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Longitudinal analysis of possible links between poverty and mortality in Suriname January 2005

By

Dr Bintiwatie Soedhwa, General Bureau of Statistics, Klipstenenstraat 5
Paramaribo - Suriname

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Acronyms and abbreviations

MDGs	Millenium Development Goals
PPP	Purchasing Power Parities
HBS	Household Budget Survey
MICS	Multiple Indicator Cluster Survey
GDP	Gross Domestic Product
ILO	International Labour Organization
HPI	Human Poverty Index
HDI	Human Development Index
UNDP	United Nations Development Program
GNP	Gross National Product
GBS	General Bureau of Statistics
CPI	Consumer Price Index
BFB	Basic Food Basket
EC	Engel Coefficient
FGT	Foster, Green and Thorbecke
MMR	Measles, Mumps and Rubella
CDR	Crude Death Rate
NA	Not Available

1. Introduction

Since 1990 several world top conferences were held whereby a broad agenda for humanitarian development was adopted, including selected goals, a time scheme and measurable indicators to reach that development. In September 2000, 189 member countries of the UN accepted the “Millennium Declaration”. In the declaration a number of interrelated development goals were summarized in a world agenda. These development goals are indicated as the Millennium Development Goals (MDGs). The MDGs consist of eight main goals, 18 targets and 48 indicators. The first seven main goals are interrelated to each other, because these goals are directed on durable poverty eradication.

The first MDG is “Eradicate extreme poverty and hunger”. This goal has two targets: Target 1: “Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day”. The indicators of this target are:

1. Proportion of population below \$ 1 per day (PPP-values)
2. Poverty gap ratio (incidence x depth of poverty)
3. Share of poorest quintile in national consumption

Target 2: “Halve, between 1990 and 2015, the proportion of people who suffer from hunger”. The indicators of this target are:

4. Prevalence of underweight children (under-five years of age)
5. Proportion of population below minimum level of dietary energy consumption

Poverty is a multidimensional phenomenon comprising, cultural, social, political and ideological dimensions. The backwardness and deficiencies in the mortality and health situations are also an expression of poverty. With this paper an attempt is made to find out if there are links between poverty and mortality in Suriname. This paper draws from Household Budget Survey 1968/1969 (HBS-1968/1969), Household Budget Survey 1999/2000 (HBS-1999-2000), the Multiple Indicator Cluster Survey (MICS) 2000 and other relevant health indicators.

Chapter 2 deals with poverty and poverty lines.

Chapter 3 deals with health indicators

Chapter 4 deals with mortality

Chapter 5 deals with possible links between poverty and mortality

Chapter 6 contains some conclusions.

1.1 Geography

Suriname is located on the Northern coast of South America. It is bordered in the North by the Atlantic Ocean, in the south by Brazil, in the East by French Guyana and in the West by Guyana. The country covers an area of 163,820 square kilometers. Topographically there is subdivision of the country into the coastal lowlands, the savanna and the highlands in the South with its tropical rain forest referred to as the "hinterland". Suriname is divided into 10 districts, the main administrative division. These districts are subdivided into 62 "ressorten". The districts and the resorts are the legal subdivisions of the country. The capital city is Paramaribo, located in the northern coastal area.

1.2 Population and other physical characteristics

The capital Paramaribo and District of Wanica, the urban districts, are inhabited by approximately 68% of the total population, while it covers only 0.4% of the land area.

The population density of these two urban districts is 528 per sq. km. for the year 2004 (according to the census of 2004) and 470.1 for 2000. The overall year 2004 population density was 3.0. The district of Sipaliwini (known as the hinterlands) and created in 1985 occupies the largest southern part of the country (130,566 sq. km), but the population density is at only 0.2 per sq. km for 2004.

The provisional results of the Census 2004 show that the total usual resident population of Suriname as at 2 August was 487,024. As expected (see table A - Appendices) the majority of the population lives in the Districts of Paramaribo and Wanica, while the District of Coronie has the smallest population.

1.3 Socio-Economic profile

Suriname has a small open economy. Since the 1980s the economy experienced several adjustment shocks due to external and internal developments: the decline in the bauxite mining and processing sector (the mainstay of the economy) in the 1980s; the suspension of Dutch development aid in the 1980s; and the implementation of structural adjustment policies in the 1990s.

Economic policies in the period 1988-1996 were strongly influenced by the Netherlands, the most important financial donor of Suriname. The implementation of a structural adjustment program became a pre-requisite to restore the flow of Dutch development aid, which was suspended from 1982-1987. Against the background of an increasing government budget deficit and, a growing shortage in foreign exchange within the formal economy and a massive devaluation of the Suriname currency, a structural adjustment program (SAP) was implemented in 1993. After a short period of further deterioration of the macro economic situation from 1993-1995, a period of monetary stabilization was reached in 1996. After elections in 1996 a new Government came into office. From 1997-2000 the parallel exchange rate increased enormously with a peak of 2,300 Surinamese guilders for 1 US dollar in December 2000. After a decrease of the parallel exchange rate to an average amount of 2243 Surinamese guilders for 1 US \$ in 2001 the parallel exchange rate increased again to an average of 2798¹ Surinamese guilders for 1 US \$.

¹ As of 1 January 2004 the currency of Suriname (Surinamese guilders) was legally changed into Surinamese dollars and three zero were removed. In January 2005 the parallel exchange rate was 2.73 Surinamse dollars for 1 US \$.

After a short revival of GDP growth in 1995-1998, the growth decreased to -1 percent in 1999 in the context of a worsening macro economic and monetary environment which affected the standard of living negatively.

By 2000 and also in 2003 and 2004, bauxite mining and processing is still the pillar of the economy while the public sector still maintains its position as the most important sector in terms of formal employment and contribution to GDP.

Other important economic sectors for the Surinamese economy are agriculture and manufacturing. Although since 2001 gold mining is moving up, the contribution of bauxite, mining and mineral oil mining remains the most important with 89.7% of the export proceeds. The contribution of the agrarian sector, forestry and fishery in GDP was 9.8 % in 2002.

The government is the largest employer with 40% of the formal employment.

The informal sector is relatively high in Suriname. According to estimates of the GBS the informal sector contributes about 20% to the real GDP in 2002. The term informal has to do with economic activities which take place outside of the official regulations or economic activities of enterprises which do not meet the legal requirements.

Growth in real GDP is unbalanced. After a negative growth of -1% in 1999 and a 2% growth in 2000 an improvement was experienced in 2001 whereby the real growth of GDP was 4.8%. In 2002 the real growth in GDP decreased to 1.3%. The decline in the real growth in 2002 is mainly caused by negative developments in the agricultural sector (export of bananas and rice) and less auspicious world market prices for aluminum.

In 1999 and 2000 the Surinamese economy experienced high inflation rates and devaluation as a consequence of over liquidity due to monetary financing of budget deficits. This situation has also influenced the decrease of government investments on among others the health sector.

Unemployment data in Suriname pertain only to the districts of Paramaribo and Wanica. Unemployment (ILO definition, both sexes combined) reached a low of 8% in 1995 followed by an increased height of 14 % in 2000.

As regards income inequality it should be noted that, using Consumption Expenditure as a proxy for income, since it is well-known that income data are unreliable most of the time, the situation has worsened over a 30-years span. While in the 1968/1969 Household Budget Survey a Gini-coefficient of 0.2522 was obtained, the figure for the 1999/2000 survey turned out 0.4552 (General Bureau of Statistics, 2001a)

2. Poverty and Poverty lines

Concepts and definitions poverty

In general there are three important dichotomies to approach poverty:

- i) absolute versus relative approach of poverty
- ii) the multidimensional versus the uni-dimensional approach
- iii) objective versus subjective approach

The absolute concept of poverty refers to a subsistence level which in general is specified by means of an income or a basket of basic goods and services. Relative poverty refers to the socio-economic inequality on the basis of the deviation of socio and economic norms and is normally measured as the ratio (proportion) of the household income in relation to the average income of the population; the poverty line is often fixed at a certain percentage of the per capita national income.

Poverty from a multi dimensional point of view is related to several basic indices, such as the “Human Poverty Index (HPI)” and the “Human Development Index (HDI)”. These are composite indices based on three variables: life expectancy, education, and real GNP per capita (UNDP 1997).

Uni-dimensional poverty is based on one fundamental dimension, usually income or consumption. These concepts are sensitive to macro shocks or quick changes in the poverty level.

The sustainable livelihood conception of poverty is multidimensional and focuses on participation of the population. The durability of the livelihood is a function of how people use their assets in the short as well as in the mid term. The definition include not only the natural wealth (land, water, fauna, flora), but also the social aspect (family, networks, participation) and the physical infra structure (roads, bridges, schools, clinics, markets).

