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## **A Distribution in Motion: The Case of Argentina**

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# A Distribution in Motion: The Case of Argentina \*

## A Review of the Empirical Evidence

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### ABSTRACT

This paper documents the changes in the income distribution in Argentina from the mid-1970s to the mid-2000s. Over the period inequality increased substantially. Two types of episodes have shaped this upward trend: deep macroeconomic crises and periods of sudden and intense economic liberalization. The sizeable rise in inequality in the 1990s seems to be associated to reallocations against unskilled-labor intensive sectors, and skilled-biased technological change within most sectors, both factors stimulated by the process of economic integration. The depth and speed of the reforms and the scarcity of public policies to ease the transition contributed to the particular severity of the income distribution changes. The macro crises and the subsequent recoveries contributed to the volatility of inequality along this upward trend. The large macroeconomic crisis of 2001/02 triggered a large jump in inequality, although income disparities returned to pre-crisis levels as the economy recovered fast, and large cash transfer programs were implemented.

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## 1. Introduction

Income distributions usually change slowly. As stated by Aaron (1978), following income distribution statistics is frequently “...like watching the grass grow”. In contrast, since the mid 1970s the income distribution in Argentina has shifted in dramatic ways, implying statistically significant and economically large changes in all indicators of income disparity. Following inequality in Argentina has been definitely more exciting than watching the grass grow.

To some extent, the dramatic increase in income inequality experienced by Argentina between the mid 1970s and the mid 2000s is easy to understand. The country experienced in three decades most of the phenomena that are linked to increases in inequality in economic theory: serious macroeconomic crises; hyperinflation; high unemployment; repressive dictatorships; processes of deep trade liberalization; episodes of sudden and rapid capital accumulation, technology upgrading and modernization; weak labor institutions; and unequalizing demographic changes. Providing evidence on all these phenomena is, however, not easy, and it is even more problematic to gauge the relative relevance of each one as contributory factors to the increase in inequality. In the spirit of the project, this paper attempts to link these factors to market forces, state action, socio-political dimensions, or different combinations of these elements (Lustig, 2007).

This paper is first aimed at documenting the main patterns and trends of inequality in Argentina from the mid-1970s to the mid-2000s. Its second and most important aim is to critically assess the main hypotheses on the determinants of these patterns in the light of the existing empirical evidence. The paper combines a critical survey of the literature with new empirical evidence to provide an interpretation of the facts. It also identifies some of the remaining gaps to be filled for a better understanding of the changes in the income distribution over the period. This paper builds on some of the arguments developed by Gasparini (2005a), covering a wider range of issues and interpretations, and providing a host of new evidence and a discussion of the 2001-2006 episode of crisis and recovery.

The rest of the paper is organized as follows. Section 2 presents the main patterns and trends of income distribution in Argentina from the mid-1970s to the mid-2000s. Section 3 provides a discussion of the evolution of the income distribution in terms of six distinct historical episodes. Section 4 explores the inequality changes in non-crisis episodes by means of micro-econometric and sectoral decompositions. Sections 5 to 7 discuss and assess the relative contribution of three of the main hypotheses in the debate over the evolution of inequality in Argentina: trade liberalization, technological change, and structural adjustment. Section 8 covers other contributing factors for which there is scarce evidence. Section 9 investigates the distributional impact of social spending and its financing through the tax system. Section 10 discusses the macro crises, *i.e.* short episodes of serious macroeconomic turbulence associated to large jumps in poverty and inequality. Section 11 assesses the fall in indicators of income disparity after the crisis of 2001-2002 in light of the still scarce

available evidence for this episode. Finally, section 12 provides some concluding remarks.

## 2. Main trends in income inequality

All the available empirical evidence strongly suggests that inequality in Argentina has substantially increased from the mid-1970s to the mid-2000s. Figure 2.1 presents a summary of this disappointing story: the Gini coefficient for the distribution of household per capita income in the Greater Buenos Aires (GBA) area soared from 0.344 in 1974 to 0.487 in 2006.<sup>1</sup> Other inequality indicators confirm this trend over the period: while the income share of the poorest quintile declined from 7.1 to 3.7, the share for the richest quintile rose more than 10 percentage points, from 41.8 to 53.2, and the 90/10 income ratio increased from around 5 in 1974 to 11 in 2006. This increase in inequality was not uniform over time. Figure 2.2 depicts short periods of relative calm, and episodes of rapid surge.<sup>2</sup>

This trend in inequality is robust to the geographic coverage of the data source, to the choice of indicator and to methodological aspects regarding the underlying income variable, and it is also apparent in alternative data sources. Regarding the geographic coverage, an inequality series from the mid-1970s can only be estimated for the Greater Buenos Aires, an urban area containing around a third of Argentina's total population. However, the trends described in the previous paragraph can be extrapolated to the whole urban population. Figure 2.2 suggests that inequality estimates for the aggregate of all large urban areas in Argentina do not considerably differ from those of the GBA. Unfortunately, the national household survey does not cover small cities and rural areas, but adding these areas would probably not modify the main aggregate results, since (i) inequality does not significantly change when comparing the EPH with results from the few household surveys that include rural towns and small cities (e.g. *Encuesta de Desarrollo Social*, 1997; *Encuesta de Condiciones de Vida*, 2001; *Encuesta de Impacto Social de la Crisis en Argentina*, 2002), (ii) disperse rural population accounts for only 7.2 percent of Argentina's population, and (iii) unlike several other countries in the region, most of the rural

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<sup>1</sup> The microdata behind these figures come from Argentina's main official household survey (Encuesta Permanente de Hogares, EPH), which covers the main urban areas of the country. The EPH started in the 1970s as a survey for Greater Buenos Aires (GBA), which accounts for one third of Argentina's population, and was gradually extended later to cover all urban areas with more than 100,000 inhabitants. The appendix provides more detailed information about methodological and coverage aspects of the EPH.

<sup>2</sup> This volatility contrasts with the available evidence for the 1960s, based on more limited surveys and National Accounts, which suggests a more stable income distribution. See CEPAL (1968), Altimir (1986) and Altimir and Beccaria (2001) for reviews of these early indicators. While stable over the 1960s, the income distribution shifted substantially towards greater equality in the late 1940s and early 1950s during the Perón administrations (Gerchunoff and Llach, 2003). Indicators from household survey data from that period are not available.

population and its economic activities are highly integrated to the modern economy.<sup>3</sup> For simplicity, the rest of the paper sometimes refers to Argentina, although the data usually represents large urban areas from 1992 onwards, or the Greater Buenos Aires for the previous years.

The upward trend in inequality in household per capita income over the period is also robust to the choice of indicator: the trend is reflected in the income ratios and shares of deciles in table 2.1, and in all the alternative indices in table 2.2. The confidence intervals for the Gini coefficient, presented in table 2.3, show that these large changes in inequality are statistically significant. Moreover, the discussions in Gasparini (2005b, 2007) establish that this trend is robust to a host of methodological issues, including non-response, misreporting of income, inclusion of non-monetary income, inclusion of implicit rent from own housing, accounting for family structure through equivalization, and adjustment for regional prices, among others. As discussed in section 9, the trends are also similar when including or excluding the impact of social expenditure and taxes.

The trend in inequality can also be inferred from alternative data sources. Navajas (1999), using comparable samples and baskets for the 1985-1986 and 1996-1997 expenditure surveys, reports quintile-based Gini coefficients for the distribution of per capita expenditures of 0.33 and 0.38, broadly compatible with the trend in income inequality in figure 2.2. Inequality statistics can also be derived from administrative sources. Alvaredo (2008), using personal income tax data, estimates an increase in the top 1 percent income share from 7 percent in 1973 to 11.8 percent in 1997, and to 12.3 percent in 2001. Galbraith *et al.* (2008) find a large increase in inequality among formal workers between 1994 and 2002, using microdata from the pension system's contribution records (*Sistema Integrado de Jubilaciones y Pensiones*). Finally, it is possible to complement indicators based on personal income with the distribution of income among the factors of production, which can be inferred from aggregate national accounts. While the share of wages was around 45 percent in the early 1970s, the estimations for the mid 2000s range from 30 to 38 percent (Lindemboim *et al.*, 2005), suggesting again a substantial increase in inequality.

The transformations in Argentina's income distribution are clearly depicted through graphs. The robust and large upward trend in inequality over the whole period is illustrated by the raise in the Gini coefficient in figure 2.2. Figures 2.3 to 2.5 reveal some of the underlying trends.<sup>4</sup> Figure 2.3 shows a non parametric estimate of the density functions of the logarithm of household per capita income: the spread of the curves implies that the distribution became more unequal between 1992 and 2000.

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<sup>3</sup> The comparison with neighboring Uruguay is illustrative. This country, with a socioeconomic structure similar to some part of Argentina, has recently included rural areas in its household survey, with no major changes in the national inequality statistics. The national Gini is almost exactly the same as the Gini for the Greater Montevideo (CEDLAS, 2008).

<sup>4</sup> As in several other sections of this paper, the discussion of figures 2.3-2.5 focuses on the period 1992-2006 for which data is available for urban Argentina (and not for GBA only).

Between 2000 and 2006, instead, the distribution seems to have changed its central position, but not its basic shape. The growth-incidence curves in figure 2.4 reflect large and non-neutral income changes. Overall, incomes fell over the 1992-2006 period for all centiles of the distribution, but the fall was larger for the poor. These income dynamics imply an increase in inequality, which is reflected in the dominance of the Lorenz curves for the corresponding years in figure 2.5.

The substantial increase in inequality has strong implications. The poverty headcount ratio in urban Argentina computed with the official moderate poverty line climbed from 18.5 to 26.7 between 1992 and 2006 (see figure 2.6). It is difficult to explain the substantial increase in poverty in Argentina without mentioning the worsening in the inequality indicators. The impact of the inequality increase on aggregate welfare (weighted growth) is also noticeable. Figure 2.7 suggests that aggregate economic welfare as measured by per capita income was 10 percent lower in 2006 than in 1992.<sup>5</sup> Evaluating welfare by mean income levels ignores all inequality concerns, and corresponds implicitly to a utilitarian point of view. For any observer with some degree of inequality aversion, however, the assessment of the economic performance in Argentina in the 1992-2006 period would be much worse. For instance, welfare associated with an Atkinson welfare function with inequality-aversion parameter of 2 is almost 30 percent lower in 2006 than in 1992. The inequality aversion amplifies the 10 percent fall in per capita income.

The increase in inequality in Argentina was comparatively large by international standards. Figure 2.8 depicts the changes in the Gini coefficients for countries in Latin America and the Caribbean from the early 1990s to the early 2000s, and Argentina's is among the largest. The comparison with the country's neighbors is illustrative (see figure 2.9). Gasparini *et al.* (2007, 2008) report that the gap with more unequal economies, like Brazil or Chile, substantially shrunk in the last decades. Argentina's once proud "European" income distribution, with a large middle class, is moving closer to "Latin American" levels of inequality.

Before proceeding with the analysis, a methodological point is worth mentioning. Most of the evidence presented in this paper is based on the EPH, the main household survey in Argentina. As most surveys in the world, the EPH records labor incomes and cash transfers mainly, while it is weaker in capturing capital income, rents to natural resources and other sources of non-labor income. Moreover, as most surveys of its type, it fails to cover the richest households in the country, due to sampling reasons and non-response. These limitations certainly restrict our knowledge of the real level of inequality, and, more important, limit the assessment of the impact of policies and economic shocks beyond the distribution of personal income.

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<sup>5</sup> Per capita GDP increased more than per capita income from the EPH, especially in the 1990s. In fact, per capita GDP was 27 percent higher in 2006 than in 1992. See Fernández and Kidyba (2005) for a discussion of these discrepancies.

### 3. An episodic story of inequality

As stressed by Atkinson (1997), inequality changes can be analyzed from a long-term perspective, or by dividing time in episodes. Under the first approach one should fit a line from figure 2.2 and try to tell a story of why inequality has been increasing in Argentina from the mid-1970s to the mid-2000s, disregarding the ups and downs in the time series as perturbations from a clear increasing trend. Instead, as Atkinson (1997) does for the developed world, the episodic story of inequality changes in Argentina seems to be more compelling. The country has experienced strong shocks and policy changes that have affected the income distribution in different ways. Since the logic behind the inequality changes is different in each episode, a long-term perspective would miss much of the action, and would probably be unhelpful for thinking about the future.

The first episode starts in 1974, since data from the EPH is available from that year onwards, and the following 32 years are divided in six episodes (see table 3.1). The first episode covers the period from 1974 to the early 1980s, encompassing the last two years of a democratic government and the whole dictatorial military regime. It is characterized by weak labor institutions, with almost no role for unions, by a sweeping trade liberalization reform, and by sharp overall increase in inequality. The second episode comprises most of the 1980s, and it is characterized by the return to democratic rule, a substantially more closed economy, increased union activity, stronger labor institutions (minimum wage enforcement, collective bargaining), macroeconomic instability, and a rather stable income distribution. The third episode corresponds to the serious macroeconomic crisis of the late 1980s that included two hyperinflations, and it is characterized first by a sharp increase and a consecutive sudden fall in inequality after the successful stabilization in 1991. The fourth episode includes most of the 1990s, and it is characterized by relative macroeconomic stability<sup>6</sup>, a currency board with an exchange rate fixed to the US dollar, and deep structural reforms which implied a much more open and flexible economy, with weaker labor institutions. The income distribution during the 1990s became substantially more unequal. The recession that hit the country in the late 1990s and the ensuing macroeconomic crisis in 2001-2002, with an economic meltdown and the devaluation of the currency, mark the fifth episode, again characterized by first a sharp increase in inequality, and then a substantial fall after the stabilization. The sixth episode was underway at the time of writing, and started around 2004 with the rapid growth in the aftermath of the crisis. Its main characteristics include the adjustment of economic agents to the new relative prices introduced by the devaluation, stronger labor institutions and a more extensive safety net. Inequality fell to pre-crisis levels

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<sup>6</sup> This stability refers mainly to the curbing of inflation, which was linked to the fixed exchange rate regime (currency board) set in place. The opening of the economy to capital flows implied a high degree of exposure to international fluctuations and to flow reversals, as witnessed by the impact of the succession of crises in Mexico, South-East Asia, Russia and Brazil. See the section on macro crises below for more details.



over this period. Figure 3.1 reproduces the pattern of the Gini coefficient and GDP per capita marking the six proposed episodes.

Like any other modeling exercise, this episodic story tries to highlight the main aspects from of a very complex stream of phenomena.<sup>7</sup> Table 3.1 characterizes these episodes in terms of five elements: (i) macroeconomic performance, (ii) openness to international trade, (iii) technological change and physical capital accumulation, (iv) unions and labor institutions, and (v) social protection. Naturally, changes in the income distribution are the result of a vast array of factors, so any simple classification excludes potentially relevant explanations. The five factors in table 3.1 have two elements in common: they have close theoretical links with changes in the income distribution, and they have been extensively invoked in the distributional literature in Argentina.

The macroeconomic performance of Argentina has been characterized by low growth, and high volatility. Table 3.2 provides data on a set of related indicators. The macroeconomic performance is usually associated to the central position of the income distribution, and hence to poverty. In contrast, its links to inequality are not unambiguous or well established in the economic literature, since it is not obvious that the benefits from growth (or the costs of recessions) are equally shared along the income distribution.<sup>8</sup> However, in most cases large macroeconomic crisis – in terms of high inflation and/or output and employment fall – are associated to unequalizing changes in the income distribution<sup>9</sup>, since households in the lower end of the distribution have relatively less access to income smoothing and insurance devices. Argentina suffered two large crises from the mid-1970s to the mid-2000s with arguably large inequality consequences, which are covered in section 10. Moreover, some authors in Argentina also link the increase in inequality in the 1990s to the macroeconomic performance in that decade in terms of employment and aggregate demand. These arguments are discussed in section 7.

The relationship between trade and inequality has long been a key issue in Economics. The degree of openness of an economy is a crucial determinant of its price structure, and hence on the structure of employment and factor remunerations. The two periods of large increases in inequality in Argentina (besides the large macro crises) coincide with episodes of trade liberalization. More import competition might have induced a reduction in the relative demand for industries which were intensive in

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<sup>7</sup> This episodic review is necessarily simplified, and some aspects, in particular the limits between episodes, are somehow arbitrary. The reader is referred to Gerchunoff and Llach (2003) and the references therein for a complete account of the period under discussion. Gerchunoff and Llach (2004) discuss equality and growth in Argentina from a longer term perspective.

<sup>8</sup> Bourguignon *et al.* (2004) present case studies with different combinations of macroeconomic performance and the evolution of the income distribution.

<sup>9</sup> The 1995 crisis in Mexico seems to be an exception. Székely (2005) reports that inequality actually fell between 1994 and 1996, because the reduction in income over all the population was largest among the richest households.

unskilled labor, and thus increased overall inequality through increasing skill premia. Section 5 explores this issue in detail.

The third factor in table 3.1 combines changes in production and organizational technologies, and physical capital accumulation. Both factors are usually associated with a bias towards skill labor, driving inequality in the labor market. The relevance of this hypothesis for Argentina and the evidence linking the large increase in inequality in the 1990s to a shock in the adoption of new technologies is discussed in section 6.

Labor institutions encompass freedom of unionization, forms of collective bargaining, minimum wages, labor regulations, and other more subtle active labor market policies that reinforce the bargaining power of employees, mainly of unskilled workers. The literature in general agrees on the equalizing effect of these factors, at least in the short run, although the range of impact estimates is very ample. Section 8 discusses these arguments and the sketchy available evidence for the Argentine case.

Finally, social protection affects the income distribution in more straightforward ways. In particular, the impact of cash transfers are directly reflected in income inequality statistics. However, the combined incidence of all items of social expenditure and of the taxes that finance them is not as clear. Section 9 shows that social spending has affected the level but not the trend in income inequality.

### *The six episodes*

In March 1976, and by means of a *coup d'état*, a military regime came into power. Although, arguably, the first episode should start at that point, information from the EPH is available first for 1974, and then from 1980 onwards. Episode 1 thus starts in 1974, although most of the observed distributional changes are attributed to the developments under the military regime. The dictatorial government suspended collective bargaining, weakened unions (and targeted repression at lower level union leaders), weakened unions, undermined labor institutions, cut down social policies, and initiated a process of trade liberalization. In that framework, income disparities grew substantially: the Gini coefficient for the GBA rose from 0.345 in 1974 to 0.430 in 1981. Poverty did not increase much, since the economy grew at an annual rate of 1.3 percent per capita between 1976 and 1981. A banking crisis and a collapse of the exchange regime started a macroeconomic crisis in 1981, which was worsened by the debt crisis in many Latin American countries in 1982. This implied a dramatic closing of the economy (for instance, imports fell 50 percent in just 2 years) that initiated a new economic episode.

The economy remained rather closed from trade, financial markets and technological change in episode 2, even after democratic rule was restored at the end of 1983. Labor institutions were re-instated, unions regained their power, and social spending increased, although cash transfers remained low. The macroeconomic performance was weak: per capita GDP did not grow between 1982 and 1987, and inflation

remained high throughout the period. In this scenario, inequality remained stable but poverty increased.

Argentina entered a deep macroeconomic crisis in 1988 that peaked in 1989/90 with two hyperinflations, and ended around 1991 with the stabilization brought about by pegging the local currency to the US dollar (the Convertibility Plan, which established a currency board). The inequality dynamics in periods of large economic turbulences are largely governed by the macroeconomic situation. Figure 3.1 shows how the evolution of inequality mirrors changes in per capita GDP in episode 3. While other policy factors were already at play (in fact, a new administration came into power in 1989), they probably had a minor role in a period dominated by large macroeconomic fluctuations.

Episode 4, which spreads over the 1990s, is clearly identified as a period of trade liberalization, intense capital accumulation and adoption of new technologies, weak labor institutions (lower employment protection, non binding minimum wages, among others), weak unions, and increasing although still low cash transfer programs. The Peronist administration implemented a large set of structural reforms including deregulation, liberalization of trade and of capital markets, privatization of large state-owned enterprises, the demise of a pay-as-you-go pension system in favor of individual capitalization accounts, and several other market-oriented reforms. In that scenario the economy started to grow after two decades of stagnation, but inequality went substantially up: the Gini coefficient for urban Argentina rose from 0.452 in 1992 to 0.507 in 2000.

Policy inconsistencies (such as electoral spending and debt sustainability issues related to the transition to the fully-funded pension system), the exhaustion of the currency board mechanism, and an unfavorable international scenario deepened a recession which started in 1999 and triggered a large crisis at the end of 2001. The crisis implied a large devaluation of the currency and the freezing of bank deposits, and resulted in a dramatic fall in output and employment: per capita GDP fell 17 percent between 2000 and 2002, and unemployment climbed to 19 percent. The large devaluation implied a substantial fall in real wages. The economy hit bottom in 2002, starting to recover in 2003. Per capita GDP and the unemployment rate went back to their pre-crisis levels in 2004. Over this period, changes in inequality were dominated by the macro situation, as figure 3.1 suggests.

