

Structural Change and Long-Term Growth: The Suriname Experience

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Summary

The paper reviews the significant changes in the structure of the Suriname economy over the course of the 20th century, from a typical colonial plantation economy in decline at the start of the century, towards an agrarian economy dominated by small-scale production units until the second World War, and ultimately to a mining economy, highly affected by the boom-bust cycles of the bauxite and aluminium market. Notwithstanding the extremely rich natural resources endowment, low population density, absence of large natural disasters, and availability of over \$1.2 billion in development funds disbursed by the Netherlands to its former colony, the Suriname economy showed very little dynamism between independence in 1975 and 2000. Over 50 per cent of the population live in poverty, and the country ranks among the lowest performers in the region in terms of GDP per capita. These data do not fully take account of the sizeable informal sector, however, which came to represent the equivalent of more than a quarter of the formal GDP sector.

INTRODUCTION

Suriname is a rather extreme case of a small open economy well endowed with natural resources, highly dependent on international markets and vulnerable to external shocks. As compared to most other countries the economy of Suriname and its society at large have been shaped to a high degree by external forces and this process has continued throughout most of the 20th century.

Three factors may be distinguished that underlie this peculiar type of development. First, the staple export economy was created in a virtually uninhabited stretch of land on the basis of imported factors of production, including capital, skilled and unskilled labour. Second, the country was colonised for nearly its entire history from 1667 onwards until the final quarter of the 20th century. Third, the economy has always been dependent on a highly specialised export sector dominated by only one or two commodities. By way of introduction some general

observations will be made on these structural characteristics of the Suriname economy, which provide the context for change and development in the 20th century.

At the start of the 20th century less than 80,000 people lived in this territory, most of whom were involved in agricultural production in a narrow zone bordered by the Atlantic Ocean and the Amazon forest. Most of the country's surface of 163,000 square kilometres was hardly inhabited and contributed only marginally to the economy. By the end of the century most of the country's 433,000 inhabitants still lived concentrated in a stretch of land bordering the ocean. The growth of the economy during the 20th century had mainly been based on the exploitation of the abundant natural resources in the area, but nevertheless vast parts of the interior are still scarcely populated and have only been integrated marginally in the national economy.

The model of a primary-export economy has been introduced and extended since the introduction of the plantation economy and its expansion in the 18th and 19th century. After the abolition of slavery and the subsequent demise of the plantation system in the early stages of the 20th century, the economic significance of large-scale agricultural production was overtaken by small-scale production, mainly orientated towards the domestic market.

The economic structure of the economy changed fundamentally with the rapid expansion of the mining and processing of the large bauxite reserves after the outbreak of the Second World War. During the second half of the 20th century, the bauxite sector became a new centre of gravity in this small economy and contributed increasingly to production, exports and income. More recently, the exploitation of gold in the forests and of the oil resources in the coastal areas have become additional major economic activities that have contributed to the diversification of the primary-export economy.

The agricultural and mining sectors were heavily dependent on imported factors of production and intermediate inputs, thus contributing to the deep integration of the economy in international markets and its dependence on the 'motherland'. Moreover, the importation by the coloniser of large flows of unskilled labour from British India, the Dutch East Indies and China to support the plantation system after the abolition of slavery created a heterogeneous society and has been one of the root causes of a complex social, cultural and political context for economic policy-making, particularly during the stage of independence. At the same time, the specific skills, habits and consumer preferences of these migrants contributed to the diversification of the economy throughout the 20th century.

This article analyses the changes in Suriname's structure of production and its insertion in international markets, and the major factors underlying its highly volatile and rather disappointing long-run growth performance during the 20th century.

Section 1 presents in a schematic fashion major factors having an impact on the overall economic growth performance, particularly of small nations, as suggested by several competing economic theories. Section 2 focuses on changes in the production structure and comparative advantage, the dynamics within the agricultural sector and the shift from an agricultural towards a mining economy. Section 3 reviews the changing institutional setting and policy framework, and specifically the relationship between Suriname and its previous coloniser. Section 4 studies the interaction between economic growth and the natural environment. Finally, Section 5 presents an overall assessment of Suriname's long-run growth performance and its major determinants.

I. DETERMINANTS OF ECONOMIC GROWTH - AN ANALYTICAL FRAMEWORK

Figure 1 puts together a range of variables, which have been distinguished, in several complementary approaches of macro-economic growth. Structural variables (1) such as the overall level of economic development, the size of the domestic market and natural resource endowment have been distinguished in classical studies of patterns of development by Kuznets [1965], Maizels [1970], and Chenery [1979]. Such variables clearly underlie significant differences among countries in pattern of specialisation and comparative advantage, degree of industrialisation, market orientation and dependence on foreign markets (Van Dijck [1987]). Small countries at relatively low levels of overall economic development and well endowed with natural resources, as is the case with Suriname, follow a distinctively different pattern of specialisation and growth than large economies or, alternatively, small countries that are poorly endowed with natural resources. As follows from cross-country studies, a country well endowed with natural resources per capita or with considerable areas of arable land per capita tends to be relatively specialised in the production and export of primary products or resource-based products and is retarded in its process of industrialisation as compared to countries with different structural characteristics. (Figure 1).

At the same time, however, there is no direct link between structural variables and the long-term rate of growth of the overall economy. Countries well endowed with natural resources do not generally grow faster than countries with limited natural resources at their disposal, nor is a high degree of dependence on international markets necessarily detrimental to a successful growth performance. If anything, the East Asian miracle suggests that small poorly endowed countries may have a successful growth performance as compared to countries with alternative structural characteristics distinguished above.

However, indirectly, smallness and natural resource endowment may affect the country's growth performance to the extent that a high dependence on commodity markets is likely to make the economy more vulnerable to external shocks, while volatility tends to cause the economy to grow at a lower rate through a number of mechanisms (IDB [1995]). Statistical analysis indicates that Latin American countries, and Caribbean countries including Suriname in particular, have experienced more volatility in gross domestic production (GDP) and in their terms of trade than countries in most other regions in the world during the period 1970-92 (IDB [1995]). Volatility in GDP is related to external shocks and more importantly to domestic monetary and fiscal imbalances and has reduced the overall rate of growth of these economies as a group over the longer term.

Political factors (2) are directly related to the growth performance to the extent that political instability has a negative impact on investment and cause capital flight, and in many cases has been related to monetary and fiscal instability. However, at a more general level the relationship between the degree of democracy and the overall economic growth performance is hard to establish. Haggard concludes that '[t]here are no theoretical reasons to think that authoritarian regimes are uniquely capable of solving the collective-actions problems associated with development' (Haggard [1990]). Maravall [1995] refers to the 'myth of the authoritarian advantage' and emphasises the advantages of democratic regimes derived from superior political incentives, information and legitimacy, but growth-retarding effects of democracy may also be distinguished. There is no clear evidence that authoritarian regimes have been more successful in executing structural reform than other types of government have been. There is some evidence that concentrated authority and unified technocratic teams may facilitate the implementation of reform programmes and

contribute to the credibility of reform, but this does not imply that neglect or violation of civil or political rights and democratic procedures are generally instrumental to growth (Van Dijk [1998] pp. 121-24). Barro's study on the determinants of growth suggest that growth is stimulated by democracy at low levels of democracy but that beyond a moderate amount of freedom the relationship turns negative (Barro [1997] p. 58).

With respect to cultural factors (3) it may be noticed that ethnic heterogeneity is a characteristic that many countries in the Caribbean have in common, creating a rather complex social, cultural and political context for economic policy-making, particularly during the stage of independence. At the same time, the specific skills, habits and consumer preferences of the different groups of migrants have contributed to the diversification of the economy throughout the 20th century.