Objective Poverty lines are determined top-down by experts or policymakers. Within the objective approach the basic needs basket is mostly used in developing countries. Subjective poverty refers to what individuals consider as the minimum requirements for subsistence level to survive and reflects what is considered as poverty by community . There are several methods for determining the poverty line within each of these approaches.

The General Bureau of Statistics (GBS)¹ utilizes the following definitions of poverty and poverty lines:

A unit (person, family or household) **is considered to be poor** when that unit **does not have sufficient means to provide** for its basic needs, in which the needs of food are of prime importance. The amounts of money that (given its size and composition of the unit) demarcate the poor from the non-poor called the poverty lines.

¹ *General Bureau of Statistics, 2001b, page 1*

It is recognized that poverty is a multidimensional phenomenon (cf. UNDP, 1997), but for Suriname we shall limit ourselves to uni-dimensional “money poverty”

For poverty analysis by GBS, results of two surveys were mainly used namely the Household Budget Surveys of 1968/1968 and 1999/2000.

Background information of the surveys:

HBS-1968/1969

From 1 April 1968 to 31 March 1969 a household budget survey was conducted. Purpose of this survey was to provide the consumption pattern of the urban private households. The main purpose was to obtain a consumption basket and relevant weights to construct a CPI. The area covered by the Household Survey included the city of Paramaribo and surroundings. Besides, additional information was collected regarding standard of living of the households and possibly unemployment. The sample size was 755 household units, but 592 households units completed the Household Survey. For the survey 229 items were chosen for the Basic Budget of Household Consumption Expenditure. These items were selected on the basis of two criteria: because they were important in household consumption-expenditure and because they were common purchases by most of the households included in the survey.

HBS-1999/2000

In mid-1995, the Inter-American Development Bank and the Government of Suriname, through its Suriname’s Ministry of Planning and Cooperation, agreed to an institutional strengthening program to improve inter alia, quality and timeliness of economic and social statistics produced by the General Bureau of Statistics. One of the five components of this plan was to focus on household surveys/consumer price index (CPI). The last, successful household budget survey in Suriname was conducted in the period April 1968 to March 1969 so Suriname badly needed a new survey. Needless to say, the weights from the 1968/69 survey, which were used in the CPI in calculating inflation, were based on an economy that was far different from the one that existed in the nineties.

This survey was conducted from mid-June 1999 – mid-June 2000. The main purpose of this survey was to construct a new Basic Basket of Consumer goods and concomitant CPI.

It has to be noted that for calculation of the poverty lines the starting point is a Basic Food Basket (BFB) which takes into account the nutrition composition. Moreover, the calculations are mainly based on Household Budget Surveys of 1968/1969 and 1999/2000. This definition of poverty lines for Suriname differs from what is described by the UNICEF in the MDGs.

Otherwise the United Nations indicate as follows:

“For monitoring country poverty trends, indicators based on national poverty lines should be used, where available”.

The available data is mainly based on the definition of poverty levels for Suriname

Poverty Lines and Poverty Characteristics in Suriname, for selected periods as of 1968/1969¹

In the table below poverty lines and other relevant variables are presented for selected years as of 1968/1969. The most imported periods are undoubtedly 1968/1969 and 1999/2000, being the periods of a year long Household Budget Survey and hence providing detailed information.

Table 1: Poverty lines and other relevant variables for selected periods

Period	Engel-coeff	P (1,0)-8	P (1,0)-28	CPI-Sfl	Y-Avg	C-Avg
1968/1969	49	54	59	368	407	368
1978	56	104	124	691	661	
1999/2000	63	61,551	89,622	639,964	327,056	362,973
2000.4	63	116,436	159,386	1,115,876	520.172	

Legend:

P (1,0)-8: Poverty line for 1 adult based on a food basket with only 8 items

P (1,0)-28: Poverty line for 1 adult based on a food basket with 28 items

CPI: Consumer Price Index (1968/1969 = 100)

Y-Avg: Average income

C-Avg: Average consumption

The data in the table above show that over the complete period concerned CPI increased faster than the poverty lines. Since the basic needs poverty lines can be considered as a Cost-of-living index, under certain conditions (Ravaillon 1998, p15), the prudent conclusion may be drawn that those conditions were fulfilled from 1968/1969 to 2004.4.

Table 2: New equivalence scales for Suriname

Adult / Kid	0	1	2	3	4
1	1.00	1.56	2.08	2.58	3.06
2	1.80	2.31	2.80	3.28	3.74
3	2.53	3.02	3.49	3.94	4.39
4	3.23	3.69	3.69	4.59	5.03

If one wants to know the poverty line (based on a Basic Food Basket –BFB- of 28 items) for say households with 2 adults H(2,0) or 2 adults and 2 kids H(2,2) during the 4th Quarter of 2000 one just needs to multiply **Sfl. 159,386** with 1.8 respectively with 2,8 and obtains: **Sf286,895** and **Sf.446,281**.

In what follows the so-called $P\alpha$ measures (for $\alpha = 0,1,2$) will play an important role. Only the BFB of 28 items will be considered and attention will mainly be paid to income as the welfare indicator, albeit that consumption will be looked at briefly.

¹ This section draws heavily from GBS 2001b

For monitoring poverty we are trying to adhere (more or less) to the robust Lanjouw & Lanjouw technique (LLT). LTT is based on 3 assumptions:

1-Poverty must be measured using P0

2-The relationship between food spending and total spending obeys Engel's Law

3-The coefficients EC's) are the same for the surveys concerned

We have no problems with assumptions 1 and 2, but assumption 3 is evidently wrong! Notwithstanding the fact that we think assumption 3 is wrong for consistency we have chosen to vary the EC's between the estimates of the 1968/1969 survey (49%) and the 1999/2000 survey (63%).

We are presenting $P\alpha$ Measures (for $\alpha = 0,1,2$) for households in table 4. As we are not only interested in poor households, but also in poor persons (the assumption being that those living in poor households are poor), we shall present P0 measures (i.e. poverty rates) for both households and persons table 6.

Both table 3 and 4, as well as graph 1 tell us a story of a worsening situation. In fact Suriname moved from between 13 and 30 % poor households in 1968/1969 to between 57% to 71% in the last Quarter of 2000.

Table 3: Poverty characteristics based on Income as welfare indicator for selected periods as of 1968/1969

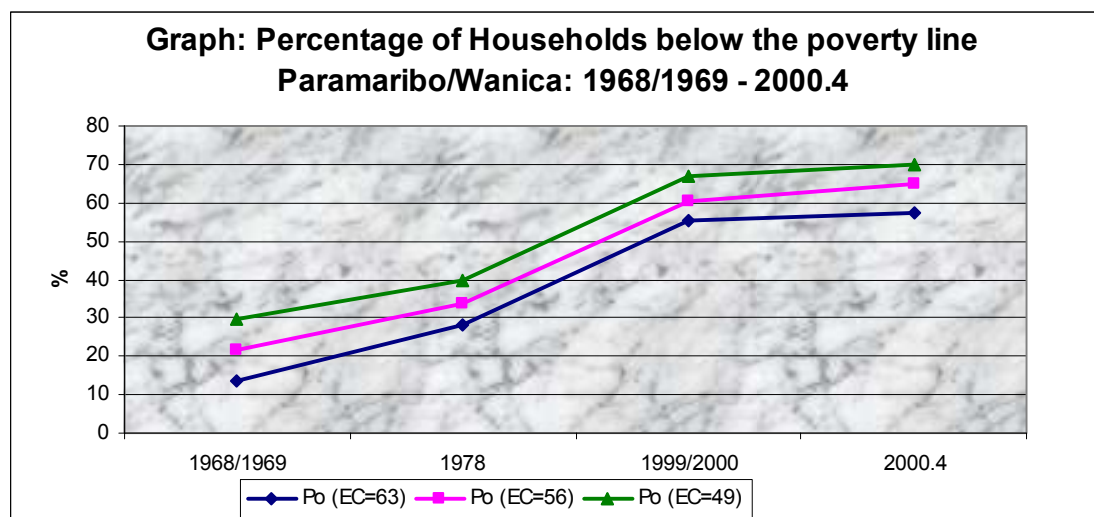
Period	EC*→	63	56	49	PPC-%**
1968/1969	P0	13.34	21.62	29.37	68.0
	P1	2.99	4.64	7.50	
	P2	1.02	1.62	2.73	
1978	P0	27.95	33.59	40.00	66.1
	P1	7.26	9.87	13.27	
	P2	2.41	3.70	5.57	
1999/2000	P0	55.15	60.24	66.97	68.8
	P1	24.55	28.24	32.70	
	P2	14.13	16.72	19.96	
2000.4	P0	57.49	64.86	70.02	67.7
	P1	27.66	31.38	35.81	
	P2	16.67	19.37	22.73	

* EC = Engel Coefficient

** PPC: Percentage of total Population Covered by the survey!

For the years excluding the periods above, the poverty estimates (see chapter 5) are based on counterfactual simulations. Although we are aware of the fact that better estimating methods exist (e.g. Pov Tabs by the World Bank), due to time constraints we were forced to use the most basic approach whereby we move all consumption with the GDP per capita growth.

