-413.369	-423.898	
84 INTNGP	-78.111	-120.000	-140.000	-170.000	-197.000	-196.000	-196.000	-196.000	-196.000	
85 CONCOM	38.309	8.270	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
86 CONMC	2721.872	2591.861	1527.000	550.000	1474.000	1874.000	1315.000	1854.000	1825.000	
87 CONOFF	1948.453	946.908	1000.000	550.000	718.000	895.000	375.000	750.000	837.000	
88 CONPRI	811.726	1653.223	527.000	0.000	756.000	979.000	940.000	1104.000	988.000	
89 COMMLT	2760.181	2600.131	1527.000	550.000	1474.000	1874.000	1315.000	1854.000	1825.000	
90 DBTCOM	39.234	44.624	42.125	66.986	58.301	25.226	11.548	4.483	1.823	
91 DBTNC	2026.353	1976.837	2746.244	1780.960	2301.680	2466.546	2177.110	2350.081	2236.530	
92 DBTOFF	860.589	1283.840	1083.087	1153.551	1126.619	1086.259	909.164	931.555	900.353	
93 DBTPRI	1205.000	737.621	1705.282	694.395	1233.362	1405.513	1279.494	1423.009	1338.000	
94 DBTMLT	2065.589	2021.461	2788.369	1847.946	2359.981	2491.772	2188.658	2354.564	2238.353	
95 ANTOFF	-264.843	-295.172	-420.111	-452.226	-501.622	-647.105	-746.121	-790.320	-846.702	
96 ANTPRI	-424.715	-455.034	-664.354	-992.540	-1245.888	-1440.448	-1376.548	-1190.303	-1139.396	
97 ANTMLT	-689.558	-750.206	-1084.465	-1444.766	-1747.510	-2087.553	-2122.669	-1980.623	-1986.098	
98 INTOFF	-220.716	-350.652	-469.911	-532.076	-578.507	-619.073	-642.545	-645.027	-648.754	
99 INTPRI	-404.554	-528.971	-569.460	-663.653	-654.600	-662.224	-683.800	-698.934	-738.216	
100 INTMLT	-625.270	-879.623	-1039.371	-1195.729	-1233.107	-1281.297	-1326.345	-1343.961	-1386.970	
101 DSMLT	-1314.828	-1629.829	-2123.836	-2640.495	-2980.617	-3368.850	-3449.014	-3324.584	-3373.068	
102 NETOFF	595.746	988.668	662.976	701.325	624.997	439.154	163.043	141.235	53.651	
103 NETPRI	780.285	282.587	1040.928	-298.145	-12.526	-34.935	-97.054	232.706	198.604	
104 NETMLT	1376.031	1271.255	1703.904	403.180	612.471	404.219	65.989	373.941	252.255	
105 DODIDA	18.718	18.365	17.815	17.265	16.715	16.165	15.615	15.065	14.515	
106 DODOTC	937.916	967.715	968.064	1030.185	1125.609	1246.239	1391.156	1528.195	1661.156	
107 DODWBK	1816.378	2235.118	2563.826	2900.875	3207.384	3475.580	3569.420	3689.526	3770.984	
108 DODONC	1284.329	2055.000	3234.500	2929.560	3452.043	3861.587	4038.213	4236.713	4383.949	
109 DODPRG	4033.000	4216.235	5172.092	4933.473	5025.600	5157.345	5229.389	5532.095	5770.695	
110 DODNGP	1437.000	1576.000	1640.000	1710.000	1770.000	1819.000	1839.000	0.000	0.000	
111 DODOFF	4057.341	5276.198	6784.205	6877.885	7801.751	8599.571	9014.404	9469.499	9830.604	
112 DODPRI	5470.000	5792.235	6812.092	6643.473	6795.600	6976.345	7068.389	5532.095	5770.695	
113 DODMLT	9527.341	11068.433	13596.297	13521.358	14597.351	15575.916	16082.793	15001.594	15601.300	
114 DODUPG	12606.656	14800.576	15374.584	14789.338	14833.486	15025.627	14642.056	14885.434	15114.336	
115 UNDNBP	0.000	-226.000	-447.000	-697.000	-910.000	-1149.000	-1404.000	-1704.000	-2054.000	
116 UNDISB	4516.315	5082.143	2971.287	2280.980	1096.135	119.711	-1005.737	-1820.160	-2540.964	
117 CMNGR1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
118 CMNGR2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
119 DBNGR1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
120 DBNGR2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
121 COMSRT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

RMSM model for Country X

122 DBTGRT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AVG MATURITY	0.000	0.000	16.027	17.000	13.842	13.737	12.274	13.732	13.87
AVG INTEREST	0.000	0.000	0.092	0.082	0.094	0.094	0.098	0.095	0.094
AVG GRACE	0.000	0.000	4.229	4.000	3.834	3.898	3.741	3.604	3.670

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Maturity	10	GAPFILLER LOAN							
Grace Period	4								
Interest Rate	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%
Frequency	2								
Disbursement	100.0%								

	1984	1985	1986	1987	1988	1989	1990	1991	1992
COM	490.239	-144.336	-26.859	99.835	-125.294	124.399	320.962	-116.035	38.871
DBT	490.239	-144.336	-26.859	99.835	-125.294	124.399	320.962	-116.035	38.871
INT	0.000	0.000	51.475	36.320	33.500	41.838	20.734	27.860	55.541
ANT	0.000	0.000	0.000	0.000	81.706	57.651	53.174	69.813	48.931
DOD	490.239	345.903	319.044	418.880	211.879	278.628	546.415	360.567	350.508

INT 1/2 YEAR	0.000	25.738	18.160	16.750	21.991	11.124	14.628	28.687	18.930
INT 1/2 YEAR	0.000	25.738	18.160	16.750	19.846	9.610	13.232	26.854	17.645
ANT 1/2 YEAR	0.000	0.000	0.000	0.000	40.853	28.825	26.587	34.907	24.465
ANT 1/2 YEAR	0.000	0.000	0.000	0.000	40.853	28.825	26.587	34.907	24.465
DOD 1/2 YEAR	0.000	490.239	345.903	319.044	378.026	183.054	252.041	511.509	336.102
DOD 1/2 YEAR	490.239	345.903	319.044	418.880	211.879	278.628	546.415	360.567	350.508

	1984	1985	1986	1987	1988	1989	1990	1991	1992
310 DODSTM	2738.000	2826.000	1597.000	1231.000	1231.000	1231.000	1231.000	1231.000	1231.000
1 CHIDA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 CMCDA1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 CMCDA2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4 CMCDA3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5 CMCDP1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6 CMWBK1	0.000	0.000	0.000	0.000	140.000	230.000	0.000	50.000	0.000
7 CMWBK2	0.000	0.000	114.000	0.000	20.000	0.000	0.000	0.000	202.000
8 CMWBK3	0.000	0.000	276.000	200.000	80.000	270.000	0.000	0.000	185.000
9 CMWBK4	0.000	0.000	0.000	0.000	0.000	150.000	0.000	150.000	0.000
10 CMWBK5	0.000	0.000	0.000	0.000	60.000	0.000	100.000	0.000	0.000
11 CMWBK6	0.000	0.000	250.000	0.000	250.000	0.000	0.000	250.000	0.000
12 CMWBK7	0.000	0.000	0.000	350.000	0.000	0.000	0.000	0.000	150.000
13 CMNCB3	0.000	0.000	10.000	0.000	168.000	230.000	275.000	300.000	300.000
CMNCD1	0.000	0.000	350.000	0.000	0.000	0.000	0.000	0.000	0.000
15 CMNCD2	0.000	0.000	0.000	0.000	0.000	15.000	0.000	0.000	0.000
16 CMNC1	0.000	0.000	0.000	0.000	122.000	96.000	170.000	367.000	301.000
17 CMNC2	0.000	0.000	169.000	0.000	41.000	108.000	0.000	0.000	0.000

