The Improvement in Child Nutritional Status in Brazil: How did it occur

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The Improvement in Child Nutritional Status in Brazil: How did it occur

by

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Adelaide

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UNITED NATIONS ADMINISTRATIVE COMMITTEE ON COORDINATION – SUBCOMMITTEE ON NUTRITION (ACC/SCN)

The ACC/SCN is the focal point for harmonizing the policies and activities in nutrition of the United Nations system. The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN Agencies, recommended the establishment of the Subcommittee on Nutrition in 1977, following the World Food Conference (with particular reference to Resolution V on food and nutrition). This was approved by the Economic and Social Council of the UN (ECOSOC). The role of the SCN is to serve as a coordinating mechanism, for exchange of information and technical guidance, and to act dynamically to help the UN respond to nutritional problems.

The UN members of the SCN are FAO, IAEA, World Bank, IFAD, ILO, UN UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNRISD, UNU, WFC, WFP and WHO. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities. The SCN is assisted by the Advisory Group on Nutrition (AGN), with six to eight experienced individuals drawn from relevant disciplines and with wide geographical representation. The Secretariat is hosted by WHO in Geneva.

The SCN undertakes a range of activities to meet its mandate. Annual meetings have representation from the concerned UN agencies, from some 10 to 20 donor agencies, the AGN, as well as invitees on specific topics; these meetings begin with symposia on topics of current importance for policy. The SCN brings certain such matters to the attention of the ACC. The SCN convenes meetings on inter–sectoral and sector–specific topics. Ten–year programmes to address two major deficiencies, vitamin A and iodine, have been launched.

The SCN compiles and disseminates information on nutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation are issued, and flows of external resources to address nutrition problems are assessed. State−of−the−Art papers are produced to summarize current knowledge on selected topics. As decided by the Subcommittee, initiatives are taken to promote coordinated activities − inter−agency programmes, meetings, publication − aimed at reducing malnutrition, primarily in developing countries.

Preface and Acknowledgements

In 1989, the ACC/SCN Secretariat organized a workshop "Managing Successful Nutrition Programmes" at the 14th IUNS Congress in Seoul, August 1989, in which case studies of 17 selected nutrition programmes in 12 countries were presented. At the 16th Session of the ACC/SCN in February 1990 the SCN decided, following a proposal by UNICEF, that the scope should be broadened and a series of case studies be undertaken on country−wide actions aimed at improving nutrition. These would be presented at the 15th IUNS Congress in 1993. UNICEF agreed to provide financial support for this exercise.

The project commenced in November 1990, when a proposal was written that described the structure and content of the reviews. This was later considered by the 18th session of the ACC/SCN in New York. Following this, a trawl of relevant information sources was undertaken and relevant national institutions approached. Consultations on the outlines of country−specific reports (based on the general proposal) were subsequently initiated, country review authors identified and contracts passed to support the work. Preparation of the first drafts of the reviews took approximately 6 months, and were carried out in each case by 1−3 co−authors selected by the collaborating institution.

Three documents that guided the country reviews through providing a basic format and general ideas on setting scope and content, were the UNICEF Nutrition Strategy document (1991) and the two ACC/SCN Nutrition Policy Discussion Papers Nos. 8 and 10, namely "Nutrition−Relevant Actions: Some Experiences from the Eighties and Lessons from the Nineties" and "Managing Successful Nutrition Programmes".

The Brazilian review was prepared by Dr. Roberto F. Iunes, an economist and Dr. Carlos A. Monteiro, an epidemiologist with the School of Public Health and Center for Epidemiological Studies in Health and Nutrition of the University of Sao Paulo. We are also very grateful to Dr. Philip Musgrove (World Bank) and Dr. Dutra de Oliveira (IUNS) for their constructive comments on earlier drafts.

The authors would like to thank the following people for their help in the elaboration of this work: Prof. Dr. Maria Helena D'Aquino Benício, and the research assistant Nelson da Cruz Gouveia (Child Health and Nutritional Status); Luiz Patrício Ortiz and Ana Lúcia de Siqueira Brito (Demography); Adriana Schor for research assistance in the area of Economics; and Stuart Gillespie for his comments and discussion. Remaining shortcomings of the paper are the responsibility of the authors.

Foreword

Viewing improved nutrition as an outcome of development processes expands the area of concern for policy−makers and practitioners who seek to combat malnutrition. These processes operate at a different levels in society, from the individual through to the whole arena of governmental policy and indeed international relationships. The SCN, in deciding on initiating a series of country−wide reviews of nutrition−relevant actions in 1990, aimed to provide a rich base of documented experience of why and how such actions were undertaken and what was their effect on nutrition.

This country−wide approach built on the progress made at the 1989 workshop on "Managing Successful Nutrition Programmes" held at the 14th IUNS Congress in Seoul. The focus here had been on nutrition programmes, and the essential factors determining their success, and the synthesis of findings and individual case studies were later published as ACC/SCN Nutrition Policy Discussion Paper No. 8.

Two other influential documents were the SCN's "Nutrition Relevant Actions" that emerged from the 1990 workshop on nutrition policy held in London, and UNICEF's 1991 Nutrition Strategy document. Together these provided both a common analytical framework for organising the reviews and a common language for

discussing the various actions that impinge on nutrition. The value of such a framework has been demonstrated by the ease with which it lends itself to analyses of both the nutrition problem and its potential solutions. The food – health – care triad of underlying causes of malnutrition, in particular, proved to be a very useful framework for orienting the inputs and subsequent discussions at the 1992 International Conference on Nutrition, co–sponsored by FAO and WHO. Communication and thus advocacy are facilitated when people share such a conceptual understanding.

UNICEF had originally proposed that a series of country–wide reviews be undertaken and the results presented at the 15th IUNS Congress in September 1993. At the time of writing, preparations for this workshop are well underway – in fact, the richness of documented material has necessitated the organisation of an additional two–day satellite meeting in Adelaide. We are extremely grateful to UNICEF for their financial support throughout this exercise. The series editor for these country reviews was Stuart Gillespie, and the SCN Advisory Group on Nutrition (AGN) also technically examined the drafts as these emerged. In addition, I would like to express gratitude to the external technical reviewers, selected for their in–depth knowledge of particular countries, who provided the authors with comments and suggestions on initial drafts.

The essential value of these country case studies lies in their ability to describe the dynamics involved when a national government attempts to combat malnutrition. Questions such as the role of the political economy in determining policy options, obstacles met in implementation, how programmes are modified or expanded, and how they are targeted, are all addressed. The need for actions to be sustainable to achieve results over the long–term, and the importance of both measurable objectives and a system of surveillance to monitor progress, are examples of important conclusions. These reviews thus provide valuable insights into the questions of "how" as well as "what", in terms of nutrition policy.

The country reviews are intended for a wide audience including those directly concerned with nutrition in developing countries, development economists, and planners and policy makers. Along with the output of the Adelaide meeting, they will be valuable for advocacy in underscoring that effective actions *will* improve nutrition. It is hoped that these reviews and the proceedings of Adelaide will provide guidance for a strengthening and expansion of future actions for reducing nutritional deprivation.

Dr. A. Horwitz
Chairman, ACC/SCN

Introduction

Most social and economic analyses about Brazil concentrate on its inequalities and poor social indicators viz–a–viz its wealth (see for instance Sachs, 1991). Even though it is true that the structure of the Brazilian society and standards of living are incompatible with its economy, most of these approaches have an important limitation: for being static, they do not allow for an understanding of the mechanisms of change and how they operate. Through the analysis of the remarkable improvements in the nutritional status of the Brazilian children, that occurred along the last two decades, we will try provide some insight into the patterns of transformation of the Brazilian society. The explanation for these improvements is not immediate, in fact, the results may even appear paradoxical, for in the course of the decades of the 1970's and 1980's income inequalities have increased, annual inflation rates have surpassed the 1,000% mark, and the rapid economic growth experienced since the late 60's vanished in the last decade. The sharp differences that exist between the two decades involving the two surveys make this period particularly fruitful for analysis.

The next section provides an overall picture of the twenty–year period between 1970 and 1989 provided by macroeconomic indicators and demographic variables. In the third part we will detail the trends in child nutritional status. Section IV provides an interpretation of the improvements discussed in the previous section and how they can be explained by poverty and income distribution indicators and by the entitlement framework. Section five concludes this paper with some conjectures about the Brazilian process of social development.

Chapter 1. 1970–1989: A General Picture

The Country

In the Brazilian territory, the fifth largest in the world after Russia, China, Canada and the United States (including Alaska), and covering over 48% of the South−American continent, live about 146.1 million people (estimates after preliminary results of the 1991 census), constituting the world's sixth largest population. Brazil is divided into five great and homogeneous geographic regions: North, Northeast, Center−West, Southeast, and South:

a) the North region comprises roughly 45% of the country's territory but only about 7% of its population. It is a region dominated by the rain forest and the Amazon Basin, contributing to 4.35% of the country's Gross Domestic Product (GDP, 1985 estimates);

b) the poor Northeast region (18% of the territory and 29% of the country's population) has the lowest per capita income of the country, of about US$ 1,198 (dollars of 1989, estimates for 1985). It is responsible for 13.55% of the Brazilian GDP (1985 data);

c) the Center−West region (about 19% of the territory, 6% of the population, and 6.2% of the GDP, 1985 estimates) is an area of predominantly large agricultural properties and concentrates the country's largest creation of cattle;

d) the Southeast region is the most densely populated (44% of the population and 11% of the territory) and richest part of the country. With a per capita income of almost US$ 3,400 (estimates of 1985 in dollars of 1989) it contributes with about 58% of the GDP (1985 data). Most of the industrial development is concentrated here;

e) the South region (15% of the population, 7% of the territory, and about 18% of the GDP in 1985) presents less economic and social contrasts than the other four regions. Owing to its cooler climate and incentives provided to attract skilled labor, the region received a large number of German and Slav immigrants.[1]

[1] The regional comparisons and data presented in this work will be generally limited to the two most contrasting regions, the Southeast and Northeast. Generally speaking, the North follows a pattern similar to the Northeast, and the South and Center−West regions to the Southeast.

Urbanization and Demography

From 1970 to 1990 the Brazilian population increased more than 54%, or about 50 million people, from 93.1 million to 143.6 million. The important feature to be noted, however, is that this expansion is entirely explained by the growth of the urban population, with the absolute number of rural inhabitants actually declining in the period, from 41 to about 39 million.

As Table 1 shows, the proportion of urban residents increased from about 60% in 1970 to 73% in 1990. The process of urbanization brought two important changes: in the first place it induced a process of demographic transition that can be characterized by the lowering of the fertility rate: from 5.76 in 1970, to 4.35 in 1980, and 2.91 in 1990. This process, initiated in the late sixties, was continuously accelerated throughout the following decades, resulting in lower rates of population growth. During the period that elapsed between 1960 and 1970 the Brazilian population grew at an average annual rate of 2.88%, along the seventies this rate declined to 2.48%, and in the last decade the average annual growth decreased to a value below 2%, to 1.9%, as can be seen from Table 2. In second place, the concentration of the population in cities created an important and vocal medium class.

The urban populations, particularly in the Brazilian experience, increasingly concentrated in the larger cities[2], put pressure on the public sector not only for the availability of social services and infrastructure[3], but also for political change, demanding political freedom and the restoration of democracy. As a consequence it became increasingly difficult for the government to contain the movements in opposition to the military dictatorship established in 1964.

[2] The proportion of the Brazilian population living in the country's nine metropolitan areas (Belém, Fortaleza, Recife, Salvador, Belo Horizonte, Rio de Janeiro, São Paulo, Curitiba, and

Porto Alegre) was 21.8% in 1960, 25.9% in 1970, and 28.8% in 1980.

[3] See Section IV for a discussion on the expansion of the urban infrastructure.

The process of urbanization can also be seen through the changes in the structure of the Brazilian economy. Table 3 displays the shares of the primary, secondary and tertiary sectors in the economy. As it can be seen, the participation of the rural (primary) sector in the GDP declined from 11.5% in 1970 to about 7% in 1989[4,5]. The table also shows that during most of this period the GDP shares of the secondary (manufacturing, mining, construction and utilities) and tertiary (services) sectors oscillated between 36 and 40%, and 48 and 51%, respectively. The expressive growth of the tertiary sector occurred after 1986 when its participation in the GDP moves from the 47.7% of that year to 58.6% in 1989, an increase of almost 23%.

[4] It should be noted that the production of primary goods, and thus the value of such production, can be largely affected by external (natural) conditions.

[5] The sharp drop, of about 28%, in the participation of the rural sector in the economy observed between 1965 (15.9%) and 1970 (11.5%), should be noted. It is the beginning of the process of demographic transition described above.

Table 1: Urban Population (%)
Brazil, Northeast and Southeast Regions
1960, 1970, 1980, 1990

	1960	1970	1980	1990
Brazil	44.7	55.9	67.6	72.6
Northeast	33.9	40.2	50.4	57.3*
Southeast	57.0	71.7	83.0	85.9*

Sources: Costa (1991); *PNAD, 1989; Preliminary results of the 1991 census

Table 2: Population: Distribution and Growth
Brazil, Northeast and Southeast Regions
1960, 1970, 1980, 1990

Year or Period	Brazil Population		% of the Country's Population	
	Number (million)	Average Annual Growth %	Northeast	Southeast
1960	70.1	–	31.5	43.7
1970	93.1	–	30.2	40.8
1980	119.0	–	29.4	43.6
1990	143.6	–	29.1	43.6
1960–70	–	2.88	–	–
1970–80	–	2.48	–	–
1980–90	–	1.90	–	–

Source: Costa (1991); PNAD, 1989; Preliminary results of the 1991 census

The relative increase of the tertiary sector is largely explained by the behavior of the financial sector. During the eighties the Brazilian financial institutions were offering a rich portfolio of financial investments, including risk–free alternatives for very short–term (daily) operations in an economic environment characterized by uncertainty and explosive inflationary rates (particularly after 1986), in which economic agents have to protect their monetary assets against devaluation.[6] Table 4 clearly shows the impressive growth of the Brazilian

financial sector. Between 1980 and 1985 the growth of the banking institutions, as percentage of the GDP, was of 42%. In the second half of the decade this growth increased to more than 76%. As a result, in 1989 these institutions represented about 19.5% of the GDP and one−third of the entire tertiary sector.

[6] Such options as well as the high real interest rates were possible due to the escalating need of the government to sell short−term bonds to finance its deficit. Also note that high real interest rates favor financial applications relative to investments in production.

Table 3
Participation of the Economic Sectors in the GDP
Brazil: 1960, 1965, 1970, 1975, 1980, 1985−1989

Year	Primary	Secondary	Tertiary
1960	17.8	32.2	50.0
1965	15.9	32.0	52.1
1970	11.5	35.9	52.6
1975	11.2	37.4	51.4
1980	10.0	38.1	51.9
1985	10.2	40.2	49.5
1986	10.4	42.0	47.7
1987	8.7	39.8	51.5
1988	8.8	37.9	53.3
1989	6.9	34.5	58.6

Sources: MPAS/CEPAL (1990); IBGE (1990, 1991)
Note: For a definition of the sectors see main text.

Table 4
Growth of the Financial Industry
Brazil: 1970, 1975, 1979, 1980, 1985, 1989

Year	Financial Institutions	
	% GDP	% of Tertiary Sector
1970	6.02	11.45
1975	6.55	13.39
1979	8.40	16.79
1980	7.76	15.80
1985	11.04	22.29
1989	19.48	33.22

Sources: IBGE (1990, 1991)

The Economy

From 1968 to 1973 the rate of growth of the Brazilian economy reached levels never experienced before. This period, known as the "Brazilian miracle", was produced by an expansionary policy that can be summarized by:

i) the expansion of consumer credit, stimulating the consumption of durable goods;

ii) a reform of the financial system that supported the construction of housing units and the growth of the industry;

iii) the public investment in infrastructure;

iv) the subsidy to exports; and

v) a monetary expansion.

These measures provided the conditions for increments in consumption and investment by both public and private agents.