Graph 1: Percentage of households below the poverty line



All three FGT (Foster, Greer and Thorbecke) measures depict a worsening situation. However (albeit that only for P0 a significance test was performed according to Kakwani, cf. Kakwani 1990b and/or Ravallion 1992, the differences between the results of 1999/2000 and the fourth Quarter of 2000 is not statistically significant! Although it is not a hard and fast rule, in Suriname it turns out that all FGT measures move in the same direction!

Table 4: Percentage of poor households and percentage of poor people

Period	Engelcoeff	Poor HH	Poor PP
1968/1969	63	13.34	16.83
	56	21.62	26.07
	49	29.73	35.35
1978	63	27.95	32.78
	56	33.59	38.42
	49	40.00	44.84
1999/2000	63	55.15	60.85
	56	60.24	65.95
	49	66.97	71.98
2000.4	63	57.49	62.21
	56	64.86	69.24
	49	70.02	74.11

Since the percentage of poor persons are systematically higher than the percentages of poor households it may be concluded that in Paramaribo and Wanica poor households are larger on the average than the non-poor households.

Table 5: Poverty characteristics based on Consumption as Welfare Indicator
1968/1969 and 1999/2000

Period	Engelcoeff	63	56	49
1968/1969	P0	16.72	22.64	29.90
	P1	3.87	5.71	8.42
	P2	1.27	2.03	3.29
1999/2000	P0	47.11	52.40	58.18
	P1	19.73	23.05	27.11
	P2	10.78	13.02	15.86

Table 6: Percentage of poor households and percentages of poor people

Period	Engelcoeff	Poor HH	Poor PP
1968/1969	63	16.72	21.75
	56	22.64	28.81
	49	29.90	36.57
1999/2000	63	47.11	53.46
	56	52.40	59.24
	49	58.18	64.69

Using consumption as a welfare indicator, the situation is still bleak, but not as bad as with income as a welfare indicator.

Given the fact that consumption is usually more reliable than income (something we can attest to for the Household Budget Survey of 1999/2000) we propose to characterize the developments in Suriname as follows: The percentage of poor people has increased from 21% in 1968/1969 to circa 65% in 1999/2000

3. Health Indicators¹

Basic indicators up to 2003

Vital statistics

Population

According to the provisional figures of the Census of August 2004 the population of Suriname was 487,024. The following table shows the total population by census years.

Table 7: Population at Census years by sex, as well as Sex Ratio and Growth per annum

Census	Males	Females	Total	Sex ratio	Growth % p.a
1950	88,284	89,504	177,788	99	
1964	161,855	162,356	324,211	100	4.6
1972	190,497	189,110	379,607	101	2.1
1980	175,818	179,422	355,204	98	-0.9
2003	241,837	239,292	481,146*	101	1.3
2004	244,931	241,084	487,024**	102	1.2

* Provisional figures inclusive 17 persons for whom sex was unknown

** Provisional figures inclusive 1,009 persons for whom sex was unknown

The average annual growth rate of the population (1980-2003) is circa 1.3%. The percentage of the population in the urban area is circa 68.4.

Births

In 2002 the Registry Office registered 10188 live births. This means a crude birth rate of 25.1 (birth per 1000 of mid-year population). During the past ten years, the crude birth rate showed alternating a decreasing and increasing trend that fluctuated between 20 per1000 and 26 per 1000. During the seventies and early eighties (with exception of the years with large scale emigration namely 1975, 1979 and 1980) the crude birth rate was around 30.

Fertility

In 2003 we calculated TFR, a GFR and a GRR of respectively 2.4, 76.2 and 1.2. For the period 1990 – 1995 the Total Fertility Rate (TFR), the General Fertility Rate(GFR) and the Gross Reproduction Rate(GRR) amounted respectively to 2.5; 86.7 and 1.2 on average.

Fertility rates in Suriname have been falling steadily since the sixties. Between 1960 and 1990, general fertility rates fell from 240.9/1000 in 1960 to 177.6/1000 in 1970 to 117.3/1000 in 1981 and to 92.3/1000 in 1992. In the fifties the adolescent fertility rates stood at 182 per 1000 and was among the highest in the region. The adolescent fertility rate was 1970, 1981 and 1992 respectively 111.0, 87.6 and 81.2. In 2003 we calculated an adolescent fertility rate of 73.7

¹ other than Mortality

Immunization

Table 8: Immunization coverage for children 0 – 1 years of age 1990 – 2003

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
DPT3	83	75	74	76	73.6	84	85.1	81.3	89.7	85	71.1	68	73	77
OPV3	81	77	71	75	70.9	81.3	83.7	81.2	90.1	84	70.4	65	74	76
Measles	65	84*	61	61	-	-	-	98.4*	-	-	-	-	-	-
MMR	-	-	-	-	72.2	82.8	87	78.5	82.3	85.3	70.1	82	73	70

Note: * measles vaccination campaign MMR vaccination was introduced in 1994 and the separate measles vaccination was terminated

Source: EPI data 2000 and EPI data 2001& 2002

BOG Epidemiology

According to the table above the vaccination coverage for children aged 0 – 2 months is in 2000 more than 70%. In 2000 health care in Suriname is characterized by insufficient basic provisions. The level and size of existing subsistence's has been declined due to several reasons or is not adjusted to the present requirements. Therefore, in the Multi-Annual Development Plan 2001 – 2005 as a goal it is stated recovery of sound basic health care and restrain of epidemics as a result optimal health and care for every one.

Special attention is paid (or will be paid) to children, women and senior citizens.

Maternal Mortality

In the period 1991 – 1994 the official maternal mortality rate fluctuated between 6.4 and 12.2 (per 100,000 live births). A confidential research to maternal mortality over the years 1991 up to 1993 showed however that there is serious underreporting. From the confidential research it was ascertained that of each 120 females 1 dies from complications of pregnancy (gestation) or delivery. The main causes of maternal mortality are hemorrhages (bleeding and hypertensive affections during the pregnancy. The transportation of the woman to long distance to a hospital or not in time availability of blood in the hospital has in many cases been the causes of maternal mortality.

**Table 9: Maternal Mortality rates
MDG 5 for 2015**

Indicator	1990	2000	2002	2015
- Maternal Mortality Ratio	226	153	137	75
- Proportion of births attended by skilled personnel	80%	80%		100%
- Contraceptive prevalence rate	48%*	42.1%**		n.a.

Source: BOG Epidemiology/ Cedaw report final draft 1999 – 2002

* research by Stichting Lobi in 1992

** MICS 1999/ 2000

Table 10: Vital Statistics and Health Indicators in Suriname
Vital Statistics

Indicator	1995	1996	1997	1998	1999	2000	2001	2002	2003
Birth Rate	20.1	21.4	24.2	22.6	22.2	21.1	20.8	21.4	
Death Rate	6.2	6.6	6.5	6.2	6.5	6.7	6.6	6.6	
Infant Mortality Rate	15.3	16.4	14.9	13.6	16.8	29*	15.9	21.1	
Child Mortality Rate	19.8	20.7	19.5	19.7	21.8	37*	21.7	37	
Still Birth Rate	17.6	21	21.4	22.3	22	25.8			
Prenatal Death Rate	26.8	30	32	32.5	32	35.8	29.2	31.7	30.7
Neonatal Death Rate	9.0	10.7	9.8	9.0	10.8	14.9			
Maternal Mortality Rate	45.9	42.6	74.1	88.1	108.4	153	154.4	137.4	90.9

Source: Ministry of Health (For the year 2000 is IMR 20.2 and CMR 27.2)

* MICS-2000 report

Selected health indicators from MICS 2000

Background of MICS 2000

The sample for the Suriname MICS 2000 was designed to provide estimates of health indicators at several levels. The sample was stratified into three strata: urban, rural and interior. The urban and rural strata are composed of districts located in the coastal area while the interior comprises Districts in the rain forest, populated mainly by maroons (descendants of escaped slaves) and indigenous people.

The sample size for the whole country was 4585 households and the responding units amounted to 4293. The field work began in November 1999 and concluded in April 2000.