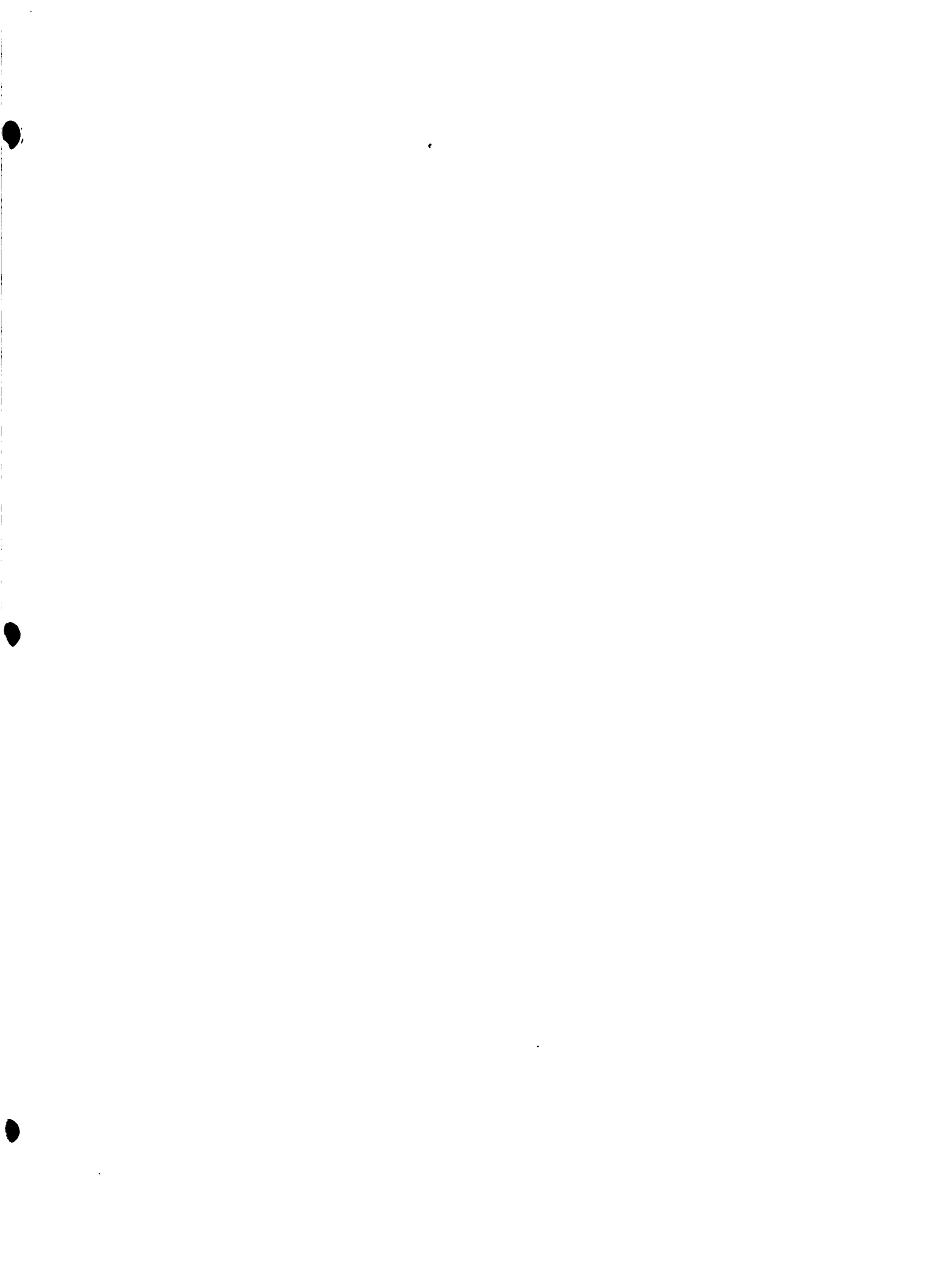
WEN model for Country X

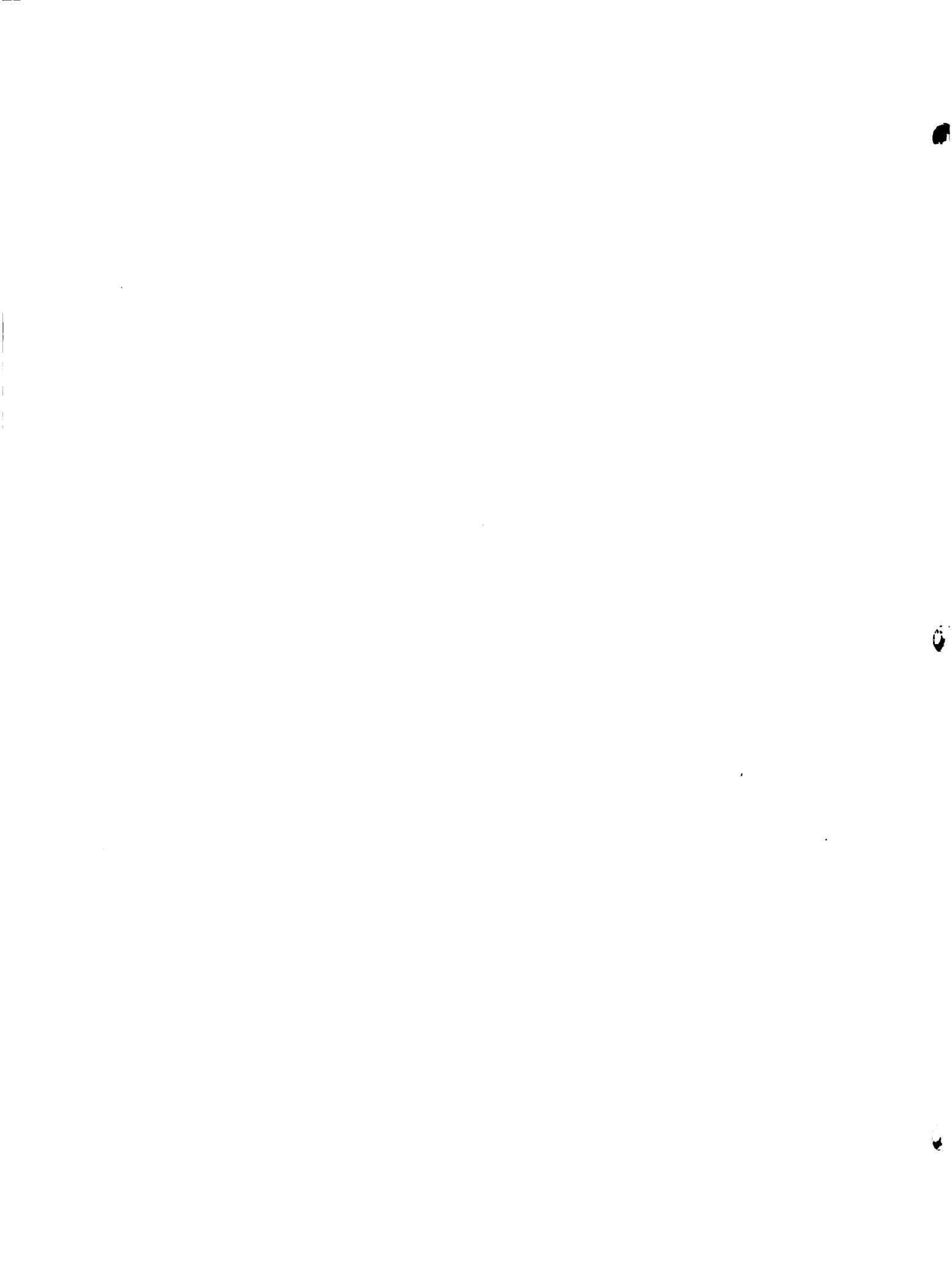
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< RNSM ALT D >

18	CHOP81	0.000	0.000	240.000	0.000	284.000	395.000	380.000	387.000	407.000
	WOP82	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	JNOP83	0.000	0.000	118.000	0.000	309.000	380.000	390.000	350.000	280.000
21	CHOP1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	CHOP2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	DB18A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	BBCDA1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	BBCDA2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	BBCDA3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27	BBCOP1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28	BBWBK1	0.000	0.000	0.000	0.000	2.800	17.200	37.500	51.000	66.500
29	BBWBK2	0.000	0.000	2.280	6.840	10.660	17.160	18.900	21.040	21.860
30	BBWBK3	0.000	0.000	11.040	52.160	90.400	118.800	146.120	134.360	116.320
31	BBWBK4	0.000	0.000	0.000	0.000	0.000	10.500	28.500	39.000	57.000
32	BBWBK5	0.000	0.000	0.000	0.000	3.600	12.000	18.000	32.000	27.200
33	BBWBK6	0.000	0.000	125.000	125.000	125.000	125.000	0.000	125.000	125.000
34	BBWBK7	0.000	0.000	0.000	35.000	70.000	70.000	70.000	35.000	50.000
35	BBWCB3	0.000	0.000	10.000	0.000	168.000	230.000	275.000	300.000	300.000
36	BBWCO1	0.000	0.000	17.500	35.000	35.000	35.000	35.000	35.000	35.000
37	BBWCO2	0.000	0.000	0.000	0.000	0.000	15.000	0.000	0.000	0.000
38	BBSC1	0.000	0.000	0.000	0.000	122.000	96.000	170.000	367.000	301.000
39	BBSC2	0.000	0.000	169.000	0.000	41.000	108.000	0.000	0.000	0.000
40	BBOP61	0.000	0.000	240.000	0.000	284.000	395.000	380.000	387.000	407.000
41	BBOP62	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	BBOP63	0.000	0.000	118.000	0.000	309.000	380.000	390.000	350.000	280.000
43	BBWSP1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
44	BBWSP2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	DBIAN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-23.333	-23.333
43	IDBIX	0.000	0.000	0.000	-1.575	-4.725	-7.875	-12.375	-15.000	-16.050
44	EXRPPS	100.800	142.900	195.060	240.900	285.500	331.400	386.770	450.600	524.900
45	GDPCDS	37982.143	34152.216	32611.142	33668.824	35735.598	38403.055	41044.861	43944.958	47064.116
DEBT SERVICE RATIOS AND IDB AND IBRD EXPOSURE										
111	BSPP6	-1094.717	-1413.829	-1835.836	-2190.495	-2503.617	-2813.850	-2889.014	-2758.584	-2787.068
101	BSMLT	-1314.828	-1629.829	-2123.836	-2640.495	-2980.617	-3368.850	-3449.014	-3324.584	-3373.068
112	BSALL	-1645.828	-1949.829	-2436.836	-2940.495	-3296.617	-3733.850	-3814.014	-3724.584	-3773.068
113	BSRPP6	25.418	27.605	27.804	34.819	34.880	36.300	34.067	30.216	28.344
104	BSRMLT	30.528	31.823	32.166	41.972	41.526	43.460	40.670	36.416	34.303
114	BSRALL	38.214	38.071	36.907	45.151	45.928	48.169	44.974	40.797	38.371
59	DBTWBK	461.504	589.216	537.137	548.101	538.596	547.236	448.185	523.678	522.663
69	ANTWBK	-156.390	-170.475	-208.429	-211.052	-232.087	-279.040	-354.345	-403.572	-441.205
79	INTWBK	-120.865	-153.208	-218.461	-241.958	-263.383	-283.722	-300.518	-303.271	-309.287
84	WBKDS									
107	DOBWBK	1816.378	2235.118	2563.826	2900.875	3207.384	3475.580	3569.420	3689.526	3770.984
29	IDBTDB	176.800	239.890	215.920	265.130	233.000	220.100	151.200	106.300	77.500
32	IDBTAN	-25.900	-41.300	-58.100	-62.200	-92.900	-106.300	-137.500	-158.733	-168.333
34	IDBTIN	-35.100	-59.000	-83.700	-101.375	-118.225	-130.275	-137.375	-135.900	-129.850
37	IDBDS	61.000	100.300	141.800	163.575	211.125	236.575	274.875	294.633	298.183
35	IDBDOB	709.300	907.890	1065.710	1268.640	1408.740	1522.540	1536.240	1483.807	1392.973
38	WRBPP	26.139	32.817	20.922	34.300	25.086	24.292	23.178	25.489	27.678
	WBDBML	22.342	29.148	19.263	29.660	22.822	21.962	20.478	22.241	23.350
	JDSP	-25.327	-22.894	-23.253	-20.681	-19.790	-20.000	-22.667	-25.623	-26.928