The external debt also rose substantially during this period, particularly due to the necessity of the Brazilian public enterprises – an important piece of support for the government's program of economic growth – to import sophisticated equipments. In this sense, while the private sector was generating surpluses the public sector was exhibiting considerable deficits.

The end of the "Brazilian miracle" resulted from a combination of external determinants, such as the first oil crisis of 1973, and the collapse of the economic policies implemented.

During the second half of the seventies the country experienced a decline in the rate of growth and an increase in inflation. The deficit in the government's external account was being financed by the excess of resources that existed in the international market brought by the enormous transfer of income to the oil–producing countries. While Europe, Japan and the United States have chosen to adjust to the new scenario through aggregate demand policies, the Brazilian government opted, after a period of uncertainty, for an adjustment on the supply side. In fact, this was a political decision, for the military regime would not be able to cope with the social and political costs that an adjustment of demand would bring.

The period was characterized by a policy intended to reduce the country's dependency on imported oil, raw materials and production goods. Significant growth rates and consumption levels were feasible because foreign capital was used as a substitute for domestic savings. Since the growing external debt was not accompanied by an equivalent increase in the public sector's income, the internal deficit became severely pressured.

The government's lack of ability to balance the public finance with the process of economic expansion is, for many, on the basis of the worsening of the distributive conflict and the inflationary process of the 80's.

The shock of oil prices of 1979 and the increase in interest rates in the international market impose serious constraints on the economy. As a result, the 80's begin with a new attempt to adjust the economy. This time the alignment was imposed on the demand side, following the patterns of the International Monetary Fund (IMF) and other international agencies. As a result, from 1981 to 1983, the country moved into a period of deep economic recession. In 1984, expansionary measures increased the level of employment, income and inflation. The latter was unsuccessfully confronted with rigid measures intended to control prices and the rates of public services. In 1986, already under a civilian government, a set of measures, including price freezes, known as the "Cruzado Plan" were implemented rooted on the diagnosis that the Brazilian inflation had an important inertial component. During the first few months of the Plan the inflation rate was reduced to close to zero. Political constraints and management problems, however, contributed to the gradual deterioration of its execution and final failure. The new attempts made in the following years to control inflation also failed. As result, the 1980's ended with growing inflation rates and a complete lack of control over the economy and the tools of economic policy.

Macroeconomic Indicators

In this sense, while the seventies were marked by rapid economic growth and relatively stable inflationary rates, the eighties was characterized by a poor economic performance and an explosive inflation. These sharp contrasts between the two decades can be clearly seen through the aggregate indicators of the Brazilian economy.

Between 1970 and 1989, the Brazilian economy, measured by the Gross Domestic Product (GDP), almost tripled its size, moving from US$ 157 billion to US$ 436 billion (in dollars of 1989).[7] Only in the first decade, i.e. between 1970 and 1979, with an annual growth rate averaging about 8.6%, the GDP more than doubled. In 1989, however, the economy was only about 21% bigger than in 1980, reflecting an annual growth of about 2% on average, as displayed by Figures 1 and 2.

> [7] In order to minimize the impact and distortions that the high inflation rates of the late eighties would bring (including on the exchange rate) we have done the following throughout our process of calculation: a. all values in the series were translated into cruzeiros of 1980 (instead of 1989 the last point of the series); b. the dollar figures were obtained through the transformation of the cruzeiros of 1980 in dollars of 1980 using the average annual exchange rate, these dollars were then inflated to 1989 values using the U.S. consumer price index.

Figure 2 also shows that by taking into consideration the population growth, the differences between the two decades become even more dramatic: if, on the one hand, the per capita income increased in real terms almost 70% in the 1970–79 period (about 6% per year on average); on the other hand, the real income per inhabitant was just about the same in 1989 as it was in 1980 (in fact a negative growth averaging 0.02% per year). The per capita income, measured in dollars of 1989, was roughly US$ 1640 in 1970, US$ 2962 in 1980, and US$ 2956 in 1989.

The data in Figure 3 displays the faster growth rates of the early seventies. Between 1970 and 1974 the annual growth rates averaged about 11%, compared to 6.7% during the 1975–79 period. The numbers for the following decade are totally different. As discussed above, the beginning of the eighties was marked by an important economic recession (see Table 5): not only the per capita income declined constantly between 1981 and 1983, but there were also negative growth rates in 1981 and 1983. As a result, from 1981 to 1984 the economy remained at levels below those of 1980, in fact, it was only in 1984 that, for the first time since 1980, both the total and the per capita growth rates show positive values. It is not surprising, therefore, that the average annual, total and per capita, growth rates are both negatives for the 1980–84 period, as shown in Figure 3, revealing that for every year that passed between 1980 and 1984, Brazilian citizens were becoming almost 3% poorer. Even though not as large as the rates of the previous decade, the average rates of growth returned to positive values in the 1985–89 period: 3.5% for the whole economy and 1.4% in per capita terms (see Figure 3).

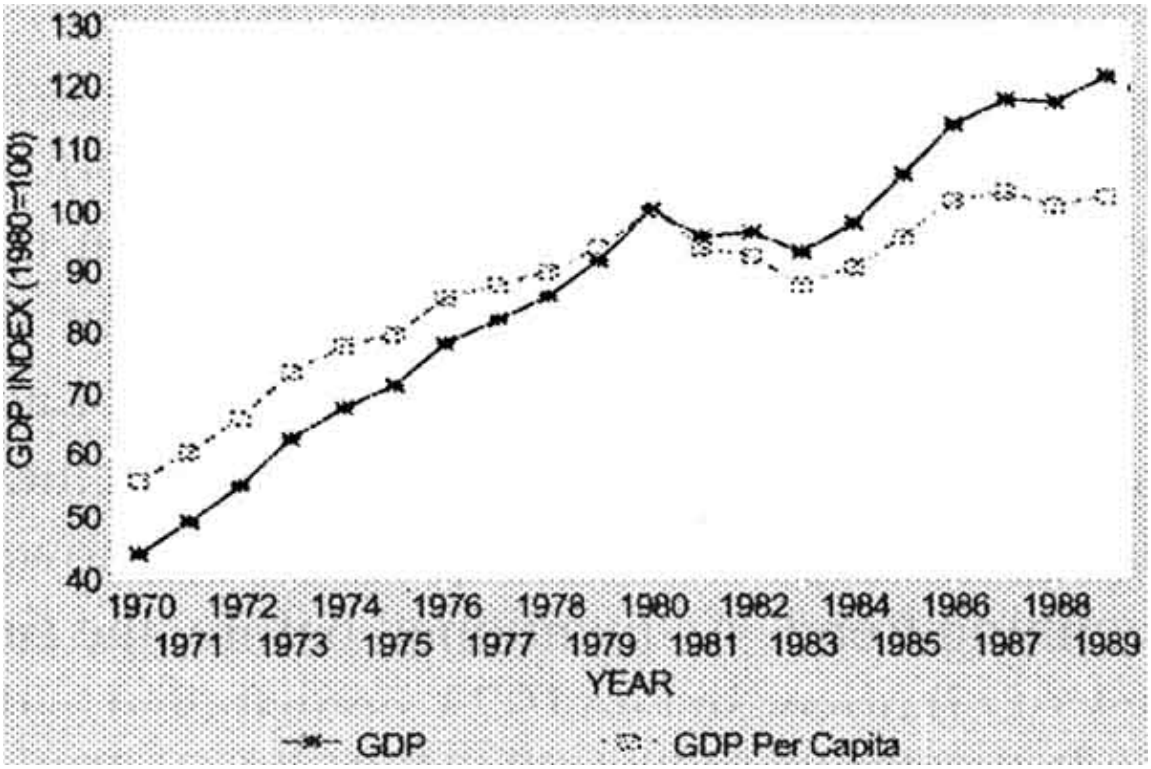

Figure 1. EVOLUTION OF THE GROSS DOMESTIC PRODUCT – BRAZIL, 1970–1989

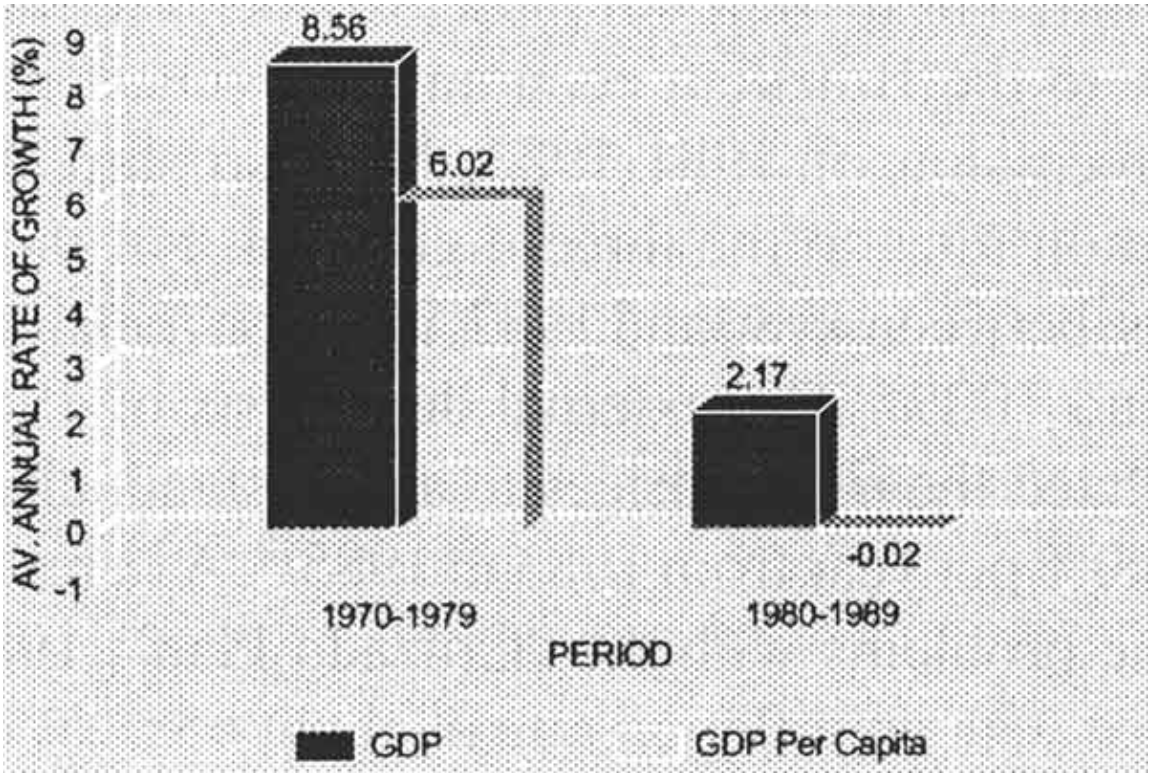

Figure 2. AVERAGE ANNUAL GROWTH RATES – BRAZIL: 1970–79, 1980–89

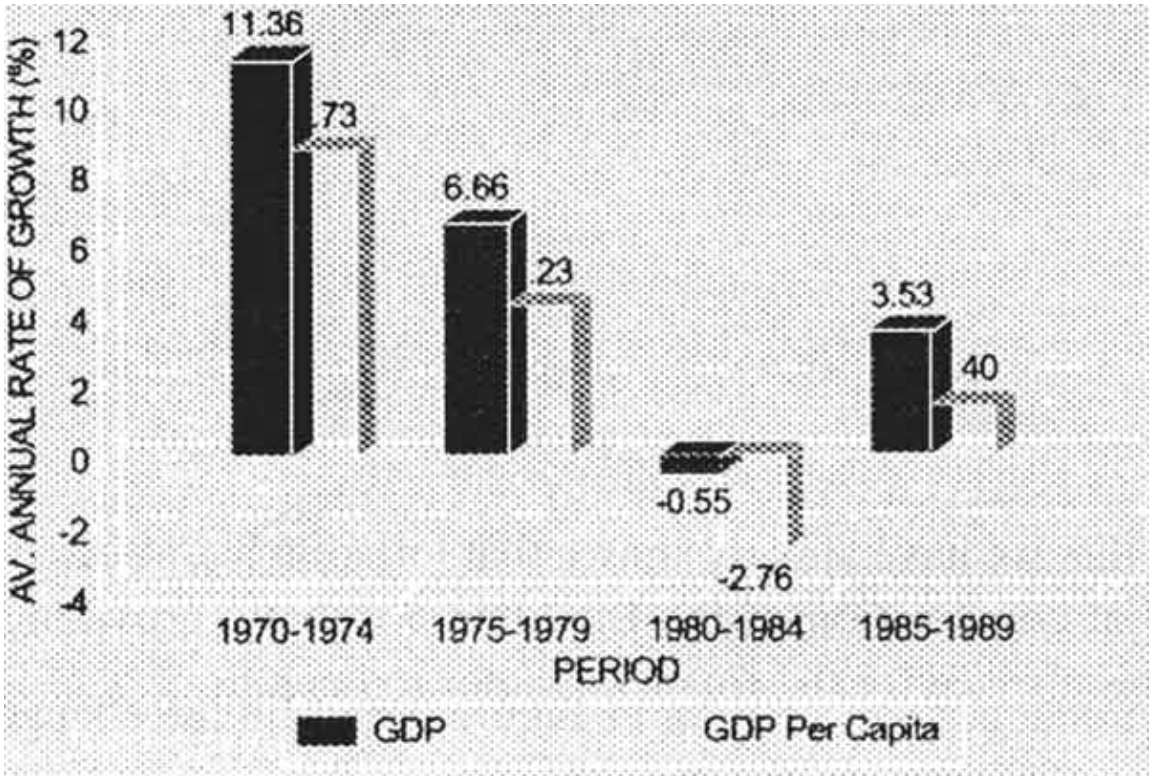

Figure 3. AVERAGE ANNUAL GROWTH RATES – BRAZIL: 1970–74, 1975–79, 1980–84, 1985–89

A particularly important issue in the Brazilian economic environment is the inflationary process. Figure 4 displays, in logarithmic scale, the trend of the inflation rates from 1970 to 1989.[8] It is clear that the two decades were also very different with respect to the evolution of prices. From 1970 until 1973 the annual inflation rate remained between 15 and 20%, levels, at the time, regarded by some as acceptable by Latin American standards of chronic, or structural, inflation. In fact, the 1971 –73 period even showed a declining trend. As mentioned before, the first shock of oil prices in late 1973, contributed to the already discussed reduction in the rates of growth of the economy[9] and to the sharp increase in inflation in 1974 to about 34.5%. The second half of the decade experienced a rising (even though oscillating) inflationary trend until 1979, when the annual rate reached 77.3%. The second oil shock of 1979 and the rise of interest rates in the international market not only provided the final blow to the Brazilian economy, moving it into the recession of 1981–1983, but also shift the inflation rates to the three–digit level. For three years, between 1980 and 1982, inflation remained around 100%. The external debt crisis of 1982 escalated the rise in prices to a new stand: close to 200% per year from 1983 to 1985[10]. As a result of the problems with the "Cruzado Plan", 1986 closed with an inflation rate of about 65%. With the failure of the "Cruzado Plan" and the other attempts made from 1987 to 1989 to control prices, the inflation rate exploded: to 415% in 1987, 1038% in 1988, and 1783% in 1989.

[8] Note that we have already shown that inflation has affected the sectorial composition of the Brazilian economy, providing an important space for the financial sector to operate.

[9] These changes can be seen in Figure 3 and by the change of slopes in Figure 1.

[10] Annual inflation rates of 211% in 1983, 223.8% in 1984, and 235.1% in 1985.

