

## KEYWORDS

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# The impact of gender discrimination on poverty in Brazil

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**T**his paper analyses the effects of gender discrimination on poverty in Brazil between 1992 and 2001, using data obtained from the National Household Survey. A counterfactual distribution of per capita household income was estimated, based on a hypothetical scenario in which the labour market pays equal wages to men and women in accordance with their qualifications. The results show that, when gender discrimination is eliminated, the percentage of poor persons tends to decline by an average of 10%. Results were even more striking among the most vulnerable segments of the population, such as members of households headed by black women who lack a formal employment contract or union membership.

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# I

## Introduction

Poverty has been an ongoing concern for Brazil and Latin America during the last three decades, and has become the subject of a diverse body of literature. Researchers generally agree on two things regarding its underlying causes in Brazil and other countries in the region: (i) poverty in Brazil does not arise from a lack of resources, but rather from a hugely unequal distribution of income; and (ii) a significant share of this inequality can be traced to the labour market.

According to the *Social Panorama of Latin America* (ECLAC, 2005), 44% of the population of Latin America was living in poverty as of 2002, and 19.4% was indigent. The number of poor and indigent persons thus stood at 221 million and 97 million, respectively. As for Brazil, Barros, Henriques and Mendonça (2001) have shown that poverty remained relatively stable between 1977 and 1999, with the percentage of poor persons hovering between 40% and 45%. These authors argue that extreme inequality in the distribution of income from labour is the main cause of poverty in Brazil, since international comparisons show that countries with a per capita income similar to that of Brazil have a lower percentage of poor persons. This suggests that the magnitude of poverty in Brazil is largely attributable to the country's deplorable distribution of income.

Consequently, research on poverty and inequality has focused on determining which social and demographic groups pose the most serious problems. Women have been identified as one of the region's most vulnerable groups. Research by authors such as Oakley (1972), Kabeer (1998) and Montañó (2003) has shown that poverty and social exclusion affect men and women differently. This is partly because of the manner in which the labour market operates, segmenting groups and discriminating against them based on gender. As Costa, Pinheiros and others (2005) have pointed out, the factors that make women more vulnerable can be

summarized as follows: (i) unequal participation in the labour market; (ii) the lower economic and social value ascribed to work performed by women, which results in lower wages and occupational segregation, whereby women are confined to more precarious, less formal jobs; (iii) unequal access to production resources such as credit, land and other types of production capital; and (iv) unequal access to jobs with decision-making power, which is reflected by the low percentage of women in management positions in both the public and private sectors.

Thus, gender discrimination throughout a society exacerbates poverty (Valenzuela, 2003). Since the labour market is the population's most important source of income, it is reasonable to assume that a strong correlation exists between wage discrimination against women and the percentage of poor people in a country. This is particularly true of households in which the primary breadwinner is a woman – an increasingly common phenomenon in Brazilian society.

This article seeks to describe several aspects of the impact that a labour market characterized by gender discrimination had on poverty and inequality in metropolitan Brazil during the 1990s. To that end, a microsimulation was developed, using data from the country's National Household Survey<sup>1</sup> to create a scenario in which the labour market does not discriminate against women. The behaviour of poverty indicators given this new distribution of income was then studied.

Following this introduction, Section II briefly addresses the relationship between the female labour market and poverty. Section III contains a simple microsimulation model designed to calculate per capita income in a labour market free of gender discrimination. The results are presented and analysed in sections IV and V. Some final considerations are addressed in section VI.

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<sup>1</sup> Pesquisa Nacional por Amostra de Domicílios (PNAD).

## II

### Gender, the labour market and poverty

Existing research has shown that the higher vulnerability of women to poverty is closely linked to precarious labour market insertion, low-wage labour —particularly in the informal sector— and less access to production resources such as knowledge and education (Valenzuela, 2003; Arriagada, 2005). This section addresses certain aspects of the research on the subject, and provides some specific data regarding Brazil.

Authors such as Bardhan and Udry (1999) have identified some of the factors that hinder the insertion of women into the labour market or the production sector in Latin America. One is a lack of child care services – the shortage of public day-care centres, for example – which often forces the daughters of working women to drop out of school in order to care for their younger siblings, perpetuating the cycle of low schooling among the poorest women in the population. Another is the existence of legal or cultural barriers that limit the insertion of women into the labour market. A third factor – which the research has found to be especially significant – is the fact that household obligations may severely limit the mobility of women, as well as their ability to seek better employment opportunities. A fourth factor is that women are often excluded from credit programmes because they cannot provide collateral for loans.

Consequently, women have less access to production activities than men. National Household Survey data in Brazil show that labour market participation was lower and unemployment was higher among women in metropolitan areas during the 1990s than it was among men. Average unemployment among men was 8%, compared to 12% among women. This is a reflection of the lower income-generating capacity of women.