RMSH code for Country X	Date: 01-Jan-80										< RMSH ALT D >									
125 WBDLML	-21.087	-19.860	-20.100	-17.156	-16.623	-16.705	-18.987	-21.261	-22.250											
317 WBDLML	-16.846	-16.601	-17.518	-15.948	-15.030	-15.072	-17.170	-18.978	-19.891											
35 JDOOP	22.451	23.546	21.443	24.560	25.004	25.264	25.059	24.594	24.171											
124 WBDLML	19.065	20.194	18.857	21.454	21.972	22.314	22.194	24.594	24.171											
358 WBDLML	14.809	16.086	16.875	19.664	20.264	20.679	20.616	22.729	22.403											
353 DODALL	12265.341	13894.433	15193.297	14752.358	15828.351	16806.916	17313.793	16232.594	16832.300											
345 IDBPPG	10.014	13.361	8.410	16.592	10.852	9.770	7.819	5.174	4.104											
343 IDMLT	8.559	11.867	7.744	14.347	9.873	8.833	6.908	4.515	3.462											
339 IDOSP	-5.572	-7.094	-7.724	-7.467	-8.433	-8.408	-9.514	-10.681	-10.699											
340 IDLML	-4.639	-6.154	-6.677	-6.195	-7.083	-7.022	-7.970	-8.862	-8.840											
351 IDLAL	-3.706	-5.144	-5.819	-5.759	-6.404	-6.336	-7.207	-7.911	-7.903											
349 IDODIP	8.767	9.564	8.913	10.741	10.982	11.067	10.785	9.891	8.929											
347 IDODML	7.445	8.203	7.838	9.382	9.651	9.775	9.552	9.891	8.929											
359 IDODAL	5.783	6.534	7.014	8.600	8.900	9.059	8.873	9.141	8.276											
346 IWBPP	36.152	46.178	29.332	50.892	35.939	34.062	30.997	30.662	31.782											
344 IWBML	30.902	41.015	27.007	44.007	32.695	30.795	27.386	26.756	26.813											
341 IDWBPP	-30.899	-29.988	-30.977	-28.148	-28.223	-28.407	-32.182	-36.304	-37.626											
342 IDWML	-25.726	-26.014	-26.777	-23.351	-23.706	-23.727	-26.957	-30.123	-31.096											
352 IWBALL	-20.552	-21.745	-23.337	-21.707	-21.434	-21.408	-24.377	-26.888	-27.794											
350 IWBPP	31.218	33.111	30.357	35.301	35.987	36.332	35.845	34.485	33.100											
360 IWBDDA	20.592	22.621	23.889	28.263	29.164	29.738	29.489	31.870	30.679											
348 IWRDOD	26.510	28.396	26.695	30.837	31.623	32.089	31.746	34.485	33.100											
AS PERCENT OF EXP6S (297)																				
1 INTMLT	-14.518	-17.175	-15.742	-19.007	-17.179	-16.530	-15.640	-14.721	-14.105											
INTPRI	-9.393	-10.328	-8.625	-10.549	-9.120	-8.543	-8.063	-7.656	-7.507											
98 INTOFF	-5.125	-6.847	-7.117	-8.458	-8.060	-7.986	-7.577	-7.065	-6.598											
97 ANTMLT	-16.011	-14.648	-16.425	-22.965	-24.346	-26.931	-25.030	-21.695	-20.198											
96 ANTOFF	-9.861	-8.885	-10.062	-15.777	-17.358	-18.583	-16.232	-13.038	-11.587											
312 DSALL	-38.214	-38.071	-36.907	-45.151	-45.928	-48.169	-44.974	-40.797	-38.371											
353 DODALL	284.784	271.293	230.107	234.497	220.518	216.819	204.161	177.804	171.181											
113 DODMLT	221.211	216.114	205.920	214.929	203.368	200.939	189.645	164.320	158.662											
AS PERCENT OF EXP6NF (164)																				
353 DODALL	293.226	276.901	234.861	241.968	226.079	221.873	208.501	181.310	174.311											
312 DSALL	-39.347	-38.858	-37.669	-46.590	-47.086	-49.292	-45.930	-41.602	-39.073											
AS PERCENT OF CURRENT GDP (357)																				
353 DODALL	32.292	40.684	46.589	43.816	44.293	43.765	42.183	36.938	35.765											
100 INTMLT	-1.646	-2.576	-3.187	-3.551	-3.451	-3.336	-3.231	-3.058	-2.947											
312 DSALL	-4.333	-5.709	-7.472	-8.437	-9.225	-9.723	-9.292	-8.476	-8.017											
164 EXP6NF	11.013	14.693	19.837	18.108	19.592	19.725	20.231	20.373	20.518											
187 IMP6NF	15.528	16.010	17.144	18.548	19.151	18.955	19.024	19.237	19.566											
113 DODMLT	25.084	32.409	41.692	40.160	40.848	40.559	39.183	34.137	33.149											
265 INTSTR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000											
101 DSHLT	-3.462	-4.772	-6.513	-7.843	-8.341	-8.772	-8.403	-7.565	-7.167											
236 I	1.888	2.054	2.241	2.323	2.443	2.378	2.334	2.348	2.302											
241 GDS	1.433	1.925	2.539	2.313	2.522	2.483	2.474	2.477	2.410											
245 GNS	1.211	1.664	2.626	2.216	2.386	2.367	2.362	2.426	2.399											
209 CURBAL	-6.709	-3.929	1.329	-2.527	-2.141	-2.016	-1.654	-1.502	-1.459											







# Relevance of the Taiwan Model of Development\*

Chi-ming Hou (侯 繼 明)\*\*

## I. INTRODUCTION

It seems redundant to stress that Japan, the Republic of Korea, Hong Kong, Singapore, and the Republic of China on Taiwan have all had a phenomenal record of economic development. No one disputes their accomplishments. But what has brought about their economic success? What development strategies have they adopted? And, more importantly, can their model or models of development be duplicated by other developing countries? What can the latter learn from these four or five "dragons"? These are the questions that this conference seeks to address.

In this paper I will discuss the Taiwan model of economic development, particularly from the viewpoint of identifying what I regard as the basic ingredients of Taiwan's success. I hope that any developing country which seeks to benefit from Taiwan's experience may take a look at these basic ingredients and decide by itself whether it has or can acquire them. My own judgement is that it would be very hard to find any developing country for which Taiwan's model is totally irrelevant.

## II. GROWTH WITH EQUITY, STABILITY, AND SOLVENCY

In the past four decades Taiwan has experienced essentially what the late Professor Simon Kuznets called "modern economic growth." There can be no doubt that Taiwan's economy has been built on solid ground and has undergone fundamental structural transformation from a primarily agricultural economy to a highly industrial economy. Taiwan's economic success is not just a "flash in the pan" associated with a particular event such as the Korean War or the Vietnam War.<sup>1)</sup>

Here are the main characteristics of the long-term trends of Taiwan's development:

(1) Taiwan has enjoyed an extraordinarily rapid growth of per capita product. This is the result of high growth rates in production, coupled with moderate population

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1) The phrase is used by Ronald Findlay. See his "Trade and Development: Theory and Asian Experience" in *Asian Development Review*, 2 (2), 1984, p. 34.

growth. From 1953 to 1986, GNP grew at an average rate of 8.8%, population at 2.6%, and per capita GNP at 6.2% (Table 1).

The population growth rate has declined rather sharply, from above 3.5% in the early 1950s to below 1.5% after 1983. The rapid decline in the population growth rate has been accompanied by a decline in both the birth rate and the death rate. The birth rate has declined from about 4.5% in the early 1950s to below 2% since 1983. The death rate has declined from around 0.8% in the early 1950s to below 0.5% since 1970.<sup>2)</sup>

The GNP growth rate showed no tendency to decline for nearly three decades, from 1953 to 1978. In fact, it rose steadily during the entire period. Following a brief period of decline sparked by the worldwide oil crisis in 1980, it once again resumed its upward climb.

At 1981 prices, per capita GNP for the 1984-86 period was a little over seven times what it was in 1951-53. Expressed in U.S. dollars (at current prices), average per capita GNP in 1951-53 was only US\$169. In 1984-86, it stood at US\$3,312.<sup>3)</sup>

(2) The high GNP growth has taken place with a high degree of stability. Taiwan has not suffered any recession or depression in the past thirty-five years, except for brief slumps in 1974-75 and 1981-82 triggered by the worldwide oil crises. As a result, unemployment has never become a problem. The unemployment rate declined from about 4% in the 1950s to less than 2% in the 1970s, before rising to more than 2% in the 1980s.

Taiwan has also had a good record in maintaining price stability. For wholesale prices, the yearly rate of increase averaged 7.6% in 1953-62, 1.8% in 1963-72, and 6.7% in 1973-86. Over the period 1953-1986, there were only eight years when the rate of increase exceeded 10%. During the remaining 22 years, the rate of increase was less than 4%.

(3) The high rate of increase in per capita GNP has been primarily due to improvements in the quality, rather than the quantity, of labor and capital inputs. In other words, increased efficiency (or productivity) has been the key to Taiwan's sustained economic growth. For the period 1952-1986, GNP increased by 8.8% a year, whereas total employment increased by only 2.9%, implying an increase in labor productivity of nearly 6% a year.

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2) Council for Economic Planning and Development, Executive Yuan (CEPD), *Taiwan Statistical Data Book*, 1987, p. 5.

3) It was US\$3,784 in 1986. For 1987, it is estimatee to be US\$4,991. See Directorate-General of Budget, Accounting and Statistics (DGBAS), *National Income in Taiwan Area, the Republic of China: National Accounts for 1951-56, and Preliminary Estimates for 1987*, p. 3.

(4) There has been a rapid and profound shift in terms of the industrial structure. The share of agriculture in net domestic product (NDP) has declined continuously: from 36% in 1952 to 33% in 1960; 18% in 1970; 9.2% in 1980; and 6.6% in 1986. The share of industry (mining and quarrying, manufacturing, electricity, gas and water, and construction) rose from 18% in 1952 to 25% in 1960; 35% in 1970; 45% in 1980; and 47% in 1986. The share of services has remained relatively stable, accounting for 46% of NDP in 1952; 42% in 1960; 47% in 1970; 46% in 1980; and 46% in 1986.