Although cultural factors are likely to play a considerable role in the way the economy operates, the culturalists' approach has contributed little to the understanding of significant differences in the economic performance among countries and regions, and of significant economic changes in performance that occurred in fairly short periods of time in many countries in several regions during the second half of the 20th century.

The study of the impact of government policy (5) on economic growth has been stimulated by the wide differences in economic strategy and long-term growth performance between the Latin American and East Asian economies, and by the strong involvement of multilateral financial institutions (4) such as The World Bank, International Monetary Fund (IMF) and Inter-American Development Bank (IDB) in economic policy-making, particularly in Latin America and the Caribbean (The World Bank [1993] Van Dijk [1995] Edwards [1995] Barro [1997]).

A recent ECLAC study on the progress and impact of macro-economic reform on capital formation, factor productivity and overall economic growth in nine countries in Latin America shows that countries that reformed comprehensively by stabilising the economy, and introducing institutional reforms simultaneously and rapidly - the so-called aggressive reformers - realised high rates of growth in the post-reform period as compared to countries that were more reluctant in reforming the economy. More specifically, import liberalisation, privatisation and opening the capital account were positively related to economic growth, although the effects were stronger for three and five year periods than for contemporaneous results. Import liberalisation and privatisation were positively related to investment, and high growth of (doubly augmented) factor productivity was associated with high overall growth of the economy (Stallings and Peres [2000]).

Apart from these endogenous policy-related factors, the growth performance of small countries in particular depends on the global strategy of foreign investors (7), growth of international demand (15) and access to foreign markets (16).

Finally, the figure links economic growth with the environment. As a stock of natural resources (1) the environment has entered the analysis as one of the factors having an impact on the structure and growth pattern of the economy, and as a resource to attract foreign direct investment in mining, logging and tourism. Also, the environment may contribute to the sustainability of specific growth strategies by functioning as a sink (18) absorbing waste, which has not been recycled, such as emissions of CO₂ and chemical inputs in agriculture and gold digging. Moreover, the natural environment may contribute as well to welfare through its existence and option value, which are unrelated to its actual use value. Alternatively, exploitation or destruction of non-renewable natural resources reduces the stock of natural capital, affecting actual welfare and limiting the options for a natural-resource based growth strategy in the future.

II. THE CHANGING PRODUCTION STRUCTURE

AGRICULTURE: BEYOND THE PLANTATION ECONOMY

During the final decades of the 19th century and the early 20th century the character of the traditional colonial plantation economy changed in three respects: the composition of its population, the structure of production and the pattern of specialisation in production.

After the abolition of slavery in 1863, large-scale immigration of indentured labourers from British India and the Netherlands East Indian island of Java was stimulated to supply the plantations with unskilled labour. Between 1873 and 1939 altogether over 67,000 British Indians and Javanese migrated to Suriname, 42,000 of which entered the colony during the first four decades of the 20th century (Hoeft [1998] Appendix 1, pp. 207 and 208). About two thirds of all migrants from British India and over three quarters of the Javanese migrants stayed in the colony after their contract period had expired (Buddingh' [1995] p. 217, and Hoeft [1998] p. 63). The total labour force engaged at the plantations during the first four decades of the 20th century fluctuated between 9,800 and 16,800 but the contribution of indentured labour to agricultural production was replaced by the work of free labourers and nearly vanished by the end of the 1930s. Also, migration of Chinese, Portuguese and Lebanese labourers was stimulated which contributed to a rapid change in the composition of the labour force and the overall population.

Notwithstanding the migration policy and complementary measures in support of the plantation production system, the importance of the sector declined significantly during the first half of the 20th century, and by the 1950s the plantation system had virtually disappeared. By 1901, 180 plantations with over 10 hectares of land under cultivation were in operation (Van Traa [1946] p. 51) and this number declined to 72 in 1932 and only 24 in 1950 (Stichting Planbureau Suriname [1965] p. 15).

At the same time, former slaves and indentured labourers who stayed in the colony after the expiration of their contract period, started small-scale agricultural production in the coastal zone. This holds particularly for contract labourers from British India who played a crucial role in the development of a new small-scale rice sector. Production was particularly orientated towards the domestic market with rice as the single most important commodity.

Notwithstanding the traditional bias in government rules and regulations in favour of the plantations, small-scale agriculture expanded rapidly, particularly so during the First World War when traditional import supply stagnated and food prices in the domestic market soared.

Between 1914 and 1919 the number of small-scale production units increased from 9,900 to 13,000, the acreage in use by small-scale producers increased from 12,000 to 19,000 hectares, and the number of producers and family members dependent on small-scale production increased from nearly 30,000 to nearly 38,000, implying that the share of the population active in this sub-sector increased from over 30 per cent to nearly 36 per cent (Buddingh' [1995] p. 258). This successful development inspired the colonial authorities to refocus their agricultural policy and to support the small-scale sector particularly by reclaiming new land areas suitable for rice production in the district of Nickerie at the western extreme of the coastal zone. The structural shift from plantation production towards production in small-scale units of independent farmers, which took place in the first half of the 20th century, is shown in Figure 2.

The pattern of specialisation in agriculture changed dramatically during the first half of the 20th century as a consequence of fluctuations in world market prices, plant

diseases and government policies. Figure 3 illustrates these changes in production and export volumes and in export values for the major staples produced in the colony during this era. In the Surinamese plantation sector, sugar used to be the dominant staple as was the case in most of the Caribbean islands, but its significance started to decline from the mid 19th century onwards due to the abolition of slavery and the introduction of beet sugar in Europe. When measured in terms of volumes, production and export of sugar declined only marginally but the value of exports measured in guilders declined by nearly 70 per cent, particularly after 1932 during the depression years. (Figure 3).

During the second half of the 19th century, production and export of cocoa increased strongly and plantation production was at its maximum in 1899. Because of plant diseases and the decline in world market prices, the volume of production and export as well as its value declined dramatically and by 1940 the sector had nearly ceased to exist. The volume of production and export of coffee increased strongly from 1914 onwards, but in the crisis of the 1930s volumes and particularly values declined sharply.

As indicated earlier production of paddy rice started to expand dramatically during the First World War. Figure 4 shows the dynamic development of this new sector in the colony between 1887 and 1950. Significant volumes were exported from the end of the 1920s onwards and throughout the 1930s and early 1940s while at the same time domestic demand increased significantly (Stichting Planbureau Suriname [1965] p. 14). Apart from these staples, a range of other products were produced in the plantations and small-scale production units, particularly for domestic consumption, including bananas (*bakoven*) and citrus, but their contribution to overall production and export was of limited significance only. (Figure 4).

After the Second World War the government started to establish and support large-scale units for the production and export of rice, bananas and oil palm. While most of the small-scale production units involved in rice production were concentrated in previously reclaimed land areas - the so-called old polders - most of the modern, large-scale production units were concentrated in the new polders in the district of Nickerie such as the Prins Bernhard polder and Wageningen. Modern production technologies were introduced in these polders, using new rice varieties and mechanised production methods and in the 1960s aeroplanes were introduced for sowing, fertilising, pest control and killing weed. Wageningen became by far the largest agricultural production unit of Suriname with a cultivated land area of nearly 10,000 hectares and was a stimulus for improvement in technology and productivity in rice production for the entire rice area of some 50,000 hectares in the district. Moreover, large-scale mechanised banana growing for export markets was introduced in the district and elsewhere in the colony in the 1960s.