The post-crisis episode 6 was underway at the time of writing, so the paper only provides a preliminary assessment. The combination of several factors implied a fall in inequality: a stable and growing economy, lower import competition after the devaluation, stronger labor institutions, and a more extensive safety net. Section 11 elaborates on these topics and discusses the preliminary evidence for this episode.

The six proposed episodes can be classified into three types: (i) periods of serious macroeconomic crisis (episodes 3 and 5), (ii) periods of liberalization with weak labor institutions (episodes 1 and 4), and (iii) episodes of low import penetration and

stronger labor institutions (episodes 2 and 6). Inequality seems to have fluctuated widely under type-1 episodes, increased in a rather permanent way under type-2 episodes, and decreased or remained stable under type-3 episodes. The next section provides an analysis of inequality over the period by focusing on non-crisis years.

A word of caution is necessary before proceeding with the analysis. It is not easy to derive policy conclusions even from this stylized story, since it is very difficult to assess the long run general equilibrium effects of policies. A given combination of policies/circumstances may be associated to low inequality and poverty in the short run but may be substantially contributing to a future crisis under which all the distributional improvements are undone. In that sense, the above classification, and the analysis that follows, is mostly descriptive.

#### 4. Exploring inequality changes

This section discusses the results from decomposition exercises based on non-crisis years. The isolation from the crises allows assessing the relevance of direct factors on the trend in inequality over the period.

##### *Microdecompositions*

The first exercise consists of a microeconomic decomposition of the changes in the Gini coefficient for the distribution of hourly wages, earnings and household income. The methodology follows closely Gasparini, Marchionni and Sosa Escudero (2004). It requires the estimation of wage and hours of work equations at the individual level, and the use of the resulting coefficients to construct counterfactual distributions. Wages and hours of work are modeled as parametric functions of observable characteristics, and the residuals of the regressions are interpreted as the effect of unobservable factors. The basic idea of these microsimulations is to find the counterfactual distribution of individual earnings that would be generated in a given period  $t_1$  if some of the determinants of earnings took the observed values in  $t_2$  and the rest remained at their values in  $t_1$ . The difference between the real distribution in time  $t_1$  and the counterfactual characterizes the distributional impact of the factors modified in the simulation.<sup>10</sup> By modeling explicitly the wages and hours, these microsimulations incorporate behavioral factors into the analysis, at the cost of having sometimes substantial unexplained residuals. Other methodologies bypass the issue of residuals by means of accounting decompositions based on identities, at the cost of not accounting for possible behavioral reactions from the agents (see the discussion in Paes de Barro *et al.*, 2008).

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<sup>10</sup> Since the outcomes are path-dependent, the tables corresponding to the microsimulations report the mean of the results obtained by changing the base year in each simulation.

Table 4.1 shows the results for the Greater Buenos Aires area, the only region with information since 1980.<sup>11</sup> For each period, the table reports the actual change in the Gini coefficient, along with six counterfactual changes corresponding to various simulated effects. Column (ii) shows the change in the Gini if only the returns to education on hourly wages (*i.e.* the coefficients of the educational dummies in the hourly wage equation) changed, keeping everything else constant. The change in the coefficients of education in the hourly wage equation has a direct effect on the simulated hourly wages, but naturally, also affects monthly earnings, and hence household income. Table 4.1 shows the impact of each change on the distribution of these three variables. This effect has been large and equalizing in the 1980s, large and unequalizing in the 1990s, and much smaller in the 2000s. Figures 4.1 to 4.3 are illustrative of the changes in the returns to education. The gap between primary school and secondary school graduates did not change much. Instead, the gap between college graduates and the rest fell over the 1980s and strongly increased in the 1990s.<sup>12</sup>

The increase in the payoff to education also took place in terms of hours of work. Figure 4.4 shows how the hours gap among educational groups changed sign in favor of the skilled: while in the early 1980s on average a 40 years-old male with only a primary school degree worked 4 hours more than his counterpart with a college degree, in the late 1990s he worked on average four hours less. Column (iii) in table 4.1 reports the distributional impact of changing the coefficients of the educational dummies in the hours of work equation. This effect was particularly large and unequalizing during the 1990s.

The wage gap between men and women increased in the 1980s, shrunk in the 1990s and has not changed much since then. The impact of these changes on the wage distribution has been of some importance (see column (iv)). However, the household income distribution has not been altered by changes in the gender wage gap.

Wages are determined by factors included in the regressions, and also by unobservable factors that are jointly captured in the error term. Wage inequality may change if the dispersion in these unobservables changes (see Juhn *et al.*, 1993). The increasing dispersion in the unobservables has been interpreted in the literature as an increase in the returns to some unobserved productive “assets” in the labor market, like ability, school quality, or connections. Figure 4.5 shows a sizeable increase in the

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<sup>11</sup> It is difficult to extend the microsimulation to 1974, since the dataset for that year includes fewer variables.

<sup>12</sup> Manacorda *et al.* (2006) and Patrinos *et al.* (2005) use alternative definitions of skill premia (college with respect to high school, and high school with respect to primary for adult men only). They find an increase in the college premium with respect to the secondary level in the last two decades, and a fall in the premium for high school with respect to primary school. Sánchez-Páramo and Schady (2003) also find an increase in wages of university-educated workers in Argentina concurrently with increases in their relative abundance. The increase occurs mostly within sectors.

standard deviation of the error term in the wage equations. This increase is reflected in the large distributional effects recorded in column (v).

The increase in inequality in the 1990s occurred simultaneously with an unprecedented growth in unemployment. The unemployment rate jumped from around 3 percent in the 1970s to 15 percent in the late 1990s in years of relative macroeconomic stability. Driven by the strong economic expansion and the increased coverage of employment programs after the 2001-2002 crisis, unemployment declined to around 10 percent by 2006. According to figure 4.6 the labor market was rather quiet until the 1990s, when two combined phenomena implied a shock to the unemployment rate: a significant increase in the labor participation rate (from 40 percent in 1990 to 46 percent in 1999), and a fall in the employment rate driven by the macro shocks and the adjustments after various structural changes (see the discussion in section 8 below). Nonetheless, by the end of the 1990s the employment rate recovered, meaning that most of the increase in unemployment rate can be accounted by the large increase in labor market participation. Women and youths moved massively to the labor market but faced an economy with a rigid employment rate. Unemployment became even worse in recession times, when employment temporarily fell.

When unemployment is mostly the consequence of increasing labor market participation, instead of falling employment, its effect on inequality or poverty is less obvious. If for instance a youth enter the labor force but is unable to find a job, the unemployment rate goes up, but the income distribution remains unchanged. The direct distributional impact of these employment issues can be assessed by means of counterfactual distributions derived from changing the coefficients of the educational dummies in a labor participation equation. As reported in column (vi) of table 4.1, this employment effect has been small even during the period of increasing unemployment. As discussed, this exercise provides just an estimate of the *direct* effect of changes in the extensive margin of the labor market. Section 8 elaborates on the possible indirect effects of a higher unemployment rate on wages.

Finally, column (vii) in table 4.1 indicates that changes in the educational structure of the population were somewhat unequalizing over the period. This result reflects the expansion of the group of college graduates, with high levels of within-group wage dispersion, and average earnings much higher than the overall mean. This latter characteristic generates a Kuznets-curve-like effect: as the size of a small group with high income increases, inequality initially grows.

Summing up, inequality in hourly wages and earnings diminished in the 1980s (ignoring the macro crisis of the late 1980s), driven by a fall in the returns to education in terms of hourly wages. Instead, during the 1990s the returns to education became highly unequalizing. The overall effect of returns to education accounts for 4.6 points out of the 8.4 increase in the Gini for the equivalized household income distribution. The increase in the returns to unobservable factors adds another 1.5 points. These results suggest that unskilled workers – both in terms of formal

education and in terms of unobservable factors – lost in terms of hourly wages and hours of work during the 1990s, and that these changes had a very significant role in shaping the distribution of hourly wages, earnings, and household income. Any story of inequality changes in Argentina should pay particular attention to this phenomenon. Finally, the 1998-2006 comparison reveals a small drop in inequality that is mostly unexplained by the decomposition.

### *Supply factors*

In a typical simple equilibrium model the wage gap between the skilled and the unskilled is driven by changes in their relative supply and demand. The skill premium may widen if the relative supply of skilled labor falls. Although there have been mentions of this possibility in the discussion in Argentina, referring to the increasing migration of unskilled workers from neighboring countries, the statistics instead reveal a strong increase in the relative supply of semi-skilled (high school graduates) and skilled (college graduates) workers, to the detriment of those with lower levels of skills (those with less than a high school degree). Table 4.2 shows that while 78.6 percent of adults aged 20 to 65 were unskilled in GBA in 1974, that share fell significantly to 47.1 percent in 2006. The share climbed from 17.6 percent to 37 percent for the semi-skilled, and from 3.8 percent to 15.9 percent for the skilled. These patterns, valid also for all urban Argentina (CEDLAS, 2008), are even more pronounced when considering the share in employment or in aggregate labor (total weighted hours of work), which reflects the increasing difficulties for the unskilled in the labor market.

Given this strong increase in the relative supply of college graduates, the wage premium would have been bound to fall if factor demands had not changed. This in fact appears to have happened in the 1980s, but not in the 1990s. Instead, in that decade the college wage premium jumped up, which suggests an increase in the demand for skilled workers which more than offset the downward pressures from the increased supply, especially for college graduates. Before turning in the following sections to factors behind the expansion in the relative demand for skilled workers, what follows explores changes in employment and factor intensity across economic sectors.

### *Sectoral changes*

Argentina's economy experienced large changes in its productive and employment structure over the period under study. Table 4.3 reports the shares in aggregate labor (efficiency hours of work multiplied by number of workers) by economic sector in Greater Buenos Aires since 1974.<sup>13</sup> The main patterns are illustrated in figure 4.7. The

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<sup>13</sup> As mentioned above, data for a long period of time is only available for GBA, so some of the changes documented below could be the consequence of geographic changes of economic activities

most noticeable change in the labor structure since the 1970s has been the fall in employment in the manufacturing industry, and the increase in skilled services (public sector and professional and business services). While in 1974 39 percent of employment was in the manufacturing industry, the value dropped to just 17 percent in 2006. On the other hand, while in 1974 21 percent of employment was in the more skilled-intensive sectors of professional and business services and the government, that share rose to 41 percent in 2006. These patterns do not vary substantially when dividing the population of workers by skills.

With skilled-biased technological change, the increase in the stock of more educated workers can be easily absorbed in each sector. Instead, with constant technologies of production, an increase in skilled labor can be accommodated by either (i) a relative growth of the sectors intensive in skilled labor, with no changes in the intensity of factor use, or (ii) an increase in the use of skilled workers in unskilled tasks. Table 4.4 is consistent with a strong increase in the intensity of use of skilled labor in most sectors of the economy. This skill upgrading in production processes was particularly strong in basic and high tech manufacturing sectors, but also in commerce and public administration.

To further explore the potential distributional impact of changes in employment, table 4.5 presents an update of Gasparini’s (2005a) decomposition of changes in the share of each type of labor in total aggregate labor. Formally, the table reports:

$$\Delta\left(\frac{N_i}{N}\right) = \underbrace{\sum_s \frac{N_{ist}}{N_{st}} \Delta\left(\frac{N_s}{N}\right)}_{\text{Between effect}} + \underbrace{\sum_s \frac{N_{st'}}{N_{t'}} \Delta\left(\frac{N_{is}}{N_s}\right)}_{\text{Within effect}}$$

where  $N$  is labor input (number of workers multiplied by efficiency hours of work),  $i$  indexes the type of labor (unskilled, semiskilled, and skilled),  $s$  indexes the economic sectors, and  $t$  indexes time. The first term of the decomposition (the “between” effect) captures the impact of transformations in the sectoral structure of employment on the relative employment of factor  $i$  (*e.g.* due to changes in the production structure driven by trade liberalization). The second term (the “within” effect) captures changes due to variations in the intensity of use of different types of labor within each sector (*e.g.* due to biased technological change).<sup>14</sup>

The results of the decomposition are shown in table 4.5. Changes across sectors benefited the skilled over time. The between effect for college graduates is always positive. Instead, the unskilled suffered from employment reallocations against sectors that use unskilled labor more intensively. The numbers in the second panel of table 4.5 suggests that the changes within sectors implied the use of more skilled labor. The

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and employment across regions. However, Gasparini (2007) reports that changes in GBA follow closely those in all urban Argentina since 1992.

<sup>14</sup> See Bound and Johnson (1992) among others for similar decompositions.



highest within effect for college graduates is for the 1990s, a fact consistent with the story of capital incorporation and skilled-biased technological change after the reforms. It is interesting to notice that figures in the second panel are generally higher than those in the first panel, suggesting that within effects have been stronger than between effects.

While the 1990s are characterized by a stronger positive within effect on college graduates, and an overall poorer performance of the semi-skilled, the 2000s present smaller gains for the skilled both in terms of between and within effects, and present also better results for the semi-skilled. In contrast, the unskilled continued losing ground in the labor market as in the previous decades. The following sections account for some of the plausible factors behind the evolution of skill intensity and remunerations in the labor market.

## 5. Trade liberalization

While Argentina has witnessed a series of reforms in almost all aspects of economic life over the mid-1970s/mid-2000s period, most of the literature highlights trade liberalization as one of the key factors behind the increase in income inequality. This is partly due to the constraints on data availability for testing competing hypothesis, although this strand of research is also motivated by the salience of trade in the debate on increasing returns to skills in developed economies (Katz and Autor, 1999).

The conventional wisdom in economic theory and some policy circles seemed to be that unskilled labor, the relatively abundant factor in developing economies, would benefit from trade reform, and thus inequality would fall (Perry and Olarreaga, 2006). However, as documented by the thorough reviews by Goldberg and Pavcnik (2004, 2007), reality seldom corresponded to this “naïve view” of the equalizing impact of trade reform in developing countries for a host of reasons described below. As a middle income country, the case for Argentina was not clear-cut *ex ante*, especially since the country’s relative abundance might correspond to natural resources, which are complementary to capital and skilled labor, and not to unskilled labor<sup>15</sup> (Keifman, 2006; Perry and Olarreaga, 2006). For countries with relatively complex productive

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<sup>15</sup> The relevant factors of production and trade partners that determine Argentina’s relative abundance in the international trade arena is not a settled issue, and it is well beyond the scope of this paper. While Galiani and Sanguinetti (2003) argue that, compared to major trade partners like the U.S. or the E.U., Argentina is abundant in unskilled labor, Galiani and Porto (2008) state that Argentina is well-endowed in skills relative to other countries in Latin America with which it trades, and also when compared to the rest of the developing world, especially relatively new trading partners such as China. The trends in international trade in the mid-2000s, however, seem also to suggest that Argentina’s comparative advantage is the abundance of high quality land and other natural resources. For Perry and Olarreaga (2006), the relative factor endowment of Latin American countries might have shifted from unskilled labor to natural resources with the growing weight of India and China in international trade. Cristini (1999) and Keifman (2006) consider Argentina a country abundant in land and skilled labor, while Berlinski (1994, cited by Galiani and Porto, 2008) shows a specialization in natural resources and skilled labor when Argentina is compared with Brazil, its major partner within the region.

structures and trading patterns, the impact of trade liberalization on the income distribution is ultimately an empirical question.

The evidence for Argentina suggests overwhelmingly that trade liberalization led to an increase in inequality. Galiani and Sanguinetti (2003) were among the first to find evidence of an unequalizing effect of trade reform. Using data from EPH for the Greater Buenos Aires region for most of the 1990s, one of the two periods of trade liberalization in Argentina, they regress the log of individual hourly wage as a function of variables that interact education with import penetration in the sector where the individual works, and a set of controls. They find that in sectors where import penetration was deeper, the wage gap between skilled and unskilled became wider. While according to this evidence the trade reforms of the 1990s were a contributing factor in the increase in inequality, Galiani and Sanguinetti (2003) state that this factor can explain only 10 percent of the total change in the wage premium.<sup>16</sup> Cicowiez (2002) reached similar conclusions with a different methodology. He simulated the fall in tariffs during the liberalization process of the early 90s using a computable general equilibrium model, and he also finds a small unequalizing effect.<sup>17</sup>

While most of the studies on trade and inequality have concentrated in specific episodes (the short-lived liberalization of the 1970s in the earlier literature, and the reforms of the 1990s more recently), the study by Galiani and Porto (2008) covers the whole period 1974-2001, spanning five of the six “episodes” in the story of section 3, with consecutive periods of protection and liberalization (see figure 5.1 for a time series of the average tariff and the average skill premium in their data). Instead of using import penetration as in Galiani and Sanguinetti (2003), the authors avoid the potential endogeneity bias of this variable by focusing on the effect of industry-specific tariffs on wages and skill premia. Their main conclusions are that trade liberalizations reduce wages and that reductions in industry tariffs increase the industry skill premium. Their results indicate that the level of tariffs has a positive and significant effect on the wages of unskilled labor, no significant effect on semi-skilled (high school graduates) labor, and a negative impact on the returns to higher

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<sup>16</sup> Throughout this section, changes in the skill premium are associated with wage inequality, which in turn is assimilated to increases in overall income inequality. This can be justified by the overwhelming weight of labor income in household total income, and by the similarity in movements between inequality in hourly wages, earnings and equivalized income, especially since the 1990s (see table 4.1). Moreover, while trade liberalization might also have a long run effect on growth and thus affect household income through this channel, the supporting evidence in this respect is still elusive (Goldberg and Pavcnik, 2007).

<sup>17</sup> There seems to be a difference in the conclusions between the studies that analyze actual policy changes and those that simulate the complete removal of trade barriers. For instance, Barraud and Calfat (2006) use a two sector model and microsimulations based on EPH data to postulate a hypothetical complete liberalization. They find that such a measure would increase household welfare and reduce poverty and inequality. Vos *et al.* (2006) report the results from a CGE model for Argentina in which poverty declines in a unilateral trade liberalization scenario, because the increase in the skill premium is compensated by offsetting positive employment effects.

education. Taken together, this evidence implies that the trade liberalization episodes increased skill premia and thus contributed to higher overall income inequality in Argentina.

Most of the studies on trade and income distribution in Argentina have concentrated on wages and some measure of tariffs or imports. However, trade may modify the distribution of real income by changing not only factor remunerations, but also prices of goods and services. Porto (2002) represents one of the few efforts to account for the distributional effects of trade reforms through variables other than wages. He finds an equalizing distributional effect of a specific trade reform (the implementation of the MERCOSUR regional trading block in the early 1990s) from the consumption side by inspecting changes in relative prices and the bundles consumed by households from an expenditure survey, the *Encuesta de Gastos e Ingresos de los Hogares* 1996/7. He finds that the poor consume relatively more tradable goods than the rich, and concludes that they were the main beneficiaries of the fall in tariffs when considering only this channel. While it is likely that the earnings inequality effect prevails, these results point out some of the limitations of the studies concentrating only on the impact of trade on wages.

The general conclusion from the studies on the distributive impact of trade liberalization in Argentina is that, while more openness implied a wider wage gap and thus higher levels of overall inequality, its effects can only explain a relatively small fraction of the total increase in the wage premium.

Some of the clues about the plausible concurrent factors behind the large increase in income inequality in Argentina during the 1990s can be derived from the extensions to the standard trade model incorporated by the liberalization and inequality literature. Many of the arguments (and, indeed, the evidence from country studies) point towards the importance of technology and capital accumulation (Goldberg and Pavcnik 2004, 2007). The next section discusses the issues of skill biased technological change, which might arise endogenously from increased trade, and the incorporation of technology through the process of capital accumulation, which might have occurred concurrently to trade reform in Argentina.

## **6. Technological change and capital incorporation**

A complementary explanation for the large fall in the relative demand for unskilled workers relies on the importance of skilled-biased technological change (SBTC) and capital incorporation. The arguments are simple and have been formalized elsewhere (see Krusell *et al.*, 2000, Acemoglu, 2002 and Card and Di Nardo, 2006, among others). Technological and organizational changes that increase the relative productivity of skilled workers translate into wider wage gaps, and, with labor market rigidities, also into lower employment for the unskilled. An increase in the use of physical capital in the production process becomes unequalizing through two channels. First, if capital goods incorporate embedded technological change, an increase in

investment in new machinery and equipment can accelerate the adoption of new technologies. Second, even without technical innovations, physical capital is usually more complementary to skilled labor, being then a source for an increasing productivity gap across workers with different education levels. The arguments seem compelling but it must be established whether these changes have taken place in Argentina, and if so, what has been their impact on inequality. The rest of this section tackles these points.