It should be noted that the share of manufacturing in GDP has shown the most impressive increase, rising from 12% in 1952-54 to 37% in 1984-86. Also posting rapid increases have been the share of public utilities (water, gas & electricity), up from 0.6% in 1952-54 to 3.4% in 1984-86; and the share of transportation and communications, up from 4% to 6%.

The rapid shift in the industrial distribution of aggregate output has been accompanied by a rapid shift in the industrial distribution of the labor force. While the share of agricultural employment in total employment declined from 56% in 1952-54 to 17% in 1984-86, the share of employment in industry increased from 17% to 42%. Meanwhile, the share of employment in services gained modestly, rising from 27% to 42%.<sup>4)</sup>

(5) There has been a high degree of inter- and intra-mobility of labor with respect to industry, occupation, region, employment status, and business size. There have been virtually no barriers to entry into any occupation or industry. Also, there has been a high degree of inter-generational mobility among the population.<sup>5)</sup>

(6) The share of gross domestic capital formation in GDP rose from 15% in 1952-54 to 32% in 1978-80. The net savings rate (net savings as a proportion of national income) climbed from 4.5% in 1952-54 to 34% in 1978-80, and stood at around 33% in 1984-86. (Table 1)

(7) Foreign capital, principally American aid before its termination in 1965, played an important role in Taiwan's economic development in the 1950s. Total capital inflows constituted 41% of gross domestic capital formation (or 3.8% of GNP) in 1952-1959.<sup>6)</sup> Foreign capital continued to be important until 1962, constituting 36% of gross domestic capital formation (or 4.5% of GNP) in 1960-62. Since 1963, the inflow of foreign capital has rarely exceeded 15% of gross domestic capital formation. In fact, Taiwan began to export capital after 1970.

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4) *Taiwan Statistical Data Book, 1987*, p. 16.

5) Chi-ming Hou, "Manpower and Development in Taiwan," *Industry of Free China*, August 1978, pp. 2-18 and September 1978, pp. 8-22.

6) *Taiwan Statistical Data Book, 1987*, p. 55.

Table 1. Taiwan's Economic Indicators

Year	Population	GNP	Per Capita GNP	Agricultural Production	Industrial Production	Wholesale Prices
Annual Growth Rate (%)						
1953	3.8	9.3	5.8	9.5	25.1	8.8
1954	3.7	9.6	5.8	2.1	5.8	2.4
1955	3.8	8.1	4.1	0.5	13.1	14.1
1956	3.4	5.5	1.8	7.7	3.5	12.7
1957	3.2	7.3	4.0	7.1	12.8	7.2
1958	3.6	6.6	3.2	6.7	8.6	1.4
1959	3.9	7.7	4.3	1.7	11.7	10.3
1960	3.5	6.5	3.1	1.4	14.1	14.2
1961	3.3	6.8	3.5	8.9	15.7	3.2
1962	3.3	7.8	4.7	2.6	7.9	3.0
1963	3.2	9.4	6.2	0.2	9.1	6.5
1964	3.1	12.3	9.1	11.9	21.2	2.5
1965	3.0	11.0	7.9	6.6	16.2	-4.6
1966	2.9	9.0	6.1	3.2	15.6	1.5
1967	2.3	10.6	7.9	6.3	16.7	2.5
1968	2.7	9.1	6.5	6.9	22.3	3.0
1969	5.0	9.0	6.6	-2.0	19.8	-0.3
1970	2.4	11.3	9.0	5.4	20.1	2.7
1971	2.2	12.9	10.6	0.5	23.6	—
1972	2.0	13.3	11.2	2.2	21.2	4.4
1973	1.8	12.8	10.7	2.7	16.2	22.9
1974	1.8	1.1	-0.7	1.9	-4.5	40.6
1975	1.9	4.3	2.4	-1.2	9.5	-5.1
1976	2.2	13.5	11.2	10.0	23.3	2.8
1977	1.8	10.1	7.9	4.1	13.3	2.8
1978	1.9	13.9	11.8	-1.8	22.5	3.5
1979	2.0	8.5	6.4	5.2	6.4	13.8
1980	1.9	7.1	5.1	—	6.8	21.5
1981	1.9	5.7	3.8	-0.7	3.5	7.6
1982	1.8	3.3	1.5	1.0	-0.6	-0.2
1983	1.5	7.9	6.1	1.6	14.1	-1.2
1984	1.5	10.5	8.9	1.9	12.2	0.5
1985	1.3	5.1	3.6	2.0	1.4	-2.6
1986	1.0	10.8	9.5	-1.6	14.9	-3.4
1987 Average	1.0	11.0	4.4	6.1	12.4	-1.3
1953—1962	3.5	7.5	4.0	4.8	11.7	7.6
1963—1972	2.9	10.8	8.1	4.0	18.3	1.8
1973—1982	1.9	8.0	6.0	2.1	9.6	11.0
1953—1986	2.6	8.8	6.2	3.4	13.0	6.0

Table 1. Taiwan's Economic Indicators (Continued)

Year	Exports* Annual Growth Rate (%)	Employment Annual Growth Rate (%)	Unemployment Rate** (%)	Net Savings Ratio (%)	Gross Savings Ratio (%)	Gross Capital Formation Ratio (%)
1953	—	1.2	4.20	5.0	8.9	14.1
1954	-28.55	2.1	4.00	3.3	7.7	16.1
1955	15.86	2.7	3.81	4.9	9.0	13.4
1956	35.67	1.3	3.64	4.8	9.2	16.1
1957	16.89	2.5	3.73	5.9	10.6	15.9
1958	3.64	3.4	3.80	5.0	9.9	16.7
1959	34.06	2.5	3.88	5.0	10.3	18.9
1960	-8.43	1.5	3.98	7.6	12.7	20.3
1961	26.85	0.9	4.10	8.0	12.8	20.1
1962	8.50	1.0	4.17	7.6	12.4	17.9
1963	42.85	1.4	4.26	13.4	17.1	18.4
1964	27.54	1.8	4.34	16.3	19.6	18.8
1965	8.64	2.9	3.29	16.5	19.6	22.8
1966	17.53	2.5	3.02	19.0	21.5	21.3
1967	16.52	5.0	2.29	20.1	22.5	24.7
1968	19.62	4.3	1.72	19.8	22.1	25.2
1969	33.31	3.9	1.88	22.1	23.8	24.6
1970	37.43	4.2	1.70	23.8	25.5	25.6
1971	39.05	3.5	1.66	27.6	28.8	26.4
1972	38.87	4.4	1.49	31.6	32.1	25.8
1973	16.24	7.7	1.26	35.0	34.6	29.3
1974	-10.95	3.0	1.53	31.5	31.7	39.5
1975	-0.70	0.6	2.40	25.3	26.9	30.6
1976	49.71	2.7	1.78	32.2	32.5	30.8
1977	11.53	5.5	1.76	32.3	32.9	28.4
1978	27.39	4.1	1.67	34.9	34.9	28.6
1979	8.62	3.1	1.28	34.7	34.5	33.3
1980	1.15	1.9	1.24	32.7	33.0	34.3
1981	8.31	1.9	1.36	30.4	32.0	30.3
1982	4.29	2.1	2.14	27.7	30.4	25.2
1983	17.72	3.8	2.71	29.9	32.1	23.0
1984	19.25	3.4	2.44	31.7	33.7	21.5
1985	4.21	1.6	2.90	30.7	33.5	17.9
1986	26.40	4.1	2.67	36.1	37.8	16.7
<b>1987</b>						
Average						
1953—1962	11.61	1.9	3.90	5.7	10.4	17.0
1963—1972	28.14	3.4	2.60	21.0	23.3	23.4
1973—1982	11.56	3.3	1.60	31.7	32.3	31.0
1953—1986	17.24	2.9	2.70	20.5	23.0	23.1

Source: *Taiwan Statistical Data Book, 1987.*

\* Value of Exports adjusted by wholesale price index

\*\* Unemployed as proportion of labor force.

Table 2. Industrial Origin of Net Domestic Product, 1962-1985

Unit: %

Year	Total	Agriculture	Industry					Services
			Subtotal	Mining	Manu- facturing	Public utilities	Construction	
1952	100	35.9	18.0	2.1	10.9	0.6	4.4	46.1
1953	100	38.3	17.7	1.7	11.3	0.7	4.0	44.0
1954	100	31.7	22.2	1.9	14.5	0.5	5.3	46.1
1955	100	32.9	21.1	1.7	13.8	0.7	4.9	46.0
1956	100	31.6	22.4	2.2	14.5	0.8	4.9	46.0
1957	100	31.7	23.9	2.6	15.7	1.0	4.6	44.4
1958	100	31.0	23.9	2.9	15.5	1.2	4.3	45.1
1959	100	30.4	25.7	2.5	17.7	1.1	4.4	43.9
1960	100	32.8	24.9	2.3	16.8	1.3	4.5	42.3
1961	100	31.4	25.0	2.1	17.0	1.5	4.4	43.6
1962	100	29.2	25.7	2.4	17.0	1.8	4.5	45.1
1963	100	26.7	28.2	2.1	19.7	1.7	4.7	45.1
1964	100	28.2	28.9	1.8	20.9	1.8	4.4	42.9
1965	100	27.3	28.6	1.9	20.1	1.9	4.7	44.1
1966	100	26.2	28.8	2.0	20.3	1.8	4.7	45.0
1967	100	23.8	30.8	2.0	22.2	1.7	4.9	45.4
1968	100	22.0	32.5	1.7	24.1	1.7	4.0	45.5
1969	100	18.8	34.6	1.4	26.3	1.9	5.0	46.6
1970	100	17.9	34.7	1.5	26.4	2.2	4.6	47.4
1971	100	14.9	36.9	1.4	28.9	2.1	4.5	48.2
1972	100	14.1	40.4	1.3	32.4	2.1	4.6	45.5
1973	100	14.1	43.8	1.1	36.3	1.7	4.7	42.1
1974	100	14.5	41.2	1.3	32.7	2.0	5.2	44.3
1975	100	14.9	39.2	1.3	29.3	2.4	6.2	45.9
1976	100	13.4	42.7	1.4	32.5	2.1	6.7	43.9
1977	100	12.5	43.5	1.2	32.8	2.4	7.1	44.0
1978	100	11.2	45.1	1.1	34.3	2.5	7.2	43.7
1979	100	10.3	45.3	1.0	34.8	2.1	7.4	44.4
1980	100	9.2	45.0	1.1	34.2	2.3	7.4	45.8
1981	100	8.7	44.6	1.0	33.9	3.1	6.6	46.7
1982	100	9.2	43.0	0.9	33.4	2.9	5.8	47.8
1983	100	8.8	43.7	0.8	34.0	3.4	5.5	47.5
1984	100	7.6	45.4	0.7	36.2	3.4	5.1	47.0
1985	100	7.0	44.8	0.6	36.1	3.3	4.8	48.2

Source: *Taiwan Statistical Data Book, 1986*, p. 39.