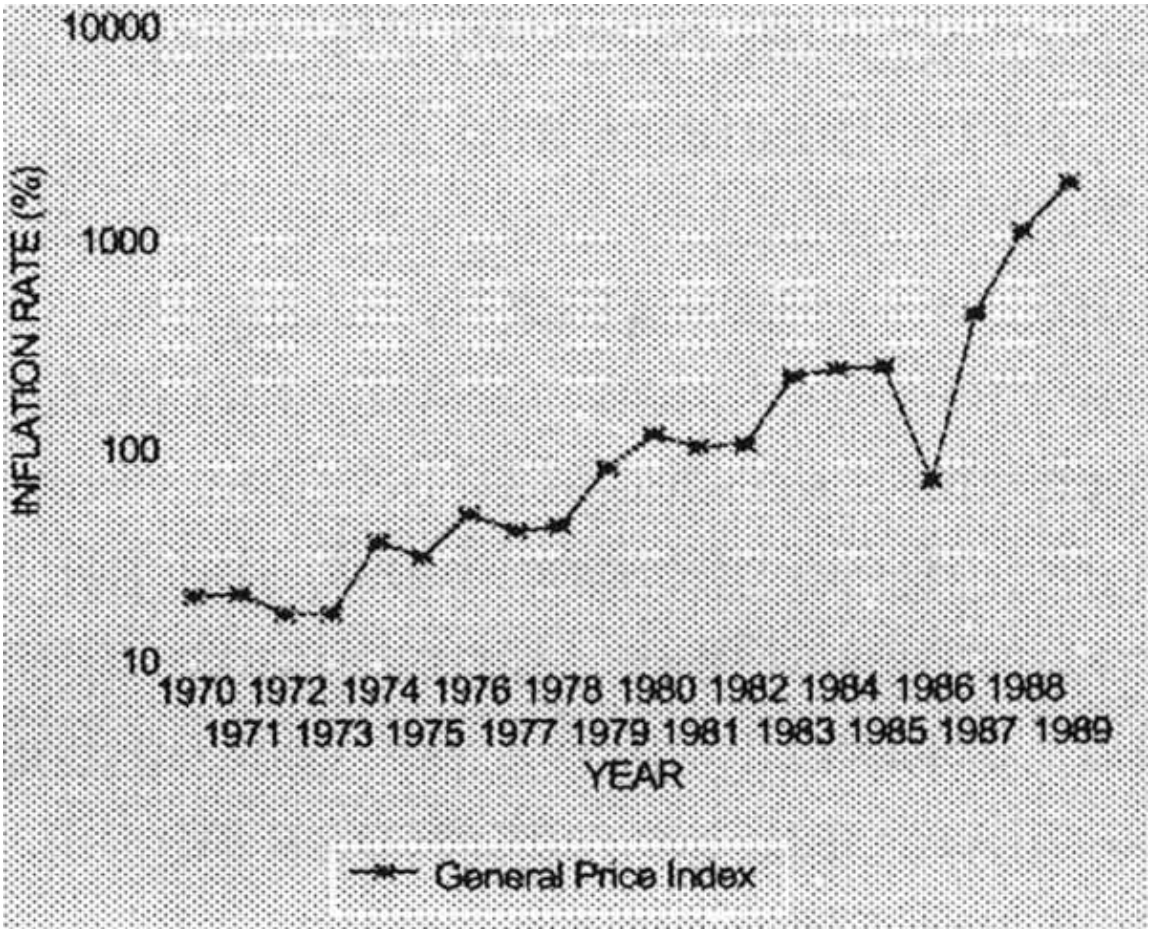

Figure 4. ANNUAL INFLATION RATES – BRAZIL, 1970–1989

Table 5
Evolution of the GDP and GDP Per Capita
Brazil, 1970–1989

Year	Annual Changes %		Index (1980 = 100)	
	GDP	GDP per capita	GDP	GDP per capita
1970	–	–	43.7	55.3
1971	11.4	8.7	48.7	60.1
1972	11.9	9.3	54.5	65.7
1973	13.9	11.3	62.1	73.1
1974	8.3	5.7	67.2	77.3
1975	5.1	2.7	70.7	79.3
1976	10.2	7.6	77.9	85.4
1977	4.9	2.5	81.7	87.5
1978	4.9	2.5	85.7	89.7
1979	6.8	4.3	91.5	93.6
1980	9.2	6.8	100.0	100.0
1981	–4.4	–6.5	95.6	93.5
1982	0.6	–1.7	96.2	91.9

1983	–3.4	–5.5	92.9	86.8
1984	5.3	3.0	97.8	89.4
1985	7.9	5.6	105.6	94.4
1986	7.5	5.2	113.5	99.4
1987	3.6	1.4	117.6	100.8
1988	–0.1	–2.2	117.4	98.6
1989	3.3	1.2	121.3	99.8

Sources: IBGE (1990, 1991).

Chapter 2. The Improvement in Child Nutritional Status

In this section the evolution of the nutritional status of Brazilian children is traced back throughout the past two decades (1970–1989 period). The analysis is based on three indicators:

i. the prevalence of low weight–for–age during the first five years of childhood;
ii. height attained at the end of the pre–school age; and
iii. rate of mortality in the first year of life.

The prevalence of low weight–for–age in underfives (weight below minus 2 z–scores, NCHS/WHO standard) was studied by comparing household anthropometric surveys done in 1975, 1986 and 1989. The first and the latter were national surveys done by the IBGE (Instituto Brasileiro de Geografia e Estatística, the federal agency in charge of national statistics), thus providing prevalence estimates for the country and its main regions. The intermediate survey, done as part of the 1986 Demographic Health Survey, was restricted to the Northeast region.

Height attained at the end of pre–school age is studied by comparing heights of 6 and 7 year–old children evaluated only in 1975 and 1989, since the 1986 survey was restricted to underfives.

Yearly infant mortality rates (number of deaths under one year of age by thousand live births) were available for the whole country from 1977 to 1989, and for the state of São Paulo (located in the Southeast region and nearly one quarter of the total Brazilian population) from 1970 to 1989. Mortality rates in São Paulo represent crude infant mortality rates, since under–reporting of births and deaths is virtually non–existing in the state (Fundação SEADE, 1977). Mortality rates in the rest of the country are adjusted for the coverage attained by the official registration of births and deaths in each region using correction factors published by the IBGE (Simões, 1989).

Before beginning the discussion of the trends observed with respect to the three indicators it should be noted that, although affected by the same determinants – morbidity, food intake and the general access to basic needs – they respond with different lags to the changes in child nutritional status. Prevalence of low weight–for–age in underfives reflects the average child nutritional status existing for a period of five years, since weight–for–age translates both recent and past disturbances in child growth (WHO, 1986). Height attained at the end of pre–school age is mainly an indication of the nutritional status prevailing a couple of years before the survey, since retardation in linear growth concentrates in the first two years of life (Waterlow, 1988). Finally, no substantial lag should occur with infant mortality rates and yearly changes in this indicator should point to virtually simultaneous changes in child nutritional status.

Low Weight–for–Age During Childhood

The prevalence of underweight children found by the national surveys of 1975 and 1989 is presented in Table 6. Highly significant decreases in prevalence, around 60%, is observed for both the urban and the rural population. This indicates, as noted before, that an impressive improvement in child nutritional status has occurred in a period of time situated between the first half of the seventies and the second half of the eighties.

Table 7 focuses on the Northeast region, displaying estimates of underweight children obtained in 1975, 1986 and 1989. Highly significant decreases in the prevalence of underweight children, around 50%, are observed from 1975 to 1986, which points to a substantial improvement in child nutritional status occurring between the first half of the seventies and the first half of the eighties. No further reduction in prevalence is observed from 1986 to 1989 suggesting that improvements in nutritional status could have been discontinued in the second half of the eighties

Height at the End of Preschool Age

Changes in the mean height attained by 6 and 7 year−old Brazilian children are presented in Tables 8 and 9. Both urban and rural children studied in 1989 are significantly taller than those studied in 1975. The average height deficit found in Brazil, or the difference in mean height with the NCHS/WHO standard, was cut by one half between the two surveys: from about 7.0 cm in 1975 to about 3.5 cm in 1989. This fact reinforces the hypothesis that impressive gains in child nutritional status had place in a period of time situated between the early seventies and the early eighties.

Table 6
Prevalence (%) of Low Weight for Age* in Children Under 5 Years of Age
Brazil, 1975 and 1989

Strata	Sample size		1975	1989	% change**
	1975	1989	Survey A	Survey B	
Brazil urban	24,784	3,895	14.6	5.6	−61.6
Brazil rural	11,623	3,571	22.9	10.6	−53.7
Total	36,407	7,466	18.4	7.1	−61.4

Source: Monteiro et. al. (1992).

Notes:

* Weight for age below −2 z−scores (NCHS/WHO standard);
** [(B−A)/A].100. All changes in prevalence are significant at $p<0.001$.

Table 7
Prevalence (%) of Low Weight for Age* in Children Under 5 Years of Age
Brazil, Northeast Region, 1975, 1986 and 1989

	Strata		
	Northeast Urban	Northeast Rural	Total
SAMPLE SIZE			
1975 Survey	7,378	5,642	13,020
1986 Survey	550	582	1,132
1989 Survey	866	1,259	2,125
PREVALENCE			
1975 Survey (A)	22.9	29.6	27.0
1986 Survey (B)	9.8	15.5	12.7
1989 Survey (C)	10.3	15.2	12.8

% CHANGE			
[(B–A)/A].100**	–57.2	–47.6	–53.0
[(C–B)/B].100***	5.1	–1.9	0.8

Source: Monteiro et al. (1992); Arruda et al. (1987).

Notes:

* Underfives with weight for age below minus 2 z–scores (NCHS/WHO standard).
** p<0.001.
*** Non–significant.

Table 8
Mean height (cm) of 6 and 7 year–old Boys
Brazil, 1975 and 1989

Age	**Strata**		
	Brazil Urban	**Brazil Rural**	**Total**
6 YEAR–OLD			
1975 Survey			
Sample size	2,467	1,184	3,651
Mean height (A)	113.0	110.1	111.7
Standard deviation	7.4	7.0	7.4
1989 Survey			
Sample size	450	371	821
Mean height (B)	116.1	112.5	115.7
Standard deviation	6.4	6.1	6.5
Height increment (B–A)*	3.1	2.4	4.0
7 YEAR–OLD			
1975 Survey			
Sample size	2,521	1,200	3,721
Mean height (A)	118.4	115.3	117.0
Standard deviation	7.9	7.1	7.4
1989 Survey			
Sample size	495	380	875
Mean height (B)	121.2	118.2	120.4
Standard deviation	6.9	7.3	7.1
Height increment (B–A)*	2.8	2.9	3.4

Source: National Health and Nutrition Surveys: 1975, 1989.
Note: * All increments significant at p<0.001.

Table 9
Mean height (cm) of 6 and 7 year–old Girls
Brazil, 1975 and 1989

Age	Strata		
	Brazil Urban	**Brazil Rural**	**Total**
6 YEAR–OLD			
1975 Survey			
Sample size	2,492	1,168	3,660
Mean height (A)	112.3	110.3	111.4
Standard deviation	7.2	6.7	7.0
1989 Survey			
Sample size	386	361	747
Mean height (B)	115.4	113.2	114.7
Standard deviation	6.7	6.0	6.5
Height increment (B–A)*	3.1	2.9	3.3
7 YEAR–OLD			
1975 Survey			
Sample size	2,402	1,095	3,497
Mean height (A)	118.0	115.1	116.8
Standard deviation	7.7	6.8	7.4
1989 Survey			
Sample size	452	351	803
Mean height (B)	120.8	118.9	120.3
Standard deviation	6.3	7.0	7.2
Height increment (B–A)*	2.8	3.8	3.5

Source: National Health and Nutrition Surveys: 1975, 1989.
Note: * All increments significant at $p<0.001$.

Infant Mortality

Infant mortality rates for the whole country (1977–1989) and for the state of São Paulo (1970–1989) are presented in Table 10 and plotted in Figure 5. The series for the whole country shows intense and systematic declines in mortality from 1977 to 1982. These declines are interrupted in 1983 and 1984 and then followed by a period of relatively lower but continuous reductions up to 1989.

The longer series available for the state of São Paulo points to stagnant rates of infant mortality up to 1975. Intense and systematic declines occur from 1975 to 1980, followed by relatively lower declines up to 1989. A peak of mortality is registered in 1984. Indeed, from 1977 to 1989, trends in infant mortality in Sao Paulo were not far from trends described for the whole country. In this 12–year interval, infant mortality was reduced in 55% in São Paulo and 54% in Brazil (from 68.8 to 30.9 ‰ and from 98.3 to 45.0, respectively).

Table 10
Infant Mortality Rates
Brazil and State of São Paulo, 1970–1989

Year	Infant Mortality Rate*	
	Brazil	**State of São Paulo**
1970	–	84.3
1971	–	90.1
1972	–	86.2
1973	–	89.2
1974	–	82.3
1975	–	85.3
1976	–	74.2
1977	98.3	68.8
1978	90.9	65.3
1979	82.8	58.5
1980	75.0	51.2
1981	68.4	49.3
1982	64.5	47.9
1983	66.7	42.3
1984	65.9	44.9
1985	58.1	36.4
1986	53.2	36.2
1987	51.0	33.7
1988	47.5	33.9
1989	45.0	30.9

Sources:

IBGE – Estatísticas do Registro Civil, 1977–1989;
SEADE – Movimento do Registro Civil, 1970–1989

Note: * Infant deaths per 1,000 live births.

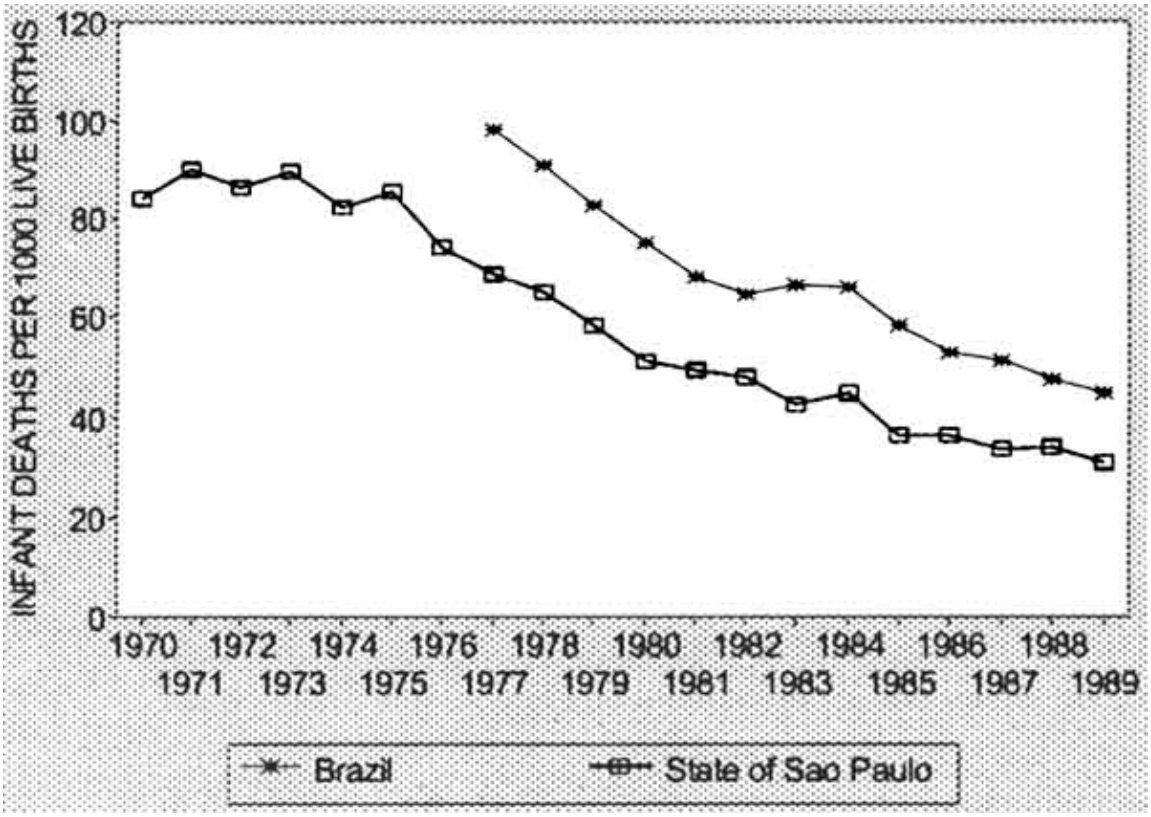

Figure 5. INFANT MORTALITY RATES – BRAZIL AND STATE OF S. PAULO, 1975–1989

Taking together the pattern of changes observed with the three indicators of child nutritional status, and accepting that trends observed in particular Brazilian regions may inform on what has occurred in the whole country, the period of interest (1970–1989) could be divided into the three following periods: a period of stagnant nutritional status (1970 to 1975), a period of exceptional and systematic gains (1975 to 1982), and a period of moderate and not continuous gains (1982 to 1989).

