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BRAZILIAN MACROECONOMICS WITH A HUMAN FACE: METROPOLITAN CRISIS, POVERTY AND SOCIAL TARGETS *

Marcelo Neri¹

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BRAZILIAN MACROECONOMICS WITH A HUMAN FACE: METROPOLITAN CRISIS , POVERTY AND SOCIAL TARGETS

1 – Introduction

1.1 Motivation

This paper analysis the impacts of Brazilian macroeconomic developments during the 1990's on labor market and social indicators. Special emphasis is given to the period marked by the adverse effects of external shocks such as the Asian crisis of 1997, the Russian crisis of 1998 and the Brazilian devaluation crisis of 1999. Our main conclusion is that the description of the social impacts of these crisis does not fit a single story. We show that the plot of the main stories observed depend on at least three dimensions: i) Who was affected by the shocks? that is to what extend the crisis affected more the Brazilian elite or those initially situated below the poverty line? ii) What? to what extend the crisis affected labor income vis a vis other income sources such as government transfers, social security benefits and capital income. iii) Where? was the social crisis more acute in rural areas and small cities or in the core of metropolitan areas.

The answer to the questions posed above is that the epicenter of the crisis was labor earnings of middle and upper segments living in larger urban areas. This period can not be refered as a national poverty crisis, since poverty rates in rural areas and small cities fell during this period. While labor markets specially in big cities were quite adversely affected, incomes derived from social security, unemployment insurance and other government transfers played a crucial role cushioning the micro consequences of macro shocks observed. In this sense, “metropolitan unemployment crisis” seems an appropriate way to label the 1996-99 period. Unemployment rates (specially long term unemployment) rose by more than one third of its initial value after the arrival of the Asian crisis in Brazil. This point is noteworthy since the main input of the Brazilian social debate are unemployment rates derived from monthly employment surveys performed only in the main metropolitan areas. The paper argues in favor of the use of per capita income based social measures that can be calculated from the same primary data sources.

1.2. Plan of the Paper

Besides this introduction, the conclusion and two sections on policy prescriptions the main body of the paper is empirical. This part is organized in two blocks according to the main data sources used, that is PNAD (a National Household Survey) and PME (a Monthly Employment Survey performed in the six main metropolitan areas).

Section 2 presents an overview the main stylized facts of the Brazilian economy in the last two decades. Section 2.1 describes the main changes of macroeconomic policies and environment occurred. Section 2.2 describes the evolution of Brazilian Income distribution in the 1990s. It analyses the economic performance of three income groups (elite, middle class and the poor) during three sub-periods of the 1990s (1990-93, 1993-96 and 1996-99) at a national level.

The following three sections detail the social performance during the latter period by six different city sizes (rural areas, small cities, mid-sized cities, large cities and metropolitan areas divided into core and suburbs). Section 3 compares the evolution of standard social indicators (such as unemployment rates, labor income, informality, income from all sources and poverty). Section 4 analyzes other behavioral consequences of the crisis by city size, such as the effects exerted on immigration patterns, violence and electoral outcomes. The following section analyses institutional changes as possible determinants of the different social patterns observed by city size. In particular, we look on sensitivity measures to different items of the structural reform agenda implemented during the 1990s (or yet to be implemented) such as administrative reform, trade opening, labor reform, minimum wage and social security reform.

Section six attempts to smooth the transition between the two main data sources used in the paper. The strategy is to simulate the results obtained from PME by gradually restricting PNAD spatial coverage and income concepts. This section work as a zoom departing from national social measures based on all income sources to metropolitan labor market indicators.

The second half of the empirical part of the paper looks at longer time horizons using PME. Section 7 implements an episodic analysis of the main booms and recessions observed in Brazil during the last two decades. The idea here is to provide a basis of comparisson between the recent external crisis with the main downturns and upturns observed in Brazil. First, it describes the main changes of macroeconomic policies and regimes and its social impacts. Second, it analyses their consequences on the risk faced by different segments living

in metropolitan areas. In particular, this section takes advantage of the longitudinal aspect of PME to assess the effects of adverse macro environments at the individual level. We estimate the probabilities of entering (or exiting) precarious states such as unemployment and poverty in various sub-periods.

Section 8 and 9 explore the possibility of constructing monthly time series on poverty (P0, P1 and P2 using different poverty lines) and income distribution (earnings deciles, inequality measures) to assess their main macro determinants. Section 8 extracts simple and partial correlation patterns between these social indicators and macro variables (GDP, unemployment, inflation, interest rates, minimum wages and exchange rates). We also attempt to disentangle correlation patterns derived from pure exchange rates movements from those derived from deviations from equilibrium exchange rates as measures of exchange rate policies.

Section 9 implements a structural time series model. It estimates a VAR that specifies the dynamic relations between shocks to inflation, unemployment and poverty using impulse response functions. The two identification strategies assumed correspond to commitment and discretionary regimes of the so-called Barro-Gordon model. The objective of this exercise is to set a basis for the discussion of restrictions imposed by setting targets on poverty target when there is (and when there is not) inflation targeting.

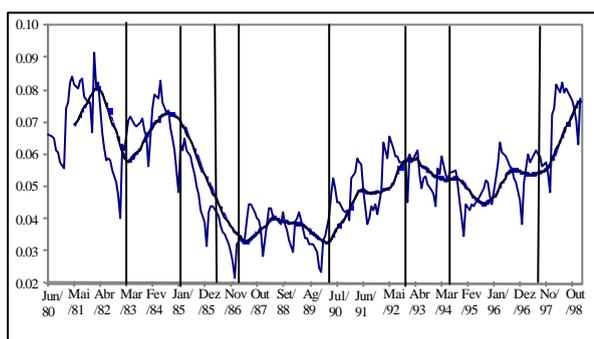
Section 10 describes the main objectives, limitations and desired features of a system of poverty targeting. Section 11 presents counterfactual exercises on poverty measures based on different scenarios for growth and inequality changes using Ravallion-type decompositions. Section 12 presents the main conclusions of the paper.

2 –Macroeconomic Environment and Income Distribution: An Overview

2.1 Macroeconomic Background

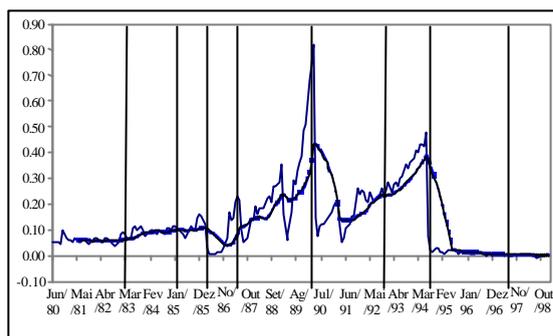
This section presents a macroeconomic background of the Brazilian Economy in the last twenty years. Graphs 1 to 4 below presents monthly time series of unemployment, inflation, inequality and GDP with their respective moving averages.

Graph 1 - Unemployment Rates



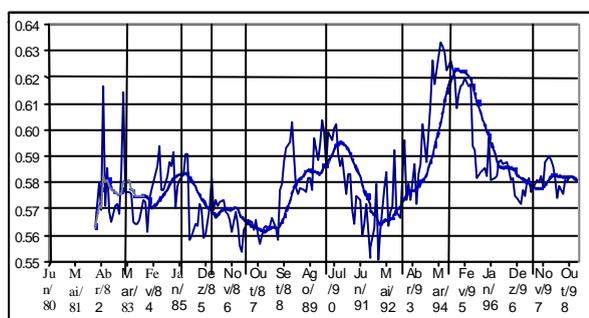
Source: PME/IBGE

Graph 2 - Inflation Rates



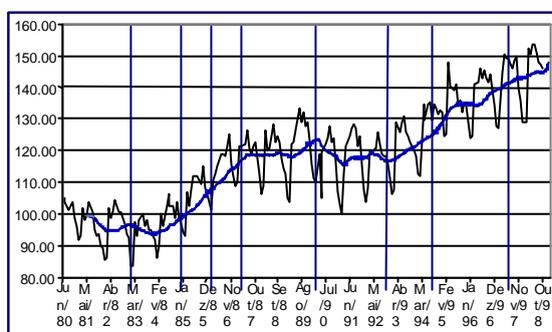
Source: INPC/IBGE

Graph 3 – Inequality - Gini Index



Source: CPS/FGV based on PNAD-IBGE

Graph 4 - GDP



Source: Central Bank

. The vertical lines of Graphs 1 to 4 above divide the series into eight sub-periods that will be analyzed in separate below:

The “voluntary adjustment” period (1981/1982) occurred right after the 1980 consumption boom, when the government tried, through a very tight monetary policy and a rise of tariff and non-tariff barriers, to clear the trade balance and to reduce the rate of inflation. The first objective was accomplished (thanks to a fall of imports), but this was not enough to reduce the overall demand for foreign currency of the country as a whole, because

of the increasing burden of the interest on the external debt, while the rate of inflation remained roughly constant. In other words, the aggregate demand contraction affected quantities more than on prices: for the first time in its statistically documented economic history, Brazil recorded, in 1981, a negative growth rate of its GDP. The result of these policies relation, in social terms, was the beginning of an increment in poverty and inequality that would persist for the next three years.

The period of agreements with the IMF (1983/1984), during which the policy described above were added significant cuts of public expenditures, a “regressive” wage policy and a substantial devaluation of the domestic currency in real terms. This shift of relative prices, the reduction of aggregate demand and the concomitant recovery of the world economy allowed exports – especially those of manufactured goods – to grow significantly, while the imports did not increase. The trade surplus became big enough to clear the current account of the balance of payments, but the devaluation also implied a strong acceleration of inflation, which reached 200% in annual terms. The output at first decreased, but from mid-1984 it started to grow, thanks to the strength of manufactured exports. The rise of both inflation and unemployment rates during this period produced an increase in poverty and inequality of the income to new heights. The proportion of poor increased to 30%.

The first year of the “New Republic” (1985) represented an abandonment of the agreements established with the IMF and the end of “orthodox” therapies to fight inflation. The emphasis of the macroeconomic policy returned to growth issues and its anti-inflationary component was bounded to an ephemeral attempt to delay public prices’ readjustments. The rate of inflation continued on the same levels of the two previous years while the GDP growth rate were similar to the average ones recorded during the 1970’s, without affecting the trade surplus. The social indicators based on income begin to show a reversion in relation to the peaks earlier reached.

The Cruzado Plan (1986), which can be seen as an attempt of combining the fight against inflation with GDP growth and income redistribution. This “heterodox” experiment was based on a monetary reform, the freezing of prices and of the nominal exchange rate and on rather expansive fiscal and monetary policies. Its results were very good in the short-run: the rate of inflation was drastically reduced and the GDP growth rate was preserved in very high levels. Nevertheless, the combination of increasing demand and of supply freezing

generated a consumption bubble and rationing on the product and on the currency markets that produced a progressive erosion of trade surpluses. After few months, the Brazilian government had to give up the fixed exchange rate regime adopted, generating a chaotic inflation “come back”². During this period of economic expansion, inequality decreased, and the consequence was that the proportion of poor reached the lower level of the whole series: 17%.

The agony of the New Republic (1987-1989), when the basic goal of the policy-makers was to avoid hyperinflation at any cost. Two stabilization plans were implemented during this period (the “Bresser” and the “Summer” plans), both also adopted heterodox elements (such as temporary price-freeze) but were incapable to put an end to the fiscal voracity of the “new regime”. The current account of the Balance of payments was rapidly cleared (despite of the fact that the real exchange rate did not return to the levels recorded before the Cruzado plan), while GDP growth diminished considerably. Given the increasing public expenditures in a moment where the government’s credibility was particularly weak, these plans were ineffective to contain the rate of inflation for more than a few months. This process culminated in an inflationary explosion at the end of 1989/beginning of 1990³. The combination of a substantial increase in inequality with the maintenance of aggregate rates of positive growth in the stability of the period caused a continuous, but until certain point, moderate increase in the proportion of poor that reached 21% in the peak of the hyperinflation in the 1989 presidential elections.

The Collor plan (1990/1992), attempted for the first time in Brazil to combine a stabilization attempt with substantial structural reforms. While on the anti-inflationary front the main measures were a new price-freeze, the confiscation of 80% of the private financial wealth included in M4 and an attempt to end to any formal wage-policy for the formal workers, the structural adjustment package was - in practice – restricted to a substantial trade reform and to a shy attempt of privatization.⁴ This policy resulted in a recession deeper than the one recorded the years before (thanks to what trade liberalization did not provoke a new current account deficit), combined with an unexpected sharp reduction of income inequality.⁵

² See Winograd (1991) for more details.

³ The monthly rate of inflation reached more than 80%.

⁴ The non-tariff barriers were abolished and “tarifficated”, while the average tariff was progressively reduced. The average import-tariff went from 51% in 1990 to 14% in 1993 .

⁵ See Urani (1994) for more details.

Nevertheless, the poverty ratio almost doubled the level observed in 1986, reaching 32%. The gradualism of the last year of Collor government (1992), consisting in the combination of “de-confiscation” of private financial wealth with a very conservative aggregate demand managing policy, the protraction of trade openness and external debt re-negotiation, whose results were a progressive fall of the rate of inflation, the deepening of the recession and significant short-run speculative capital inflows; The social indicators keep the same trend of decreasing in inequality and increasing poverty.

The “bread and butter policy” (1992-1994) a pale attempt of the first Finance Ministers of Itamar Franco’s government to recover GDP growth in an environment of not only very high but also increasing rates of inflation; The poverty and inequality exploded reaching the highest levels of the series since 1980.

The period of the Real Plan (1994-96), the most successful stabilization policy implemented in Brazil since the mid-1960’s. Taking advantage on the previous structural reforms (trade liberalization, renegotiations of the external debt and the launching of the privatization program), the plan was divided in 4 steps: a) preparatory fiscal reordering; b) adoption of a “super-indexator” (the *Real Value Unity* -- URV) in which all contracts should be progressively converted; c) the implementation, in July 1994, of a new currency (the Real) with a one to one parity towards the URV; and d) the deepening – through a large and difficult political negotiation still in progress – of structural and institutional reforms, as further privatization, the end of state-monopolies in some areas, the reform of the social security system, etc., to recover sustainable growth. The first results of this strategy were an acceleration of GDP growth, with strong increases in real wages (particularly of the lowest, in the informal and non-tradable sectors) and a rapid deterioration of trade balance due to an exponential increment of imports. Almost simultaneously, capital inflows were sharply reduced by the *tequila effect*. The risk of a balance of payments collapse obliged the government to adopt a tight monetary policy and to increase some tariffs to diminish the rhythm of imports growth. As a consequence, GDP growth was significantly reduced in the second half of 1995. The Mexican crisis was the first external shock that were to condition the performance of the Brazilian economy in the near future.

The effects of the waves of external shocks that hit Brazil in the 1996-99 period such as those that will be analyzed in detail in the sections 3 to 5. The 1999 devaluation crisis

triggered important changes in macroeconomic and social regimes such as: i) the adoption of floating exchange rates; ii) the adoption of inflation targets; iii) the implementation of the law of fiscal responsibility (Lei de Responsabilidade Fiscal (LRF)) affecting all government levels and state enterprises alike; iv) more recently, the adoption of the Projeto Alvorada which comprises a series of social programs combining compensatory and structural components starting at the municipalities with lower levels of the Human Development Index. The social effects of these police innovations seems quite important but cannot be assessed at this point due to lack of data availability.