(8) Foreign trade has increased by leaps and bounds. The share of merchandise exports and imports in net domestic product rose rapidly from an average of 25% in 1952-54 to an astonishing 116% in 1977-79 and 111% in 1983-85.<sup>7)</sup>

(9) The share of compensation received by employees in national income has increased continuously and significantly, from 43% in 1952-54 to 62% in 1983-85.<sup>8)</sup> Since the rate of increase in physical capital was higher than that of labor, the increasing share of employee compensation implies a decline in the rate of return on capital relative to the return on labor.

(10) The size distribution of income has tended toward greater equality, that is, the share of the upper income groups in total national income has declined. The share of the top quintile declined from 41% in 1964 to 37.4% in 1982-84. The ratio of income of the top quintile to that of the bottom declined from 5.33 in 1964 to 4.42 in 1983-85.<sup>9)</sup> The Gini concentration coefficient declined from 0.362 in 1968 to 0.306 in 1978, and then gradually went up to 0.317 in 1985.<sup>10)</sup>

The preceding description of the characteristics of Taiwan's economic growth should make it clear that Taiwan has experienced "modern economic growth" common to developed countries in the process of development in the last two centuries.

But Taiwan is rather unusual in several respects. First, Taiwan's rate of growth has been exceptionally high. As for the past performances (as measured by per capita product) of the developed countries, annual growth rates of 1.5% (for the U.K., 1780-1959), 2% (for European countries, 1850-1960), 1.7% (for the U.S. 1839-1962), and 2.64% (for Japan, 1861-1962) were regarded as very high by Kuznets.<sup>11)</sup> Secondly, the time span needed in Taiwan for structural transformation has been much shorter. In the case of the developed countries it often took one or two hundred years. Thirdly, in Taiwan the degree of inequality in the income distribution did not increase, as was usually the case with the developed countries in the early stage of development. Instead, it was continuously and significantly reduced within a short period of time.

Even for the post-1945 period it is hard to find any country whose overall economic record can compare with Taiwan's. It is true that, in terms of the growth rate of per capita product in 1960-79, Japan (9.4%), South Korea (7.1%), Singapore (7.4%), and Hong Kong (7.0%)<sup>12)</sup> had all done well as compared with Taiwan. But none of these

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7) *Ibid.*, pp. 208, 40.

8) *Ibid.*, p. 39.

9) *Ibid.*, pp. 61-62.

10) DGBAS, *Report on the Survey of Personal Income Distribution in the Taiwan Area, Republic of China, 1985*, p. 30.

11) Simon Kuznets, *Modern Economic Growth: Rate, Structure, and Spread* (New Haven: Yale University Press, 1966), pp. 64-65.

12) The World Bank, *World Development Report 1981*, pp. 134-35.

countries had an income distribution as egalitarian as Taiwan's, as demonstrated by the following Gini coefficients of inequality of income distribution for 1970: Taiwan, 0.293; Korea, 0.332; and Japan, 0.420.<sup>13)</sup> For 1986, they were 0.32 for Taiwan and 0.40 for Korea.

There is no question that the fruits of economic progress in Taiwan have truly been enjoyed by people in all walks of life. The following statistics, tabulated in 1983, give ample evidence of this: one color TV set per 1.1 households; one refrigerator per household; one washing machine per 1.4 households; one air-conditioner per 6.7 households; one piano per 18.1 households; one newspaper per 1.7 households; one magazine per 8.8 households; one telephone per 1.4 households; one motorcycle per household; and one automobile per 13.2 households. As for food consumption, almost everybody is on a diet! As for financial solvency, total foreign public debt outstanding was 12% of GNP in 1979. By now foreign exchange reserves amount to more than US\$70 billion, more than 70% of GNP (1987).

Thus taking all the criteria together (growth rate, income distribution, stability and solvency), it may be said that no other country has achieved a better economic record than Taiwan.

### III. AN EXPORT EXPANSION STRATEGY

How did Taiwan achieve this phenomenal performance, which is often referred to as an "economic miracle?" It will probably take a long time before economists can sort out and agree upon, if at all, the complicated "causes and effects" of economic change in Taiwan. In my view, however, the early adoption of an export expansion strategy by the government was the most important factor contributing to Taiwan's success. This is not to say that other policies or factors were not important. On the contrary, government policies which were designed to improve, or had an effect in improving, the factor endowments were essential in making the export expansion strategy effective. What is suggested here is that it was this export expansion strategy which, by unleashing the power of the potential productive resources—especially labor—made the accelerated modern economic growth in Taiwan possible.

Here I use the term export-expansion rather than outward-orientation or outward-looking simply because an import-substitution strategy, which is inward-oriented or inward-looking, was also adopted along with export expansion in Taiwan. In fact, import-substitution was adopted even earlier than export-expansion and has never been dismantled. Thus over the years Taiwan has had in fact a mixed orientation

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13) Tibor Scitovsky, "Economic Development in Taiwan and South Korea 1965-1981" in Lawrence J. Lau, ed., *Models of Development* (San Francisco: ICS Press, 1986), p. 139.



development strategy, though outward-orientation has gained more and more importance in the past several years.

#### IV. IMPORT SUBSTITUTION

Like many other countries, Taiwan began to adopt a policy of import substitution in the early 1950s. When Taiwan was recovered from Japan in 1945 the economy was in shambles. Three-quarters of the industrial capacity had been destroyed by wartime bombing; ports, power stations, and communications were heavily damaged. The illiteracy rate (of the population aged 6 years or older) was high, standing at 55% in 1946. The Japanese managerial class had completely gone. The million-and-a-half migrants from the mainland (1945-1949), though consisting of many talented managers and entrepreneurs, needed time to get adjusted and rooted to the new environment. Food and industrial foods were scarce. The government had a huge budgetary deficit. Inflation was rampant. (From 1948 to 1949, a single year, wholesale prices increased thirty-five fold.) The trade deficit was considerable (with exports covering 75% of imports in 1950) and there was a severe foreign-exchange shortage. The small manufacturing sector was devoted basically to the production of consumer goods for the home market, such as textiles, plywood, and shoes.

In June 1949 a monetary reform was carried out with the use of a new currency known as the New Taiwan Yuan (NT\$). At the same time, the government adopted strong import-substitution policies in order to save foreign exchange and to encourage the development of domestic industries, especially those related to national defense and daily necessities.

Strict import licensing was put into effect, requiring importers to deposit in advance 100% of the domestic currency equivalent of the needed foreign exchange. The exchange-rate system was changed from that of a single rate to one of multiple rates, with different rates applied to different types of imports. A tax in the form of a higher exchange rate was applied to imports other than the basic raw materials and industrial products financed from U.S. aid and products imported by government enterprises at controlled prices. Nearly half of the importable commodities were under strict quota restrictions.

Tariff rates were high. For example, in 1955 tariff rates as high as 151-165% were applicable to 41 items, or nearly 4% of all items which were allowed to be imported. Ad valorem duties higher than 45% were levied on nearly a third of all the importable items, while tariffs of 15% or less<sup>14)</sup> were imposed on only 16% of all

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14) Based on a study by Wen-lang Chen, Chaw-hsia Tu, and Wen-thuen Wang of the Chung-Hua Institution for Economic Research.

importable items.

Probably all of this did have an effect on domestic production. Manufacturing production doubled from 1952 to 1958. (It went up by 33% in 1953.) But the home market was soon saturated. By 1959, capacity utilization rates in a broad spectrum of industries had fallen to very low levels, as shown below.<sup>15)</sup>

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	(%)
Rubber canvas shoes	23.3
Electric fans	38.1
Soap	39.2
Insulated wire	42.0
Plywood	46.9
Synthetic fabrics	49.7
Woolen yarn	52.6
Sewing machines	64.3
Iron rods & bars	65.4
Paper	67.4

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In view of this situation, the government took steps to encourage exports as early as 1955 (as will be discussed shortly).

Nevertheless, import-substitution as a key economic policy was not discontinued. Import controls and protective tariff rates remained in effect, though in a modified way. Multiple exchange rates were abolished in 1958 and a single exchange rate system was introduced in 1960 when the government devalued the over-valued currency, which had the effect of discouraging imports. In 1960, the government promulgated the "Statute for the Encouragement of Investment," designed to improve investment in both export and domestic production. Selected productive enterprises were granted tax relief for a period of five years. Income-tax credits were also granted to stockholders in those enterprises which ploughed back profits into the expansion of plant and equipment.

In the 1970s the government began to actively promote the development of capital-intensive heavy and chemical industries and, later, technology-intensive industries. This stage is sometimes referred to as the "second-stage of import substitution," as distinguished from the "first-stage of import-substitution," which took place in the 1950s and

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15) Kuo-shu Liang and Ching-ing Hou Liang, "Trade and Incentive Policies in Taiwan" and Kwoh-ting Li and Wan-an Yeh, "Economic Planning in the Republic of China" in Kwoh-ting Li and Tzong-shian Yu, eds., *Experiences and Lessons of Economic Development in Taiwan* (Taipei: Academia Sinica, 1982). Also, S. C. Tsiang, "Taiwan's Economic Miracle: Lessons in Economic Development" in Arnold Harberger, ed., *World Economic Growth* (Taipei edition, 1984).

mainly involved the development of labor-intensive and light, or consumer-goods, industries.

The policy instruments for the second-stage of import substitution were essentially the same as those in the first stage: tax relief, low interest-rate loans, and tariff and non-tariff barriers.