#### *A shock in physical capital, technology and organization*

Since the middle of the twentieth century and until the mid 1970s, Argentina was a relatively closed economy with low investment rates. The political turmoil of the 1970s and the stagnant, unstable and protected economy of the 1980s discouraged investment in physical capital, especially foreign investment. A new scenario emerged in the 1990s, combining macroeconomic stability, and a set of market-oriented policies, including a massive process of privatizations and deregulations, and measures toward capital account liberalization. On top of that, the real exchange rate appreciation and the large tariff reductions substantially reduced the relative price of physical capital (figure 6.1). The favorable international financial conditions also contributed to the massive inflow of foreign capitals.

Private investment as a proportion of GDP increased 44 percent between the 1980s and the 1990s. In particular, foreign direct investment as a share of GDP increased from an average of 0.4 percent in the period 1970-1990 to 1.6 percent in the period 1991-1997. According to FIEL (2002), the physical capital stock (excluding the public sector) grew by 20 percent between 1992 and 1999. The average age of the capital stock decreased from 8.8 years in 1989 to 5.2 years in 1998. This rapid increase in physical capital, particularly of imported machinery and equipment, was a vehicle of technology modernization after decades of backwardness.

The deregulation of many domestic markets and the removal of barriers to international trade forced private firms to seek the productivity gains necessary to stay in business. Besides, the openness of the Argentine economy occurred just in a moment of increasing globalization and diffusion of new communication and information technologies, inducing firms to adopt state-of-the-art production technologies. Many sectors went through radical changes in their production processes, incorporating information technology, computers, robots and modern assembly lines in just a few years.<sup>18</sup>

Changes did not take place only at the production stage, but also at the organizational level. The scenario described above contributed to an extraordinary transformation in the property structure of firms from public to private, from domestic to foreign, and

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<sup>18</sup> See Bisang *et al.* (1996), Kosacoff (1998), Katz (2000) and Bisang and Gómez (2006).

from small to large owners. Morley *et al.* (1999) construct indices of reforms in Latin America and rank Argentina first in terms of the number and size of privatizations. Chudnovsky *et al.* (2004) constructed a database of firms in the country and found that more than 50 percent of those founded before 1975 changed ownership, most of them in the 1990s, and in most cases with the involvement of transnational corporations (TNC) in the acquisition. They also report that the share of TNCs affiliates in the sales of the 1000 largest Argentine firms increased from 39 percent to 67 percent between 1992 and 2000. Kosacoff (1999) and Azpiazu *et al.* (2001), among others, document the surge of large domestic corporations in place of small firms. This new structure favored changes toward larger production scales (*e.g.* from small shops to large supermarkets), and toward a more efficient use of production factors (*e.g.*, eliminating the excess of workers in public firms – see Galiani and Sturzenegger’s 2008 discussion of privatization in section 8 below).

Both technological and organizational changes implied a lower relative demand for unskilled and semi-skilled workers. The impact on these workers could have been milder if changes had been adopted gradually, or in a context of strong social protection with compensatory measures. That was not the case: the modernization of Argentina’s economy took place in just a few years in a scenario of weak labor institutions, and in the midst of a process of labor deregulation (see section 8). It is also interesting to notice that the dramatic fall in the relative demand for unskilled labor, which quickly translated into unemployment, informality and poverty, did not unleash significant labor and social unrest during the 1990s. This may be due to the fact that changes occurred under a Peronist administration with high initial support (Acuña *et al.*, 2007), which had a noticeable success in the control of inflation, and which had managed successfully to establish an implicit alliance with the powerful unions.

### *The evidence*

Technology and organizational changes are difficult to measure, and in Argentina they occurred in a period with several policy changes and economic shocks. As in the rest of the world, the evidence in favor of these hypotheses is mostly indirect – it is not easy to identify causal links.

One of the main arguments in favor of the technological change explanation is the difficulty to find alternative plausible hypothesis to account for the co-movements of relative wages and skill intensity. As documented in section 4 above, there was a substantial increase in the wage premium in the 1990s alongside an increase in the relative use of skilled labor across all economic sectors. This observation is hard to

reconcile with the predictions of most models that ignore skill-biased technological change.<sup>19</sup>

The sectoral decomposition of changes in the share of employment by educational groups carried out in section 4 suggests that the fall in the relative employment of unskilled labor is mainly accounted for by a drop in the intensity of use of this factor within all economic sectors. This “within” effect is particularly relevant in the period 1992-1998, which is consistent with the story of technological/organizational shock in the 1990s. García Swartz (1998) shares this conclusion, although his analysis covers just the beginning of the reforms.

The changes in the returns to education and unobservable factors documented in section 4 are also compatible with the SBTC/capital accumulation hypothesis. First, in Argentina both the returns to observed and unobserved skill substantially increased in the 1990s (and not in the 1980s), a fact that is consistent with a technological shock driving changes in both returns. This experience differs from that of some developed countries where both returns did not grow at the same time, casting some doubts on the SBTC hypothesis.<sup>20</sup> Second, the change in the returns to education in Argentina implied that college graduates progressively departed from the rest, without any clear change in the gap between the unskilled and the semi-skilled. This is compatible with a pattern where a new technology is strongly complementary of non-routine cognitive tasks, typical of highly skilled workers, and mostly a substitute for the routine tasks found in many traditional middle-wage jobs, like those in the manufacturing sector (Autor, Katz and Kearney, 2006). Demombynes and Metzler (2007) find that the increase in the dispersion in the bottom half of the wage distribution in urban Argentina can be almost fully accounted by a surge in the residual variance. Having secondary education does not imply any significant advantage to benefit from most new technologies, and hence returns to education did not increase. Instead, having other skills related to a more modern and competitive environment (but not observed by the researcher) could have become crucial.

Acosta and Gasparini (2007) present evidence for the relationship between capital accumulation and the wage structure by taking advantage of the variability of wage premia and capital investment across industries in Argentina’s manufacturing sectors. They used repeated cross sections to estimate a model of the log wage on the interactions between education and capital accumulation over gross value added for the sector where the individual works. The regression includes several controls and interactions between education, import penetration and exports. The estimated coefficients, presented in table 6.1, reveal that sectors that accumulated more physical capital in the 1990s were those where the wage premium grew the most.

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<sup>19</sup> Explanations based on skilled workers performing unskilled tasks, that are consistent with these movements, are treated in section 7.

<sup>20</sup> See Demombynes and Metzler (2007) for more evidence on this point.

Using a technology survey with longitudinal data (*Encuesta sobre la Conducta Tecnológica de las Empresas Industriales Argentinas*, ETIA), Bustos (2006) assesses the impact of trade and foreign investment on technology and skill upgrading at the firm level. By applying decompositions similar to those in section 4, the paper shows that aggregate skill intensity in the manufacturing sector is almost entirely accounted for by skill upgrading within firms. Moreover, the paper shows that firms that upgraded technology faster also upgraded skill faster. The estimated coefficients (shown in table 6.2) imply that a one standard deviation in the change in average spending in technology per worker is associated to a 0.629 percentage points increase in skill intensity, which represents 30 percent of the average increase for the sample. In related research based on data from EPH, Brassiolo *et al.* (2006) highlight the rapid adoption of information technologies in Argentina in the 1990s and find a substantial wage premium for the use of personal computers in the job.

As discussed in section 5 the direct effect of trade on wage inequality seems to have been small. However, as argued above, it is likely that the profound trade and capital account liberalization process was key in fostering the rapid adoption of new technologies through various channels. Yeaple (2005), for instance, develops a theoretical model where increased export opportunities could stimulate the adoption of new skill-biased technologies, which is compatible with Bustos' (2006) findings for Argentina: firms that were most affected by trade liberalization, and firms which ventured into exports, upgraded skill faster than the rest. Moreover, the relative prices of the 1990s also facilitated capital adoption: the fixed exchange rate, at a level considered by many to result in an overvalued currency, also implied a fall in the relative price of imported capital (machinery and computers). Recent theoretical developments also point towards the endogeneity of technology adoption with respect to trade. Acemoglu (2003) develops a model in which developing countries incorporate technological change through the import of machines and capital goods which are complementary to skilled labor. Atolia (2007), in turn, develops a dynamic Heckscher-Ohlin model in which increasing inequality arise from trade liberalization in the short term because of asymmetric speeds of adjustment between the export and import sectors. The asymmetry generates a transitory capital accumulation that increases the relative wages of skilled workers because of capital-skill complementarity in production. This model reconciles the basic trade model with the evidence from developing countries, and it predicts that despite these short term dynamics the Heckscher-Ohlin effects prevail in the long run.

The greater relevance of the capital/technology and trade/technology channels over the “pure” trade channel is also found in studies for other countries. In a survey of the literature for the United States, Katz and Autor (1999) conclude that trade explains around 20 percent of the increase in inequality, while skilled-biased technological change explains the remaining 80 percent. Behrman *et al.* (2003) combine policy indices with household survey microdata on wage differentials by schooling levels for 18 Latin American countries for the period 1977-1998, and find that, on average,

liberalizing policies (including labor, financial sector and trade reforms, among others) have had a strong positive effect on wage differentials, although that effect tends to fade fairly rapidly. The authors fail to find a significant effect of trade reform on wage differentials in their panel of countries, but they do find an impact of the share of technology exports, which they use as a proxy to technology adoption. They conclude that “technological progress rather than trade has been the mechanism through which the unequalizing effects have been operating”. Sánchez-Páramo and Schady (2003) reach a similar conclusion using repeated cross-sections of household surveys for a series of Latin American countries. They stress an important point: although the direct effect of trade on wage inequality may be small, trade is an important mechanism for technology transmission in Chile, Colombia and Mexico, although they do not have information on R&D for Argentina.

To sum up, most of the elements from the main hypothesis behind the increase in inequality in many developed countries, skill-biased technological change, seems to be present and exacerbated in Argentina. First, changes occurred not only in production technologies, but also in the way of organizing economic activity, including substantial changes in firm size and ownership structure. Second, unlike other countries where changes were introduced gradually, Argentina experienced a shock in the way production was carried out, due to the sudden openness of the economy. Thirdly, the overvaluation of the exchange rate and the global transition towards intensive use of information technologies coincided, driving the adoption of state of the art equipment and processes. Finally, changes occurred in a framework of weak labor and social institutions. It should be noted, however, that while several studies suggest the empirical relevance of the argument discussed in this section, there is no conclusive evidence on the quantitative importance of this hypothesis.

## **7. Adjustment, unemployment and credentialism**

Sections 5 and 6 highlighted the relevance of increased skill premia for wage inequality in Argentina, and discussed the relevance of trade liberalization, capital incorporation and technological change as plausible causes behind these changes and the ensuing increase in income inequality. Another strand of the literature has emphasized the impact of macroeconomic adjustment and the resulting reduction in the aggregate demand for labor as central arguments for the increase in inequality in the 1990s. Different forms of this line of reasoning are provided by Altimir and Beccaria (2001), Groisman and Marshall (2005), and Maurizio (2001), among others.

This argument states that under falling aggregate demand for labor and increasing supply of skilled workers, more educated workers take the occupations of the unskilled, which are displaced to unemployment or underemployment. This adjustment reduces the mean wage of the skilled through a composition effect, but the labor market becomes even tougher for the unskilled, who lose their jobs or work fewer hours, hence raising inequality. The observation of higher intensity of use of



skilled workers in production is then attributed to this fact, and not to higher productivity of that factor due to more complementary physical capital or technical change. This argument is linked to the concept of “credentialism”: the same occupations are now performed by more qualified workers, although with basically the same productivity and with the same job characteristics (Manacorda and Robinson, 1997). The process hurts the skilled, by devaluing the return to their human capital, but it hurts more the unskilled, which are displaced from low qualification occupations.

Maurizio (2001) presents an in-depth study of this issue. The departure point is the observation that during the 1990s there was an increase in the educational level of the labor force. Instead of relying on the presence of an increased (technology or trade-induced) demand for this type of labor, she postulates that in a period of weak labor demand, labor markets might become increasingly competitive as the supply of skilled workers grow, and the latter might fill-in the occupations of the unskilled. Nothing would have changed about the production requisites of the job – higher qualifications would be required simply as an artifact of increased supply and lower demand. Maurizio (2001) develops an empirical analysis to investigate this hypothesis, by attempting to establish the degree of overeducation in the Argentine labor force during the 1990s, concentrating on full time wage earners. Overeducation is defined as the situation where a worker has an educational level higher than the one required by his or her occupation. Since there are no official qualification requisites for Argentina, Maurizio (2001) uses the classification from the US Dictionary of Occupational Titles and compares them with the individual qualifications. The analysis finds evidence of high and increasing levels of overeducated workers, with 22 percent of wage earners in this category in 1994 rising to 29.7 percent in 1999. Moreover, the paper finds that the increase in the use of qualified labor is relatively uniform across sectors, which is consistent with the overeducation hypothesis – technical change would require differential changes reflecting skill-biases. Maurizio (2001) also finds that the return on “excess” years of education is only 66 percent of the return to the years required by the job characteristics. Finally, regarding the evolution of wage inequality, the findings indicate an increase in the relative wages of college graduates with respect to those with primary education over the period, with a higher premium for “non-overeducated” college graduates (that is, the ones in better job-qualifications matches). The evidence presented leads to the conclusion that overeducation, more than technical change (trade induced or otherwise), was behind the observed trends in Argentina. Groisman and Marshall (2005) also favor the credential devaluation explanation, and Altimir and Beccaria (2001) reach a similar conclusion, motivated by the combination of increased educational requirements and higher unemployment.

Despite this evidence, the trend in overeducation cannot easily be deduced with the available information, as workers may be carrying out completely different tasks under a similar job description in the household survey. Based on the same EPH data,

the proportion of college graduates in strictly professional occupations falls 1.4 percentage points between 1992 and 1997, and their proportion in non skilled occupations increases 0.6 points in the same period, which seems a relatively minor change. Moreover, the increase in the use of qualified labor was not uniform across sectors. As reported in table 4.4, the share of college graduates did not increase in construction, transportation or domestic servants, all sectors which are likely to have experienced a relatively lower technical upgrade.

This discussion does not invalidate the argument of devaluated educational credentials which, in fact, can be considered a complement and not a substitute to the trade, capital and technology explanations. The question thus relies on its quantitative relevance, which might be relatively minor beyond some short periods of employment contraction (*e.g.* 1993-1996). As shown in figure 4.6, the employment rate is similar in the early and in the late 1990s (even for unskilled workers), despite the substantial reduction which followed the structural adjustments of the early 1990s and the Tequila crisis. Mean hours of work were also similar in the early and late 1990s, with only a 1 percent fall between 1992 and 1998. In addition, real wages increased for skilled workers, and did not fall for other types of workers, at least between 1992 and 1998. While unemployment did increase substantially in the 1990s, it was mostly driven by the rise in labor market participation (see figure 4.6). In light of these facts, the fall in the aggregate demand for labor does not seem to be so large. Regarding the following decade, unemployment levels fell significantly and the employment rate reached record levels by the mid-2000s, reducing the scope for overeducation and credentialism mechanisms. The levels of income and wage inequality, however, were still higher in the mid-2000s than in the early 1990s. While the combination of these facts might undermine the quantitative relevance of the credentialism hypothesis, this might also be a long lasting, difficult to revert consequence of credentialism (for instance, through composition changes in the labor force). The empirical evidence on this issue is scarce.

Other studies have emphasized the link between adjustment, unemployment and inequality by stressing macroeconomic factors rather the credentialism hypothesis (González and Menéndez, 2000; Altimir *et al.*, 2002, Frenkel and González Rozada, 2003; Damill *et al.*, 2003; and Beccaria, 2006). However, as argued in section 4, the *direct* distributional effect of the increased unemployment in the 1990s seems small, as it is mainly accounted by the raise in labor market participation. Figure 7.1 compares the Gini coefficient of household per capita income for all households with the same indicator computed by ignoring all household whose head or the spouse was unemployed. The trend in both inequality indices is remarkably similar: the large increase in inequality is almost the same whether considering the unemployed or not. Having said that, the increase in unemployment may have certainly depressed wages for those employed, especially among the unskilled and the semi-skilled, which bore the largest increase in joblessness, and this might have contributed to a higher wage

premium and increased inequality. However, there is no systematic evidence on the strength of this phenomenon in Argentina.

Recapitulating, sections 5 and 6 discussed the relevance of trade liberalization, technological change and capital upgrading as the driving forces behind the increase in the relative demand for skilled labor, while the credentialism and adjustment arguments stress the negative impact of structural changes and the macroeconomic climate on the relative demand for unskilled labor. As argued above, the factors behind these explanations are not mutually exclusive, and might even be complementary. This implies that their relative merit is an empirical question, but, unfortunately, it is not easy to distinguish between the two sets of hypotheses with the data at hand.

## **8. Other contributing factors**

This section attempts to do justice, at least partially, to a series of relevant topics which were not covered by the previous discussion. The selection of topics attempts to highlight some of the knowledge gaps in the scholarly literature about inequality in Argentina. Their inclusion in this section does not necessarily imply that they are second order, but sometimes reflects the lack of data or difficulties for identifying effects. The section starts by reviewing the potential inequality effects of topics related to secular trends, such as demographic factors. It continues with the analysis of other reforms not previously covered, such as privatizations, decentralization and labor reform. Finally, the discussion turns to unionization and the distributive impact of new forms of representation.

### *Demographic changes*

The secular trends in demographic variables in Argentina over the last decades have had a distributive impact that has been documented in the literature. Marchionni and Gasparini (2007) study these issues by means of micro-decomposition techniques based on household survey data for the Greater Buenos Aires area. The results show that a higher average number of children in middle and low income households in the period 1980-1992 is associated to higher levels of poverty and inequality in equivalized household income. This increase was related to both the higher number of members in poorer households, and to the reduction in the hours of work of spouses as a consequence of having more children in the household. The same study shows that, instead, household size decreased for most income groups in the 1992-1998 period, which resulted in a minor reduction in poverty, and negligible effects on inequality. Cruces and Galiani (2003, 2007) develop instrumental variable estimations based on the 1991 Census, and find a negative and significant causal effect of children on their mother's labor supply for women with primary and secondary education, but not for those with a tertiary or university degree. This is compatible with the trends in Marchionni and Gasparini (2007), since a lower (higher) number of offspring should

have an overall (un-) equalizing effect by increasing (decreasing) the labor force participation of women in lower income households.

### *Privatizations*

The 1990s were clearly the decade of reforms. The previous sections covered the impact of capital account and trade liberalization. The following pages provide an account of the partial evidence of the distributive effects of other concurring reforms.

The Argentine economy was characterized, until the beginning of the 1990s, by the presence of large state-owned enterprises, especially in the utilities, oil, minerals and financial sectors. While privatizations were successful in inducing more efficiency and increasing supply in some of these sectors (especially in utilities), their distributional impact has to be assessed on a case by case basis. An overall assessment is difficult since implies considering the jointly impact on (i) access, quantities and prices of privatized goods and services, and (ii) earnings, employment and profits in the industry.

The main pro-poor argument in favor of privatizations emphasizes the equalizing benefits from increased access and supply (Ennis and Pinto, 2002; Navajas, 1999). Galiani *et al.* (2005) report that municipalities which privatized their water provision during the 1990s had a significant reduction of about 8 percent in their infant mortality rates, which implies important inequality-reducing effects in terms of welfare.

On the other hand, privatizations may imply higher prices on services, due to the removal of implicit subsidies and to finance investment, with potentially unequalizing consequences. Ennis and Pinto (2002) use data from the 1985-1986 and the 1996-1997 expenditure surveys, and report that the budget shares of telecommunications, natural gas and water and electricity rose on average 189, 115 and 14 percent respectively. These changes were significantly higher for households below the median of the income distribution (as high as 513, 478 and 108 percent for the poorest decile, respectively), although it is not possible to adjust for the quality of the service provided (for instance, the telecommunications industry saw a large increase in quality and availability). Galiani *et al.* (2004) argue that large efficiency gains from privatizations were not translated into lower prices. While the efficiency and supply effects of privatization are clear, at least in some sectors, this partial evidence suggests that better regulation might have helped reduce prices in public utilities, and would probably have had an inequality reducing effect.