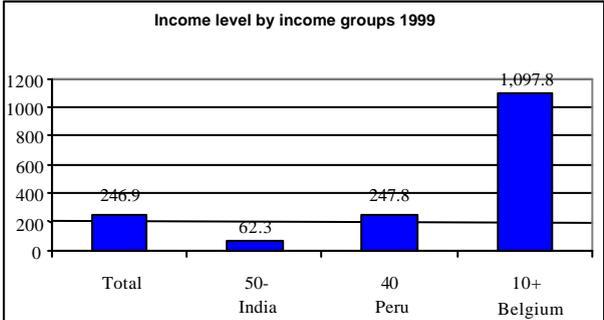
2.2. Overview of income distribution in the nineties

We shall work here with income distribution in a statistical sense, including changes in inequality as well as growth in per capita family income. The analysis performed will be desegregated in three groups: the upper ten percent of the population that has nearly half of total income (47.3% to be precise); the lower half of the population that has slightly more than ten percent of the national income (12.3%) and the remaining 40% of the population. The latter can be perceived as a middle class - where population and income shares almost coincides (40.4%), a kind of a middle income country, like Peru, between a rich Belgium and a poor India⁶. Graph 5, below, shows the average family per capita income, of these three segments of the Brazilian population.

This desegregated approach contrast with that based on the GDP, where the weight is proportional to the income of earned by each individual –he is worth what he earns. This aspect is basic in the Brazilian case, where high inequality makes average income an untrustworthy indicator of social welfare.

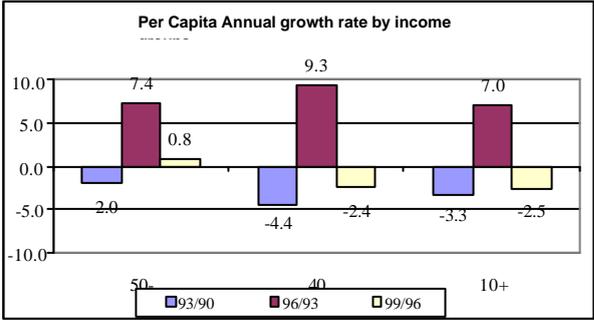
We have divided the nineties analysis in three phases, of three years each: i) chronic uncertainty (1990 – 1993} ii) post-stabilization boom (1993 – 1996) iii) critical uncertainty (1996 – 1999).

Graph 5



CPS/FGV based on micro-data from PNAD-IBGE

Graph 6



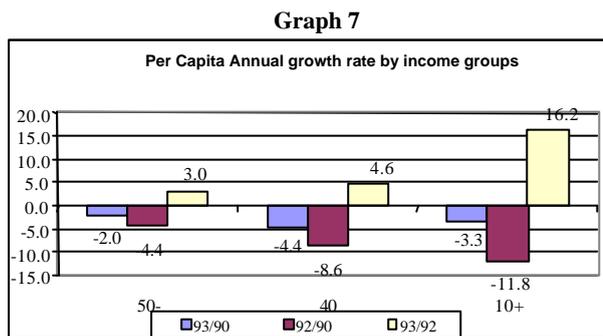
CPS/FGV based on micro-data from PNAD-IBGE

i) – Chronic Uncertainty (1990 –1993)

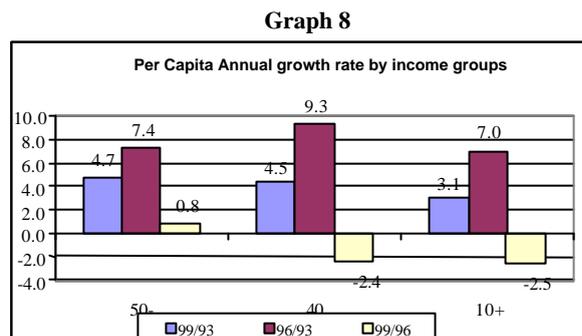
There was a period before the “Real Plan”, that we call “The chronic uncertainty phase” when the population was accustomed to cope with high instability, derived from high and volatile inflation rates. Individuals and institutions developed a series of mechanisms to protect against inflation which; the main side effect was to perpetuate inflation itself.

This phase encompasses two periods of the nineties, as seen in graph 7. The first from 1990 to 1992, in the Collor administration, when we observe an upside-down “Brazilian economic miracle of the sixties”. Income fell sharply affecting mainly the richer class, 11.8% against 4.4% per annum for the poorer class. Collor reduced inequality, by bringing the richer class to a lower level of income.

The second period (1992/93) is marked by the rise of income in all income classes, but also in this case more significantly amongst the richer class, 16.2% against 3% for the poorer segment. – Thus generating a higher concentration of income.



Prepared by CPS/FGV based on micro-data from PNAD-IBGE



Prepared by CPS/FGV based on micro-data from PNAD-IBGE

ii) Post-stabilization boom (1993-1996)⁷

This phase can be called the “ Real plan honeymoon”. All segments of the population gained income increases of 8% per annum. The chronic uncertainty was withdrawn from the economy in a very fast manner, generating very important welfare gains and bringing a social welfare euphoria that lasted up to the end of 1996. The synoptic chart shows the main effects of the Real Plan on economic inequality, growth, and social welfare (or poverty).

The inequality reduction effect in the Real Plan was relatively mild. The stabilization plan that preceded it and the Real Plan itself, were conceived to reduce inflation, maintaining, more or less constant, the "status quo” of income distribution. It can be said that the Real Plan main purpose was to fight inflation and it succeeded in this task. The gain in social welfare

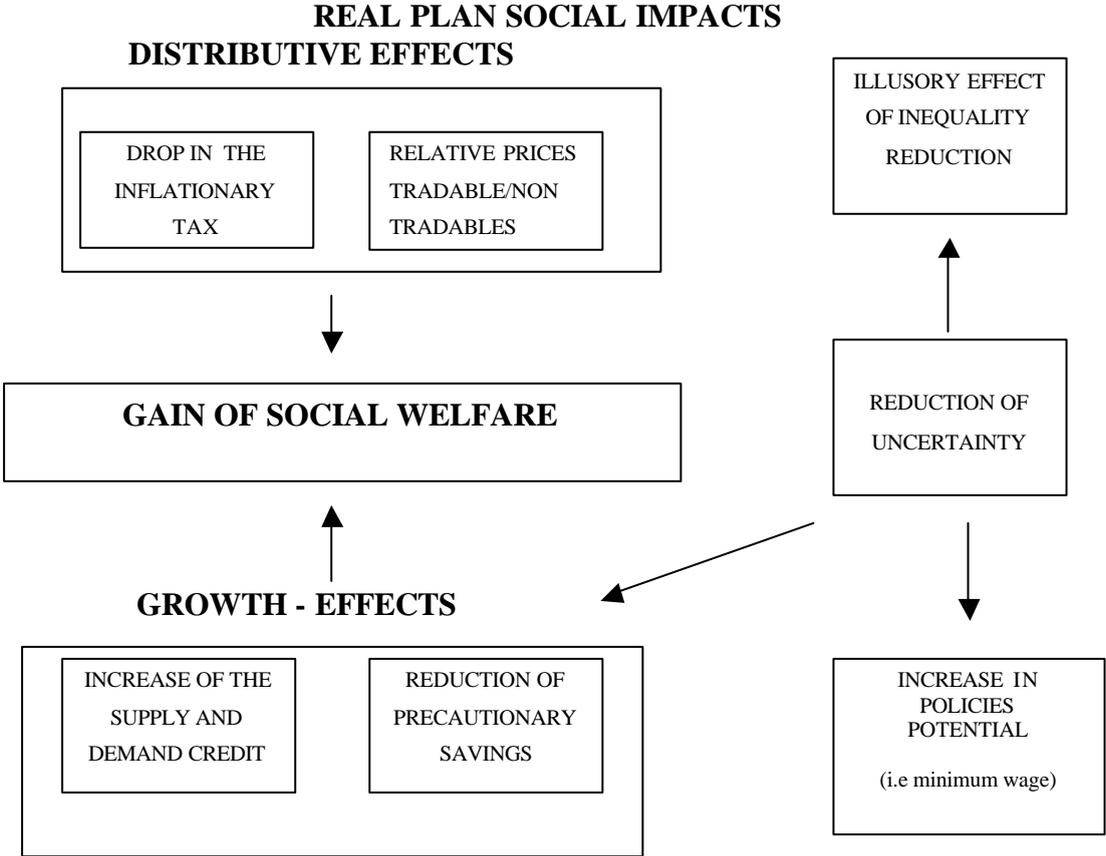
⁶ The Belindia alporism was introduced by Edmar Bacha in 1972.

⁷ See Neri e Considera (1996), Amadeo e Neri (1999) e Neri, Considera e Pinto (2000).

induced by stabilization that was not a reduction in inequality, but as its name itself suggests the increase in income stability.

With the Real Plan and the reduction of inflation, we observed a gain in social welfare, associated with a smaller incidence of inflation tax, especially in the lower income groups. Simulations of these effects show a rise of 10% in the income of those that do not have access to sophisticated financial mechanisms and a 5% drop in poverty. This is a specific effect of stabilization, but it only explains a small part of the social gains observed after the Real Plan. A second effect refers to the type of stabilization brought by the plan: the exchange rate was pegged, the economy was opened to trade and a consumption boom took place. The measures taken during the consumption boom were in a particular way, beneficial to the non-tradable goods sector, such as services, but adverse to the tradable-goods sector, such as manufacturing. The services sector employs the largest portion of the working poor; therefore there was a reduction effect on poverty. This explains why some regions, such as Rio de Janeiro was benefited, whilst others suffered, such as São Paulo.

The third effect, the main connected to stabilization was the fall of uncertainty. In the transition from chronic uncertainty to a stability period, there are direct social welfare gains as a person can plan the future. Stabilization also increases the demand for credit (negative savings) by the families that can behave less prudently as regards the future and feel freer to increase consumption and to demand credit.



As a complement, banks and financial institutions tend to feel more secure in monitoring potential borrowers. The reduction of uncertainty after the Real Plan lead – as much for reasons of supply as of demand - to the flourishing of direct consumer credit.

The main gain of the Real Plan was to bring stabilization to the income of individuals. We estimate this effect based on PME-IBGE data, that follow the same families over time and we have concluded that the volatility of the monthly family income originated from labor, has fallen 40% after stabilization was implemented⁸.

The effect of the reduction of volatility also causes an illusory effect of inequality reduction. There was a perception that inequality dropped because the economy became more stable, the inequality of monthly income – that is what is measured in Brazil – was inflated by this fluctuation. If you have an economy where the income across individuals is the same, an egalitarian economy by definition, but where income fluctuates in a non synchronized manner, it wrongly appears that inequality is larger than it really is.

The reduction of these fluctuations causes a delusion in the redistribution effect of the Real Plan. The inequality of monthly income falls three times more than the inequality of income earned in the four consecutive month's period and this difference corresponds precisely to the effect of the fall of the temporal instability of income. In other words, it looks like inequality tumbled but what really fell was income instability.

The distributive effects of the Real Plan were not large, but stability permitted the possibility of implementing social policies in a largely better environment than before. Firstly, because it spread the horizon of action for both government and private agents, that includes enterprises and consumers. Stability and the end of the inflationary tax eased the government and families to implement their budgets.

The Real Plan made feasible the implementation of social policies, but it can not be perceived as a distributive policy itself. It is important here to distinguish “necessary” from “sufficient” conditions. The objective of the Real plan was not the redistribution of income, but it ended causing an increase in potential to implement distributive policies. Therefore it is senseless to discuss who is the author of the plan distributive benefits, as they were still to come.

The bulk (55.7%) of the reduction of poverty happened exactly in May 1995. The observed reduction of 10.6% of poverty observed then seems related to the 43% in minimum wage hike that occurred in the same month. The misconception seems to be the emphasis

⁸ See about it in Neri and Camargo (1999).

given to the direct distributive effect of the Real Plan. The main gain is the improvement of distributive policies as the May 95 minimum salary hike exemplifies.

iii) Critical uncertainty (1996-1999)

During this phase, Brazil was exposed to external macroeconomic shocks. The nature of the uncertainty perceived in this period is different from the day to day aspect felt during the high inflation period. It is a phase of critical of uncertainty in the sense of acute crisis that was still to come. Brazil started to live with the possibility of an economic decay such as those observed in Asian and Russian economies, in September 1997 and October 1998, respectively.

In aggregated terms there was the possibility of an economic shock of considerable proportions. Individuals perceived the new danger of long periods of unemployment. We do not speak of a succession of micro or macro economic shocks, as during the chronic inflation period, but of the expectation on non-trivial shocks of an unexpected nature. The announced crisis finally hit the Brazilian economy in January 1999.

The hinder result show that the poorer 50% had a slight absolute gain in income (0,8% p.a.) in the 1996 to 1999 period, contrary to the wealthier segments (an income fall gain of around 2.5% p.a.). In fact as graph 4 shows, the praised distributive aspect of the Real Plan occurs not because of the boom that rose soon after the stabilization period (1993–99) but in the period marked by external crisis (1996–99). This last phase will be studied in deeper terms in the following sections.

3-Anatomy of the crisis (1996 – 1999) by city size

This section allows for a more detailed analysis of the labor market by six categories of city sizes: rural area (up to 20.000 habitants; the urban area is divided into small urban area (from 20.000 up to 50.000 habitants) middle sized urban area (from 50.000 up to 100.000 habitants) and large urban area (above 100.000 habitants up to metropolitan region) and the metropolitan area sub-divided into core (the capital) and outer city areas (periphery). We study here the evolution of measures of unemployment, informality, labor income, income from all sources and poverty (Neri (2000a)).

3.1 – Unemployment:

The larger growth rates of unemployment in the 1996 - 1999 period are found in metropolitan core (14.6% per annum), periphery (13.4% per annum) and non-metropolitan

larger urban (14.2% per annum). The rates of the unemployment found in these areas are also higher (13.9%, 14.4% and 13.4%, respectively). These regions totaled 67.5% of the Brazilian unemployed.

Table 1

**UNEMPLOYMENT RATE
by city size (%)**

	Unemployment rate		Annual rate of variation	Contribution to unemployment 99
	1996	1999		
Total	6.9%	9.8%	12.5	100.0
Metropolitan Core	9.2%	13.9%	14.6	25.8
Metropolitan Suburbs	9.9%	14.4%	13.4	17.7
Urban Big	8.4%	12.4%	14.2	24.0
Urban Medium	7.3%	9.5%	9.3	14.9
Urban Small	6.0%	7.5%	7.9	10.8
Rural	2.2%	3.2%	13.2	6.8

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

3.2– Informality

The labor problem in Brazil is not restricted to the availability of work⁹ but should also consider the quality of the work performed. We show as an alternative measure of the precarious level of labor market, the estimated informality rate, summing the share of self-employed workers, unregistered workers and non-paid workers.

The aggregated rate of growth of informality is much smaller, compared to the unemployment rate (0.8% per annum against 12.5% per annum). However, similar to unemployment, the deterioration is concentrated in cities bigger than 100.000 habitants. In the rural and urban areas with less than 100.000, the informality is roughly stable. In 1999 these regions contributed with 60.9% of total informality but only 32.4% of national unemployment.

Table 2

**INFORMALITY
by city size (%)**

	Informality rate		Annual rate of variation	Contribution to informality 99
	1996	1999		
Total	41.5	42.5	0.8	100.0
Metropolitan Core	32.5	35.4	3.0	14.0
Metropolitan Suburbs	35.0	36.2	1.1	9.3
Urban Big	36.4	37.5	1.0	15.7
Urban Medium	39.8	39.9	0.1	14.2
Urban Small	43.2	43.9	0.5	15.1
Rural	55.3	54.8	-0.3	31.6

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

3.3- Per capita family labor income

Per capita family labor income can be considered a synthetic measure of the labor market behavior. Its aggregated variation rate is -2.79% per annum. We can synthesize the regional dispersion of this evolution in three levels: i) Pronounced downfall: capital -4.66% per annum and outer areas -4.41% per annum; ii) intermediary downfalls: middle sized urban regions -2.29% per annum and small sized -2.37% per annum and; iii) stability: small sized urban regions 0.01% per annum and rural regions 0.12% per annum.