As a consequence of the developments summarised above, land ownership in the agricultural sector was characterised by the combination of a large number of small production units and a small number of rather modern and large production units. According to a survey of agricultural landholdings around the middle of the century (1959), nearly half (49 per cent) of the 106,000 hectares of agricultural land was distributed among land holdings of at least 50 hectares, over 42 per cent among holdings of over 200 hectares and 32 per cent among holdings of at least 500 hectares (Lyle and Calman [1966] pp. 60-61, Table 37). A more recent survey in the 1980s shows that 46 per cent of all land holdings were smaller than two hectares, and 27 per cent were between two and four hectares. Many plots for rice production were even smaller than one hectare. One half of all cultivated land was occupied by 139 production units with an average size of 370 hectares (Thomas-Hope [1995] p. 588).

The discovery, exploitation and processing of bauxite transformed the Suriname economy from a predominantly agrarian production structure into a mining economy. Bauxite in Suriname was discovered by chance during the search for gold in 1898-99 but initially neither the colonial authorities nor Dutch investors showed particular interest in exploitation. In 1916, a subsidiary of Alcoa was established, the *Surinaamsche Bauxite Maatschappij*. The so-called US take-over involved nearly 34,000 hectares of bauxite land that were brought under exclusive control of Alcoa including the Osembo plantation of 5,000 hectares and Overtoom (2,254 hectares) and the approval by the colonial authorities of the transfer of preferential mining rights for an additional 100,000 hectares (Lamur [1983] pp. 122-148).

Initial exploitation of bauxite was concentrated in Moengo because of the quality, size and location of the reserves (*Surinaamsche Bauxite Maatschappij*, [1955] p. 107). After the First World War, the bauxite market collapsed and only in 1922 shipments of unprocessed bauxite to the USA started. In 1926, refining facilities at Moengo were constructed which involved crushing, washing, drying and storing. During the 1930s the volume of production doubled and reached a level of nearly 500,000 tonnes in 1939, and the construction of a second mining and processing facility in Paranam on the Suriname River was started. Moreover, Billiton discovered bauxite at the plantation Onverdacht in 1940 and initiated exploitation of the site. The rapid expansion of the volume of bauxite production in Suriname from the end of the 1930s onwards is illustrated in Figure 5. Between 1939 and 1943, when production reached its wartime peak, the volume of exports increased to over 1,660,000 tonnes. At the time Suriname supplied nearly 25 per cent of all bauxite used by the North American war industry. (Figure 5)

In the decades following the Second World War large-scale investment in mining and processing facilities and in infrastructural works in support of the bauxite sector contributed to the further transformation of the Suriname economy and had a significant impact on the overall rate of growth of the economy during that period. The *Surinaamsche Bauxite Maatschappij*, which was renamed into the Suriname Aluminium Company (*Suralco*), undertook large investments in order to make Surinamese bauxite qualify for preferential access to the EEC market according to the prevailing rules of origin (Lamur [1983] pp. 12 and 13). The Brokopondo Agreement of 1958 between the Suriname government and Alcoa provided the framework for the construction of the Paranam-Afobaka road and the Afobaka dam to supply hydroelectric power for the aluminium smelter in Paranam.

During the period between the Second World War and independence, the economic dynamics of the Suriname economy depended to a large extent on the investment in bauxite processing facilities and the subsequent expansion of bauxite production. The boom in private investment in the period 1959-68 was concentrated in the Afobaka-Brokopondo project and the bauxite-processing facility in Paranam. As shown in Figure 6, gross investment as a share of GDP increased strongly from 1953 onwards and peaked in 1964 at 57 per cent of GDP. In subsequent years the investment ratios declined to 22 per cent in 1968. At a later stage, this large inflow of foreign direct investment generated substantial annual income transfers abroad. (Figure 6).

From 1965 onwards the new processing plants started production of alumina and aluminium, nearly exclusively for export. As a consequence of the investment boom in the bauxite sector, the share of bauxite mining and processing in GDP increased to 31 per cent of GDP in 1968 while mining only generated 15.5 per cent. Also, the share of alumina

and aluminium exports to overall exports increased rapidly in the second half of the 1960s at the expense of exports of unprocessed bauxite, be it that at the very end of the 20th century, aluminium production and export came to a hold for commercial reasons.

Bauxite mining and processing was by far the largest sector in the Suriname economy when measured according to its contribution to GDP in the post Second World War period up to independence, generating normally between 30 and 33 per cent of GDP, significantly more than agriculture, cattle-husbandry and fishery which contributed only between 10 and 15 per cent to GDP during most years in this period (General Bureau of Statistics [1969] p. 123, Table 134 and Stichting Planbureau Suriname, p. 257, Table 1). However, in more recent times, the contribution of the bauxite sector declined in relative terms and the public sector became the largest sector of the economy in terms of income and employment. By the end of the 20th century the bauxite sector generated only about 15 per cent of GDP.

The bauxite sector has also dominated the export performance from the 1930s onwards. From the 1930s until the 1960s bauxite was the most important export product, replaced by alumina and aluminium after the construction of the hydroelectric Brokopondo complex. All together, the contribution of the integrated sector to overall export earnings fluctuated between 70-80 per cent of the value of merchandise exports from the beginning of the Second World War until the end of the 20th century.

Moreover, the sector contributed significantly to government revenues through taxation and other transfers. Because of its capital-intensive nature, employment creation was limited and in the first year of independence (1976) only 9,250 out of a total labour force of 126,400 were engaged in mining, hydro-electric power and bauxite processing, be it that the overall wage level in the sector exceeded by far the average wage level in the rest of the economy (Stichting Planbureau Suriname, p. 259, Table 3A). By the end of the 20th century the contribution of the sector to employment was limited to about 3,300 employees, less than 4 per cent of the labour force (The World Bank [1998] p. 73, Table A3-1.2).

The impact of the sector on the overall performance of the Suriname economy goes well beyond its direct contributions to production, foreign-exchange earnings, government revenues and employment. Price volatility in the international market has generated substantial fluctuations in the value of production and foreign-exchange revenues which, in turn, affects the government sector directly through changes in government revenues and affect all the rest of the economy through fluctuations in the exchange rate and in domestic spending.

Suriname's transformation towards a mining economy has been pushed further by the dynamics of two other mining sectors - gold and oil - during the last decade of the 20th century. After the first gold rush, which started at the very beginning of the 20th century with a pre-war production peak between 1905-1910, a second gold rush was initiated at the very end of the century. Production is organised in small-scale poorly controlled operations, which presumably cause substantial environmental damage to Suriname's forests and rivers. Official data on the sector's size and dynamics are not available, but it has been estimated that by the mid-1990s value added in the gold sector was the equivalent of 13-15 per cent of GDP, exceeding the combined contributions of the bauxite and oil sectors to GDP. Probably about 15,000-25,000 people are estimated to be directly involved in small-scale gold production and over half of them are *garimpeiros* from Brazil. This implies not only that the Surinamese economy is substantially larger and income per capita higher than official data indicate, but also that its production and export structure is dominated even more by mining than appears from the official statistics. To expand the gold sector and

increase government revenues, exploration licenses have been issued involving the North American mining company Gold Star Resources Ltd.

Exploitation of the oil deposits in the Tambaredjo field in the coastal zone by the state oil company (Staatsolie) started in 1982. During the 1990s the production of crude oil has grown steadily from a level of about half a million barrels in the early years of the decade to over three million barrels in 1996 and nearly 4.4 million barrels in 2000. In 1995 started the construction of a refinery, which became operational in 1997. Production was for the domestic market and for export but so far the contribution of this sector to overall production and foreign-exchange earnings has been limited. However, oil may become the largest mining sector of the economy in the early decades of the 21st century with the expansion of onshore and offshore exploration. By August 1999 Staatsolie signed an agreement with a consortium of international oil companies to conduct seismic studies for offshore exploration.

III. THE CHANGING INSTITUTIONAL SETTING AND POLICY FRAMEWORK

Suriname was under Dutch colonial rule from the mid 17th century onwards and became an independent nation-state only in 1975. However, in the years following the Second World War institutions were established and initiatives taken to support the design and execution of a national economic development policy. This period witnessed the establishment of the National Planning Office in 1951 and the Central Bank of Suriname in 1957, and the introduction of national economic development plans.