Privatization also affected significantly the labor market, since most of the efficiency gains in privatized companies were achieved through layoffs. Privatizations accounted for 13 percent of the change in unemployment from 1987-1990 to 1997 – layoffs affected as much as 67 percent of workers in the national railway company and 83 percent in YPF, the state-owned oil company (Ennis and Pinto, 2002). Based on a random sample of former YPF employees, Galiani and Sturzenegger (2008) report

that, at least for this company, laid-off workers experienced a sharp fall in post displacement earnings that go beyond the loss of seniority or firm specific human capital. This evidence is compatible with the presence of rents related to employment in state-owned companies. While their removal implied large losses for the affected workers, it is likely that they also represented lower welfare losses for society as a whole.

### *Decentralization*

Decentralization, the process by which the central government devolves responsibility of service provision to the provinces, was another important component in the far-reaching structural reforms implemented in the 1990s. While in some sectors (most notably in health services provision) the process started before this decade, the transfer of health and secondary education constituted an important component of the reforms. From a distributive perspective, decentralization might affect human capital accumulation through health and educational outcomes, and it is thus related to the long term distribution of well being, beyond considerations on current income inequality.

The theoretical arguments in favor of decentralization are appealing: the idea is to reduce the distance between the implementers and the receivers of public policies, with the purpose of increasing efficiency (through greater local oversight) and to better reflect the needs and preferences of the local population. Despite these motives, Cetrangolo and Gatto (2002) argue that in Argentina these reforms were usually rushed with fiscal considerations in mind, mostly to balance the central government's budget. These authors point out that devolving without the corresponding funds, without ensuring that the administrative capacity exists at the receiving end, and without appropriate compensatory measures might result in deterioration in service delivery and in more unequal outcomes.

Since decentralization is related to the patterns of human capital accumulation, the available short term evidence is only partial. However, it seems to justify the concerns of those who favored a more gradual approach to the devolution of vital service provision. Galiani *et al.* (2008) present a careful study of a specific decentralization measure, the transfer to the provinces of all secondary schools which depended on the central government between 1992 and 1994. Since provincial governments already had secondary schools under their controls, the estimation strategy exploits this variation, and finds positive and significant effects of decentralization on standardized tests. However, a further analysis reveals that all the gains were concentrated on richer municipalities: schools in poorer areas did not see any improvement in educational results. This implies that this specific decentralization policy increased average quality, but also increased the inequality in educational outcomes.

These results suggest that decentralization might increase quality for those who have the resources or the organization to make their voice heard, or in areas where capture

by local elites is easier – not everyone is capable of taking advantage from decentralization. While it is not possible to generalize from one reform, this partial evidence suggests that the process of decentralization might have had an inequality increasing impact, albeit in the long term.

### *Changes in labor regulation*

The area of labor regulation was targeted by the Menem administration in the early 1990s. It introduced a sweeping program of payroll tax reductions, explicitly motivated by the belief that lower taxes would reduce unemployment and promote formalization of the labor market.<sup>21</sup> The administration considered these reductions to be compensatory measures, and thus mandated larger cuts for less developed areas. Cruces *et al.* (2008) exploit these cuts and their unusual size, timing and geographical variation. The payroll tax as a proportion of the total wage bill for the non agricultural, formal private sector fell from around 27.5 percent in 1994 to just over 15 percent in the year 2000. However, Cruces *et al.* (2008) report that the reductions had no significant effects on levels of local employment (the purpose of the reform), although the reductions were partially shifted to higher wages. This limited increase in wages implies that the distributional effect should be minor<sup>22</sup>, but with an ambiguous direction: on the one hand, poorer regions received larger cuts, so they should see the largest wage increases (reduction in between region inequality). On the other hand, the cuts only benefited formal workers, potentially increasing within-region inequality.

The Menem administration also introduced a series of so-called “flexible” wage contracts (the “modalidades promovidas”), which allowed firms to legally hire workers with reduced entitlements (such as the reduction or the removal of severance payments for some categories, or rebates in social security contributions), or to make extensive use of trial periods and internships. While these measures certainly implied lower labor standards for registered workers, assessing the distributional impact of the reforms is not evident, since it is difficult to isolate their effect from the contemporaneous trends in labor markets, marked by increasing unemployment and informality, and from concurrent reforms.

Finally, there has been some discussion in the literature about the distributive impact of minimum wage levels and their change. The minimum wage was an important variable bargained over by government and unions in the inflationary 1980s because it

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<sup>21</sup> Neffa (2005) provides an exhaustive description of all the changes introduced in this and other aspects of labor regulation in the 1989-2001 period.

<sup>22</sup> The tax cuts, however, had a large impact on government finance. According to Rofman (1999), the foregone government revenue due to tax cuts during the first semester of 1999 could have financed a sizeable subsidy (300 pesos, equivalent to 300 US dollars – about 40 percent of the average formal wage at the time) to 1.35 million individuals, about two thirds of unemployed workers in urban areas at the time.

constituted a centralized device for recouping the erosion of price increases on the purchasing power of wages. In that sense, it is likely that through this channel increases in the minimum wage had an equalizing effect. The stabilization of the 1990s implied a loss of relevance of the minimum wage, which was fixed in nominal terms at a low level from August 1993 to June 2003, and largely not binding over most of the period. The minimum wage increased substantially from July 2003, coinciding with the recovery of the economy. Khamis (2008) exploits regional variations in the number of workers below the minimum wage over the period 1992-2005, and finds positive effects for informal workers for the large 1993 increase<sup>23</sup>, providing some support to the hypothesis that this policy measure had an equalizing effect.

The partial review of the previous paragraphs shows that the distributional impact of labor policies and reform during the 1990s is not a settled issue. Most of the measures were qualified as anti-labor, and the increase in employment and efficiency that justified them failed to materialize in many cases. However, disentangling the effect of each policy from that of concurrent reforms in the labor market and elsewhere might prove impossible. The following deals with yet another phenomenon taking place simultaneously in the labor market and potentially affecting the distribution of wages and earnings.

#### *Unions and the insider-outsider debate*

The labor economics literature has an ample discussion on the distributional impact of unions: on the one hand, they tend to compress the distribution of wages within a sector, but they amplify the differential between covered and uncovered workers (or insiders and outsiders). Moreover, theoretical models show that the unions will be stronger in sectors which face imperfect competition, such as natural monopolies or government, or which enjoy rents by other means (such as those protected by tariffs). The logic is that the presence of rents facilitates the collective organization of workers – rent sharing constitutes an attractive selective incentive.<sup>24</sup> Galiani and Porto (2008), reviewed on section 5 above, develop a Heckscher-Ohlin model augmented with unions, which protect unskilled workers and capture a fraction of tariff-rents.

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<sup>23</sup> While the author qualifies this finding as surprising, the problem might in fact arise from a simple binary definition of formal and informal employment. A gradual perspective, where formal and informal correspond to the extremes, might be more useful. Cases such as the minimum wage for “informal” workers arise because of the particular functioning of labor markets, which are a mix of labor regulations (which allow, for instance, different levels of benefits and social protection for legally registered workers, for instance in the case of the “modalidades promovidas”), conventions (which imply that some benefits, for instance the 13<sup>th</sup> wage or “aguinaldo”, are paid to many informal workers) and because of the working of the judiciary – a judge, for instance, will routinely grant severance payments in labor disputes without taking into account the existence of a written contract or the payment of social security contributions.

<sup>24</sup> See Card *et al.* (2004) for a review and for empirical evidence on the wage-equalizing effects of unions for the United States, the United Kingdom and Canada from the mid-1970s to the mid-2000s.

The Argentine labor market has been characterized by the presence of strong, industry wide unions, which played a significant role in shaping the country's social, economic and political outlook, mainly through their relation with the Peronist party. Despite the importance of unions in the Argentine economy, there is scant empirical evidence on their impact on wages and income, mostly because of data availability issues.<sup>25</sup> There is a broad consensus about the inequality-reducing effects of the first Perón government's pro-labor policies, in which the previous (relatively scattered) unions were centralized and greatly strengthened.<sup>26</sup> From the 1940s to the 1950s union membership doubled, from 30 to 51-65 percent for manufacturing workers and from 24 to 38-41 percent for non agricultural workers (Marshall, 2005). After this initial consolidation of large unions, it is highly likely that unions also had an overall equalizing effect in the 1950-1970 period, as in more advanced economies. The low levels of informality and high levels of union membership warranted a large fraction of beneficiaries from union activities, and the presence of high tariffs implied a relative abundance of rents to share (and to fight for). Moreover, as discussed above, unions also played an important role in inflationary periods, by helping regain the losses in the purchasing power of wages (which are in fact temporary rents enjoyed by firms).

While consistent series of union membership are not available<sup>27</sup>, the evolution of coverage and strength for the 1970-1983 period can be deduced from qualitative sources. In broad terms, unions were only relatively weakened by the authoritarian governments at the beginning of the 1970s, and regained a substantial political and formal power with the return to democratic rule (and to a Peronist government) in 1973. The military coup of 1976 and the ensuing military regime of 1976-1983 implied an important retreat of unions from the labor market, and the persecution of middle and low rank union representatives at the workplace. From 1984 onwards, with the return to democratic rule, it is possible to deduct the evolution of union influence from the available data on number of strikes and days lost to industrial action (figures for 1984-2006 can be constructed from Murillo, 1997, and Etchemendy and Collier, 2007). These figures show a high degree of union activity and volatility during the 1980s, receding greatly from 1991 onwards, and then growing again after 2001. Union membership also declined between 1990 and 2001 (Marshall, 2005). These trends are suggestive of a series of factors. The decline in union activity coincides with reforms such as privatizations (see the discussion above), trade liberalization and price stabilization of the 1990s, which at least in

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<sup>25</sup> The EPH, an otherwise fine labor force survey, has never routinely collected information on union membership. This might be due to the political economy of unions in Argentina, in which the government seldom had an incentive to verify the reputedly unreliable and over-estimated self-reports on membership (Marshall, 2002).

<sup>26</sup> Gerchunoff and Llach (2003) provide good discussion and an extensive bibliography on the subject.

<sup>27</sup> Marshall (2005) presents an informed discussion of the trend in unionization rates in Argentina in the period 1940-2000. The series cannot be presented without this discussion, because the available indicators are not comparable *per se*.



theory greatly reduced the power of unions. This is due to the dissipation of rents from inefficient state-owned enterprises, from protective tariffs and from the inflation-induced rents and subsequent wage bargaining (Marshall, 2002, highlights price stabilization as the loss of a common standard for collective bargaining in this period). Moreover, the Menem administration also tried to promote (with mixed success) a series of union reforms, most notably decentralized bargaining, which affected the power of industry-wide unions. The decline in union activity during the 1990s, thus, coincided with a period of rising wage inequality and with factors that according to the evidence reviewed contributed to this rise in wage inequality. Marshall (2002) puts forward a bolder claim: she hypothesizes that the increase in wage inequality during the 1990s can be attributed mostly to the changes in union regulation, and the effect of unemployment and price stabilization on unions. However, this hypothesis is difficult to assess with the existing data sources.<sup>28</sup>

While these arguments apply to within industry inequality, the overall distributive effect of unions depends on the characteristics of union members, which is an empirical question. Membership premia might have equalizing effects if members are unskilled, low income workers, while the contrary is also possible if members are mostly skilled or semi-skilled. This question is particularly relevant in the context of the recent resurgence in union activity, which, according to Etchemendy and Collier (2007), originates in an alliance between the Kirchner administration (2003-2007) and the large unions. Etchemendy and Collier (2007) report increased bargaining power over this period, and a larger recovery of real wages after the 2002 devaluation among a relatively privileged minority of formal, unionized workers, at the expense of capital but also, possibly, of outsiders. The changes in fundamentals in the economy have also facilitated this resurgence: the new relative prices induced by the devaluation produced large rents for firms, especially in the initial period of overshooting (from export opportunities and from comparatively low labor costs), while the ensuing growth and inflation revived some of the union's leitmotif – sharing prosperity (receiving a share of growth) and catching up with inflation.

Table 8.1 presents a profile of union affiliates for household heads and their spouses in mid-2007,<sup>29</sup> which represent 12.1 percent of all workers among this group.<sup>30</sup> Union members are more likely to be formal (with social security coverage) wage earners,

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<sup>28</sup> Marshall (2002) relies on indirect evidence – the sectoral variability in wages over the 1990s – since data on unionization by sector and its evolution is not available.

<sup>29</sup> The source of the table is the EPPS (*Encuesta de Percepción sobre Planes Sociales*), which was carried out by CEDLAS, MORI and the World Bank in mid-2007. It contains information a nationally representative sample of 2500 households (heads or theirs spouses were interviewed). See Cruces and Rovner (2008) for more details about the survey.

<sup>30</sup> The relatively low levels of unionization from this survey can be explained by the difference with previous sources, which usually ask whether the worker has a union contribution in his or her payslip. The question in the EPPS asked whether the respondent was “affiliated” to a union, in the context of a block of questions on political participation. The indicator reflects active participation rather than passive membership.

with above the median per capita household income. The union membership rate is four times higher in the upper third than in the lower third of the distribution of total household income, and it is also significantly higher among those with at least some tertiary or university studies, although this effect is weaker when looking only at formal wage earners. Multivariate analysis of the same data (not reported) confirms that union membership is explained by formal employment, over and above the impact of education, gender or other individual characteristics.<sup>31</sup> This evidence, while suggestive, cannot be taken as proof of an unequalizing effect of unions, because the results are based on active participation rates, and membership benefits spillover to passive members. They are an indication, however, that more research is needed about unions and the differences between the growth of formal and informal remunerations during the post-crisis recovery (2003-2007).

### *The collective action of the disenfranchised*

From the mid-1990s, a new form of organization emerged, representing the “outsiders”, or in more general terms, the disenfranchised – those who traditionally did not have union or political representation. According to basic social choice models, organized collective action will usually fail unless the organizations can secure selective incentives to incorporate members. Since the mid-1990s, however, Argentina saw the rise of organized militant groups among the unemployed and the extremely poor. A series of factors increased the possibilities of collective action of these individuals, but chiefly among them, according to Garay (2007), was the instauration of the Trabajar workfare program after the Tequila crisis. Within the program, non governmental and grassroots organization had to apply for funding for community projects. This peculiar mode of implementation aligned the interests of beneficiaries and provided, through the program’s cash transfer (allocated by the selected organizations) a selective incentive for joining and participating in organized activities. These groups’ activities grew quickly, and they became intermediaries and beneficiaries between local and national governments. Garay (2007) attributes the surge in Trabajar beneficiaries (from 67000 in April 2007 to nearly 200000 at the end of that year) to the growing power of these groups. These groups, according to this author, also played a vital role in the organization and implementation of the cash transfer program Programa Jefes y Jefas de Hogar Desocupados (PJJHD), the government’s main response to the 2001-2002 crisis. With more than 2 million PJJHD beneficiaries, these organizations strengthened their power and gained political leverage, mostly through protest and through the ability to mobilize beneficiaries.

As far as these groups gave a voice and represented the interests of those usually excluded (informal workers, the extremely poor and the unemployed), they

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<sup>31</sup> Using household survey data, Marshall (2005) finds that the decline in union membership for employed wage earners is mostly explained by employment changes against social-security entitled workers.

diminished their exclusion from the democratic process and reduced political inequality. Moreover, as a political force with mass-mobilization capacity, these organizations also created incentives for politicians and government officials to attend their needs, and secure funding for workfare and cash transfer programs, with potential inequality-reducing effects on the income distribution.

However, concerns about a culture of welfare-dependence, of second order in situations of generalized poverty such as the 2001-2002 crisis, might arise in the context of the strong growth during the recovery.

## **9. The distributional impact of public social policies**

The previous sections analyzed the level and the evolution of inequality from the mid-1970s to the mid-2000s in Argentina, and covered a host of potential determinants of the major changes observed throughout the period. The influence of the State in most explanations was pervasive but indirect, operating mainly through major reforms. This section focuses on the direct effect of public social policies on the income distribution.

The trends described in sections 2 and 3 referred to monetary income as reported in household surveys. Although this income variable includes some forms of monetary government transfers – mainly pensions, child-support benefits to formal workers, unemployment insurance payments, and cash transfers from poverty-alleviation programs –, the bulk of the government impact on individual well-being is ignored. In particular, the value of all in-kind subsidies, like education or health, is not included in the welfare proxy used for distributional analysis (household income). The same is true for most of the tax system, since direct taxation has a minor role in Argentina, at least when compared to high income OECD countries. Moreover, it is not clear whether income reported to the survey is net or gross of direct taxes, since this information is not present in the EPH questionnaire, and there are no clear guidelines on the issue for the interviewers. It is believed that most salaried workers report their income net of labor taxes, since these are subtracted from their wage bills, while the few self-employed who pay direct taxes probably do not include them in their report to the survey.

The results in this section adjust inequality measures to account for the impact of social public policies. In theory, the exercise is simple: starting with the original income distribution reported in the survey, cash transfers are subtracted to get a “market” income distribution, and then it is necessary to add the income value of in-kind social transfers and to subtract the burden of the tax system that finances social spending. The impact of the pension system is not covered: since benefits are tightly linked to the contributions by formal workers, it is not a redistributive policy to a large extent. Instead, the exercise focuses on the programs financed with general revenues, and where the benefits are not linked to contributions. The social policies in the analysis include education, health, water, sanitation, poverty alleviation programs,

housing, employment policies, and most municipal services (e.g. lighting and garbage collection). Many of these policies are carried out simultaneously at the federal, provincial and municipal levels. Public spending figures in this section were assembled by DGSC (2008), and refer to consolidated spending of the three government levels.<sup>32</sup>

Figure 9.1 shows social public expenditures as a share of disposable income and in per capita terms at constant prices. The pattern has been erratic. Social spending progressively increased in the 1990s, but the trend was abruptly interrupted by the 2001-2002 economic crisis. Social spending increased fast in the 2003-2006 period, when it reached its highest value in per capita real pesos. As depicted in figure 9.2, the structure of social spending has also varied in the period under analysis. The main change was the growth in the share of cash transfers from social assistance and labor programs, which climbed from 15 percent to 25 percent, because of some new workfare programs in the mid 1990s, and because of the implementation of very large emergency cash transfer programs after the 2001-2002 crisis, mainly the Programa Jefes y Jefas de Hogar Desocupados (PJJHD – see Moreno, 2006, for the evolution of these programs).

Before proceeding to the incidence results, it is important to provide some details on the methodology and to establish its limitations. To carry out the distributional impact exercise, the budget of each program in each year is distributed across the quintiles of the income distribution, following the benefit-incidence results of CEDLAS (2005), which were based on the EPH and the *Encuesta de Condiciones de Vida* (Living Conditions Measurement Survey-ECV), 2001. This procedure implicitly assumes that there are no changes in the targeting of the programs over time. The evolution of the distributional impact of government spending arises from changes in the allocation of the budget across programs. It is likely that targeting in some programs changed over time, because of modifications in their design or because of the evolving socioeconomic situation of the population. For instance, there is evidence that the non-poor have increasingly opted out of the public system in education and health, thus increasing the pro-poor bias of these programs. This trend, clear in the 1990s, somewhat stopped during the crisis of 2001-2002 (Gasparini, 2005b), although it seems to have returned during the subsequent period of growth.<sup>33</sup>

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<sup>32</sup> The share of the local (provincial and municipal) level of government in social public spending increased over the period under analysis: 37.3 in 1980, 43.0 in 1986, 41.7 in 1991, 47.5 in 1998, 48.1 in 2002 and 52.3 in 2006.

<sup>33</sup> For instance, the share of children attending public schools among all the enrolled at the primary level was stable at 95 percent for the poorest quintile in the period 2003-2006, but the share fell from 63 percent to 51 percent for children in the fourth quintile, and from 34 percent to 30 percent for those in the fifth (richest) quintile.

Social spending is assumed to be entirely financed by the tax system.<sup>34</sup> Tax incidence results originate from different sources (Gasparini, 1999; Rossignuolo, 2007, Argañaraz *et al.*, 2007), and the distributional incidence of each tax is assumed to have stayed constant over time. The changes in the incidence of the tax system in this section's results arise from modifications in the tax structure, which have been far from negligible (figure 9.3). The VAT and excise taxes were always the most important source of revenues for the government, but their quantitative relevance widely varied over time: in the 1980s the share in total revenues fell from 45 percent to 30 percent, crept to 40 percent in the 1990s and has been falling again in the 2000s. While trade duties and taxes on the financial system were very low in some periods, they are keystones of the fiscal policy in the post-crisis years. The weight of the personal income tax slightly increased over time, but its share was still lower than 10 percent in 2006.

The impact of social spending depends also on its size as a share of disposable income. Unfortunately, a comparable disposable income series since 1980 is not available, and thus it is necessary to assume a constant ratio per capita disposable income to per capita GDP. Fernandez and Kydiba (2005) argue that disposable income increased less than GDP in the 1990s. Hence, the distributional impact of spending in that decade may be underestimated in the present exercise.

