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Brazil

The Brazilian Labor Market in the 1980s

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Country Operations Division

Country Department I

Latin America and the Caribbean Region

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BRAZIL

FISCAL YEAR: JANUARY 1 TO DECEMBER 31

AVERAGE EXCHANGE RATES (SALES)

1980	52.7	Cr\$/US\$		1992 Jan	1197.38	Cr\$/US\$
1981	93.1	" "		Feb	1478.66	" "
1982	179.5	" "		Mar	1814.58	" "
1983	577.0	" "		Apr	2196.78	" "
1984	1848.0	" "		May	2628.64	" "
1985	6200.0	" "		Jun	3149.77	" "
				Jul	3829.20	" "
1986	13.66	Cz\$/US\$	/a	Aug	4672.14	" "
1987	39.23	" "		Sep	5771.52	" "
1988	262.01	" "		Oct	7214.90	" "
				Nov	9046.80	" "
1989	2.83	NCz\$/US\$	/b	Dec	11155.90	" "
1990	68.55	Cr\$/US\$	/c	1993 Jan	14059.10	" "
1991	406.72	Cr\$/US\$		Feb	17868.60	" "
1992	4513.02	Cr\$/US\$		Mar	22469.30	" "

/a On February 28, 1986, Brazil announced an economic stabilization plan. Among the principal measures adopted was the creation of a new currency, the cruzado (Cz\$), worth 1000 cruzeiros (Cr\$).

/b On January 15, 1989, Brazil announced the "Summer Plan." Among its measures was the creation of the new cruzado dollar (NCz\$), worth 1000 cruzados (Cz\$).

/c On March 16, 1990, the Brazilian national currency was renamed the cruzeiro dollar (Cr\$) as part of the Collor Plan.

Preface

1. The purpose of this report is to relate the functioning of the labor market to the resulting inequality and poverty in Brazil. The most important link between these is wages, a major component of income, especially at lower levels. Wages are determined by a combination of forces including demand and supply of labor, and labor market institutions. There are a number of market forces which explain wage differentiation. On the supply side, wages must differ according to workers' educations to compensate for students' foregone earnings; wages may also differ according to workers' locations to compensate for regional preferences, cost-of-living disparities, etc., and they may differ by sector or occupation to compensate for unpleasant characteristics of a particular job, stress, punctuality, etc. These are called equalizing differences in wages. On the demand side, wages cannot exceed the value of marginal productivity of labor and they may be significantly lower than the value of marginal productivity if there are high payroll taxes. The value of marginal productivity of labor is a function of the technology used, a mix of other factors, and the price of the goods or service produced.

2. Poverty, in the context of the labor market analysis, is the consequence of very low wages. These may reflect extremely low productivity due, for example, to a major disability, or the lack of complementary factors (in agriculture, e.g., lack of rain), or low output price.

3. In an economy such as Brazil's, which is relatively rich in natural resources, how can we explain the persistent poverty and inequality in the distribution of income? Many continue to seek reasons for the vast disparities in the availability of resources across regions. Nevertheless, the economic system provides the mechanism to facilitate the movement of resources in such a way that they are enabled to reach their maximum productivity.

4. The above paragraphs convey that inequality and poverty are general equilibrium outcomes. At the same time, however, they suggest that the focus on the labor market may prove to be the most adequate if the objective is to find policy options conducive to alleviating poverty.

5. The principal objectives of this report are:

- (1) To establish the key issues relative to the operation of the Brazilian labor market and the link to economic policies which have been implemented in the last decade;
- (2) To unveil the mechanisms which have, by discouraging the creation of employment and biasing technology towards capital intensity, contributed to the persistence of poverty and a larger degree of income inequality than would have otherwise existed.

ABSTRACT

1. The capital issues of income distribution and poverty are, without a doubt, at the forefront of debate concerning the future of Brazil's economy. The purpose of this study is to relate the functioning of the labor market to the resultant inequality and poverty.
2. The first part of this study follows the evolution of the most important indicators of labor market performance during the 1980s. In Section 2, several trends are observed. In particular, we examine: A) Changes in the composition of the labor force: (i) There has been a significant increase in the magnitude of the labor force since the mid-1970s due primarily to an increase in the working age population. There was a significant surge in population growth in the mid-1950s and early 1960s, (ii) The educational system has failed to provide adequate education at the secondary level, and (iii) Female participation in the labor force has increased significantly. B) There has been an increase in the number of "informal" (without signed workbook or contract) jobs. C) The public sector is becoming increasingly significant because it is creating employment. D) Despite the increase in the labor force and the slowdown in economic activity during the early 1980s, the unemployment rate has, nonetheless, remained very low.
3. Section 3 focuses on income distribution and reviews several studies which establish a close link between inequality in the distribution of income and inequality in the distribution of education.
4. Section 4 provides an overview of the institutional environment in which the labor market operates. This enables us to review recent changes in labor legislation, indexation mechanisms, and taxes on labor. In the formal sector, we find that social security contributions are better described as a 37% tax on labor. We also argue that the institutional setting which governs labor union negotiations is far from competitive because unions can exert considerable influence through their right to strike, and they are encouraged to negotiate at the industry level. We note also that there is a high penalty associated with layoffs which discourages the establishment of long-term labor contracts in the formal sector. In the public sector, employees hired prior to 1966 have tenure on the job and those hired after 1966 have such generous retirement benefits that it is not clear how the pressure of the budget on the public sector payroll could be diminished.
5. Section 5 analyzes employment allocation by region, sector, and education, and the relationship to effective rates of protection and public sector participation. In addition, the role of the public sector as a generator of employment and the relationship between public sector employment and the budget deficit are discussed. The evidence presented in this section suggests that there are strong links within trade policy, and both regional and individual disparities in the distribution of income.

6. The most important policy implications derived from this report are:

- The continuation of the trade liberalization process will contribute to an improvement in income distribution in the long run. This conclusion is based primarily on basic principles of economics. An efficient allocation of productive resources, that responds to true comparative advantages, generates a value of production that is enough to pay for all factors of production (domestic and foreign). Alternatively, if the government protects certain productive activities, these will generate a value of production that falls short of the true cost of resources. These activities will continue to be viable only to the extent that they receive government support. As a result, the economy's value of production is below its potential. The cost of this misallocation of resources is heavily concentrated on those sectors that are not protected by government policies. More precisely, it falls on those factors that are used more intensively in the non-protected sectors; this is particularly true of uneducated labor. Given the regional allocation of production and unskilled labor in Brazil, this study suggests that the reduction or removal of trade protection would benefit economic activities that are relatively concentrated in the Northeast and that make intensive use of uneducated labor.

Two objections have been raised by the Brazilian Government with respect to this conclusion. One is based on the appropriateness of the Heckscher-Ohlin model to the case of Brazil. Another refers to possibility that adjustment costs may fall disproportionately on the poor, invalidating the long run impact of trade liberalization on the income distribution. These criticisms are certainly at the center of the political discussion on trade liberalization. The World Bank has given plenty of attention to these and other related issues in the last ten years. Krueger's (1983) study focuses on the long run relationship between trade orientation and employment creation. The study specifically inquires whether the existence of factor markets distortions had resulted in deviations of the observed directions of trade from those suggested by the Heckscher-Ohlin-Samuelson framework. The experiences of ten developing countries were analyzed in detail. The analysis indicated that, without any exceptions, labor markets were highly distorted in the ten countries under study. Yet, in most of these countries, exportable industries (defined as such in the Heckscher-Ohlin sense) tended to be more labor intensive than import competing industries. Moreover, the data showed that the exportable sectors were relatively more intensive in the use of unskilled labor than import competing sectors. Krueger interprets this evidence as suggesting that in spite of the existence of perverse distortions in factor markets, the directions of trade in these countries responded to a large extent to the Heckscher-Ohlin predictions.

In response to the second objection, this study argues that indeed, an economy does not move to the long run equilibrium without costs. However, this simplification does not invalidate the conclusions, it qualifies them. Edwards and Edwards (1990) discuss the process of adjustment to trade liberalization in the presence of labor market distortions. They consider an economy where factors of production are not perfectly mobile and wages do not adjust downward. One of the variations of the model used assumes that the degree of wage distortion in the importables sector is related to the degree of trade protection. If this last set of assumptions is used, trade liberalization results in a reduction of wages in the importables sector and unemployment in the short run. The authors state in their conclusions, "It is perhaps in this setting that the opposition to trade liberalization can be better understood. Labor which is the factor of production that is supposed to gain from free trade is negatively affected in the short run and the long term gains are hard to perceive when compared to the initially distorted situation of the economy."

Michaely, Papageorgiou and Choksi (1991) attempt to evaluate the impact of trade liberalization on unemployment and other labor market indicators. The evidence is mixed, and whenever unemployment has increased the effect has been relatively small. The authors conclude that "by and large, liberalization attempts have not resulted in significant transition costs by the way of unemployment".

- The current labor code is not functioning properly, and it will become a key barrier to the adjustment of the economy if trade liberalization is pursued in depth. Two problems are worth mentioning here. Economic causes of dismissals are considered "unjust" in the context of the Brazilian labor law. Therefore, employers are heavily penalized (40% of the FGTS fund) in case of workers dismissals for economic reasons. This penalty reduces the demand for formal labor and makes firms rely on informal labor contracts which are a formula for labor flexibility. This study argues that the system of FGTS fund is viable, and coincides with the government's opinion that reductions in its benefits will induce political costs. Yet, a change in the definition of "unjust dismissal" to include economic causes, the introduction of an upper bound to the penalty involved, or a combination of the above can provide formal contracts with the minimum flexibility necessary in a competitive environment.
- A second area of potential improvement in labor legislation is related to collective contracts and collective bargaining. Labor Courts must approve the right to temporarily replace workers in case of strike, yet the legal right to strike is in the hands of the labor union. A significant number of conflicts must be resolved by the Labor Courts. The current law fails to provide the

proper incentives for labor and management to resolve their conflicts in a shorter period of time.

- Social security, basic health care, and other social services are currently financed by a payroll tax. Since the benefits are available irrespective of contributions, there is growing difficulty in collecting payroll taxes. One of the reasons workers engage in informal activities is to avoid tax payments. Brazil must seriously consider alternative ways of financing social services - lifting the burden from the labor market and the creation of formal employment.
- One of the key factors in income inequality is the inequality in the distribution of education. A minority may have a high level of education and receive a very high return for it. Is high-level education subsidized in Brazil? In view of Brazil's poor performance in secondary schooling and basic literacy relative to other Latin American countries, this report suggests that it is imperative to take a close look at the use of the education sector budget.

BRAZIL: THE BRAZILIAN LABOR MARKET IN THE 1980s

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This Report has been Prepared for the Country Operations Division of the World Bank, for the Latin America and Caribbean Region, Department I, which comprises Brazil, Peru and Venezuela. It is based on a mission to Brazil in the Spring of 1991 and subsequently the Green Cover version of the report, dated June 1991, was discussed with the Brazilian Government during the period of September-November 1992. Their comments have been addressed in this version. The views and interpretations in this document are those of the Ms. Alejandra Cox-Edwards, author, and should not be attributed to The World Bank.

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ACRONYMS AND ABBREVIATIONS

CLT	-	Consolidation of Labor Laws
CRSQ	-	Corrected R squared
CSULB	-	California State Univeristy at Long Beach
DCs	-	Developing countries
FGTS	-	Fundo de Garantia por Tempo de Serviço Time on-the-job Guarantee Fund
FPAS	-	Social insurance programs
GDP	-	Gross domestic product
GNP	-	Gross national product
GNPpc	-	Gross national product per capita
IBGE	-	Fundação Instituto Brasileiro de Geografia e Estatística Brazilian Institute of Geography and Statistics
INCRA	-	Instituto Nacional de Previdência Social National Institute of Social Security
INPES	-	Instituto de Pesquisas National Institute for Research
INPS	-	Instituto Nacional de Previdência Social National Institute of Social Security
IPCA	-	Índice de Preços ao Consumidor Agregado Consumer Price Index Aggregated
IPEA	-	Instituto de Pesquisa Economica Aplicada Institute of Applied Economic Research
IPi	-	Imposto sobre Produtos Industrializados Taxes on Industrialized Products
LDCs	-	Less developed countries

FP	-	Ratio of labor force (employment + unemployment) to working age population
OLS	-	Ordinary least squares
PASEP	-	Programa de Aposentadoria dos Servidores do Estado Public Employees Financial Reserve Fund (Pension Fund)
PIB	-	Produto Interno Bruto Gross Domestic Product
PIS	-	Programa de Integração Social Program of Social Integration
PME	-	Pesquisa Mensal de Emprego Monthly Employment Survey
PNAD	-	Pesquisa Nacional por Amostra de Domicílios National Research for Annual Household Surveys
PUC	-	Pontificia Universidade Catolica Catholic University
RER	-	Real exchange rate
SCI	-	Secretaria de Controle Interno Secretary of Internal Control
SCIE	-	The fraction of 3rd level education students in science and engineering
SENAI	-	Serviço Nacional de Aprendizagem Industrial National Service for Industrial Apprenticeship
SINE	-	Serviço Nacional de Emprego National Employment Service
SINPAS	-	Sistema Nacional de Previdência e Assistência Social National System of Social Security and Assistance
TILIT	-	Illiteracy Rate

- TPRIM** - **Primary education coverage**
- TSEC** - **Secondary education coverage**
- USP** - **University of São Paulo**

COUNTRY DATA - BRAZIL

AREA (sq km) ----- 8,512,000	POPULATION (1992) 156.4 million	DENSITY (1992) 18.0 per km sq
POPULATION CHARACTERISTICS (Most recent estimate)		HEALTH (Most recent estimate)
Crude Birth Rate (per 1,000)	26.7	Population per physician
Crude Death Rate (per 1,000)	7.3	Population per hospital bed
INCOME DISTRIBUTION (1973)		DISTRIBUTION OF LAND OWNERSHIP
% of private income, highest quintile	63.0	% owned by top 10% of owners
lowest quintile	3.0	% owned by smallest 10% of owners
ACCESS TO SAFE WATER (1988)		ACCESS TO ELECTRICITY (Most recent estimate)
Percentage of population	86.7	% of population - total
		- rural
NUTRITION (most recent estimate)		EDUCATION
Calorie intake as % of requirements	122.9	Adult literacy rate % (1985)
Per capita protein intake (grams/day)	62.0	Primary school enrollment % (Ages 7-14)
GNP PER CAPITA in 1991		US\$ 2,920

GROSS DOMESTIC PRODUCT IN 1991 (1987 prices)			ANNUAL RATE OF GROWTH (% , constant prices)		
	Cz\$ Bill.	%	1989	1990	1991
GNP at Market Prices	11,137	100.0	3.5	-4.1	0.9
Gross Domestic Investment	2,185	19.6	9.1	-8.0	8.9
Gross National Saving	2,107	18.9	5.4	...	-5.8
Current Account Balance	(42)	-0.4	...	...	...
Exports of GNFS	1,148	10.3	2.5	-4.9	0.4
Imports of GNFS	914	8.2	15.8	10.1	14.1

OUTPUT EMPLOYMENT AND PRODUCTIVITY IN 1984

	Net Domestic Product		Employment		NDP per Worker	
	US\$ Mill.	%	Mill.	%	US\$ Mill.	%
Agriculture	44,181	12.7	15.0	29.9	2,945	25.4
Non-Agriculture	303,702	87.3	35.2	70.1	8,628	74.6
Total/Average	347,883	100.0	50.2	100.0	11,573	100.0

GOVERNMENT FINANCE

	General Government a/		
	(Cr\$ Mill.)	% of GDP	
	1988	1986	1988
Total Receipts	44,126	30.4	48.0
Total Expenditures	59,022	44.7	64.2
Overall Balance	(14,896)	(14.3)	(16.2)
Government Fixed Investment	2,936	4.1	3.2

a/ Includes the consolidated accounts of the Central Government, states, and municipalities, as well as decentralized agencies of the Central Government and of the states.

COUNTRY DATA - BRAZIL

MONEY, CREDIT and PRICES (Cr\$ Bill)	1988	1989	1990	1991	1992
Money Supply (M1)	7	103	2,526	10,749	109,489
Bank Credit to Private Sector	55	965	12,215	69,557	...
Money (M1) as % of GDP	7.5	7.5	7.8	6.4	6.1
General Price Index (3/86=100)	2,549	36,193	36,193	5,339,017	58,269,295
Annual percentage changes in:					
General Price Index (Dec.-Dec.)	1037.0	1782.9	1476.8	480.3	1157.8
Bank Credit to Private Sector	997.0	1670.0	1165.5	469.4	...

BALANCE OF PAYMENTS (US\$ Millions)

	1989	1990	1991
Exports of GNFS	36446	33111	33519
Imports of GNFS	21511	24777	25804
Resource Gap (deficit = -)	14935	8334	7715
Interest Payments (net)	-8643	-9748	-8621
Other Factor Payments (net) a/ Net transfers	-4657 245	-3329 834	-2106 1556
Balance on Current Account	1880	-3909	-1456
Direct Private Foreign Investment (net) a/	647	400	620
Net MLT Borrowing b/	-2071	4385	2125
Other Capital (net) and capital n.e.i.	431	352	-1068
Increase in Reserves (-)	-887	-1228	-221
Gross Reserves (end year) c/	9678	9973	9406
Petroleum Imports d/	3753	4734	4052
Petroleum Exports d/	1018	1536	1088

MERCHANDISE EXPORTS (AVERAGE 1987-1992)

	US\$ Mill.	%
Coffee (beans and soluble)	1,650	5.1
Soybean products	2,328	7.2
Sugar	108	0.3
Cacao	263	0.8
Irons	2,301	7.1
Manufactured Goods	17,390	54.0
All other commodities	8,163	25.3
Total	32,203	100.0

EXTERNAL DEBT, DECEMBER 31, 1991

	US\$ Mill.
Public Debt, incl. guaranteed	89,869
Non-guaranteed Private Debt	7,771

Total Outstanding and Disbursed 116,172

DEBT SERVICE RATIOS for 1991

	%
Net Debt Service Ratio e/	36.8
Public Debt Service Ratio (gross) f/	7.9

IBRD/IDA LENDING, (Feb. 31, 1993 in US\$ Mill.)

	IBRD	IDA
Outstanding & Disbursed	7,283	..
Undisbursed	4,747	..
Outstanding incl. Undisb.	12,030	..

RATE OF EXCHANGE

AVERAGE 1991	AVERAGE 1992
US \$ 1.00 = NCz \$ 406.72	US \$ 1.00 = NCz \$ 4513.0
NCz\$ 1.00 = US \$ 0.0025	NCz\$ 1.00 = US \$ 0.0002

a/ Includes reinvested profits/earnings.

b/ Includes principal arrears.

c/ Change in level of reserves differs from reserve change in balance of payments by valuation adjustment.

d/ Crude and derivatives.

e/ Debt Service on both public and private external debt net of interest earned on foreign exchange reserves as a percentage of Exports of Goods and Non-Factor Services.

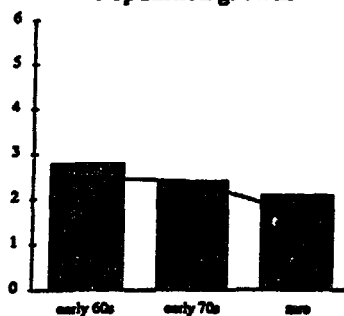
f/ Includes World Bank, official export credits, concessional and non-concessional other.