Infant and Under-Five Mortality

An estimate based on the MICS data for the infant mortality rate is 29 per 1000 and for the under-five mortality rate 37 per 1000 around 1998 (preliminary Q-five estimations).

Education

- Approximately 78 percent of children of primary school age in Suriname are attending primary school. School attendance in the interior is significantly lower than the rest of the country at 61.2 percent. At the national level, there is virtually no difference between male and female primary school attendance.
- Almost 84 percent of children who enter the first grade of primary school eventually reach grade five.
- The vast majority (86.2%) of the population over age 15 is literate. The percentage literate declines from 91.7 percent among those aged 15-24 to 62.8 percent among the population aged 65 and older.

Water and Sanitation

- Approximately 73 percent of the population has access to safe drinking water (92.6 percent in urban areas and 66.6 percent in rural areas).
The situation in the interior is considerably worse than in other regions; only 20 percent of the population in the region gets its drinking water from a safe source.
- Eighty eight percent of the population of Suriname is living in household with sanitary means of excreta disposal. There are vast differences between the urban or rural regions with over 98 percent and the interior by 30.5 percent having sanitary means of excreta disposal.

Child malnutrition

- Slightly over 13 percent of children under five in Suriname are underweight or too thin for their age, and 2.1 percent are severely under weight. Approximately 10 percent of children are stunted or too short for their age and 6.5 percent are wasted or too thin for their height.
- Children whose mothers have secondary or higher education are the least likely to be underweight and stunted compared to children of mothers with less education.

Breastfeeding

- Almost 13 percent of children aged under four months are exclusively breastfed, a level considerably lower than recommended. At age 6-9 months, 24.5percent of children are receiving breast milk and solid or semi-solid foods. By age 20-23 months, only 11.1 percent are continuing to breastfeed.

Low Birth Weight

- Slightly over 11 percent of infants are estimated to weigh less than 2500 grams at birth. This percentage is somewhat higher than the average for the Latin America and the Caribbean region.

Immunization Coverage

- Approximately 89 percent of children aged 12-23 months received the first dose of DPT. The percentage declines for subsequent doses of DPT to 84.4 percent for the second dose, and 79.1 percent for the third dose.
- The coverage for measles vaccine is lower than for the other vaccines in the first 12 months of life.
- Male and female children are vaccinated at roughly the same rate.
- Vaccination coverage is highest among children whose mothers have secondary or higher education.

HIV/AIDS

- Approximately 36 percent of women aged 12-49 know all three of the main ways to prevent HIV transmission – having only sex with uninfected sex partner, using a condom every time, and abstaining from sex.
- Slightly over 35 percent of women correctly identified three misconception about HIV transmission – that HIV can be transmitted through supernatural means, that it can be transmitted through mosquito bites, and that a healthy looking person cannot be infected.
- Fifty six percent of women of reproductive age in Suriname know a place to get tested for AIDS and about 10 percent have been tested.
- The percentage of women who have sufficient knowledge of HIV transmission and the percentage who know where to get tested for HIV increases dramatically with the level of education.

Contraception

Current use of contraception was reported by 42.1 percent of married or in union women. The most popular method is the pill, which is used by one in four married women followed by female sterilization, which account for 9.3 percent of married women.

Prenatal Care

Virtually all women in Suriname receive some type of prenatal care and 90.6 percent receive antenatal care from skilled personnel (doctor, nurse, midwife)

Assistance at Delivery

A doctor, nurse or midwife delivered about 85 percent of births occurred in the year prior to MICS survey. This percentage is highest in the districts of Commewijne and Wanica at respectively 100% and 98.8 percent and lowest in the district of Brokopondo at 42.3 percent.

Indicators of resources, services and coverage

Source: ANNUAL REPORT OF THE CHIEF MEDICAL OFFICER YEAR 2000

Facilities/ Services/ Coverage

There are four hospitals in the capital city and one in the district of Nickerie. These 5 hospitals have a total capacity of approximately 1300 beds. In 1999 the average occupancy of beds was estimated at 53% (range: 40 – 75%) which is a decline compared to previous years (averaging at 60% since 1995). The Regional Health Services and Medical Mission operate smaller “hospitals” and health centers in the districts and the hinterland. The available beds in these health centers are mostly used for deliveries and observational purposes. The Military hospital delivers out patient services for army personnel and their family. The psychiatric hospital in Paramaribo has a capacity of 280 beds. The medical mission has about 50 centers in the hinterland. Eight medical doctors supervise the different regions, while 70 health assistants work at the health centers. The Regional Health Services (RGD) employs fifty-two physicians.

Health Care Financing Indicators

Table 11: Budget of Ministry of Public Health
(X Suriname Guilders 1 million) 1998 – 2004

	1998	1999	2000	2001	2002	2003	2004
Budget Public Health (in million Sur. Guilders)	5,663.7	2,500	13,900	15,268.4	26,354.7	25,800	36,700
% of national budget	1.7	1.2	5.2	2.8	3.6	2.2	2.4

Source: Ministry of Finance, financial notes

This table reveals that during 1999 – 2000 on average 3.2% of the national budget was spent on Public Health. The situation worsened in 2004; the above mentioned percentage declined to 2.4%.

Finances

In 1997, 4.8% of the GDP was spent on health care; this was an increase of 25% since 1995. The costs per capita exceeded US\$ 100.00 in 1997.

Table 12: Public Health expenditure (PHE) in % of GDP mp²⁾ 1988-2003

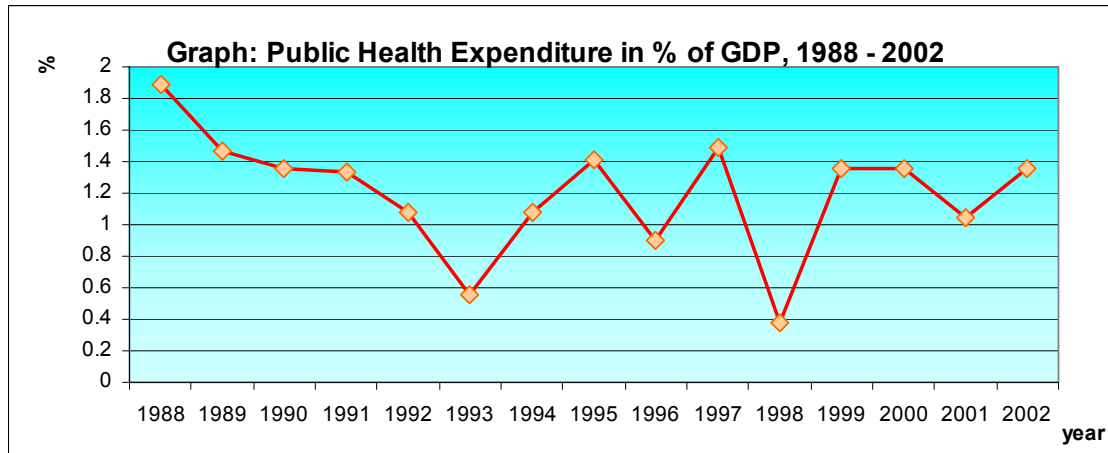
	Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
PHE in % of GDP		1.89	1.47	1.36	1.33	1.08	0.55	1.08	1.41	0.90	1.49
PHE in % of GDP	Year	1998	1999	2000	2001	2002	2003				
		0.38	1.36	1.36	1.05	1.35	1.01				

1) Source: Ministry of Health; Chief Medical Office Report 2000

2) Market

prices

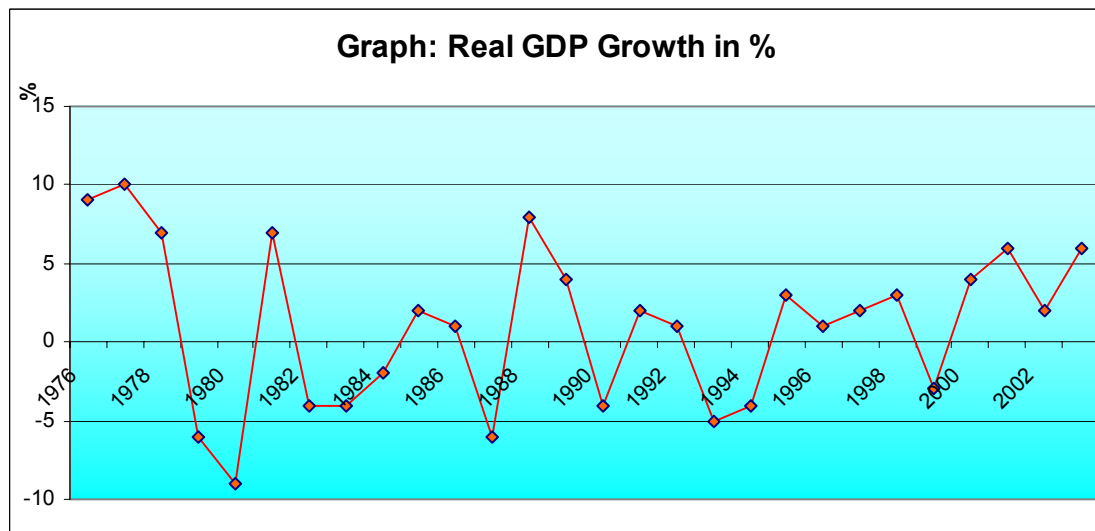
Graph 2: Public Health expenditure in % of GDP