The main results are summarized in table 9.1. A higher concentration index means more concentration of spending or taxes on higher-income people. Concentration indices for social public spending (SPE) are negative, indicating a mild pro-poor bias. Naturally, SPE is then progressive (column iv): its distribution is less concentrated in the rich than the income distribution. In contrast, the tax system is slightly regressive, at least in this exercise where current –and not permanent– income is taken as the individual welfare measure.

The targeting of SPE has been increasing over time, in particular since the implementation of large conditional cash transfer programs in 2002. The progressivity of SPE has been also growing over time, fueled also by increasing income inequality: a given expenditure structure is more progressive if the income distribution becomes more unequal.

Taxes are more concentrated in the upper income strata, as reflected by their positive concentration index. Tax concentration rose in the 1990s but not at the same speed as income concentration, turning the tax system increasingly regressive, as shown by the increasingly negative progressivity index. This pattern changed in the 2000s as inequality started to decline after the 2001-2002 crisis, and due to significant changes in the tax structure, in favor of the more progressive export and financial levies.

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<sup>34</sup> Although strong anecdotal evidence suggests that some of the funds from public spending never reach the intended population, because of inefficiencies and corruption, these potential leakages are ignored because of a lack of information on their level and trend.

This point deserves a further discussion. The government encouraged a large devaluation of the peso in 2002, and tried to sustain a higher exchange rate in the ensuing period. The devaluation implied a substantial fall in real wages and hence a potentially large unequalizing impact. On the other hand, the real devaluation of the peso, along with a surge in the price of agricultural commodities, created large rents to land, which were extracted through progressive exports taxes through which large poverty-alleviation programs were financed. Therefore, the regressive devaluation was the key element for affording and building a substantially more equalizing fiscal system. It should also be noted that excise duties (or “retenciones”) had another indirect distributive impact by keeping the local prices of traded goods below their international level, which was very important in a context of increasing international prices (the so-called commodity price boom). This effect is not included in these calculations, but it is discussed in section 11 below. Given the opposing effects in play, the net distributional impact of the devaluation is difficult to estimate.

It can be shown (Lambert, 2001) that the distributional impact of fiscal policy, measured as the difference in the Gini coefficient after and before government intervention, can be decomposed into two terms, since it is equal to public spending as share of disposable income multiplied by the progressivity of the fiscal policy (as measured by the sum of Kakwani’s progressivity indices of expenditures and taxes). Figure 9.5 shows the three elements of this equation: the distributional impact of the fiscal policy (*i.e.* the difference in the Ginis after and before), the share of SPE in total disposable income, and the progressivity of the fiscal policy (the net index of expenditure and taxes). The distributional impact of fiscal policy varied in the 1980s as a result of large changes in the budget size and reallocations across programs. There was an equalizing trend in the distributional impact of fiscal policy in the 1990s, mostly due to higher progressivity of spending and taxes. After a fall in the distributional impact due to the 2001-2002 crisis, the series returned to an increasing trend. This was due to a large increase in the progressivity of the tax system, as discussed above, and also because of an increase in public spending, reaching its highest value in the series presented.

Figure 9.6 shows that although fiscal policy reduces the level of inequality, it did not have a significant impact in affecting its pattern over the last decades. This result is driven by the fact that changes in the distributional impact of fiscal policy were small compared to inequality changes driven by “market” forces.

It is interesting to further analyze the role of cash transfers directed to the poor. Figure 9.7 shows the extraordinary increase of these transfers since the economic crisis of 2001-2002. As a response to its social consequences, the government implemented a large emergency program (Programa Jefes de Hogar, PJJHD) that covered around 2 million households (about 20 percent of all households in the country). As the economy recovered, the coverage of the program fell to 1.4 million beneficiaries in

2007.<sup>35</sup> The distributional impact of CCTs has been small, although not negligible – it accounted for a reduction of around 1 Gini point in 2006 (see figure 9.8).

## 10. The macroeconomic crises

Macroeconomic crises have unfortunately been a constant factor in the Argentine economy in the last 30 years. The series in figure 3.1 depict sudden and large falls in GDP per capita. Some of the crises in fact constitute the delimitations of the “episodes” in the inequality narrative presented in section 3. While the relationship is not a perfect fit, there seems to be a clear correlation between the evolution of GDP and distributional indicators during the episodes of crisis and recovery.

Understanding and accounting for crises is relevant, first and foremost, because of their large negative effect on household welfare, which has been documented elsewhere.<sup>36</sup> This section deals mostly with their effect on inequality. It starts by reviewing episodes of macroeconomic crisis, and then focuses on two of their salient aspects. On the one hand, the section reviews the evidence on the mechanisms determining the differential impact of crises along the income distribution. On the other hand, given that the large increases in inequality tend to dissipate some time after the crises struck, the section covers the evidence on the channels through which they can have a permanent effect on the shape of the income distribution.

### *The crises*

The fluctuations in output per capita depicted in figure 3.1 reveal a series of macroeconomic crises in Argentina since the mid 1970s. The first of the large crises started in 1980/1981, with a banking crisis in 1980 and a large devaluation and reversal in capital flows in 1981 following the collapse of a managed exchange rate system set up by the military government. The situation further deteriorated in 1982, when Mexico announced that it would default on its external debt. This “external debt” crisis spread through the region, affecting other heavily indebted countries like Argentina which were not able to re-finance their short term obligations. The devaluation of 1981 and the liquidity difficulties of 1982 (fuelled also by the confidence crisis after the Malvinas conflict) resulted in a fall of output of around 5 percent in each of these years. The Gini coefficient increased significantly by about 3 points and poverty rose 2 points from 1980 to 1981. Although the Gini fell almost one

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<sup>35</sup> The new programs *Familias por la Inclusión Social* and *Seguro de Capacitación y Empleo* gained relevance as successors to the PJJHD, but the latter was still the one with the highest number of beneficiaries in 2008.

<sup>36</sup> See for instance the discussion for Latin America and the Caribbean in Lustig (2000), and the comparative discussion of the impact of financial crises in the region and South-East Asia in Fallon and Lucas (2002).

point from 1981 to 1982, the poverty headcount still increased by 3 percentage points and rose above the 10 percent level.

The second large crisis took place in the mid-1980s, with the 1985 recession that preceded the Austral stabilization plan. Output fell by 9 percent and poverty increased 2 percentage points, but as can be appreciated in figure 3.1, inequality as measured by the Gini coefficient fell by three points with respect to 1984. The stabilization plan initially managed to reduce inflation, but it accelerated again in the period 1985-1988, culminating in two hyperinflation episodes, one in mid 1989 and one in the first quarter of 1990. Output fell 11 percent between 1988 and 1990, and the annual inflation rates were 343, 3080 and 2314 percent respectively for 1988, 1989 and 1990. The hyperinflation crisis had a very large distributional impact: poverty increased by 25 percentage points and the Gini coefficient by 6.3 points between 1988 and 1989, although it should be noted that inequality had been increasing steadily between the 1985 stabilization and the 1989 hyperinflation-induced jump.

In April 1991, the country adopted a currency board with a fixed exchange rate regime, the Convertibility plan, which managed to curb inflation successfully: yearly inflation fell from 172 percent in 1991 to 25 percent in 1992, and from 1993 until 2001 it remained at single digit levels. The Convertibility plan was accompanied by a series of far-reaching structural reforms. The economy grew fast after the implementation of the Convertibility plan, with per capita GDP increases of about 9 percent in 1991, 3 percent in 1992, 9 percent in 1993 and 5 percent in 1994, fuelled by growing public and private indebtedness from the liquidity in international capital markets. In December 1994, the newly elected government in Mexico let the currency float, which triggered a capital flight and a financial crisis that severely affected the Argentine economy. The currency board sustained the drain of reserves, but the so-called “Tequila crisis” implied a fall in GDP of around 4 percent in 1995. While growth bounced back quickly after the contagion of the Mexican financial crisis, the episode had a very large distributional impact: poverty increased by 5 percentage points and the Gini index by 2.7 points in a year. The effects of the crisis are also visible in the evolution of the national urban unemployment rate, which soared from 10.7 in May 1994 to 18.4 percent in May 1995. Probably as a consequence of the reforms, the rate had already been increasing steadily from 6 percent in October 1991 (the first measure before the implementation of the Convertibility plan), but it jumped with the Tequila crisis and remained in double digits until the second half of 2006. The crisis also implied a set of changes in the structure of employment, most notably an increase in the labor force participation of women and secondary workers<sup>37</sup>, and

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<sup>37</sup> For instance, the participation rate for adult women (aged 25-64) increased from 50.8 to 53.3 percent from 1994 to 1995, while it remained fairly stable for men in the same age group (91 to 91.3 percent). For the same years, the employment rate for adult women was stable at 45.1 percent, but it decreased from 83.5 to 80.6 percent for adult men, which is reflected in the unemployment rates increases from 11.2 to 15.4 for women and 11.8 to 12.3 for men. The participation rate for adults over 65 also increased throughout the period (CEDLAS, 2008).



the implementation of the *Plan Trabajar*, a workfare program which would form the basis for future cash transfer initiatives. Contrary to the period after the hyperinflation crisis, however, inequality levels and the unemployment rate did not fall during the recovery. It is possible that the financial crisis acted as a catalyst that accelerated and amplified the adverse effects of the reforms. The crisis happened at a time of increased exposure to (and dependence on) international capital flows. The economy as a whole was adjusting to the new economic incentives brought in by the structural changes, which were bound to produce large sectoral reallocations of employment. Households and small firms were particularly vulnerable in a context of overvalued exchange rate and increased competition, with almost no compensatory policies to ease the transition (*Trabajar* was implemented after the crisis, and not during the reforms). The Tequila crisis probably exacerbated what was going to be, in any case, a difficult transition. While the crisis had long lasting effects in the income distribution (and in unemployment levels), it is likely that this was partially due to the acceleration and worsening of a process that was already going on.

While growth resumed fairly strongly in the 1996-1998 period, inequality only fell slightly. The continuing exposure to international capital flows brought about by the currency board regime and the liberalization of the capital account hit the economy at the end of the millennium, with impacts from the 1997 financial crisis in South-East Asia and the 1998 crisis in Russia. The latter resulted in the devaluation in January 1999 of Brazil's currency, Argentina's largest trading partner. The economy entered a period of recession, which culminated in a major economic, banking and financial crisis when, in December 2001, the currency board system finally collapsed, after restrictions were imposed on withdrawal of funds from the banking system. GDP per capita fell 17 percent between 2000 and 2002, and 22 percent since the start of the recession in 1998. The recession and the ensuing crisis had a large impact on poverty, which rose 26 percentage points between 1999 and 2002, and on the Gini coefficient, which increased 4 points in the same period. The most dramatic effect was the combination of increasing prices (due to the devaluation) and falling nominal incomes (due to the sharp fall in economic activity), which implied a jump in the official poverty rate from 38.3 percent in October 2001 to 53 percent in May 2002. Starting in 2003, the economy entered a recovery period, growing at very high rates (above 8 percent per year) for the period 2003-2007 (see section 11 below for a discussion of this episode).

#### *Large macroeconomic crises: the distributive effects of hyperinflation*

From the macroeconomy-distribution perspective, the two largest crises (1989 and 2001-2002) represent the most interesting episodes over the period under study, since they present unusually large falls in GDP and simultaneously large distributional

impacts (table 10.1).<sup>38</sup> Under these two large crises, the evolution of poverty and inequality were dominated by with the combination of falling output and sudden increases in prices, although the latter increases had different origins and dynamics.<sup>39</sup>

Given the fiscal origin of most high inflation and hyperinflation bouts (Heymann and Leijonhufvud, 1995), it is not surprising that the literature concentrates on the differential incidence of the inflation tax.<sup>40</sup> Inflation constitutes by definition a proportional tax on nominal balances, but its effect on the income distribution is neutral only if all households face the same inflation rate, if all households have the same income elasticity in their demand for money, or if they all have access to the same “protection” technologies. Theoretical models find regressive effects by assuming that some workers have nominal contracts and others inflation-adjusted wages (Bulir, 1998), but indexation was a common practice at all levels in Argentina in the 1980s. Other approaches assume economies of scale or fixed costs in the access to “inflation-proof devices” (ranging from financial instruments like credit cards to freezers), but as noted by Sturzenegger (1997), this is not a realistic setup in countries like Argentina where foreign currency was widely available at relatively low transaction costs. In Sturzenegger’s (1997) model all agents have access to the same financial technology and use currency substitution, but even in dollarized economies everyday transactions must be carried out in local currency. Since the poor have a consumption pattern biased towards these goods, they are more exposed to the inflation tax.

Ahumada *et al.* (1993) and Canavese *et al.* (1999) present attempts to quantify the distributional effects of inflation in Argentina from a tax-incidence analysis. Recurring to similar methodologies, both studies estimate monetary demand functions, aggregate inflation tax and seigniorage collection, and a re-weighted consumer price index by quintile of the income distribution based on the 1987 Household Expenditure Survey. An interesting finding from Canavese *et al.* (1999) is that, except for the hyperinflation episodes, quintile-specific inflation rates do not differ significantly. However, the results indicate that inflation tax as a proportion of

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<sup>38</sup> The recession preceding the Austral stabilization plan in 1985 was not associated to large increases in inequality, and, as stated above, the lasting effects of the Tequila crises cannot be disentangled from those of the host of reforms taking place simultaneously.

<sup>39</sup> The devaluation in early 2002 implied a jump in the price level to accommodate the new relative prices of the economy. The inflation in the 2003-2007 period was moderate when compared to the hyperinflations of 1989 and 1991 (although increasing). It was mostly due to the growing levels of employment and to the adjustment of the real exchange rate to its equilibrium level after the devaluation’s overshooting in a context of a de facto fixed exchange rate. Moreover, the export levies implemented in 2002 implied lower prices for agricultural goods and petrol. Contrary to the experience of the 1980s, government financing through the inflationary tax did not seem to be a major force behind the changes in the price index.

<sup>40</sup> The review in Cruces (2000) distinguishes between the studies dealing with the impact of moderate and continuous inflation on the income distribution from the ones that attempt to stylize and quantify the effect of hyperinflationary episodes. The evidence of inequality-increasing effects of low inflation contexts is weak.

income was about twice as large for households in the first quintile over the 1980-1990 period. The income elasticity of the money demand function, lower than one, seems to be the main regressive channel of the inflation. The impact of the inflation tax on aggregate inequality indicators<sup>41</sup> was comparatively small for high inflation periods, with increases of about 1-1.5 points of the Gini for 1980-1988 and 1990, but extremely large for the year 1989 – the inflation tax implied an increase of 3.4 points in the Gini coefficient. It should be stressed, however, that the studies mentioned in this section are partial in that they do not account for households' benefits from the collected tax – Lambert's (2001) idea of the "net fiscal system". Although stabilization policies based on fiscal adjustment tend to have an inequality increasing impact, there is a trade-off with the elimination of the regressive inflation tax.

The tax incidence analysis, however, is not the only alternative to study the distributional effect of inflation. Pessino (1993), for instance, estimates Mincer wage equations for the EPH rounds of October 1987 and October 1989, and compares the returns to different factors before and after the hyperinflation episode. While returns to education, job seniority and self-employment rise after the event (and the changes are thus inequality increasing), the identification of an inflation-specific effect is hard to justify in a before-and-after setting. Fiszbein and Galiani (2003) propose another approach. They first estimate the skill premium from household survey data from 1986 to 1999, and then analyze the correlation between the premium, inflation and unemployment over the same period. The second stage estimates have limited degrees of freedom because of the reduced number of observations, but the results still indicate a positive and statistically significant effect of the inflation rate in the returns to schooling for the skilled and the semi-skilled. The returns of the skilled also increase significantly with aggregate unemployment, but fall with respect to their relative unemployment rate (relative to that of the unskilled). While the estimations are robust to the inclusion of a polynomial to adjust for trend effects, Fiszbein and Galiani (2003) do not provide a causal interpretation of their results.

A final word of caution is necessary regarding the study of household surveys collected during hyperinflation episodes: since information is collected over a period of time (typically one month for Argentina's EPH), spurious results might arise because incomes are declared in nominal terms. For instance, an inequality-increasing bias might be present if the timing of the interview is correlated with household income – richer households might be harder to come by, and thus might be interviewed at a latter time. A few days in a hyperinflationary episode imply large real differences in purchasing power, or large nominal adjustment in wages, potentially biasing the estimation results.

The available evidence on the impact of hyperinflation on inequality in Argentina suggests a relatively large regressive (and thus inequality increasing) effect. However,

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<sup>41</sup> Canavese *et al.* (1999) compute counterfactual distributions where the amount of the tax is returned to the households. The Gini coefficients were computed by Cruces (2000) from grouped data.

this impact should be short lived, since stabilization programs often reduce the inflation tax. This seems to be confirmed by the 1991-1993 trend of the Gini coefficient (figure 3.1). The depreciation of savings and nominal financial assets is one of the most plausible mechanisms for lasting effects of hyperinflation crises on the income distribution.<sup>42</sup> The aforementioned tendency to currency substitution, however, limits the scope of this mechanism, and unfortunately this has not been covered in the empirical literature for Argentina.

*Large macroeconomic crises: the distributive effects of the 2001-2002 meltdown*

The crisis induced by the implosion of the currency board regime in December 2001 was unusually virulent even by Argentine standards, and its origins and consequences have been extensively discussed in the literature. The following pages cover only a selection of the existing studies.

Using a specific survey implemented by the World Bank in the midst of the crisis (June and July 2002), Fiszbein *et al.* (2003) report that almost half of the households suffered a fall in nominal income, and document a change in household roles with respect to the labor market, with higher employment among secondary workers as a strategy to complement the fall in income from unemployed (or working reduced-hours) primary workers. Other coping strategies reflected in the survey include relying on the help of family and friends, reducing consumption of non basic goods and switching to cheaper products. As in other crises in Latin America, the extremely high level of unemployment implied that school enrollment did not fall significantly among younger children, and only slightly among those aged 16 to 18.<sup>43</sup>

One key component of the crisis was a large bank deposit freeze and liquidity restriction, which in principle has an ambiguous direct distributional effect.<sup>44</sup> Halac and Schmukler (2004) find that the probability of having savings was positively and significantly associated with measures of income (Bebczuk, 2008, reports similar evidence for other countries in the region). Interestingly, however, the authors also find that, among those with savings, the less educated and those with lower incomes had a larger probability of being affected by the bank deposit freeze, which implies that the measure probably had a positive effect on inequality.

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<sup>42</sup> Political economy considerations suggest a more subtle mechanism through which the crisis might have had lasting consequences on the income distribution. After a decade of high inflation and stagnant performance of the economy, a deep crisis such as the hyperinflation episodes might help predispose the electorate towards costly reforms – in Keeler's (1993) terms, hyperinflation might have “opened the window” for the “hard”, inequality-increasing structural reforms of the 1990s. Establishing the relevance of this channel is however beyond the scope of this study.

<sup>43</sup> CEDLAS (2008) reports small but positive increases in enrollment rates between 2001 and 2003 for virtually all age groups, from 3 to 23.

<sup>44</sup> While no empirical analysis has attempted to link the two phenomena, it is widely believed that the restrictions on withdrawing cash from banks had a poverty and inequality increasing effect by starving the cash (or informal) economy.

McKenzie (2004) presents a detailed analysis of the labor market responses to the 2001-2002 crisis based on the panel structure of the EPH, which follows households for about a year and a half. McKenzie (2004) attributes the fall in real wages to a reduction in labor demand and an increase in labor supply, which implied a rise in unemployment. However, most of the fall in household real income can be accounted by the fall in real wages of individuals remaining in the same job: unemployment levels only rose 3 percentage points during the crisis, because they were already at very high levels from the 1999-2001 recession.

Finally, Cruces (2005), using the same panel feature of the data, reports that on average over the period 1995-2002 household income variability (relative to the level of income) was three times as large for the households in the bottom quintile than for those in the upper quintile, and twice as large than for households in the second quintile. The study also finds a highly significant increase in the income variability (of 70 percent) for households exposed to the 2001-2002 crisis.

The available evidence clearly states that the poor in Argentina were more affected by crises than the non-poor. However, most of the inequality-increasing factors mentioned in this section tend to dissipate relatively quickly, through the increase in employment and income levels in the recovery periods. In the two episodes of large crisis, inequality first jumped but then fell drastically right after the stabilization. There is a debate on the existence of hysteresis effects on inequality from the crises (Lustig, 2000), but there does not seem to be definitive empirical evidence for Argentina. While the Tequila crisis had permanent effects on the income distribution, it is likely that this was due to the acceleration of the negative aspects of the underlying reform process. Moreover, any permanent effects of the 2001-2002 crisis are difficult to evaluate, since they are confounded with the strong recovery from 2003 onwards. The typical argument of a permanent reduction in the stock of general human capital does not seem to apply in the latter case, given the aforementioned evidence on non-falling school enrollment.<sup>45</sup> However, other more subtle mechanisms might be in place. For instance, individuals with low levels of education, those most affected by unemployment, might have suffered more from the loss of firm-specific human capital. Moreover, the psychic costs of long-term unemployment, which should not be underestimated, might have impacted more heavily on the same group (workers with low levels of education), which saw the greatest increase in unemployment duration during the 2001-2002 crisis.