Social Indicators of Development, 1991-92

Brazil

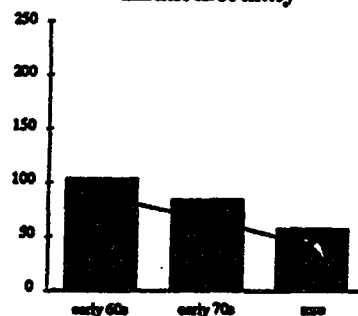
	Unit of measure	25-30 years ago	15-20 years ago	Most recent estimate (mre)	Same region / income group		Next higher income group
					Latin America, Caribbean	Upper-middle-income	
HUMAN RESOURCES							
Size, growth, structure of population							
Total population (mre = 1990)	thousands	84,292	108,032	150,368	433,190	458,731	816,621
14 and under	% of pop.	43.8	40.1	35.4	36.2	33.8	19.6
15-64	% of pop.	53.0	56.2	60.2	59.3	60.9	67.2
Age dependency ratio	unit	0.89	0.78	0.66	0.68	0.63	0.49
Percentage in urban areas	% of pop.	50.4	61.2	74.9	73.5	71.8	78.3
Females per 100 males							
Urban	number	..	..	103	104	..	..
Rural	number	..	..	93	..	..	..
Population growth rate	annual %	2.8	2.4	2.1	1.9	1.7	0.5
Urban	annual %	5.0	4.1	3.1	2.7	2.8	0.7
Urban/rural growth differential	difference	4.4	4.5	4.4	2.9	3.6	0.5
Projected population: 2000	thousands	..	..	178,267	515,607	541,229	859,163
Stationary population	thousands	..	..	305,007	..	..	..
Determinants of population growth							
Fertility							
Crude birth rate	per thou. pop.	38.7	32.7	26.7	27.0	24.9	13.0
Total fertility rate	births per woman	5.65	4.41	3.20	3.30	3.10	1.72
Contraceptive prevalence	% of women 15-49	..	..	65.0	..	..	..
Child (0-4) / woman (15-49) ratios							
Urban	per 100 women	..	..	45	..	..	..
Rural	per 100 women	..	..	72	..	..	..
Mortality							
Crude death rate	per thou. pop.	11.4	9.2	7.3	6.9	7.5	8.8
Infant mortality rate	per thou. live births	103.6	83.8	57.5	47.4	41.8	8.0
Under 5 mortality rate	per thou. live births	..	..	68.8	57.0	49.8	13.0
Life expectancy at birth: overall	years	57.1	61.0	66.2	67.6	68.3	76.7
female	years	59.1	63.4	69.3	70.7	71.5	80.1
Labor force (15-64)							
Total labor force	thousands	27,039	37,492	55,026	153,543	172,535	395,657
Agriculture	% of labor force	48.5	37.9	..	..	..	..
Industry	% of labor force	20.2	24.3	..	..	..	..
Female	% of labor force	19.6	24.4	27.4	26.7	30.4	38.5
Females per 100 males							
Urban	number	..	..	104	106	..	..
Rural	number	..	..	90	88	..	..
Participation rate: overall	% of labor force	32.1	34.7	36.6	35.2	38.5	48.0
female	% of labor force	12.6	16.9	20.0	18.6	23.3	35.8
Educational attainment of labor force							
School years completed: overall	years	..	..	..	..	..	..
male	years	..	..	..	..	..	..
NATURAL RESOURCES							
Area:	thou. sq. km	8,512	8,512	8,512	20,397	18,709	32,125
Density:	pop. per sq. km	10	13	17	21	24	25
Agricultural land	% of land area	21.1	25.4	29.2	36.6	34.3	35.9
Agricultural density	pop. per sq. km	47	50	59	57	70	70
Forests and woodland	thou. sq. km	6,007	5,872	5,531	9,537	7,116	9,212
Deforestation rate (net)	annual %	-0.2	-0.2	-0.4	-0.5	-0.5	0.2
Access to safe water	% of pop.	..	..	86.7	73.2	80.0	..
Urban	% of pop.	..	87.0	61.0	83.6	88.7	..
Rural	% of pop.	..	..	95.0	88.1	63.8	..

Population growth

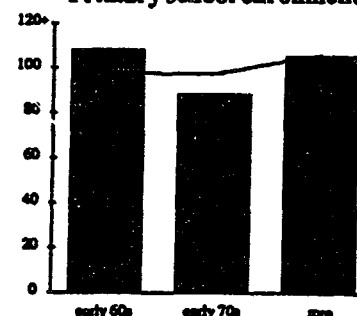


■ Brazil — Upper-middle-income

Infant mortality



Primary school enrollment



Brazil

	Unit of measure	25-30 years ago	15-20 years ago	Most recent estimate (mre)	Same region / income group		Next higher income group
					Latin America, Caribbean	Upper-middle-income	
INCOME AND POVERTY							
Income							
GNP per capita (mre = 1990)	US\$	270	1,070	2,680	2,180	3,450	19,660
Total household income							
Share to top 10% of households	% of income	..	..	..	..	..	..
Share to top 20% of households	"	..	62	..	..	..	..
Share to bottom 40% of households	"	..	9	..	..	..	..
Share to bottom 20% of households	"	..	3	..	..	..	..
Poverty							
Absolute poverty income: urban							
rural	US\$ per person	..	..	..	..	..	..
Pop. in absolute poverty: urban							
rural	% of pop.	..	..	..	..	..	..
Prevalence of malnutrition (under 5)	% of age group	..	..	12.7	..	..	..
EXPENDITURE							
Food							
	% of GDP	..	24.2	..	..	..	..
Staples	"	..	6.0	..	..	..	..
Meat, fish, milk, cheese, eggs	"	..	9.9	..	..	..	..
Cereal imports	thou. metric tonnes	1,956	2,244	3,421	19,477	39,280	68,753
Food aid in cereals	"	..	31	20	..	..	..
Food production per capita	1979-81=100	86.6	93.8	111.9	103.2	106.0	101.6
Share of agriculture in GDP	% of GDP	18.7	12.1	10.2	10.2	9.0	2.6
Daily calorie supply	calories per person	2,417	2,564	2,751	2,726	3,013	3,416
Daily protein supply	grams per person	61	60	62	68	77	105
Housing							
	% of GDP	..	7.6	..	..	..	..
Average household size							
Urban	persons per household	..	..	..	..	..	..
Fixed investment: housing							
	% of GDP	..	2.6	..	..	..	..
Fuel and power							
	% of GDP	..	2.8	..	..	..	..
Energy consumption per capita	kg of oil equivalent	285.8	611.2	914.8	1,060.5	1,794.4	5,122.9
Households with electricity							
Urban	% of households	..	..	..	..	..	..
Rural	"	..	..	..	..	..	..
Transport and communication							
	% of GDP	..	7.7	..	..	..	..
Population per passenger car	persons	74	22	10	14	11	2
Fixed investment: transport equipment	% of GDP	..	2.6	..	..	..	..
Total road length	thou. km	..	..	1,664	..	..	..
Population per telephone	persons	..	35	11	..	..	..
INVESTMENT IN HUMAN CAPITAL							
Medical care							
	% of GDP	..	3.8	..	..	..	..
Population per: physician							
nurse	persons	2,500	1,600	1,080	936	..	..
hospital bed	"	..	2,322	1,205	877	..	..
Access to health care							
	% of pop.	..	..	..	..	..	..
Immunized (under 12 months): measles							
DPT	% of age group	..	..	78.0	74.7	78.5	73.8
	"	..	..	81.0	74.5	81.5	82.7
Oral Rehydration Therapy use (under 5)							
	% of cases	..	..	45.0	44.5	..	..
Education							
	% of GDP	..	2.6	..	..	..	..
Gross enrollment ratios							
Primary: total							
female	% of school-age group	108.0	88.0	105.0	107.4	105.9	104.3
Secondary: total	"	108.0	87.0	..	..	..	102.7
female	"	16.0	26.0	39.0	47.2	56.3	91.6
Tertiary: total	"	16.0	28.0	45.0	52.8	58.9	92.8
female	"	..	..	..	..	..	..
Tertiary: science/engineering							
	% of tertiary students	18.6	16.4	19.1	..	..	..
Pupil-teacher ratio: primary							
secondary	pupils per teacher	28	22	23	25	25	19
	"	17	..	..	..	..	..
Pupils reaching grade 4							
	% of cohort	..	53.9	59.1	69.3	77.8	96.2
Repeater rate: primary							
	% of total enrollment	..	15.2	19.4	19.9	17.6	..
Illiteracy rate: overall							
	% of pop. (age 15+)	..	..	18.9	15.5	15.1	..
female	% of females (age 15+)	..	..	20.2	17.2	17.7	..
Newspaper circulation	per thou. pop.	31.8	39.3	57.3	81.9	100.9	333.1

Source: World Bank International Economics Department, April 1992.

EXECUTIVE SUMMARY

- i. The purpose of this study is to relate the functioning of the labor market to the resultant inequality and poverty in Brazil. This connection is based on the assumption that the distribution of income results from the interaction of the initial distribution of human and physical capital and market conditions which determine factor prices.
- ii. The human capital approach, which has dominated the neoclassical literature on earnings determination for more than twenty years, is based upon the key assumption that individuals can trade earnings today for increased earnings in the future. The use of the above model creates a clear link between the distribution of income and the distribution of education. Yet, this approach would be incomplete if short-run labor market conditions were ignored. In the last fifteen years, labor economists have developed an empirical method to control for "labor market conditions" in their estimates of the relationship between education and earnings. See, for example, Welch (1979). Moreover, studies of unions analyze their behavior and interaction in the labor market with profit-maximizing employers and utility-maximizing workers. Thus, institutional aspects of the labor market can be integrated into the neoclassical approach described above.
- iii. Brazil began the decade of the 1980s with an extraordinary influx of workers into the labor force while, simultaneously, the economy drifted into a major recession. Wages and employment in the formal-private sector of the labor market proved to have very limited flexibility, and the burden of the adjustment was shared by the informal sector and the government. The current challenge in the context of Collor's reforms, is to reestablish, within the formal sector, a salary structure compatible with market forces.
- iv. This study examines the functioning of the labor market and the determinants of the distribution of income. In order to understand the labor market and the resulting distribution of income, it becomes necessary to study the allocation of the stock of productive resources and the factors which determine the prices of those resources. Section 3 covers the connection between the distribution of education and the distribution of income. The main conclusion in this section is that a significant portion of income inequality can be explained by wage differentials across educational groups. These wage differentials by education are more pronounced in those regions where the degree of wage inequality is higher.
- v. Among the factors which determine wages and wage differences by education and experience, this study analyzes two factors: one is the institutional framework which guides the adjustment of the labor market to imbalances between demand and supply, and another is the economic policies which affect

the demand for skilled versus unskilled labor. The first of these two factors is the focus of Section 4 where labor legislation, taxation and wage policies are discussed. The following conclusions are drawn:

- (a) There is a substantial difference between the cost of labor and net wage income in the formal sector. Part of the difference can be seen as fringe benefits, part as tax on labor, and part as unemployment insurance. The most serious problem with this system is the lack of transparency. This is particularly true of social security taxes, because there is no clear link between taxes and social security benefits.
- (b) The institutional setting which governs labor union negotiations is far from competitive. Unions can exert considerable pressure through their right to strike and are encouraged to negotiate at the industry level.
- (c) Very high costs of dismissals have reduced employment flexibility in the formal sector. The minimum severance payment determined by law is equal to the individual's balance on the Time of Service Guarantee Fund (FGTS), plus an additional amount in case of "unjustified dismissal". Individual FGTS funds grow on monthly deposits of a fraction of the worker's salary and can be seen as forced saving, with relatively small economic effect. But, in case of dismissals without "just" cause --and these include dismissals with economic cause--, employers must pay an additional severance equivalent to 40% of the FGTS fund. This penalty, which was raised from 10% to 40% in 1988, makes employment reductions very costly and represents a sizable tax on formal employment.
- (d) In the public sector, employees hired prior to 1966 have tenure on the job, and those hired after 1966 have such generous retirement benefits that it is not clear how the pressure of the public sector payroll on the budget can be diminished.
- (e) A combination of factors, including high taxes on formal employment, the high cost of dismissals, and the recession of the early 1980s has resulted in a reduction in the relative size of the private-formal sector. During the 1980s, the public sector employment share grew, absorbing part of the slack. The rest was absorbed by the informal sector, where workers do not have legal contracts.

vi. The economic policies which affect the demand for skilled versus unskilled labor are examined in Section 5. The main conclusions drawn are:

- (a) Government intervention and commercial policy have a differential effect on employment based on level of education. Those sectors with heavy government participation have a disproportionately high number of workers with higher education.
- (b) Commercial policy has discriminated against the primary sector, which is relatively intensive in low-skilled workers.
- (c) Of all employment in the Northeast of Brazil, about 40% is related to sectors which receive negative effective rates of protection. Since the Northeast represents about 27% of total employment, and the portion of primary sector employment is .235 (Table 21), then about 46% ($.4 * .235 / .27$) of all employment with negative rates of effective protection is located in the Northeast.
- (d) Of total employment in Sao Paulo, about 20% is associated with protected sectors. Since Sao Paulo represents about 23% of all employment in the country, and the portion of protected employment over total employment is .117, then approximately 40% of protected jobs are located in Sao Paulo.
- (e) Given the impact of commercial policy on regional employment, it is expected that trade liberalization would contribute to a reduction in regional disparities in income distribution.
- (f) The public sector payroll has taken a growing share of public sector revenues since 1986. For 1989, the last year in which data was produced, the share of public sector payroll on disposable revenues was 82.9%. According to Macedo and Chahad (1990), the expansion of the public sector payroll "was essentially the result of wage increases". Therefore, recent public sector employment reductions in connection with the stabilization program appear only partially effective since little emphasis has been given to real wage reductions.

vii. Brazil is in the process of reforming its Constitution. Several of the issues discussed in this paper are Constitutional matters. These legal questions have a tremendous impact on the functioning of the economic system and, as it has been argued in this paper, on the functioning of the labor market. Therefore, it is imperative that these questions be discussed in their economic context as well

as in their social and political contexts. The issue of public sector employees' tenure, for example, seriously restricts the alternative options to control the budget deficit, one of the sources of inflationary pressure.

viii. The lack of employment flexibility can be a serious constraint to the attempt to remove protection and open up the economy to international competition. The Brazilian system of the FGTS can be the basis for an unemployment insurance system, but currently it puts a heavy burden on the employee and discourages the creation of formal employment.

ix The connection between income distribution and trade orientation suggested by this study is consistent with basic principles of international trade theory. In the simple Hecksher-Ohlin model, a developing economy with capital intensive imports, fully mobile factors of production, and flexible prices, the reduction of import tariffs will induce a reallocation of labor out of importables and an increase in wages.

Introduction

1. The capital issues of income distribution and poverty are, without a doubt, at the forefront of debate concerning the future of Brazil's economy¹. The purpose of this study is to relate the functioning of the labor market to the resultant inequality and poverty. This connection is based on the assumption that the distribution of income results from the interaction of the initial distribution of human and physical capital and market conditions which determine factor prices. In a market free of distortions, wages are determined by the value of marginal productivity of labor. Marginal productivity is, in turn, a function of technology and other factors of production, and human capital - the latter being traditionally associated with workers' level of experience and education. The prices of goods and services, which determine the value of marginal productivity of labor, are a function of a number of factors such as domestic demand and supply conditions, international prices, commercial policy, taxes and subsidies, price controls, etc.
2. The human capital approach, which has dominated neoclassical literature on earnings determination for more than twenty years, is based upon the key assumption that individuals can trade earnings today for increased earnings in the future. One version of the model of human capital accumulation derived from the work of Mincer (1958), Becker (1975), and Ben-Porath (1967) -- known as the "schooling model" -- has received a significant amount of attention in the literature. According to this version, under competitive conditions, the log of earnings for an individual with s years of schooling will be equal to the log of earnings of an individual without schooling, plus the product of s times the rate of return, to each year of schooling.
3. The use of the above model creates a distinct link between the distribution of income and the distribution of education. Therefore, in order to explain inequality in income distribution, it is important to explain the investment in education decision. Do individuals choose the level of schooling which maximizes their present value of earnings? It is quite clear that in countries where children quit school before age 18, the schooling decision is a family one.
4. The "schooling model" ignores the impact of labor demand conditions in the determination of earnings. In the last ten years, labor economists have developed an empirical method to control for "labor market conditions" in their estimates of the relationship between education and earnings. See, for example, Welch (1979).

¹ This study is by no means a pioneer in its field. The question of income distribution in Brazil has been examined extensively in various studies. See, among others, Fishlow (1972), Langoni (1977), Fields (1977), Bacha and Taylor (1978), Pfeffermann and Webb (1979), Morley (1982), Denslow and Taylor (1983), Sedlacek and Paes de Barros (1989), Adelman, Morley, Schenzler and Warning (1990).

5. The studies of unions' behavior by Freeman and Medoff (1984), and Lazear (1983), among others, consider alternative modes of union behavior and analyze how these interact in the labor market with profit-maximizing employers and utility-maximizing workers. Thus, institutional aspects of the labor market can be integrated into the neoclassical approach described above.

6. This paper deals with the specific case of the Brazilian labor market, and particularly with the inequality of the distribution of income. In order to organize the presentation, the analysis will be divided into three main topics:

- . First, the determinants regarding the distribution of the stock of productive factors with a focus on human capital;
- . Second, the institutional framework which imposes distortions on labor markets (taxes, minimum wages, etc.) and directs the adjustment of the labor market to any imbalance between demand and supply; and
- . Third, the effect of economic policies on the prices of these factors of production. Here the focus is on trade orientation and its impact on the use of unskilled versus skilled labor, and the impact of government employment.

7. In order to put this analysis in its appropriate context, Section 2 examines the recent evolution of labor market indicators. This is done in connection with economic conditions or perceived changes in demand and/or supply of labor. Since Brazil has yet to go through a structural adjustment process to achieve price stability, it is of great importance to understand the potential impact of a serious adjustment process on the labor market.

8. Section 3 addresses the issue of distribution of productive resources. It reviews studies which examine the relationship between the distribution of education and the distribution of income. It also points out the failure of the educational system to increase its capacity during the 1970s in response to the population growth of the late 1950s.

9. Section 4 takes a look at the institutional environment to which the labor market responds. This enables us to review recent changes in labor legislation, indexation mechanism, and taxes on labor. This section draws on the work of Camargo and Amadeo (1990).

10. Section 5 analyzes the employment allocation by region, sector and education, and its relationship to effective rates of protection and public sector participation. In addition, the role of the public sector as a generator of employment and the relationship between public sector employment and the budget deficit, are discussed. Although public sector employment growth is far from trivial, the very rapid increase in the public sector payroll in 1989 was mostly due

to wage increases.² The evidence presented in this section suggests that there are strong links between trade policy, and both regional and individual disparities in the distribution of income. Throughout this paper, and in the appropriate context, there are numerous references to published material on the Brazilian labor market.

² This section draws on the work of Paes de Barros and Ramos (1991), and Macedo and Chahad (1990).

CHAPTER I

THE BRAZILIAN LABOR MARKET IN THE 1960s AND 1970s

1.1 Two factors in particular characterized the Brazilian labor market during the 1960s and 1970s: the rapid rise in employment and productivity - justifying reference to Brazil's case as a "miracle", and a widening of the wage differential between unskilled and skilled labor which has been analyzed in numerous income distribution studies on Brazil.