Table 3

PER CAPITA HOUSEHOLD INCOME FROM LABOR

	Income from labor		Annual rate of variation	Contribution to Total Income 99
	1996	1999		
Total	195.80	179.87	-2.79	100.00
Metropolitan Core	328.89	284.99	-4.66	27.97
Metropolitan Suburbs	207.28	181.07	-4.41	12.35
Urban Big	252.28	235.35	-2.29	24.61
Urban Medium	191.44	178.15	-2.37	15.51
Urban Small	122.80	122.85	0.01	10.34
Rural	80.69	80.99	0.12	9.21

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

3.4- Per capita family income from all sources

The analysis based in total per capita income shows that alternative sources of income, such as social security benefits, unemployment insurance, rents, interests, etc. show a better performance in relation to the labor income rate shown in the several categories of city size. The performance tends to drop in a monotonic manner as we go towards less densely populated areas.

Table 4

Per Capita Household from Income from all sources by city size (%)

	Per Capita Household		Annual rate of variation	Contribution to Total Income 99
	1996	1999		
Total	240.23	230.47	-1.37	100.00
Metropolitan Core	414.96	376.46	-3.19	28.84
Metropolitan Suburbs	245.90	222.94	-3.22	11.87
Urban Big	306.76	302.04	-0.52	24.65
Urban Medium	232.29	226.69	-0.81	15.40
Urban Small	151.11	154.48	0.74	10.15
Rural	97.68	102.30	1.55	9.08

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

3.5-

Poverty

⁹ Captured by the measurement of involuntary unemployment in the above analysis.

The analysis centered at the bottom end of the distribution of per capita income from all sources through the proportion of the poor, shows a high dissimilarity of changes by size of city. i) increase in cities of more than 100.000 population in particular in the metropolitan core. ii) drop in all other cities, in particular in middle size cities

Table 5

**POVERTY
by city size (%)**

	Poverty (P0)		Annual rate of variation	Contribution to Poverty 99
	1996	1999		
Total	29.80	29.30	-0.57	100.00
Metropolitan Core	15.37	17.58	4.58	12.39
Metropolitan Suburbs	18.66	19.58	1.62	10.78
Urban Big	17.43	17.99	1.07	13.89
Urban Medium	25.55	22.94	-3.53	14.28
Urban Small	38.90	37.38	-1.32	18.43
Rural	56.64	54.54	-1.25	30.22

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

3.6- Spatial correlation patterns

We make an analysis of the data of unemployment rates and per capita family income for the Brazilian mesoregions for the period of 1998-99, taken as a whole. We opted to work with PNAD's data of two consecutive years, piled to to increase the sample density of our estimates. This data were used as input to perform standard regression analysis¹⁰

Following, we performed similar regressions with the variation rates of these respective statistics between the biannual periods of 1996-97 and 1998-99. In order to make the relation between per capita family income from all sources and the other variables more explicit, we turned out a series of simple regressions, following a logarithmic specification with a constant.

- i. The 1998-99 regression of unemployment rate against the per capita family income shows a positive correlation pattern (elasticity equal to 0.75)
- ii. The regression of the rate of variation of unemployment (in fact log of one plus the variation rate) shows a positive relationship with the per capita family income for 196-97 (elasticity equal to .29)

¹⁰ The meso regions corresponds to the division established by IBGE

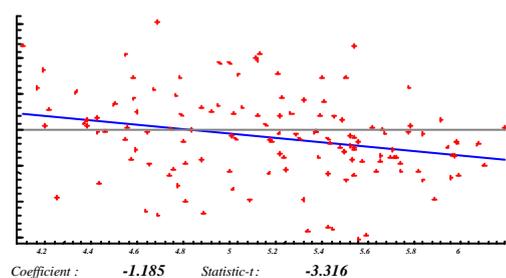
iii. The regression of the rate of variation of the family income derived from work against initial level of income from all sources , shows a negative correlation (elasticity equal to -1.18)¹¹

iv. The regression of the rate of variation on family income from all sources against initial level, shows a negative correlation (elasticity equal to -1.49)

Overall, the first regression does not allow us to reject the hypothesis that unemployment is a “luxury bad”. Another thesis not refuted by the data is that the recent crisis hit less harshly the poorer segment of the Brazilian population. This conclusion is robust to alternative measures such as changes of unemployment, of the labor income and of income from all sources.

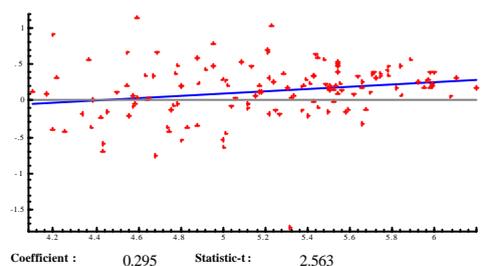
Graph 9

*Variation of Per Capita Household Income From Labor
Vs. Per Capita Household Income From All Sources*
(Log)



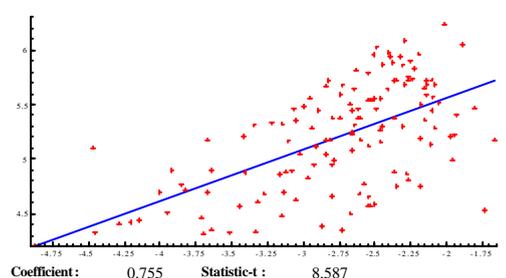
Graph 10

*Unemployment Variation Vs.
Per Capita Household Income From All Sources*
(Log)



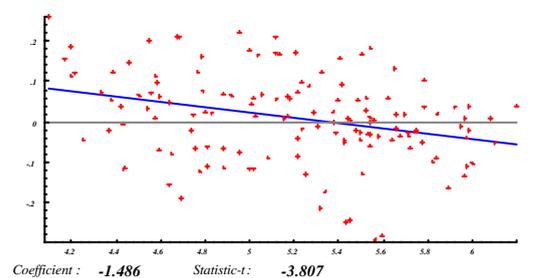
Graph 11

*Per Capita Household Income From All Sources
Vs. Unemployment Rate*
(Log)



Graph 12

*Per Capita Household Income From All Sources
Vs. Variation Per Capita Household Income All Sources*
(Log)



¹¹ Considering the possibility that the rates of variation showing negative values, we used the logarithmic of one plus the variation rate)

4- Collateral Effects of the crisis (1996 – 1999)

In section 7, we shall analyze the possible channels through which economic reforms may affect different segments of the Brazilian population. As much as in section 5 an analysis was made of the recent external crisis, from 1996 to 1999. We go on to analyze of a few consequences of this crisis period.

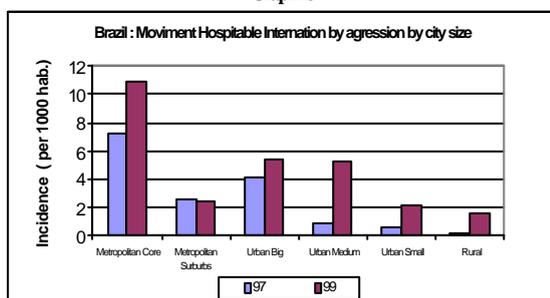
4.1– Violence

There is a general perception that the recent economic crisis and consequently the increase of unemployment, reflects in an increase of criminality, especially in urban and metropolitan areas, where the problem of violence is greater. The rate per one hundred thousand habitants of hospital internment as victims of aggression in Graph 13 shows a strong increase of this rate in cities of all sizes, in particular in middle sized urban centers and metropolitan core. The exceptions are the outer metropolitan areas (periphery).

This is due to the migration of infirm people to other cities, specially the capital that has a considerable concentration of large hospitals. Thus, the measure of the phenomenon is affected by this migration, which contributes for the increase of the statistics in the metropolitan core.

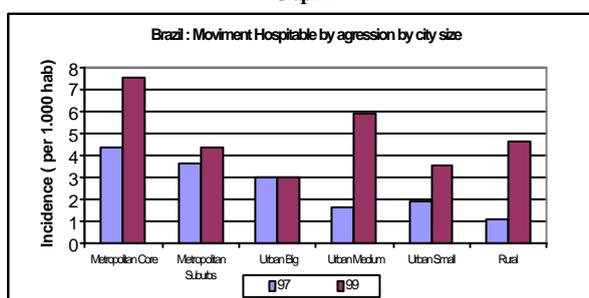
Firstly, we can observe that rural and small size urban areas are less violent than the rest of the country. According to this indicator, the capital is the most violent area. In this region the rate of hospital internment for aggression, corresponds to 11 per 1.000 habitants in 1999 (graph 13), a considerable figure, considering that this is at least twice the rate observed for any other of the remaining city sizes. The rural and middle size urban areas show a worrying increase in violence figures, specially given land conflicts present in rural areas.

Graph 13



Prepared by CPSFGV based on micro data from PNAD-BGE

Graph 14



Prepared by CPSFGV based on micro data from PNAD-BGE

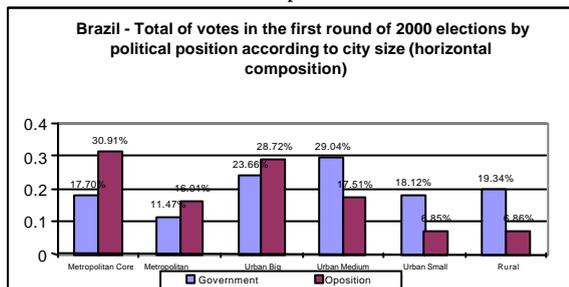
4.2- Elections:

The results of the municipal elections of 2000 are good thermometers of the population reaction to the crisis in different cities. We have used the different stands of the parties in

congress, to divide the political parties into three broad groups: pro-government, opposition and independent.

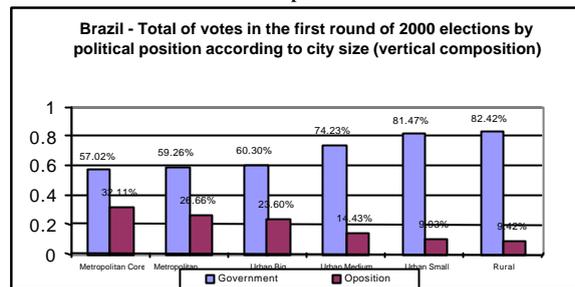
In Graph 15, showing the horizontal composition of votes for mayor and town councilors in the first round of 2000 referendum, we have noted that 70.76% of the opposition votes and 60.94% independent votes were counted in cities of over 100.000 population, against 44.27% of the government base votes. This situation also covers the periphery, considered the poorest and tending to vote for the opposition, as they are “opponents by situation”.

Graph 15



Prepared by CPS/FGV based on micro-data from PNAD-IBGE

Graph 16



Prepared by CPS/FGV based on micro-data from PNAD-IBGE

The vertical analysis of voting by city size is more revealing of the bad pro-government election performance in the metropolitan city cores. Whilst pro-government votes reaches 82% in the small urban and rural areas and follows a downturn path as we move towards larger cities, reaching around 58% in outer and core areas of bigger cities. The relative participation of the opposition takes an upturn path from 9.5% in small urban and rural areas, to a level of 29.5% in the outer areas and in the core of metropolitan areas: In sum, the democratic reaction of the population in the 2000 election is consistent with the interpretation that the epicenter of the external crisis that preceded them occurred in the larger urban areas.

5- Possible Causes of the crisis (1996 – 1999)

Now we show an impressionistic analysis of the measures of sensibility in relation to the liberal reforms agenda, proposed by the government. We try to point out the main gainers and losers of these reforms, by city size.

This type of data engenders retrospective interpretations of certain crisis. For instance, as the comparison of percentage of public servants between 1996 and 1999, that allows us to evaluate the effects of the administrative reform. Another possibility, that will not be considered here, is a prospective analysis of the reforms yet to come. Such as the trade unions

law changes, precluded in the labor law reforms yet to come. We must remind that Brazil is a late comer in implementing structural reforms in the continent.

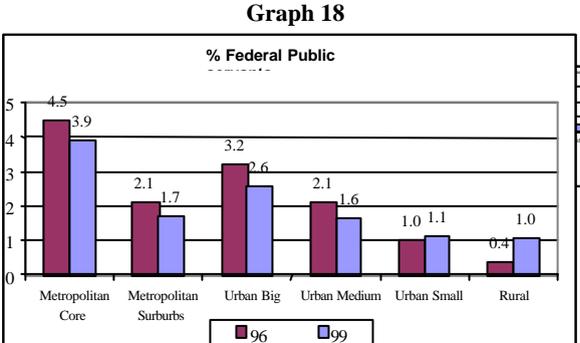
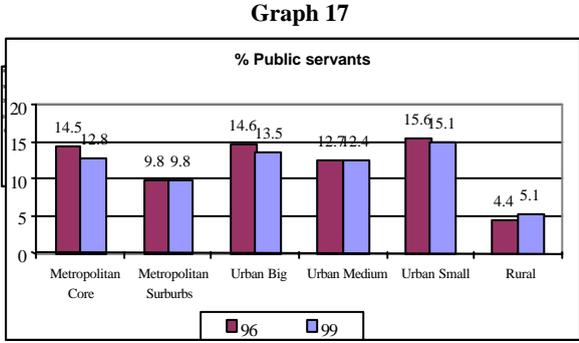
5.1- Administrative reform:

As graph 17 shows during the 1996-1999 period, there was a reduction in the proportion of public servants among the occupied population in cities of all sizes, with the exception of the periphery, that presented a stable 9.8% figure and rural areas that presented sharp increment (from 4.4% in 1996 to 5.4% in 1999). The larger decreases of the public servant sharks was felt in the metropolitan core (from 14.5% in 1996 to 12.8% in 1999) and cities with a population over 100.000 (from 14.6 in 1996 to 13.5% in 1999).

These movements point to a larger uniformity in the percentage of public servants by city size. Still, a prospective analysis of actions of the administrative reform show smaller effects in rural areas and is in the periphery of metropolitan areas.

Next graphs present this statistic open in three government spheres: Federal, State and Municipal. respectively. Graph 18 shows that the percentage of federal public servants falls in all cities with a population above 50.000. The imposing of a linear “drying up” process of the number of federal servants, would be stronger felt in the denser populated centers. This statistics follow a downturn path as we go towards the smaller cities (the periphery being the exception).

When we look at the State public servant panel, the format is quite similar to the federal sphere. In the 1996-99 period the drop is generalized in cities of all sizes, more noticed in the metropolitan cities (from 7.3% in 1996 to 6.2 in 1999) and smaller drops n the periphery and rural areas, as observed in the federal sphere.

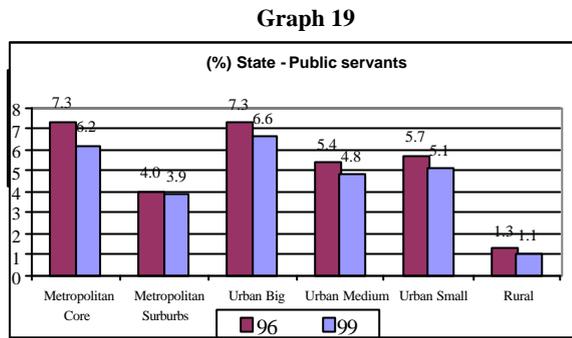


Prepared by CPS/FGV based on micro-data from

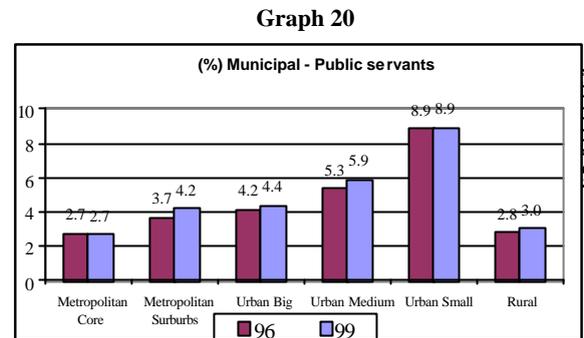
Prepared by CPS/FGV based on micro-data from

The pattern observed as regards municipal public servants differ considerably from the pattern of the other two public pheres. We note increments or stability of these proportions in all city sizes. In terms of levels, found in 1999 at follows the upwards path by city size, from

2.7% of the employed in the metropolitan capitals to 8.9% in the urban areas from 20.000 and 50.000 population and dropping to 3% in rural areas.