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<sup>45</sup> It is possible that the crisis affected human capital in a permanent way through health and nutrition mechanisms, although there is no systematic evidence on the subject. See Schady (2005) for an analysis of the issue from Peru.

## 11. The post-crisis episode

A new episode unfolded in Argentina after the peak of the crisis in 2002. The average annual growth rate was unprecedentedly high at 8 percent between 2003 and 2007, while the unemployment rate plummeted from more than 20 percent to 8 percent. Poverty and inequality indicators fell continuously during the same period. The growth-incidence curves in figure 11.1 are illustrative of the pro-poor growth after the crisis. As figure 11.2 shows, inequality fell sharply since 2003 to reach in 2006 approximately the same level as in the second half of the 1990s, before the start of the 1999-2001 recession and the subsequent crisis.

The fast economic recovery was propitiated by the new structure of relative prices that emerged from the strong devaluation of the peso in 2002: the fall in real wages increased the competitiveness of Argentina's products and deterred imports. New taxes and a default of the government's debt obligations allowed a fiscal surplus that helped stabilize the economy. The social unrest and the political instability of 2001-2002 were curbed by a new and stronger government from the traditional Peronist party (2002-2003), with the help of a large cash transfer program which reached an unprecedented coverage. Moreover, the period saw a large increase in the prices of the commodities exported by the country. These exceptional conditions in the international markets were also a key factor in the recovery. Although most public policies were not significantly altered from the Peronist government that arose from the crisis, the Kirchner administration (2003-2007) emphasized the recovery of stronger labor institutions, supporting the bargaining power of unions and innovating in cash transfer programs. This strategy, however, might have had some limitations.<sup>46</sup>

### *Reasons for the fall in inequality*

Several factors combined to create a scenario where inequality fell: (i) the recovery from the crisis 2001-2002, (ii) realignments after the devaluation of the peso, (iii) a strong employment expansion, (iv) productive changes after new relative prices, (v) slower technical upgrading, (vi) stronger labor institutions and labor policies, and (vii) a more extensive safety net.

(i) As discussed in the previous section, major macroeconomic crises which seriously disrupt the economy are associated to large jumps in inequality. When the economic life returns to some level of normality, inequality always falls. Although the 2001-2002 crisis was considered one of the worst in Argentina's history, by 2004 the economy was fully recovered, with similar levels of GDP as in pre-crisis years. Some of the drop in inequality after 2002 was driven by the recovery and rebuilding of business and economic relationships after such a large disruptive shock.

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<sup>46</sup> There is an important caveat: this episode was ongoing at the time of writing in 2008, which implies that there is less empirical evidence and analysis available. The discussion is thus more speculative than in other sections of the document.

(ii) After years of pegging the Argentine peso to the dollar at a clearly overvalued rate, in January 2002 the currency board regime was abandoned, more than trebling the nominal exchange rate. This dramatic devaluation implied a sudden fall in real wages, and hence inequality rose. As in many devaluation episodes, the full impact of the shock in 2002 started to dissipate as nominal wages increased, and the nominal exchange rate recovered from its initial “overshooting”. The increase in nominal wages originated from worker’s demands to recover part of the large real losses in purchasing power due to the devaluation. A substantial part of the fall in inequality since 2002 can be attributed to these realignments.

(iii) The strong recovery of the economy implied a higher demand in a labor market with depressed real wages. The share of adults employed jumped from 35 percent in 2001 to 43 percent in 2006. Accordingly, the unemployment rate fell from around 20 percent in the crisis to 10 percent in 2006, a level lower than in most of the 1990s. This expansion in employment was surely another contributing factor to the fall in inequality, through both the direct channel of rising incomes for the former non-employed, and through the wage-increasing pressures on the labor market.

(iv) The change in relative prices due to the devaluation benefited industries intensive in unskilled labor (such as textiles), which had faced strong import competition under the previously overvalued exchange rate. For the reasons discussed in section 5, it is likely that the trade channel (through import substitution) also contributed to lower inequality. Unfortunately, the evidence on the distributive effects of these trade-induced changes is fragmentary. The increase in high school graduates employment in the manufacturing sector reflects the presence of a partial import substitution effect that might be inequality reducing. The impact of trade through the export channel seems to be more ambiguous: the devaluation and the surge in international commodity prices certainly increased labor demand, but the sectors involved (agriculture, mining and oil production) were land and capital intensive. Further complicating the determination of their full distributive impact during the period, exports also benefited the public in general through higher tax revenue from levies, as discussed in section 9 above.

(v) As argued in section 6, the Argentine economy in the 1990s experienced substantial changes in the organization of production, in part because of the low relative price of imported capital goods. In the 2000s, the rate of technology adoption and capital investment is believed to have been slower for a series of reasons. A large upgrading jump had already taken place in the previous decade. Firms also resorted to idle capacity after the crisis. Finally, investment might have slowed because of the uncertainty effects of the social unrest brought about by the crisis, because of an atmosphere of distrust following the default on the country’s debt and because of some perceived market unfriendly signals from the government. The initially strong unequalizing impact of the technological shock of the 1990s should have lost strength over time. The literature typically finds an inequality overshooting from skill-biased technical shocks (Card and Di Nardo, 2006), as it takes time for the displaced

unskilled workers to be reallocated in the economy. This adjustment after the productive shock was interrupted by the recession of the late 1990s and the crisis of the early 2000s, but it likely resumed (with renewed strength) during the recovery, with the ensuing equalizing consequences.

(vi) Since 2002, the new administrations took a more active role in the labor market by increasing the minimum wage, mandating lump sum increases in wages (which compresses their distribution), taking a pro-union stance, and promoting collective bargaining. The minimum wage, for instance, increased more than 400 percent in the 2003-2008 period, after being fixed in nominal terms during most of the decade in the 1990s. However, the distributive impact of such a raise is not clear, as informality is over 50 percent in Argentina's labor market, and most formal workers covered by labor regulations are not among the poor. The government also sent messages through the Ministry of Labor to promote the registration of informal workers, and reversed partially the fully-funded pension reform of the 1990s. It also granted a large number of new non contributory pensions, although this expansion in coverage was relatively obscure and with high transaction costs, which might have discouraged poorer potential beneficiaries. The government also implemented active policies to keep the prices of utilities and foodstuff low, ranging from subsidies to firms to export taxes over agricultural products. While export taxes that introduce a gap between domestic and international prices have all sorts of leakages to the non poor, and inefficiency costs, in the short run they have an equalizing effect given the higher share of foodstuff in the consumption bundle of the poor. In contrast, the distributional impact of the increasing subsidies to utilities, gas and transportation is unclear, even in the short run (Marchionni *et al.*, 2008).

(vii) Finally, as discussed above, the economic expansion and the new price structure improved the redistributive impact of fiscal policy. Social spending rose, taxes became somewhat more progressive (mostly because of export levies), and the increased revenues went in part to sustain a large system of pro-poor cash transfers. The *Programa Jefes y Jefas de Hogar Desocupados* (PJJHD), which covered 2 million households in 2003, was still running in 2007, and new cash transfer programs were implemented.<sup>47</sup> The assessment of the direct impact (*i.e.* without taking into account adjustments in behavior) of the PJJHD on inequality depends on the chosen index. Since transfers are concentrated in the bottom tail of the distribution, some indicators show a higher impact than others. While in 2003 the Gini coefficient without cash transfers would be 1 point higher, the income ratio 10/1 would have increased from 38.7 to 61.3. The impact of the program lost strength as the economy

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<sup>47</sup> In 2006 the PJJHD accounted for just 3% of total social public spending (5% if excluding the pension system). Considering its large size, the program is well-targeted: 80% of beneficiaries belong to the poorest two quintiles of the income distribution. Although large, the program is far from being universal: only 22% of households in the poorest quintile receive transfer from the PJJHD. Moreover, the amount of the transfer was kept constant over time: while in 2003 it was 25% higher than the mean wage for an informal unskilled worker, in 2005 it was 20% lower. Cruces and Gasparini (2008) discuss cash transfer programs in Argentina from the early to the late 2000s.



recovered, since beneficiaries left the program to work, but also because the cash subsidy remained fixed in nominal terms in a context of increasing inflation. In 2006, the income ratio 10/1 would have increased from 29.9 to 32.3 only if the cash programs were eliminated (assuming again no changes in behavior).

The discussion in this section, based on preliminary evidence, deserves three further comments.

First, it is interesting to notice that the devaluation of the peso, which strongly contributed to the dramatic increase in inequality in 2002, also triggered a series of equalizing changes in the economy. As discussed above, there is no comprehensive evidence on the aggregate impact of these changes.

Second, the fall in inequality since 2002 was mostly driven by the change in relative prices and the economic recovery after the devaluation. Few active policy initiatives since 2003 seem to have played a large part in the fall in inequality.

Finally, it is interesting to notice that although inequality fell substantially with respect to the crisis levels, inequality in 2006 was not significantly different from that of the mid/late 1990s. Inequality in 2006 was not different to inequality in 1999, despite the fact that per capita GDP and employment were higher, labor institutions were stronger, and a massive cash transfer program was implemented. This rigidity is probably due, at least in part, to the fall in the relative productivity of unskilled workers that followed the modernization of the economy in the 1990s. Raising the productivity of this group implies helping them share part of the fruits of the economic growth. Doing this while at the same time preparing their offspring to take advantage of a more modern economy are probably the main challenges in distributive policy for Argentina.

## 12. Concluding remarks

This paper has described the level and evolution of inequality in Argentina from the mid-1970s to the mid-2000s, and has provided a review of the empirical evidence behind a series of determinants of this evolution. Along the way, it has also attempted to pinpoint which of the contributing factors to the dynamics of inequality can be attributed to market forces, to state action, to socio-political dimensions, or to different combinations of these elements.

The evolution of an income distribution over a relatively long term is the result of multiple factors interacting with one another, which greatly complicates the identification of individual effects – but which makes their study captivating. As pointed out by Bourguignon *et al.* (2004), “the evolution of the distribution of income is the result of many different effects—some of them quite large—which may offset one another in whole or in part”. For instance, ignoring the impact on wages or employment, the reforms in the 1990s in Argentina implied greater decentralization which might have reduced school quality in some of poorest municipalities, but the

increased efficiency in water supply might have reduced infant mortality in the same area.

Only time will tell whether the reforms implemented will have a positive impact on welfare through the growth channel, and whether the short term inequality-long term growth trade-off exists. Too many factors are in play to construct clean counterfactuals, but the evidence on the poverty and inequality reducing effects of government action seems to suggest an excessive increase in inequality after macroeconomic shocks and after reforms, with real welfare costs. These costs might have been mitigated by the presence of ex-ante policies for coping with shocks, and by building-in compensation and income smoothing mechanisms to ease the transitions after reforms.

Some of the factors that account for these long term trends in inequality can be attributed to government acts and others to market forces, but most of the distributional factors covered in this paper correspond to a mix of both that might be ultimately impossible to disentangle – for instance, trade liberalization corresponds to the operation of market forces following a change in government policy, while most other changes occur within the government-set regulations of an economy. The evidence, however, has shown that government interventions can have powerful effects on the distribution of welfare, and their role in managing and compensating losers during transitions must not be underestimated.

### **Afterthought**

*At the time of publishing this article as a CEDLAS discussion paper in October 2008, in international financial crisis was well underway, prompting a sharp fall in world stock markets and in the price of commodities, hitting the export taxes that were identified as one of the main resources for the Argentine government in the last of our “episodes”. Moreover, the Fernández administration announced the nationalization of the pension fund introduced in the mid-1990, and the roll back of the private pensions system in Argentina.*

*It is clearly too early to evaluate the implications of the international financial crisis for income distribution in Argentina, although this situation probably amplifies the relevance of some of the caveats expressed in section 11. In any case, it is highly likely that this event marks the end of what we called “the post-crisis episode”.*

## **Appendix: a note about the *Encuesta Permanente de Hogares***

The microdata behind most of the tables, figures and estimations in this paper originate in Argentina's main official household survey (*Encuesta Permanente de Hogares*, EPH), which covers only the main urban areas of the country.

The EPH started in the 1970s as a survey for Greater Buenos Aires (GBA), which accounts for one third of Argentina's population. The data was collected twice a year, in May and October. The sampling frame of the survey was gradually extended to cover all urban areas with more than 100,000 inhabitants.

In 2008, the survey covered 31 large urban areas accounting for 70 percent of the Argentine urban population. Since the share of urban areas in Argentina is 87 percent, the sample of the EPH represents more than 60 percent of the total population of the country.

During 2003, a major methodological change was implemented, including changes in the questionnaires and in the timing of the survey visits. The new survey (known as EPH Continua or EPHC) is conducted over the whole year, and the two waves (May and October) were replaced by aggregates representing the first and second semesters of the year. INDEC (the national statistical agency) also started to provide population weights to account for the income non-response problem. The results in this paper incorporate these methodological changes to provide comparable statistics.

The EPH has the limitations of most periodic household surveys, as it captures basically labor incomes and cash transfers. Although the EPH includes questions about income from capital, the rate of non-response and under-reporting is assessed to be high (Gasparini, 2005b; Gasparini *et al.*, 2001). The survey does not collect information on consumption or expenditure.

In 2008, at the time of writing, the latest available dataset corresponded to first trimester of 2007, and the latest full half-yearly wave to the second semester of 2006. The government's intervention of the statistical agency led to a serious conflict, which included the sacking of the technical teams in charge of the EPH, and the alleged tampering of the consumer price index, GDP and other official data. INDEC stopped publishing the micro-data of the EPH, and it is still unclear whether comparable information was collected at all for 2007 and 2008.

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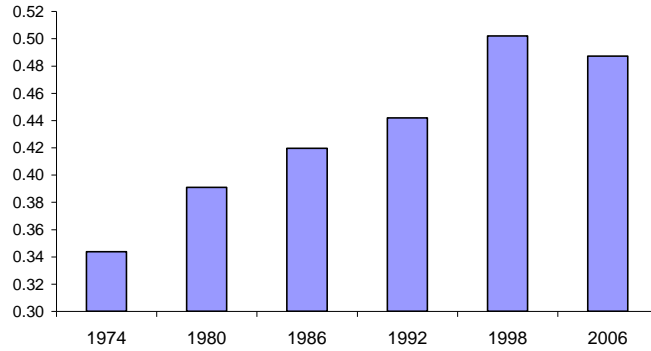
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## Figures

**Figure 2.1**

### Inequality

Gini coefficient - Distribution of household per capita income  
Greater Buenos Aires area

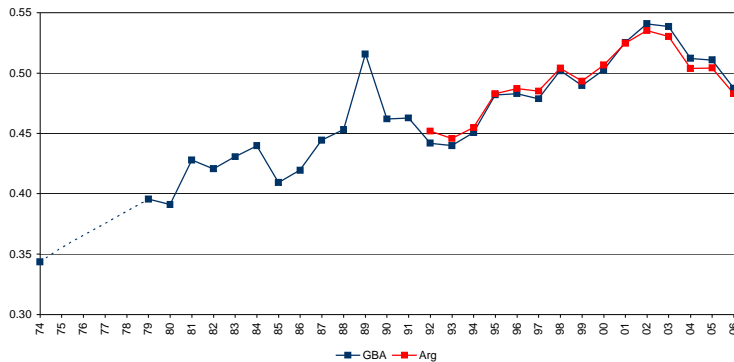


Source: own calculations based on microdata from the EPH.

**Figure 2.2**

### Inequality

Gini coefficient - Distribution of household per capita income  
Greater Buenos Aires area and urban Argentina



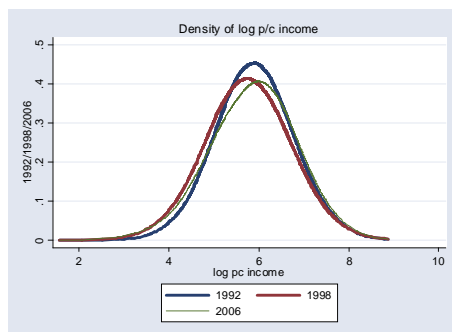
Source: own calculations based on microdata from the EPH.

**Figure 2.3**

### Density function

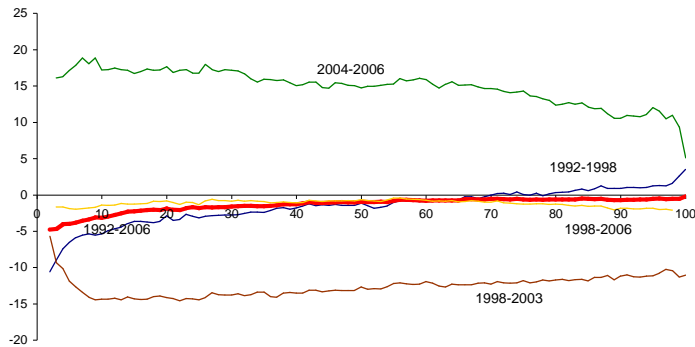
Distribution of household per capita income

Urban Argentina



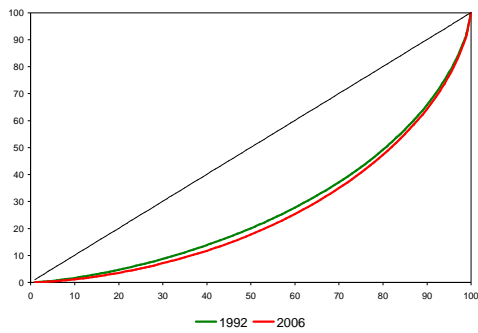
Source: own calculations based on microdata from the EPH.

**Figure 2.4**  
**Growth incidence curves**  
**Distribution of household per capita income**  
 Urban Argentina



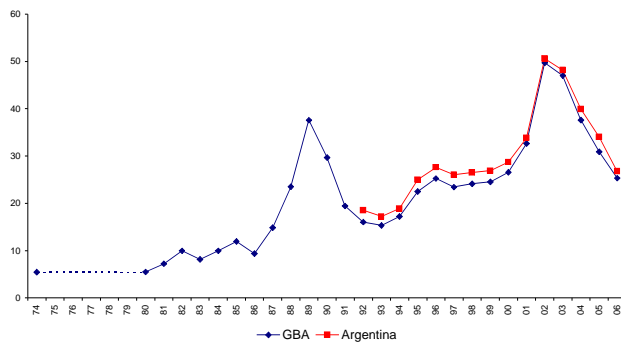
Source: own calculations based on microdata from the EPH.

**Figure 2.5**  
**Lorenz curves**  
**Distribution of household per capita income**  
 Urban Argentina



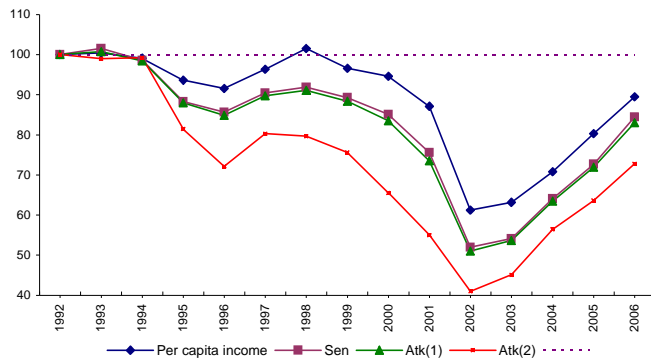
Source: own calculations based on microdata from the EPH.

**Figure 2.6**  
**Poverty headcount ratio**  
**Moderate official poverty line**  
 GBA and urban Argentina



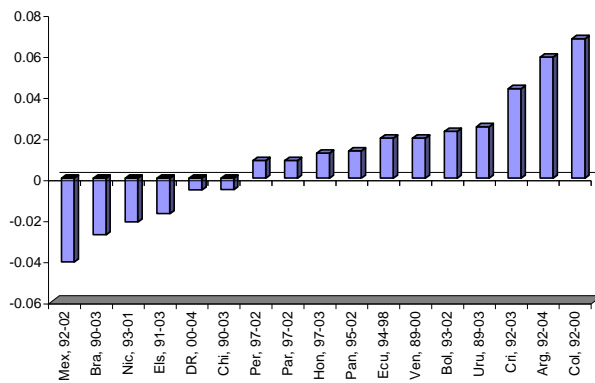
Source: own calculations based on microdata from the EPH.