Throughout the period of the Statute from 1954 to 1975, the Suriname authorities were autonomous in internal affairs but external relations and defence were controlled by the Netherlands (Schalkwijk [1994] p. 11). National economic priorities were put in the framework of development plans, including the ten-year plan for the period 1955-64, the complementary plans of 1962 and 1965 and the two five-year plans for the periods 1967-71 and 1972-76 (Caram [1981] p.5). Thus, during this pre-independence period the primary responsibility for setting the national economic development objectives had shifted away from the coloniser, although about two thirds of the funds required for the first ten-year plan had been financed by the Netherlands through loans and grants.

The so-called Welfare Fund, created in 1947, was as such not part of a comprehensive development plan but was meant to facilitate the establishment of a policy framework. The flow of financial means, made available through the Fund, was used in part to improve the knowledge base of economic development and the design of comprehensive development plans. In January 1955, the Welfare Fund was transformed into the first national ten-year plan, which was designed by the Planning Bureau of Suriname.

The main objective of the ten-year plan was supporting economic independence and priority was given to projects that supported production directly such as the enlargement of the agricultural area under production and the improvement of credit facilities for small-scale agricultural production units, where most of the economically active population was concentrated. Another priority was the improvement of the infrastructure for air traffic and the construction of the road linking Paramaribo with Nickerie in the west and Albina in the east. No priority was attached to support industrialisation since the size of the domestic market was considered too small to sustain the expansion of industry. Export production was considered unfeasible in view of high transportation costs (Stichting Planbureau Suriname [1954] p. 25).

During the period of the Statute the size of the government sector started to expand rapidly and an increasing part of the total labour force was employed by the government. Between 1957 and 1965, the share of the government in GDP increased from 14.7 per cent to 17.4 per cent (General Bureau of Statistics [1969] p. 123, Table 134). Government spending increased and exceeded government current income and the contribution of the government sector to total employment increased rapidly to 40 per cent of the active population while the contribution of the agricultural sector to employment declined.

Although Suriname policy-makers had already achieved autonomy over economic policy during the period of the Statute, the policy framework changed fundamentally when the country became independent. The Programme for the Socio-Economic Development of Suriname presented in 1975 by a combined Dutch-Surinamese group of experts provided the basis for a longer-term development programme to be supported financially by the Netherlands. The programme envisaged stimulation of commercial, social and governmental services in Greater Paramaribo, modern agriculture in the northern part of the district of Nickerie, and a new growth pole in the western part of Suriname. As indicated earlier, the new growth pole was based on the exploitation of bauxite reserves in the Bakhuys Mountains, the construction of the Kabalebo dam and a railway line, and the development of the harbour of Apoera. Suriname was strongly in favour of pushing economic development by concentrating investment in a growth-pole based on the exploitation of the country's own natural resources (Jansen van Galen [1999] pp. 242-45).

The late decolonisation in 1975 was accompanied by a commitment made by the Dutch government to support Suriname's economic development by an amount of approximately 3.5 billion Dutch guilders, to be transferred over a period of 10 to 15 years and to write off Suriname's debt. However, due to several disruptions, only about 3 billion Dutch guilders have been spent since independence. Human rights violations and the lack of respect for democratic principles were the main reasons for the Netherlands to suspend aid during the 1980s and early 1990s, but since the signing of the Framework Agreement between Suriname and the Netherlands in June 1992 conflicts concerning macroeconomic policies affected increasingly the relationship between the two countries and resulted in the suspension of aid after 1997. These suspensions of aid transfers contributed to the volatility in foreign-exchange revenues of the country. The significant value of donor support is illustrated on a per capita basis in Figure 7.

No comprehensive analysis has been made so far of the impact of the transfer of Dutch Treaty Funds on the overall growth performance of the Suriname economy. Infrastructural investment, to create a new bauxite-based growth pole in the west of the country clearly is among the major failed attempts at policy-driven regional development in the late 1970s involving a significant waste of donor funds.

Moreover, the continuous expansion of the government sector, which took place since the start of the Statute period in 1954 until the very end of the 20th century, was financed to a substantial extent by Dutch Treaty Funds. Put differently, Treaty Funds facilitated postponing adjustment of government financing. Interruptions in the transfer of Treaty Funds as well as declining revenues from the bauxite sector stimulated monetary financing of government expenditures. Apart from increased volatility related to the disruption of transfers, aid may also have had a crowding-out effect on domestic investment and government savings, and may have contributed to the overvaluation of the domestic currency, thus hampering import substitution and export production and stimulating import.

IV. ECONOMIC GROWTH AND THE ENVIRONMENT

Most of Suriname's inhabitants occupy the coastal lowlands, leaving the lion's share of the country with extremely low population density. Suriname's forests begin only at a short distance from the coast and extend south to the border of Brazil. All together, approximately 90 per cent of the country's surface is covered by forest. Suriname's production forests comprise a region known as the forest belt, an area located directly to the south of the populated coastal zone. The forest belt extends approximately 100 km south from the coast and has been utilised since the early years of the country's colonisation. Approximately 10 per cent of the forest is viable for timber production. Since 1982 the forest sector produced between 100,000 and 250,000 cubic meters of wood annually.

The timber industry comprises several types of producers: first, chainsaw loggers, who most likely number in the hundreds and produce timber using only a hand-held chainsaw; second, a couple of hundreds of concession or timber-cutting license holders who log leased forest areas and process timber in small family-owned mills or sell logs to other operating mills; and finally one large state-owned plywood mill that is currently failing. Overall, logging and forest product processing employ probably fewer than a couple of thousand people and comprise only one to two per cent of GDP.

In addition to production forests, Suriname maintains a system of 15 protected areas. These protected areas include tropical forests with a large biological diversity and important coastal areas for sea turtle nesting. The most recent addition to Suriname's system of reserves is the 1.6 million hectare Central Suriname Nature Reserve that encompasses and connects Ralleighvallen Nature Reserve (78,000 hectares), Tafelberg Nature Reserve (140,000 hectares), and Eilerts de Haan Gebergte Nature Reserve (220,000 hectares). Approximately 12 per cent of Suriname's total land area is now under legal protection (Hardner and Rice [2001]).

Suriname's forest cover of about 149,000 square kilometres was not reduced significantly between the early 1960s and mid 1990s. However, the level of pollution of both forests and rivers has increased significantly in the 1990s as a consequence of the intensification of gold digging, undertaken to a large extent by Brazilian *garimpeiros*.

Exploitation and processing of bauxite has had a number of environmental effects. First, the bauxite reserves that are actually in exploitation will be depleted within the first decade of the 21st century. In order to continue exploitation, new mining activities will have to be started, probably in the Bakhuis Mountains in west Suriname. Second, the Van Blommestein Lake has been created as part of the Brokopondo Plan to supply hydroelectric power for the aluminium smelter in Paranam, and the Paranam-Afobaka road was constructed. The environmental impact of these infrastructural works has never been assessed comprehensively so far.

Industrial activity including bauxite processing and electricity production generates CO₂ emissions which have increased significantly from 432 kilo tonnes in 1960 to just over 2,000 kilo tonnes in 1996. Remarkably, emissions peaked at nearly 2,400 kilo tonnes by the end of the so-called golden years that followed independence in 1975. In the subsequent period, in which the economy tended to stagnate over the longer term, emissions fluctuated between 1,300 and 2,100 kilo tonnes annually. (Figure 8)

The pollution intensity of Suriname's economic growth, measured according to industrial CO₂ emissions per unit of GDP at constant prices, is shown in Figure 8. Up to 1980, the pollution intensity increased strongly, from 2.6 to 7.2, but in subsequent years it

stabilised at a somewhat lower level, ranging normally between 5 and 6 kilo tonnes per unit of domestic production. (Figure 9).