For example, in spite of sharp reductions in tariff rates since 1955, tariff rates remained very high. In 1974 the average nominal tariff rate for all importable items was 55.65%. This rate was reduced in 1986 to 31.8% for Column I countries and to 22.83% for Column II countries. (Column I countries do not grant preferential tariffs to the ROC, whereas Column II countries do.) In 1973 (August), tariff rates of 15% or less were applicable to only 12% of all importable goods, and tariff rates higher than 45% were applicable to 44% of all importable goods. In 1986 (February), tariff rates of 15% or less were applicable to 23% of all importable goods from Column I countries and to 38% of all importable goods from Column II countries. Tariff rates higher than 45% were applicable to 22% of all importable goods from Column I countries and to 10% of all importable goods from Column II countries.

The average "effective real tariff rate" (that is, total tariff revenue as a percentage of the total value of imports) also appeared high in comparison with rates in some other countries, as shown below:<sup>16)</sup>

	1972	1983	1986
Taiwan	12.12	7.60	7.67
Singapore	5.77	1.83	
South Korea	5.87	8.63	5.78 (1985)
U.S.A.	5.95	3.24	
Japan	5.02	2.21	
Brazil	15.15	7.52	
Mexico	22.35	19.14	

## V. MEASURES FOR EXPORT EXPANSION

In July 1955, the government promulgated Regulations for the Rebate of Taxes on Export Products, which probably marked the beginning of the adoption of an export-expansion strategy. The Regulations provided for the rebate of import duty, defense surtax, and commodity tax in order to encourage the processing of imported materials for export. Another big push for export expansion was made in April 1958, when the

<sup>16)</sup> See footnote 14.

Program for the Improvement of Foreign-Exchange and Trade Control was promulgated.

This program, together with subsequent regulations, promoted export expansion in the following ways:

(1) There was a significant devaluation of the currency. At the same time a dual exchange rate was adopted, with one rate as the basic official exchange rate and the other applied to export proceeds and inward remittances. A single exchange-rate regime was adopted in place of the earlier dual-rate system in June 1961.

(2) Tariffs were reduced and strict import controls were eased, especially for imports of materials and equipment to be used in the production of exports.

(3) The scheme of export incentives was expanded to include not only rebates of customs duties on imported raw materials but also exemption from business and related stamp taxes; a lower taxable income base; special low-interest loans; direct subsidies; and government-financed export-promotion facilities and market research.

(4) Tax-and duty-free export-processing zones were created (one in Kaohsiung in 1966 and one each in Nantze and Taichung in 1969), which were designed, by and large, for the purpose of attracting foreign investment. As it turned out, a great deal of foreign capital did come in, primarily directed toward export-oriented activities.

A word may be added here on exchange-rate policy. Prior to 1955 the New Taiwan dollar was grossly overvalued. The basic exchange rate of NT\$15.55 to US\$1 had been in force since 1953. In 1955 the government allowed exporters a higher exchange rate (through the device of "exchange surrender certificates," which were given to exporters and could be sold freely on the market to importers). In 1961, a single uniform exchange rate was introduced at NT\$40 to US\$1. This rate remained unchanged until 1973.

According to a calculation by Kuo-shu Liang and Ching-ing Hou Liang, the official exchange rate was quite favorable to exports during the years 1956-60, 1969-73, and 1975-80. It was only slightly unfavorable in two years, 1964 and 1974.<sup>17)</sup>

After 1980, the NT dollar continued to be undervalued. For example, from the fourth quarter of 1980 to the fourth quarter of 1985, the NT dollar was undervalued in relation to the US dollar by as much as 26%. (The extent of the undervaluation is calculated on the basis of nominal exchange rates, adjusted for relative changes in the price levels of the two countries.)

The export-promotion policies have had a profound effect on Taiwan's exports. Export trade, which had grown by 11.6% a year in 1953-62, rose at a rate of 28% a

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17) Kuo-shu Liang and Ching-ing Hou Liang, pp. 224-229.

year in 1963-72. In 1952, the total value of merchandise exports was US\$116 million. By 1980, it had risen to US\$19,811 million. (It was US\$30,723 million in 1985 and US\$39,785.4 million in 1986.)

The ratio of exports of goods and services to GDP rose from 8.0% in 1954-56 to 20% in 1964-66, 43.4% in 1974-76, and 58% in 1984-86 (60.3% in 1986).<sup>18)</sup> Thus, it is clear that the rate of growth of exports exceeded that of the rest of the economy by a wide margin.

## VI. EXPORT-LED GROWTH

There can be no doubt that export expansion has been the engine of economic growth in Taiwan. Based on input-output data, it is estimated that the proportion of total output expansion due to export expansion rose from 22.5% in 1956-61; to 35% in 1961-66; 45.9% in 1966-71; and 67.7% in 1971-76.<sup>19)</sup>

The export-expansion strategy was clearly catalytic and instrumental in Taiwan's success. It is not just that export expansion overwhelmed import substitution. The real significance of export-expansion policies is that they freed the economy in large measure from government control and allowed market forces to function. The full energies of the people were thus unleashed to exploit the world market.

Since the export-promotion policies were by and large directed at all industries without special favor to any particularly selected or targeted industries, entrepreneurs were essentially left alone to develop those industries whose products they could sell profitably in foreign markets. As one would expect, they did invest in those industries predicted as profitable according to the theory of comparative advantage. Taiwan's exports have primarily consisted of labor-intensive products.

But as labor became more expensive relative to capital, capital intensity (as measured by the capital-labor ratio) in the export sector gradually deepened. The ratio of industrial exports to total exports has gradually gone up. In the early 1950s, Taiwan's exports consisted primarily of agricultural and processed agricultural products, with industrial products accounting for less than 10% of total exports. After 1955, the share of industrial products rose by leaps and bounds. It went up to 50% in 1962 and to 80% in 1971. It rose to 90% in 1980 and to 94% in 1985.

In 1952, sugar and rice were the leading exports. By 1966, textile products had become the leading exports, but bananas, canned food and sugar were still more important than any other products. In 1976, textile products remained the leading

18) *Taiwan Statistical Data Book, 1987*, p. 43.

19) Shirley W. Y. Kuo, "Economic Development in the Republic of China" in *Symposium on the History of the Republic of China* (Taipei: China Cultural Service, 1981), Vol. V, p. 130.

exports, followed by electrical machinery and apparatus, and plastic articles. By 1986, electrical machinery and apparatus became the leading exports. Furthermore, the combined total of plastic articles, metal manufactures, machinery, and chemicals exceeded that of textile products.

All this indicates that export expansion has brought about structural change and industrial upgrading. Taiwan's economy has not remained idle and changeless at a particular labor-intensive level.

A particular feature of export expansion in Taiwan is that small and medium enterprises (roughly with employees of less than 100) have played an important role in developing foreign markets. For the period from 1978 to 1985, export earnings of small and medium enterprises constituted about 65% of total export earnings in Taiwan.<sup>20)</sup> The ratio was probably much higher in the early years. Furthermore, these small and medium enterprises depend very heavily on foreign markets. More than 70% of their total sales came from exports in 1981-1985, and their dependency on exports has increased steadily since 1972. In 1972-75 about 51% of their total earnings came from exports.<sup>21)</sup>

The fact that Taiwan's exports have consisted primarily of labor-intensive products and that most of the export trade has been done by small and medium enterprises has enormous implications.

First, this pattern of export expansion has created a great number of jobs. According to one estimate, the proportion of the total increase in employment which is attributable to the increase in the production of exports went up from 20% in 1961-66 to 22% in 1966-71, and to 27% in 1971-76. The export sector's share of total employment went up from 12% in 1961 to 34% in 1976.<sup>22)</sup> Another estimate indicates that employment generated directly and indirectly by exports accounted for 56% of total employment in manufacturing (excluding beverages and tobacco) in 1966, and for 54% in 1971.<sup>23)</sup> Thus there is little doubt that export expansion has been the key factor contributing to employment growth and the full employment which has been maintained almost continuously for the last three decades.

Secondly, export expansion has reduced income inequality. Employment expansion has reduced the share of farm employment in total employment and hence the degree of income inequality between the agricultural sector and the non-agricultural sector. But more importantly, the expansion of labor-intensive industries has meant a relatively

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20) Hui-lin Wu and Tein-chen Chou, "Small and Medium Enterprises and Economic Development in Taiwan" in *Conference on Economic Development in the Republic of China on Taiwan*, p. 169.

21) *Ibid.*, p. 170.

22) Shirley W. Y. Kuo, pp. 134, 137.

23) Kuo-shu Liang and Ching-ing Hou Liang, p. 239.

greater increase in demand for unskilled and low-income workers both in the agricultural and non-agricultural sectors. Based on data in the Industrial and Commercial Census, it may be calculated that, in 1961, 54% of all non-agricultural workers and employees were employed in industries with an average wage equal to or less than 75% of the average wage of all non-agricultural workers and employees. The percentage was reduced to 32% in 1966 and 18% in 1971. Using 50% of the average wage of all non-agricultural workers as the dividing line for low-income workers, 25% of all non-agricultural workers were employed in low productivity industries in 1961, 2% in 1966, and 0.1% in 1971.<sup>24)</sup>

Evidently the rapid development of labor-intensive industries provided opportunities for new entrants into the labor force who would otherwise have been absorbed primarily in agriculture and other low-wage industries, thus deepening the level of poverty. The newly developed industries not only absorbed new entrants and migrated workers from low-pay industries, but also created demand for unskilled workers as various linkage effects permeated the entire economy. This increase in demand, when coupled with an improvement in the worker's knowledge and skills because of better education, must have contributed to the increase in labor productivity and wages in low-wage industries.

Thirdly, export expansion has contributed to the high savings ratio. A recent study suggests that the savings ratio in Taiwan is positively and significantly related to the exports ratio, which is the ratio of exports to the sum of exports and domestic consumption expenditures.<sup>25)</sup> It stands to reason that when the exports ratio goes up, profits from exports will go up. It is likely that the propensity to save of the proprietors of small and medium enterprises is very high, as these enterprises are basically family businesses. But all this remains to be studied.

## VII. COMPLEMENTARY POLICIES

The measures for export-expansion as described above undoubtedly paved the way for Taiwan to mobilize its resources to exploit the rapidly-growing world market from about 1950 to the mid-1970s. But external demand alone does not necessarily guarantee an increase in exports; there also has to be a change in domestic supply. Fortunately, several key government policies were adopted which improved domestic supply.