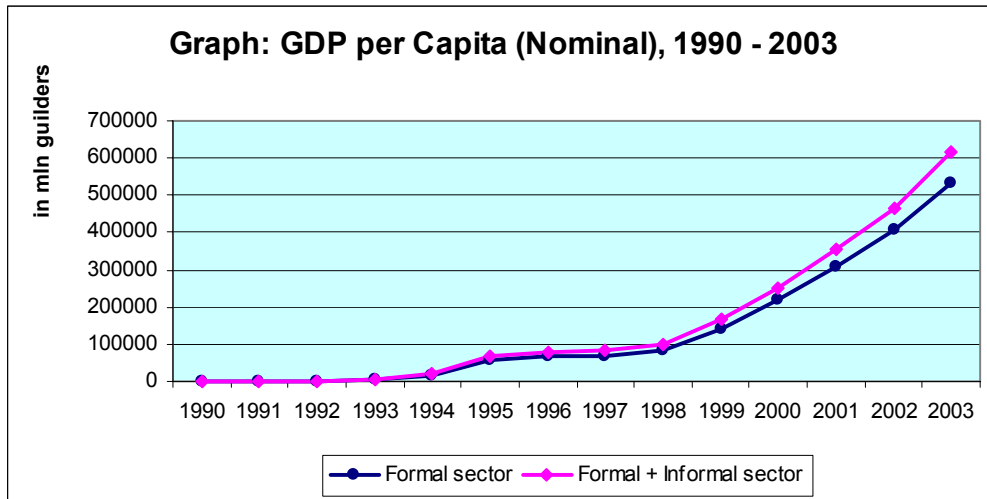
In the following paragraph we will deal with some macro economic aggregates such as real GDP growth, GDP per capita (nominal and real), consumer price indices and inflation.

Macro economic aggregates

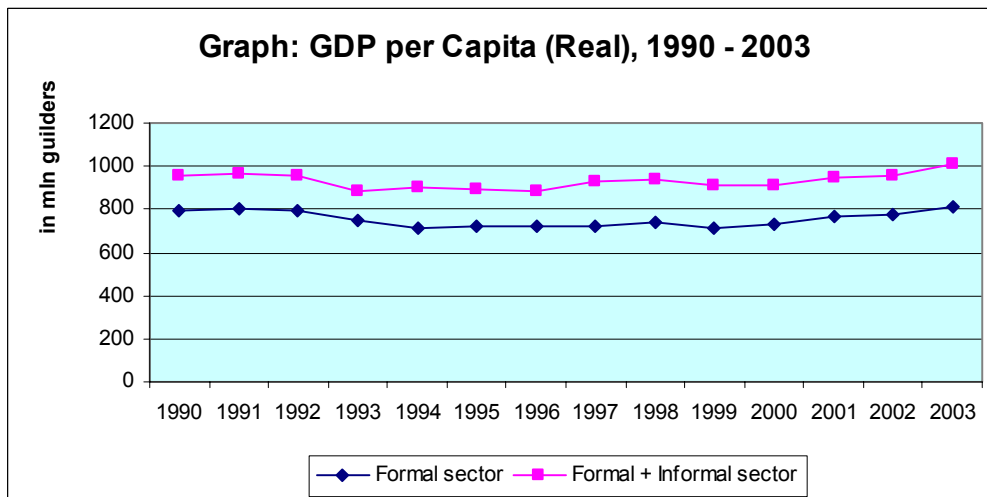
Graph 3: Real GDP Growth in %



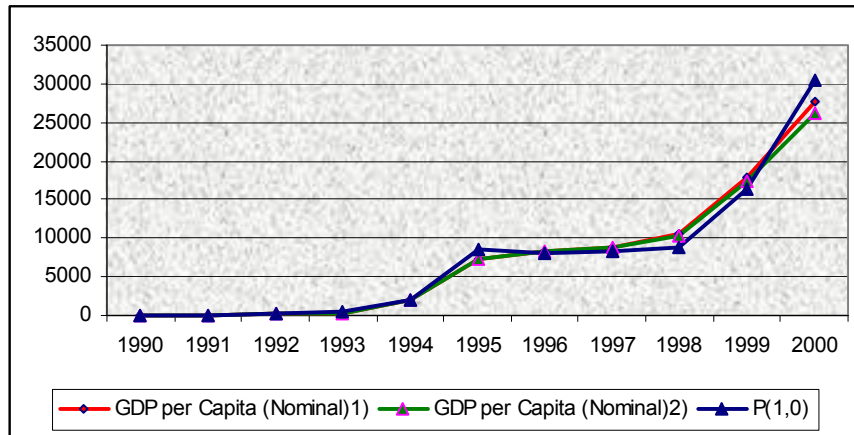
Graph 4: GDP per Capita (Nominal) 1990 – 2003



Graph 5: GDP per Capita (Real), 1990 – 2003

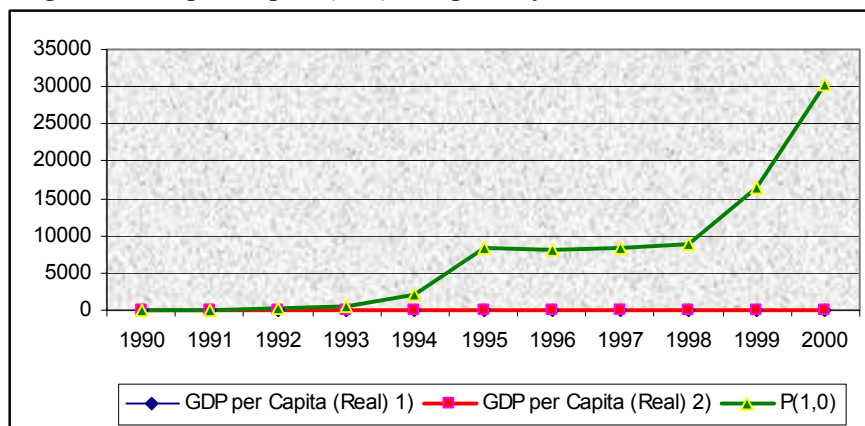


Graph 6: GDP per Capita (nominal) and Poverty line



note: 1) formal sector
 2) formal + informal sector
 P(1,0) = poverty line for one adult and no children

Graph 7: GDP per Capita (real) and poverty line



note: 1) formal sector
 2) formal + informal sector
 P(1,0) = poverty line for one adult and no children

Although the nominal GDP per capita increased from 1990 – 2000 we cannot say that we have an economic growth, because the real growth of the GDP decreased.

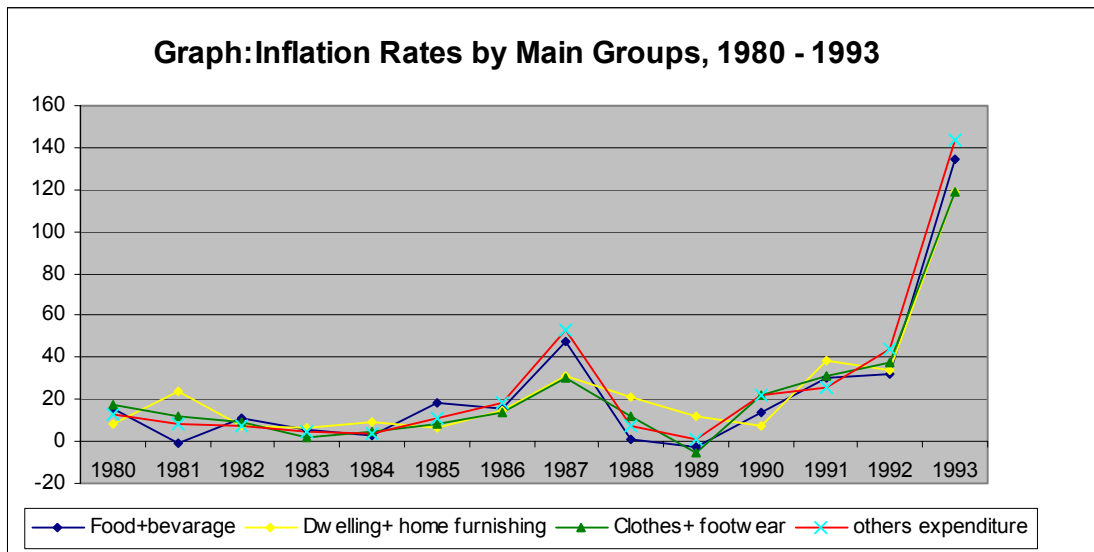
Inflation rate and Consumer Price Indices (CPI) for selected years

The following consumer price indices and inflation rates are based on the mean figures of the concerning years.