The agricultural sector changed considerably in the course of the 20th century and involves both large-scale, modern export-orientated commodity production, particularly of rice and bananas, as well as small-scale, rather traditional and labour-intensive production for local markets. Technology in use in large-scale banana production may have negative effects on the local environment. Overall, production increased significantly according to available data for the period 1962-84. Strikingly, the use of fertilisers per unit of agricultural production increased by a factor of two between 1962 and 1972. In the following years, fertiliser intensity of production changed in a rather erratic fashion, ranging between 1.07 in 1972, 0.47 in 1979 and 2.07 in 1984, as shown in Figure 9.

V. THE OVERALL GROWTH PERFORMANCE

The lack of consistent economy-wide data limits the possibilities to construct long-term time series of major macroeconomic development indicators and to make comprehensive, quantitative assessments of the economic progress made during the entire 20th century. Unfortunately, even the analysis of such changes in the most recent years of the century have been frustrated by the poor quality of data and inconsistencies in several data sets (see The World Bank [1998] pp. v-vi, IMF [1999] p. 5 and United Nations [1999] p.3).

An early and comprehensive attempt to assess overall growth and structural change during the period 1900-40 was made by Van Traa [1946]. During this period the population increased from 85,000 to 156,000 persons. The export-orientated plantation sector declined seriously due to diseases and the world economic crisis, and Suriname had shifted towards an economy characterised by small-scale agricultural production for the local market. Van Traa concludes that during these four decades the structure had changed but not strengthened and that the financial dependence on the colonial 'mother land' had increased (Van Traa [1946] p. 196). The potential to develop had been strengthened by the improved infrastructure and the increased knowledge of the country's natural resource endowment. Moreover, welfare had been enhanced by improvements in the areas of education and health.

During the Second World War, the economy experienced an unprecedented period of welfare due to the rapid expansion of bauxite production, the growth of agricultural production for the domestic market and the expansion of domestic consumption and investment which was related to the inflow of a contingent of 2,000 US military personnel to protect the bauxite production and transportation facilities. Investment in roads and the extension of the Zanderij airport contributed to the basic infrastructure of the country (Buddingh' [1995] pp. 273-74).

When overviewing the achievements in terms of structural change and welfare during the post Second World War period, the 1950s and 1960s appear to be the most successful decades and the short period during the so-called Brokopondo push generated by far the highest annual rates of growth of national income and income per capita. See Van Dijck [2001] for a more comprehensive overview. The economic dynamism in this period is illustrated in Figure 10 showing the development of real GDP from 1953 to 1968.

During the period 1953-64, real GDP increased annually by 5.3 per cent on an average and at the height of the Brokopondo push from 1964 to 1967, real GNP even increased by 14 per cent and GNP per capita by 11 per cent. However, the strong expansion

of economic activities caused inflation and the boom in the bauxite sector had an upward impact on the overall wage level of the economy (Van Schaaik [1991] p. 192).

In subsequent years, overall economic growth slowed down considerably, unemployment was on the rise and nominal prices and wages increased rapidly. Moreover, in the years immediately preceding independence, massive migration weakened the structure of the economy.

The real long-run growth performance during the last quarter of the 20th century was extremely poor in comparison with the overambitious target set at the beginning of the period of independence. The economic model pursued by successive governments during this period tended to increase economic destabilisation, generated only little real growth and was not capable of preventing large sections of the population from living in relative poverty. According to the World Bank 'GDP in constant local currency was essentially the same in 1996 as 20 years before, and thus 15 per cent lower per capita. The real value of GDP in constant US dollars fell much more, by about two-thirds' (The World Bank [1998] p. 2).

The lack of dynamism that the country experienced during most of the last four decades of the 20th century is shown in Figure 11. The figure shows real growth, measured in terms of GNP per capita in 1995 in US dollars. Clearly, after the golden years following independence, the overall rate of growth was low during most of the period. It should be noted, however, that data are not fully reliable as reflected by significant differences between time series presented by several multilateral and national agencies. Moreover, the margin of error in GDP estimates may be substantial in view of the significant increase of informal and illegal activities. As indicated earlier, the value of illegal gold digging may have amounted to 15 or even 20 per cent of GDP during the 1990s, but it is unclear to what extent this value added has contributed to Suriname's economy in view of the external leakages related to gold export, transfers of income abroad and imports. The IMF has estimated the value added of informal activities including gold mining by *garimpeiros*, small-scale farming, trade and manufacturing at about 25 per cent of GDP. Surveys show that about 25,000 people, the equivalent of 26 per cent of the labour force, are working in these informal subsectors (IMF, [1999] p. 10). Moreover, activities related to drugs smuggling, illegal logging, as well as the unregistered transfers by migrants to support their family members, may add substantially to the real purchasing power and may reduce the number of people actually living under the poverty line. (Figure 11).

The economic problems Suriname faced are in part related to external economic shocks as well as to the inadequacy of domestic economic policies to create an environment conducive to private investment and growth of production and income. First, aluminium bauxite export revenues per capita including bauxite, alumina and aluminium increased during the second half of the 1970s but declined sharply during the 1980s and first half of the 1990s and continued to decline in the final years of the decade, except for the temporary peaks of 1989-90 and 1995-97. Fluctuations in world market prices contributed to these adverse developments but the Internal War and political instability had a negative impact on investment and production in the bauxite sector as well. As a consequence, the share of the sector in GDP tended to decline. Moreover, suspension of transfers of development aid by the Netherlands in the period 1982-87, in 1990-91 and after 1997 contributed to the volatility in foreign-exchange revenues of the country.

Second, the brain drain during the second half of the 1980s contributed to the magnitude of economic problems the country faced. The economic and political turbulence caused a significant part of the executives in the civil service and the private

sector to abandon the country, resulting in a substantial loss of human capital. It has been estimated that about 25 per cent of those who were educated in Suriname between 1970-90 left the country.

Third, lack of adequate response to external shocks and policy inconsistencies contributed to macroeconomic instability as reflected by higher inflation, an increasing imbalance between government expenditures and current revenues, and an unsustainable balance-of-payments position. With respect to these performance criteria, the Surinamese experience differed strongly from the performance of most countries in Latin America. Whereas most countries in the region suffered from serious destabilisation in the late 1970s and 1980s and implemented comprehensive stabilisation and structural reform programmes with the IMF and the World Bank from the mid 1980s onwards, Suriname hardly experienced inflation during the 1950s and 1960s, and even in the 1970s and 1980s the average rate of inflation was only about 10 and 14 per cent respectively. Inflation and destabilisation increased sharply in the 1990s, at the time most countries in Latin America had their destabilisation problems under control and were in the second stage of their reform programmes (Naím [1995] and Edwards [1995]). Notwithstanding the setbacks with respect to inflows of foreign exchange referred to earlier, the Surinamese government executed an ambitious programme of government expenditures, resulting in large budget deficits financed by Central Bank loans. Structural transformation of economic management including privatisation and a reorientation of government activities towards its core tasks was largely postponed. By the end of the century, expansionary monetary policies resulting in near hyper-inflation, combined with an unsustainable exchange rate policy, disrupted the economy, increased poverty and resulted ultimately in unprecedented social unrest and political instability at the very end of the 1990s.

Studies on poverty and the distribution of income give widely different outcomes regarding poverty incidence and severity. As is well known from the general literature on the subject, these estimates are particularly sensitive to the selected methodology, the assumptions made pertaining to the spending of income and to all sorts of adjustments to compensate for underreporting of income, and to inclusion or exclusion of rural areas in the studies.