Regional and Socio–economic Differentials

During the last two decades a substantial net improvement in indicators of child nutritional status was observed all over the country and in different socio–economic strata.

A detailed and comparable study of all sources of family income present in the national surveys of 1975 and 1989 allows for the description of changes in indicators of child growth in specific income strata. Figure 6 describes changes in the prevalence of underweight children, while Figure 7 describes changes in height deficits at 7.0 years of age. In both cases it is clear that the degree of improvement was related to the level of family income, with the already high differentials that existed between rich and poor in 1975 increasing in the 1989 survey.

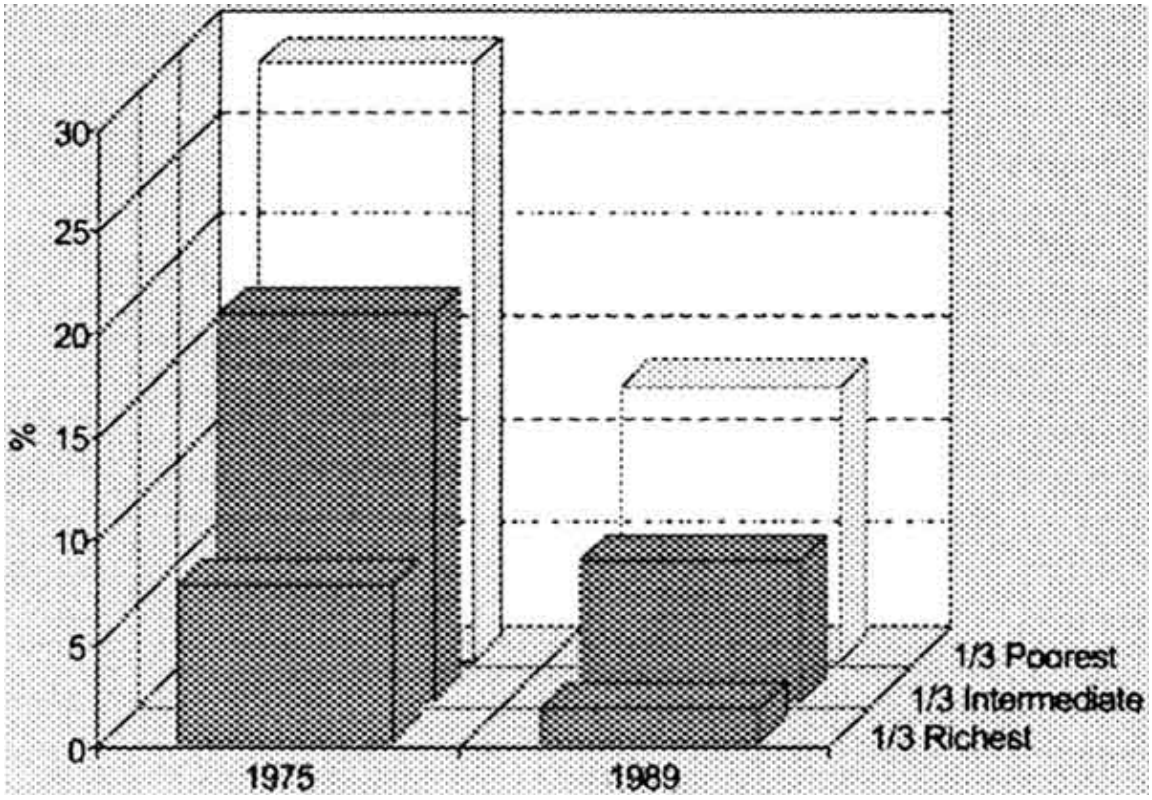

Figure 6. UNDERWEIGHT CHILDREN BY INCOME STRATA – BRAZIL, 1975 AND 1989

Table 11 synthesizes the changes occurring in the two most contrasting Brazilian regions: the poor Northeast and the rich Southeast. As far as child survival is concerned, the gap between the two regions was kept virtually unchanged from 1977 to 1989. Indicators of child growth, however, point to a further increase in the Southeast/Northeast gap.

The differences existing in 1989 between the poor Northeast and the rich Southeast can be illustrated by comparing the prevalence of underweight children found in these two regions viz a viz estimates reported for other Latin American countries[11]. This comparison places the Brazilian Northeast region (12.8% prevalence) together with poor and stagnant developing countries as Bolivia (13.3% prevalence in 1989) or Peru (10.8% prevalence in 1991). The same comparison places the Brazilian Southeast (4.1% prevalence) amongst developing countries widely recognized as leaders in indicators of human development (UNDP, 1992) as Costa Rica (6.0% prevalence in 1982) and Chile (2.5% in 1986).

[11] Estimates as reported by the WHO International Data Base on Child Growth, Update 1992.

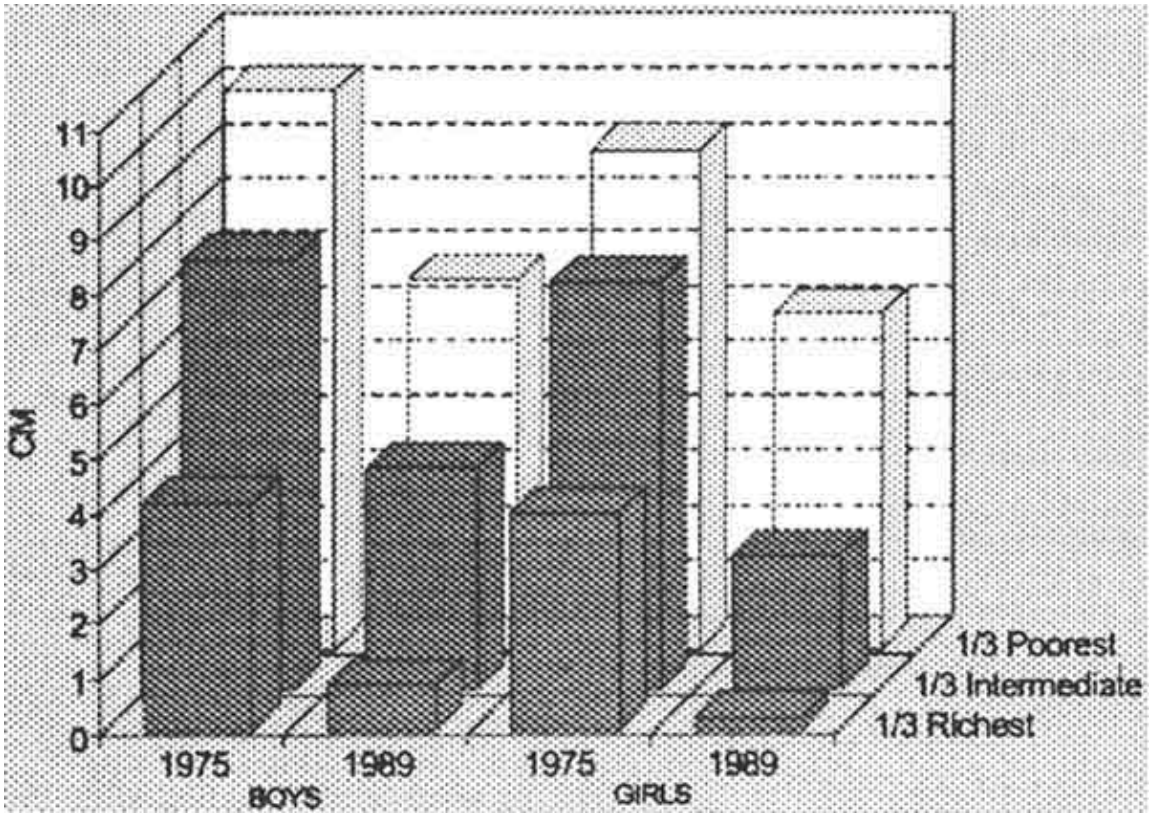

Figure 7. MEAN HEIGHT DEFICITS AT 7 YEARS OF AGE BY INCOME STRATA – BRAZIL, 1975 AND 1989

Table 11
Indicators of Child Nutritional Status
Brazil, Northeast and Southeast Regions, 1975–77 and 1989

Period and Region	Underweight Children %	Height Deficit at 7 years cm		Infant Mortality ‰
		Boys	Girls	
1975–1977				
Northeast (A)	27.0	10.1	9.1	156.6
Southeast (B)	13.4	5.6	6.0	63.0
Ratio (A)/(B)	2.0	1.9	1.5	2.5
1989				
Northeast (A)	12.8	6.3	5.7	75.0
Southeast (B)	4.1	2.3	1.5	33.3
Ratio (A)/(B)	3.0	2.7	3.5	2.4

Chapter 3. Why did Nutrition Improve?

In the previous section we have shown that impressive nutritional improvements occurred during the seventies and eighties. These results were obtained despite a poor economic performance during most of the past decade.

Three points have to be re−emphasized:

i) the sharp decline in infant mortality started when the economy was losing its momentum, that is, after the peak years of the first half of the 1970's;

ii) the descending trend continued even during the stagnating years of the 1980's; and

iii) the gains were generally greater in the rich Southeast region that in the poor Northeast, and for the families with relatively higher incomes than for the poorest.

The first point suggests a lag between economic growth and infant mortality, with the benefits of the former translated to the social welfare after a period of accumulation. The second point shows that macroeconomic factors are not, indeed, the sole determinants of the social well−being. Finally, the third point shows an increase in social and regional inequalities. Given these findings, in this section we will analyze what the changes were that help explain the improvements previously reported. Since malnutrition is a condition of poverty we will start with the traditional analysis of the behavior of income−related factors before moving on to consider the entitlement framework elaborated by Amartia Sen.

Income−Related Variables

Poverty

Malnutrition is unquestionably a phenomenon of poverty. In this sense, it becomes an important point of analysis in this paper the fact that the income data available for Brazil indicate that the poor also gained from the rapid expansion of the Brazilian economy during the 1970's.

Table 12 displays the published figures for absolute poverty in Brazil and the Southeast and Northeast regions.[1] It shows a substantial reduction in the proportion of Brazilians living below the poverty line during the two decades[2]: while in 1970 almost 59% of the Brazilian population was in extreme poverty, in 1989 these numbers were reduced to 17%. The gains were considerably greater in the seventies, particularly in the first half of the decade, than in the eighties. From 1970 to 1980 the proportion of poor people fell from 58.7% to 25.7%, a reduction of 56%, of which 94% (or a 53% reduction), occurred between 1970 and 1976: if the average annual reduction in the proportion of poor for the entire decade of the seventies was of about 7.9%, for the 1970−1976 period alone this average was of 11.7%. During the 1980−1989 period the proportion of the Brazilian population living below the poverty line was reduced from 25.7% to 16.9%, a 34% decline (annual average of 4.55%).

[1] The figures for 1976 and 1989 are non−published estimates that we calculated based on secondary data. They are included in the table to complete the series.

[2] The reference for Brazil is to consider below the poverty line those individuals from families in which the per capita income is less than one−quarter of the legal minimum wage (a value of about US$25 to US$30). This criterion seems to satisfy the parameters of scarcity that characterize extreme poverty and has been used in works such as Pastore et al. (1983), Jaguaribe (1989), and Tolosa (1991).

Table 12
Proportion (%) of People and Families Below the Poverty Line
Brazil, Northeast and Southeast
1970, 1976, 1980, 1981, 1983, 1986, 1987, 1989

	1970	**1976**	**1980**	**1981**	**1983**	**1986**	**1987**	**1989**
Brazil								
People	58.7	27.8	25.7	21.0	20.8	13.1	14.4	16.9
Families	48.2	22.0	17.7	15.8	15.4	9.7	10.8	14.2

Northeast								
People	79.2	50.3	49.6	41.5	40.2	28.6	31.3	34.0
Families	72.9	41.3	32.5	34.2	32.5	22.9	25.0	29.6
Southeast								
People	–	17.8	12.0	10.5	10.6	5.9	6.3	8.8
Families	32.6	12.4	10.1	7.6	7.8	4.3	4.7	8.0

Sources: Tolosa (1991); IBGE – Indicadores Sociais, 1979, 1984; IBGE – Perfil Estatístico de Crianças e Mães no Brasil, Several years; Pastore (1983); PNADs, several years.

In regional terms the data in Table 12 show that the reduction in poverty was greater in the rich Southeast than in the Northeast, in accordance with the findings described in the previous section. In the former region the proportion of poor families in 1989 was less than one–fourth of 1970 (from about 33% to 8%). In the Northeast region the reduction was about 59%: in 1970 73% of the families (and 79% of the population) were living under extreme poverty; in 1989 this proportion had been reduced to 30%. Again, and for both regions, the decline was significantly greater during the 1970's, particularly the first half of the decade.

These published figures should be viewed with caution, though, for since they refer to the proportion of people and families with a per capita family income of less than 25% of the prevailing legal minimum wage, they are the result of a ratio between two variables. In this sense, if the denominator (the value of the minimum wage, an exogenous variable defined outside the market by the government) increases relatively less than the numerator (the revenues and wages obtained by the economic agents in the market), reflecting, for instance, a policy of adjusting the minimum wage below the inflation of the period, many people and families might be artificially placed above the poverty line.[3]

[3] Obviously the opposite is also true. New people may be incorporated inside the limits of absolute poverty if the minimum wage is adjusted at levels above those observed in the market.

In order to control for such a problem we have established the value of the minimum wage of May of 1980 as a basis. The values for the other years used such basis corrected by the General Price Index (GPI) estimated by the Fundação Getúlio Vargas. With these new relative values for the minimum wage, new estimates for the proportion of people below the poverty line were obtained. The results are displayed in Table 13.[4]

[4] Figures from Tolosa (1991), using a similar procedure, are also displayed in Table 13 as control.

The data in Table 13 also show important gains during the 1970's. From 1970 to 1980 the proportion of people below the poverty line was reduced to less than one–half, from 58.2% to 27% (or from 54% to 26%, according to Tolosa). In absolute terms such numbers represent 22 million less people living in extreme poverty, from 54 million in 1970 to 32 million in 1980.[5]

[5] We do not have an estimate for 1976 for the country as whole. However, from the data available in Table 13 for the Northeast and Southeast regions, and from the fact that the minimum wage in 1976 was greater than in 1980 in real terms (meaning that the figure present in Table 12 actually overestimates the proportion of poor), it is safe to say that the gains of the 1970's were, to a greater extent, obtained during the first half of the decade.

When controlling for the value of the minimum wage an important result appears: the gains in terms of poverty reduction are not only greater during the 1970's but in fact restricted to it. Both the results from Tolosa and our own estimates show an increase in the proportion of poor people during the eighties: from 27% in 1980 to 35% in 1989[6], adding another 18 million people to the group of extreme poor. In this sense, the twenty–year period ended with about 50 million Brazilians living below the poverty line, when the period started with 54 million people living under such conditions of extreme poverty.

[6] Tolosa shows an increase from 26% in 1980 to 32.5% in 1988.