Once they have entered the labour market, women face a second group of obstacles that limit their access to better-paying jobs. Increased female participation might have been expected to significantly reduce segmentation and wage discrimination. That was not the case, however; there was no reduction in professional inequalities or gender-based wage discrimination. According to Arriagada (2005), no Latin American country has been able to bring women's wages up to par with those of men. Occupational segregation, which hinders women's access to the same jobs as men and prevents them from obtaining wages commensurate

with their qualifications, remains a problem. Hoffman (2000) has shown that, after a number of variables are considered, women's wages in 1997 were, on average, 33.9% lower than men's wages. According to Hoffman and Leone (2004), women's wages in 1981 were equivalent to 55.7% of men's wages, climbing weakly upward to 70.6% as of 2002.

According to the National Household Survey, in 2001 27% of working women in the metropolitan areas of Brazil were employed without a *carteira de trabalho*<sup>2</sup> (the country's standard labour document), working in areas closely associated with the informal sector and earning lower average wages. The percentage of men working without a *carteira* that same year was 18%, which shows that men were obtaining better jobs.

The distribution of women in the labour market and wage discrimination have an undeniable impact on household income. As shown below, the contribution of female wages to household income in the metropolitan areas of Brazil has been trending slightly upward, but it is still less than half that of male wages. The lower share attributed to women reflects the greater difficulties they face in terms of insertion into the labour market, as well as their employment in precarious occupations. It also raises questions regarding the degree to which the lower income of women affects the magnitude of the country's poverty.

In summary, the labour market in Latin America —and particularly in Brazil— is marked by strong gender-based segregation and wage differences, which may severely affect per capita income. The econometric exercise set forth below may shed greater light on the relationship between discrimination and poverty in Brazil.

<sup>2</sup> The *Carteira de Trabalho e Previdência Social* ("Employment Record and Social Security Card"), created in Brazil in 1932, is a document used to record a worker's employment career. It guarantees access to certain basic labour rights, such as severance pay, welfare benefits and worker-support programmes. It is basically a standard employment contract, required by law in most labour settings (save for public servants and military personnel). All private-sector *carteira* holders are considered formal workers. Nevertheless, the legalization and spread of atypical labour contracts —and, above all, the approval of a law on cooperative labour organizations in 1994— has made it more difficult to separate the formal and informal sectors based solely on the *carteira de trabalho*.

TABLE 1

**Brazil: Per capita household income in metropolitan areas, 1992-2001**  
(Dollars and percentages)

Year	Averages (dollars)	Share of income from primary job in household income (Percentages)		
		Total	Male	Female
1992	147.7	79.2	57.3	21.9
1993	165.4	78.4	57.0	21.4
1995	197.8	78.6	56.4	22.3
1996	203.6	77.9	54.6	23.2
1997	198.4	78.3	54.8	23.5
1998	204.5	76.1	52.9	23.1
1999	183.7	75.3	51.4	23.9
2001	186.2	75.5	50.6	24.8
<i>Average</i>	<i>185.9</i>	<i>77.4</i>	<i>54.4</i>	<i>23.0</i>

Source: Authors' own research, using data from the National Household Survey.

### III

## Methodology and sources

The estimates developed in this paper follow the methodology employed by Gradín, Río and Cantó (2006), who used microsimulations to study the effect of gender discrimination on poverty and inequality in 12 European Union countries. The idea is basically to compare two different scenarios of per capita household income distribution. The first scenario is the actual labour market, in which (estimated) gender discrimination is a factor; the second scenario is a hypothetical market in which men and women are paid equally in accordance with their qualifications.

Per capita household income  $d$  is the sum of the income generated in the labour market ( $w$ ) and the income generated by other sources ( $\pi$ ), divided by the number of household members ( $n$ ),

$$d = \frac{\sum_i (wh_i t_i + \pi_i)}{n} \quad (1)$$

where  $wh_i$  is the hourly wage and  $t_i$  represents hours worked. In this estimated scenario, income from the labour market is characterized by a difference in wages caused by gender discrimination.<sup>3</sup> This means that

the estimation of separate wage equations for men ( $m$ ) and women ( $f$ ) should produce different marginal returns, in accordance with the production and personal characteristics of each group.

$$\ln(wh_m) = y_m = Z_m \beta_m + \mu_{,m} \quad (2)$$

$$\ln(wh_f) = y_f = Z_f \beta_f + \mu_{,f} \quad (3)$$

$Y_m$  and  $y_f$  represent the ( $wh$ ) hourly wage logarithm assigned to men and women, respectively;  $Z_i$  is a set of personal, regional and labour-market characteristics;  $\beta_i$  is the estimated coefficient or marginal return vector; and  $\mu_i$  is the error vector. Labour market income for a given household is represented as follows:

$$wh = \exp(y_m) + \exp(y_f) = wh_m + wh_f \quad (4)$$

The construction or simulation of the second per capita household income distribution scenario —the counterfactual scenario, in which discrimination in the labour market is theoretically eliminated, and male and female marginal returns are determined on an equal basis— is based on the premise that the difference between  $\beta_m$  and  $\beta_f$  is null. According to the traditional view held by authors such as Oaxaca (1973), Blinder (1973) or Juhn, Murphy and Pierce (1993), the marginal