**Figure 2.7**  
**Aggregate welfare**  
**Household per capita income**  
 Argentina



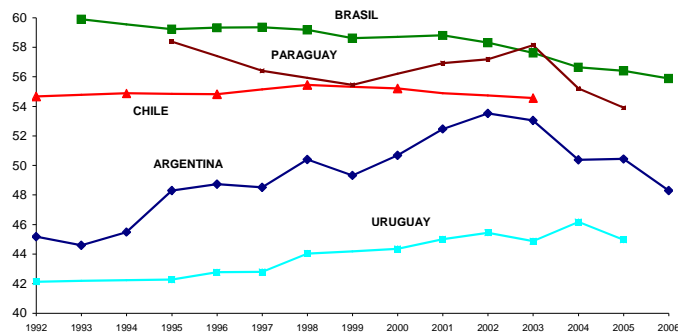
Source: own calculations based on microdata from the EPH.

**Figure 2.8**  
**Changes in the Gini coefficient**  
**Household per capita income**  
 Latin American countries



Source: Gasparini *et al.* (2007).

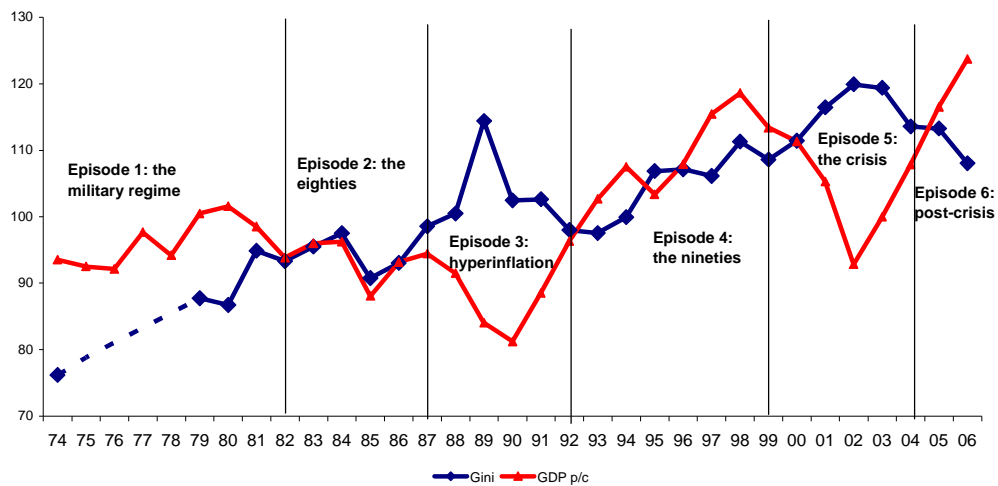
**Figure 2.9**  
**Gini coefficient**  
**Household per capita income**  
**Southern Cone countries and Brazil**



Source: own calculations based on SEDLAC (CEDLAS and the World Bank).

**Figure 3.1**  
**The inequality of Argentina in six episodes**

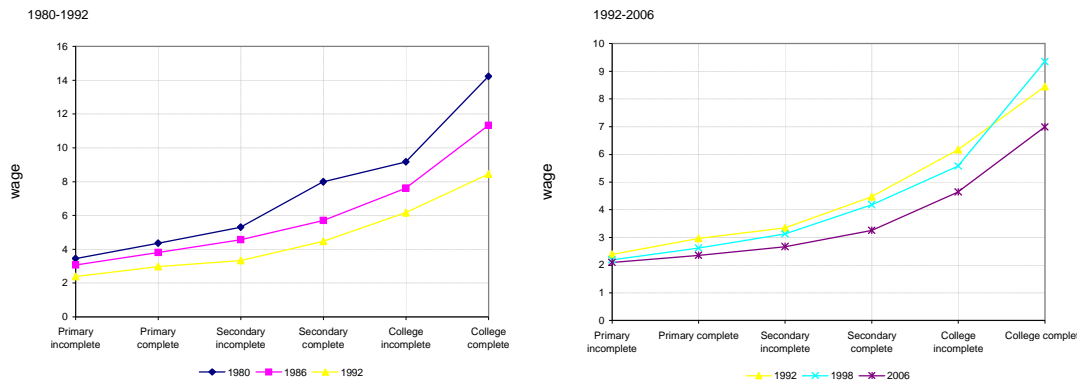
Gini coefficient, distribution of household per capita income, and per capita GDP  
 Indices, mean 74-06=100



Source: own calculations based on microdata from the EPH.

**Figure 4.1**  
**Returns to education**

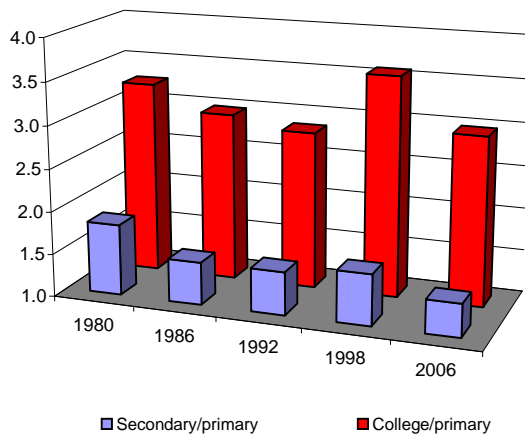
Predicted wages from a Mincer equation



Source: own calculations based on microdata from the EPH, GBA.  
Note: Predicted values for males, 40 years old, married, 2 children.

**Figure 4.2**  
**Returns to education**

Ratio predicted wages

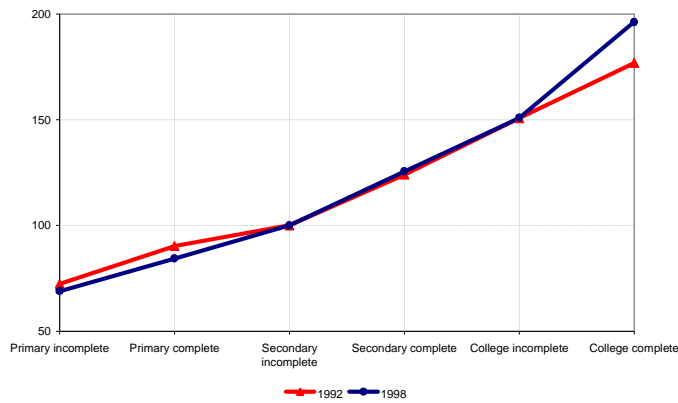


Source: own calculations based on microdata from the EPH, GBA.  
Note: ratio of predicted wages of a Mincer regression. Predicted values for males, 40 years old, married, 2 children.



**Figure 4.3**  
**Returns to education, 1992 and 1998**

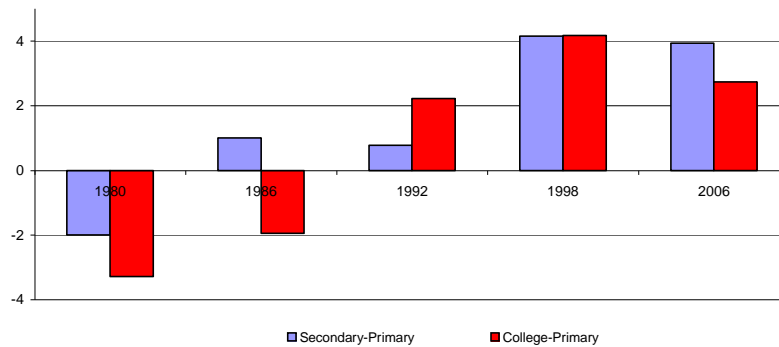
Predicted log wages (index secondary incomplete =100)



Source: own calculations based on microdata from the EPH, GBA.  
 Note: Predicted log wages of a Mincer regression. Predicted values for males, 40 years old, married, 2 children.

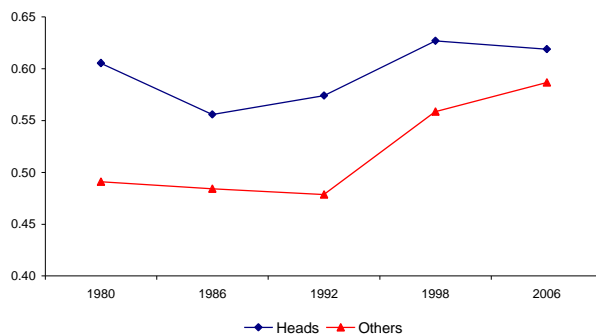
**Figure 4.4**  
**Hours of work**

Difference in predicted hours of work by education



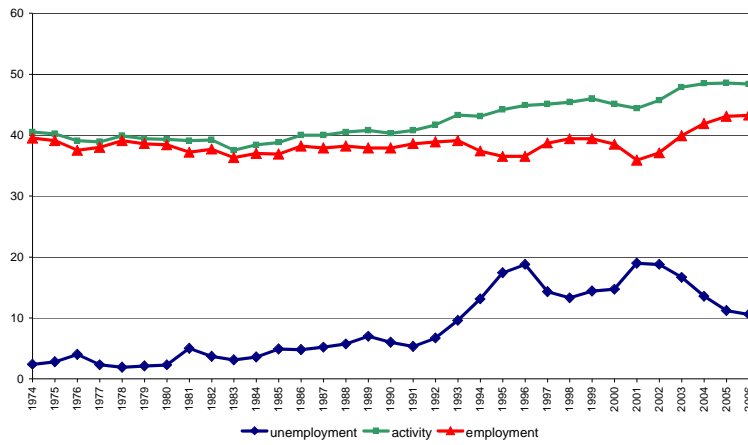
Source: own calculations based on microdata from the EPH, GBA.  
 Note: Predicted hours of work from a Tobit regression. Predicted values for males, 40 years old, married, 2 children.

**Figure 4.5**  
**Standard deviation of error term in wage equation**



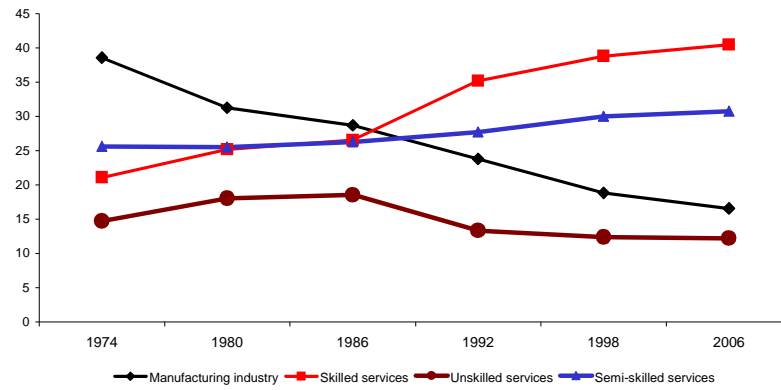
Source: own calculations based on microdata from the EPH, GBA.

**Figure 4.6**  
**Labor market indicators**



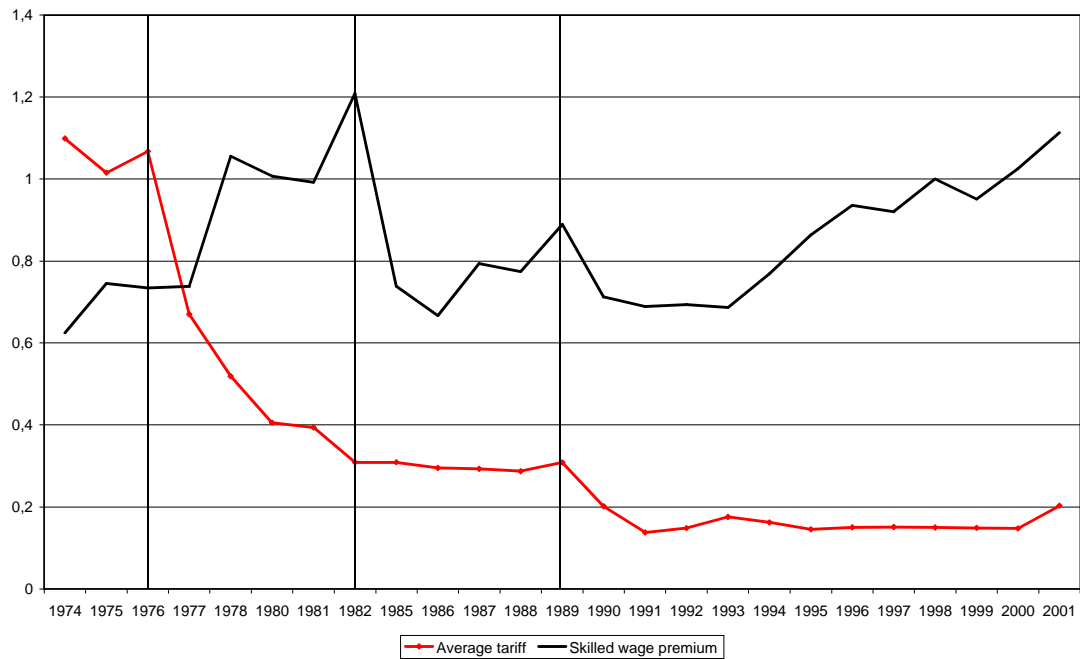
Source: INDEC.

**Figure 4.7**  
**Share in total employment, by sector**



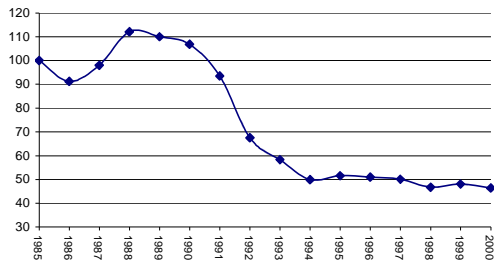
Source: own calculations based on microdata from the EPH, GBA.

**Figure 5.1**  
Trends in tariffs and the wage premium



Source: Galiani and Porto (2008). Note: Author's calculations based on historical trade data and labor surveys (EPH). Tariff: average tariff across all 3-digit ISIC sectors, weighted by employment in each sector. Skilled wage premium: coefficients on the skilled dummy in different earnings regressions per year. See Galiani and Porto (2008) for more details.

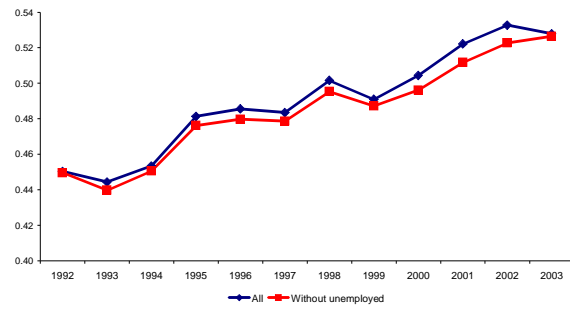
**Figure 6.1**  
Relative price physical capital/labor



Source: Gasparini (2004).

**Figure 7.1**  
**Gini coefficient**

All population, and ignoring households with unemployed head or spouse



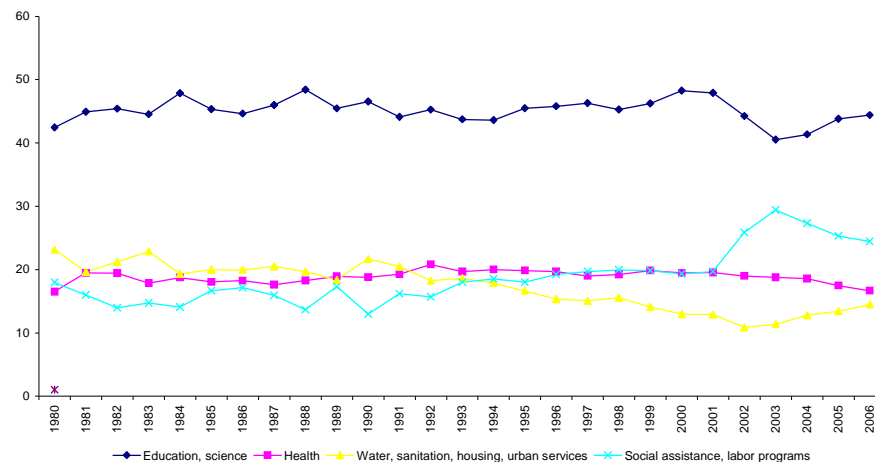
Source: own calculations based on microdata from the EPH, GBA.

**Figure 9.1**  
**Social public expenditures**  
 As share of disposable income, and per capita



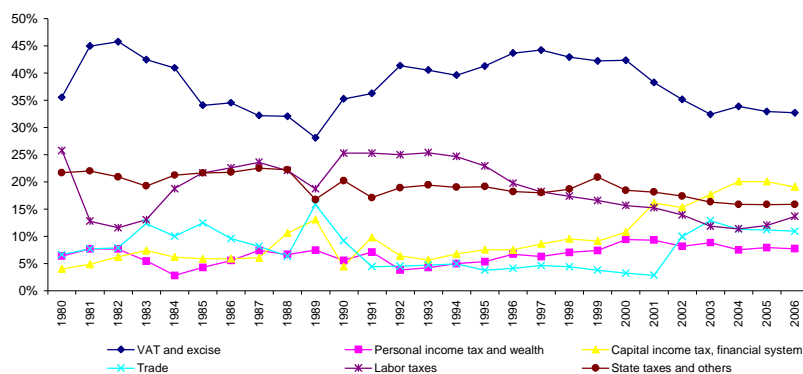
Source: own calculations based on DAGPyPS (2008).

**Figure 9.2**  
**Social public spending structure**



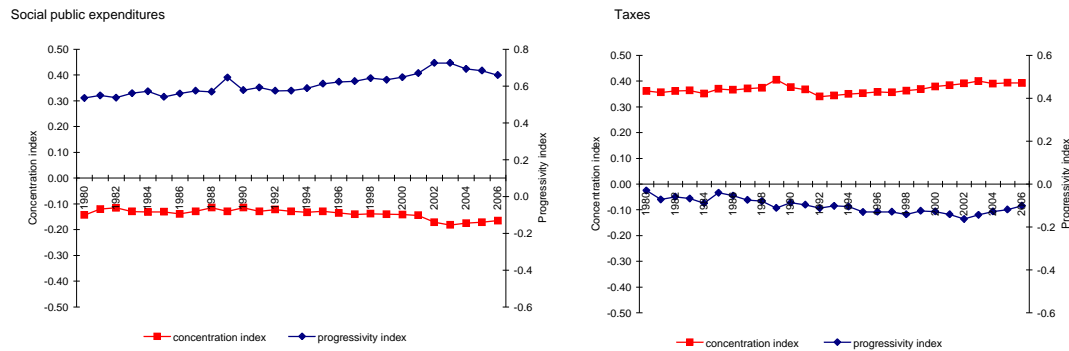
Source: own calculations based on DAGPyPS (2008).

**Figure 9.3**  
**Tax structure**



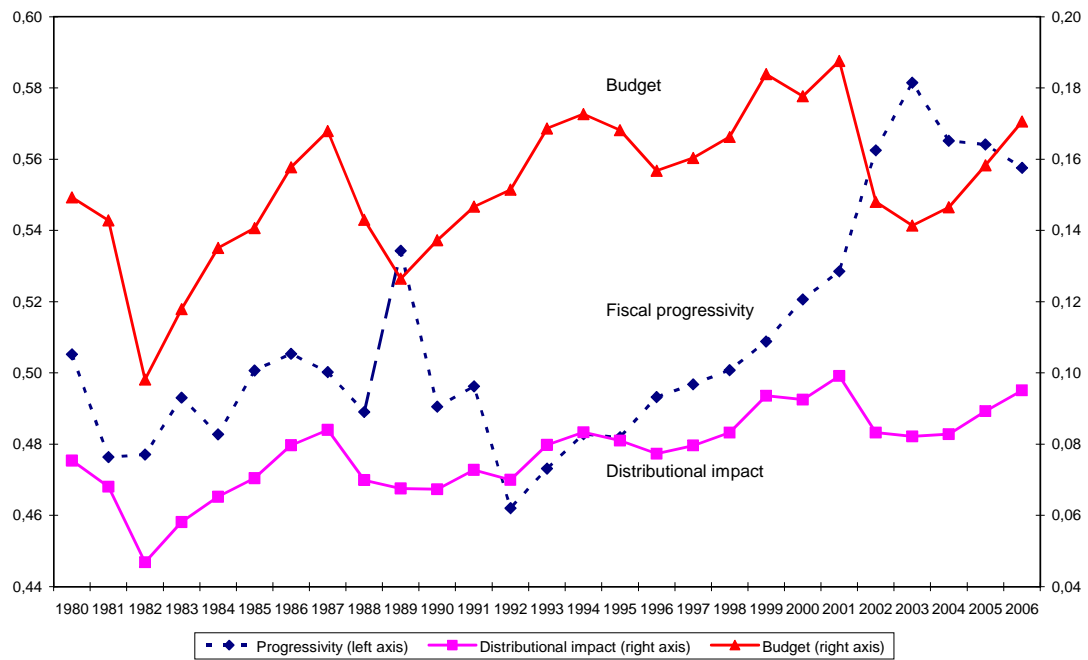
Source: own calculations based on official information on tax revenues.