(1) First, the government adopted strong policies to promote agricultural development. A land reform program was carried out in 1949-1953. It consisted of: (a) a reduction in rent to no more than 37.5% of the yield of the main crop; (b) the sale

<sup>24)</sup> Chi-ming Hou and Ching-hsi Chang, "Education and Economic Growth in Taiwan: The Mechanism of Adjustment" in Kwok-ting Li and Tzong-shian Yu, *op. cit.*, p. 359.

<sup>25)</sup> A study on savings in Taiwan by Chi Chou of the Chung-Hua Institution for Economic Research.

of public land at low prices principally to tenant cultivators, farm laborers, and part-owner farmers; and (c) the land-to-the-tiller program. The latter limited the amount of land to 2.9 hectares per family; any excess amount had to be sold to the government. The government then sold such land to tenant farmers.

The precise impact of land reform on agricultural production is difficult to ascertain, but available evidence seems to suggest that it increased the farmers' incentive to work, adopt new technology, save, and invest in land.<sup>26)</sup>

In addition to land reform, the government played a crucial role in introducing new crops, improving irrigation and drainage, and strengthening and coordinating rural organizations which were essential in disseminating new technology. For example, the Farmers' Associations, which provided services in extension, credit, and marketing, were the key link between the farmers and the government. Other important rural organizations included the Irrigation Associations, which handled the utilization of water resources and the planning and implementing of new irrigation projects; the Fishermen's Associations; and the Fruit-marketing Cooperatives. The Joint Commission on Rural Reconstruction, which was established on October 1, 1948, as a joint Sino-American organization and was aided by American funds and technical know-how, was instrumental in carrying out the government's agricultural policy.

The impressive increase in agricultural production, averaging 10.2% a year in 1946-1951, 4.6% a year in 1951-60, and 5.0% a year in 1961-1970, made enormous contributions to industrial development and export expansion.<sup>27)</sup> It kept food prices relatively low, and hence made it possible for the industrial sector to enjoy an abundant labor supply at a relatively low wage rate. It also provided an important source of foreign exchange, as agricultural exports financed more than one-half of all imports in 1951-1964. Furthermore, by compulsory purchases, land taxes in kind, and the rice-fertilizer barter system, the government was able to transfer a considerable amount of capital (the so-called "agricultural surplus") from the agricultural sector to the industrial sector. All rice collections were obtained at government purchasing prices which were much lower than market prices, whereas chemical fertilizers were supplied to farmers at above world prices by a government-owned enterprise. The government collected as much as 73% of the rice marketed in 1954, and about 50% in 1966-68.<sup>28)</sup>

26) Yu-kang Mao "Land Reform and Agricultural Development in Taiwan" in Chi-ming Hou and Tzong-shian Yu, eds., *Agricultural Development in China, Japan and Korea* (Taipei: Academia Sinica, 1982, 2 volumes, distributed by University of Washington Press).

27) Yu-kang Mao, "Role of Agriculture in the Economic Development of Taiwan, Republic of China" in *Conference on Economic Development in the Republic of China on Taiwan* (Taipei: Chung-Hua Institution for Economic Research, 1987), p. 387.

28) Erik Thorbecke, "Agricultural Development" in Walter Galenson, ed., *Economic Growth and Structural Change in Taiwan: The Postwar Experience of the Republic of China* (Ithaca: Cornell University Press, 1979), p. 130.



It is estimated that, in net terms, the proportion of total agricultural production which was transferred to the rest of the economy was as high as 22% in 1950-55 and around 15% in 1956-1969.<sup>29)</sup>

(2) Secondly, the government adopted policies to encourage saving, which made the high capital formation rates possible. Aside from emphasizing the Confucian virtue of thriftiness in general, the government adopted two policies which aimed at increasing saving, namely a relatively realistic or reasonable interest rate policy and a tax-incentive policy.

A realistic interest-rate policy was adopted way back in the early 1950s as a weapon to combat inflation, and it succeeded. The rationale was that a reasonable interest rate (that is, a positive inflation-adjusted interest rate) was necessary to attract savings. Thus, in March 1950 a special system of savings deposits was introduced which offered a nominal interest rate of 7% per month, or 125% a year. The inflation rate (as measured by wholesale prices) was as high as 10.3% per month during the first quarter of 1950. The public responded promptly; total time and savings deposits jumped sharply, and inflation was brought to a halt. As S. C. Tsiang has demonstrated very convincingly, the flow of savings into the banking system was very sensitive to interest-rate.<sup>30)</sup>

A relatively high real interest rate has, for the most part, been maintained. From the middle of 1951 to 1986, the nominal interest-rate on one-year time deposits was below the inflation rate only in 1973-74 and in 1979-80, when there were drastic increases in prices as a result of the oil crises. For most years in this period the real interest-rate was between 7% and 10%.<sup>31)</sup>

The interest rates described above pertain to the formal financial sector; that is, the banking system, which primarily consists of government-owned banks and has been under the government's direct control. Lending and borrowing outside the banking system have been and still are very substantial. It is estimated that, for the period 1964-85, no less than 37% of the borrowings of medium and small businesses came from the "black" or "gray" credit markets,<sup>32)</sup> and the interest rates in these markets, known as the "curb market interest rates," have been much higher (often by more than 100%) than the bank interest rates.

The high curb market rates, which were basically free from government control, seem to indicate that the bank rates, high as they were, were probably below the

29) Estimated by T. H. Lee as cited in *Ibid.*, p. 203.

30) S. C. Tsiang, "Monetary Policy of Taiwan" in Kwoh-ting Li and Tzong-shian Yu, *op. cit.*, p. 171.

31) *Industry of Free China*, various issues. The wholesale price index was used as a deflator.

32) Jia-dong Shea, Jin-tung Lee, and Wei-lin Mao, "Monetary and Fiscal Policies for Economic Development" in *Conference on Economic Development in the Republic of China on Taiwan*, p. 202.

natural rate that would clear the market. But the official interest-rate policy has to be commended. Many a developing country often adopts policies that result in interest rates which are substantially lower than what market forces would determine and which therefore badly distort the allocation of resources.

A detailed and in-depth study on the relationship between interest rates and savings in Taiwan has yet to be done. It is reasonable to assume that the government interest-rate policy must have been an important factor contributing to the high saving rate in Taiwan.

With respect to the use of tax policy to encourage saving, before 1981 the government allowed tax exemptions on interest income earned from deposits with a maturity of longer than two years. Since 1981, personal interest income of up to NT\$360,000 per year has been exempt from income tax. It is estimated that 90% of the taxpayers have taken advantage of such an exemption.<sup>33)</sup> As for interest income from the curb market, no tax is paid at all. It is generally believed that tax exemption or evasion of tax on interest-income is an important factor favoring the high savings rate in Taiwan.

Our discussion has so far focused on personal or household savings, which have accounted for nearly 60% of total savings since 1960. Government savings, including savings of government-owned enterprises, have constituted 30-40% of the total, and private corporate savings less than 10% since 1960.

Thirdly, the strong educational policy the government adopted greatly improved the quality of the labor force and hence contributed to industrial development. In 1952, 42% of the population aged six or older were illiterate. The proportion had dropped to 15% by 1970 and to 8.4% by 1985. The proportion of the population six years of age or older with a secondary education was about 9% before 1957. It rose to 27% in 1970 and to 42% in 1985. The proportion of the population at or above the age of six with a higher education was 1.4% in 1952. It had risen to 9.4% by 1986.<sup>34)</sup>

The cognitive and affective skills developed by education have contributed to improvement in labor productivity, have increased the labor force participation rate of women, and have facilitated labor mobility. All this has helped alter factor endowments in favor of industrial development.<sup>35)</sup>

Government policy has been important in educational improvement. Aside from its decisive role in shaping the entire educational system, the government has also devoted substantial amounts of money to education. Public expenditure on education

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33) Ming-yih Liang, "The Role of Savings in Economic Development," in *Ibid.*, p. 127.

34) *Taiwan Statistical Data Book, 1987*, p. 7.

35) Chi-ming Hou and Ching-hsi Chang, pp. 337-389.

rose from 1.7% of GNP in 1951-53 to 4.3% in 1977-79, and to 5.1% in 1986.<sup>36)</sup>

## VIII. TRADE SURPLUS

Our analysis of the development strategy of Taiwan—a strategy of simultaneously adopting import substitution and export expansion—might leave one with the impression that everything has gone well. That is, however, not the case. In our view the export-expansion policy has gone overboard, and the import-substitution policy has proved to be harmful. The most obvious evidence of this is the huge trade surplus which Taiwan has experienced in the past several years.<sup>37)</sup>

Prior to 1971, Taiwan had a trade deficit (with respect to merchandise trade) every year except 1965. Beginning with 1971, Taiwan has had a trade surplus every year except 1974 and 1975, when there were sharp price increases for oil which Taiwan had to import. But before 1981, the trade surplus as a proportion of GNP (the trade surplus ratio) was not too large, reaching 8% only in 1972 and 1978. For other years it was around 4% or 5%. After 1980, the trade surplus rose by leaps and bounds. The trade surplus ratio reached 21.5% in 1986. Since the surplus in merchandise trade was not offset by deficits in services trade and items in the capital account, foreign exchange reserves piled up sharply. They amounted to only US\$0.9 billion in 1972, but by the end of 1986 they had gone up to US\$46.3 billion, or 61% of GNP.

The huge size of the trade surplus and foreign exchange reserves is most harmful to the economy, for the accumulation of foreign exchange reserves represents an outflow of capital. In the judgement of many, Taiwan is in urgent need of upgrading its economy (i.e., making it more capital-intensive and technology-intensive), protecting its environment (especially air and water), and improving its quality of life (transportation, parks, and the like). For this, Taiwan needs all the funds and foreign exchange it can get. Taiwan is still a developing country, and its per capita income is still very modest. It makes no sense for Taiwan to export an amount of capital exceeding 20% of its GNP every year! But who is responsible for this?

Taiwan's trade surplus is, of course, part of the larger American trade problem. I think that, by now, it is commonly recognized that the root cause of the American trade deficit is that the U.S. has spent more than it could afford; it has lived beyond its means. The mechanics are simple. The Federal budget deficit forced the Treasury to borrow and bid up interest-rates, when the Federal Reserve refused to print money

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<sup>36)</sup> *Ibid.*, p. 345, and *Taiwan Statistical Data Book, 1987*, pp. 171, 173.