Prepared by CPS/FGV based on micro-data from PNAD-IBGE



Prepared by CPS/FGV based on micro-data from PNAD-IBGE

5.2- Labor reform

Trade Unions

The Brazilian trade unions are not well organized as the monopoly of representation is in the hands of the laborers and also because it is financed by a compulsory contribution taken from labor income, there is no incentive to protect workers interests.

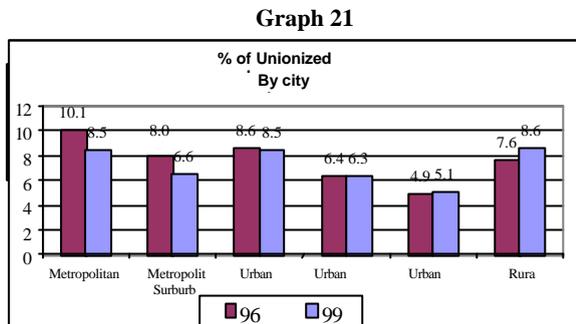
In the proposed labor reform the monopoly of representation is extinguished as well as the obligatory contribution, allowing the constitution of trade unions to which the worker can freely choose to join.

From the 96 to 99, it can be perceived a reduction in unionized active workers in the metropolitan capitals (from 10.1% to 8.5%) and periphery (from 8.0% to 6.6%) Stability in the large urban areas (8.5%), medium sized (6.3%) and small (5.1%). The opposite occurs in the rural areas, a growth from 7.6% to 8.6%, that would be the biggest degree of unionizing amongst the categories of size of cities observed. The process reflects a large degree of formalization and mobilization in rural areas, within the less qualified laborers. (for example: the landless rural movement (MST))

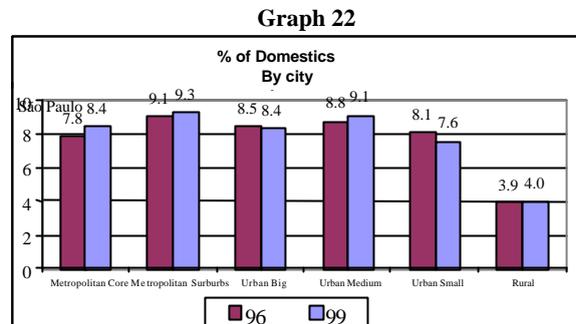
Domestic servants

Another part of the proposed labor reform and that is going ahead, concerns the extension to domestic servants of the labor law rights. This change can cause two opposite effects. On one side the dismissal of domestic servants, considering the additional labor costs and on the other side an increase of the feeling of security and satisfaction, of those that keep their jobs.

No significant changes were noted in the relative level of occupation of domestic servants during his period, that keeps a steady level between 7.5% and 9.5% in cities of different sizes and half this level in rural areas.



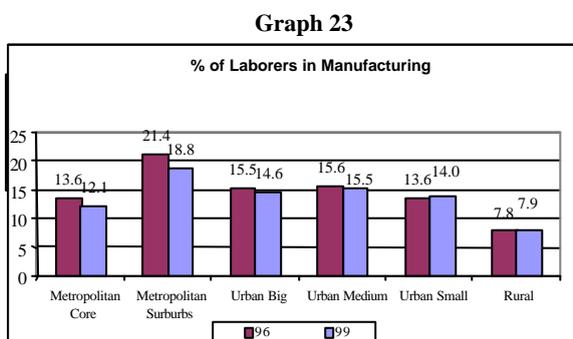
Prepared by CPS/FGV based on micro-data from PNAD-IBGE



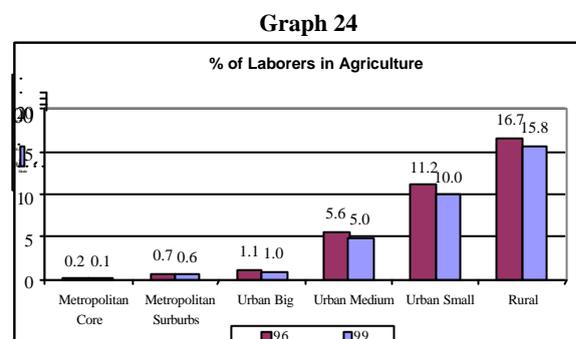
Prepared by CPS/FGV based on micro-data from PNAD-IBGE

5.3– Trade Opening

The employment effect of the commercial opening of the Brazilian economy can be seen, in a perfunctory way, by the impressive drop of participation of laborers in the so called tradable sectors, in cities of several sizes. In order not to go into too much detail, we divided this sector into two groups: industry and agriculture.



Prepared by CPS/FGV based on micro-data from PNAD-IBGE



Prepared by CPS/FGV based on micro-data from PNAD-IBGE

In the manufacturing sector, we observe a considerable drop in the periphery (from 21.4 in 1996 to 18.8% in 1999), in metropolitan core (from 13.6% in 1996 to 12.1% in 1999) and cities with a population of over 100.000 (from 15.5% in 1996 to 14.6% in 1999). In lesser-populated areas the changes are not impressive. The only area that shows a growth pattern is the small urban area (13.6% to 14%).

In agriculture, we observed a symmetric movement in relation to that reported in the industrial sector. Relative stability in the relative occupation in the densely populated areas, where this activity is less relevant and sharp drops in the other areas: rural areas (from 16.7% in 1996 to 15.8% in 1999), small cities (from 11.2% in 1996 to 10% in 1999) and middle sized cities. (from 5.6% in 1996 to 5% in 1999) The ever-increasing mechanization of the

fieldwork and consequential reduction in labor demand, is intensified by the commercial opening of the nineties.

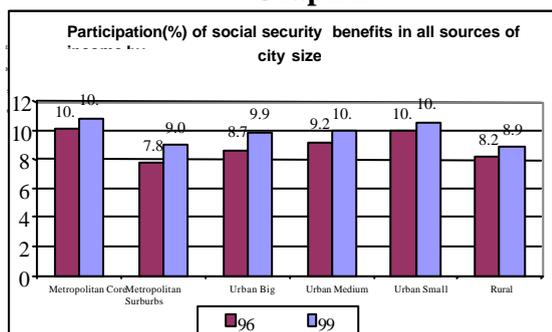
5.4– Social security

The income participation of social security benefits in the income from all sources, swung in 1999, by city size, between 8.9% in rural areas to 10.9% in the metropolitan capital. A strong variation growth can be observed during the 1996-99 period in the cities of all sizes and in particular in the periphery (from 7.8% in 1996 to 9.0% in 1999), large urban centers (from 8.7% in 1996 to 9.9% in 1999) and rural areas (from 8.2 in 1996 to 8.9 in 1999).

This generalized growth in the social security income participation was caused by the policy of increasing the concession of pensions, independent of previous contribution, the increase in average value of received benefits and also by the reduction of income from labor. Anyway, it can be observed that whilst the labor market presents a grave deficiency in its capacity of generating income, the opposite can be seen in public programs, in particular in social security.

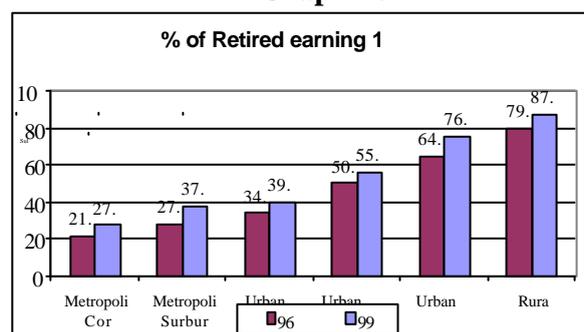
In this period we saw the advent of a policy that differentiates the adjustment of the minimum salary for the retired and pensioned laborers by level of income, applied in 1999 and 2000. The impact of progressive readjustments of social security income, tends to favor the less populated areas. The participation of the pensioner that receives exactly one minimum salary grows in an upward path from 27.3% in metropolitan capital until it reaches its peak of 87.6% in rural areas.

Graph 25



Prepared by CPS/FGV based on micro-data

Graph 26



Prepared by CPS/FGV based on micro-data

5.5 - Minimum wage reform:

The traditional effects of the minimum salary policy can be captured by the proportion of active workers that earn exactly one minimum salary (Neri, Gonzaga and Camargo

(2001)). In general the readjustment of the minimum salary has a larger impact in the small sized urban areas (8%) and middle size, in comparison to the other regions in particular in both ends of the city size, 4.6% in the capitals and 4.7% in rural areas.

The next step is to add to the active worker that earns the minimum salary, those that earn exact multiples of the minimum salary, that is, workers that earn a salary indexed to the minimum salary. The impact index grow but does not change the quality of the profile of its relative incidence larger impact in small and middle size cities.

It should be noted that the effectiveness of the minimum salary in the labor market, specially the numeraire effect, allied to the policy of progressive readjustment of social security benefits, coupled with the new law, as regards regional levels of minimum salary will determine differentiated impacts, in relation to the patterns observed during the nineties.

6 -Unemployment crisis

6.1- Concepts

If we tried to synthesize the debate on the Brazilian contemporary social situation on a day to day basis, using only one variable, this variable would no doubt be the unemployment rate calculated for metropolitan areas. This section supports the use of alternative measures to describe the performance of the labor market.

Firstly, we calculated the unemployment at a national level, processing the National survey by household sampling (PNAD). It is shown a large geographic dispersion of the recent changes in unemployment and other social indicators within the national boundaries. Secondly, emphasis is given to social welfare measures based on per capita household income derived from labor, that is the sum of labor income of all members of the household, divided by the number of family members. We argue in favor of this last concept for it condenses a series of operating factors on the labor of all members of the household, such as the level of occupation and income gained by formal or informal workers.

Apart from the power of synthesis, this statistic can be calculated from the same surveys used to reckon the monthly unemployment rate. Another advantage of this concept is that it allows a more direct connection with elements of social welfare literature such as poverty. The increase of the unemployment rate is the main problem perceived by the population, as public opinion polls in the last few years' show. ¹²

¹² For example , according the national CNI-IBGE findings in 1999, soon after the devaluation of the real (currency), 70% of the people interviewed pointed unemployment as the main problem of the country, against 13% that choose inflation. In this survey the interviewed could indicate more than one variable.

There are two traditional criteria for measuring unemployment in Brazil. On one hand, we have the open unemployment survey, based on the Monthly Employment Survey (PME) elaborated by IBGE for the six main metropolitan areas. On the other hand there is the rate of unemployment rate, based on the Employment and Unoccupied Survey (PED) from SEADE Foundation covering São Paulo City and aggregated counties (greater São Paulo). The first survey shows unemployment as a measure of “slackness” in the labor market (excess supply of labor).

An advantage of the PME concept is that it is compatible with international conventions determined by OIT. The second statistic, adopted in PED, adds the discouraged unemployment and the precariously employed to its concept of unemployment. Its advantage is that the considered measure has a broader social dimension.

6.2-National Unemployment

Here we emphasize the data on unemployment at national level, originated from the National Survey by Household Sampling (PNAD). We analyze the external crisis period, between October 1996 and October 1999. The unemployment rate in the 15 to 65 years age groups, increases from 6.9% to 9.8%. The additional 2.9% corresponds to an increase of 12.5% p.a., approx. 2.5 million individuals joined the 4.7 millions unemployed existing in 1996.

6.3-Unemployment in the Upper Class

Here we analyze the unemployment evolution in the higher purchasing power classes. As the current family income is directly affected by unemployment, we used here a concept of social class that is less dependent on current family income. The surveys, of consumers’ attitudes and behavior frequently implemented, include concepts of social classes based on measures of access to consumer goods.

We use here, as an indicator of upper class the fact that the individual belongs to a household that has access to the following goods, included in the PNAD questionnaire refrigerator, television, freezer and washing machine. Approximately, 20.7 million people are within our definition of upper class. First, it should be noted that this segment of the population grows at a rate of 14.1% in the 1996-99 period, whilst the growth of the total

population was 2.5% according to PNAD. That means that the international crisis phase was not marked by the stagnation of demand for consumer goods, rather the opposite.¹³

6.4-Zoom in the metropolitan crisis

The basic source of information used in Brazil on social behavior, are the market surveys on the labor market, which is circumscribed to the six main metropolitan regions, such as the PME-IBGE. These regions represent around 30% of the population and are quite different from the rest of the country, with 42.5% larger per capita incomes. Another shortcoming of these surveys is they cover only income derived from labor, ignoring other sources of income, such as rents, interests and dividends and monthly income derived from public policies (social security benefits, unemployment insurance and other public transfers). Despite these limitations, these surveys provide the guidelines to our social debate.

PNAD-IBGE allows us to amplify the focus of analysis of social indicators based on income. Firstly because it covers practically all the country. Secondly, because it comprises all sources of income of the several members of the household. The largest limitation is the long lag found in its information diffusion process.

The last PNAD available implementation, October 1999, allowed us in July of 2000 to capture the impact of the external economic shock waves on the welfare of the Brazilian population, seen as a whole. Between 1996 and 1999, per capita household income¹⁴, deflated by the INPC (Consumer price index) from IBGE, fell at a rate of 1.37% p.a..

The percentage of indigents fell 0.57% p.a., totaling 29.3% of the population, a total of 46 million poor or very poor people. It is a considerable figure, albeit it should be underlined, poverty did not increase in the 1996-99 period, which is surprising considering how the debate on the subject was lead.

The wideness of PNAD allows us to gradually restrain its scope to elements covered in labor market surveys, monthly divulged. Firstly, reducing the indicators to the geographical scope to cover only the metropolitan areas. Income has fallen 3.22% per annum and poverty increased 1.85% per annum.

¹³ A alternative way of measuring the upper class should include the access to telephones, but the strong expansion of this service, after the privatization period, would deface the estimate. To a point, the opening process of the Brazilian economy causes a similar effect in the selected statistic.

¹⁴ That is, the total amount of income divided by the total sum of household members. This concept allows the incorporation of the unemployed, the unpaid laborers and – why not? – children, to the analysis.

Table 6**INCOME AND POVERTY - LEVEL AND EVOLUTION FROM 1996 TO 1999 (%)**

	Per capita average income		POVERTY (PO*)	
	1999 Level	Rate variation 1996-99 a.a.	Nível 1999	Rate variation 1996-99 a.a.
Brazil Total				
All sources	230.47	-1.37	29.3	-0.57
Labor	179.87	-2.79	41.01	1.31
Brazil Metropolitan				
All sources	313.65	-3.22	17.65	1.85
Labor	242.55	-4.57	29.07	4.22

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

* 76 Reais per person adjusted by differences in cost of living (see Ferreira et al/2000)

Finally as we restrain the concept of income only to the labor in metropolitan areas, poverty based only on labor in these six metropolitan areas has increased by 4.22% per annum and income in this same universe fallen 4.6% per annum.

Table 7 confirms that the epicenter of the social crisis was concentrated on the labor income earned in the metropolitan areas. The effects of the crisis were softened by the increase in income, originated from alternative sources, in particular the non-metropolitan areas.