Consistent and comprehensive time series on the distribution of income and poverty are not available and even most of the recent studies cover only Greater Paramaribo or the urban areas of the country. Available evidence from several studies conducted in the 1990s indicates a high incidence of poverty of some 50-70 per cent of the population (Vos [2001]). Exclusion of the foreign-income component in household incomes would result in a significant increase in the poverty incidence. A survey by Menke [1998] among 400 households in Greater Paramaribo conducted in 1993 shows that nearly 70 per cent of such households live in poverty. Not unlikely, however, these percentages overestimate poverty because of underreporting of incomes. However, if foreign-income transfers were to be excluded the incidence of poverty would amount to nearly 80 per cent. Poverty is particularly widespread among female-headed households. A study on welfare in Greater Paramaribo indicates that the living conditions of the poor have improved somewhat between the 1960s and 1990s, but that income disparity increased.

Figure 1

DETERMINANTS OF ECONOMIC GROWTH

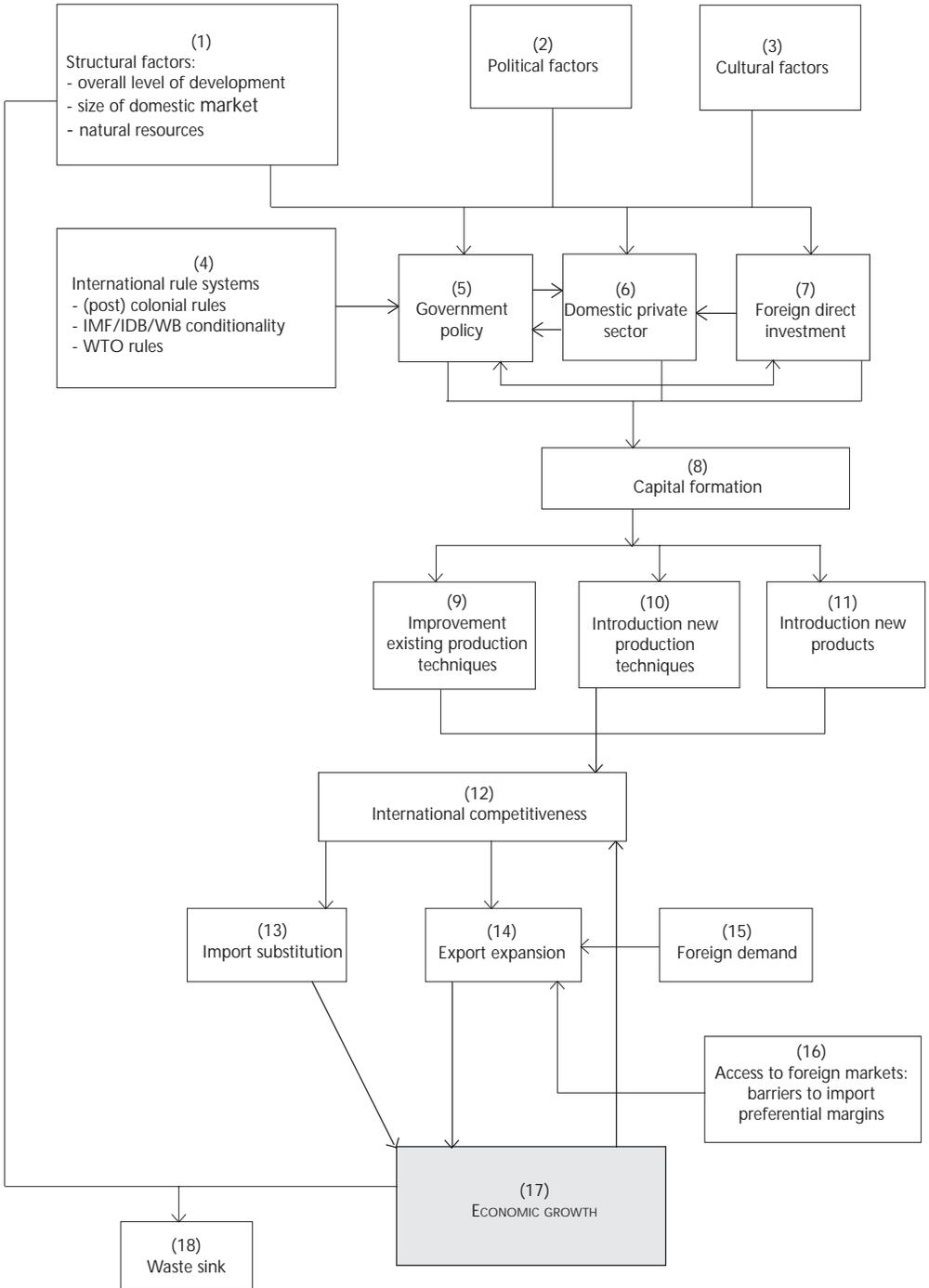
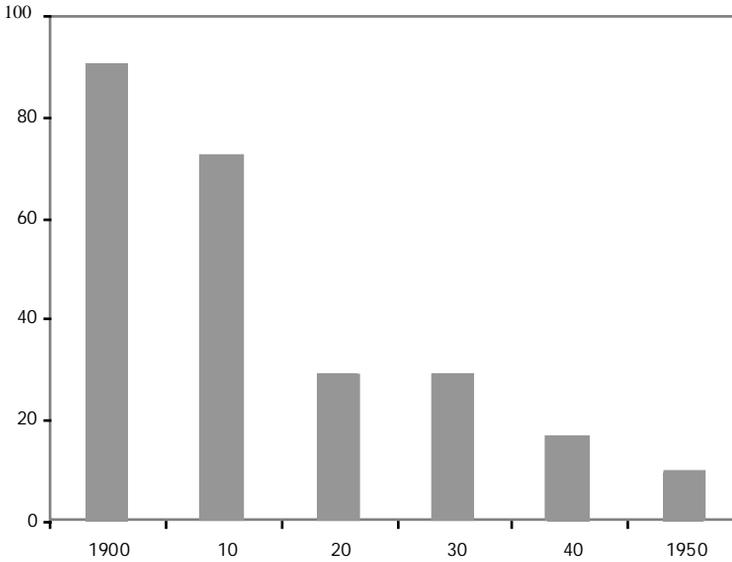


Figure 2

CONTRIBUTION OF LARGE-SCALE PRODUCTION UNITS TO AGRICULTURAL PRODUCTION, 1900-1950
(In percentages)



Source: Stichting Planbureau Suriname, *Nationaal Ontwikkelingsplan Suriname* [1965].

Figure 3

PRODUCTION AND EXPORT OF COFFEE, COCOA AND SUGAR, 1900-1939

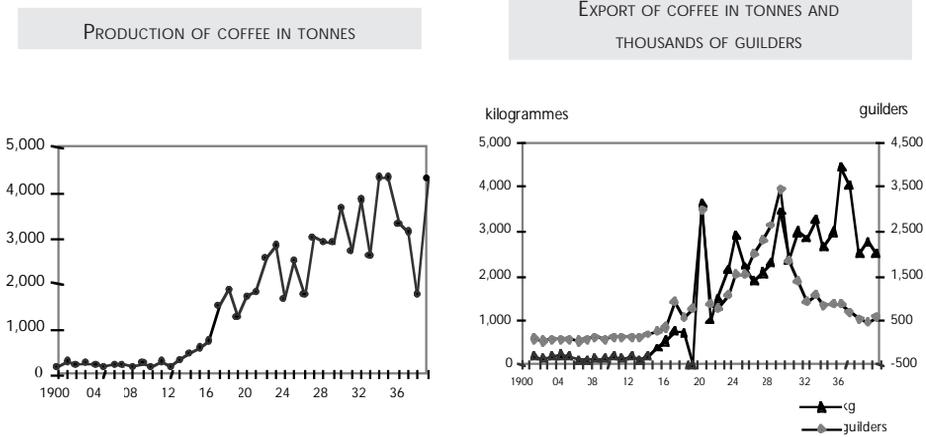
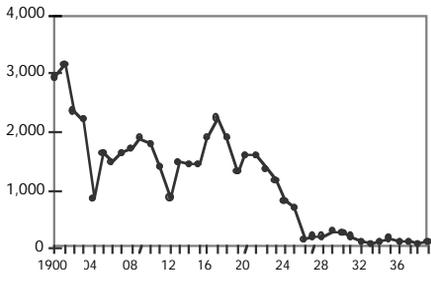