It should be noted that the proportion of poor people remain between 24 and 25% of the total population from 1981 to 1986, even during the recession period of 1981–83. However, in 1987, when inflation began its explosive cycle, a sharp rise of 42% shifts the proportion of poor people from 24 to 34.5%, remaining above 34% for the following two years: 38.2% in 1988 and 35.4% in 1989. These facts show the relatively more harmful impact of high inflation on the poor than the economic crisis. Figure 8 displays the evolution of absolute poverty and inflation rates for the 1980–1989 period, showing a remarkable direct relationship between the two variables for every year except 1989. Moreover, the sharpest increase in poverty occurs when the inflation rate is multiplied by six, from 1986 (65%) to 1987 (416%). Figure 9, on the other hand, displays the evolution of absolute poverty and the annual rates of growth of the GDP.[7] With the exception of 1981 and 1983 the expected negative relationship between the two factors is present. Both facts – the decline in poverty during 1981, the first and most severe year of the recession, and the increase in the proportion of poor in 1983, can be explained by the wage policy implemented by the government in late 1979 that provided real gains for the lower brackets of wage–earners.[8] This policy was gradually phased–out during 1982, and in February of 1983 salaries began to be adjusted below inflation. This indicates, once again, that the crucial variable for the poor is the inflation rate. The impact of the wage policy on the lower strata of the labor force can be seen in Figure 10, where the evolution of average real wages for unskilled and semi–skilled workers is shown from the second semester of 1979 to the second semester of 1983: by the end of 1981, due to the combination of the wage policy and an inflation rate lower than the previous year, the real wages for less qualified workers were about 30% higher than when the law was implemented, while for semi–skilled the real increases amounted to 21%. These gains were gradually lost, and by the end of 1983 the values of the wages were back to the levels of 1979 (see Ócio, 1986).

[7] Please note that even though not all years are present in Figures 8 and 9 we have maintained a line joining the points as a visual aid.

[8] With the increase in inflation in 1979 wages began to be corrected twice a year for the increase in prices. Wages of workers receiving less than three minimum wages were corrected with 110% of the accumulated inflation of the previous six months; those workers receiving between three and ten minimum wages had their earnings adjusted in 100% of the inflation rate of the period; the adjustment for those receiving more than ten minimum wages was of 80% of the inflation rate. In 1980 the distributive aspect of the policy was reinforced with the limit of 50% of the inflation rate for wage–earners between fifteen and twenty minimum wages and free negotiations for employees receiving more than twenty minimum wages.

Table 13
Proportion (%) of People Below the Poverty Line
Minimum Wage of May 1980 as Basis
Brazil, Northeast and Southeast Regions
1970, 1976, 1980, 1981, 1983, 1985, 1986, 1987, 1988, 1989

Year	Brazil	Northeast	Southeast
1970	58.2(54.1)	(76.8)	(37.7)
1976	–	49.7	17.6
1980	27.0(25.7)	(49.6)	(12.0)
1981	24.7	–	–
1983	25.2	–	–
1985	–	43.8	12.8
1986	24.3	–	–
1987	34.5	–	–
1988	38.2(32.5)	(58.8)	(18.5)
1989	35.4	60.3	23.5

Sources: Tolosa (1991); PNADs several years.
Note: Values in parentheses are from Tolosa.

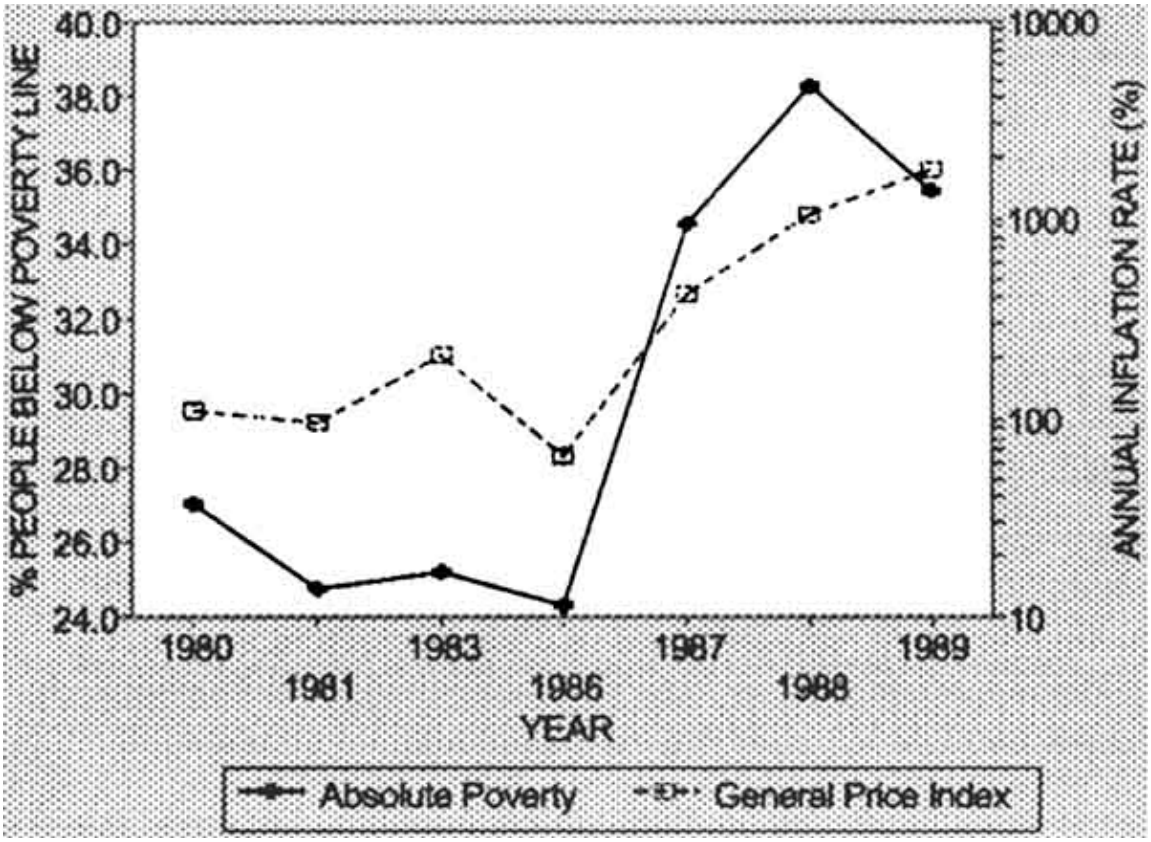

Figure 8. ABSOLUTE POVERTY AND INFLATION – BRAZIL, 1980–1989

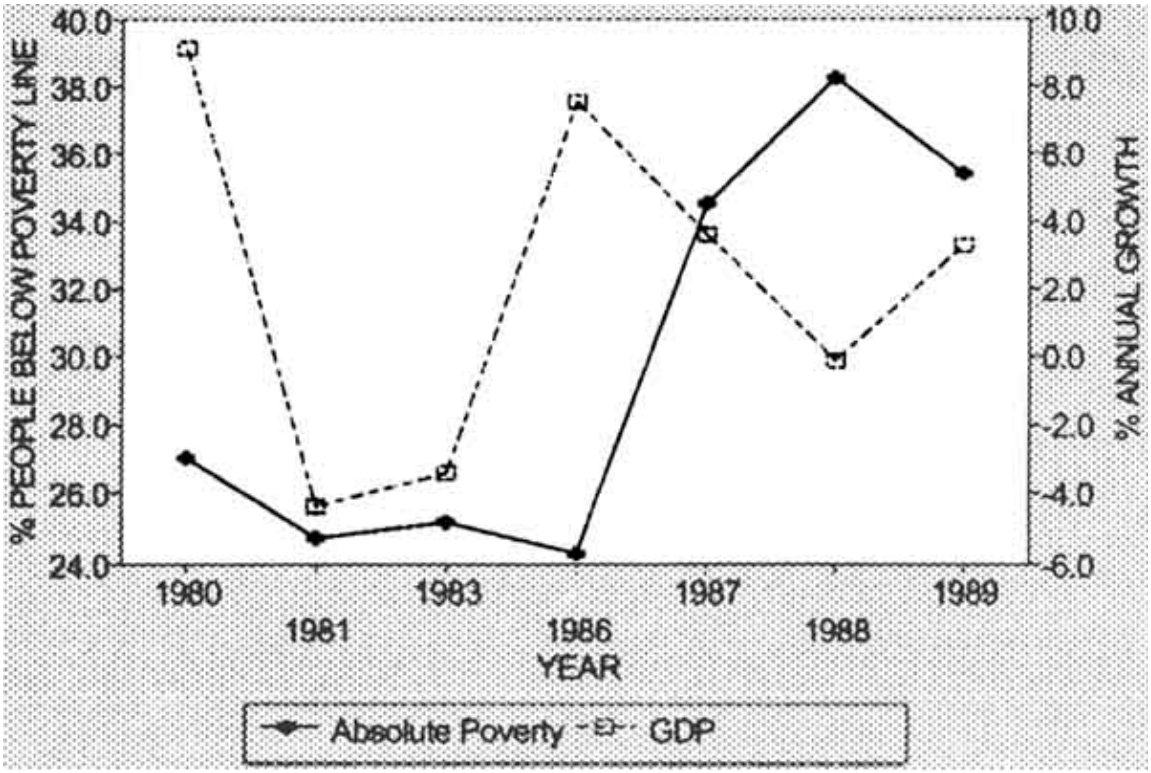

Figure 9. ABSOLUTE POVERTY & ECONOMIC GROWTH – BRAZIL, 1980–1989

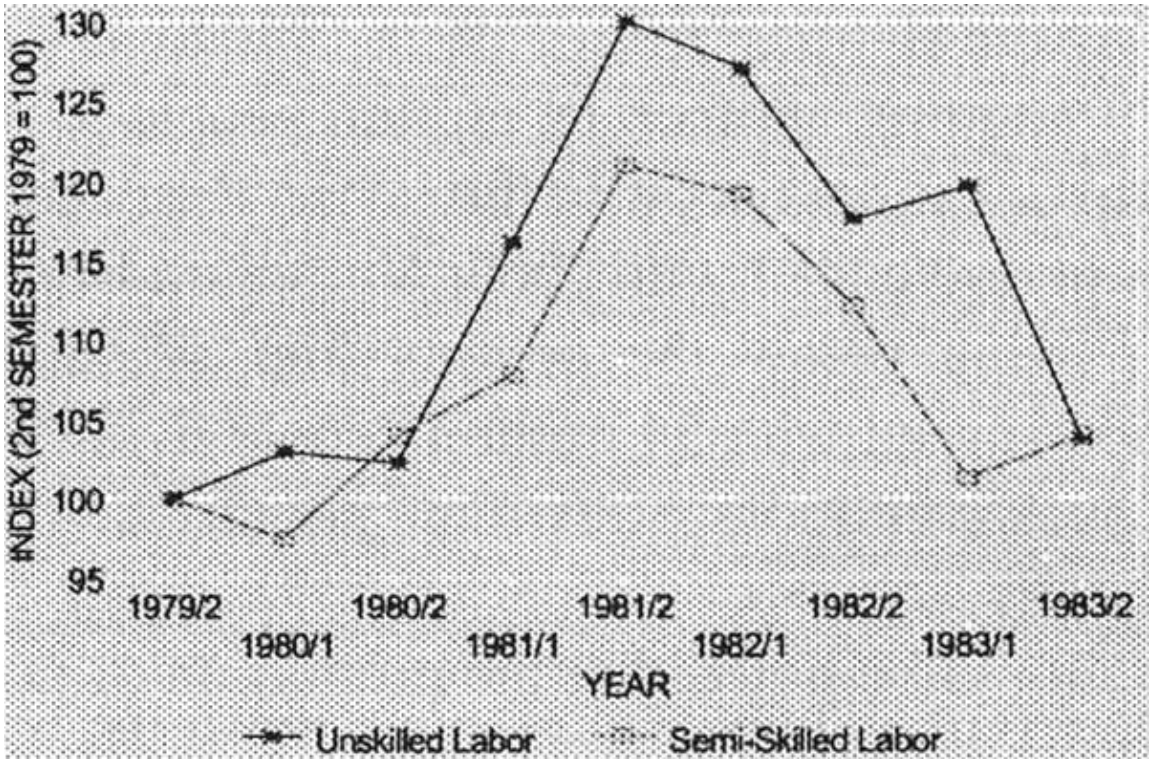

Figure 10. REAL WAGES: SEMI–ANNUAL VALUES – BRAZIL, 1979–1983

The regional data for the Southeast and the Northeast show the same pattern previously described, with the gains from the seventies, however, accruing to a much greater extent to the Southeast region: the reduction in poverty in this region is of about 68% between 1970 and 1980, while in the poor Northeast region the decline in the proportion of people below the poverty line, during the same period, is of 35%. Moreover, as a result of the deteriorating conditions of the 1980's the absolute number of extreme poor people in the Northeast is greater in 1989 than in 1970: about 25.2 million compared to 23.2 million.[9]

[9] For the Southeast region the numbers remain about the same: 14.7 million people below the poverty line in 1989 and 15.4 million in 1970.

Inequality

From the value of income we now turn to the issue of the distribution of income. Table 14 shows the values of the Gini coefficient for several years. Increases in inequalities endure throughout the sixties and first half of the seventies: 0.497 in 1960, 0.571 in 1970, and 0.589 in 1976. The data available describe a stabilization of the coefficient during the second half of the decade, between 1976 and 1980. The 1980's presents an upward trend that is broken only in 1981 and 1986: in 1981, probably as a result of the wage policy discussed above (see note 19), and in 1986 due to the distributive effect brought by the already mentioned "Cruzado Plan". Once again the impact of inflation should be noted: the Gini coefficient displays a raise from 0.588 in 1986 to 0.595 in 1987 followed by two sharp and consecutive increases in 1988 and 1989 when the annual inflation rate reached four digits. Figure 11 presents this direct association between inflation and income distribution: for the 1980's both variables follow an markedly similar tendency, substantiating our conjecture that high inflation had a very damaging impact on the poor.[10]

[10] We could not find as straight relationship between the Gini coefficient and economic growth. A clearly opposite correlation was only obtained using a moving average of the rate of growth of the preceding three years, the reason for such period is not clear though, except for the fact that we would expect the patterns of income distribution to take longer to respond to variations in economic growth (considering that the structure of such growth is inducing changes in the distribution of income), than the values of earnings.

In this subsection we have shown results that, up to the 1980's, are closely related to the findings of Section III. The data provide an indication that the benefits of the rapid economic expansion of the 1970's were not entirely lost to the poor, as there were significant reductions during this decade in the proportion of individuals

below the poverty line, particularly until 1976. In this sense, the second half of the seventies not only started with the proportion of people living under conditions of extreme poverty substantially diminished, but this process of improvement continued, at a more moderate rate, until 1980–81. These conditions, combined with a non–worsening of the distribution of income may have contributed to the important reductions in infant mortality of the second half of the 1970's discussed in Section III, On the other hand, the overall deterioration in the personal distribution of income and the relatively larger gains accruing to the rich Southeast region in terms of poverty reduction, corroborate the greater nutritional improvements observed in this region and the relatively smaller gains of the poorest families.