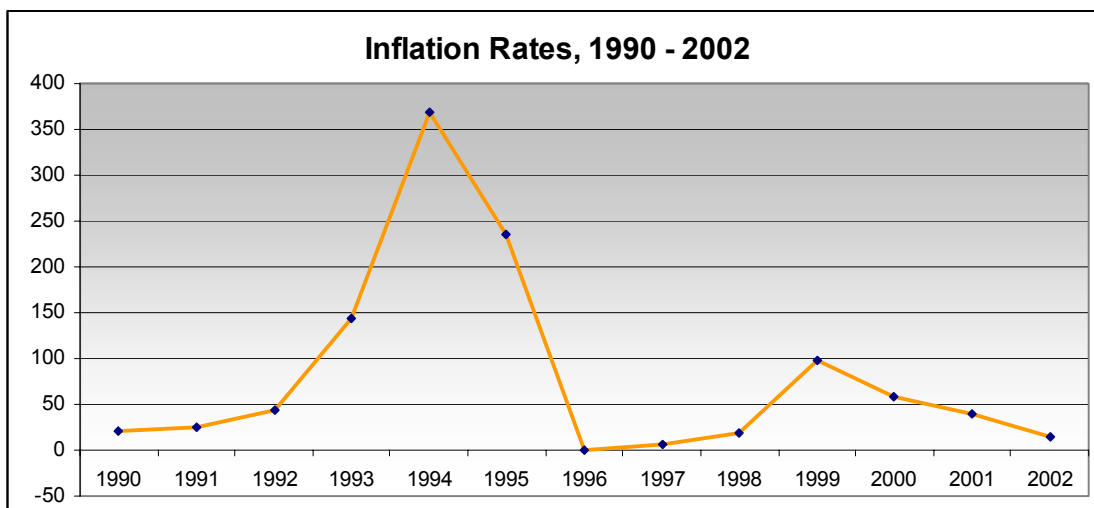
During 1969 up to 2000, the inflation rates developed as follows: in 1969 the inflation rate was 1.0, followed by an increase of 13.2 in 1980, than an increase of 21.8 in 1990 and than again an increased rate of 59.3 in 2000. In 2002 the inflation rate was 15.5

On the basis of 1968-1969, the total CPI increased from about 101 in 1969 to about 242.3 in 1980 and further to 813 in 1990 and to 225,959 in 2000. If we consider the increase of the separate indices for calculating total CPI, the increase of the CPI for food and drinks was the highest (from 239 in 1980 to 4678 in 1993). The inflation rates of food and drinks also increased from 11.3 in 1980 to 163.9 in 1993.

Graph 8: Inflation rates by main groups 1980 – 1993



Graph 9: Inflation rates 1990 – 2002



4. Mortality up to 2002¹

Crude Death Rate

The study of mortality is very important because death patterns are often valuable indicators of levels of health. Just like when studying fertility, the Crude Birth Rate (CBR) is used, mainly for the sake of convenience, when studying mortality mainly the Crude Death Rate (CDR) will be used.

We shall not dwell upon the height of the CDR because there are some disadvantages to this rate. One should think of the distortions which may occur when we compare (unstandardized) death rates of two populations with a total different age structure.

A population which is ageing and has access to very sound medical facilities will still have a higher death rate than a relatively young population with poor medical facilities.

During the twenties the CDR of Suriname was about 20. In the seventies this rate decreased to around 7 and this trend continued up to 2000. For now, a further decrease is not expected. On the contrary, with a decreasing fertility and the continuous process of ageing, an increase of the death rate is expected, which is not self-evident that

Other and also better measures which are used as indicators for the standard of living in general and the health situations in particular are the life expectancy at birth (e_0) and the Infant Mortality Rate (IMR)

The life expectancy at a certain age, is the average number of years of life remaining at that age. Constructing a life table is time consuming and reliable detailed population data and mortality data are needed. For constructing a life table, population by age group and age specific mortality rates are needed. The most used age for the life expectancy is the life expectancy at birth (e_0). Because of lack of reliable data of deaths by age and sex during the sixties it is not possible to make a reliable life table during these years.

Since Suriname's last census was conducted last year and we expect detailed information of the census in July of this year, it is at this moment not possible to construct an up to date and reliable life table for Suriname. Our last life table was constructed for 1980 (census year) and the life expectancy at birth (e_0) for males and females was respectively 63.9 and 70.9 years. In stead of e_0 we will use the IMR which is easier to calculate. The IMR is calculated as follows: $IMR = \text{Deaths of infant} / \text{Births} * 1000$ (the number of children died at the age below 1 year in a certain year, per 1000 births in the same year). According to some people (among others Barbara Boland of the United Nations²) the IMR is a more sensitive measure than e_0 to stress effects of socio-economic circumstances, as well as measures in the field of environment and sickness control on the health situation

¹ This section draws heavily drawn from "Stagnation and Growth of the population 1970 -1995 (an internal – report of the GBS), Iwan A. Sno.

² Boland, B (1992) "Population Dynamics and Development in the Caribbean", Background paper DDR/2, presented at the meeting of Government Experts on Population and Development in Latin America and the Caribbean, preparatory to the International Conference on Population and Development (St. Lucia 6-9 October 1992). However, we have to remark that the IMR is very sensitive for possible inaccuracy in the data.

Infant mortality and under five mortality

According to the figures of Bureau of Public Health (table 13) we see that during the sixties and the seventies the IMR was about 35 per 1000 live births. During 1980 – 1987 the IMR decreased to an amount of 26. In the nineties we had an IMR of about 18 and in 2001 we had an IMR of about 21 per 1000.

The infant mortality rate over the period 1976 – 1981 was on average 35. According to one of the goals of the Pan American Health Organization namely “Health for all by the year 2000” whereby an IMR of 30 for all countries on the Western hemisphere was strived, we see that during 1976 - 1981 the IMR was still high for Suriname.

During the period 1988 – 1990 the IMR was around 20 per 1000 live births. Most infants (70%) die from diseases in the perinatal period.

Table 13: Infant Mortality Rate (IMR) 1963-2002

Years	IMR per 1000 – BOG/BPH	IMR per 1000 – MICS
1963 – 1970	35.4 ¹	Year – IMR
1976 - 1981	35.2 ²	
1980 – 1987	26.1 ³	1984 - 55
1988 – 1991	21.6 ³	1987 – 42
1992 – 1996	19.1	1990 - 39
1997 – 2001	16.3	1993 - 45
2000	20.2	1996 – 29
2001	15.9	
2002	21.1	

BOG/BPH = Bureau voor Openbare Gezondheidszorg/Bureau of Public Health

Source: 1995 – 1999 BPH and 2001 and indirect estimation

techniques (Brass method) from MICS results

¹ The Demographic Evolution of Suriname ,H.A.E. Lamur; ² Doodsoorzaken 1976-1981, Dr. Schaapveld; ³ Abuse of official statistics, Iwan A. SNO/ Bintiawatie SOEDHWA

Table 14: Under – five Mortality Rate 1995-2001

Years	BOG/BPH	MICS
		Year – U-5MR
1995	19.8	1984 - 65
1996	20.7	1987 - 48
1997	19.5	1990 - 45
1998		1993 - 52
1999	21.8	1996 - 33
2000		
2001	21.7	

Source: BOG 1995 – 1999 en 2001 and indirect estimation techniques (Brass method) from MICS results

Mortality by the main causes of death¹

For analyzing the main causes of death we will distinguish six periods:

- a. the period before 1975
- b. the period 1976 – 1981
- c. the period 1982 - 1990
- d. the period 1992 - 1996
- e. the period 1997 – 1999
- f. the period 2000 – 2002

a. The period before 1975

The information before 1970 is derived from a report of Prof. Lamur H.E., “The Demographic Evolution of Suriname 1920 – 1970”

Between 1923 – 1970 the CDR declined strongly. From 24.4 in 1923 to 11.6 in 1950 to 8.4 in 1960 to 7.4% in 1970. About 25% of all death rates belong to the following causes of death: pneumonia, congenital malformations and deceases of the newborn, malignant tumors, gastrointestinal disorders, infections and parasitic diseases (based on international classification on causes of death)

b. The period 1976 – 1981

The coverage percentage of dead by causes over the period 1976 – 1981 was on average 83.0%.