1.2 Overall labor force participation declined slowly between 1950 and 1970. In the 1980s, however, it surpassed the 1950s level. The change in this trend, as shown in Table 1, is explained by the increase in both male and female labor force participation ratios between 1970 and 1980. The large increase in female labor force participation is associated to a number of factors including, declining fertility, increase in female's educational attainment and changes in sectoral composition of production that favor female's employment. (See Edwards and Roberts (1990)). Notice, however, that the change in male labor force participation appears to be unusual.³

1.3 As in many developing countries, the male labor force participation showed a decline until 1970 (81% in 1950, 77.2% in 1960, and 71.5% in 1970). This trend is typically associated with higher levels of schooling. However, in 1980, this trend showed a reversal when labor force participation increased to 73.1%. There are two factors which help to explain the increase in male labor force participation between 1970 and 1980: (1) The effect of the 1950s baby boom and its impact on the age composition of the population. In fact, as shown in Paiva (1986), the contribution to labor force participation of the group of workers between the ages of 20 and 35 years, which tend to have the higher rates of labor force participation, increased; and (2) An increase in labor force participation rates among individuals between the ages of 10 to 29. This is contrary to what occurs in countries where the coverage of the educational system is increasing and therefore rates of labor force participation for secondary and higher level education age groups fall.

1.4 This second phenomenon can be explained, at least in part, by the fact that the educational system in Brazil, which had increased its coverage around 1960, had failed to grow at a pace compatible with the absorption of a rapidly growing population in the 1970s. In Section 4, four indicators of educational system coverage will be analyzed in order to assess the importance of this phenomenon. In addition, the Brazilian case is compared with the rest of Latin America. The data indeed shows that coverage at the primary level was higher in 1965 than in 1970, and that post-secondary education coverage reached a peak around 1970.

³ Jatoba (1989) and Paiva (1984) have argued that the 1980 census suffers from sampling problems and that the higher rates of participation measured may not represent the actual trends in the economy.

1.5 The labor market impact on the increase in educational coverage of the 1960s is, in fact, reported in Macedo (1986): "The sixties and seventies were a period of considerable increases in high school and college enrollment, with the bulk of new graduates coming to the market in the 1970s." During the boom years (until the mid-1970s) the market offered plenty of opportunities to this growing supply of skilled workers. Also during this period, unskilled labor supply to the urban areas became more flexible because of two reasons as cited in Mac. 'o (1986): extension of the Labor Code to the agricultural sector, and increased mechanization and crop substitution. For example, the state of Paraná (at the southern border of São Paulo) substituted soy beans for coffee because of the weather. Since soy beans are less labor intensive than coffee, this created a massive outflow of labor. Evidence presented in the same study shows that the skilled/unskilled wage ratio reached a peak around 1973.

1.6 After the first oil shock, the demand for labor did not increase. Therefore, this continuous flow of labor supply, particularly unskilled labor, to urban areas exacerbated the impact of a stagnant demand on the labor market outcome. This unfortunate turn in the labor market's condition is not clearly identified in the fluctuation of wages. The explanation for this is that, commencing in 1974, wage policy reduced real wage flexibility in the formal sector, particularly at lower wages.⁴

⁴ As will be described below, the Brazilian labor market is characterized by a formal-informal dichotomy, where formal employment is defined by the existence of a legal contract signed in a workbook.

Table 1: POPULATION AND ECONOMICALLY ACTIVE POPULATION, BRAZIL

	1950	1960	1970	1980
	(in millions)			
Population	52.710	70.173	92.986	119.054
Working Age Population (10+)	36.441	48.829	65.862	87.812
Labor Force	17.410	22.750	29.337	43.236
	(by percentage)			
Labor Force:				
% Male	85.6	82.1	79.1	72.6
% Female	14.4	17.9	20.9	27.4
LFP* rate	47.8	46.6	44.5	49.2
Male LFP rate	81.0	77.2	71.5	73.1
Female LFP rate	13.6	16.6	18.4	26.9

Source: Census data. LFP* rate is the ratio of the labor force (employment + unemployment) to the working age population.

1.7 As Table 2 shows, the male labor force rose by an average of 3% per year between 1970 and 1980, and the female labor force rose by an average of 6.6% per year during the same period. The increase in women's labor force participation is another element which explains the rising overall labor force participation in the 1980s - yet women represented only a 27.4% of the labor force by 1980. Thus their contribution to the increase in the overall participation rate is much lower than that of men.

**Table 2: RECENT TRENDS IN POPULATION GROWTH,
POPULATION AND LABOR FORCE PARTICIPATION (LFP) LEVELS**

	<u>Annual Rate of Growth</u> (in percentages)			<u>1980 Pop. Level</u> (millions)
	<u>1950/60</u>	<u>1960/70</u>	<u>1970/80</u>	
Population	2.9	2.8	2.5	119.054
Population (10+)	2.9	3.0	2.9	87.812
LFP Total	2.7	2.5	3.9	43.236
LFP Males	2.3	2.2	3.0	31.393
LFP Females	4.9	4.1	6.6	11.843

Source: Paiva (1986), calculated from Census data.

1.8 In short, Brazil began the decade of the 1980s with an extraordinary influx of workers into the labor force at the time when the economy went into a major recession.

CHAPTER II

RECENT MACROECONOMIC TRENDS AND LABOR MARKET PERFORMANCE

2.1 Brazil's recent experience with cyclical economic activity, inflation, and debt is not very different from that of the other Latin American countries. (See Table 5 for main indicators.) Brazil responded to the oil shock of 1974 by greatly increasing external borrowing and by speeding the extent of import substitution. This was done by increasing the rate of effective protection through the use of subsidies for intermediate and capital goods. This policy is referred to as the "large sectoral programs" strategy. Investment financed by foreign lending was allocated to substitute for imported capital and intermediate inputs. A World Bank study by Papageorgiou, Michaely and Choksi (1986) suggests that the degree of trade liberalization in Brazil increased slightly during the early 1970s only to decline to the 1950s level in the late 1970s. The opening of the capital account allowed the real exchange rate (RER) to fall while protection prevented imports from increasing, and foreign funds financed investment.

2.2 Although wage indexation had been present for some time in Brazilian history, it is only after 1974 that wage indexation introduces downward rigidity of real wages. Starting that year, and after a bitter legal dispute on this issue, indexation mechanisms became more explicit and a source of inflationary pressure.

2.3 By 1979, growing inflation and foreign payment difficulties gave authorities caution. The second oil shock only made things worse and in 1981, under pressure, Brazil began an adjustment program. From 1982-1985, partially as a result of a maxi-devaluation of the cruzeiro, exports increased rapidly. This was largely possible because of the existence of the productive capacity established during the so-called "large sectoral programs" period of the mid- to late 1970s. At that point, Brazil had the industrial capacity to generate exports, but the country had yet to absorb the negative income effect from the worsening of trade terms, and of the increase in the real cost of servicing the debt. The government deficit and its financing appeared to be a major problem.

2.4 Table 3 shows the evolution of the real exchange rate throughout the entire period. Since 1968, a crawling-peg exchange rate policy kept devaluations in line with the difference between internal and external inflation, thus avoiding a reduction in the real exchange rate. Yet, in face of the significant and negative terms of trade shocks, it is not clear whether or not the real exchange rate was overvalued. The Economic Commission for Latin America estimates that the effect of the terms of trade resulted in real income losses for Brazil of about .5% each year in the late 1970s and up to 4% in the mid-1980s.

2.5 Brazil chose not to have a significant real devaluation after the first oil shock - a choice which was made easier by the availability of foreign borrowing. In the early 1980s, rapid export growth helped Brazil deal with the second oil shock, but the economy was showing signs

of overheating. Brazil entered a period of adjustment through recession which lasted until 1983 with the GDP falling by 4.4% in 1981, and by 3.4% in 1983.

2.6 Although recession was Brazil's initial response to the debt crisis, the subsequent policies did nothing to help the economy adjust. In 1989, Cardoso and Dantas wrote: "Brazil has not 'adjusted' to the debt crisis. Instead the Brazilian government has 'accommodated' the disappearance of external sources of finance by printing money and by creating domestic debt." Inflation doubled from 97.9% to 179.2% in 1983, and by 1985 it had reached 230% per year.

Table 3: TERMS OF TRADE AND REAL EXCHANGE RATE: ANNUAL AVERAGES

YEAR	TERMS OF TRADE (ToT)	REAL EXCHANGE RATE	FACTOR PAYMENT ABROAD/PIB	EFFECT OF ToT as %PIB
1970	100.0	94.4	.0094	
1971		94.4		
1972		97.4		
1973		105.0		
1974		107.6		
1975	85.4	108.1	.0139	-0.702
1976		103.2		
1977		100.0		
1978	87.6	111.6	.0223	-0.523
1979	79.9	122.1	.0258	-1.000
1980	67.4	130.5	.0307	-2.000
1981	56.7	107.6	.0396	-3.339
1982	54.2	101.9	.0509	-3.342
1983	55.1	123.2	.0569	-4.081
1984	59.5	117.7		-4.272
1985	106.5	118.4		
1986	100.0	135.5		
1987	89.1	137.0		
1988	88.9	124.6		
1989	68.1			

Source: Terms of Trade, Statistical Yearbook for Latin America and the Caribbean. Real Exchange Rate (increase indicates depreciation), Cardoso and Fishlow (1989) for 1970-1984, Cardoso and Dantas (1989) for 1985-1988. Factor Payments/PIB, Economic Commission for Latin America.

2.7 The transfer of power to civilian hands in 1985 implied a renewed commitment to promote growth and create jobs. While efforts to control inflation called for a restrictive monetary policy, fiscal policy was expansionary. The degree of imbalance on the macroeconomic front is reflected by the inflation explosion of the late 1980s. The Cruzado Plan was launched in February of 1986, freezing prices. The plan had a number of serious weaknesses and did not succeed. As can be seen in Table 6, inflation continued rising until 1989.

2.1 Labor Absorption

2.8 As the recession ensued from 1981 to 1983, the labor market experienced higher rates of open unemployment, especially in the large Metropolitan areas. Employment in the (organized) private sector fell by 6.1%, while total employment in the public sector increased by 8.6% between 1981 and 1983. [See Macedo and Chahad (1990).] Another important change set in motion by the 1981-83 recession was the growing informalization of employment relations in Brazil during the 1980s. All of these will be analyzed later.

2.9 The economy recovered in 1984 and, according to Macedo (1986), employment recovery concentrated on export-oriented manufacturing which was intensive in skilled labor. Sectors intensive in unskilled labor, such as construction, stagnated. In fact, as can be seen in Table 4, the rate of growth in construction employment fell from above 6% in the 70s to below 3% in the 1980s. Agriculture, another sector which employs a large portion of unskilled labor, stagnated. It experienced a modest growth in the 1970s and a slight decline in the 1980s.

2.10 Cacciamali (1989) analyses the 1980s employment trends by sector and region using PNAD data. She reports that more than half of the net job creation occurred in the South East, followed by the North and Center-West (26%), and the North East (19%), while the South experienced a net loss. Although primary sector employment represented about 25% of all jobs in 1986, the net gain in employment was only seen in the urban areas. Labor absorption in the primary sector (agriculture, mining) fell in the South and North East, grew modestly in the South East and was important in the North and Center West, a relatively small region in terms of primary employment. The aggregate result was a net loss of primary sector jobs.

Table 4: EMPLOYMENT GROWTH BY SECTOR
(Annual average rates in percentages)

	1970-80	1979-87
Total	4.011	3.333
Primary	0.017	-0.208
Secondary	7.262	3.317
Manufacture	7.781	3.512
Construction	6.343	2.936
Other	7.138	3.005
Tertiary	6.001	5.521
Commerce	6.225	5.689
Transport & Communications	4.511	3.488
Private Services	6.091	5.275
Public Administration	4.631	6.950
Other Services		4.974
Other	6.401	5.985

Source: Cacciamalli (1989). Occupation data for 1970 and 1980 comes from Demographic Census. Data for 1979 and 1987 is based on PNADs.

2.2 Real Wages

2.11 In preparation for examining variations in real wages, it is useful to review the evolution of per capita income. As Table 5 shows, Brazil's overall performance during the 1980s was poor. This puts the analysis of real wages into perspective: One does not expect significant real wage increase if there has been no significant growth in real income.

Table 5: INCOME AND PRICE INSTABILITY IN THE 1980s
(in percentages)

YEAR	Inflation Rate		Rate of Growth of GDP	GDP Per Capita Index 1980 = 100
	Official Dec/Dec	GDP Deflator		
1980	110.25	90.00	9.2	100.0
1981	95.18	107.89	-4.4	93.5
1982	99.72	105.29	0.7	92.0
1983	210.99	141.45	-3.4	86.9
1984	223.81	215.23	5.0	89.3
1985	235.56	231.69	8.3	94.6
1986	62.37	144.04	7.5	99.6
1987	365.96	209.61	3.6	101.0
1988	933.62	672.57	0.0	98.9
1989	1764.87	1428.18	3.6	100.4

Source: IBGE.

2.12 This section looks at the evolution of both wages and wage rate policy during the 1980s. Special emphasis is placed on the ways in which the dynamics of inflation and the timing of indexation affect real wages. As it happens in most episodes of rapid inflation, the results are highly sensitive to the point in time chosen to measure real wages as well as to the price index chosen. Thus, it is not surprising to find conflicting evidence on real wage rate behavior.

2.13 According to Rodriguez and Lisboa (1989), average wages moved in a pro-cyclical fashion. Average wages fell with economic activity levels in the early 1980s and recovered after 1985, reaching real 1979-81 levels by 1987. They find significant differences in trends according to sector. Camargo and Ramos (1987) found an interesting pattern in the

dynamics of real wages during the recession recovery of the 1980s. According to these authors, the organized sector showed a larger degree of real wage stability (lower reductions during the recession, smaller increase during the recovery) than the informal (no signed-booklet + self-employed) sector. Evidence indicating that there were important differences in sectoral real wages has also been provided by Amadeo and Camargo (1989), and Pfeffermann (1988).

2.14 Real wages in strongly unionized areas of the industrial sector increased continuously between 1975 and 1987 in spite of external shocks. On the other hand, inflation resulted in the erosion of wages of other workers under contract. Additionally, self-employed workers experienced a wage increase. Unemployment did not show significant change and there was even a decline in São Paulo. The incidence of poverty in the entire Brazilian economy increased, however.⁵

2.15 The growing presence of labor activism played an important role in labor market outcomes. This trend goes back to the mid-1970s when the political system was liberalized and the restrictions on organized labor were lifted. Wage indexation had been, until the mid-1970's, a key government tool to affect real wages. Introduced in labor contracts in 1964, wage indexation was mainly intended as an income policy tool. It established that nominal wages should be adjusted once each year, taking into account past and expected inflation and productivity gains. Since the expected rate of inflation and productivity gains were estimated by the government, this law reduced real wages whenever productivity gains or estimated future inflation rates were underestimated by the authorities. After 1974, the indexation clause explicitly allowed for full adjustment for past inflation. Yet, the government retained the decision on the productivity coefficient of wage determination. However, this was modified in 1979 when three major changes were introduced into the system. First, the productivity coefficient, which was formerly determined by the government and often adjusted for supply shocks, became a freely bargained item between employers and employees. As a result, the indexation rule set a floor, and not a ceiling, for collective wage negotiations and could, therefore, no longer be used as an income policy instrument. Second, the nominal wage adjustment interval was reduced from 12 to 6 months, contributing to a downward inflexibility of real wages, and to an inflationary spiral. Third, the degree of indexation was made a function of the real wage level and allowed a 10-percent over indexation in the lower wage bracket which was not offset by a fractional indexation of higher wages. As a result, average wage indexation was higher than the inflation rate it was supposed to compensate for⁶.

2.16 During the early 1980s, the 1979 wage legislation was modified on several occasions in an attempt to limit the degree of indexation. At the time of the Cruzado Plan, the indexation mechanism became very flexible. Wages were to be adjusted every time accumulated inflation reached 20%, but any adjustment above 60% of past inflation had to be negotiated

⁵ See, for example, Fox and Morley (1990).

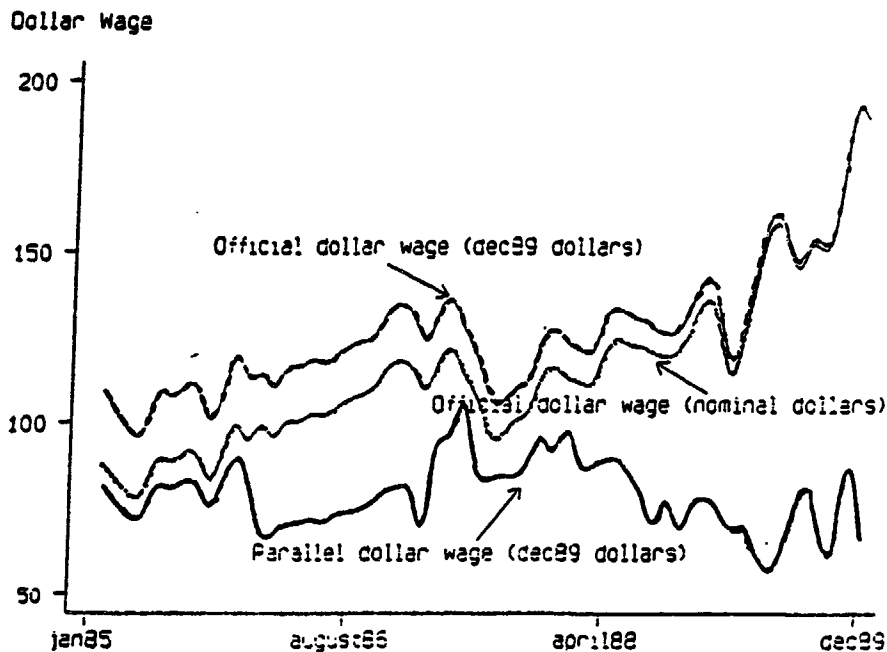
⁶ See Camargo and Amadeo (1990) for greater details.

between workers and employers. In February of 1989, the system of monthly wage adjustment based on past inflation was abolished, but in June 1989, a new wage adjustment law - which essentially brought back indexation -was introduced by Congress.

2.17 It is a challenge to measure the impact of these policies on real wages. An informative indicator is the wage/exchange rate ratio. Although this ratio ignores the impact of other non-wage costs, it is a measure of variation in the cost of labor in terms of foreign currency and, therefore, measures variation in international competitiveness.

2.18 Average wages in dollars increased steadily from 1978-1983, fell to 1978 levels by early 1984 and were roughly constant until the end of 1985. [See Amadeo and Camargo (1989), p.13.] From 1985 to late 1989, dollar wages almost doubled, indicating that during this period there was a drastic drop in international competitiveness.⁷ (See Figure 1.) If official dollars are defeated by the USA consumer price index, the steepness of the wage increase diminishes. Moreover, dollar wages show no trend if the parallel market exchange rate is used.