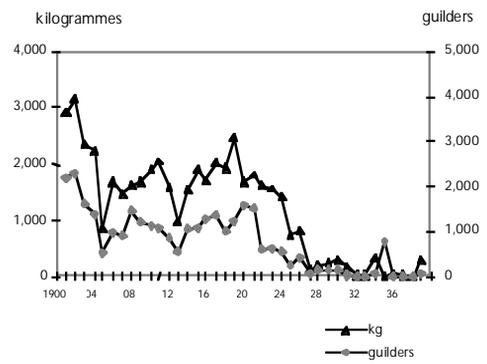
Figure 3 (Continued)

PRODUCTION AND EXPORT OF COFFEE, COCOA AND SUGAR, 1900-1939

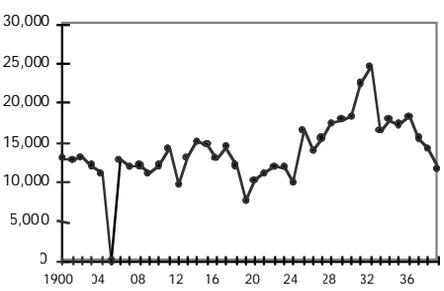
PRODUCTION OF COCOA IN TONNES



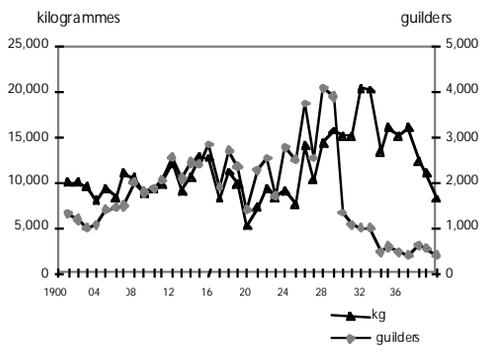
EXPORT OF COCOA IN TONNES AND THOUSANDS OF GUILDERS



PRODUCTION OF SUGAR IN TONNES



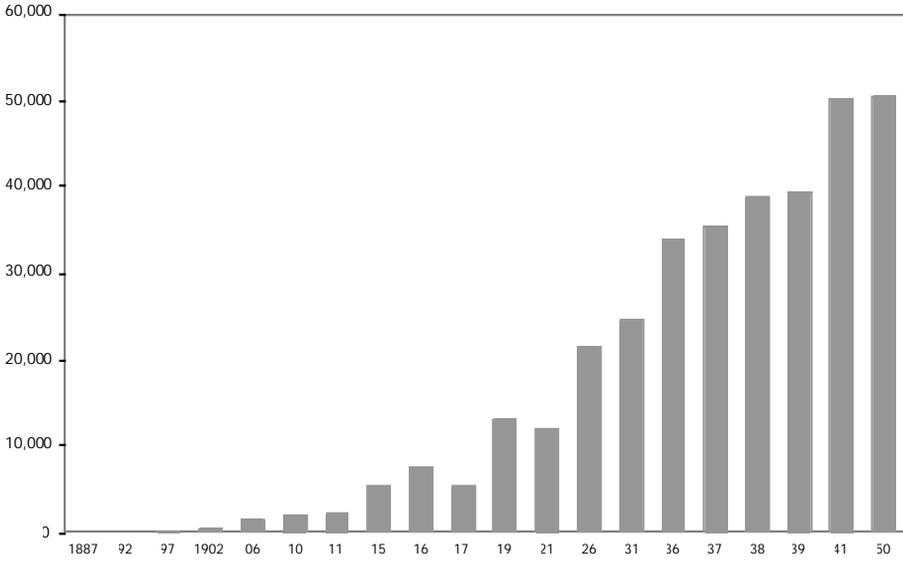
EXPORT OF SUGAR IN TONNES AND THOUSANDS OF GUILDERS



Source: A. van Traa, *Suriname 1900-1940*, [1946], Annex tables I and II, pp.206-207.

Figure 4

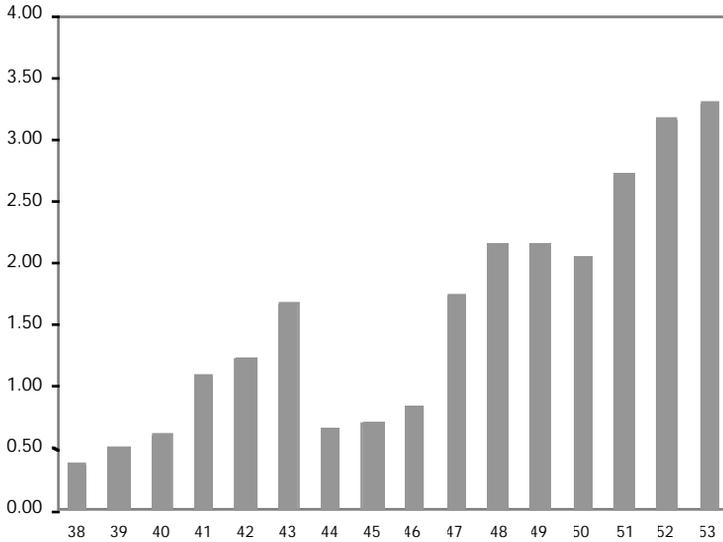
PRODUCTION OF PADDY RICE, IN TONNES, 1887-1950, SELECTED YEARS



Source: Data for 1911, 1916, 1921, 1926, 1931, 1936-1939 taken from: A. van Traa [1946] pp. 110. Data for all other years taken from: Stichting Planbureau Suriname [1965] Table 13 and 14, pp. 13 and 14.

Figure 5

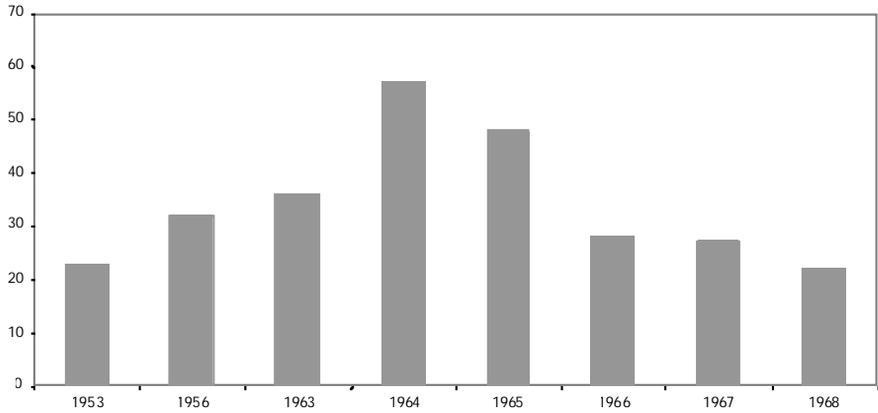
EXPORT PRODUCTION OF BAUXITE, IN MILLIONS OF METRIC TONNES, 1838-1953



Source: Stichting Planbureau Suriname [1965] Table 23, p. 20.