The six main causes of dead in this period (based on study of Dr. C. Schaapveld 1983) were cardiovascular and cerebrovascular diseases, ill – defined and vague symptoms, unknown, accidents, suicide and homicide, congenital malformations and diseases of the newborn, malignant tumors and infections diseases.

c. The period 1982 – 1990

Quality of mortality data has improved, in part due to the direct reporting causes of death from the interior, an improvement which nevertheless makes comparison with previous periods difficult. The mortality pattern resembles that of industrialized countries, with chronic degenerative disease being the main cause of death. More than 25% of deaths are due to cardiovascular and cerebrovascular diseases. Some 15% of the cause of death remains unexplained due to inadequate registration.

In the 1-4 age group, accidents, gastro enteritis and pneumonia are the main causes of death, while in the 5 – 14 age group, accidents account for 75% of all deaths. In the age group 15 – 44; accidents and suicides account for 75% of the deaths among males and around 50% for females. The overall ten leading causes of death in Suriname have not changed significantly over the past 10 years. Cardiovascular diseases are in the first place, followed by diseases originating in the perinatal period and malignant tumors. Infections diseases (gastro enteritis and pneumonia) are also among the ten leading causes of death.

¹according to available information

d. The period 1992 – 1996

During 1992-1996, there were 6625 deaths within the ten leading causes of deaths. The ten leading causes of deaths account for 47% of the total deaths. Diseases of the circulatory system account for 27.4 % of the 10 main leading causes of death. Deaths due to diseases originating in the perinatal period is within the ten main leading causes of death with on average 5% of the total of the 10 main leading causes of deaths. The year 1996 was the first year that HIV/AIDS appears on the list of the 10 main leading causes of death. HIV/AIDS was on the 9th place with 35 persons or 1.9% of the total of the 10 main causes of death.

e. The period 1997 – 1999

Between 1997 – 1999, there were 6,631 deaths with defined causes. The ten leading causes of death account for 73% of the total deaths from defined causes. Diseases of the circulatory system account for about 29.3% of all deaths during the period 1997 – 1999. Deaths from external causes account for 10.3%, tumors for 8.4% and diseases originating in the perinatal period for 5.2% of all deaths.

HIV/AIDS

During the years 1997 – 1999, HIV/AIDS was respectively on the tenth place of the 10 leading causes of death.

f. The period 2000 – 2002

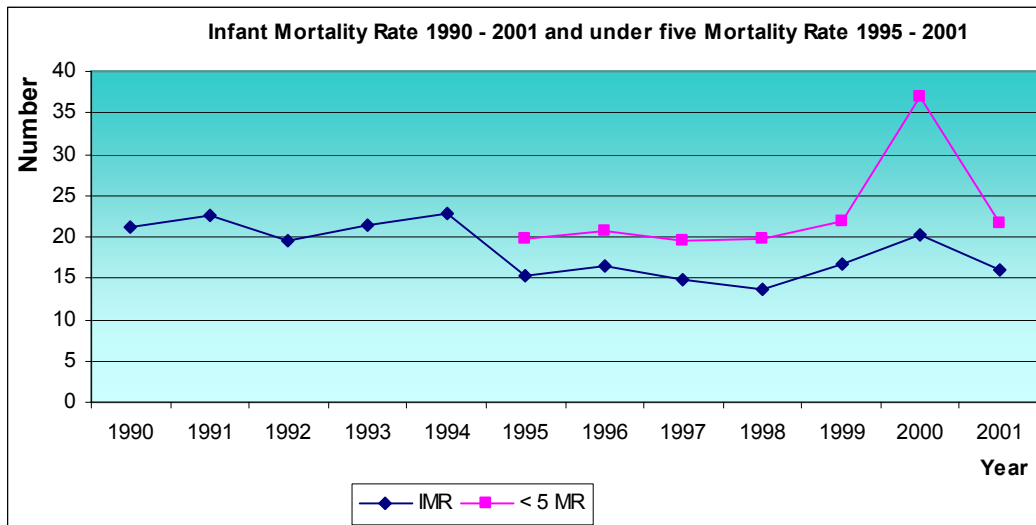
Between 2000 – 2002, there were 9,314 deaths with defined causes. The ten leading causes of death account for 78% of the total deaths from defined causes. Disease of the circulatory system account for about 28.2% of all deaths during the period 2000 - 2002. Deaths from external causes account for about 10.1%, tumors for 10.4% and disease originating in the perinatal period for 7.6% of all deaths with defined causes.

HIV/AIDS: Compared with the former period, during 2000 – 2002, HIV/AIDS moved from the tenth place to the sixth place. In other words the HIV/AIDS situation is worsened. From 2000 – 2002 the percentage of death due to HIV/AIDS was respectively 4.1%, 5.0% and 5,3% for the years 2000, 2001 and 2002, of the total deaths with defined causes.

Hypertension and diabetes remain the main leading cause of death, and in the year 2000 Cerebrovascular diseases moved back to second place similar to 1998. The death rate due to malignant neoplasms has slightly increased each year and is not far from the third place.

As in former years cardio vascular and cerebro vascular diseases are the no.1 (28.8%) cause of death in Suriname, followed by external causes (9.8%).

Graph 10: IMR 1990 – 2001 and < 5 MR 1995 – 2001



Source: 1990 – 2001: Bureau of Public Health
2000 : MICS data 2000

As we see in the table and the graph, the IMR declined from about 35 in the seventies to about 20 in the nineties, but increased again in 2000 and 2002.

5. Possible links between Poverty and Mortality

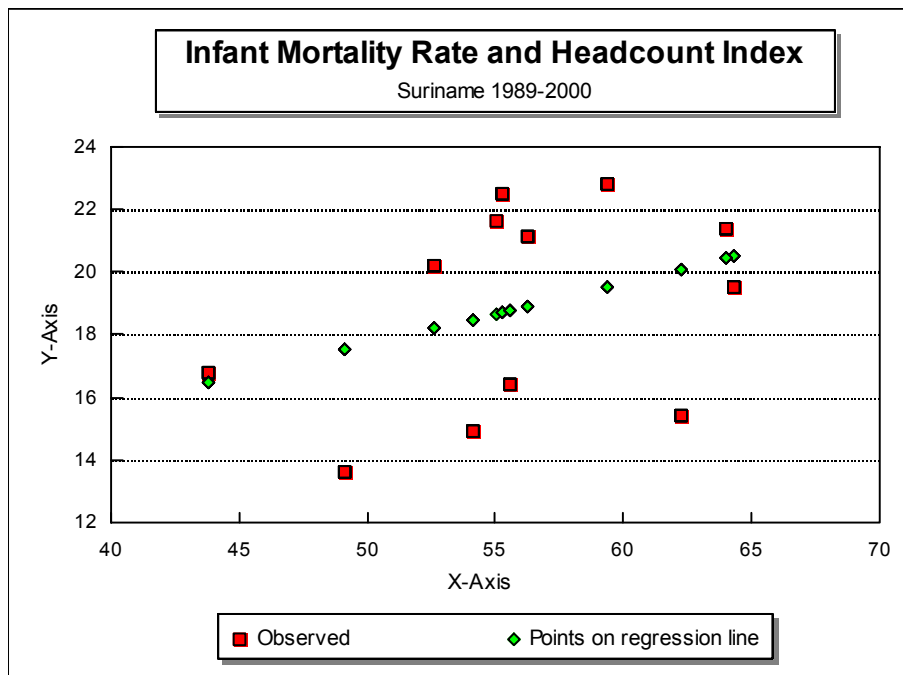
As we have learned from chapter 2, the percentage of poor has increased from 1968/1969 to 1999/ 2000. Suriname moved from between 13 and 30% poor households in 1968/1969 to between 57 to 71% in the last quarter of 2000.

As we see in table 4 the percentage of poor persons is even higher. The percentage of poor persons moved from between 17 and 35% in 1968/1969 to between 62% and 74% in the last quarter of 2000.

As we mentioned before (in chapter 4), we used the IMR for further analysis instead of e_0 or CDR. The reason is also mentioned before.

As mentioned in Chapter 2, the poverty estimates as of graph 11 are based on counterfactual simulations. Form table 11 we can derive that there is a certain correlation between the Headcount Index and the IMR. Unfortunately we do not have information of more years to show a better correlation.