<sup>3</sup> For simplicity's sake, the possibility that income not derived from the labour market is also subject to discrimination is not considered (Gradín, Río and Cantó, 2006).

returns produced by the labour market for male workers are usually a fair indicator of ideal wage distribution in the absence of discrimination. The counterfactual scenario may therefore rest on the assumption that hourly wages display the same marginal return vector for both men and women:

$$\ln(wh^*_f) = y^*_f = Z_f \beta_m + \mu_{,f} \quad (5)$$

$$wh^* = \exp(y_m) + \exp(y^*_f) = wh_m + wh^*_f \quad (6)$$

“Counterfactual” per capita household income, hypothetically free of discrimination, would be determined as follows:

$$d^* = \frac{\sum_i (wh^*_i t_i + \lambda_i)}{n} \quad (7)$$

These two per capita household income distribution scenarios —estimated distribution  $d$  and counterfactual distribution  $d^*$ — can be used to analyse the impact of discrimination by studying the difference between the inequality and poverty indicators they produce. The impact of gender discrimination on any given  $I$  indicator would be as follows:

$$\Delta I(d, d^*, lp) \% = \frac{I(d^*, pl) - I(d, pl)}{I(d, pl)} * 100 \quad (8)$$

$Pl$  is the poverty line, used when necessary. This paper employs one inequality indicator and three poverty indicators: the Gini inequality index ( $G$ ), the percentage of persons below poverty line ( $H$ ), depth of poverty ( $P$ ) —also known as the poverty gap ratio, which measures how much a poor person’s income would have to rise in order to reach the poverty line— and the Foster, Greer and Thorbecke index.

The existence of comparable marginal returns for men and women must, however, affect the supply of and demand for female labour, since wages in a market without discrimination are higher for women. This encourages women to participate in the labour market, but it may also lead businesses to slash jobs in response to higher wages. If, for simplicity’s sake, the supply of and demand for male labour is assumed to remain constant, the counterfactual wage equation must allow for this additional incentive to work on the part of women.

Some microsimulations, such as those developed by Bourguignon, Ferreira and Lustig (1998), as well as Yañez (2004), include this alteration in a two-stage model that includes a labour market selection equation known as the participation or selection effect. For the purposes of this exercise, the starting point may be a labour market selection equation that addresses the probability that an individual is (1) working, (2) unemployed, or (3) not a member of the economically active population (EAP). The econometric method used is an expansion of the model employed by Heckman (1979), whereby selection bias is applied to multiple results, adding the Mills inverse ratio to the wage equations used for men and women.<sup>4</sup> The equation for probability of participation in the labour market focuses on the economically active population —persons between the ages of 16 and 65— and is determined by a multinomial probit model with the following functional form:

$$P(p_i = a) = f(\text{age}, \sum \text{colour}, \text{head}, \text{education}, \sum \text{region}, \sum \text{year}) \quad (9)$$

$P(p_i=a)$  is the probability that a  $p_i$  variable will correspond to value 1 (works), 2 (is unemployed) or 3 (is not a part of the EAP);  $age$  is a worker’s continuous age;  $colour$  is a grouping of three dummy variables for an individual’s colour (white, black or *pardo*);<sup>5</sup>  $head$  is a dummy variable with a value of 1 for individuals who are heads of household and 0 for those who are not;  $education$  is a worker’s level of schooling, in terms of years spent in school;  $region$  consists of six dummy variables, each one representing a metropolitan region; and  $year$  is a set of dummy variables for the years researched.

The wage equations focus on those members of the economically active population who were employed during the week of the survey: persons aged 16 to 65, with positive wages and hours worked, estimated functionally as follows:

$$y_i = f(\text{age}, \text{age}^2, \sum \text{colour}, \text{head}, \text{education}, \text{union}, \sum \text{status}, \sum \text{activity}, \sum \text{region} + \sum \text{year} + \sum \lambda) \quad (10)$$

<sup>4</sup> This paper employs the method proposed by Bourguignon, Fournier and Gurgand (2007).

<sup>5</sup> Persons who stated their colour as Yellow or Indigenous, or who did not answer, were not included.

*Age, colour, head, education, region* and *year* are defined as explained above, with the addition of age squared; *union* is a dummy variable which indicates whether a worker is a union member; *status* consists of four dummy variables which refer to a worker's labour status (*carteira* holder, non-*carteira*-holder, government or military employee, self-employed, employer); *activity* is a series of four dummy variables which refer to a sector of activity (manufacturing and construction, trade, services and other activities); vector  $\lambda$  refers to the Mills inverse ratios obtained from the participation equation, which correct labour market selection bias.

The data were aggregated to calculate *estimated per capita* (equation 1) and *counterfactual* (equation 7) household incomes. The source of the data was the National Household Survey, conducted annually by the Brazilian Geographical and Statistical Institute (IBGE), with the exception of population census years and the year 1994. The study covers the period between 1992 and 2001<sup>6</sup>, and includes persons living in six metropolitan areas.<sup>7</sup>

Only income from primary jobs was considered labour income. Income from secondary jobs, retirement or other types of pensions, *abono de trabalho* (year-end bonus)<sup>8</sup>, leases, donations and financial operations was

excluded. Only permanent, private households were considered; boarders, household employees and their families were not part of the study. Households with a total income of zero were not included.