Table 14
Gini Coefficient
Brazil: 1960, 1970, 1976, 1980, 1981, 1983, 1985–1989

Year	Gini Coefficient
1960	0.497 (1)
1970	0.571 (2)
1976	0.589 (1)
1980	0.590 (1)
1981	0.573 (2)
1983	0.592 (2)
1985	0.600 (2)
1986	0.588 (1)
1987	0.595 (2)
1988	0.619 (2)
1989	0.636 (2)

Sources:

(1) Reis, Rodriguez e Barros (1991);
(2) IBGE – Indicadores Sociais, 1979, 1984

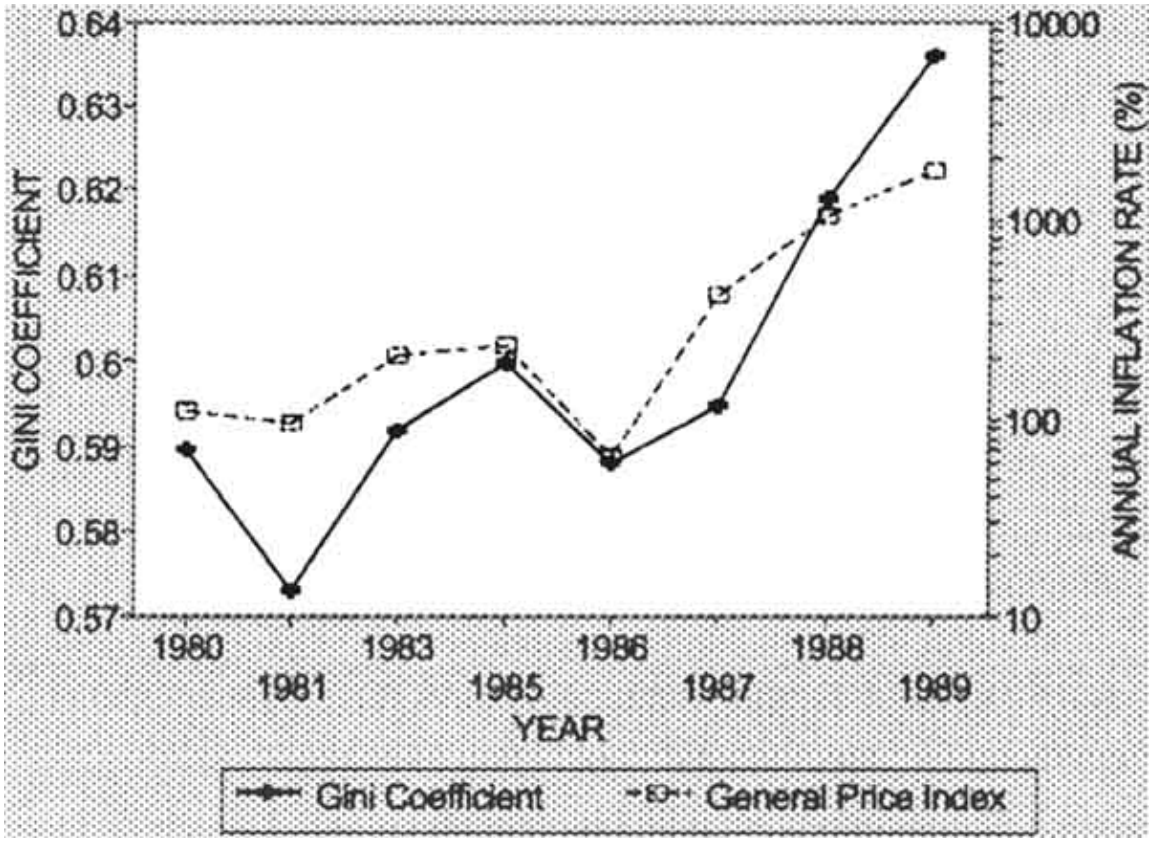

Figure 11. EVOLUTION GINI COEFFICIENT & INFLATION – BRAZIL, 1980–1989

In the past decade we continue to observe an overall tendency of decline in the infant mortality rate. Our income indicators, however, show increases in the proportion of people below the poverty line and a deterioration in the distribution of income, particularly in the last years of the decade. In this sense, the explanation for the continued improvement must lie with other factors than the income variables. It is to the analysis of these elements that we now move to.

Entitlements

Drèze and Sen (1989, p. 23) define the entitlement of a person as "the set of alternative commodity bundles that can be acquired through the use of the various legal channels of acquirement open to that person." Within this framework we have to stress the importance of those goods provided through the channels set by the social policies.

Sen has shown in several works that entitlement failures have been the major causes of famine and chronic malnutrition.[11] In this subsection we will apply this framework of analysis to help explain the improvements in health and nutritional status observed in the past two decades.

[11] See for instance: Sen, 1977, and 1981.

Nutrition Programs and Food Prices

Brazil has had a diversified experience with food and nutrition programs: from food subsidies to the direct distribution of foodstuffs, through market channels or from public facilities. As Musgrove (1990) puts it: "Among Latin American countries, Brazil has undoubtedly had the most varied and extensive experience with food and nutrition programs meant to improve food consumption and nutritional status of the children of poor families." Another important characteristic of the Brazilian case is that such programs have been almost entirely supported by national, i.e. non–aid, resources.

The monetary values and volumes involved in such programs are substantial: a single program of food supplementation for pre–school children distributed more than 1.5 million tons of food between 1976 and

1987; expenditures with food and nutrition programs have increased from 0.06% of the GDP in 1980 to 0.21% in 1989 (with a peak of 0.25% of the GDP in 1987). Table 15 displays the growth of expenditures with food and nutrition: it shows an increase of almost 300% between 1980 and 1989, from about 210 million dollars (US dollars of 1989) to about US$ 805 million. During the peak year of 1987 the amount destined for the area was 4.6 times that of 1980, reaching almost 1 billion dollars. The share of food and nutrition of the total expenditures of the social sector increased from the 0.6% in 1980 to more than 2.5% during 1986 and 1987, and ending the decade with 1.9%. From Figure 12 it is clear that the expenditures with food and nutrition constituted the fastest growing area of the social sector during the last decade.

Despite some impressive figures and ambitious goals, the Brazilian food and nutrition programs have presented several problems (see Peliano, 1992), the two most important are:

i) the programs have not reached the poorest regions and income groups and the most vulnerable age groups; and,

ii) the dissociation of the programs from health and educational efforts.

Table 15
Expenditures with Food and Nutrition
Brazil, 1980–1989

Year	Expenditure (US$ million of 1989)	Index 1980 = 100	% GDP	% Social Expenditure
1980	210.34	100.00	0.06	0.63
1981	219.79	104.49	0.06	0.64
1982	276.24	131.33	0.08	0.77
1983	306.91	145.91	0.09	1.00
1984	332.35	158.01	0.09	1.25
1985	609.61	289.82	0.16	1.96
1986	903.11	429.36	0.22	2.57
1987	967.80	460.11	0.23	2.58
1988	889.13	422.71	0.21	2.28
1989	805.67	383.03	0.18	1.94

Sources: Piola, Vianna and Camargo (1992).

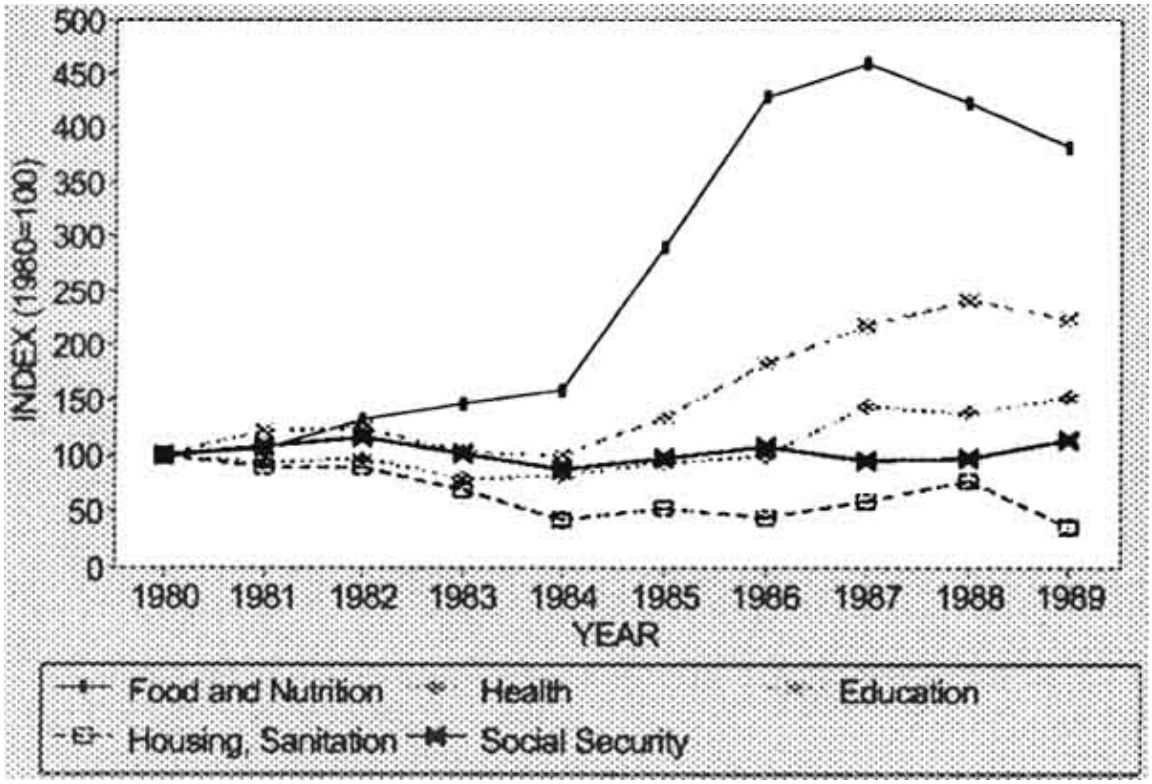

Figure 12. FEDERAL GOVERNMENT SOCIAL EXPENDITURES – BRAZIL, 1980–89

With respect to the first limitation we could cite two examples:

> i) the worker feeding program (PAT, Programa de Alimentação do Trabalhador), destines the largest amounts per assisted person of all area programs, US$ 45 (1986 value. World Bank, 1988), but benefits workers from the urban modern sector of the economy, therefore mainly reaching areas less affected by malnutrition. Under the PAT companies distribute coupons with monetary values that can be used for the payment of meals in any participating establishment. The amount spent by the company with such coupons are tax deductible;
>
> ii) the school meal program is targeted at public primary students. As with similar experiences of other countries, this program has a large rate of mistargeting, for it reaches basically older, thus less vulnerable, urban children and many of its beneficiaries are children without nutritional deficits. Moreover, it is not known to what extent it substitutes for food at home rather than supplementing it. The fact that most programs are poorly linked to health and educational efforts is one of the most important weaknesses of the Brazilian intervention in the area of food and nutrition for some of the potential that these programs would bring are lost either by poor health conditions or household behavior. As a result of these limitations the direct assessments of the Brazilian programs show their lack of effectiveness, with results that do not correspond to the goals and amount of resources invested.[12]

[12] See Musgrove (1990), and also Peliano (1992).

Due to the large insertion of the Brazilian population in the market the question of food entitlement in the Brazilian case is probably more related to the issue of prices than other factors, including availability.[13] Figure 13 displays the annual changes in the costs of a basket of basic food products relative to the inflation rate for the 1970–1989 period, that is, the ratio of the annual change in the cost of the food basket over the annual change in the General Price Index. Figure 14 presents the evolution of the two items simultaneously.[14,15] They show that the price of the basket converged to the inflation schedule after 1974, indicating that after the 1971–1973 period no particular pressure has been put on consumers on account of food alone, particularly during the period of hyper–inflation. In fact, after the three consecutive years in which the food basket increased at rates substantially greater than the inflation, 66% in 1971, and about 150% in 1972 and 1973, the cost of the basket stabilized around the inflation rate, thus at least not operating against the improvements in health and nutritional status described in the previous section.[16] The data in Figure 15 also supports this hypothesis. It displays the annual real changes in the cost of the food basket together with the wages of unskilled and semi–skilled labor from 1971 to 1983. It is clear that until 1973 the real wages of these workers increased well below the cost of the basket, from 1974 onward, however, real changes in wages generally

remained above the real increases in food prices.

[13] As Sen (1977) has shown, food scarcity is not a necessary condition for hunger.

[14] The basket is constituted by: meat, milk, beans, rice, wheat flour, potato, tomato, bread, coffee, banana, sugar, grease/oil, and butter. These products are used in the calculation of a Cost of Living Index for the city of Sao Paulo by a confederation of Labor Unions.

[15] Note that the price index used to measure the inflation rate is national and the cost of the basket is for the city of Sao Paulo.

[16] The fact that the real cost of the food basket decreased during four years, from 1974 to 1977, reinforces this conclusion.