Graph 11: Infant Mortality Rate and Headcount Index



Other findings:

Regarding the IMR we can prudently conclude that that the IMR has decreased from about 35 per 1000 live births in the sixties to about 20 per 1000 in 2002. We think that better health care assistance at delivery, prenatal care and contraceptive has influenced the IMR positively. CIMS results show that 85% of the delivery was done with the assistance of a nurse or a midwife.

With regard to some other socio-economic indicators we can say that it seems that increased poverty has affected:

- Health Care Financing:

From 1999 – 2000 on average 3.2% of the national budget was spent on Public Health

- Public Health Expenditure in % of GDP is only 1.36 in 2000 and 1.01 in 2003.

- Real GDP per capita remained constant

- In 1999 and 2000 the inflation rates increased again after a decrease in 1996 (year of general elections)

- there seems to be a link between IMR and Malnutrition during 1995 – 2001; also here more data is needed to draw firm conclusions.

Conclusion

Analyzing mortality and poverty and see if there are links between these is not so easy. First of all good data sets are needed to do in depth analyses (e.g. multivariate analyses). Standard literature for poverty-mortality relations and analyses has to be developed to guide researchers. In the case of certain countries such as Suriname you have a good data set of one variable for a

certain time and a dataset for another variable for another time. In this case it is difficult to link the data.

In Suriname we have a decentralized statistical system. Because of a lack of coordination the data availability is not often optimal; there are GBS data in certain years, no data of other institution are the other way around. Another constraint of data sets is that most of the data from especially administrative sources are not poverty related.

From this paper we have experienced that although poverty is increased and the economic situation has deteriorated between 1968/1969 and 2000, we can not make a straight forward conclusion that poverty is a major determinant of mortality. Further studies and research are needed to have a better understanding of the poverty-mortality analyses.

Nevertheless since 2003 the GBS is legally in charge of coordinating Suriname's statistical system so in due course this situation will certainly improve.

Annexes

Tables:

Table A: Total Population by Sex and District (Census 2004)

District	Male	Female	Unknown	Total
Paramaribo	120,610	122,470	560	243,640
Wanica	44,050	41,928	94	86,072
Nickerie	18,908	17,670	33	36,611
Coronie	1,477	1,330	2	2,809
Saramacca	8,498	7,567	70	16,135
Commewijne	13,048	11,582	27	24,657
Marowijne	8,444	8,194	3	16,641
Para	9,789	9,062	107	18,958
Brokopondo	6,910	6,333	56	13,299
Sipaliwini	13,197	14,948	57	28,202
Total	244,931	241,084	1,009	487,024

Table B: Number of Health personnel and population per professional from public and private sector

	Pop. to each 2000	2000	2003	2004
1. Physicians	194	2246		400
2. Dentists	35	1245		35
3. Hospital administrators	5	87159		
4. Social workers	10	43580		
5. Number of Hospitals			5	5
6. Number of Hospitals Bed (per 1000 pop.)			1553	1610
7. General Practitioners				295
8. Medical Specialist				
9. Obstetricians				
10. Nurses	696		762	
11. Nursing Assistants	440	990		
12. Nutritionist/ Dietitians	5	87159		
13. Registered Nurses	698	624		
14. Enrolled Nurses	234	1862		
15. Community Health Aides	80	5447		
16. Radiographers	4	108949		
17. Pharmacists/ Dispenses	24	18158		
18. Physiotherapists	34	12818		
19. Dental Auxiliaries/ Nurses	83	5251		
20. General Physicians by working district			295	
21. Health Centre in Suriname of Medical Mission Health Centres in Suriname			50	

Table C: Financial: Health expenditure as a percentage of the total government expenditure, as a percentage of GDP, per capita

Year	Health care (x sf 1000)	GDP x sf 1000	Health care costs in % of GDP	Population	Costs per capita	Exchange rate per US\$	Cost per capita in US\$
1995	8,783,970	22,112,000	3.83	408,866	21,483.74	493.00	43.58
1996	12,952,257	325,207,000	3.98	413,428	31,328.93	416.38	75.24
1997	18,508,720	384,305,000	4.82	418,921	44,181.89	434.38	101.71
1998*	15,665,590	447,184,000	3.50	424,590	36,895.81	555.38	66.43
1999	-	-	-	-	-	-	-
2000#	105,464,700	N.A	9.42	435,797	241,456.20	N.A	180.33

Table D: Ten leading causes of death, 1997 – 1999

Cause of death	number	%
1. Cardiovascular Diseases	1241	18.72
2. Cerebrovascular Diseases	704	10.62
3. Accidents and Violence	686	10.35
4. Maligne Neoplasmas	554	8.35
5. Gastro-Intestinal System Diseases	492	7.42
6. Perinatal Diseases	344	5.19
7. Diabetes Mellitus	228	3.44
8. Acute Respiratory Infections (ARI)	209	3.15
9. Diseases of the Urinary System	199	3.00
10. HIV/ AIDS	193	2.91
Other	<u>1781</u>	<u>26.86</u>
Total	6631	100.00

Table E: Then leading causes of death, 2000 – 2002

Cause of death	number	%
1. Cardio vascular and cerebro vascular diseases	2339	28.2
2. External causes (accidents and violence)	834	10.0
3. Malig Neoplasmas	871	10.6
4. Disease originating from the perinatal period	642	7.7
5. Diabetes Mellitus	430	5.2
6. HIV/AIDS	402	4.8
7. Gastro-Intestinal System Diseases	308	3.7
8. Diseases of the Urinary system	220	2.7
9. Acute Respiratory Infections (ARI)	203	2.4
10. Intestinal infections and other chronicle diseases	141	1.7
Other diseases	<u>1912</u>	<u>23.0</u>
Total	8302	100.0

Table F: Real GDP Growth rate in % and Public Health in % of GDP market prices 1976 – 2003

Year	1988	1989	1990	1991	1992	1993	1994	1995
Public Health in % of GDP	1.89	1.47	1.36	1.33	1.08	0.55	1.08	1.41
Year	1996	1997	1998	1999	2000	2001	2002	
Public Health in % of GDP	0.9	1.49	0.38	1.36	1.36	1.05	1.35	

Year	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
GDP Real Growth in %	9	10	7	-6	-9	7	-4	-4	-2	2	1	-6	8	4
Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GDP Real Growth in %	-4	2	1	-5	-4	3	1	2	3	-3	4	6	2	6

Table G: Nominal and Real GDP per capita (market prices) for the formal and informal Sector

(nominal)

Year	1990	1991	1992	1993	1994	1995	1996
Formal sector	793.9	898.2	1187.3	2848.6	15700	57746.2	65818.2
Formal + informal sector	956.8	1089.3	1455.7	3450	18949.5	70447.2	78551.8

Year	1997	1998	1999	2000	2001	2002	2003
Formal sector	69828.8	83598.3	142094	220851.5	308022.5	409435.4	531965.1
Formal + informal sector	83153	98386.1	166533.4	251724.4	353887.8	466586.1	617860.9

(Real)

Year	1990	1991	1992	1993	1994	1995	1996
Formal sector	794	802.2	798.02	745.8	711.4	721.3	719.7
Formal + informal sector	956.8	969.9	960.7	884.5	902.4	890.5	887.8

Year	1997	1998	1999	2000	2001	2002	2003
Formal sector	726.1	738.7	711.2	729.8	762.7	771.5	808.3
Formal + informal sector	926.3	935.3	910	914.8	943.9	957	1008.6

Table H: Inflation rates by main group, 1980 – 2002

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988
Food + beverage	15.25	-1.05	10.83	5.46	2.53	18.22	15.8	47.85	1.27
Dwelling + home furnishing	8.6	23.8	7.76	6.45	9.04	6.53	14.62	31.49	20.66
Clothes expenditure	17.11	11.93	9.56	2.15	4.92	8.66	13.8	30.08	11.75
Other expenditure	13.22	8.71	7.29	4.39	3.69	10.89	18.69	53.38	7.32

Year	1989	1990	1991	1992	1993
Food + beverage	-2.72	14.2	29.91	31.63	134.83
Dwelling + home furnishing	12.4	7.65	38.03	33.77	119.31
Clothes expenditure	-5.11	22.24	31.23	37.95	119.2
Other expenditure	0.75	21.75	25.97	43.66	143.52

Table I: Inflation rates 1990 - 2002

Year	1990	1991	1992	1993	1994	1995	1996
Inflation Rates	21.8	26	43.7	143.5	368.5	235.6	-0.7

Year	1997	1998	1999	2001	2002
Inflation Rates	7.1	18.7	98.8	38.6	15.5

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