A poverty threshold was needed to calculate the indicators, in order to determine the minimum monthly wage required to support an average person. Given the diverse range of poverty lines in use,<sup>9</sup> the study chose the monthly cost of a basic food basket, as calculated by the Departamento Intersindical de Estadística y Estudios Socioeconómicos (Inter-agency Department of Statistics and Socioeconomic Studies) on the basis of a monthly survey of prices of consumer goods (DIEESE, 1993). The values employed were those pertaining to September of each year (when the National Household Survey is conducted) in each of the metropolitan regions studied. The national poverty line was defined as the average of the costs of a basic food basket in each region.

Monetary values were deflated —as suggested by Corseuil and Foguel (2002)— to January 2002, and converted to dollars from that same period. The number of observations, minimum wage and poverty line for each year are shown in table 2. The results of the exercise are explained and discussed below.

<sup>6</sup> The National Household Survey was not conducted in 2000, due to the population census which took place that year.

<sup>7</sup> Belo Horizonte (state of Minas Gerais), Porto Alegre (Rio Grande do Sul), Recife (Pernambuco), Rio de Janeiro (Rio de Janeiro), Salvador (Bahía) and São Paulo (São Paulo).

<sup>8</sup> A welfare benefit consisting of one additional minimum wage per year for workers who have collected up to two minimum wages

from employers affiliated with the *Programa de Integración Social* (Social Integration Programme-PIS) or the *Programa de Formación del Patrimonio del Servidor Público* (Public Servants' Savings Programme-PASEP), created to improve the distribution of income in Brazil.

<sup>9</sup> For a detailed analysis of this issue, see Rocha (2000\*).

TABLE 2

**Brazil: number of observations, working-age population, economically active, employed population, minimum wage and poverty line, 1992-2001**

Year	No. of observations	Working-age population (%)	Economically active population (%)	Employed population (%)	Minimum wage (Dollars)	Poverty line (Dollars)
1992	81 757	61.7	40.9	36.8	83.4	46.2
1993	84 052	61.7	41.4	37.2	70.1	43.2
1995	86 323	62.9	42.5	38.9	62.7	47.4
1996	85 683	63.6	42.7	38.4	62.4	46.9
1997	89 004	64.0	43.2	38.1	64.1	43.8
1998	89 487	64.6	43.8	37.7	67.4	46.9
1999	92 087	64.8	44.3	37.7	66.2	46.4
2001	90 717	65.6	45.5	39.5	76.3	47.3
<i>Total</i>	<i>699 110</i>	<i>63.7</i>	<i>43.1</i>	<i>38.1</i>	-	-

Source: National Household Survey and Institute of Applied Economic Research (IPEA).



## IV

### Impact on inequality

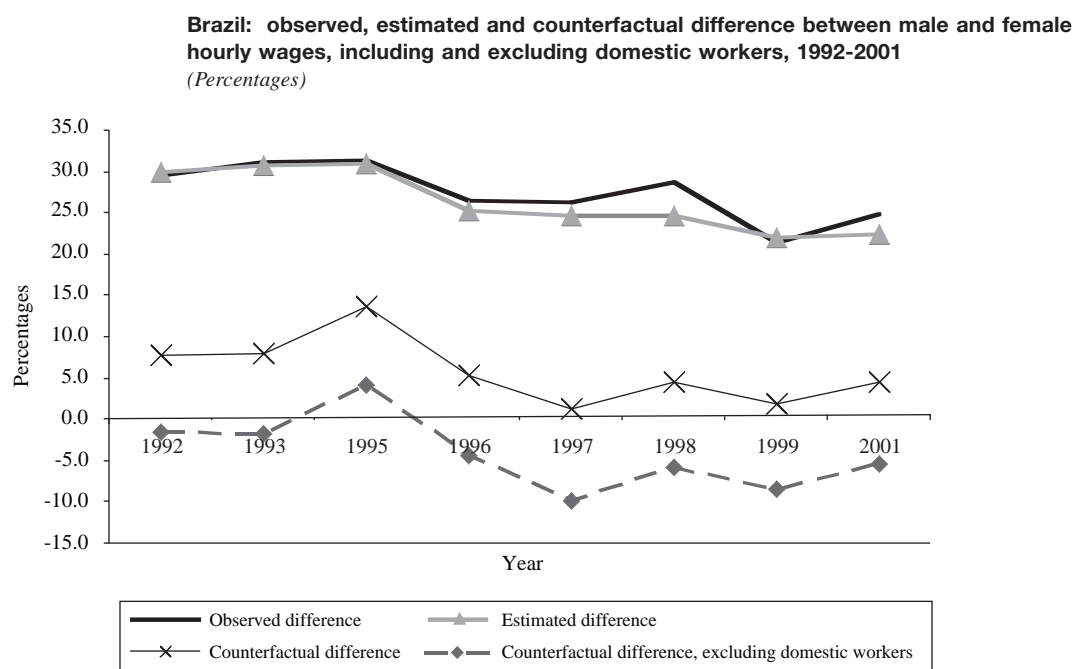
The effect of gender discrimination on inequality and poverty is analysed by comparing the difference between male and female wages in labour markets with and without gender discrimination. The labour-market participation and wage equations employed yielded expected and significant results in most cases (see appendix). Men displayed higher marginal effects than women for important variables such as education or formal employment. This suggests a difference in the way wages are determined.