Figure 1: DOLLAR WAGES

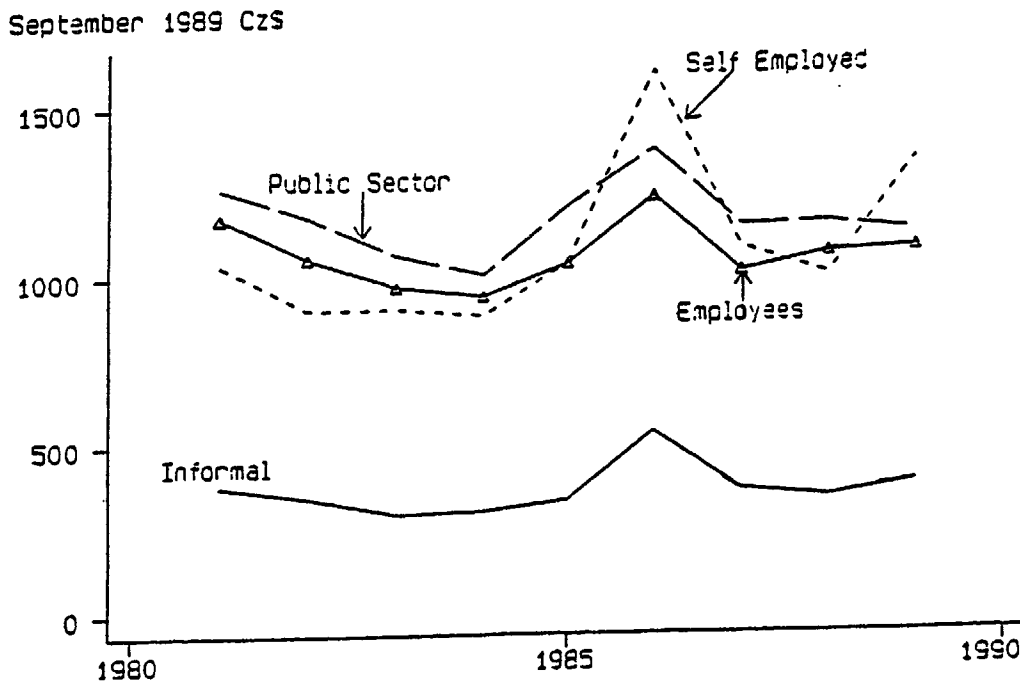


⁷ This official dollar wage was calculated by Bonelli and Landau (1989) on the basis of the official exchange rate.

2.19 The wage-to-exchange-rate ratio tells us something about international competitiveness of the Brazilian economy, but it does not say much about the purchasing power of real wages. Paes de Barros and Ramos (1991) calculated raw average wages (without controlling for key characteristics such as education or experience) by employment categories. They used IPCA-September of each year to estimate real wages in Cz\$ of 1989. Figure 2 shows their estimates. In 1981, the self-employed category represented 27% of total employment, private sector employees represented 33%, public sector workers (including government enterprises) 10%, and informal sector workers represented 22% of total employment. The remaining 8% represented non-paid workers (7%), and other categories (1%). The evolution of these categories during the 1980s is discussed in Sections 2.3 and 2.4.

2.20 The evidence presented in Figure 2 shows a significant increase in real wages in 1986. It is unclear whether this phenomenon is a statistical aberration associated with the timing of the PNAD survey or if it is a real phenomenon. This, in fact, is a common problem faced recurrently in this study; the quality of the data often does not allow us to solve apparent statistical puzzles. In 1986, a new anti-inflationary plan based on price controls was put into effect. Thus, it is quite possible that the dynamics of wage indexation, in combination with a drastic fall in inflation, resulted in a temporary increase in real wages captured in Figure 2. With the exception of the self-employed group, real wages showed no trend during the rest of the 1980s. This is entirely consistent with the evolution of real income presented in Table 5.

Figure 2: AVERAGE WAGES BY EMPLOYMENT CATEGORY



2.3 Unemployment

2.21 Despite the slow-down of the economy and of the significant growth in the labor force, unemployment figures during the 1980s were very low. Although the rate of unemployment did increase during the 1981-83 recession, it only reached 4% according to PNAD data and up to 8% in some metropolitan regions according to PME data. The picture is not too puzzling nevertheless, because (a) the distribution of employment shifted from formal jobs to informal jobs and, (b) public sector labor absorption increased, (c) unemployment compensation became available only in 1986 (with the Cruzado Plan), and (d) the real wages structure was somewhat flexible due to the existence of the informal sector.

2.22 Table 6 describes the recent evolution of the rate of unemployment, labor force participation, and the composition of employment. As can be seen, labor force participation has continued to increase significantly during the decade of the 1980s.

Table 6: LABOR FORCE, EMPLOYMENT DISTRIBUTION AND UNEMPLOYMENT

<u>YEAR</u>	<u>LFP RATE</u>	<u>EMPLOYMENT</u>		<u>RATE OF UNEMPLOYMENT</u>
		<u>Formal/Total</u>	<u>Public/Total</u>	
1979	52.0	46.4	7.2	2.3
1980	51.3	46.0	7.9	2.0
1981	53.4	43.4	7.7	4.0
1982	54.7	41.5	7.7	4.0
1983	54.8	39.5	7.7	5.1
1984	54.8	39.4	8.2	4.2
1985	55.5	39.5	8.1	3.4
1986	55.7	40.0	8.3	2.5
1987	57.0	39.2	8.5	3.5
1988	56.9	40.2	8.7	3.9
1989	57.6	39.8	8.4	3.2

Source: Macedo and Chahad (1990). In this table, formal employment includes public sector enterprises.

2.4 Recent Informalization of the Brazilian Labor Market

2.23 During the 1980s, in spite of the lower rate of GDP growth, both employment and the labor force grew at the same rate of approximately 3.3% per year. On the basis of estimates of the employment/output elasticity between 1980 and 1987 (which turns out to be .93), one concludes that average labor productivity remained fairly constant during that period. It is interesting to note that there were important differences in average productivity trends across sectors. Average productivity fell by 2.3% per year in the industrial sector, and by 1.32% per year in the services sector, while there was an increase in productivity in the agricultural sector of 4.3% per year. Average productivity increased significantly during the 1970s when the mean value of the employment/output elasticity had been .46.

2.24 In analyzing the evolution of Brazil's labor market, it is useful to distinguish between the formal sector, which includes private sector-registered workers and public sector workers, and the informal sector, which includes unregistered workers and the self-employed. This definition gives special attention to its empirical counterpart.⁸

2.25 The Brazilian labor law obliges employers to sign a work booklet each time it contracts a worker, unless these workers are day, seasonal, or occasional workers. Unregistered employment, with the exception of self-employment, is illegal and constitutes the informal sector. It is understood that these illegal activities prosper when the cost associated to the legal status increases relative to the benefits. Among the costs for legalizing the status of a worker are the costs of the bureaucracy and the information required to register a new business, the cost of taxation, and the cost of regulations such as the minimum wage or minimum wage adjustments. Among the benefits of legalizing the status are protection under the law, access to formal credit markets, and access to Brazil's social security system. As will be discussed in Section 4, the costs associated to formal employment are substantial.

2.26 There are analytical differences between the two groups within the informal sector. The distinct aspect of employment without a "signed booklet" is that these jobs are not subject to the costs and restrictions imposed by legal institutions. The main reason why the self-employment category is studied separately is that wages are likely to be measured with error and are not directly comparable to other workers' wages. The main issue is that wages reported by those who are self-employed are blended with returns to owned capital.

2.27 Table 7 reveals a significant increase in the share of informal employment between 1979 and 1983, and Figure 3 reports the employment structure since that time, showing an

⁸ Cacciamali (1989) draws a distinction between informal and unregistered employment. Informality, according to her definition, is determined by the organization of production, and is associated with the size of the establishment. Although this definition is of interest, it is difficult to relate it to the way employment data is published.

important increase in 1983.⁹ It is quite natural to suspect that this change is related to the 1981-83 recession. In fact, the cost associated with restrictions on downward wage flexibility is likely to rise during a recession. With binding minimum wage adjustments, the degree of wage flexibility is necessarily lower in the formal sector than in the informal sector. Therefore, one possible explanation for the significant growth in informal activities during the 1981-83 recession may be found in the wage indexation scheme. If this explanation were the most relevant, one would expect that, other things being constant, a slack labor market would be identified by a rising share of informal employment. If, on the other hand, the rising informalization was due to a once-and-for-all increase in the cost of legalities or a once-and-for-all reduction in benefits associated with the legal status, then one would expect that, other things being constant, the share of informal employment would rise and remain at a higher level after the economy recovers. The evidence presented here is far from conclusive.

Table 7: EMPLOYMENT DISTRIBUTION ACCORDING TO OWNERSHIP OF WORK BOOKLETS
(Employment Distribution in %)

	1979	1983	1985	1986	1987
PRIMARY					
Employees:					
With Book	4.54	4.03	6.58	6.96	8.11
Without Book	28.99	33.82	31.58	32.27	31.64
Self-Employed	29.81	30.23	29.99	32.02	29.90
Employer	3.95	3.20	3.38	3.52	3.59
Without Pay	32.71	28.71	28.47	25.23	26.74
URBAN					
Employees:					
With Book	55.89	51.46	51.46	52.11	51.21
Without Book	20.31	22.24	23.68	23.38	23.41
Self-Employed	17.2	20.89	19.86	19.70	20.19
Employer	3.74	3.25	3.12	3.39	3.42
Without Pay	2.14	2.16	1.87	1.42	1.76

Source: Cacciamali (1989).

⁹ Later investigation by Paes de Barros and Ramos, suggests that a large fraction of the change reported in Figure 3 is due to a misclassification of special government employment programs in the Northeast as informal employment.

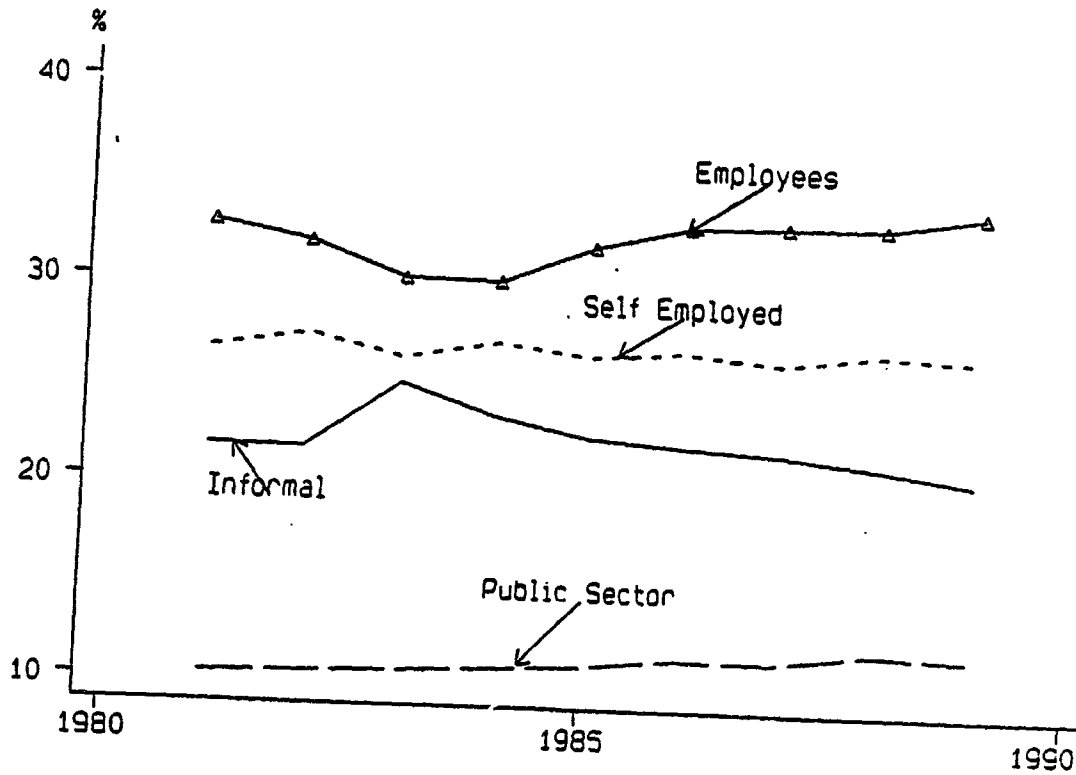
2.28 In a recent (and in progress) study, Paes de Barros, Camargo and Sedlacek (1990) find "symptoms of barriers to entry to self-employment in São Paulo". Their study suggests that the transition from informal jobs to jobs with signed booklets always results in gains in real income. At least two explanations are possible: either there is a long line of workers who want a relatively scarce number of formal jobs, or workers are unwilling to move from an informal job to a more permanent position unless they have a wage increase. In the same study the authors also find that "workers that move from jobs without signed booklets to self-employment tend to be above the median wage in the market of origin." Moreover, the move is associated with a significant increase in real income. This finding calls for further investigation. One would expect that similar workers - in terms of education and experience levels - would earn comparable wages in the two sectors. Nevertheless, self-employed workers may report as wage that which would normally be included as profits. Now, if the wage differential is still significant after correcting for measurement errors, it could be argued that self-employment is a desirable state, and that those who succeed within the informal sector are more likely to reach that desirable state.

2.29 Dabos and Psacharopoulos (1987), using 1980 Census data, report that the probability of being self-employed increases at declining rates with age, and is not significantly affected by education. The probability decreases with urban area locations and with social security coverage, and is lower for single men than for married men. After correcting for the effect of selection to the sample of employees or those who are self-employed, the authors conclude that returns to education and experience are similar for those who are employed or self-employed.

2.30 IBGE estimated that in 1987 approximately 54% of employment was not registered in the social security system, and that 23% of the working population did not have signed work booklets. The high degree of informality appears to be a relatively recent phenomenon. In fact, Cacciamali (1989) indicates that the portion of employees without signed booklets increased substantially between 1979 and 1983, and that those numbers stayed relatively constant afterwards. (See Table 7.)

2.31 Figure 3 shows the evolution of employment shares by category as reported in Paes de Barros and Ramos (1991). Their estimates are based on PNAD surveys. Here, the evidence suggests that informalization grew very rapidly during the recession of the early 1980s. The share of informal employment reverts back to that same 1981 level by 1989. This cyclical behavior is better explained by the higher degree of wage flexibility in this informal segment than by a failure of the institutional system. Another interesting factor observed in Figure 3 is the growing share of public sector employment. The role played by the public sector payroll as a source of inflationary pressure will be analyzed in Section 5.

Figure 3: EMPLOYMENT SHARES BY CATEGORIES



2.32 So far, the question of informality has been linked to wage flexibility and the cost of formal employment. Another aspect of informal employment addresses workers' preferences. A shortcoming of Brazil's booklet system is that the work history of an individual is not private. If the individual wants to get a formal job, he/she must present the booklet. Presumably this booklet contains information on previous wages and other important information. Would a worker want to register a job where he/she is paid a relatively low salary? It is not clear why the system is designed this way, but in most countries the only requirement for legal employment is a taxpayer identification number.

2.33 Paes de Barros and Varandas (1987) used PNAD 1985 to study differences in working conditions between workers who held and did not hold signed booklets. The sample was restricted to working men who were heads of households, living in urban areas, and not working in public administration. The results indicate that workers without signed booklets received lower wages and worked slightly longer hours. Their jobs tended to be of shorter

duration, showing a larger degree of flexibility in hours, and were associated with a higher risk of unemployment. Paes de Barros and Varandas also point out that, despite the disadvantages in working conditions, workers without signed booklets did not necessarily prefer to be registered workers. There are at least two groups of workers which chose not to register their work agreements: first were those receiving government transfers conditional upon their labor force status and second, unemployed workers who had lost relatively well-paid jobs. They were willing to accept a lower wage on a temporary basis, and did not want to have records of that experience on their work booklets. In fact, 12.1% of workers without signed booklets received transfers in contrast with only 2.3% of those who had signed work booklets.

2.34 Sedlacek, Paes de Barros, and Varandas (1989) studied in one year the probability that workers without signed booklets became registered workers in the future. A sample was used which was restricted to men who were heads of households, under 60 years of age, not in public administration, without a university education, and who dwelled in Metropolitan São Paulo. Pesquisa Mensal was the source of data examined from February 1984 to December 1987. The results show that about 45.8% of those employees without a permit in a particular year would have a permit the following year. This underscores the expected result that jobs with permits tend to last, while non-permit jobs tend to be temporary. In spite of the large portion of workers formalizing their status from one year to the next, there is no evidence that the number of jobs without signed booklets is disappearing. Since the ratio of jobs with signed booklets to jobs without signed booklets is 9/1, 45.8% of the jobs without signed booklets are equivalent to 4.7% of jobs with signed booklets. The results reported in Table 8 say, in simple language, the following: of every 100 employees in the sample, only 90 had signed booklets in 1984. Of these 90 employees, 85.7 still had signed booklets in 1987 and 4.3 did not. Out of the 10 employees without signed booklets in 1984, 4.58 got jobs with signed booklets in 1987. Thus, the number of employees who gain the "signed booklet status" is approximately the same as the number of employees who lose that status.

2.35 The study by Sedlecek, Paes de Barros and Varandas (1989) indicates that there is no mobility barrier between these two types of jobs. Workers do move from one type of job to another. It would be very interesting to analyze how these transition probabilities have changed through time. If new entrants to the labor force were allocated on a 9/1 ratio to jobs either with or without signed booklets, then the estimates in Table 8 could be interpreted as indicating circular mobility. That is, the same number of workers would move in and out of each sector. After analyzing time trends of the relative sizes of the two sectors, the authors argue that mobility is indeed circular for the 1984-1987 period. This is consistent with the evidence presented earlier on the relative size of the informal sector during the 1984-1987 period. Moreover, since the informal sector seems to have increased in importance between 1979 and 1983, and then either maintained its relative position or declined to a level similar to 1979, any change in transition probabilities would have been observed between 1979-1981, or between 1983-1985.

**Table 8: TRANSITION MATRIX BETWEEN EMPLOYEES WITH SIGNED BOOKLETS
AND EMPLOYEES WITHOUT SIGNED BOOKLETS
(February 1984-December 1987)**

	Employees w/Signed Book Period 1	Employees w/o Signed Book Period 2
Employees w/Signed Booklet	95.3	4.7
Employees w/o Signed Booklet	45.8	54.2
Total Employees:	90.0	10.0

Source: PME Calculated by Sedlack, Paes de Barros and Varandas (1989).

2.5 Female Labor Force Participation

2.36 As was reported in Section 1, female labor force participation has increased substantially since the 1970s. This increased participation of women has been similar in most Latin American countries [see Edwards and Roberts (1990)] and it is associated with higher levels of female education, rising urbanization, and a decline in fertility rates. Women with low levels of education have been traditionally employed in the agricultural sector and in domestic (household) services in urban areas. As the economy develops and urbanization increases, women find increasing opportunities in services (teaching, administration) and industry. Table 9 shows the differences in the allocation of employment by sex as estimated in 1980. As is the case in many developing countries, female employment shows a bimodal distribution: there is a high concentration in services, particularly domestic services, and in occupations requiring a high level of education.

Table 9: Distribution of Employment by Sex and Occupational Subgroup in Brazil 1980 (in percentages)

OCCUPATION	MEN	WOMEN
. Administrative Occupations	10.7	14.6
. Technical, Scientific, Artistic, and Similar Occupations	3.8	13.4
. Agricultural, Extractive Plant and Animal Production	33.5	13.3
. Extractive Mining	0.4	0.0
. Civil Works and Industrial Processing	23.0	12.7
. Commercial and Related Activities	7.5	7.8
. Transportation and Communication	5.8	0.8
. Services	4.8	30.4
[Domestic Services	0.3	20.0]
. National Defense and Public Safety	2.0	0.1
. Other	6.5	4.0
. Seeking Employment	2.0	2.9

Source: Demographic Census, 1980.

2.37 Table 10, below, indicates that female participation has increased in all regions. Tables 11 and 12 show that female labor force participation has increased among both married and single women, as well as among married women with young children.

Table 10: FEMALE LABOR FORCE PARTICIPATION BY REGION
(in percentages)

REGION	1976	1980	1984
Rio de Janeiro	29.5	31.9	36.6
Sao Paulo	29.2	30.4	34.8
South	30.9	27.7	33.8
Minas Gerais			
Espirito Santo	24.9	25.1	30.6
Northeast	28.2	25.9	32.3
Federal District	32.5	35.9	39.7
North and Central			
West	29.7	21.1	28.1
BRAZIL	28.8	27.4	33.1

Source: World Bank, from 1980 Demographic Census and PNAD 1976 and 1984.