In short, in the 1996-99 period when we used social indicators based on more agile surveys on the labor market, as the PME-IBGE (PED-SEADE) we tend to over-estimate the deterioration of the Brazilian conditions. The reason being that the wave of external crisis hit in a stronger manner the metropolitan labor income (in particular, in Greater São Paulo) than other sources of income in other geographical areas.

Table 7**Per capita (% p.a.) variation of income from 1996 to 1999**

	Income from all sources	Income non-labor sources	Income exclusively from labor
Brazil	-1.37	4.41	-2.79
Non Metropolitan Areas	-0.01	6.23	-1.48
Metropolitan Areas	-3.22	2.09	-4.57

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

6.5- Metropolitan unemployment crisis

The 1996-99 period can be characterized in different forms, as regards a metropolitan crisis. The most apparent face of this crisis was the two percentage points increment in unemployment rate, as shown in PME (see table 8).

The desegregated analysis on a weekly basis of the observed inflexion in the unemployment rate, presented on graph 27, identifies the passage of the last week in December 1997 to the first week of January 1998 as the date that the increase of the rate materialized. This turning point happened three months after the increase in the rate of interest, adopted as a reaction to the Asian crisis.

Table 8

BRAZIL: LONG AND SHORT TERM UNEMPLOYMENT

(Average Jan-Jul)

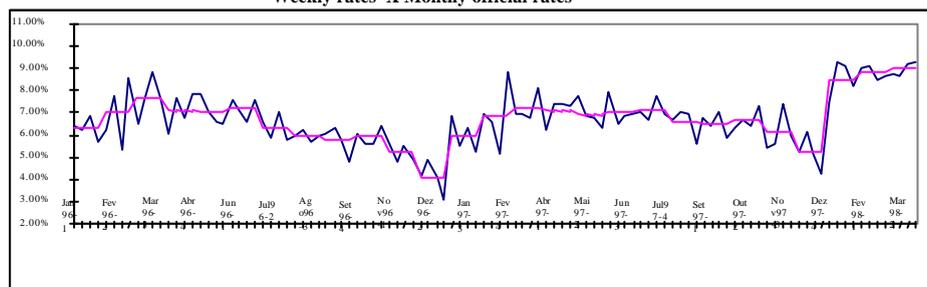
Year	Unemployment rate		
	Short term	Long term	Total
1996	4.0	1.9	5.8
1997	3.8	2.0	5.8
1998	4.7	3.2	7.8
1999	4.6	3.2	7.8
2000	5.2	2.5	7.7

Source : PME/IBGE Elaboration : CPS/IBRE/FGV

Graph 27

Seven days unemployment rate on weekly basis

São Paulo beginning of crisis
Weekly rates X Monthly official rates



Weekly rates Monthly official rates

Prepared by CPS/FGV based on micro-data from PME-IBGE

Another worrying aspect on table 8 is the long term unemployment rate. The metropolitan average of more workers unemployed for more than six month, increases 72.2% (from 1.8% to 3.1%) in the 1996-99 period. The Brazilian unemployment has been historically frequent and of short duration¹⁵, this high mobility allowed the socialization of

¹⁵

See Neri et al. "Dynamic Aspects of Unemployment and of the Occupied Position", Revista Estudos

unemployment among a larger number of workers, diluting its social cost. The extension of the duration of unemployment can also be seen in the increase of the average time spent looking for work and the period without work.

Finally, it should be noted that spite the unemployment rate being still high, the composition has changed in the direction of short-term unemployment. Once again, this effect can be seen alternatively by the decrease of time spent looking for work and time without work.

This phenomenon is associated in the economic literature with the ending of recession, when expectations of success in the effort of looking for work, attracts new entries to the labor market of previously discouraged individuals.

7. Individual Labor Risks and Aggregate Recessions

As we have seen the center of the 1996-99 crisis occurred in the metropolitan labor markets. This section attempts to compare the impacts of recent recessions and booms occurred in the last twenty years described in the sub-periods of section 2.1 We attempt to identify here winners and losers of these episodes using longitudinal data originated from PME. We quantify the importance of adverse shock measures at an individual level using the probability of entering precarious states such as unemployment and poverty.

7.1- Methodology¹⁶

Data come from Brazil's monthly employment survey, the PME (*Pesquisa Mensal de Emprego*). The main advantage of this survey is its panel structure. Households are visited monthly four times, and then again, monthly, four times after a gap of eight months (that is, if the survey first visits a household in month 1, it generates observations of that household in months 1 to 4 and 13 to 16). We use this structure to generate variables describing the statistics of households observed in two points one year apart. Next we measure the extension of shocks such as those affecting occupation, formality and poverty using 12-month *changes* in individuals circumstances.

Econômicos, V27, 1997 and "Dynamic Attributes of Unemployment; A Perspective post-Asiatic Crisis", *Desemprego em Economia Aberta*, organized by Rosa Fontes and Marcelo Arbes, in print, 1999.

¹⁶ This section is based on Neri and Thomas (2000).

We work with household per-capita income, averaged over a four-month period, and restrict our sample to household heads. We then calculate earnings changes for each household head between the second four-month period (months 13–16) and the first (months 1–4). Averaging over four month periods before calculating the difference minimizes the effects of measurement error on estimates of the wage, and is probably a more accurate measure of welfare than a single wage observation. Monthly wages fluctuate considerable, and both economic theory and empirical observation suggest that consumption, which is more closely related to welfare than income, fluctuates much less month to month.

We split the sample into earnings quintiles to assess the distributive effects of episodes. It is incorrect to use current reported earnings to perform this split. To see why, consider a worker who receives a negative wage shock (falls ill, for example) in the first period. This worker is thus more likely to fall into a low-income bracket. He is also more likely to post a wage gain in the following period (he will probably not be ill again). Summing over workers, such effects would generate spurious income gains among the lower income brackets, regardless of the episode in question. Measurement error in wages would generate the same effect. The solution we adopt is to define “Mincerian” quintiles according to a predicted estimate of income: a function of attributes of the worker and the worker’s sector of employment.¹⁷

7.2- Unemployment and Inactivity

The PME are characterized by high mobility between states of unemployment, informal employment, and formal employment, as well as between poverty and non-poverty. This is an important characteristic, and helps explain why during rapid expansions in Brazil (such as the Cruzado plan and Real plan booms analyzed here), social indicators have at times moved quite rapidly in response to growth. But rates of mobility are highly dependent on worker characteristics.

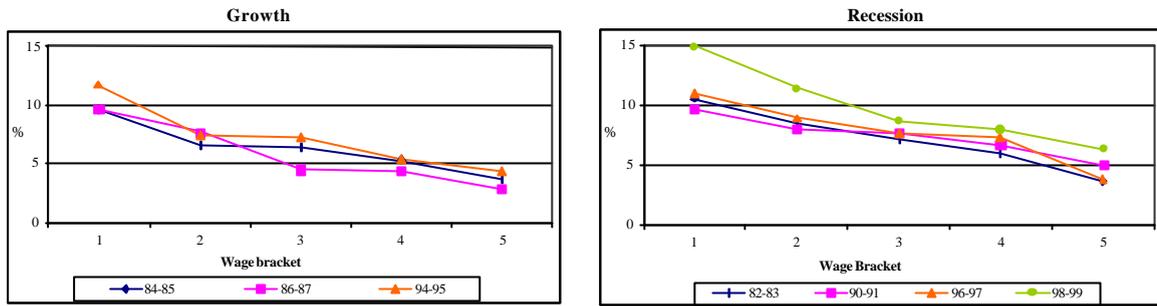
Graphs 28a and 28b shows the probability of a worker becoming unemployed or inactive during recessions and booms, broken down by earnings quintiles. Here the patterns are quite different. The pattern of transitions to unemployment or inactivity has been extremely similar whether the economy has been in periods of expansion or recession. The stark exception is the recession in 1998-99, which has seen higher probabilities of unemployment or inactivity for all workers but in particular among the poor.

Graph 28a

Graph 28b

¹⁷ The equation contained gender, marital status, polynomials of age and experience, and employment sector.

Probability of Transition to Unemployment or Inactivity



Source: PME / IBGE

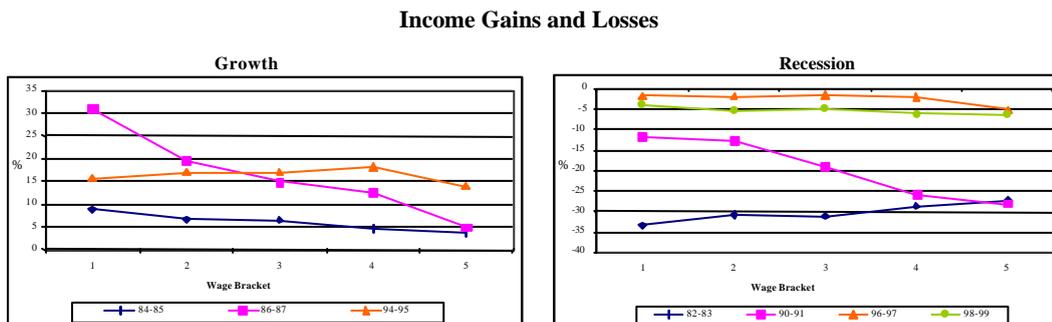
7.3- Income and Poverty

Graphs 29a and 29b show income gains and losses by quintile for seven periods (three of growth and four of recession). Among the recessions it stands out that recorded income losses since 1996, both at the onset of the Asian crisis and later after the Russian debt default, are much less severe than the recessions of 1982–83 and 1990–91. Among the periods of growth, that associated with the *Cruzado plan* in 1986–87 stands out as both the most spectacular and the most pro-poor.

There is clearly much diversity in the incidence of different periods of growth. In all three periods, the poor felt at least as much impact from periods of growth as the rich. The right-hand chart shows the recessions, and there is even greater variety. The 1990–91 recession “hit the rich harder” (in percentage terms) while the 1982–83 recession hit the poor hardest. The lines for 1996–97 and 1998–99 show income deteriorating after the jitters from the Russian default, and, surprisingly, the rich losing a slightly greater fraction of wage income than the poor.

Graph 29a

Graph 29b



Source: PME / IBGE

8 - Macro determinants of poverty and per capita income: a time series approach

Analysis

The analysis will start with the 1982-96 period since some relevant variables related to the exchange rate regime are only available for this period. All the variables included in the regression are expressed in logs, so the coefficients can be read directly as elasticities¹⁸.

Table 9

Partial Correlation Signs Between Macro Variables and Poverty

A - HEAD-COUNT RATIO (P0).

(Period : 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate 1		Real Interest Rate		Minimum Wages		R ²
Low Line	0.40	10.12	0.08	8.55	-0.02	-0.25	1.09	2.90	-0.48	-10.70	63%
Medium Line	0.30	9.91	0.07	9.40	0.03	0.59	0.83	2.84	-0.35	-10.15	61%
High Line	0.21	9.55	0.05	9.52	0.05	1.12	0.57	2.75	-0.26	-10.56	62%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

B - POVERT GAP (P1)

(Period : 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate 1		Real Interest Rate		Minimum Wages		R ²
Low Line	0.30	8.64	0.06	7.16	-0.11	-1.64	0.99	3.01	-0.45	-11.51	66%
Medium Line	0.34	10.05	0.07	8.84	-0.02	-0.30	0.98	3.05	-0.42	-10.92	64%
High Line	0.29	10.00	0.06	9.24	0.01	0.20	0.83	2.98	-0.36	-10.78	63%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

C - POVERT GAP (P2)

(Period : 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate 1		Real Interest Rate		Minimum Wages		R ²
Low Line	0.22	6.24	0.04	5.29	-0.16	-2.40	0.87	2.61	-0.42	-10.49	62%
Medium Line	0.32	9.59	0.06	8.13	-0.06	-1.01	0.99	3.11	-0.43	-11.43	65%
High Line	0.32	9.98	0.06	8.84	-0.02	-0.35	0.93	3.07	-0.40	-11.12	64%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

¹⁸ A similar analysis based at the individual level can be found in Neri and Camargo (2001). The focus here is on per capita concepts.

Table 10

A - Partial Correlation Signs between Macro Variables and Average Per Capita Earnings by Deciles

(Only Positive Earnings) (Period: 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate I		Real Interest Rate		Minimum Wages		R ²
Average	-0.34	-10.46	-0.07	-9.77	-0.25	-4.12	-0.88	-2.81	0.41	10.92	62%
1	-0.41	-11.83	-0.08	-10.07	-0.04	-0.61	-1.17	-3.54	0.36	9.13	63%
2	-0.34	-10.40	-0.08	-10.74	-0.04	-0.70	-1.06	-3.39	0.39	10.59	64%
3	-0.33	-9.96	-0.08	-10.79	-0.07	-1.11	-1.01	-3.27	0.39	10.65	64%
4	-0.32	-9.81	-0.08	-10.95	-0.09	-1.51	-1.00	-3.24	0.40	10.81	64%
5	-0.32	-9.80	-0.08	-10.89	-0.11	-1.86	-0.94	-3.08	0.40	11.05	64%
6	-0.32	-9.82	-0.08	-10.86	-0.13	-2.24	-0.91	-2.98	0.41	11.22	64%
7	-0.32	-9.91	-0.08	-10.83	-0.16	-2.63	-0.90	-2.94	0.41	11.34	65%
8	-0.33	-9.94	-0.08	-10.55	-0.18	-3.01	-0.86	-2.76	0.41	11.10	64%
9	-0.34	-9.93	-0.08	-10.22	-0.24	-3.68	-0.90	-2.75	0.41	10.58	62%
10	-0.36	-10.39	-0.06	-8.07	-0.37	-5.67	-0.81	-2.45	0.40	10.15	59%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

B - Partial Correlation Signs Between Macro Variables and Average Per Capita Earnings by Decile

(Period: 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate I		Real Interest Rate		Minimum Wages		R ²
Average	-0.36	-10.45	-0.13	-8.90	-0.41	-5.44	-1.09	-3.31	0.36	8.44	68%
2	-0.49	-9.49	-0.21	-9.94	-0.24	-2.13	-1.92	-3.89	0.51	7.89	69%
3	-0.37	-10.23	-0.16	-10.37	-0.25	-3.11	-1.40	-4.01	0.37	8.27	71%
4	-0.35	-10.10	-0.15	-10.28	-0.26	-3.52	-1.29	-3.92	0.35	8.31	71%
5	-0.34	-9.97	-0.14	-10.09	-0.28	-3.81	-1.22	-3.77	0.35	8.39	71%
6	-0.33	-9.94	-0.14	-9.89	-0.30	-4.04	-1.15	-3.60	0.35	8.53	70%
7	-0.33	-9.83	-0.13	-9.59	-0.32	-4.31	-1.11	-3.45	0.36	8.66	70%
8	-0.34	-9.89	-0.13	-9.19	-0.34	-4.45	-1.07	-3.27	0.37	8.56	69%
9	-0.35	-9.74	-0.13	-8.65	-0.38	-4.76	-1.10	-3.16	0.37	8.17	67%
10	-0.38	-10.30	-0.11	-7.52	-0.52	-6.45	-0.99	-2.84	0.35	7.70	64%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

Table 11

Partial Correlation Signs Between Macro Variables and Poverty

A - HEAD-COUNT RATIO (P0)

(Period : 1982 to 96 - Data in Logs)

	GDP		Inflation Rate		Real Exchange Rate 1		Real Interest Rate		Minimum Wages		R ²
Low Line	-0.67	-4.28	0.06	5.88	-0.06	-0.62	1.31	2.94	-0.59	-9.44	47%
Medium Line	-0.53	-4.37	0.05	6.70	0.00	0.00	0.99	2.90	-0.44	-9.17	46%
High Line	-0.36	-4.17	0.04	6.91	0.02	0.47	0.68	2.84	-0.32	-9.44	48%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

B - POVERT GAP (P1)

(Period : 1982 to 96 - Data in Logs)

	GDP		Inflation Rate		Real Exchange Rate 1		Real Interest Rate		Minimum Wages		R ²
Low Line	-0.37	-2.77	0.04	5.00	-0.11	-1.33	1.17	3.08	-0.51	-9.49	53%
Medium Line	-0.55	-4.08	0.06	6.13	-0.05	-0.60	1.18	3.07	-0.51	-9.49	49%
High Line	-0.49	-4.19	0.05	6.51	-0.02	-0.24	1.00	3.01	-0.44	-9.48	48%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

C - SQUARED POVERT GAP (P2)

(Period : 1982 to 96 - Data in Logs)

	GDP		Inflation Rate		Real Exchange Rate 1		Real Interest Rate		Minimum Wages		R ²
Low Line	-0.15	-1.15	0.03	3.91	-0.13	-1.69	1.02	2.78	-0.43	-8.45	54%
Medium Line	-0.47	-3.49	0.05	5.61	-0.08	-0.98	1.18	3.13	-0.51	-9.60	51%
High Line	-0.50	-3.96	0.05	6.14	-0.04	-0.60	1.11	3.08	-0.48	-9.57	49%

OBS.: a)Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

Level of activity

Unemployment

The unemployment rate variable attempts to capture the effects of the level of activity on poverty. The effect is positive. In order to simplify the exposition we will omit from the analysis mentions that the variable is statistically significant from zero. We will instead point variables that are not significant at conventional confidence levels. Table 9A shows that the coefficient on the proportion of poor (P0) using the lower poverty line, our benchmark measure, equals to 0.40. Table 9 shows that the effects on PO using the intermediary and the higher line decreases to 0.30 and 0.21. That is, unemployment seems, in principle, to affect more the lower tail of the distribution. However, the partial unemployment elasticity of poverty measures when one attributes larger weights to the lower tail of the distribution tends to increase. For example, P1 and P2 measures found using the low line are smaller than the ones found for P0: 0.30, 0.22 and 0.40, respectively. In order to precise the relative magnitude of the correlation coefficients at different points of the distribution we will estimate the partial unemployment elasticity of mean per capita income for different deciles.