Figure 1 charts the difference between men and women in terms of the hourly wages they receive for their primary jobs. The figure includes the observed difference, the estimated difference and the counterfactual difference. Women were found to earn approximately 27% less than men, notwithstanding the systematic reduction of the wage gap. A comparison between the estimated and counterfactual differences shows that, if the labour market were to pay men and women on an equal basis —according to their

qualifications and occupational distribution— the wage difference between the two would not only be lower, but would also display a stronger tendency to decline during the period in question. In a market free of gender discrimination, women's wages would have risen by an average of 28% during this period.

The continued existence of a wage difference between men and women, even after the effect of gender discrimination has been taken into account, is partly attributable to measurement errors. Nevertheless, it also reflects the distribution of production factors, such as the higher average age of men or the higher number of women employed in low-paying occupations such as domestic labour. As a result of occupational segregation, approximately 17% of working women are employed as domestic labourers, compared to a maximum of 2% for men. If domestic workers are excluded from wage calculations (bottom, figure 1), the difference favours women, since they possess a larger supply of other production factors – particularly

FIGURE 1



Source: Authors' own research, using data from the National Household Survey.

TABLE 3

**Brazil: impact of gender-based wage discrimination on per capita household income and inequality, 1992-2001**  
(Per capita household income and percentages)

Year	Per capita household income (dollars)			Gini coefficient		
	Estimated	Counterfactual	Variation (%)	Estimated	Counterfactual	Variation (%)
1992	126.5	135.7	7.2	0.4875	0.4861	-0.3
1993	124.9	134.1	7.4	0.4992	0.4958	-0.7
1995	162.6	172.4	6.0	0.4973	0.4936	-0.7
1996	169.4	180.5	6.6	0.4926	0.4908	-0.4
1997	165.8	178.6	7.7	0.4917	0.4880	-0.7
1998	171.0	182.4	6.6	0.5036	0.4994	-0.8
1999	153.9	163.8	6.5	0.4977	0.4922	-1.1
2001	155.3	164.8	6.1	0.4941	0.4883	-1.2
<i>Average</i>	<i>153.7</i>	<i>164.0</i>	<i>6.8</i>	<i>0.4955</i>	<i>0.4918</i>	<i>-0.7</i>

Source: Authors' own research, using data from the National Household Survey.

education. Women have long boasted a higher average number of years of higher education than men, but this has neither improved their insertion into the labour market nor increased their wages.

Table 3 studies the impact of this wage difference on inequality in the distribution of per capita household income, using estimated income, counterfactual income and concentration coefficient values. When gender discrimination was removed from the labour market, per capita income generally rose by 6.8%, and the Gini coefficient fell by an average of 0.7%. The difference between estimated and counterfactual per capita income may be understood as the adjustment that would be required to neutralize the effect of wage discrimination, or as the social cost of gender discrimination.

The (Gini) coefficient of concentration fell considerably between 1993 and 1997, as a direct result of the sharp drop in inflation brought about by the federal monetary stabilization programme enacted during this period. The impact of discrimination on this indicator began rising toward the end of the decade, despite a reduction in the wage difference. As female wages have come to account for a larger share of household income (see table 1), the gender-based difference in labour income has acquired greater influence in society as a whole. This, in turn, will increase the absolute impact of discrimination on the Gini coefficient.

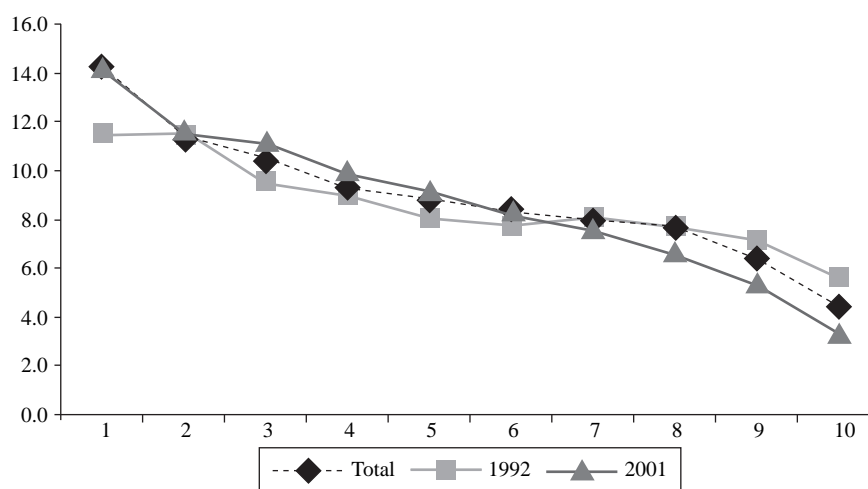
Gradín, Ríó and Cantó (2006) have observed discrimination to have a different effect on the concentration of income in the countries of the European Union; the Gini coefficient in those countries rose. They contend that, in the case of Europe, a comparative analysis of different deciles of per capita income shows that discrimination has a stronger impact at the median of distribution than it does in the poorest deciles. Richer households gain more from the elimination of discrimination and higher women's wages, intensifying the concentration of income even more. The results of this exercise, as applied to Brazil, are shown in figure 2. A different trend is observed as the curve approaches the median of distribution; as it approaches the richest households, it starts to decline. Thus, the social cost of gender discrimination in the labour market is higher for poorer households. Moreover, a comparison of the income distribution levels of the first and last years of the period (1992 and 2001) shows that the impact of discrimination has increased for the poorest households, even as it has decreased for the richest ones.