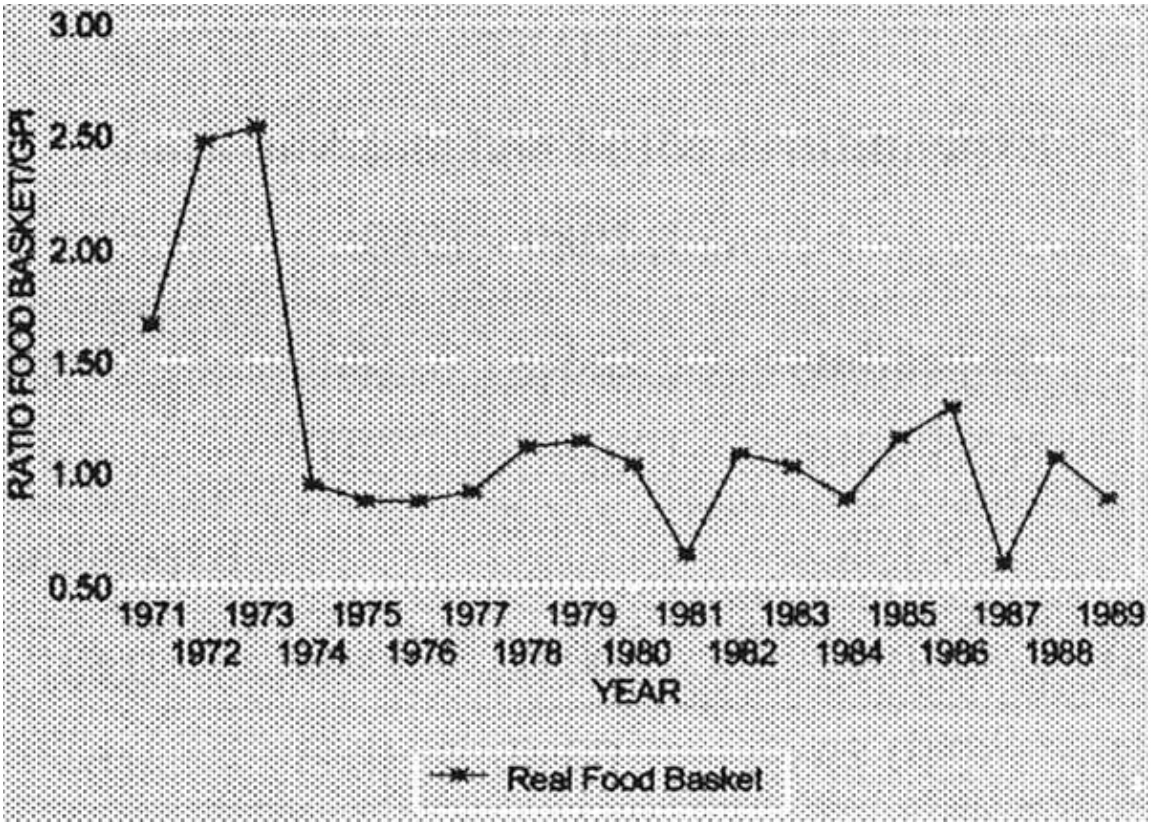

Figure 13. ANNUAL REAL GROWTH OF FOOD PRICES – BRAZIL, 1971–1989

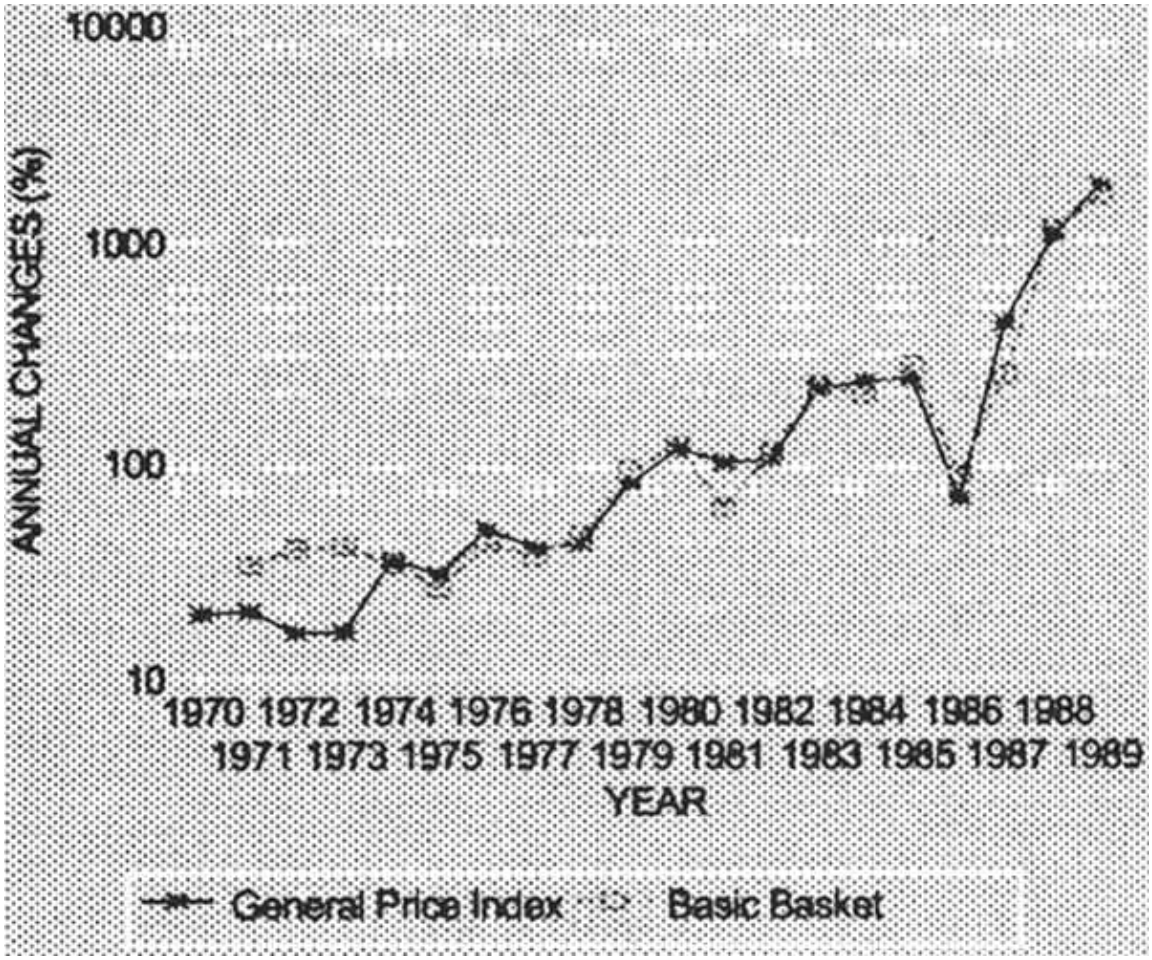

Figure 14. INFLATION RATE AND FOOD PRICES – BRAZIL, 1970–1989

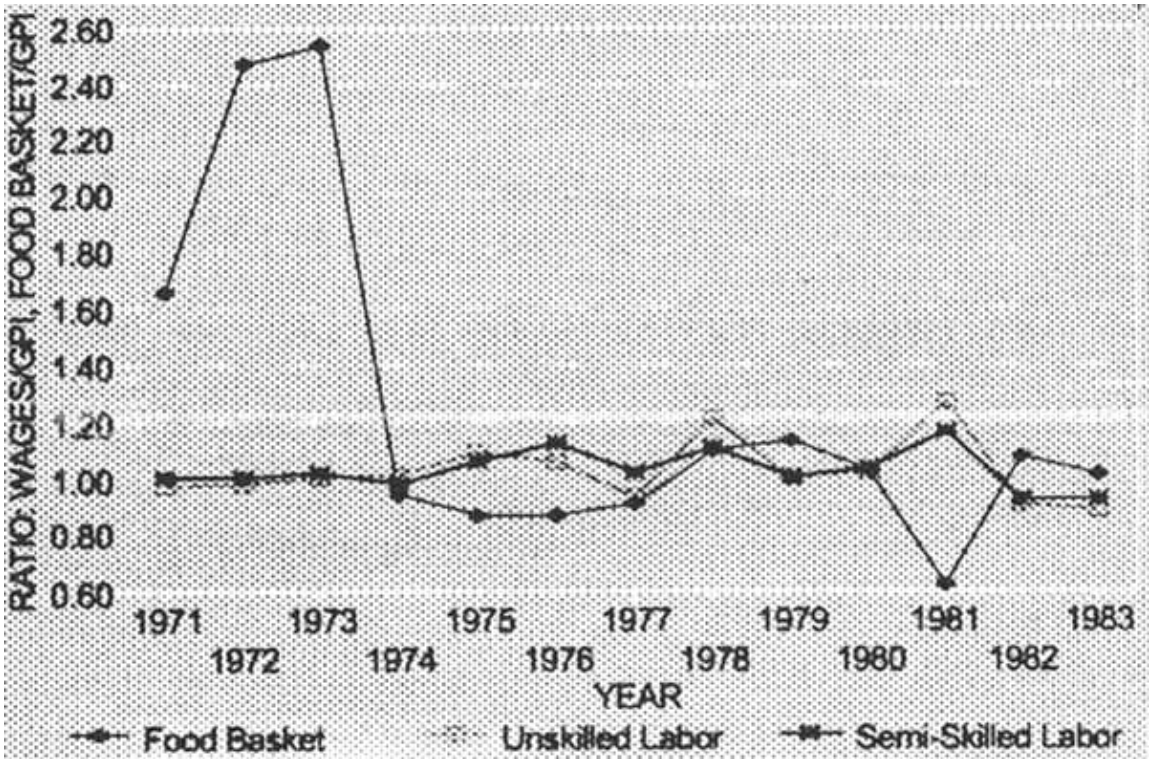

Figure 15. ANNUAL REAL CHANGE: WAGES & FOOD PRICES – BRAZIL, 1971–1983

There is no consistent source of data on social expenditures that cover the twenty years of interest of this paper, as a result we mainly used three different types of information:

> i) the Institute of Applied Economic Research (IPEA) from the Ministry of Economy has started an accounting of the Federal Government's social expenditures in 1980. It is, in our opinion, the most reliable and methodologically correct data set available, though unfortunately it only covers the last decade (see Piola, Vianna and Camargo, 1992);
>
> ii) FUNDAP, an administrative supporting agency to the state government of São Paulo, has done an analysis of social expenditures covering the 1975–1986 period. We have found some problems in specific areas in their data, even though the aggregate estimates seem adequate (see FUNDAP, 1991);
>
> iii) finally, we have used data published by the Federal Revenue Service on budgetary expenditures for the 1970–1985 period. The problem with this source is that for many social areas non–Treasury resources account for the bulk of expenditures. Due to these limitations, we will use combinations of these and other sources in our analysis.

Even though each and every government, even during the military dictatorship, stated that the social areas were action priorities, Brazil has lacked a strategy to integrate its several programs on such areas into a consistent and coherent scheme that could be defined as a social policy. What we often observe are areas such as food and nutrition, health, education, water and sanitation, housing, social security, etc. fighting for the same resources. This fight has led to the lobbying in the Congress for laws that would establish floors of expenditures as percentages of the government revenue or even the GDP. Such practice has at least three obvious problems: firstly, the floor becomes a ceiling, secondly there are no strong arguments to justify a given fixed amount: any such proportion is necessarily arbitrary, and thirdly there is no assurance that an optimal, or even desirable, allocation of resources would have been obtained through its application.[17]

[17] This practice is in fact a mechanism of self–defense against budgetary cuts.

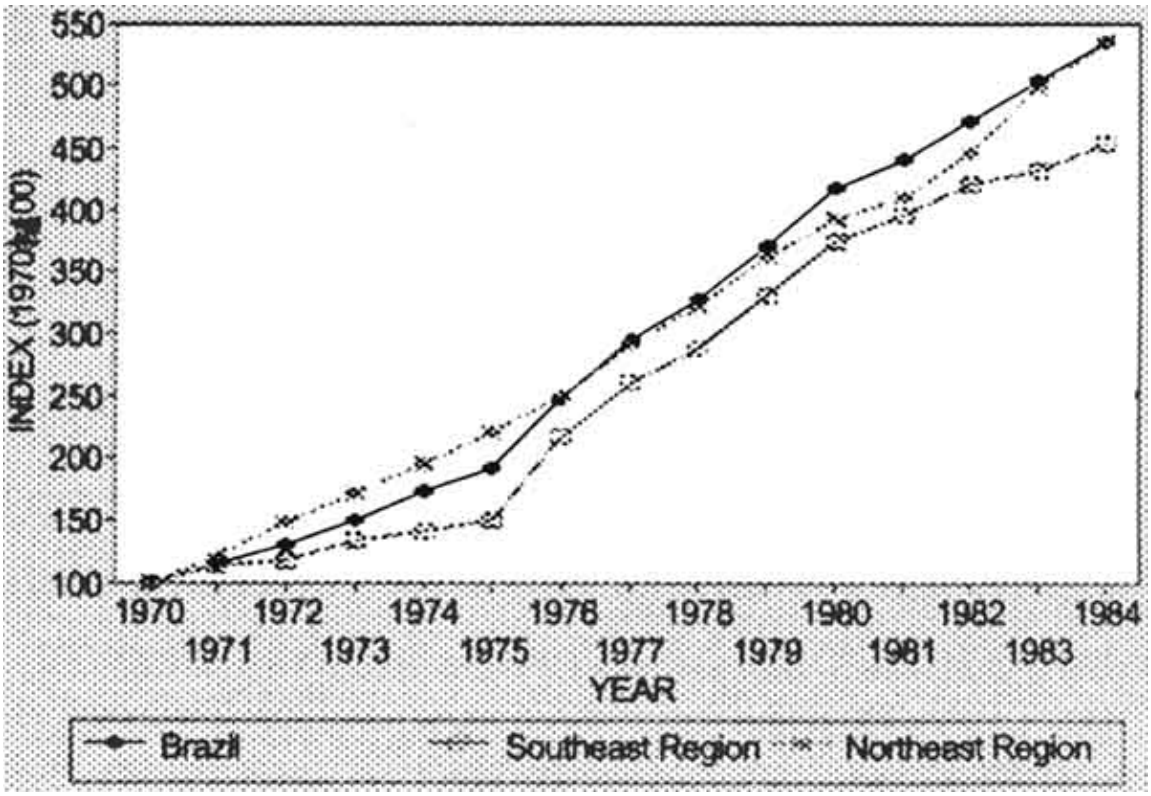

Figure 16. WATER: PLANASA, URBAN POPULATION SERVED – BRAZIL, SOUTHEAST AND NORTHEAST, 1970–84

water and sanitation: One of the most important entitlements in determining health and nutritional status is access to clean water and a sewage system. It is estimated that, as of 1967, 65% of the Brazilian population

did not have access to an adequate water supply, and even less so to the sewerage system. The political and social pressures that were emerging with a growing urban population has led to the creation in 1970 the PLANASA (National Sanitation Plan), an ambitious program with the aim of delivering potable water to 80%, and sewage systems to 50% of the urban population by 1980.

Figure 16 displays the expansion of the water coverage brought about by the PLANASA for the 1970–1984 period, for the country and the Southeast and Northeast regions. For the country as a whole it is clear that the rate in which the program developed increased during the second–half of the seventies: for the 1970–75 period the population served by the program rose by 91.3%, averaging an annual increase of 13.85%; the expansion of the second–half of the 1970's (1975–80) was of about 118.1%, averaging 16.9% per year; despite the economic crisis, the program also expanded during the 1980–84 period almost 28%, or 6.35% per year on average. By the end of 1984 more than 63 million people had benefited from the program, reflecting a cumulative growth of 434% (about 12.7% per year). Table 16 displays the percentage of the urban population with access to a water supply in 1970,1980 and 1984. It shows that the proportion of the Brazilian urban population receiving clean water increased from 51% in 1970 to 84.5% in 1984.[18] The reduction in the number of people without any water source in their households during the 1970's should also be noted: from more than one–fifth of the urban population (21.6%) in 1970 to less than one–tenth (8.3%) in 1980. With respect to later years of the 1980's, the evidence available indicates an average annual increase of about 3.7%, from 1980 to 1988, in the proportion of total households, that is urban and rural, having access to potable water, thus confirming that the expansion continued throughout the eighties.

[18] 81% of the 84.5% of the urban population receiving clean water (or 68.3% of the total), were beneficiaries of the PLANASA.

Even though the program's expansion in the Northeast region is clearly done at a higher rate than in the Southeast region (see Figure 16), this distributive feature is not enough to compensate for the fact that the latter region had in 1984 a population coverage in terms of the number of people served 2.4 times greater than the Northeast, from 2.8 in 1970.[19]

[19] As of 1984 about 52% of the population served in terms of water by the program were from the Southeast and 22% from the Northeast region, exactly matching each region's participation in the Brazilian urban population. In this sense, it can be said that if, with respect to water, the program did not present a tendency for equity, it did not operate in a regressive manner either.

With respect to sewerage, however, the performance of the PLANASA lagged behind the goals. By 1980 instead of the proposed one–half, only one–third of the urban population lived in households connected to a system of sewers, and by 1984 this figure was only at 36%, as can be seen from Table 17. In absolute numbers the PLANASA reached about 22.5 million urban inhabitants in 1984 in the area of sanitation. The growth of the program, in terms of population served, for the 1970–1984 period was of about 270% for the country as a whole. Figure 17 displays the expansion of the program for the country and the Southeast and Northeast regions. As with water, the growth of the program increased during the second half of the 1970's and is not severely affected by the recession of the early eighties. Some distributive attempts also appears for sanitation, but the absolute coverage of the program indicates an effort that is in fact biased towards the Southeast to an even greater extent than with water: 72% of the population served by 1984 was from the this region, while only 9.5% were from the Northeast. This shows an important regressive feature, for, as discussed in note 30 above, these regions represented 52 and 22%, respectively, of the Brazilian urban population in 1984.

Table 16
Urban Population: Access to the Water Supply
Brazil: 1970, 1980, and 1984

Urban Population	1970	1980	1984
% With access to the water supply	51.2	73.9	84.5
% Without any water source inside the household	21.6	8.3	5.4

Source: MPAS/CEPAL (1990).

Table 17
Urban Population: Access to the Sewage System
Brazil: 1970, 1980, and 1984

Urban Population	1970	1980	1984
% With access to the sewage system	20.2	33.3	36.0
% Without any sanitary installation inside the household	13.4	7.2	5.5

Source: MPAS/CEPAL (1990).

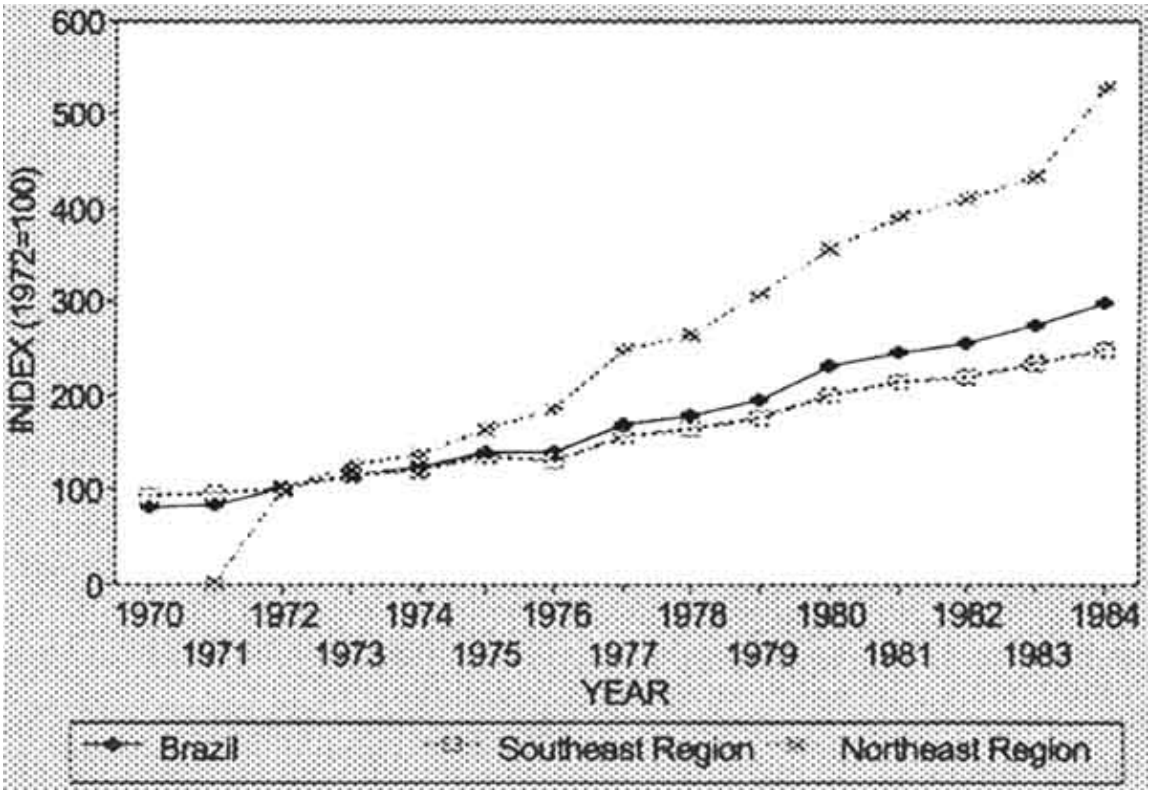

Figure 17. SEWAGE: PLANASA URBAN POPULATION SERVED – BRAZIL, SOUTHEAST AND NORTHEAST – 1970–84

Of the total invested in the country in the areas of water and sanitation between 1968 and 1984, 72% were oriented for the former. Of this total invested in the water system 25.6% were destined to the Northeast and 55.1% to the Southeast regions. With respect to the investments in sanitation the Northeast region received only 11.5% and the Southeast the lion's share: 75.6%.

health: With respect to the health sector we could only construct a series on per capita health expenditures from 1975 to 1989 (see Figure 18). The data from the FUNDAP indicates an upward trend from 1976 to 1982. It should be noted, though, that there are large discrepancies between the FUNDAP data and the IPEA data set for 1980 and 1981. Both sources show, however, lower levels of expenses for 1983 and 1984 as a result of the economic crisis. A new and important upward trend appears from 1985 until 1989, with the peak being reached in this last year with an expenditure of US$68.73 per capita, an amount 2.4 times greater than the quantity spent in 1975.