2.38 Stelcner, Smith, Breslaw and Monette (1991) use a sample of the 1980 Brazilian census to study labor force behavior and earnings of Brazilian women and men. They analyze labor force status in terms of a three-choice context: employee, self-employed, and not working. Their work presents detailed evidence on regional differences in wages and rates of return to schooling.

**Table 11: FEMALE LABOR FORCE PARTICIPATION ACCORDING
TO PRESENCE AND AGES OF CHILDREN
(in percentages)**

Age of Youngest Child	<u>1970</u>			<u>1980</u>		
	<u>Number of Children</u>			<u>Number of Children</u>		
	<u>0</u>	<u>1</u>	<u>>1</u>	<u>0</u>	<u>1</u>	<u>>1</u>
Brazil Total	22.7	16.7	13.3	38.8	29.5	24.1
<7 Years Old		13.2	11.0		26.1	20.1
Ages 7 - 14		24.4	18.7		41.2	30.3
Age 15 +		24.1	20.2		42.0	33.2

Source: IBGE based on Census 1970 and 1980.

2.39 Sedlacek (1990) has analyzed the evolution of Brazil's female labor force participation by category of family status and by region for the 1980s. He reports that the percentage of households headed by women increased from 7.7% in 1983 to 9.2% in 1988. The proportion of married women in the labor force increased from 34.5% to 39.7% during the same period (see Table 12). The study suggests that education, age and husband's income are closely related to women's labor force participation.

**Table 12: FEMALE LABOR FORCE PARTICIPATION
BY FAMILY STATUS**

Year	Woman as Head of Household	Married w/Husband Present	Family Member
1983	69.93	34.46	54.23
1984	70.52	34.75	54.71
1985	69.89	36.25	56.54
1986	70.54	36.64	56.07
1987	71.96	39.31	57.65
1988	72.50	39.65	57.64

Source: Sedlacek (1990).

2.40 Using regression analysis, Sedlacek (1990) concludes that married women are more likely to participate in the labor force if they are better educated, and that up to age 30 the probability of participation is increased, after which time the relationship is reversed. The results also indicate that the participation probability declines with the number of children, especially if the children are very young. In fact, the presence of children between the ages of 10-17 years of age does not appear to affect married women's labor force participation.

2.41 Due to the cross section nature of this data, the evidence provided by Sedlacek does not allow us to equate women's labor market experiences and the recession of the early 1980s. Yet, the rapid increase in female labor force participation in Brazil has coincided with increasing informalization of the labor market. It has yet to be determined how these two trends relate. In order to understand this, it is fundamental that both time series and cross section data be combined.

CHAPTER III

**THE DISTRIBUTION OF INCOME IN RELATION
TO THE DISTRIBUTION OF EDUCATION**

3.1 In 1988 Brazil had a GNP per capita of \$2,160¹⁰ with approximately 41.3 percent of the population in the labor force. It can be estimated therefore, that Brazil's average income per worker is approximately \$5,230. This figure plus income distribution data from the Pesquisa Nacional por Amostra de Domicílios (PNAD), allows us to estimate the variation in income per worker by deciles, as shown below in Table 13.

Table 13: BRAZIL: AVERAGE INCOME BY DECILES 1988

% of Workers	% of Income	Average Income
10	0.64	\$ 335.
10	1.57	816.
10	2.55	1,334.
10	3.11	1,627.
10	4.08	2,134.
10	5.30	2,772.
10	7.06	3,692.
10	10.06	5,261.
10	16.11	8,426.
10	49.52	25,899.

Source: Author's estimates (see text for explanation). The income distribution figures were taken from Bonelli and Landau (1990). The average income for the 5% top group would be \$37,175 and the corresponding figure for the top 1% would be \$72,697.

3.2 The average income for the top decile is 77 times higher than the average income for the bottom decile. This distribution generates a Gini coefficient of .61, which is extraordinarily high by international standards¹¹. In March of 1990, the minimum wage was equivalent to US\$98 per month, or US\$1,176 per year. This suggests that about 20% of the labor force either does not work or works for wages below the minimum wage.¹²

3.3 Many studies have singled out education as the most important factor which determines wage inequality in developing countries. The relationship between education and wage earnings is stronger in LDCs than in DCs because of two factors: first, wage differences across educational levels are greater and, second, education is less evenly distributed in LDCs.

3.4 Studies on the relationship between economic growth and income distribution closely examined the case of Brazil in the 1970s. On the basis of cross country studies, Kuznets (1955) was the first to recognize a pattern where GNP per capita and the level of inequality in the distribution of income showed an inverted U type of relationship. Income is more evenly distributed among the poorest and richest countries. The relationship suggests that as income per capita increases, inequality at first increases and then declines. Yet, economists have recognized that economic growth does not necessarily need to be accompanied by a worsening in income distribution.

3.5 If countries encourage the use of technologies which use unskilled labor more intensively and, at the same time, invest in education, then wage differentials are expected to stay low, and thus the trade-off between growth and equality diminishes. In the case of Brazil, the evidence points very clearly to the large wage differentials across education levels as the most important and persistent determinant of income inequality.

3.1 Income Distribution and Poverty

3.6 Almeida Reis and Paes de Barros (1990) show that education, or the lack of education, explains almost 50% of the wage inequality in metropolitan Brazil. Moreover, it is demonstrated that the large gap in average wages between educational groups is the most important factor determining inequality. This result is consistent with what others have concluded on the basis of wage equations studies. In fact, Dabos and Psacharopoulos (1987)

¹¹ Although the theoretical range of the Gini ratio is from 0 (perfect equality) to 1 (perfect inequality), in practice, values measured in national income distributions have a much narrower range -- normally from about .20 to .60.

¹² This approximation implicitly assumes that all sources of income are distributed in the same way and ignores the impact of errors of measurement.

estimate that the rate of return to education is sizeable and higher in Brazil than in any other advanced country. Rates of return to schooling in rural areas are 3.4 percentage points higher than in urban areas - explaining part of the variation in inequality across regions.

3.7 Almeida Reis and Paes de Barros argue that wage differentials by educational groups and regional differences in income inequality (earnings functions) are large and stable. Their argument is based on the study of ten Brazilian Annual Household Surveys (PNADs) conducted between 1976 and 1986. They report estimates of the Theil-L coefficient (logarithm of the ratio between the arithmetic and geometric means) for 9 regions over a period of ten years. Since the Theil-L coefficient can be decomposed into three indicators: (i) the distribution of education, (ii) the average wage variations across educational categories, (iii) the inequality of wages within educational categories, changes in the Theil-L coefficient can be estimated for different combinations of hypothetically defined components. The authors estimate that the second component (average wage variations across educational categories) varies more across regions, while the income inequality component within educational categories varies more through time.

3.8 Using the Theil-L decomposition technique, the authors examined the relationship between regional differences in income distribution and regional differences in the distribution of education. They simulated what would happen with regional differences in income distribution if all regions had the same distribution of education (as Rio de Janeiro). In their first calculation, they kept each region's wage structure, and saw regional differences increase. But, if wage differentials by education are also equalized across regions, then approximately 50% of regional differences (in the degree of inequality) are therefore eliminated.

3.9 This exercise indicates that changes in the distribution of education alone are not going to reduce income inequality. Inequality falls to the extent that wage differentials across educational groups diminish. Fortunately, economic forces do work in the desired direction. The impact of an increase in the fraction of the population with secondary and university education is to reduce the market premium associated to the relative scarcity of those levels of education.

3.10 This finding that wage differentials by educational groups were large, yet stable, between 1976 and 1985 is quite surprising. Given the great swings in economic activity, and particularly during the 1981-1983 recession, one might expect that some educational groups would be affected more than others. Moreover, due to the lack of sustained economic growth during this period, the evidence of large and stable wage differentials cannot be explained by the hypothesis (attributed to Langoni) that Brazil's huge wage differentials were due to the rapid growth in the demand for highly skilled labor.

3.11 The study by Almeida Reis and Paes de Barros (1990) leads us to several questions: What determines the steepness of wage-education profiles and its variation across metropolitan regions? Why are wage-education profiles less steep in the South and Southeast regions of Brazil? How is the slope of the wage-education profile related to the distribution or

level of education? How has the increase in labor force participation of the late 1970s and early 1980s affected wage-education profiles and income distribution?

3.12 These are questions which deserve careful consideration if the problem of inequality is to be tackled through investment in education or by any other means. The summary data presented does not suggest a clear relationship between the distribution of education and wage-education profiles. In fact, São Paulo is the region with the lowest degree of income inequality, while at the same time the level of education is relatively low and unequally distributed. On the other hand, the higher wage inequality in the North and Northeast areas is due to a more marked relationship between wages and education. [This is also consistent with Dabos and Psacharopoulos (1987).]

3.13 Of course an important determinant of average wages for an educational group is the sectoral distribution of employment. There are significant differences in employment distribution by sectors across regions. In Section 5 of this study, we argue that economic policy has had differential effects on sectoral employment as well as on the demand for education across regions.

Table 14: LABOR FORCE DISTRIBUTION BASED ON EDUCATION
(by percentages)

	1976	1978	1981	1982	1984	1986
EDUCATION LEVEL						
No Education	8.2	10.0	9.0	9.7	8.3	7.3
1 - 4 years	35.8	33.9	35.6	35.2	32.3	31.4
5 - 8 years	28.3	28.2	26.8	26.0	27.6	27.8
9 - 11 years	14.0	14.7	15.5	16.0	17.9	19.2
12+ years	13.7	13.2	13.2	13.1	13.9	14.3

Source: "Educação e Desigualdade de Salários", R. Paes de Barros, and J.G. Almeida Reis (1989).

3.14 Table 14 shows the distribution of education among labor force participants in Brazil throughout a 10-year period. Although there is evidence of an increase in the number of workers with incomplete secondary education, the distribution of education has changed very little during this period. How can this be explained in the context of the large wage differentials associated with education? Why haven't these significant wage differences induced a more rapid rate of growth in education?

3.2. Investment in Education in Brazil

3.15 The purpose of this section is to show how poorly Brazil has performed in education, relative to the Latin American countries as a whole. The analysis is limited to four broad indicators and covers data from 21 Latin American countries over a 5-year period from 1965-1985. The data comes from the recent World Bank publication, Social Indicators of Development 1989.

3.16 As Tables 15A and 15B show, most of the time Brazil's performance in education is poorer than the whole of Latin America. Moreover, since Brazil is a country with a GNP per capita which is greater than the Latin American average, one should make a comparison which controls for income per capita.

Table 15A: EDUCATIONAL SYSTEM COVERAGE AND TOTAL ILLITERACY RATE FOR LATIN AMERICA

Year	TPRIM	TSEC	SCIE	TILIT	GNPpc
1965	90.6	22.2	19.6	n/a	1,436.6
1970	95.1	27.9	20.2	27.2	1,399.4
1975	96.9	36.1	19.2	26.1	1,778.2
1980	101.2	43.4	23.4	20.3	2,142.4
1985	104.1	50.2	24.7	19.2	1,578.1

Source: Own tabulations based on World Bank (1989).

TPRIM = Gross enrollment of all ages at primary level as a percentage of school-age children as defined by each country and reported to UNESCO.

TSEC = Computed in the same way as TPRIM; for secondary-school-age children.

SCIE = Students enrolled in science and engineering fields of study at both public and private institutions at the third level, as a percentage of all students enrolled at the third level.

TILIT = Proportion of population 15 years of age and older who cannot both read and write, and comprehend, a short simple statement on everyday life. (Data for the sample year was not always available. When available, data for a year close to the sample year was used.)

GNPpc = Per capita GNP as reported by World Bank (1989) and converted into 1985 US\$. The US GDP deflator was used for that transformation.

The sample includes: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay and Venezuela.

Table 15B: EDUCATIONAL SYSTEM COVERAGE AND TOTAL ILLITERACY RATE FOR BRAZIL

Year	TPRIM	TSEC	SCIE	TILIT	GNPpc
1965	108.0	16.0	18.64	n/a	890.7
1970	82.0	26.0	20.73	33.8	1,194.6
1975	88.0	26.0	16.39	24.3	2,011.9
1980	99.0	34.0	18.38	25.5	2,706.2
1985	101.0	36.4	18.83	22.3	1,670.0

3.17 Using a cross section-time series analysis, one may obtain predicted levels of these educational indicators as a function of GNPpc. The hypothesis is that education is both an investment and a public good. To the extent that we look at education as a public good and, assuming that it is normal, we expect that the level of consumption of education will increase with income. In Table 16 the estimated equations for primary and secondary coverage of the educational system and total illiteracy, as a function of GNP per capita, are reported. In fact, the estimated signs of the coefficients are consistent with the above hypothesis.

Table 16: OLS Estimates of the Relationship Between Education and GNPpc

$\text{TPRIM} = 110.2 - 13,816(1/\text{GNPpc})$ <p style="text-align: center;">(50.82) (-7.48)</p>	<p>CRSQ = .35</p> <p>N=102</p>
$\ln(\text{TSEC}) = -.99 + 0.611(\ln(\text{GNPpc}))$ <p style="text-align: center;">(-2.00) (8.91)</p>	<p>CRSQ = .44</p> <p>N=101</p>
$\ln(\text{TILIT}) = 8.85 - 0.832(\ln(\text{GNPpc}))$ <p style="text-align: center;">(10.83) (-7.41)</p>	<p>CRSQ = .52</p> <p>N= 51</p>

Source: Dependent variables are defined in Table 16. T-Statistics are reported in parenthesis.

CRSQ = Corrected R squared.

3.18 Figures 4, 5 and 6 show the observed levels of TPRIM, TSEC, and TILIT and their relationship to GNPpc. The lines represent the equations and the small dots represent observed values of the dependent variables for countries-years according to GNPpc levels. The points marked by 1965, 1970, 1975, and 1980 represent the observed values of TPRIM, TSEC, and TILIT for Brazil in the respective years. According to these estimates, primary education coverage in Brazil was 14% above the estimated value for that level of GNPpc in 1965, but was around 16% below the estimated value for the corresponding GNPpc in 1970 and 1975. Brazil's relative position in terms of primary education coverage improved from 1980-1985. Yet, the relative improvement in 1985 is due to the decline in real GNP per capita. The estimates suggest that Brazil fell below Latin American levels from 1970 on. Secondary education coverage was about 32% below the predicted Latin American level in 1965, 7% below in 1970, and about 30% below this level in 1975 and 1980. This indicator shows a relative improvement in 1970. In fact, secondary education coverage increased by more than 50% between 1965 and 1970. Brazil's relative position in secondary education coverage also improved in 1985 due to the reduction in real GNP per capita. The indicator which leaves Brazil in the worse relative position is illiteracy. According to our estimates, Brazil's illiteracy rate was 75%, 91%, 165% and 50% above Latin American levels in 1970, 1975, 1980, and 1985, respectively.

Figure 4: PRIMARY EDUCATION COVERAGE AND REAL GNP

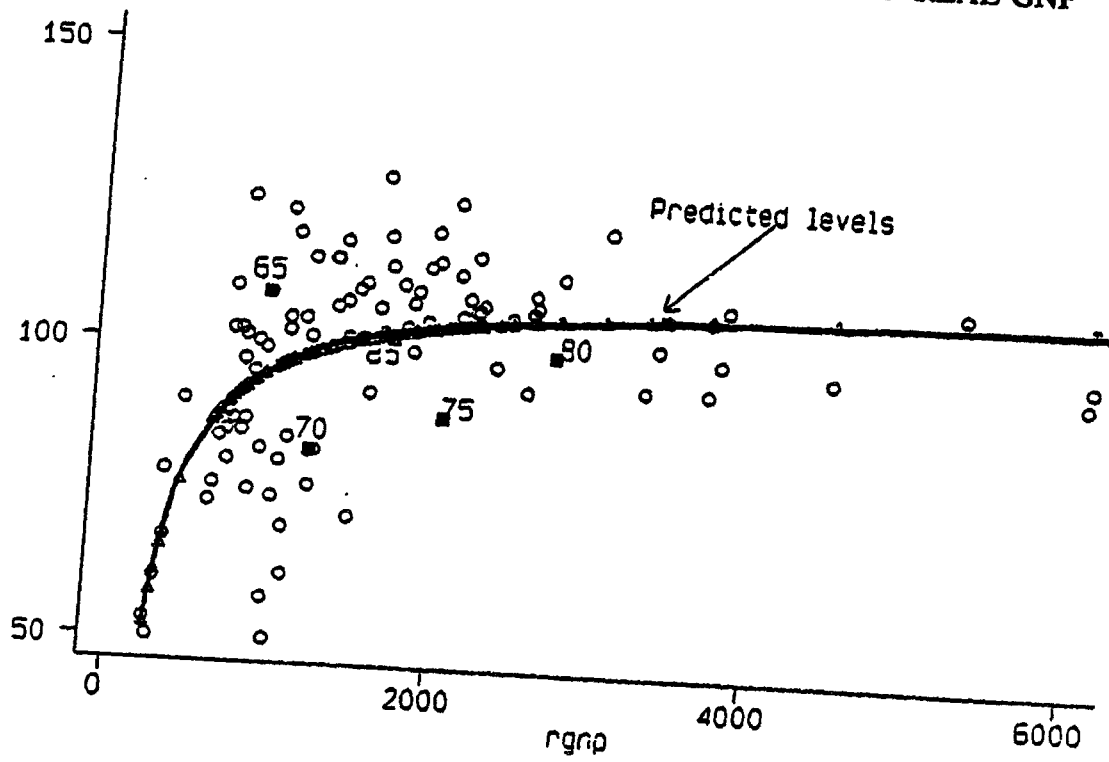
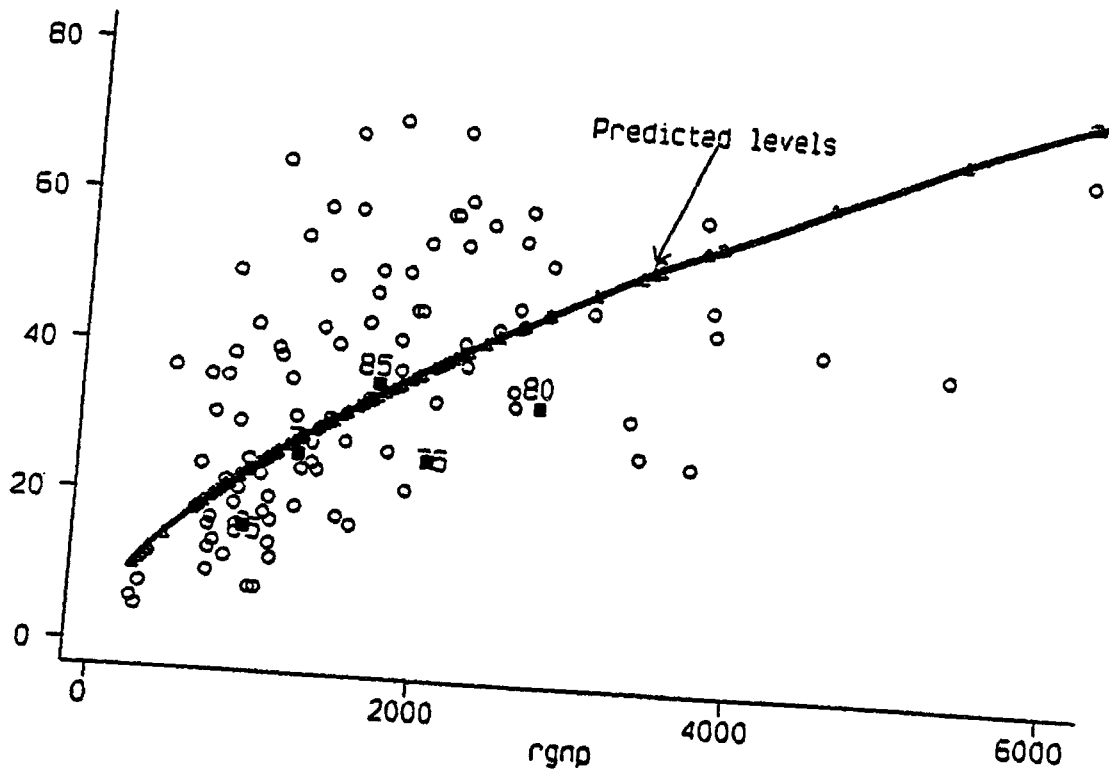