The data generally show an improvement in the distribution of per capita income, possibly as a result of a decline in gender-based wage discrimination in the labour market. The following section analyses the effect of discrimination on poverty in Brazil.



FIGURE 2

**Brazil: variations in gender discrimination by deciles of per capita household income, 1992, 2001 and 1992-2001**  
(Percentages)



Source: Authors' own research, using data from the National Household Survey.

## V

### Gender discrimination and its impact on poverty

Table 4 shows estimates for the three poverty indicators used, as well as the impact of gender discrimination in the labour market on these indicators. During the period studied (1992-2001), 21% of the country's metropolitan population, on average, lived on less than half a minimum wage, and the gap between the average income of the poor and the poverty line was eight dollars. Poverty dropped sharply during the mid-1990s, mainly as a result of economic growth and stable inflation, which significantly reduced the effect of the inflationary tax on the poorest members of the population. Nevertheless, as Rocha (2000b) has pointed out, once the distributive effects of the stabilization plan (the Real Plan, first applied in 1994) wore off, poverty, depth of poverty and the Foster, Greer and Thorbecke index increased once more.

During the 1990s, discrimination in the labour market became a significant factor in metropolitan poverty; eliminating such discrimination would reduce the percentage of poor persons by an average of 10.5%. The effect of discrimination also influences the country's economic growth rate (Barros and Mendonça,

1997; Sobrinho, 2001). Surges during the economic cycle help to mitigate the impact of discrimination on the percentage of poor persons, due to the distributive effects of economic growth.

The marked regional diversity of poverty in Brazil makes it difficult to analyse. Clusters of poverty can be found in both less-developed, less urban regions and industrial areas such as Sao Paulo. The effects of discrimination also differ depending on the level of poverty in each region (table 5). An analysis of per capita household income shows that, in Recife and Salvador, in north-eastern Brazil, 42% of the metropolitan population lives below the poverty line. In those cities, the elimination of gender discrimination should reduce this indicator by 9%.<sup>10</sup>

The cost of a basic food basket, which is used as a poverty line, is also a cost-of-living indicator. The study found that, in regions with a higher cost of

<sup>10</sup> See appendix for the percentage of poor persons in each region and regional poverty lines.

TABLE 4

**Brazil: effect of poverty on the elimination of gender-based wage discrimination, 1992-2001**  
(Percentages and indicators)

Year	Percentage of poor persons			Depth of poverty			Foster, Greer and Thorbecke index		
	Estimated	Counterfactual	Variation (%)	Estimated	Counterfactual	Variation (%)	Estimated	Counterfactual	Variation (%)
1992	25.7	23.4	-9.3	10.1	8.9	-11.5	15.1	13.5	-10.6
1993	24.8	22.2	-10.4	9.8	8.5	-12.8	14.6	12.9	-11.8
1995	19.6	17.6	-10.4	7.5	6.5	-12.1	11.3	10.0	-11.3
1996	18.4	16.4	-10.7	7.1	6.2	-11.7	10.6	9.4	-11.3
1997	17.0	14.8	-13.0	6.5	5.6	-14.7	9.9	8.5	-14.1
1998	19.8	17.7	-10.7	7.4	6.5	-12.5	11.3	10.0	-11.7
1999	21.2	18.9	-10.7	8.2	7.2	-12.4	12.4	10.9	-11.7
2001	21.6	19.6	-9.3	8.7	7.6	-12.1	12.9	11.5	-11.0
<i>Average</i>	<i>21.0</i>	<i>18.8</i>	<i>-10.5</i>	<i>8.2</i>	<i>7.1</i>	<i>-12.5</i>	<i>12.3</i>	<i>10.8</i>	<i>-11.7</i>

Source: Authors' own research, using data from the National Household Survey.