Tables 10B presents the type of the regression used for poverty applied same statistic for the only positive income deciles. The unemployment partial elasticity presents an inverted U shape format as we move across deciles. It corresponds to -0.41 in the first decile rising to -0.32 in the intermediary deciles (fourth to seventh decile) and rising again to -0.36 in the top decile.

Alternatively, Table 10A presents the same inverted U shaped pattern. The major difference is that the unemployment elasticity of the first decile exceeds by far the values found for the remaining deciles. This effect should be credited to the greater effect exerted by unemployment on the number of null per capita earnings.

GDP

If we use an alternative measure for the level of activity, the real GDP as table 11 shows, the elasticity of our benchmark poverty measure is -0.67 against 0.40 for unemployment. The GDP coefficients are not as precisely estimated as the unemployment ones¹⁹. The same type of comparison is valid for all pair comparisons between unemployment and GDP based equations. Overall, the analysis is consistent with the idea that lower levels of

¹⁹ The difference in spatial coverage between poverty measures (six main metropolitan regions) and the GDP (national level) may explain the smaller precision obtained.

activity, measured either with higher unemployment or lower GDP levels, is associated with a worsening of poverty.

Inflation

Higher inflation, *coeteris paribus*, is in general associated with a poverty rise (Table 9A). However, inflation rate elasticities found are in general much smaller than the ones found for unemployment. The P0-low line inflation elasticity is 0.08. This elasticity tends to decrease as we use higher lines (0.07 and 0.05 for the intermediary and the high line, respectively) but it increases as we attribute more weights to the bottom of the distribution (0.06 and 0.04 for P1 and P2, respectively).

The gross P0 inflation elasticity is very close to zero contrasting with positive partial inflation elasticity. This result can be understood by means of a simple Phillips curve rationale: if higher inflation buys lower unemployment then the induced effect of the fall of unemployment on poverty can offset the direct poverty effect of higher inflation.

Income deciles

The inflation partial elasticity module decreases monotonically as we move from the bottom to the top of the distribution. One interpretation for the positive inflation partial elasticity of poverty found is that earnings at the bottom of the distribution are imperfectly indexed. Although this downward trend is observed for all concepts it is more pronounced in the case of the sample that includes null incomes (Table 10B) than the sample of only positive incomes (Table 10A). It moves in this case from -0.21 in the second deciles to -0.11 in the top decile. The fact that according to the Phillips curve trade-off, higher inflation may as well buy a smaller share of zero earnings that impact disproportional more the first deciles in the case of all individuals sample may explain this difference of slope across deciles.

Real interest rates

Higher interest rates are associated with higher poverty. The simple elasticity is much higher than the partial elasticity, as shown in the graph. One interpretation for this difference is that once the contractionary effects of higher interest rates are taken into account through the unemployment variable, only part of the effect goes away.

However, higher interest rates is associated with a higher proportion of poor with an elasticity equals to 1.09 (Table 9A), when one control for unemployment among other variables and 1.31 when alternatively GDP is used (Table 11A). One should note that since PME does not capture financial income the positive effect of higher interest on high-income individuals that have access to financial applications are not taken into account.

The partial interest rate elasticity of P0 tends to decrease as higher poverty lines are used (1.09, 0.83 and 0.57 for low, intermediary and high lines, respectively (Table 9A). Once again the partial interest rate elasticity falls when we move from P0 to P1 and to P2 (from 1.09 to 0.99 and 0.87 (Tables 9A, B and C)).

The interest rate partial elasticity of mean earnings of different deciles tends to decrease as we move from the bottom to the top of the distribution. In the case of the only positive incomes sample (Table 10A) it increases from -1.17 in the first decile to -0.81 in the tenth decile. In the case of all individuals (Table 10B) it increases from -1.92 in the first decile to -0.99 in the top deciles.

Minimum Wages

The partial minimum wage elasticity of our basic benchmark poverty measure is -0.48 (Table 9A). The module of this value corresponds to the sum of unemployment and inflation elasticities. The result is somewhat surprising given that the pure elasticity of poverty with respect to the minimum is even more negative than the partial elasticity. According to standard economic theory a rise in the minimum should increase unemployment and inflation that are positively related with poverty. One possible solution to this puzzle is that higher minimum wages decreases unemployment and/or inflation.

Once again, the module of the minimum wage partial elasticity of poverty tends to decrease as we use higher lines (-0.48 , -0.35 and -0.26 for low, intermediary and high lines, respectively (Table 9A)). As in the case of unemployment, inflation and interest rate partial elasticities of poverty, in the case of the minimum wage partial elasticity, it decreases as we move from P0, P1 and P2 (-0.48 to -0.45 to -0.42 (Table 8A, B and C)).

The analysis of minimum wage partial elasticity of mean earnings across deciles shows a drop from the second to the tenth decile (from 0.51 to 0.35 (Table 9B)) in the case of

all individuals sample but a rise in the case of only positive earnings (from 0.36 in the first decile to 0.40 in the top decile (Table 10A)). Once again this result is not consistent with the idea that higher minimum wages induce higher zero per capita earnings.

Exchange Rates

CPI based real exchange rates

The correlation patterns between exchange rates and social indicators attract our attention given the recent instabilities observed in the former variable. We start using a real exchange rate measure using the CPI as a measure of domestic and foreign inflation rates differentials. In this case, we failed to find a statistically different from zero partial exchange rate elasticity in the nine poverty measures calculated (i.e., the combination of three poverty lines with three poverty measures). The only exception is the P2-low poverty measure where we found 0.16 elasticity. The same story is true when we replace unemployment with GDP as measures of the level of activity, here with no exceptions. The impact of exchange rates on per capita income is not statistically different from zero.

Decomposing CPI based exchange rates

The next step was to disentangle the real exchange rate index in two components: a) an equilibrium exchange rate that would balance the Brazilian trade balance. b) the residual between observed interest rate and the equilibrium concept which would correspond to the degree of exchange rate appreciation in relation to the equilibrium level. The idea of this decomposition is to separate more structural changes in balance of payments such as those induced by a change in Brazilian exports competitiveness from the exchange rate policy used. This exercise is of special interest here since the decision of letting the exchange rate float freely taken in January 1999 would eventually lead (in theory) to a reduction in the residual term postulated.

Table 12

Partial Correlation Signs Between Macro Variables and Poverty

A - HEAD-COUNT RATIO (P0)

	Unemployment		Inflation		Deviation From		Equilibrium Real		Real Interest		Minimum		R ²
	Rate		Rate		Eq. Real Exchange Rate I		Exchange Rate		Rate		Wages		
Low Line	0.41	8.17	0.08	8.23	0.00	-0.02	-0.07	-0.38	1.08	2.86	-0.46	-7.32	63%
Medium Line	0.31	7.92	0.07	9.08	0.04	0.58	0.01	0.07	0.82	2.81	-0.35	-7.03	61%
High Line	0.22	7.81	0.05	9.14	0.06	1.17	0.00	0.02	0.56	2.70	-0.25	-7.13	62%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

B- POVERT GAP (P1)

	Unemployment		Inflation		Deviation From		Equilibrium Real		Real Interest		Minimum		R ²
	Rate		Rate		Eq. Real Exchange Rate I		Exchange Rate		Rate		Wages		
Low Line	0.36	8.40	0.05	6.51	0.01	0.09	-0.47	-2.88	0.93	2.87	-0.36	-6.52	67%
Medium Line	0.36	8.41	0.07	8.42	0.02	0.22	-0.14	-0.84	0.96	2.98	-0.39	-7.16	64%
High Line	0.31	8.24	0.06	8.85	0.03	0.51	-0.06	-0.46	0.82	2.92	-0.34	-7.19	63%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

C - POVERT GAP (P2)

	Unemployment		Inflation		Deviation From		Equilibrium Real		Real Interest		Minimum		R ²
	Rate		Rate		Eq. Real Exchange Rate I		Exchange Rate		Rate		Wages		
Low Line	0.32	7.49	0.04	4.46	0.02	0.26	-0.73	-4.53	0.78	2.42	-0.27	-4.96	65%
Medium Line	0.37	8.61	0.06	7.58	0.01	0.15	-0.30	-1.90	0.96	3.00	-0.37	-6.96	66%
High Line	0.34	8.49	0.06	8.38	0.02	0.30	-0.16	-1.04	0.91	2.99	-0.37	-7.16	65%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

Table 13

Partial Correlation Signs between Macro Variables and Poverty

A - HEAD-COUNT RATIO (P0)

	GDP		Inflation		Deviation From		Equilibrium Real		Real Interest		Minimum		R ²
			Rate		Eq. Real Exchange Rate		Exchange Rate		Rate		Wages		
Low Line	0.03	0.11	0.08	6.50	-0.20	-1.89	0.90	2.39	1.41	3.20	-0.67	-9.73	49%
Medium Line	0.00	-0.02	0.07	7.17	-0.11	-1.30	0.71	2.45	1.07	3.15	-0.50	-9.43	48%
High Line	-0.03	-0.20	0.05	7.16	-0.04	-0.72	0.46	2.23	0.73	3.04	-0.35	-9.48	49%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

B - POVERT GAP (P1)

	GDP		Inflation Rate		Deviation From Eq. Real Exchange Rate I		Equilibrium Real Exchange Rate		Real Interest Rate		Minimum Wages		R ²
Low Line	-0.13	-0.47	0.05	4.88	-0.16	-1.68	0.23	0.69	1.21	3.15	-0.53	-8.93	54%
Medium Line	-0.03	-0.11	0.07	6.50	-0.15	-1.67	0.66	2.03	1.25	3.28	-0.57	-9.56	50%
High Line	-0.03	-0.11	0.06	6.87	-0.11	-1.40	0.61	2.17	1.06	3.23	-0.49	-9.58	49%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

C - SQUARED POVERT GAP (P2)

	GDP		Inflation Rate		Deviation From Eq. Real Exchange Rate I		Equilibrium Real Exchange Rate		Real Interest Rate		Minimum Wages		R ²
Low Line	-0.23	-0.90	0.03	3.23	-0.11	-1.25	-0.25	-0.78	1.01	2.73	-0.42	-7.32	54%
Medium Line	-0.07	-0.27	0.06	5.75	-0.16	-1.72	0.46	1.41	1.24	3.28	-0.55	-9.36	52%
High Line	-0.04	-0.16	0.06	6.44	-0.14	-1.60	0.59	1.90	1.18	3.28	-0.54	-9.55	50%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

The postulated exchange rate decomposition is implemented in Tables 12A, B and C. Once again, we do not generally find a statistically different from zero relationship between any of these two exchange rates components and poverty. The only two exceptions are the P1 and P2 low poverty line coefficients for the equilibrium exchange rate term where we found negative coefficients meaning that a loss of value of the domestic currency with respect to the foreign currency in equilibrium would lead to a poverty increase. According to these results the exchange rate policy would not impact poverty in any of the cases analyzed.

When we apply the decomposition posed above using GDP (Tables 13A, B and C) as a measure of the level of activity we do not get any statistically different from zero elasticity for the exchange rate policy component. However, we do get positive coefficients for the equilibrium exchange rates levels in five of the nine poverty measures analyzed. The interpretation of this result is that a more devalued equilibrium exchange rate would be associated with a poverty reduction.

WPI based real exchange rates

Given the lack of robustness of the CPI based exchange rates impact on poverty discussed above, we performed the same exercises using real exchange rates measures based on wholesale price indexes. The adjustment of the WPI based equations measures in terms of

R² is superior to the ones obtained with the CPI based equations. For example, for the benchmark poverty measure used is 11 percentage points higher.

The partial exchange rate elasticity of WPI based exchange rates presents an elasticity of 0.43 for the benchmark poverty measure used. This result would indicate that, as expected, exchange rate devaluation is, coeteris paribus, associated with higher poverty levels.

Similarly to the previous right hand variables coefficients the coefficients are all statistically different from zero for this second exchange rate concept. As opposed to the, the estimated partial elasticities found tend to rise with the poverty line and tend to decrease as we move from P0 to P1 and to P2.

The estimated equations that use GDP present the same features of the equations that use unemployment as a measure for the level of activity. The basic difference is that the estimated elasticity is not statistically significant from zero in two of the nine poverty measures used.

Decomposing WPI based exchange rates

Table 14

Partial Correlation Signs between Macro Variables and Poverty

A - HEAD-COUNT RATIO (P0)

(Period : 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate II		Real Interest Rate		Minimum Wages		R ²
Low Line	0.52	14.61	0.06	7.13	0.43	8.84	0.45	1.39	-0.53	-17.62	74%
Medium Line	0.41	15.64	0.05	8.26	0.37	10.30	0.28	1.17	-0.38	-17.04	76%
High Line	0.29	15.63	0.03	8.46	0.27	10.73	0.17	1.02	-0.27	-17.47	76%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

B - POVERT GAP (P1)

(Period : 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate II		Real Interest Rate		Minimum Wages		R ²
Low Line	0.36	10.31	0.04	5.66	0.25	5.18	0.62	1.95	-0.52	-17.39	70%
Medium Line	0.44	14.50	0.05	7.46	0.37	8.81	0.44	1.57	-0.47	-17.98	75%
High Line	0.39	15.18	0.05	8.00	0.34	9.66	0.33	1.41	-0.39	-17.93	76%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

C - POVERT GAP (P2)

(Period : 1982 to 96 - Data in Logs)

	Unemployment Rate		Inflation Rate		Real Exchange Rate II		Real Interest Rate		Minimum Wages		R ²
Low Line	0.24	6.42	0.04	4.24	0.12	2.39	0.68	1.99	-0.49	-15.24	62%
Medium Line	0.40	12.65	0.05	6.60	0.31	7.12	0.53	1.82	-0.49	-18.08	73%
High Line	0.41	14.30	0.05	7.45	0.34	8.65	0.42	1.61	-0.44	-18.19	75%

OBS.: a) Small numbers correspond to t-statistics b) Constant and seasonal dummies omitted

The application of the real exchange rate decomposition exercise to the WPI based series indicates that: i) in the case of the benchmark poverty measure this partial elasticity of the deviation of exchange rate with respect to its equilibrium value is 0.23. ii) in this case the equilibrium exchange rate is not statistically different from zero. In general, only the exchange rate policy component is statistically different from zero. This result is opposed to the one found for CPI based measures.