Figure 6

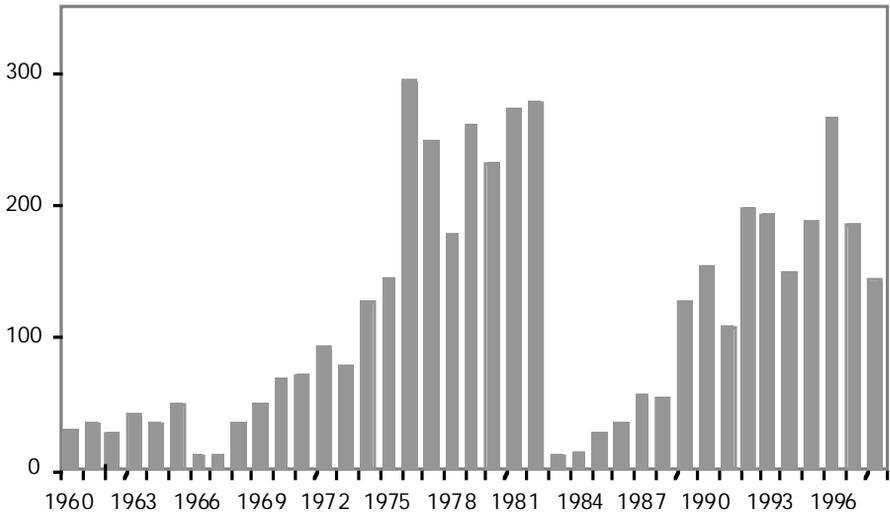
GROSS INVESTMENT AS PERCENTAGE SHARES OF GDP, 1953-1968, SELECTED YEARS



Source: Stichting Planbureau Suriname [1972-1976], Table II.1, pp. 12.

Figure 7

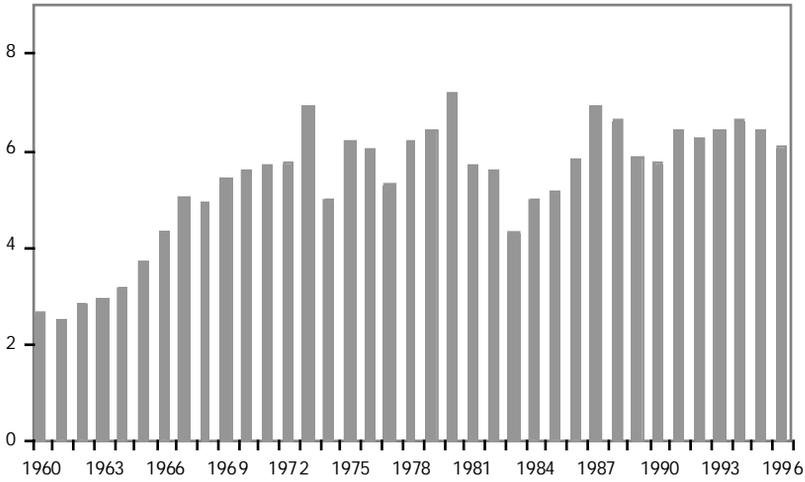
AID PER CAPITA, IN US DOLLARS, 1960-1998



Source: based on World Bank [2000].

Figure 8

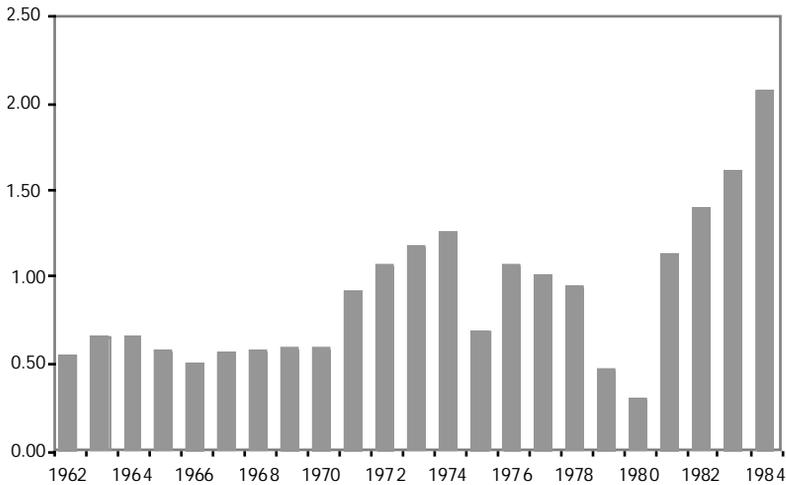
INDUSTRIAL CO₂ EMISSIONS, IN KILOTONNES, PER UNIT OF GDP IN CONSTANT PRICES, 1960-1996



Source: based on World Bank [2000].

Figure 9

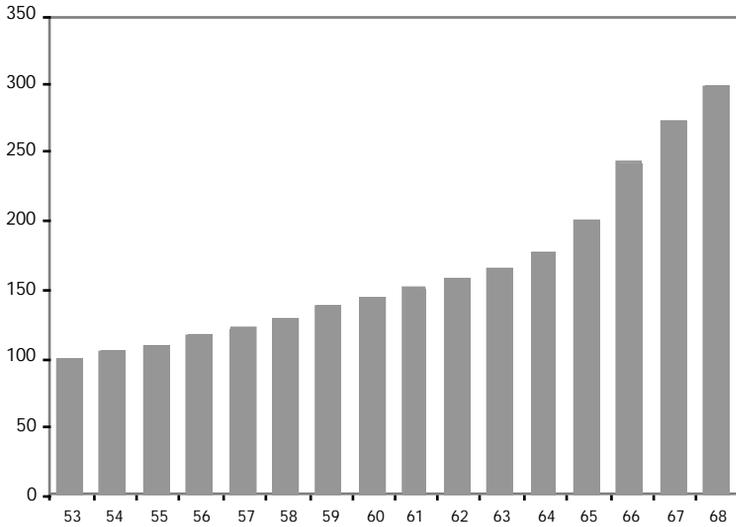
FERTILIZER CONSUMPTION PER UNIT OF AGRICULTURAL PRODUCTION (1974-1976=1), 1962-1984



Source: based on World Bank [2000].

Figure 10

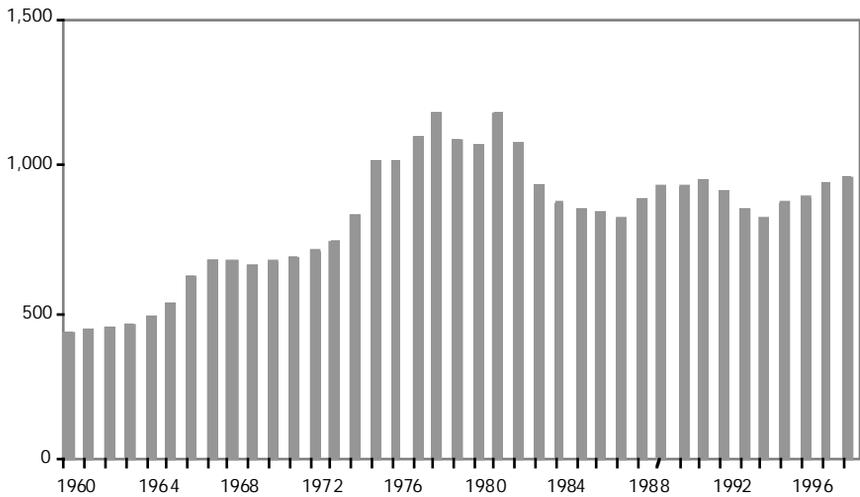
GDP AT 1953 PRICES (1953=100), 1953-1968



Source: Stichting Planbureau Suriname [1972-1976], Table I.2,

Figure 11

GNP PER CAPITA, IN CONSTANT 1995 US DOLLARS, 1960-1998



Source: based on World Bank [2000].

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