TABLE 5

**Brazil: effect of the elimination of gender-based wage discrimination on the percentage of persons below the poverty line, 1992-2001**  
(Percentages)

Year	Northeast		Southeast			South
	Recife	Salvador	Belo Horizonte	Rio de Janeiro	São Paulo	Porto Alegre
1992	-7.0	-7.8	-9.1	-8.6	-11.6	-8.5
1993	-7.7	-8.3	-9.9	-9.6	-13.5	-10.3
1995	-8.1	-9.5	-9.0	-9.6	-14.2	-8.5
1996	-7.5	-9.3	-13.9	-9.8	-12.8	-10.0
1997	-10.8	-11.5	-13.3	-10.7	-16.9	-12.9
1998	-8.3	-11.2	-14.3	-9.1	-11.8	-9.4
1999	-8.6	-12.0	-11.2	-7.4	-13.9	-10.1
2001	-9.4	-13.0	-9.8	-6.5	-10.3	-7.7
<i>Average</i>	<i>-8.4</i>	<i>-10.3</i>	<i>-11.3</i>	<i>-8.9</i>	<i>-13.1</i>	<i>-9.7</i>

Source: Authors' own research, using data from the National Household Survey.

living, such as São Paulo and Rio de Janeiro, increased income resulting from lower discrimination has a stronger impact on poverty reduction. In the south of the country, however—represented in this case by the Porto Alegre metropolitan area, which boasts the best social indicators in the country (the human development index is one example)—the impact of variations in wage discrimination tends to be lower.

In addition to its regional diversity, poverty is complex in terms of occupational characteristics (Sobrinho, 2001). A significant percentage of poor

households are headed by persons of African descent, with low schooling, employed in occupations with little institutional protection and low wages—primarily agriculture and construction. Given the fact that women are concentrated in precarious, low-paying jobs, gender-based differences in labour income—which persist even after occupational characteristics have been considered—are yet another contributing factor in Brazilian poverty.

Table 6 selects some of the characteristics of poorer households, and estimates the effect of gender

TABLE 6

**Brazil: effect of the elimination of gender discrimination on the percentage of poor persons in households headed by women, 1992-2001**  
(Percentages)

Year	Total	Black women	Women lacking a <i>carteira</i> <sup>a</sup>	Non-unionized women
1992	-27.4	-19.7	-46.2	-43.1
1993	-29.2	-19.2	-37.0	-51.5
1995	-31.3	-24.1	-39.7	-71.0
1996	-27.4	-21.3	-48.2	-59.7
1997	-31.5	-21.4	-48.8	-67.9
1998	-26.6	-20.5	-44.4	-62.1
1999	-26.6	-20.6	-44.3	-49.0
2001	-21.9	-14.6	-32.3	-73.2
<i>Average</i>	-27.7	-20.2	-42.6	-59.7

Source: Authors' own research, using data from the National Household Survey.

<sup>a</sup> *Carteira*: standard labour document

discrimination on the percentage of poor persons living in households headed by women, by ethnicity and labour-market insertion. When this new information is compared with the data in table 4, it becomes clear that the elimination of gender discrimination from the labour market provides greater benefits for people living in precarious conditions. This highlights the need for targeted public-policy measures to reduce poverty in Brazil.

In summary, the reduction of wage differences between men and women in the labour market, combined with policies which promote equal access to that market, benefits the most vulnerable inhabitants of the country's metropolitan areas. Economic growth is a valuable tool in the fight against poverty, but, unless its fruits are distributed equally, it is not enough. Targeted policies are needed.

## VI

### Conclusions

This paper has analysed the effect of gender discrimination in the labour market on poverty in the metropolitan areas of Brazil, using data from the National Household Survey for the period between 1992 and 2001. A poverty line consisting of half a minimum wage was also employed.

Applying equations to calculate the wage difference between men and women, the elimination of gender discrimination was found to increase the hourly wage of women during the period studied by an average of 28%, and to reduce the coefficient of concentration of per capita household income by less than 1%. Discrimination was found to increase the country's poverty level, and its elimination from the labour market reduced the percentage of poor persons

by an average of 10.5%. This small reduction is more significant among the population's most vulnerable groups, such as the members of households headed by black women who lack the formal employment contract provided by the *carteira de trabalho*, or who lack union membership.

Thus, the results of the study suggest that national poverty-fighting policies must sharpen their approach. Such policies must also be made extensive to the labour market, in order to reduce the wage gap between men and women. The evidence submitted here may bolster the case for public policies to promote gender equality. Despite the significant progress made in reducing inequality, much remains to be done.