9– VAR of inflation, unemployment and poverty²⁰

9.1 Theoretical Considerations

One of the most contentious themes on the present Brazilian debate, is the notion that the government should promote an increase on inflation rates, thus “buying” a reduction in unemployment rates. At the inflation rate is at a historically low level and whilst unemployment rates are near highest historically levels. Traditionally this type of notion has been based on empirical estimates of the Phillips curve, on which there is an extensive amount of literature on the Brazilian case, up to the middle of the eighties.

²⁰ This type of analysis was performed in Gill et al. (1998).

If the Phillips curve was more (less) inclined, a given increase in inflation rate would “buy” a larger (smaller) drop of the unemployment rate. Obviously what is large or small in each variable depends on the judgement of values of each individual or political party.

In order to incorporate judgement values to the problem, our proposal is to take an explicit social welfare function of our preference. With it we empirically tested the implications of the dilemma (trade-off) between inflation and unemployment, implicit in Phillips curve in terms of social policy prescriptions.

In more formal terms, the Phillips curve would only represent the restriction that the manager of economic policy faces in the sense of trying to optimize a given objective function, that is, poverty, the welfare function that we have elected. The final result of the problem depends not only on the correlation of inflation and unemployment, but of the structure of correlation of these variables with the proposed objective function. However, if the objective function is very sensitive to inflation and small in term of unemployment, this policy can be inadequate.

Another correlated question with value judgements, would be the planning horizon built in individual preferences. In the dynamic versions of the Phillips curve, less unemployment would “buy” inflation, not only presently but also in the future. This temporal transmission would happen through the inflationary expectation build in mechanism. In this sense, rather impatient or myopic managers of economic policy-makers would privilege the fight against unemployment bestowing less weight to the future inflation, inherited from these policies.

We made an analysis of the empiric results of a model, that relates dynamically inflation, unemployment and sources of innovation; and considers a particular measure of social welfare, the proportion of poor, to empirically estimate the model.

9.2 Empirical Model

Equation (1) is a generalization of the Phillips Curve that relates the unemployment expected with the past value of all the variables. The equation can be interpreted as a generation of policy rules, which determine the inflation rate, expected from the past value of all the variables. Equation (3) and (4) define the unexpected increase on the unemployment rate and in the inflation rate.

$$E(U_t | t-1) = a(L)U_{t-1} + b(L)\pi_{t-1} \quad (1)$$

$$E(\pi_t | t-1) = a^*(L)U_{t-1} + b^*(L)\pi_{t-1} \quad (2)$$

$$u_t = U_t - E(U_t | t-1) \quad (3)$$

$$e_t = \pi_t - E(\pi_t | t-1) \quad (4)$$

The poverty does not adjust instantaneously, following too a mechanism of propagation.

$$P_t = a'(L) U_{t-1} + b'(L) \pi_{t-1} + c'(L) P_{t-1} + v_t$$

In this model the correlation between innovations can explain two functioning regimes of the economy that can be associated to the commitment and discretion of the so-called Barro-Gordon model. In the first you admit that prices are fixed, *a priori*, and that the innovation of the unemployment rate is partially determined by it, that corresponds to the rate of unemployment – and that implicitly real wages are determined after the price level, a situation that we shall denote as commitment (that would embody the credible inflation targets case). The second regime is symmetric. It admits that the inflation rate is determined after the unemployment rate shocks, called discretion.

The Real Plan changed both the level of the inflation rate and the pattern of the structure of economy functioning. Therefore, the parameters of the model were also changed. Due to this, the model was estimated separately, before and after the Real Plan. The two regimes for this model, Discretion in the pre-Real and commitment in the post-Real, are statistically indistinguishable, being necessary to condition the results to the regime that we consider more appropriate to each period. However, in a surprising manner, the calculations of the two types of regimens done separately do not change the qualitative results found.

Tables 15 and 16 presents this decomposition for the twelve month forecast after the shock, with the model estimated for both periods. We can see that previous to the Real Plan: i) inflation and unemployment rates fluctuated in an independent manner. The shocks in these variables explained, respectively, 87% and 85% of its respective variations. ii) The unexpected increase in inflation rate, corresponded to the bigger part (60%) of the poverty rate variance

After the Real Plan, the picture is completely different. iii) The unexpected increase in unemployment is the most important source to explain the inflation rate (67%) that shows the cadence of the so-called inflationary inertia and explains 98% of unemployment, that indicates a strong incitement of the phenomenon that can be called inertial unemployment, that is, unemployment explained by its own past. iv) Unemployment shocks explains 80% of the poverty rate. The results are consistent with the notion that in the post-Real, the direct

fight against unemployment is a key element in the battle against poverty. This type of results explains the change in focus of the political debate between the 1994 and 1998 elections. On the other hand, the recourse of increasing inflation impacts only 2% of the unemployment and 3% of poverty. The results taken at face value, indicate the social uselessness of the desirability of increasing the inflation in the economy.

Table 15

*Variance decomposition of forecast 12 months after unexpected shocks **

	<i>Before Real Plan - Discretion</i>			<i>After Real Plan Commitment</i>		
	<i>Inflation</i>	<i>Unemployment</i>	<i>Poverty</i>	<i>Inflation</i>	<i>Unemployment</i>	<i>Poverty</i>
<i>Ch Inflation</i>	87	15	60	33	2	3
<i>Ch Unemployment</i>	13	85	12	67	98	80

Source : PME/IBGE

** Inflation or Unemployment*

Table 16

*Variance decomposition of forecast 12 months after unexpected shocks **

	<i>Before Real Plan - Discretion</i>			<i>After Real Plan - Commitment</i>		
	<i>Inflation</i>	<i>Unemployment</i>	<i>Poverty</i>	<i>Inflation</i>	<i>Unemployment</i>	<i>Poverty</i>
<i>Ch Inflation</i>	97	5	47	40	0	0
<i>Ch Unemployment</i>	3	95	24	60	100	82

Source : PME/IBGE

** Inflation or Unemployment*

9.3. Impulse Response Functions

Turning to the impulse response function (IRF) that measures the cumulative effect of one innovation occurred in period t on the all the variables in period t+h. As we argued before, the discretion case seems the most relevant closure for the pre-Real period. Using this identification hypothesis, an unexpected rise in inflation causes a rise in unemployment after 12 months. That is, the rationale that unexpected increases in inflation (say inflationary impulses produced by the monetary authority) buys lower unemployment does not hold here. In the commitment case, we observed a transitory effect of inflation innovations on unemployment that supports the idea that more inflation buys lower unemployment rates. Nevertheless this effect is not permanent, in less than three months the net effect becomes positive, reaching a peak after 5 months. In the post Real plan period, the effect of inflation innovation on unemployment is also always non-negative, as one can see in graphs 36.

Graphs 37 illustrate the effects of unemployment innovations on inflation: the effects are negative in all closures and time periods considered. That is, creating contractionary impulses reduces inflation.

Finally, graphs 38 and 39 illustrate the effects of inflation and unemployment innovations on our poverty measure. The effects are always positive. That is, deflationary impulses and unemployment downturn innovations produce both, each on their own, poverty alleviating effects.

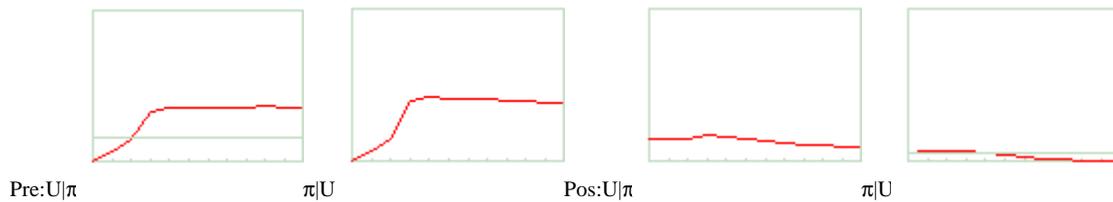
Notation:

Pre - Pre Real plan period (1982-94); Pos - Post Real plan period (1994-98)

$\pi|U$ - Discretion; $U|\pi$ - Commitment

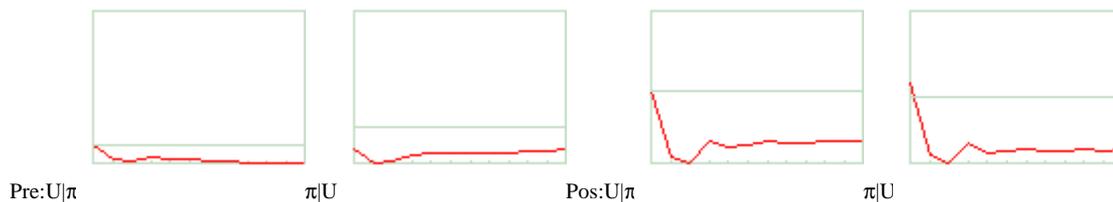
Graph: 36

Effect on Unemployment up to 12 months after Unexpected Increase in Inflation



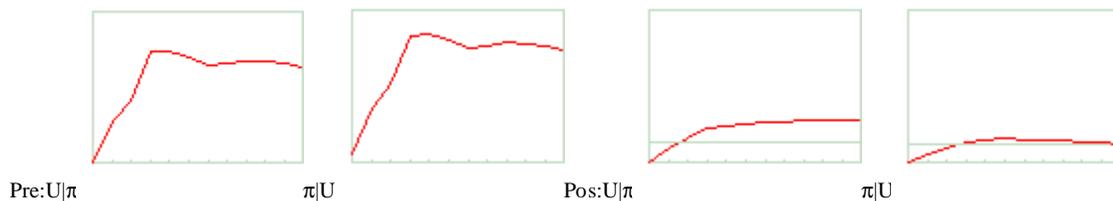
Graph: 37

Effect on Inflation up to 12 months after Unexpected Increase in Unemployment



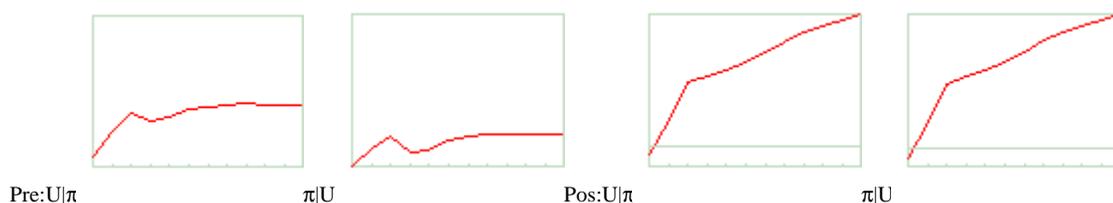
Graph: 38

Effect on Poverty up to 12 months after Unexpected Increase in Inflation



Graph: 39

Effect on Poverty up to 12 months after Unexpected Increase in Unemployment



As this is an empirical model, we are conditioned to the particular measures of inflation (INPC) (National price to the consumer index), unemployment ((PME-IBGE) and poverty (generated from the PME-IBGE data) used. Therefore, this exercise could be repeated with other measures of these variables, to verify the robustness of the results. Finally and more important, a desirable extension of the presented model, is to impose a pledge for the reduction of poverty rate. That would correspond to the adoption of social targets. The purpose would be to place the miserable on our list of macroeconomic priorities, as it is discussed in the next section.

10 – Social Targets

10.1- Concept :

The Brazilian macroeconomic policy is a success in controlling inflation. Not a negligible part of the success is owed to a pragmatic attitude, focussed in palpable objectives. The adoption of inflationary targets is fundamental in this process. In the first place, coordinating plans and actions within the State.

Secondly, signaling to society the priorities of the governmental action. The commitments convey tranquility to the involved in price forming in the pedestrian economy and financial markets. The potential benefits of a well-informed environment should not be underestimated. However, increasing macroeconomic consistency has not echoed strongly enough amongst the Brazilians. The common citizen, unlike financial markets, is less sensitive to financial deficits than to the ransom of social debts.

The suggestion is that the government establishes commitments with society as regards social outcomes of its policies. It is necessary to reach a greater level of rationality in the everyday debate between the government and society, being explicit as regards budget constraints and social priorities. The greater flaws observed recently, are the lack of dialogue mechanisms. In this process the social clash between federal government and its critics, has been centered, side by side on the cost of unemployment in comparison to the benefits of low inflation. As if, all social problems were restricted to the dilemma between low unemployment versus price stability. These problems solution does not guarantee the conquest of sustained human development. It is necessary to distinguish necessary from sufficient conditions.

The Brazilian social debate sometimes is circumscribed to a “lift” type of analysis – such as: is it better or worse? – Should incorporate the desired speed of the social progress,

compromise with the future direction of social indicators. In a form that steers and foment the debate with society.

The idea would be to place the social performance at the top of national priorities. The diagnosis is that the income levels and social expenditure seen today in Brazil, allows for a sustained improvement in the living conditions of the population. The achievement of a more economy distribution of resources depends itself on a more focussed and aggressive approach on the social needs. The role of the social targeting is to discipline, justify and motivate public action.

The social targets seek to lead the public action, allowing direct comparisons of the impact of social and macroeconomic policies on the welfare of the population. The quest is for an increase in progressiveness and durability of the benefits of the social policy. The extension of the actions towards the poorer, unconnected with the elections cycles and the achievement of larger social coordination and rationality in the debate, constitute two by-products of the proposed system.

The evaluation of the efficiency of our social policies lacks parameters. When granted more weight towards actions aimed at the poor, the social aims reconcile the attention given to the most needed with savings in the fiscal side. The genuine poor are cheap. Expensive is to give the higher segments of society, that consider themselves middle class, the bulk of social available resources, that in principle should go to the lower classes. The correction of this distortion, frequently observed in the usage of public resources in Brazil, constitutes, perhaps the main objective of the proposed social compromise.

10.2- Macro Economic and Social Commitments

Governments are frequently confronted with incentives to induce inflationary surprises, in order to “buy” a transitory reduction in unemployment. However, the private agents, being entrepreneur or worker, start anticipating these movements in the process of establishing prices and salaries.

The justification for the adoption of the inflationary target is to avoid the population of readjusting prices and salaries, anticipating the opportunistic conduct of the governments. This temptation is especially strong in election years. As it assumes the compromise with the inflationary targets, the government produces the same unemployment, but with less inflation and uncertainty. In this respect “rules (or targets) are better than discretion.” Now, apart from having had the highest inflation in the world in the 1960-95 period, Brazil is now near the top, in terms of income concentration.

10.3- What targets to settle for?

We tackle here an ethical and also technical question: which targets to settle for? The United Nations (UN) Human Development Index (HDI) enjoys visibility, comparability and credibility. The suggested target would be made of the combined rate of registration on the three levels of education, literacy and life expectation at birth.

These elements incorporate explicit incentives to the accumulation of human capital, which is good in the long term, both for the size and distribution of the pie. The release of the Census will allow us to set targets at county level, thus improving the aggregated targets for each county.

The basic change suggested in relation to the HDI, would be to use poverty indexes instead of the per capita GNP. The GNP is based on the ethical assumption or implicit judgement of value, that is, that “each is worth what she earns”. At this point, we shall dwell mainly with the question of which targets to pursue. The choice of the poverty index involves other ethical aspects. First, the determination of the poverty line. We selected the poverty line that covers only the basic needs, to focus on the most needed. Albeit, as we shall see, our system of targets is poverty line proof.