<sup>37)</sup> The following discussion on the trade surplus is based on a recent study under my direction on the problem of Taiwan's trade surplus by a research team at the Chung-Hua Institution for Economic Research.

to finance the budgetary deficit for fear of inflation. The high interest rates attracted an inflow of capital into the U.S. and caused the dollar to become overvalued with respect to the current account. From July 1980 to February 1985, the value of the dollar (in relation to other currencies) rose 87% in nominal terms and 78% in real terms. The rising dollar made American goods more expensive and foreign goods cheaper, and hence gave rise to the trade deficit. The U.S. trade deficit constituted only 0.9% of American GNP in 1980. The proportion went up to 2.0% in 1983 and to 4% in 1986.

It was the trade deficit, the net inflow of goods and services, which made it possible for Americans to live beyond their means. The U.S. should be grateful to her trading partners for permitting such a flow of resources into the U.S.; otherwise, the U.S. would have been forced to suffer either recession or inflation to curb the overspending in real terms.

Taiwan is much poorer than the U.S., and is hardly in a position to offer help. Yet Taiwan made little effort until recently to reduce the trade deficit. On the contrary, the export-expansion policy, in conjunction with the import-substitution policy, facilitated the growth of the trade deficit.

To be sure, the decline of investment (as a proportion of GNP) by public enterprises and the sharp decline in prices of basic raw materials which Taiwan imports in large quantities, such as petroleum and cotton, had a significant adverse impact on the volume of imports. But the main reason for the continuous increase in the trade deficit was the lack of a flexible self-adjusting mechanism, a lack resulting chiefly from trade policies.

For fear of hurting exports, the N.T. dollar was allowed to depreciate. From the fourth quarter of 1980 to the fourth quarter of 1985 the N.T. dollar was undervalued in relation to the U.S. dollar by as much as 26% (the extent of the under-valuation is calculated on the basis of nominal exchange rates after adjustment is made for relative changes in price levels in the two countries). Interest rates were not allowed to decline to stimulate domestic demand and imports for fear of inflation, which was incubated by the trade surplus. In real terms, bank interest rates were kept nearly as high as 10% every year from 1981 to 1985.

Tariff and non-tariff barriers stayed virtually unchanged from 1980 to 1986. The ratio of tariff revenues to imports actually went up from 7.46% in 1981 to 7.89% in 1985, and remained at 7.67% in 1986. It did not begin to decline substantially until after the second half of 1987. The maintenance of high tariff protection in the face of the rising trade deficit was only a reflection of the deep-rooted policy of import-substitution without due consideration of the costs of such a policy.

Since 1986 there has been a sharp appreciation of the NT dollar, from NT\$39.8 per US dollar in December 1985 to NT\$35.45 in December 1986, and to NT\$28.5 in early 1988. Many believe that any further appreciation would irreparably damage the export industries, especially the small and medium enterprises. It is generally believed that the correct policy to deal with the trade surplus problem now is to increase imports by further lowering tariff rates, removing non-tariff barriers, and stimulating domestic demand. An increase in public investment supported by public debt would at once stimulate imports, slow down exports, and lessen inflationary pressure. Fortunately, the government has begun to do all this —reflecting a basic change in trade policies. It has been announced that the ratio of tariff revenue to total imports will be reduced to 3-4% soon, a level similar to that of most of the OECD countries.

### **IX. LIBERALIZATION TOWARD NEUTRALITY**

Government officials should be commended for having adopted economic liberalization and internationalization as the basic guidelines for future development policy. But what are economic liberalization and internationalization? And how should they be carried out?

As discussed above, Taiwan has always had an import-substitution policy. The basic philosophy underlying this policy or strategy is that an economy will undergo certain stages of development, and at each stage there are certain key industries which, through various linkages, will bring about the development of the entire economy. This strategy also assumes that government officials know what those key industries are and what policy measures should be adopted to develop those industries. The import-substitution policy adopted in Taiwan embodied all the above elements.

But there has been an increasing awareness among government officials that it is hard to pick the right key industries or winners, if indeed such winners can be identified in advance; and that the selected protective measures may not be effective. This change of attitude is certainly well-founded. Virtually all available studies suggest that tariff protection in Taiwan has hardly been effective. In a more recent study based on input and output tables for the 1970s and 1980s, it has been found that there is no significant relationship between tariff protection and growth rates of industries when industries are classified according to market orientation (i.e., for exports or for the domestic market) or according to value added.<sup>36)</sup> It was the industries which had a high value added, large linkages, or export potentials which the government chose to protect or subsidize in the 1970s and 1980s. Evidently the government was not able to pick the winners, and tariff protection did not make any difference.

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<sup>36)</sup> Part of the study cited in the previous footnote by Wen-lang Li.

Another recent study also suggests that government measures (such as tax holidays, low interest rates, accelerated depreciation, etc.) designed to encourage investment in certain selected industries had little effect.<sup>39)</sup> It was found that investments are primarily determined by persistent increases in sales, which government officials obviously are not in a position to know beforehand.

Likewise, it has been found that measures designed to encourage corporations to make their stocks available for public purchase and sale; measures to encourage business mergers; measures to encourage research and development; and measures to encourage environmental protection have all had limited effectiveness. Thus it is highly questionable whether the results of government intervention justified the costs in lost taxes, and there is the even more disturbing possibility that the intervention distorted resource allocation.

On policies for export expansion, there is also an increasing realization that export-promoting measures may have gone beyond what "free trade" requires. Measures which are designed to offset or neutralize bias against exports, such as tax rebates on imported materials, are justified, but measures which are biased in favor of exports, such as loans at low interest rates, are not. It is also increasingly realized that certain social costs such as environmental protection should be shared by all industries, including those producing for export. To the extent that export industries, as well as domestic industries, have not fully assumed such costs, goods are sold to foreigners at lower than "true" costs.

The upshot is that there has been a realization among government officials that, in the implementation of economic liberalization and internationalization, government policies should be designed to allow market forces to function freely without any bias either against or in favor of imports or exports. We believe this is totally correct.

A strategy of economic liberalization toward neutrality does not mean that there is no role for the government to play in the economy. Surely the government has the role of providing for a desirable distribution of income, preserving law and order, and providing for public goods such as national defense, education, transport, and the like. But the most important function of the government is to provide an institutional framework and environment in which the market mechanism is allowed to function freely. We believe this is the development strategy the government should pursue.

But if this is the development strategy to pursue, there is surely a great deal for the government to liberalize and internationalize. Privatization is the first order of business for many sectors of the economy, and the financial or the banking sector is

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39) A study under my direction on the effect of investment-encouraging measures by a research team at the Chung-Hua Institution for Economic Research.

in the judgement of many, the first candidate in this category. Foreign exchange rates and interest rates in Taiwan are far from being determined by market forces.

Monopoly power or entry barriers still exist in many industries, and effective fair-trade legislation is urgently needed. The labor market, which has been very competitive until now,<sup>40</sup> faces the danger of intervention by political forces—and this should not be allowed to happen. And there is too much protection in the agricultural sector.

For the foreign trade sector, there is still a great deal to do in liberalizing imports; in particular, the lowering of tariff rates and the removal of non-tariff barriers should be given a high order of priority.

Economic liberalization and internationalization are complex business; careful attention should be paid to the process, the timing, and the sequencing of liberalization and internationalization.<sup>41</sup> For example, is it desirable to permit a free outflow of capital when the currency is still undervalued, exports are still subsidized, and imports are still under high tariff protection? I should think not. Foreign exchange earned under these circumstances represents sacrifices by almost all the people. And it certainly should not be used by some to purchase, for example, real estate in a foreign country, which does nothing to help the economy or the people at all!

I urge that comprehensive studies be made of the specific goals and processes of economic liberalization and internationalization in Taiwan.

## X. RELEVANCE OF THE TAIWAN MODEL

Can any developing country duplicate Taiwan's development strategy and hope for rapid growth with equity, stability, and solvency? Since every country has its own institutional and cultural characteristics and a unique set of factor endowments, it would be senseless to assert that Taiwan's model can be duplicated in totality. But Taiwan's experience is instructive.

At the risk of oversimplification and perhaps being presumptuous, I venture to suggest that the following policies, all of which have contributed to Taiwan's success, might be relevant to most, if not all, developing nations:

- (1) Adopt a strong educational policy to improve the quality of the labor force and increase the female labor force participation rate.
- (2) Allow interest rates to reflect the true scarcity of capital and to encourage saving.

<sup>40</sup> Chi-ming Hou and Hui-lin Wu, "Wages and Labor Productivity in Taiwan" in Tzong-shian Yu, ed., *Raising Productivity: Experiences of the Republic of China* (Tokyo: Asian Productivity Organization, 1985).

<sup>41</sup> The World Bank, *World Development Report 1987*, especially the section on trade policy reform.

(3) Enact a social welfare program which will take care of the truly needy but avoid discouraging saving and work incentives.

(4) Institute a taxation system which encourages saving and work incentives.

(5) Remove any obstacles, especially political influence, which hinder the proper functioning of free enterprise and the protection of private property rights.

(6) Remove or minimize the sources of monopoly power in any market (except natural monopolies) and allow market forces to determine prices, including wage rates.

(7) Abolish discriminatory treatment of small and medium enterprises.

(8) Adopt strong measures to increase agricultural production, and introduce agricultural reforms to expand and strengthen family farms.

(9) Promote development of export industries but avoid any subsidies or special favors.

(10) Dismantle policies associated with import-substitution, such as high tariffs, import restrictions, and over-valuation of the domestic currency vis-a-vis foreign currencies.

(11) Refrain from selecting specific industries for development, but make every effort to improve the general investment climate for private investment.

(12) Privatize public enterprises.

One can readily see that the above twelve policies basically fall into two broad categories. One type requires the government to take positive measures to improve the factors of production, that is, labor and capital. The other restrains the government from interfering with the market mechanism or the operation of free enterprise. Experience everywhere shows that economic development is the business of the people. It is their inventiveness, ingenuity, hard work, and thrift which make economic progress possible. Government officials as a group, however well-intentioned, can never do as good a job as the people as a whole!