## APPENDIX

TABLE A.1

## Brazil: wage regressions for men and women (equation 10)

	Men			Women		
	Coefficient	Standard deviation	P> t	Coefficient	Standard deviation	P> t
Head	0.9470	0.0465	0.000	0.0922	0.0567	0.104
Age	0.0619	0.0013	0.000	0.0316	0.0023	0.000
Age2	-0.0006	0.0000	0.000	-0.0004	0.0000	0.000
White (reference)						
Black	-0.3251	0.0081	0.000	-0.0811	0.0258	0.002
<i>Pardo</i>	-0.2106	0.0055	0.000	-0.1085	0.0139	0.000
Education	0.1455	0.0021	0.000	0.1215	0.0074	0.000
Union members	0.2126	0.0045	0.000	0.2591	0.0059	0.000
Non- <i>carteira</i> -holders (reference)						
<i>Carteira</i> -holders	0.1323	0.0056	0.000	0.0954	0.0055	0.000
Public employees	0.2355	0.0093	0.000	0.1921	0.0087	0.000
Self-employed	0.2897	0.0063	0.000	0.2579	0.0065	0.000
Manufacturing (reference)						
Trade	-0.1811	0.0058	0.000	-0.0639	0.0080	0.000
Services	-0.0986	0.0047	0.000	0.0014	0.0066	0.827
Other	0.0201	0.0076	0.008	0.2900	0.0099	0.000
São Paulo (reference)						
Recife	-0.6203	0.0112	0.000	-0.6215	0.0208	0.000
Salvador	-0.5204	0.0108	0.000	-0.4383	0.0130	0.000
Belo Horizonte	-0.2428	0.0065	0.000	-0.3234	0.0095	0.000
Rio de Janeiro	-0.2683	0.0085	0.000	-0.2911	0.0132	0.000
Porto Alegre	-0.2228	0.0065	0.000	-0.2617	0.0172	0.000
1992 (reference)						
1993	-0.0657	0.0075	0.000	0.0715	0.0089	0.000
1995	0.1849	0.0076	0.000	0.1359	0.0113	0.000
1996	0.1399	0.0078	0.000	0.2032	0.0092	0.000
1997	0.1121	0.0078	0.000	0.2474	0.0098	0.000
1998	0.0107	0.0094	0.255	0.2836	0.0117	0.000
1999	-0.1146	0.0100	0.000	0.2126	0.0130	0.000
2001	-0.1066	0.0091	0.000	0.1545	0.0123	0.000
$m_0$	-0.6001	0.2054	0.003	1.6072	0.2607	0.000
$m_1$	-3.1367	0.1696	0.000	3.3450	0.1910	0.000
$m_2$	0.6079	0.0735	0.000	1.0418	0.0635	0.000
Constant	-3.2869	0.0763	0.000	-1.0634	0.2242	0.000
R <sup>2</sup>	0.4886			0.4771		
No. of observations	148 508			117 582		

TABLE A.2

**Brazil: regional poverty lines**  
(Dollars)

Year	Recife	Salvador	Belo Horizonte	Rio de Janeiro	São Paulo	Porto Alegre	Average
1992	38.6	36.1	47.1	48.9	51.4	55.1	46.2
1993	38.3	37.9	44.1	43.1	46.3	49.2	43.2
1995	43.6	43.8	46.8	47.4	53.4	49.4	47.4
1996	42.2	41.1	47.9	46.9	54.0	49.2	46.9
1997	38.9	36.0	45.1	46.0	48.7	47.8	43.8
1998	42.2	40.3	47.0	47.9	52.1	51.8	46.9
1999	41.5	40.0	47.3	47.3	52.7	49.8	46.4
2001	38.6	38.5	48.8	50.7	53.0	54.4	47.3
<i>Average</i>	<i>40.5</i>	<i>39.2</i>	<i>46.8</i>	<i>47.3</i>	<i>51.4</i>	<i>50.8</i>	<i>46.0</i>

TABLE A.3

**Brazil: poor persons by metropolitan region**  
(Percentages)

Year	Recife		Salvador		Belo Horizonte		Rio de Janeiro		São Paulo		Porto Alegre	
	Estimated	Counter-factual	Estimated	Counter-factual	Estimated	Counter-factual	Estimated	Counter-factual	Estimated	Counter-factual	Estimated	Counter-factual
1992	50.7	47.1	45.9	42.3	34.6	31.5	22.6	20.7	19.1	16.8	21.6	19.8
1993	52.0	47.9	42.3	38.8	34.7	31.3	23.0	20.8	16.9	14.6	20.9	18.7
1995	43.5	40.0	36.2	32.7	25.8	23.5	18.1	16.3	12.5	10.8	17.2	15.7
1996	40.0	37.0	37.6	34.1	26.8	23.1	17.2	15.5	10.7	9.3	16.7	15.0
1997	38.8	34.6	32.4	28.7	22.4	19.4	15.4	13.7	10.8	9.0	15.8	13.8
1998	42.9	39.3	33.7	29.9	27.4	23.4	18.3	16.6	12.9	11.4	18.4	16.7
1999	43.5	39.8	36.3	31.9	27.9	24.8	18.8	17.4	15.0	12.9	19.1	17.2
2001	41.8	37.9	38.3	33.3	24.3	21.9	21.5	20.1	15.2	13.6	18.4	17.0
<i>Average</i>	<i>44.1</i>	<i>40.5</i>	<i>37.8</i>	<i>34.0</i>	<i>28.0</i>	<i>24.9</i>	<i>19.3</i>	<i>17.6</i>	<i>14.1</i>	<i>12.3</i>	<i>18.5</i>	<i>16.7</i>

(Original: Spanish)

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