The most popular and simple approach is the counting of the number of poor. In the case of the denominated P0 index, we count the portion of the population that the per capita household income is below the arbitrated line. The P1 is another indicator that shows how much additional income each poor person should receive to satisfy basic needs. P1 is a more interesting indicator than P0, as it shows the difference between the very poor and the lesser poor.

Its utility for the outline of social policies is direct, exactly as seen previously, it is capable of informing the necessary minimum resources to eradicate indigence, evaluated in relation to the line value.

Finally, the indicator known as P2, takes the square income insufficiency of the poor, giving priority to the public actions for the most needed. If the fixed target was the reduction of P0, there would be spurious incentives for the adoption of policies focussed on those just below the poverty line and not on the pauper. Further to this obliquity, the focus of the policies would be very sensitive to the always arbitrary choice of the poverty line used. In the P2 case, independently of the arbitrated line, the priority is always turned towards the people with higher unsatisfied needs.

The adoption of P2 corresponds to establishing a kind of social “lift” that would start at zero income. The aim of P2, giving top priority to actions turned towards the most needed is also fiscally sounder.

Therefore, the social policies priorities are badly defined, when counting the poor (P0), implying “first the less poor”. Despite the complexity associated to a bigger aversion to poverty of P2, its immediate consequence “first the poorest”, seems ethically and fiscally more appropriate. The attack on ignorance demands intelligence. The poor deserve more than poor policies. It is not enough to count the poor, but the poorest should count more in the formulation of social targets.

10.4 - Summary of the Objectives of Social Targets:

The types of imperfection that the social targets try to cope with, are of diverse orders

- i) Electoral cycles – stretches temporal horizons and disassociate public actions from the electoral calendar, similar problems to those that inflationary targets try to solve.
- ii) Coordination – Reduce coordination problems, in making the consolidated budget of the society. Now that the Brazilian economic debate begins to assimilate the notion of budget restrictions, thought the recently issued law of fiscal responsibility (LRF) it is wanted a better definition of priorities as regards social allocations. Factual and counter-factual evidence can help in the selection of the programs that should, mainly when this is an explicit objective function.
- iii) Focus – The targets do not merely seek to count the miserable, but make the poor count more. The progressive approach is also favorable in fiscal terms.
- iv) Low electoral representation of the miserable (related to the three above items) In democracy the system is one adult one vote, (not one person, one vote). Approximately 45% of the Brazilian indigents are under 16 years of age, therefore under the voting age. The fastest line to attain the compromised poverty reduction target, inevitably goes through the intensification of actions seeking the non-voters.

11- Scenarios of Inequality, Growth and Misery

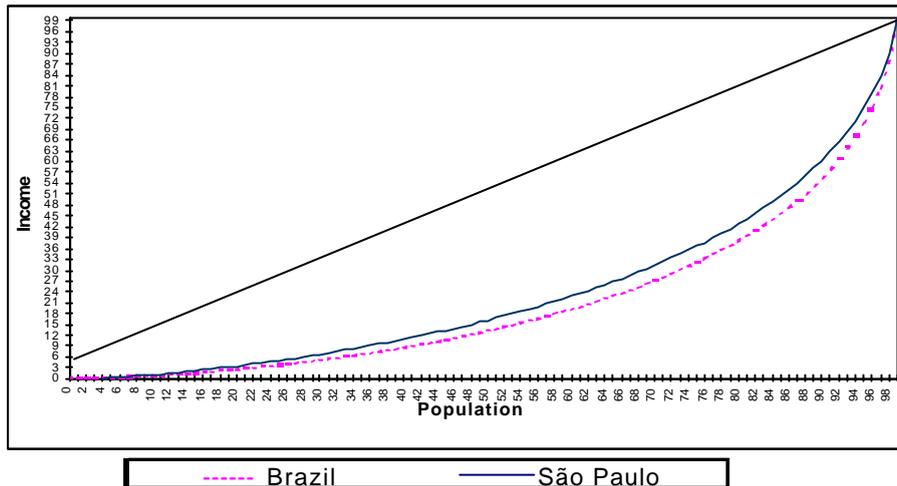
Inequality is for Brazil, what violence is for Columbia or racial discrimination was for South Africa. The inequality of the Brazilian income is amongst the three largest in the world. Let us take the most usual measure of inequality used by the analysts, the Gini index that varies from zero to one. The higher the result the less egalitarian is the society. In a utopian situation, where the income of everyone is exactly the same, the Gini index would be zero.

In an opposite situation, if one individual concentrated all the income of the society, then all others would have a zero income, the Gini's index would be one.

To understand the unacceptability of 0.59 corresponding to our Gini, nobody has to be a genius. we are nearer the perfect iniquity than the perfect equality.

Graph 40

Inequality of Per capita Household Income -1999



Source: PNAD-IBGE; Elaboration: CPS/FGV

Let us look at other measures of income concentration. In Brazil the richer 10% detain nearly 50% of the national income. On the other hand, the poorer 50% appropriates 10% of the national income. That is, individual income of the richer group is nearly 25 times than that of the poorer group.

If on the one hand the high inequality is our open wound, this same inequality allows space for the implementation of a large spectrum of actions against misery. High inequality means that poverty can be reduced by income transference. India, for example, a very poor country, but reasonably equalitarian, (Gini of 0.29) there is not much solution to the eradication of misery, apart from growth. In our case anti-inequality policies constitutes an important ally in the reduction of poverty. Let us look at a few scenarios that will be useful in evaluating the misery combat targets that could be used at national level.

11.1- Ravallion-type Prospective Simulations

Table 17

<i>Indigence</i>	<i>Avarage</i>						
	<i>Per Capita</i>	<i>P0 (%)</i>	<i>Var (%)</i>	<i>P1 (%)</i>	<i>Var (%)</i>	<i>P2(%)</i>	<i>Var (%)</i>
	<i>Income</i>						
<i>Brazil 99</i>	<i>261.54</i>	<i>29.3</i>		<i>13.11</i>		<i>80.6</i>	
<i>Growth effect*</i>	318.21	24.08	-17.81	11.02	-15.96	6.97	-13.52
<i>Inequality effect**</i>	261.54	21.01	-28.29	8.75	-33.25	5.45	-32.31
<i>both effects</i>	318.21	15.79	46.09	6.66	-49.21	4.36	45.84

Prepared by CPS/FGV based on micro-data from PNAD-IBGE

** Growth of Per Capita Income of 4 % p.a during 5*

*** Switch brazilian inequality for São Paulo estate inequality(Gini falls from 0,59 to*

We shall use, in as a didactic example, the proportion of indigents, (P0), although the P2 index was more indicated, as we have discussed in the two previous sections. The proportion of indigent Brazil (individuals that live with less than 80 reais per month, insufficient sum to supply the food necessity) will drop from the present 29.3% to 24.1%, if per capita national income grows 4% per annum, for five consecutive years. That means that nearly nine million Brazilians will cross the indigent line in the next few years, if the country transforms its present expansion path into an economic miracle.

But the true social miracle would happen, if all this growth came hand in hand with some reduction in inequality. If the accumulated economic expansion of 21.6% were combined with a drop of 8.5% of Gini, the indigents in Brazil would fall to nearly half of its initial value (46%). The proportion of indigents would go to 15.79%. That means that: the 49.675 million poor would be reduced to 26.777 millions. It is worth mentioning that the cited drop would take the Brazilian inequality, measured by the Gini index, from 0.59 to 0.54 level, already found in the state of São Paulo.

In reality, poverty could suffer a substantial fall, even if the country did not grow the next five years. The 8.5% reduction in the Gini index alone, would reduce the proportion of indigents by 8.3%, against 5.1% achieved in the pure growth scenario, previously mentioned.

The cause of Brazilian misery is the bad income distribution and there resides the main short – term solution. To reduce inequality in an economic boom context, seems more feasible than in recessive times, when losses are being shared.

12– Conclusions :

This paper analyzed the impacts of Brazilian macroeconomic developments during the 1990's on labor market and social indicators. Special emphasis was given to the period marked by the adverse effects of external shocks such as the Asian crisis of 1997, the Russian crisis of 1998 and the Brazilian devaluation crisis of 1999.

Monthly statistics based on labor market surveys, as PME from IBGE and PED from the Seade Foundation, carried out in metropolitan areas, showed a strong deterioration of the unemployment rate in this period. These are truthfully the leading indicators, the ones that run ahead. Before the Asian crisis, one could perceive a worsening of these indicators and that is clear in labor statistics. The surprise is that this fact is not so clear in broader social indicators, based on National Sampling Household Survey (PNAD) from IBGE. PNAD clearly shows that the considerable worsening of the social welfare occurs in large metropolis and in labor income.

We did an analysis on the period marked by the externally originated crisis, between October 1996 and October 1999, based on the unemployment rate at national level. Approximately 2.5 million individuals were added to the 4.7 millions of the unemployed contingent, existing in 1996. The unemployment rate rises in the 1996-99 period, at a higher rate in the upper class (16% per annum) than in the entire society (12.5% per annum). Regressions between per capita income and unemployment, did not allow us to reject the hypothesis that unemployment is a "luxury bad". Another thesis that cannot be repudiated by the figures, is that the recent crisis hit less strongly the poorer segments of the Brazilian society. In terms of the country as a whole, we observed a reduction of the proportion of poor, 0.57% per annum, between 1996 and 1999.

Apart from defending the utilization of national indicators, this study indicated as an alternative for the main metropolitan areas, the usage of other labor market performance measures. In particular, we emphasized those based on per capita household incomes, for showing a more embracing measure of social performance.

The comparison of the PNAD's of 1996 and 1999, reveals a high heterogeneity in the path of social indicators, as those related to unemployment, informality, labor income, income from all sources and poverty. The analysis also revealed a high dissimilarity on the course of each of these indicators per city size. The data shows that the crisis was stronger in the richer regions of the country, affecting more the layers of society that have more adequate means of subsistence. whilst the marginal population was less affected.

The crisis was very localized in the core and outer areas of metropolitan regions, where growth rates of unemployment between 1996 and 1999 were 14.6% per annum and 13.4% per annum respectively. The small urban areas and rural areas, that are poorer, had gains in income. Therefore, it is more an unemployment crisis, metropolitan in particular, and less a crisis as regards alternative sources of income, and even less of poverty at national level. While labor markets specially in big cities were quite adversely affected, incomes derived from social security, unemployment insurance and other government transfers played a crucial role cushioning the micro consequences of the macro shocks observed.

In sum, the social impacts of the crisis at the end of the 90's do not fit a single story. We show that the plot of the main stories observed depend on three dimensions: i) Who was affected by the shocks? Did the crisis affect more mid and upper segments or those initially situated below the poverty line? ii) What? Did the crisis affect more labor income or other income sources such as government transfers, social security benefits and capital income?. iii) Where? Did the social crisis hit harder metropolitan areas or rural areas? We have shown that the problem was more in the labor income earned by mid and upper segments living in larger urban centers.

We arrived at this overall conclusion using a variety of techniques and two basic sources of microdata, PNAD and PME. Section 2.1 the main changes of macroeconomic policies during the last two decades. Section 2.2 compared the performance of the 1996-99 period with the 1990-93 and the 1993-96 period at a national level. The following three sections detailed the social performance during the latter period by six different city sizes (rural areas, small cities, mid-sized cities, large cities and metropolitan areas divided into core and suburbs). Section 3 compared the evolution of standard social indicators (such as unemployment rates, labor income, informality, income from all sources and poverty). Section 4 showed consistency between the behavioral consequences of the crisis by city size and other social indicators performance. For instance, we observed an increase in violence levels and an improvement of the political opposition performance in the last municipal elections in larger cities.

The following section analyzed institutional changes as possible determinants of different social patterns observed by city size. In particular, we looked on sensitivity measures to different items of the structural reform agenda implemented during the 1990s (or yet to be implemented) such as administrative reform, trade opening, labor reform, minimum wage and social security reform.

Section six attempted to smooth the transition between the two main data sources used in the paper. The strategy is to simulate the results obtained from PME by gradually restricting PNAD spatial coverage and income concepts. This section worked as a zoom departing from national social measures based on all income sources to metropolitan labor market indicators.

The second part of the empirical part of the paper looked at longer time horizons using PME. Section 7 implemented an episodic analysis of the main booms and recessions observed in Brazil during the last two decades. The idea here was to provide a basis of comparison between the recent external crisis with the main downturns and upturns observed in Brazil. It analyzed their consequences on the risk faced by different segments living in metropolitan areas. In particular, this section took advantage of the longitudinal aspect of PME to assess the effects of adverse macro environment at the individual level. We estimated the probabilities of entering (or exiting) precarious states such as unemployment and poverty in various sub-periods. The results confirm the recurrent idea of “metropolitan unemployment crisis” as the main qualification of the social consequences observed during the period.

Section 8 and 9 explored the possibility of constructing monthly time series on poverty (P0, P1 and P2 using different poverty lines) and income distribution (earnings deciles, inequality measures) to assess their main macro determinants (unemployment, inflation, interest rates, minimum wages and exchange rates). The unemployment rate variable attempts to capture the effects of the level of activity on poverty the elasticity of our benchmark measure of poverty equals to 0.40. Inflation rate elasticities found around 0.08 were much smaller than the ones found for unemployment. Higher interest rates is associated with a higher proportion of poor with an elasticity equals to 1.09. The partial minimum wage elasticity of our basic benchmark poverty measure is -0.48 .

The correlation patterns between exchange rates and social indicators attracted specially our attention given the recent instabilities observed in this variable. We failed to find a robust partial exchange rate elasticity. The next step was to disentangle the real exchange rate index in two components: an equilibrium exchange rate and another that corresponds to the degree of exchange rate appreciation. The idea was to separate more structural changes in balance of payments such as those induced by a change in Brazilian exports competitiveness from the exchange rate policy used. This exercise is of special interest here since the decision of letting the exchange rate float freely taken in January 1999 would eventually lead (in theory) to a reduction in the residual term postulated. Once again, we do not generally find a statistically different from zero relationship between any of these

two exchange rates components and poverty. According to these results the exchange rate policy would not impact poverty in any of the cases analyzed.

Section 9 implemented a more structural time series model. It estimated a VAR that specifies the dynamic relations between shocks to inflation, unemployment and poverty using impulse response functions. The two identification strategies assumed correspond to discretionary and commitment regimes of the so-called Barro-Gordon model. The comparison between these respective regimes before and after the Real Plan shows the cadence of the so-called inflationary inertia and indicates a strong incitement of rise of a phenomenon that can be called inertial unemployment, that is, unemployment explained by its own past. Unemployment shocks explanatory power on poverty rate also rises. The results are consistent with the notion that in the post-Real, the direct fight against unemployment is a key element in the battle against poverty. This type of results explains the change in focus of the political debate between the 1994 and 1998 elections. On the other hand, the recourse of increasing inflation impacts only 2% of the unemployment and 3% of poverty. The results taken at face value, indicate the social uselessness of the desirability of increasing the inflation in the economy.

The objective of the exercise mentioned in the previous paragraph was to set a basis for the discussion of restrictions related to setting targets on poverty target when there is (and when there is not) inflation targeting. Section 10 described the main objectives, limitations and desired features of a system of poverty targeting. Section 11 presented counterfactual exercises on poverty measures based on different scenarios for growth and inequality changes using Ravallion-type decompositions. The role of policies that reduce inequality vis a vis those that foster overall growth (8.5% reduction in the Gini was associated with a 28% fall in poverty while a 21% rise in GDP reduced poverty by 18%) was the main message addressed in this section.

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