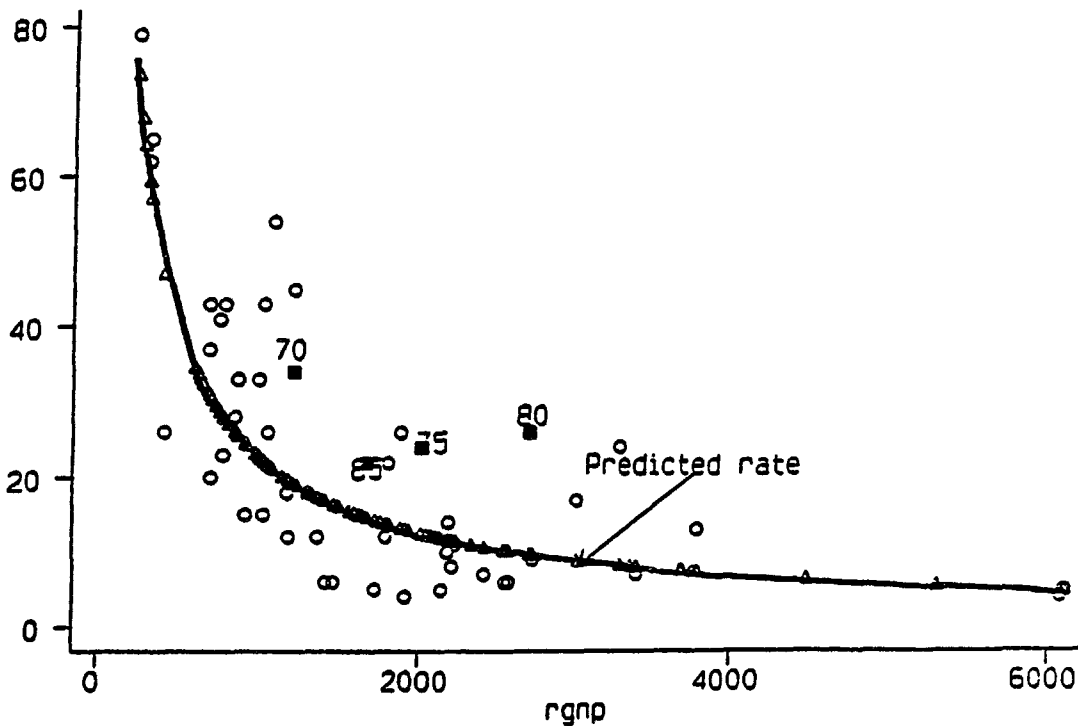
Figure 5: SECONDARY EDUCATION COVERAGE AND REAL GNP



3.19 Interestingly enough, these estimates tell a story somewhat consistent with the one that comes out of labor force participation data. The generation which attended primary school in the mid-1960s and secondary school in the early 1970s saw a greater increase in the probability of students remaining in school than later generations. In comparison with a representative sample of 21 Latin American countries, and given its current level of GNPpc, Brazil has lagged far behind in its investment in education.

3.20 It would be of great interest to explain what has slowed investment in education in Brazil. In that effort, it would be necessary to study - not only government policies regarding spending on education but, also, several aspects which influence the private sector perception of the net benefits of education. It would be important to look into the availability of public and private education, the access to free public education, the sources of financing of post-secondary schools and technical education, and more. Needless to say, this type of inquiry goes beyond the scope of this paper.

Figure 6: ILLITERACY RATE AND REAL GNP



CHAPTER IV

INSTITUTIONAL SETTING

4.1 Labor Legislation, Unions and Collective Bargaining

4.1 In 1943, Brazilian Labor Laws were grouped into a labor code called Consolidation of the Labor Laws (CLT). The CLT was inspired on the principle that harmonious capital/labor relations result from the capacity of the law to protect workers from capitalist excesses. Based on this principle, a lengthy set of rules was incorporated into the law which defined workers' rights, conditions of work, and conditions of dismissal. Capital/labor relations were established within a legal framework designed to avoid direct confrontation at the enterprise level and where, in fact, a monopoly representation of workers would make State-Union negotiations much easier. Hence, "...the plurality of workers' representation was and still is illegal, and only one union has the right to represent the workers of each industrial sector or craft in each geographical region." [Camargo (1990).] (See also Article 8, No II, of the 1988 Constitution.) Since capital/labor conflicts were not seen as economic phenomena to be negotiated by workers and employers, but were more a question of law, a comprehensive system of Labor Courts was created.

4.2 This code was basically unchanged until 1964 when the military took over. The first changes implemented were in the area of collective bargaining with strict limitations imposed on legal strikes. Then in the mid-1970s, with the liberalization of the political system, restrictions on labor activism were eliminated. At this time, many aspects of labor negotiations had to be agreed upon by contract. However, the monopolistic arrangement of union activism grew incompatible with a market-oriented system. What were organized labor's conquests on one hand, became growing restrictions on labor market adjustment on the other. The new Constitution of 1988 represents the most recent modifications to the labor code. A more detailed explanation on the structure of the labor code can be found in Camargo (1990).

4.1.1 Pattern of Union Membership

4.3 Unions are organized in pyramidal fashion in Brazil. A national union (CUT) was created in 1983. The central union was designed to coordinate the movement at the national level, and to advise individual unions under this group leadership on collective bargaining. As can be seen in Table 17, the growth of this central union was very rapid.

Table 17: NUMBER OF UNIONS AFFILIATED TO CUT 1984/1988

	1st Congress 1984	2nd Congress 1986	3rd Congress 1988
<hr/>			
SECTOR:			
Public Service	68	114	185
Industry	144	182	233
Services	246	276	282
Rural Unions	308	366	374
Other	171	76	83
TOTAL	937	1,014	1,157

Source: Camargo (1990).

4.1.2. Determinants of Union Membership

4.4 Neither firms nor workers are obliged by law to join their respective unions, but a compulsory fee is charged to all employed workers and all registered enterprises. The value of the fee is equivalent to one day of work per year for the worker proportionate to the value of capital for the enterprise. (60% of that fee is for the union, 15% for the labor federation, 5% for the labor confederation, and 20% for the Ministry of Labor.)

4.5 Unions may also collect a voluntary fee from their membership. No limitations are imposed on this fee but, in practice, voluntary contributions are determined by a percentage of the wage gains. More recently, a few unions have decided not to utilize the resources from the compulsory contributions and therefore returned fees to the workers.

4.6 Until 1964 Brazilian unions could be described as "agency shops" because it was not compulsory for workers to join the union as a condition of employment, but they paid a monthly fee in lieu of dues for the services provided by the union. This necessary contribution tended to cause union leaders to be less responsible for the rank-and-file worker or employers. On the other hand, as collective agreements applied to all workers independent of union affiliation, there was very little incentive to be affiliated with the union. This, in addition to the role of the law and labor courts, generated a union movement which was, "...on one hand, very

much controlled by, and dependent on, the State, and on the other, involved in national politics but without any important links with the day to day problems of the workers." [Camargo (1990).]

4.7 In 1964 there was a military coup which overthrew the government of Joao Goulart. A new labor law outlined very rigid conditions for legal strikes. In 1966 the FGTS was established eliminating immobility and opening up the door for labor restructuring within private sector firms. (See Section 4.1.4.) In 1965 a law established that wages would be readjusted only once every 12 months on the basis of an index formula which took into consideration past and expected inflation as well as expected growth in productivity (GDP per capita). These three mechanisms - legal dismissals, maximum wage readjustments, and restrictions over legal strikes - kept real wages under control and in line with productivity gains. At the same time, this state of affairs created a demand for union activism which was repressed by law. In the mid-1970s, the liberalization of the political system lifted restrictions on the exercise of labor activism.

4.8 More recently the union movement has moved more closely to voluntary affiliations - to the extent that workers are free to join the union and pay the voluntary fees, although the benefits of labor negotiations still extend to all workers with contracts (signed work booklets).

4.9 Following the violent strikes of 1978 and 1979, the wage adjustment period was reduced to 6 months and left productivity gains to be determined by collective bargaining. The wage adjustment mechanism determined by the government became a floor for the wage adjustment obtained by unions at collective bargaining. At this point, and given no limits on the aggregation of bargaining, certain occupations began negotiating at the national level (financial, electrical), while maintaining negotiations at the firm level. This state of affairs was reinforced by the 1988 Constitution. According to new text, the Ministry of Labor decided on the appropriate occupations or economic categories which would constitute a union. Once recognized, the union had a monopoly of representation of the occupation or economic category at the regional level.

4.1.3. Norms Which Regulate Collective Bargaining, Strikes and Lock-outs

4.10 These norms are defined under Titles VI - X of the Labor Code. Any labor contract between a firm and an employee must adhere to the provisions of the collective agreement or conventions, independent of the fact that the worker or enterprise signing the contract may or may not be unionized. The provisions of conventions (signed between the worker's union and an individual enterprise) have hierarchical priority over contracts or agreements signed between an individual worker and an enterprise. Although unions have limited regional, occupational, and economic jurisdiction, there is no law prohibiting two or more workers' unions of differing occupational or regional bases to sign a common collective convention with two or more employers' unions.

4.11 Labor Courts were established to promote conciliation in their jurisdiction (local, regional, or superior). If conciliation is not possible, the courts arbitrate. The decisions of the Superior Labor Court are final, unless the dispute refers to a Constitutional principle, in which case there are no rules for conciliation or arbitration. They are based on law and on precedent. Labor Courts are, therefore, subject to legislative issues such as productivity gains and "justified" dismissals. In the case of "unjustified" dismissal or plant closing, employers must pay a penalty. The level of this penalty is discussed in Section 4.1.4.

4.12 The right to strike and lock-out was recognized by the 1946 Constitution (Art.158), yet it imposed severe penalties for individuals or unions who implemented or incited strikes without having authorization from the Labor Courts. In 1964, the law determined that a strike, in order to be considered legal, had to be approved by the union's general assembly, and notification published in the local press, with a grace period of 10 days. The law required a quorum of the general assembly, and certain activities were forbidden while striking.

4.13 The strike law was changed again in 1989. It eliminated the concept of the "legal strike" and became less restrictive. The quorum to vote a strike was left to the unions to determine and the minimum time to notify was reduced to 3 days.

4.14 As to the right to lock-out, the 1946 legal provisions still apply. The Labor Court must approve a lock-out for it to be considered legal. Here there is a lack of balance between workers' and employers' bargaining power.

4.15 The 1988 Constitution introduced the opportunity to arbitrate prior to sending a dispute to Labor Court. This effort was intended to create a means of relieving the heavy work load imposed on the labor courts but, until a more balanced allocation of bargaining power can be institutionalized, labor courts are going to continue receiving voluminous numbers of cases to decide.

4.1.4 Dismissals, Severance Payments and the FGTS

4.16 Until 1966 and subsequent to the establishment of the Labor Code of the early 1940s, a non-justified dismissal caused the employer to be penalized by paying monetary compensation directly to the worker. This compensation was equal to one month's wage for each year of employment, calculated on the basis of the higher wage received. In the event of bankruptcy or closure, the employer was to pay double monetary compensation to "tenured" workers. After ten years of employment with the same employer, dismissal was forbidden except when properly justified. Justifiable cause for dismissal included laziness on the job, habitual drunkenness, violation of confidentiality (enterprise secrets), insubordination, absenteeism, or violence on the job.

4.17 In 1966, (Law 5107, September 13) the system of protection against non-justified dismissals was replaced by a forced savings program, the Fundo de Garantia por Tempo de Serviço (FGTS). This program operated on the basis of, when contracting a worker, the firm opened a commercial bank account in the name of the worker and deposited 8% of the value of the wage, per month, into the account. These resources were indexed and earned 3% interest per year.

4.18 "...The money could not be used by the worker except for specific reasons like buying a house, when retiring and if dismissed for non-justified reason. In this last case, the worker was eligible to use the fund accumulated in his name, and the enterprise had to pay a 10% fine over the value of the fund. This was the only requirement for non-justified dismissals after 1965, until the new Constitution of 1988." (Camargo, 1990)

4.19 Macedo and Chahad (1985) argued that the workers' access to the FGTS fund was valuable enough to induce an "artificial" level of turnover. A questionnaire was devised and applied directly to those workers who withdrew their FGTS in July of 1981. Each worker was asked if his/her separation from the firm occurred because of an agreement with the employer for the purpose of having access to the FGTS. Approximately 8.5% of those interviewed answered affirmatively. Analyzing the employment distribution of those who revealed the existence of such an agreement, a relatively large portion of workers was found to be employed in services and construction. It is less surprising to find that a significantly high proportion of workers came from smaller establishments.

4.20 One may argue, in light of this evidence, that the system may function very well if all work separations created access to the FGTS, even if openly initiated by the employee. If an employment contract were regarded as an agreement signed between two parties under conditions of uncertainty, it is expected that under particular circumstances, one party might be interested in dissolving the agreement, and under other circumstances, the other party would. What becomes a problem for the functioning of the labor market is the situation in which heavy penalties restrict employers' initiative for dissolving such agreements and employers become more reluctant to hire workers.

4.21 The 1988 Constitution maintained the FGTS fund and its operation but increased the fine for non-justified dismissal from 10% of the FGTS to 40%. In essence, it imposed an extra penalty on employers who were associated with the employment of workers who turned out to be "non-productive". This change could only hurt the creation of employment. To understand the impact of this program on the cost of dismissals, let's suppose a worker has been employed for 5 years. The level of FGTS, which is determined by the previous 5 years' wages, will be:

$$\text{FGTS} = .08W_t + .08[1.03]W_{t-1} + .08[1.03]^2W_{t-2} + .08[1.03]^3W_{t-3} + .08[1.03]^4W_{t-4}$$

If W has been constant in real terms, then:

$$FGTS = .08W [1 + 1.03 + 1.0609 + 1.092727 + 1.1255088]$$

= .08W [5.3091] = .4247 W, where W represents yearly wages. The salary upon which the FGTS payment is made includes the "13th-month" payment paid to all workers, in which employers pay an extra month's salary to workers at the end of each year.

4.22 Table 18 shows how penalties against employers increase with the length of time the worker is employed by the same employer.

Table 18: EMPLOYERS' FINES FOR NON-JUSTIFIED DISMISSAL

Years of Service	FGTS in Monthly Wages	FINE (.40 FGTS) Monthly Wages	FINE Monthly Wages/Years of Service
5	5.8	2.3	.46
6	7.0	2.8	.47
7	8.3	3.3	.48
8	9.7	3.9	.48
9	11.0	4.4	.49
10	12.4	5.0	.50
15	20.0	8.0	.53
20	28.8	11.5	.58
25	38.8	15.5	.62
30	50.4	20.1	.67

Source: The figures calculated in Table 18 assume that the FGTS can be represented as annuity in which monthly payments of 8% of the previous month's salary are paid and earn .25% interest per month. This calculation is an upper bound. The formula used assumes that wages are constant and takes the last wage for the calculation. In reality, wages typically rise with experience on the job.

4.23 The fund grows more than proportionately to the number of years of employment in the enterprise. For example, if a company dismisses a worker with 5 years on the job because of restructuring and this is considered to be an "unjust" cause, the firm must pay a fine equivalent to 2.3 months of wages to the worker, who also receives the balance on the FGTS, which is approximately equal to 5.8 month's wages. On the other hand, if a worker is dismissed without justification after 10 years of working with the same firm, the fine becomes 5 months wages, and the FGTS is equivalent to about one year's salary.

4.24 The above calculations suggest that workers' severance payments in case of unjustified dismissals represent one of the most generous programs in Latin America, particularly because these payments have no ceiling. Nevertheless, there is a key difference between the Brazilian system and many other Latin American systems of severance payments. The FGTS fund can be seen as a forced savings account, with a relatively small economic effect. But, the additional payment in case of "unjustified dismissal" represents a definite tax on employment reduction. Our calculations show, that fines can represent .4-.7 monthly wages per year of service, depending on tenure, and the only way to avoid this payment is to get approval from a Labor Court.

4.25 Workers unjustly dismissed from employment can, in most cases, receive either reinstatement and/or compensation. In the vast majority of cases, the compensation route is chosen. The law contemplates that collective dismissals must be approved by delegados regionais do trabalho (regional representative of the Ministry of Labor). This may be the most important restriction to adjustment.

4.2. Unemployment Benefits, Social Security Benefits and Other "Safety Net" Elements

4.2.1. Are there any Unemployment Benefits?

4.26 Unemployment insurance became available in May 1986 and is a Constitutional Right established in Title II, Chapter II, Article 22 of the 1988 Constitution. This program, along with the National Employment Service (SINE), are presently in a state of revision. The proposed changes attempt to establish a system which coordinates the mission of SINE with unemployment insurance. SINE was established in 1975 with the goal of facilitating labor market adjustment. The program has not been regarded as successful, in part due to problems of design, and in part due to lack of funding. According to Chahad (1989), one of the most serious problems of SINE is largely due to "the heavy dose of centralization at the federal level".

4.27 One may argue that access to the FGTS funds and the fine (40% of FGTS) paid by the employer to the employee in the event of unjustified dismissal is, for all practical purposes, an unemployment insurance program. Of course, this would not cover the informal

sector. The informal sector is possibly excluded from the Unemployment Insurance program because of the lack of information on prior employment.

4.28 It seems extremely important to revise the objectives and impact of these three related programs: SINE, Unemployment Insurance, and Fundo de Garantia do Tempo de Serviço.

4.2.2. Annual Bonus

4.29 Since 1962, workers in the private sector have received yearly bonuses equivalent to 1/12 of the earnings in December of each year, and multiplied by the number of months he has worked with that employer in that year. This is a Constitutional Right ensured by Article VIII in Chapter III of Title II of the 1988 Constitution. It has been called "the 13-month salary". In the event of dismissal without justification, the employer has to pay the bonus in the month of dismissal. This law had a distributional effect at the time it went into effect, but currently it has become merely a formal question affecting the definition of monthly salaries.

4.2.3. The Right to Family Allowances and its Level

4.30 A monthly family allowance was created by law in 1963. Its value is 7% of the minimum wage for each child in a family. It is given to registered workers earning up to 3 minimum salaries [Barreto de Oliveira and Beltrão (1989)]. It is financed through contribution by the employers. Since family allowances are distributed independently of actual wages or productivity, this is a transfer program financed by a tax on labor.

4.2.4 How are Social Security Payments Determined? Who is Eligible, and How Do Retirement Benefits Relate to Past Wages or Past Contributions?

4.31 In Brazil, the social programs funded by social security taxes have a very weak linkage to contributions. Health care, primary and vocational education, and colonization benefits are universally available, without respect to contribution. In the case of social security benefits, there is a linkage to contribution, but only in the last three years of working life. In principle, replacement rates are about 70-90 percent, with benefits fully indexed since 1989.