Table 18 displays the availability of physicians and pediatric beds, the number of medical visits paid by IN AMPS[20], and the immunization coverage of public health centers. Particularly with respect to the latter the improvements are impressive: the proportion of children immunized against measles increased more than three times, from 16% in 1975 to 59% in 1988, and the proportion of children receiving all three doses of the vaccine against diphtheria, tetanus, and whooping cough was raised from 20% to 56% in the same period. The number of physicians per thousand of the population doubled between 1970 and 1986, while the availability of pediatric beds increased by 80% during the period. For both indicators the growth observed during the second half of the 1970's was greater than in the other period. The number of medical visits paid by INAMPS per year between 1975 and 1986 increased in about 78%, with almost 94% of such growth occurring

between 1975 and 1980. Therefore, the figures from Table 18 suggest an improvement in the access of the poor to health services during the two decades, particularly because, with the exception of the number of physicians, all of the estimates refer to the public sector.

[20] INAMPS is the single largest source of health care financing in the country, with expenditures of about one–third of the country's total (public and private) health expenditures. Its funds come from payroll taxes levied on workers and employers.

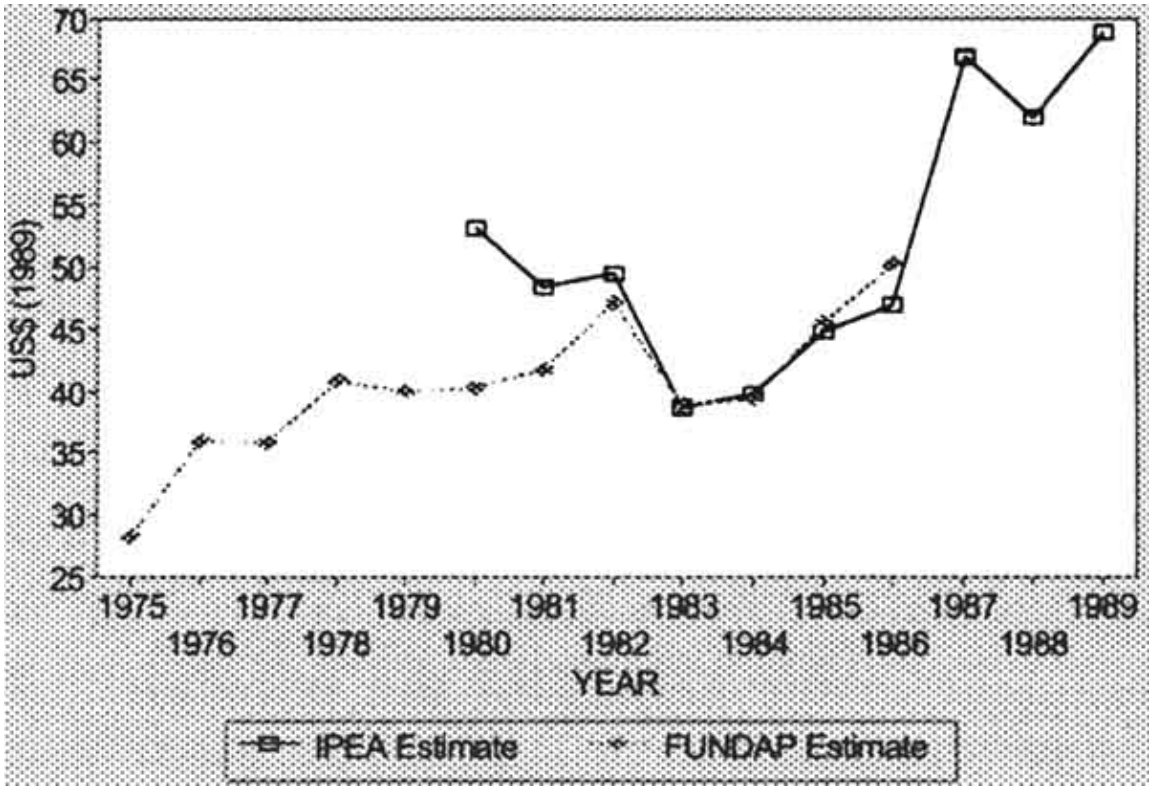

Figure 18. PER CAPITA HEALTH EXPENDITURES – BRAZIL, 1975–1989

Table 18
Health Care Coverage Indicators
Brazil: 1970, 1975, 1980, and 1988

Coverage	1970	1975	1980	1988
Immunization %				
DPT(1)	–	20.0	37.0	56.0
Measles	–	16.0	56.0	59.0
Physicians(2)	0.7	0.8	1.1(5)	1.4(6)
Pediatric Beds(3)	2.0	2.5	3.5(5)	3.6(6)
Medical visits(4)	–	0.9	1.5	1.6(6)

Source: Monteiro et al. (1992).

Notes:

(1) Diphtheria, Pertussis, and Tetanus
(2) Per thousand inhabitants.
(3) Per thousand children with less than 5 years of age.
(4) Per thousand inhabitants per year.
(5) 1979 data.
(6) 1986 data.

education: Table 19 displays figures for literacy and basic education covering the period between 1970 and 1988 for two groups of the population: those with 10 years of age and upward and women of reproductive age. The general positive trend present in the table is noteworthy, but the most relevant point to our analysis is the fact that the improvements in literacy and basic education are consistently greater for women of reproductive age.

Table 19
Literacy and Basic Education
Brazil: 1970, 1977, 1980, and 1988

	1970	**1977**	**1980**	**1988**
Literacy rate (%)				
Population age 10 or more	65.9	74.2	74.7	81.5
Women 25–29 years of age	67.7	80.6	81.4	90.3
Basic education* (%)				
Population age 10 or more	31.7	48.6	47.9	57.1
Women 25–29 years of age	35.5	56.3	60.2	72.3

Source: Monteiro et al. (1992).
Note: Refer to having 4 or more years of education

Figure 19 exhibits the evolution of the per capita expenditures with education for the 1970–1989 period. It uses as sources of data the estimates made by the IPEA and the budgetary expenditures published by the government.[21] There is a clear and continuous increase in disbursements for education during the second half of the seventies, particularly from 1976 until 1982, the same period that increases were observed in expenditures for the health sector, a tendency that is broken only in 1980. Again, as occurred with health, the consequences of the recession appear in 1983 and 1984 when the expenditures drop 23% in per capita terms from the US$31.91 of 1982 to US$25.93 in 1983 and US$24.50 in 1984 (all expressed in dollars of 1989), an amount inferior to that observed in 1977. Rapid increases in per capita expenditures also characterized the second half of the eighties in education, reaching the peak in 1988 with US$54.83, an amount seven times greater than that spent in 1970 for each Brazilian citizen.

[21] In the case of education, Treasury resources represent over 90% of the sector's expenditures.

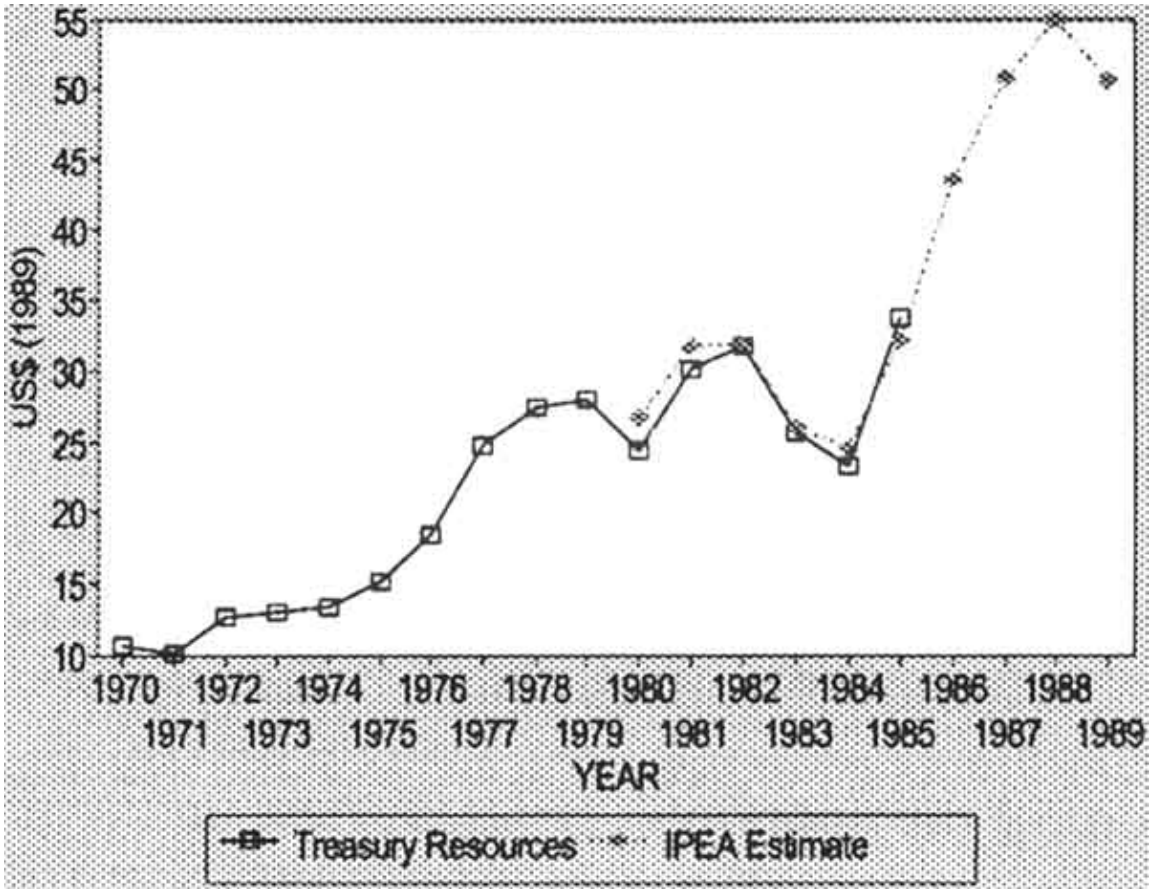

Figure 19. PER CAPITA EDUCATION EXPENDITURES – BRAZIL, 1970–1989

It should be noted that in the context of this paper the benefits of the expenditures in education materialize with a considerable lag in time. The trend of the applications in the area is reflecting the commitment to the social policies. In addition, they provide an indication for this and the coming decades.

In this subsection we have shown that education, health, sanitation, and particularly water all show important developments and a pattern of progress closely related to the improvements described in Section III. Moreover, these factors have presented increases throughout the 1980's, allowing for the continued improvements observed in that decade.

Food entitlements acquired through non–income channels apparently have had a limited impact on the improvements observed and described in the previous section due to the low effectiveness of the Brazilian nutritional programs. The behavior of food prices, in aligning very closely to the overall inflation schedule, while thus not a contributing factor to the improvements, did not represent an obstacle either.

Chapter 4. Conclusions and Conjectures

Impressive improvements in the nutritional status of the Brazilian children are shown by the data from the national surveys of 1975 and 1989. Many would doubt that such unusual changes could ever occur in a country like Brazil, characterized by an extremely concentrated distribution of income that excludes the poor from the prosperity of one of the largest economies of the world. Moreover, the information on child survival indicates that sharpest improvements occurred during the second half of the seventies – after the period of remarkable growth rates – and continued into the 1980's, when the country enters in recession.

It is difficult to provide a comprehensive evaluation of the factors that operated to produce these unexpected results. In this sense what follows are some conjectures based on our conceptions about the Brazilian process of social development.

At a general level, the processes of economic growth and urbanization of the Brazilian society brought up social demands and political pressures that could not be restrained for a long period of time; for instance the labor and grassroots movements, that gradually, throughout the second half of the seventies, provided the

freedom and voice to fight for better wages and public infrastructure; and the fight of the civil society for free elections.

On the economic side, even though showing an important concentrating tendency, in regional and personal terms, the Brazilian economic growth of the early 1970's produced at least two important pre−conditions to the achievements analyzed in this paper. Firstly it actually brought gains to the very poor reducing substantially the proportion of individuals living below the poverty line, and secondly it made viable the social investments necessary to the implementation of some important public policies.

Nonetheless, income−related factors can only provide a plausible explanation for the changes occurring up to the 1980's. When, as during the last decade a stagnating (and again income concentrating) economy coexists with still improving indicators of well−being, these income factors lose their explanatory power. In this sense, any improvement in child nutritional status during the eighties would have to be essentially explained by a greater access to the set of public services. The entitlements framework provided the analysis of these other links, particularly through the behavior of indicators (of expenditures and/or production) in areas such as health, education, sewerage, and water.

It should be noted that the overall path followed by Brazil is not one of a planned strategy of social development through coherent and integrated programs, but rather an erratic and passive course of chain reactions to the incentives and constraints conferred by the social and economic environment. In this sense, the policies implemented are often ineffective in reducing inequalities and disconnected from any process of strategic planning. In fact, the existing structure inside the Brazilian State, responsible for the interface between the different kinds of pressures that come out of society and the sphere of strategic economic planning, tends to promote minor personal, political or regional interests. During the military regime, on the one hand, this structure was unnecessary, since the power structure in itself suppressed and/or filtrated the social pressures.[1] In democratic regimes, on the other hand, the lack of an efficient interface between society and the State leaves a fertile ground for populism and results in a chaotic and inconsistent government action.

> [1] The undemocratic characteristic of the regime blocked the learning process so necessary to the organization of the social demands.

The fact that a solution to the large social and economic inequalities has not been actively sought could largely explain the escalating inflationary process, if the latter is seen as the result of a distributive conflict. The political freedom and the increasing social participation of the economic agents unfold pressures for larger shares of the economic output. Incapable of dealing with these pressures, expansionary measures are put by the government into effect without a real base on which to stand, resulting in a growing inflationary tension. The regrettable side of this mechanism is that this inflationary process, as the evidence suggests, is not only the main deteriorating factor of the welfare of the poor, but also an obstacle to the expansion of the economy in itself.

In this sense, Brazil has reached a point in which a systematic and courageous search for the solutions to the existing contrasts cannot be postponed. If twenty years ago the social and economic inequalities were elements for the accumulation of capital, nowadays they are more than ethical issues and have become impediments for a sustainable process of economic development.

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