4.32 Although there is a minimum benefit of one minimum salary, which implies that workers earning under 2 minimum salaries receive a benefit subsidy from higher earners, social security benefits are given on a progressive scale. A provision allowing early retirement for workers in certain categories (teachers, judges) and for anyone who can prove that he/she has worked for 30 years, tend to benefit middle and upper-income contributors over 1

4.33 Despite the social insurance benefits, workers have very little incentive to enroll voluntarily as (a) health benefits funded by this revenue are universally available; and (b) the minimum period of contribution required for normal social security benefits is very low (5 years). (World Bank Report 8146, P. 56.)

4.3. Labor Taxes

4.34 Taxes on payroll (or institutionalized fringe benefits) create a wedge between employer costs and employee receipts of approximately 65% of net wages. Of this 65%, about half can be considered to be a pure tax on labor, while the remainder is closer to institutional regulations on the timing of salary payments. Our estimate is the result of a combination of sources, including a non-scientific survey of private sector employers. This large differential is distributed in the following way:

Social Security	37 %
Guarantee Fund (FGTS)	8 %
13th Salary (+ 8%)	9 %
Vacation	11 %
	<hr/>
	65 %

4.35 The legal burden of the social security tax is divided into 10% on the employee and 27% for the employer. This percentage can vary substantially depending on the type of employment and on the salary level.

4.36 A very detailed study on taxation in Brazil (World Bank Report #8147) recognizes that payroll taxes are relatively high in Brazil compared to other countries, due in part to the fact that they are imposed over a relatively smaller base in Brazil. The study makes the point that there should be a distinction between two types of taxes: those earmarked for social security and welfare programs - the largest of which is FPAS (social insurance programs) which received 75% of total revenues in 1987, and the workers' forced savings program (FGTS) which is the second largest.

4.37 Taxes earmarked for social programs such as health care (financed by PAS), primary and vocational education, and colonization programs (financed by INCRA), should not be seen as deferred compensation because the benefits are, by law, universally available irrespective of contributions.

4.38 Moreover, the number of employed persons who contribute to social welfare is about 48% of all employed workers [See Medeci (1989)]. In principle, all formal sector workers must pay the tax (along with their employers), but in practice only about 60% of this population pays payroll taxes. Rates vary slightly by sector and by level of salary, ranging from

38% for the lowest paid worker in the public sector to 45.2% for highly-paid workers in the industrial, commercial, and services sectors. Self-employed workers are subject to a special program. Unregistered workers typically do not pay their social security contributions. Legally, workers do not need to be registered if they are seasonal or occasional workers (such as agricultural or construction workers) or if they are self-employed. Those who are self-employed, however, are obligated to pay payroll taxes. But, the proportion of unregistered workers is much larger than this description would indicate. It is assumed that full compliance with payroll taxes would be difficult to achieve, under the current conditions. As long as there is a definite link missing between payments and benefits, individuals' interest in being identified as taxpayers is reduced.

4.39 Payroll taxes paid into FGTS (20% of tax payments) may be regarded as deferred compensation by workers because contributions are placed into individual accounts. However, there is a tax element in the program as (a) the rate of return on the funds is not as attractive as in competing financial instruments - in part because monetary correction is applied only quarterly; and (b) the worker can only have access to the account under certain conditions: retirement, death, disability, dismissal without cause, or applying the balance as a partial down payment to purchase a home or a small business.

4.40 In short, the social security portion of payroll taxes may be seen as a pure tax on labor. The tax burden falls on labor-intensive sectors, raising the cost of labor and discouraging legal employment.

4.4 Public Sector Contracts

4.41 Article 41 of the 1988 Constitution establishes that public servants appointed by virtue of public examination acquire tenure after two years of actual service. Termination of these jobs is a matter of court decision, and if an office is eliminated or declared expendable, a tenured servant "shall remain on paid disengagement until his or her adequate placement in another office".

4.42 Article 40 of the 1988 Constitution establishes generous retirement options for civil servants. According to this Article, civil servants may retire under the following circumstances:

- (a) For permanent disability, a pension is provided in full when such disability results from a work accident, an occupational illness, or a serious, contagious or incurable disease, as specified by the law; and in all other cases, the amount of pension is proportionate to length of service;
- (b) Retirement is compulsory at seventy years of age, with a pension proportionate to the period of service;

- (c) In the case of voluntary retirement, an employee: (i) may receive retirement compensation at full pay after completing thirty-five years of service, if male, and thirty years of service, if female; (ii) may receive full pay benefits upon thirty years of actual teaching activity, if male, and twenty-five years, if female; (iii) upon thirty years of service, if a male, and upon twenty five years of service, if female, with pay proportionate to this period of time; or (iv) at age sixty-five, if male, and at age sixty if a woman, with pay proportionate to the period of time in service.

4.43 The above speaks of a limited degree of flexibility for public sector payroll spending. Moreover, public sector workers hired prior to 1966 and working for the same employer for more than 10 years cannot be dismissed, according to the law determining their work contract. In essence, the provisions in Article 41 apply to them. [See Macedo and Chahad (1990) for further details.]

4.5 Labor Market Legislation and Poverty

4.44 A key question we must address is: How effective can labor market regulations be in lowering inequality or reducing poverty? One of the elements which could conceivably make a difference is minimum wage legislation. Economists do not believe that minimum wage laws are capable of abolishing demand and supply forces or reducing poverty but, based on the fact that minimum wages are imposed in most countries, and Brazil is no exception, they certainly benefit some group. In this section, we review some of the recent studies on the impact of the minimum wage on poverty and income distribution.

4.45 The minimum wage was first introduced in Brazil in 1940, though its real value has declined steadily since the early 1960s until 1985. In 1985 and 1986, the adjustment of the minimum wage was higher than the rate of inflation. Yet subsequent inflation reduced its real value once again.

4.46 Given the presence of the informal sector, it is expected that minimum wage legislation would result in a reallocation of jobs from formal to informal. In Table 20, it is shown that a large number of workers earning less than .75 minimum wage are informal, uneducated and young. Almeida Reis (1989) used 1985 PNAD data to estimate the impact of the minimum wage on income distribution and on informal sector wages. The evidence suggests that minimum wages have a trivial effect on income distribution. There are two reasons for this: first, total employment in the urban area formal sector earning less than 1.25 minimum wage added up to about 5 million workers. This represents about 5% of the urban population and 12% of total employment. But, as shown in Table 19, a large portion (about 35%) of workers in the low income levels are members of families at the top of the per capita family income distribution. Second, as shown in Table 20, a large portion of workers earning less than the minimum wage are in the informal sector.

4.47 Almeida Reis (1989) estimates that a 25% (50%) increase in the minimum wage would reduce family income inequality (measured by the Gini coefficient) by .5% (1.2%). These estimates do not attempt to measure the changes in labor force participation which may occur after a substantial increase in the minimum wage.

4.48 One of the most important issues we must address is minimum wage legislation and the appropriate coverage of this legislation. It is an issue which must be answered - taking into consideration the objectives of the legislation. For example, should the minimum wage apply to all workers regardless of age? Is the objective of the legislation the provision of a minimum income? If so, is it desirable to pay a minimum wage to one who receives family transfers or income from other assets and is willing to work for less than the minimum?

4.49 Finally, in light of the fact that more than 40% of workers without signed booklets work for less than the minimum wage, how effective is the policy?

Table 19: PORTION OF LOW INCOME WORKERS WITH SIGNED BOOKLETS (WORK PERMITS)

Decile re per capita family income distribution	Workers w/Permit earning less than 1.25 MW	Workers w/Permit earning less than 1.5 MW
0 - 10	9.0	7.5
10 - 20	12.7	12.0
20 - 30	13.5	13.4
30 - 40	13.8	13.3
40 - 50	13.7	14.0
50 - 60	14.3	14.4
60 - 70	10.5	12.2
70 - 80	7.5	8.0
80 - 90	3.9	4.2
90 -100	1.1	1.1

Source: PNAD 1985 tabulations reported in Almeida Reis (1989).

**Table 20: DISTRIBUTION OF WORKERS WITHOUT QUALIFICATION
EARNING LESS THAN .75 MINIMUM WAGE BY LEGAL STATUS**

METROPOLITAN REGIONS 1985		
	WITH BOOK (PERMIT)	W/O BOOK (NO PERMIT)
TOTAL	5.4	43.3
Men	2.4	21.8
Women	10.4	58.3
REGION		
North	7.8	61.7
South	5.0	38.4
AGE		
14-18 Years of Age	4.3	66.5
18-25 Years of Age	4.6	48.2
Over 25 Years of Age	5.8	31.0
EDUCATION		
No Education	8.6	50.0
1-4 Years of Education	5.8	47.8
More than 4 Years Education	3.6	3.5
SECTOR		
Industry	1.6	21.3
Construction	3.1	20.2
Commerce	2.4	22.1
Services	9.9	56.7

Source: Velloso (1988) cited in Almeida (1989).

The North includes Belém, Fortaleza, Recife and Salvador.

The South includes, Belo Horizonte, Rio de Janeiro, São Paulo, Curitiba and Porto Alegre.

CHAPTER V

THE IMPACT OF COMMERCIAL AND PUBLIC SECTOR POLICIES ON THE STRUCTURE OF EMPLOYMENT

5.1 In this section, we analyze the effect of economic policies on the regional and sectoral allocation of employment. Here we focus on trade orientation, its impact on the use of unskilled versus skilled labor, and the impact of government employment. Brazil's sectoral and regional allocation of employment is very much affected by commercial policy and government intervention. Paes de Barros and Ramos (1991) studied the composition of employment using PNAD data. Their objective was to assess employment implications of "Collor's economic reforms" which include the removal of barriers to international trade and a redefinition of the government's economic role. The privatization of several state enterprises, for example, is part of this redefinition.

5.1 The Regional and Sectorial Distribution of Employment

5.2 Table 21 shows the structure of sectoral employment for all of Brazil and its evolution during the 1980s. Total employment is divided twice; once according to trade relations (non-tradeables, tradeables) and the other according to the degree of government intervention. Depending upon trade relations, sectors are subdivided into four sub-groups. The first sub-group corresponds to the non-tradeables, and includes construction, trade, transportation and storage, credit and insurance, services, public administration, and defense. The three remaining sub-groups are tradeable goods which include agriculture, mining, and 21 manufacturing sectors. Categorizing these 24 sectors into three sub-groups was based on their effective rate of protection as estimated by Braga, Santiago and Ferro (1988).¹³

5.3 Agriculture and mineral extraction are both negatively protected and are included in the "Primary" sub-group. Tobacco, also negatively protected, and all the other sectors with effective rates of protection below 25% (actually lower than 10.3%), are included in the "Unprotected" sub-group. These include non-metallic products, machinery, transportation equipment, beverages, tobacco, and printing and publishing. The remaining 15 manufacturing sectors form the "Protected" sub-group. The sum of these four sub-groups, Non-tradeables, Primary (Negative protection), Unprotected, and Protected, plus Others (Non classified) is equal to 100.

¹³ See Paes de Barros and Ramos (1991) for the estimated effective rates of protection and for further details.

5.4 The degree of government intervention in each sector was estimated using the methodology proposed by Werneck (1980, 1982). The measure used corresponds to the average of government participation in the sector, total revenues, and the government share of the sector total net assets; the estimates used correspond to 1985 data from Visão (1986). There are only 12 sectors in which the degree of government intervention is greater than 5%. Accordingly, the 23 remaining sectors have been grouped together in the "No Government Intervention" sector. The 12 sectors were then separated into two groups. One group of three sectors includes the activities traditionally performed by government - public services, public administration, and defense, and is referred to simply as the "Government" sector. Nine other sectors, where the government operates mainly through the State Enterprises, form a sub-group called "Extensive Government Intervention".¹⁴ Except for Storage and Mixed Services, in all other sectors of this group the degree of government intervention is close to or greater than 50%. The sum of these sub-groups, No Government Intervention, Extensive Government Intervention, and Government plus Other, is equal to 100.

5.5 According to Table 21, the non-tradeables sector portion of employment was 55.6 in 1981 and increased to about 60% in 1989. The primary sector share fell from about 30% in 1981 to 22.4% in 1989. The manufacturing sector share of total employment was relatively stable at around 15%, and about 75% of employment in the manufacturing sector was protected by trade barriers. As to the portion of total employment directly affected by government participation, it can be estimated to be around 20% in 1981. But the composition of employment within the combined Government plus Extensive Government Intervention categories changed during the 1980s. The portion of employment in those sectors with no government intervention was 79.1% in 1981 and fell to 77.3% by 1989. The sub-group which grew in importance was Government. Jobs were not being created more rapidly in the public sector enterprises, but in the public sector itself.

¹⁴ These sectors, with their respective degrees of intervention, are: non-fuel extraction (55%), fuel extraction (99%), metallic products (43%), chemicals and petroleum products (53%), Rail Transportation (100%), Non-Rail Transportation (71%), Storage (26%), Credit and Insurance (51%), and Mixed (partially private and partially public) Services (18%).

Table 21: THE TEMPORAL EVOLUTION OF THE SECTORAL EMPLOYMENT STRUCTURE
(by percentage)

SECTOR	1981	1982	1983	1984	1985	1986	1987	1988	1989
NON-TRADEABLES	55.7	55.7	58.3	55.4	56.3	57.4	58.9	59.7	60.3
Construction	8.4	7.5	9.7	6.1	6.1	6.7	6.9	6.6	6.5
Trade	10.9	10.8	11.1	11.2	11.5	11.9	12.1	12.1	12.8
Transport	3.9	3.8	3.6	3.6	3.6	3.6	3.7	3.8	3.8
Credit/Insurance	2.2	2.2	2.4	2.4	2.6	2.2	2.2	2.2	2.2
Services	26.0	26.9	27.1	27.6	27.9	28.1	29.1	29.9	30.0
Public Admin/Defense	4.3	4.5	4.4	4.5	4.6	4.9	4.9	5.1	5.0
PRIMARY	27.9	28.2	26.3	28.9	27.2	25.0	23.7	23.5	22.4
Manufacturing	15.4	15.2	14.4	14.6	15.2	16.5	16.1	15.6	16.2
UNPROTECTED	3.8	3.7	3.5	3.5	3.6	4.0	3.9	3.9	3.8
PROTECTED	11.7	11.4	10.9	11.1	11.7	12.5	12.1	11.7	12.4
OTHERS	0.9	1.1	1.0	1.1	1.2	1.1	1.4	1.2	1.1
TOTAL	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
NO GOVERNMENT INTERVENTION	79.1	79.2	78.9	78.8	78.1	78.2	77.8	77.1	77.3
EXTENSIVE GOVERNMENT INTERVENTION	9.4	9.8	9.5	9.3	9.8	9.3	9.4	9.7	9.8
GOVERNMENT	10.4	10.4	10.6	10.8	10.9	11.4	11.4	12.0	11.9
Public service	6.1	6.0	6.2	6.3	6.3	6.5	6.5	6.9	6.9
Public Admin	2.8	3.1	3.0	3.1	3.3	3.5	3.5	3.7	3.7
Defense	1.4	1.4	1.4	1.4	1.3	1.4	1.3	1.3	1.3
OTHERS	1.1	0.6	1.0	1.1	1.2	1.1	1.4	1.2	1.0
TOTAL	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Paes de Barros and Ramos (1991).

5.6 Table 21 suggests that trade policy and direct government participation has favored certain sectors over others. Since there are significant variations in sectorial composition of employment by educational groups or regions, it is suggested here that government policies have indeed contributed to index wage differentials across education levels and across regions. Table 22 demonstrates that government intervention and commercial policy have a differential effect on employment according to education. Those sectors with heavy government participation have a disproportional percentage of workers with higher education: 15.3% compared with 9.7% for the overall economy. Moreover, commercial policy has discriminated against the primary sector which is relatively intensive in low-skilled workers. There are at least two dimensions to this effect. On one hand, there are differences in factor intensities that are a function of the product mix in each sector, e.g., the government employs teachers and university professors. Thus the average level of education in this sector tends to be higher than in the rest of the economy. On the other hand there is a relative factor price effect usually induced by the structure of effective rates of protection. For example, if imports of machinery and equipment are duty free or are subsidized through an overvalued exchange rate, then industrial sector activities will tend to be more "high-tech-intensive", and thus skilled labor-intensive.

5.7 This evidence simply suggests that government intervention has increased the demand for highly skilled workers relative to the demand for less skilled workers. This effect of government intervention is one element which helps to explain why wage education profiles are so much steeper in Brazil than in other countries.

5.8 Another dimension of government policies impact is regional allocation of employment and its characteristics. Table 23 relates the regional allocation of employment to the impact of commercial policy. There are some interesting patterns in this relationship. Of all employment in the Northeast, about 40% is related to sectors receiving negative effective rates of protection. Since the Northeast represents about 27% of total employment, and the fraction of primary sector employment is .235 (Table 21), then around 46% ($.4 * .27 / .235$) of all employment with negative rates of effective protection is located in the Northeast. Of all employment in São Paulo, about 20% is associated with protected sectors. Since São Paulo represents about 23% of total employment, and the portion of protected employment over total employment is .117, then approximately 40% of protected jobs are located in São Paulo.

Table 22: STRUCTURE OF EMPLOYMENT BY WORKERS' EDUCATIONAL LEVEL 1988
(by percentage)

SECTOR	PRIMARY EDUCATION	SECONDARY AND MORE	ALL
NON-TRADEABLES	53.3	79.6	59.7
Construction	7.8	2.5	6.6
Trade	10.8	16.3	12.1
Transportation	4.0	3.1	3.8
Credit and Insurance	0.5	7.4	2.2
Services	26.9	39.7	29.9
Public Admin/Defense	3.3	10.6	5.1
PRIMARY	29.8	3.3	23.5
Manufacturing	15.5	16.0	15.7
UNPROTECTED	3.7	4.3	3.9
PROTECTED	11.8	11.7	11.7
OTHER	1.4	1.1	1.2
TOTAL	100.0	100.0	100.0
NO GOVERNMENT INTERVENTION	83.9	55.7	77.1
EXTENSIVE GOVERNMENT INTERVENTION	8.0	15.3	9.7
GOVERNMENT	6.9	28.1	11.9
Public Service	3.6	17.5	6.9
Public Administration	2.6	7.3	3.7
Defense	0.7	3.3	1.3
OTHER	1.2	0.9	1.3
TOTAL	100.0	100.0	100.0

Source: Paes de Barros and Ramos (1991).

Table 23: STRUCTURE OF EMPLOYMENT BY REGION 1988
(by percentage)

SECTOR	SOUTH	SAO PAULO	S.EAST	N.EAST	ALL
NON-TRADEABLES	52.9	63.6	66.8	50.4	59.7
Construction	5.9	7.0	7.1	5.9	6.6
Trade	11.6	13.3	11.9	10.8	12.1
Transportation	3.6	4.5	4.4	2.7	3.8
Credit and Insurance	1.8	3.4	2.3	1.1	2.2
Services	25.5	31.2	35.7	25.3	29.9
Public Admin/Defense	4.5	4.2	5.4	4.6	5.1
PRIMARY	30.3	7.4	18.3	39.6	23.5
Manufacturing	15.6	28.1	13.5	8.8	15.6
UNPROTECTED	3.3	8.4	3.0	1.7	3.9
PROTECTED	12.3	19.7	10.5	7.1	11.7
OTHER	1.2	0.9	1.4	1.2	1.2
TOTAL	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
NO GOVERNMENT INTERVENTION	80.1	75.6	74.5	80.6	77.1
EXTENSIVE GOVERNMENT INTERVENTION	8.3	13.5	11.4	5.8	9.7
GOVERNMENT	10.4	10.2	12.6	12.3	11.9
Public Service	5.9	5.9	7.2	7.7	6.9
Public administration	3.3	3.3	3.4	3.7	3.7
Defense	1.2	1.0	2.0	0.9	1.3
OTHER	1.2	0.7	1.5	1.3	1.3
TOTAL	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Paes de Barros and Ramos (1991).

5.9 In the final analysis, it is of interest to investigate the sectoral allocation of jobs by the type of working relationship. Table 24 indicates that informality is a relatively important employment system in the primary (agricultural) sector, services, construction, and transportation. About 35% of informal jobs are in agriculture, a percentage significantly larger than the 23% overall employment in agriculture. Since informal employment represents 22% of total employment in 1988, then of all agricultural sector jobs, 32.5% (.348.22/.235) are informal. Using the same procedure, we find that construction employment is 30% informal, and that services are 27% informal.

Table 24: STRUCTURE OF EMPLOYMENT BY TYPE OF WORKING RELATION

SECTOR	SELF-EMPLOYED	FORMAL	INFORMAL	ALL
NON-TRADEABLES	60.9	57.4	55.0	59.7
Construction	7.7	7.8	8.9	6.6
Trade	18.0	15.8	8.0	12.1
Transportation	3.6	6.9	2.5	7.8
Credit/Insurance	0.2	5.9	0.7	2.2
Services	31.4	21.0	34.9	29.9
Public Admin/Defense	0.0	0.0	0.0	5.1
PRIMARY	33.0	7.3	34.8	23.5
Manufacturing	6.0	35.8	10.2	15.7
UNPROTECTED	1.0	9.3	2.4	3.9
PROTECTED	5.0	26.0	7.8	11.7
OTHER	0.1	0.0	0.0	1.2
TOTAL	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
NO GOVERNMENT INTERVENTION	94.4	78.9	94.2	77.1
EXTENSIVE GOVERNMENT INTERVENTION	5.4	21.1	5.8	9.7
GOVERNMENT	0.2	0.0	0.0	12.0
OTHER	0.0	0.0	0.0	1.2
TOTAL	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Paes de Barros and Ramos (1991).

5.2 The Impact of the Public Sector Payroll on the Government Budget Deficit

5.10 As shown in Table 21, government employment represents about 12% of total employment in 1989. If employment in public enterprises or areas of the economy with extensive government intervention is added to the 12% figure, we get a rough figure of 20%. This 20% represents the percentage of employment in which the government is directly involved. Macedo and Chahad (1990) discuss in great detail the evolution of public sector employment during the 1980s. In their view, the impact of public sector employment in the budget is not large enough to be considered the source of inflationary pressures. Nevertheless, there was a tremendous payroll increase in 1989 which reflected significant wage gains for public sector workers. Moreover, on the basis of an earlier study, they argue that federal public enterprises have succeeded in raising wages beyond comparative private sector levels. Their study shows that Collor's policies have so far "made important advances in [their] attempt to control employment and wages at the federal level." (p. 27)

CHAPTER VI

CONCLUSIONS AND DIRECTION FOR FURTHER WORK

6.1 Brazil began the decade of the 1980s with an extraordinary influx of workers into the labor force at the same time the economy drifted into a major recession. Since wages and employment in the formal-private sector of the labor market proved to have very limited flexibility, the burden of the adjustment has been shared by the informal sector and the government. The current challenge in the context of Collor's reforms, is to reestablish, within the formal sector, a salary structure compatible with market forces.

6.2 This study has examined the functioning of the labor market and its impact on the distribution of income. It has been argued that in order to understand the labor market and the resulting distribution of income, one had to study the allocation of the stock of productive resources and the factors which determined the prices of those resources. Section 3 covered the connection between the distribution of education and the distribution of income. The main conclusion in that section was that a significant portion of income inequality can be explained by wage differentials across educational groups. These wage differentials by education are more pronounced in those regions where the degree of wage inequality is higher.

6.3 Among the factors which determine wages and wage differences by education and experience, this study analyzes two factors: One is the institutional framework which guides the adjustment of the labor market to imbalances between demand and supply. Another is the economic policies which affect the demand for skilled versus unskilled labor. The first of these two factors was the focus of Section 4 where labor legislation, taxation and wage policies were discussed. Two main conclusions were drawn:

- (a) There is a substantial difference between the cost of labor and net wage income in the formal sector. Part of the difference can be seen as fringe benefits, part as tax on labor, and part as unemployment insurance. The most serious problem with this system is the lack of transparency. This is particularly true of social security taxes, because there is no clear link between social security benefits and taxes.
- (b) The institutional setting which governs labor union negotiations is far from competitive. Unions can exert considerable pressure through their right to strike and are encouraged to negotiate at the industry level. Moreover, there is a very limited degree of employment flexibility in the formal sector. Within the private sector, the lack of flexibility is due to a high cost of "unjustified" dismissals. The cost is determined by the level of the FGTS fund accumulated by the worker which, in turn, is a direct function of the number of years on the job, with no upper limit. As far as the public sector is concerned, employees who were hired

prior to 1966 have tenure on the job. One of the obvious impacts of this state of affairs on the distribution of income is the presence of an informal sector where contracts have no legal protection and more than 20% of the labor force earns wages below the minimum wage.

6.4 The use of longitudinal data allows us to determine transition probabilities from one sector of employment to the other. This avenue of research is promising if one tries to determine the role of informal employment in the Brazilian labor market adjustment process. Do we expect informal employment to continue growing as a fraction of total employment? What are the implications of such outcome for the financing of social security and other social programs?

6.5 The economic policies which affect the demand for skilled versus unskilled labor were examined in Section 5. The main conclusions drawn were:

- (a) Government intervention and commercial policy have a differential effect on employment according to level of education. Those sectors with heavy government participation have a disproportionately high number of workers with higher education.
- (b) Commercial policy has discriminated against the primary sector, which is relatively intensive in low-skilled workers.
- (c) Of all employment in the Northeast, about 40% is related to sectors which receive negative effective rates of protection. Since the Northeast represents about 27% of total employment, and the portion of primary sector employment is .235 (Table 2i), then about 46% ($.4 \times .27 / .235$) of all employment with negative rates of effective protection is located in the Northeast.
- (d) Of total employment in São Paulo, about 20% is associated with protected sectors. Since São Paulo represents about 23% of all employment, and the portion of protected employment over total employment is .117, then approximately 40% of protected jobs are located in São Paulo.
- (e) The effect of government intervention, therefore, well explains why wage education profiles are far steeper in Brazil than in other countries.
- (f) Given the impact of commercial policy on regional employment, it is expected that trade liberalization would contribute to a reduction in regional disparities in income distribution.
- (g) Public sector payroll has taken a growing share of public sector revenues since 1986. For 1989, the last year in which data was produced, the share of public

sector payroll on disposable revenues was 82.9%. According to Macedo and Chahad (1990), the expansion of the public sector payroll "was essentially the result of wage increases." Therefore, recent public sector employment reductions in connection with the stabilization program appear only partially effective since little emphasis has been given to real wage reductions.

6.6 Brazil is in the process of reforming her Constitution. Several of the issues discussed in this paper are Constitutional matters. These legal questions have a tremendous impact on the functioning of the economic system and, as it has been argued in this paper, on the functioning of the labor market. Therefore, it is imperative that these questions be discussed in their economic dimension as well as in their social and political ones. The issue of public sector employees tenure, for example, seriously restricts the alternative options to control the budget deficit, one of the sources of inflationary pressure.

6.7 The lack of employment flexibility can be a serious constraint in an attempt to remove protection and open up the economy to international competition. The Brazilian system of the FGTS can be the basis for an unemployment insurance system, but currently it puts a heavy burden on the employer and discourages the creation of formal employment.

6.8 The connection between income distribution and trade orientation suggested by this study is consistent with basic principles of international trade theory. In the simple Hecksher-Ohlin model; a developing economy with capital-intensive imports, fully mobile factors of production and flexible prices, and a reduction of import tariffs will induce a reallocation of labor out of importables and an increase in real wages.

6.9 The evidence presented here regarding the current allocation of employment by sector and region, combined with the logic of theoretical analysis, is persuasive. Yet the proposition that trade liberalization would benefit the poor is surrounded by a tremendous amount of skepticism. In fact, under simple trade models with short-run adjustment costs, trade liberalization reforms can be associated with short-run increases in unemployment. Edwards and Edwards (1990) provide a typology of different labor market configurations and investigate how trade reform affects the level of aggregate employment and the rate of unemployment.

6.10 Although we can still count on the long term advantages of trade liberalization, we must be aware of potential difficulties during the adjustment process. In this regard, there are very important questions which deserve our attention in future research. In particular, what do we know about the degree of labor mobility across sectors and/or regions of Brazil? Is there any evidence regarding the region-specific effects of region-specific public sector spending? What is the impact of labor market regulations on labor adjustment? The answer to these questions can provide the basis for government action in response to perhaps undesirable labor market responses to trade liberalization.

6.11 Two recent phenomena which have characterized the Brazilian labor market could be the focus of our research agenda in an effort to answer the questions posed above. These are: the rapid increase in labor force participation of the late 1970s, and the growing informalization of the 1980s. This paper suggests that these two phenomena are not independent; that, given the high taxes on labor and the restrictions imposed by wage indexation, informalization may be a market solution to the labor supply pressures on one side, and the formal sector restrictions on employment creation on the other, particularly during the recession of the early 1980s.

6.12 A detailed analysis, using micro data on employment, wages, and individual characteristics including age, education, sector, region of employment, occupation, etc., will allow us to get closer to the essence of labor market adjustment mechanisms. The use of individual survey data allows us to estimate the impact of the rapidly growing labor force on relative wages. The magnitude and persistence of wage differentials across regions can also be investigated. The key question is: Are labor markets closely linked across sectors and regions in Brazil? Given the labor markets adjustment experience of the 1980s, is it reasonable to expect that labor will move relatively fast across sectors or regions in response to trade liberalization?

REFERENCES

- Adelman, I., Morley, S., Schenzler, C. and Warning, M. (1990): "Measuring Brazilian Income Mobility with Census Data" (Unpublished manuscript).
- Almeida Reis, J.G. (1989): "Salário Mínimo e Distribuição da Renda" in Perspectivas La Economia Brasileira-1989, IPEA/INPES Chapter 11.
- Almeida, J.G. and Paes de Barros, R. (1991): "Wage Inequality and the Distribution of Education: A Study of the Evolution of Regional Differences in Inequality" paper presented at the Third Annual Interamerican Seminar on Economics Public Sector and Labor Markets in Latin America, Mangaritaba, Brazil, March.
- Bacha, E. and Taylor, L. (1978): "Brazilian Income Distribution in the 1960s: Facts, Model, Results and the Controversy," Journal of Development Studies 14: 271-97.
- Barreto de Oliveira, F. and Beltrão, K. (1989): "Perspectivas da Seguridade Social 1989/2010" in Perspectivas Da Economia Brasileira.
- Becker, G. (1975): Human Capital 2d. New York: Columbia University Press for National Bureau of Economic Research.
- Ben-Porath, Y. (1967): "The Production of Human Capital and the Life Cycle of Earnings" Journal of Political Economy 75, No.4 (August): 352-65.
- Bonelli, R. and Landau (1990): "Brazil in the 1980s: Facts and Figures" (Paper prepared for a Seminar held in Rio de Janeiro, March 16-17, 1990.)
- Braga, H., Santiago, G.M.C., and Ferro, L.C.M. (1988): "Estrutura de Proteção Efetiva no Brasil: 1985" Pesquisa e Planejamento Econômico 18 (3), pp. 663-84.
- Cacciamali, M.C. (1989): "Expansão do Mercado de Trabalho Não Regulamentado e Setor Informal" Estudos Econômicos Vol. 19 (Special Issue) 1989, pp. 25-48.
- Cacciamali, M.C. (1989): "Informalização Recente do Mercado de Trabalho Brasileiro", Manuscript, São Paulo, November.
- Cacciamali, M.C. (1986): "Distribuição de Renda, Formas de Participação na Produção e Setor Informal" in O Mercado de Trabalho no Brasil: Aspectos Teóricos e Evidências Empíricas, edited by José Paulo Z. Chahad, IPE/Universidade São Paulo.

- Camargo, J.M. and Ramos, C.A. (1987): "Texto Para Discussão No 3. A Revolução Indesejada: O Plano Cruzado e o Mercado de Trabalho", Ministério do Trabalho, Outubro.
- Camargo, J.M. and Amadeo, E.J. (1990): "Labor Legislation and Institutional Aspects of the Brazilian Labour Market", Department of Economics, Pontificia de Universidade Catolica, Rio de Janeiro, November.
- Cardoso, E. and Fishlow, A. (1989): "The Macroeconomics of the Brazilian External Debt" in Developing Country Debt and the World Economy, edited by Sachs, N.B.E.R.
- Cardos, E. and Dantas, D. (1990): "Brasil in Latin American Adjustment: How Much has Happened?, edited by John Williamson, Washington: Institute for International Economics.
- Chahad, J.P. (1986): "O Fundo de Garantia de Tempo de Serviço e as Recisões do Contrato de Trabalho: Uma Abordagem Empírica" in O Mercado de Trabalho.
- Dabos, M. and Psacharopoulos (1987): "An Analysis of the Sources of Earnings Variation Among Brazilian Males" World Bank Report No. IDP-3, December.
- Denslow, D. and Tyler, W.G. (1983): "Perspectives on Poverty and Income Inequality in Brazil: An analysis of the Changes During the 1970s" World Bank Working Paper No. 61).
- Edwards, S. and Edwards, A. Cox (1990): "Labor Market Distortions and Structural Adjustments in Developing Countries", N.B.E.R. Working Paper No. 3346.
- Edwards, A. Cox and Roberts, J. (1990): "Structural Adjustment and Women in the Labor Force: Evidence from Latin American Countries" (December). [Forthcoming in Labor Markets in an Era of Adjustment (EDI), The World Bank.]
- Fields, G. (1977): "Who Benefits from Economic Development? A Re-examination of Brazilian Growth in the 1960s" American Economic Review 67: 570-82.
- Fishlow, A. (1972): "Brazilian Size Distribution of Income", American Economic Review, 62:2, 391-410.
- Fox, M.L. and Morley, S. (1990): "Who Paid the Bill? Adjustment and Poverty in Brazil, 1980-1995" (The World Bank, February 1990).
- Freeman, R. and Medoff, J. (1984): What Do Unions Do? (New York: Basic Books Inc.). Gomes, Gustavo M., Osório, C., Irmão, José F. (1985): "Políticas Recessivas, Distribuição de Renda e os Mercados Regionais de Trabalho no Brasil, 1981-1984".

- Kuznets, S. (1955): "Economic Growth and Income Inequality" American Economic Review 45: 1-28. Lazear (1983) "A Competitive Theory of Monopoly Unionism" American Economic Review 83, No.4 (September) 631-43.
- Langoni, C.G. (1977): "Income Distribution and Economic Development: The Brazilian Case" in Frontiers of Quantitative Economics Vol. B, Amsterdam, North Holland Pub. Co., edited by M. Intriligator.
- Macedo, R. and Chahad, J.P. (1990): "Public Sector Employment in Brazil in the 1980s", (First Draft).
- Macedo, R. and Chahad, J.P. (1985): FGTS e a Rotatividade, Nobel, Ministério do Trabalho.
- Macedo, R. (1986): "The Brazilian Labor Market: An Overview" Manuscript, Department of Economics, University of Sao Paulo, January.
- Medeci, A. (1989): "The Financing of Health Policies in Brazil" in Health Economics, Latin American Perspectives, Pan American Health Organization.
- Michaely M., Papageorgiou D., and Choksi A. (1991) Liberalizing Foreign Trade, Vols. 1-7 Oxford: Basil Blackwell.
- Mincer, J. (1958): "Investment in Human Capital and Personal Income Distribution" Journal of Political Economy 66, No.4 (August): 281-302.
- Paes de Barros, R., Camargo, J.M., and Sedlacek, G.L. (1990): "Os três Mercados: Segmentação, Mobilidade e Desigualdade" (versão preliminar).
- Paes de Barros, R. and Silva Pinto de Mendonca, R. (1988): "Family and Income Distribution: The Equalizing Impact of the Earnings of Married Women in Metropolitan Brazil".
- Paes de Barros, R. and Ramos, L. (1991): "Employment Structure in Brazil and its Sensitivity to the Current Economic Policy", Yale University and IPEA/Rio de Janeiro, January.
- Paes de Barros, R. and Almeida Reis, J.G. (1989): "Educação e Desigualdade de Salários" in Perspectivas Da Economia Brasileira - 1989, IPEA/INPES, Chapter 10.
- Paes de Barros and Varandas (1987): "A Carteira de Trabalho, as Condições de Trabalho e Remuneração dos Chefes de Família no Brasil", IPEA.

- Paiva, P. de Tarso A. (1986): "Cinqüenta Anos de Croputational e Absorção de Mão-de-obra no Brasil: de 1950 a 2000" Revista Brasileira de Estudos de População, Campinas, V.3. No 1, p. 63-86, Jan./July pp. 63-86.
- Papageorgiou, D., Michaely, M., Choksi, A. (1986): "The Phasing of a Trade Liberalization Policy: Preliminary Evidence". Paper prepared for the annual meetings of the A.E.A., New Orleans, Dec. 28-30.
- Pfeffermann, G. and Webb, R. (1979): "The Distribution of Income in Brazil" (Washington: The World Bank Working Paper #356).
- Rocha, S. and Tolosa, H. (1989): "Pobreza Metropolitana Políticas Sociais" in Perspectivas Da Economia Brasileira - 1989 IPEA/INPES, Chapter 12.
- Sedlacek (1990): "Estratégias de Geração de Renda das Famílias Brasileiras: Um Estudo da Participação da Mulher no Mercado de Trabalho", IPEA.
- Sedlacek, G.L., Paes de Barros, R., and Varandas, S. (1989): "Segmentação - Mobilidade No Mercado de Trabalho Brasileiro: Uma Análise Da Região Metropolitana de São Paulo" in Perspectivas Da Economia Brasileira - 1989 IPEA/INPES, Appendix to Chapter 11.
- Sedlacek, G. and Paes de Barros, R. (1989): Mercado de Trabalho e Distribuição de Renda: Uma Coletânea, IPEA Serie Monografica 35.
- Stelcner, M., Smith, B., Breslaw, J., and Monett, G. (1991): "Labor Force BehaviWomen and Men" in Female Employment and Pay in Latin America: A Regional Study. The World Bank, April 1991.
- Welch, F. "Effects of Cohort Size on Earnings: The Baby Boom Babies' Financial Bust", Journé of Political Economy 87, No. 5 (October): S65-S97.
- Werneck, R. (1980): "Rapid Growth, Distributional Equity and the Size of the Public Sector: Trade-Offs Facing the Brazilian Economic Policy in the 1980s". Ph.D. Dissertation, Harvard University, Cambridge.
- Werneck, R. (1982): "Desequilfbrio Externo e Reorientação do Crescimento e dos Investimentos: Uma Análise Multissetorial das Perspectivas da Economia Brasileira", PNPE, Série Facsimile 10.
- World Bank (1989): "Social Indicators of Development 1989", Johns Hopkins University Press for the World Bank, Baltimore.

World Bank (1990): "Social Indicators of Development 1990", Johns Hopkins University Press for the World Bank, Baltimore.

World Bank (1988): "Brasil: Public Spending on Social Programs; Issues and Options", World Bank Report No. 7086, May 27.

World Bank (1990): "An Agenda for Tax Reform" (in three volumes), World Bank Report No. 8147, February 28.

World Bank (1991): "Brasil: Economic Stabilization with Economic Reforms", World Bank Report 8371, January 31.