**Figure 9.4**  
**Concentration and progressivity index: social spending and taxes**



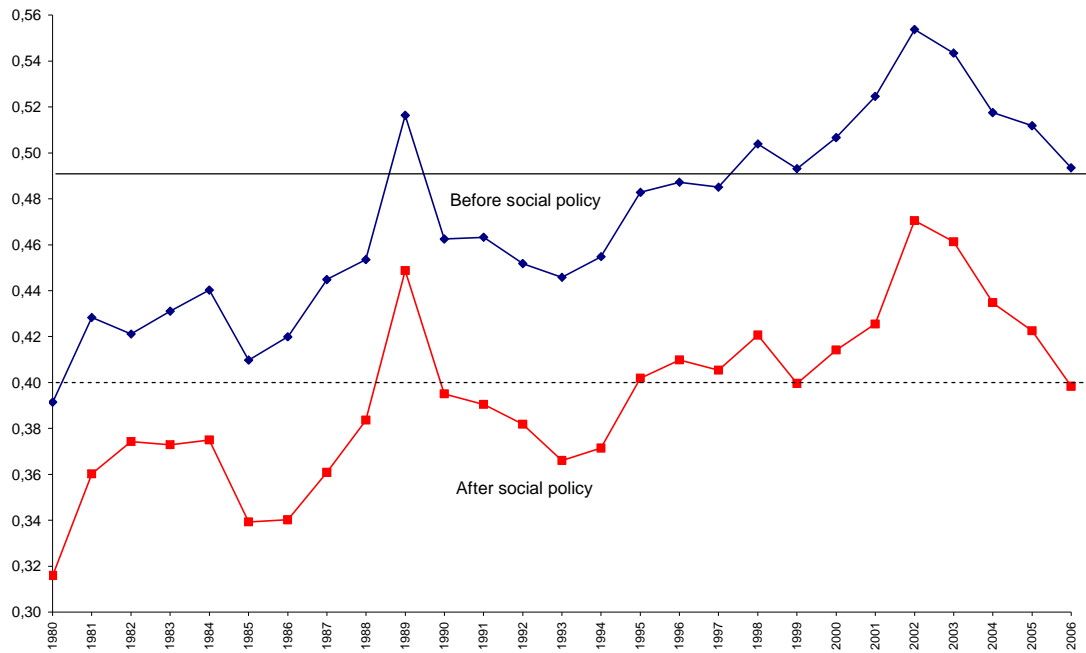
Source: author's calculations.

**Figure 9.5**  
**Fiscal progressivity, social spending and distributional impact**



Source: author's calculations.

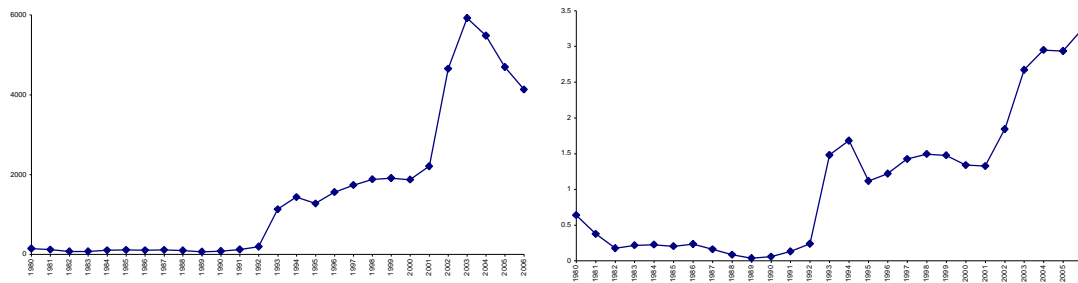
**Figure 9.6**  
Gini coefficient before and after social policy



Source: author's calculations.

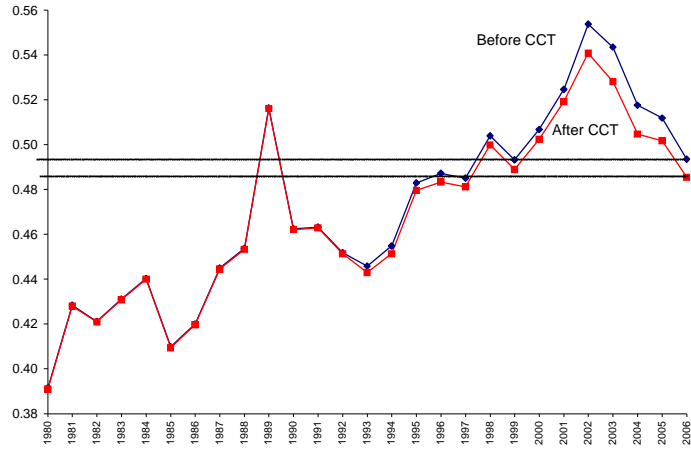
**Figure 9.7**  
Conditional cash transfers

Mean over the period=100



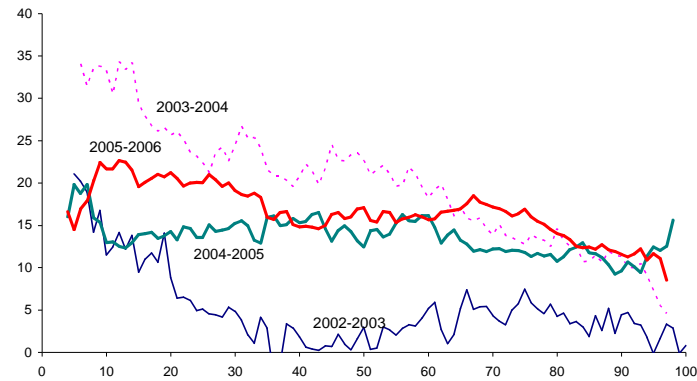
Source: author's calculations.

**Figure 9.8**  
**Distributional impact**  
**Conditional cash transfers**



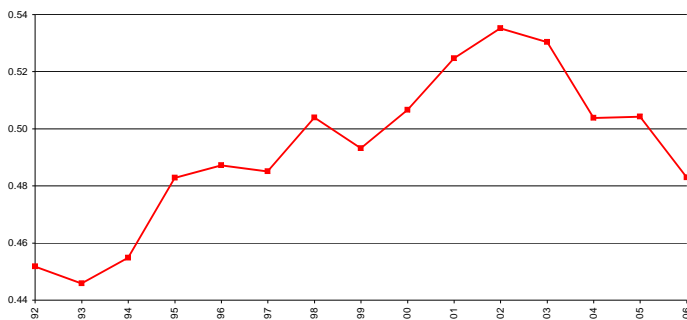
Source: author's calculations.

**Figure 11.1**  
**Growth-incidence curves**  
**Urban Argentina**



Source: own calculations based on microdata from the EPH.

**Figure 11.2**  
**Inequality**  
**Gini coefficient for the distribution of household per capita income**  
**Urban Argentina**



Source: own calculations based on microdata from the EPH.





**Table 2.3**  
**Gini coefficient**  
**Distribution of household per capita income**  
**Value, standard error and confidence intervals**

	Value	Std. Err	Coef. Var. (%)	95% interval	
				Lower	Upper
Greater Buenos Aires					
1974	0.345	0.005	1.4	0.337	0.358
1980	0.393	0.004	1.0	0.385	0.400
1986	0.422	0.004	0.9	0.414	0.428
1988	0.456	0.003	0.7	0.449	0.463
1991	0.465	0.009	1.9	0.444	0.478
1992	0.444	0.005	1.0	0.436	0.452
15 main cities					
1992	0.450	0.003	0.8	0.444	0.457
1993	0.444	0.003	0.8	0.439	0.451
1994	0.453	0.004	0.8	0.446	0.460
1995	0.481	0.003	0.6	0.476	0.488
1996	0.486	0.004	0.8	0.478	0.493
1997	0.483	0.003	0.6	0.477	0.488
1998	0.502	0.004	0.8	0.494	0.510
28 main cities					
1998	0.502	0.003	0.6	0.496	0.508
1999	0.491	0.003	0.6	0.484	0.496
2000	0.504	0.003	0.5	0.498	0.509
2001	0.522	0.003	0.5	0.516	0.527
2002	0.533	0.004	0.7	0.526	0.540
2003	0.528	0.004	0.7	0.521	0.536
EPHC					
2003-II *	0.541	0.009	1.6	0.526	0.561
2003-II	0.530	0.003	0.6	0.524	0.537
2004-I	0.515	0.006	1.2	0.505	0.530
2004-II	0.504	0.004	0.8	0.497	0.512
2005-I	0.511	0.004	0.8	0.503	0.518
2005-II	0.504	0.004	0.8	0.498	0.511
2006-I	0.488	0.003	0.7	0.480	0.494
2006-II	0.483	0.003	0.7	0.478	0.491

Source: own calculations based on microdata from the EPH.

Confidence intervals computed using bootstrap methods with 200 replications.

\* Computed using the same sample weights as before the methodological changes of 2003.

**Table 3.1**  
**Episodes**

	Episode 1	Episode 2	Episode 3	Episode 4	Episode 5	Episode 6
	Military regime	The 1980s	Hyperinflation	The 1990s	The crisis	Post-crisis
	76-82	83-87	88-91	92-99	00-04	05-06
<b>Macro situation</b>	Low growth & crisis	Stagnation	Crisis & recovery	Growth	Crisis & recovery	Growth
<b>Import competition</b>	High (not always)	Low		High		Low
<b>Technological change</b>	Low	Low		High		Moderate
<b>Labor institutions</b>	Weak	Strong		Weak		Strong
<b>Social protection (cash)</b>	Low	Low	Low	Low	High since 02	Moderate
<b>Inequality</b>	Increase	Stable	Increase & fall	Increase	Increase & fall	Fall
<b>Poverty</b>	Stable	Increase	Increase & fall	Increase	Increase & fall	Fall

**Table 3.2**  
**Main economic indicators**

	GDP growth	Inflation	Real Exchange Rate (2000=100)	Unemployment rate
1976	-2.0%	444%	148.6	4.0
1977	6.9%	176%	167.0	2.3
1978	-4.5%	176%	127.3	1.9
1979	10.2%	160%	90.4	2.1
1980	4.2%	101%	71.3	2.3
1981	-5.7%	104%	92.1	5.0
1982	-5.0%	165%	217.5	3.7
1983	3.9%	344%	205.5	3.1
1984	2.2%	627%	189.5	3.6
1985	-7.6%	672%	226.1	4.9
1986	7.9%	90%	189.8	4.8
1987	2.9%	131%	193.6	5.2
1988	-2.6%	343%	185.5	5.7
1989	-7.5%	3080%	295.8	7.0
1990	-2.4%	2314%	148.8	6.0
1991	12.7%	172%	111.6	5.3
1992	11.9%	25%	95.7	6.7
1993	5.9%	11%	89.8	9.6
1994	5.8%	4%	88.4	13.1
1995	-2.8%	3%	88.0	17.4
1996	5.5%	0%	90.4	18.8
1997	8.1%	1%	92.1	14.3
1998	3.9%	1%	92.6	13.3
1999	-3.4%	-1%	95.8	14.4
2000	-0.8%	-1%	100.0	14.7
2001	-4.4%	-1%	103.9	19.0
2002	-10.9%	26%	257.0	18.8
2003	8.8%	13%	219.4	16.7
2004	9.0%	4%	217.4	13.6
2005	9.2%	10%	203.6	11.2
2006	8.0%	7%	208.3	10.6

Source: World Development Indicators and Ministerio de Economía – República Argentina.

**Table 4.1**  
**Microeconomic decomposition**  
**Changes in the Gini coefficient between periods, actual and simulated**

	Actual Change (i)	Returns to education on		Gender wage gap (iv)	Unobservables (v)	Employment (vi)	Education (vii)	Rest (viii)
		Wages (ii)	Worked hours (iii)					
<b>1980 - 1986</b>								
Hourly wages	-1.5	-2.2		0.7	-2.8		1.1	1.7
Earnings	0.7	-1.4	0.0	1.0	-1.6	0.2	1.3	1.3
Equivalentized Income	3.1	-2.1	0.5	0.0	-1.6	-0.1	0.6	5.7
<b>1986 - 1992</b>								
Hourly wages	-2.5	-1.6		-0.6	0.5		0.0	-0.8
Earnings	-1.7	-1.1	-0.4	-1.1	0.5	0.0	0.0	0.4
Equivalentized Income	0.7	-0.9	1.0	0.1	0.4	0.0	0.1	0.0
<b>1992 - 1998</b>								
Hourly wages	5.5	3.0		-0.4	2.6		0.8	-0.5
Earnings	7.1	2.3	2.5	-0.5	1.8	-0.1	0.8	0.1
Equivalentized Income	8.4	2.7	1.9	0.0	1.5	0.2	0.7	1.4
<b>1998 - 2006</b>								
Hourly wages	-1.1	0.2		0.1	0.6		0.6	-2.6
Earnings	-1.5	0.1	-1.0	0.3	0.3	0.3	0.6	-2.0
Equivalentized Income	-1.7	-0.9	0.1	-0.2	0.3	-0.2	0.5	-1.4

Source: own calculations based on microdata from the EPH.

**Table 4.2**  
**Share in labor, by educational group**

Greater Buenos Aires

<i>Shares in adult population</i>						
Educational group	1974	1980	1986	1992	1998	2006
Less than high school	78.6	74.2	68.9	62.9	57.7	47.1
High school graduates	17.6	20.7	23.7	27.5	30.6	37.0
College graduates	3.8	5.1	7.4	9.6	11.8	15.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Shares in employment</i>						
Educational group	1974	1980	1986	1992	1998	2006
Less than high school	76.3	71.4	66.1	60.7	54.1	45.7
High school graduates	18.5	21.5	24.0	27.8	30.7	35.5
College graduates	5.2	7.1	9.9	11.5	15.2	18.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Shares in aggregate labor input</i>						
Educational group	1974	1980	1986	1992	1998	2006
Less than high school	67.3	63.5	55.7	46.4	39.0	31.8
High school graduates	22.6	25.0	29.7	32.5	32.8	37.5
College graduates	10.0	11.5	14.5	21.1	28.2	30.7
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: own calculations based on microdata from the EPH.

**Table 4.3**  
**Share in aggregate labor, by sector**  
 Greater Buenos Aires

<i>All workers</i>						
Sector of activity	1974	1980	1986	1992	1998	2006
Low-tech manufacturing industries	14.8	10.9	10.6	9.1	6.4	7.8
Medium and high-tech manufacturing	23.8	20.3	18.1	14.7	12.4	8.8
Construction	6.7	9.4	6.1	4.5	5.5	6.8
Wholesale and retail	16.5	17.4	19.1	18.9	19.4	22.2
Communications, transportation and utilities	9.1	8.2	7.1	8.8	10.6	8.6
Professional and business services	6.3	8.9	10.9	10.6	13.7	13.0
Public administration, education and welfare	14.8	16.3	15.6	24.6	25.1	27.4
Other unskilled services	8.0	8.6	12.5	8.8	6.9	5.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

<i>Less than high school</i>						
Sector of activity	1974	1980	1986	1992	1998	2006
Low-tech manufacturing industries	17.3	12.5	13.9	13.3	10.1	12.4
Medium and high-tech manufacturing	25.3	21.1	19.0	17.5	15.4	8.8
Construction	7.8	12.0	8.7	6.9	10.4	13.6
Wholesale and retail	18.0	19.7	20.7	20.4	21.6	27.1
Communications, transportation and utilities	10.7	10.2	7.9	10.5	13.8	11.5
Professional and business services	2.4	2.6	3.2	3.6	4.4	5.0
Public administration, education and welfare	8.4	9.6	8.9	12.6	11.8	10.1
Other unskilled services	10.2	12.3	17.6	15.1	12.5	11.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

<i>High school graduates</i>						
Sector of activity	1974	1980	1986	1992	1998	2006
Low-tech manufacturing industries	10.7	9.4	8.1	7.4	5.9	8.2
Medium and high-tech manufacturing	25.1	22.0	18.7	14.3	13.2	10.3
Construction	3.8	4.7	2.5	3.2	3.6	5.9
Wholesale and retail	17.2	17.8	21.6	23.6	25.6	26.4
Communications, transportation and utilities	6.1	5.4	7.3	8.9	12.0	10.7
Professional and business services	14.0	15.7	17.7	15.1	15.7	13.1
Public administration, education and welfare	18.4	22.2	17.0	22.7	18.9	21.3
Other unskilled services	4.6	2.7	7.1	4.9	5.0	4.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

<i>College graduates</i>						
Sector of activity	1974	1980	1986	1992	1998	2006
Low-tech manufacturing industries	7.3	5.5	3.2	2.5	2.0	2.4
Medium and high-tech manufacturing	11.0	12.2	13.2	9.2	7.2	7.0
Construction	5.7	5.6	3.4	1.3	0.9	1.0
Wholesale and retail	4.9	3.3	8.0	8.5	9.2	12.0
Communications, transportation and utilities	4.9	2.7	3.4	4.8	4.3	2.9
Professional and business services	15.3	28.6	26.5	19.0	24.1	21.3
Public administration, education and welfare	49.5	41.0	38.6	53.9	50.8	52.8
Other unskilled services	1.3	1.0	3.7	0.9	1.4	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: own calculations based on microdata from the EPH.

**Table 4.4**  
**Share in aggregate labor, by educational group and sector**

Sector of activity	Less than high school						High school graduates						College graduates					
	1974	1980	1986	1992	1998	2006	1974	1980	1986	1992	1998	2006	1974	1980	1986	1992	1998	2006
Low tech manufacturing	78.7	72.7	72.9	67.8	61.2	50.7	16.4	21.5	22.6	26.5	30.0	39.9	4.9	5.8	4.4	5.7	8.8	9.4
Basic and high tech manufacturing	71.4	66.0	58.7	55.2	48.6	31.6	23.9	27.1	30.7	31.6	35.0	43.8	4.7	6.9	10.6	13.2	16.4	24.6
Construction	78.6	80.7	79.7	71.1	74.0	63.2	12.9	12.5	12.1	22.7	21.4	32.3	8.6	6.9	8.2	6.2	4.5	4.5
Wholesale and retail trade	73.4	72.2	60.3	50.0	43.5	38.8	23.6	25.6	33.6	40.5	43.2	44.7	3.0	2.2	6.1	9.4	13.3	16.6
Communications, transport and utilities	79.3	79.6	62.3	55.7	51.1	42.8	15.3	16.7	30.6	32.9	37.4	46.9	5.4	3.8	7.0	11.5	11.5	10.3
Professional and business services	25.7	18.6	16.5	15.8	12.5	12.1	50.0	44.4	48.2	46.4	37.8	37.6	24.3	37.1	35.3	37.9	49.7	50.3
Public administration, education and welfare	38.1	37.3	31.7	23.7	18.3	11.7	28.2	34.0	32.4	30.0	24.7	29.1	33.6	28.7	35.9	46.3	57.0	59.2
Other services	85.3	90.7	78.9	79.8	70.3	67.7	13.1	8.0	16.9	18.0	23.8	28.7	1.7	1.3	4.3	2.3	5.8	3.6

Source: own calculations based on microdata from the EPH.

**Table 4.5**  
**Sectoral decompositions of changes in labor**

<b>Between</b>					
	74-80	80-86	86-92	92-98	98-06
Less than high school	-1.6	-0.5	-3.8	-1.9	-0.3
High school graduates	0.5	0.3	0.8	0.6	-0.2
College graduates	1.1	0.2	3.0	1.3	0.6
<b>Within</b>					
	74-80	80-86	86-92	92-98	98-06
Less than high school	-2.2	-7.3	-5.6	-5.4	-6.9
High school graduates	1.8	4.4	2.0	-0.3	4.9
College graduates	0.4	2.9	3.6	5.7	2.0
<b>Overall</b>					
	74-80	80-86	86-92	92-98	98-06
Less than high school	-3.8	-7.8	-9.4	-7.3	-7.3
High school graduates	2.4	4.7	2.8	0.3	4.7
College graduates	1.4	3.1	6.6	7.0	2.6

Source: own calculations based on microdata from the EPH.

**Table 6.1**  
**Models of Skill Premia for High-School Graduates**  
**Dependent Variable: Logarithm of the real hourly wage of the main occupation**  
**Estimation at the individual level (males and females aged 18 to 65, with positive wage earnings)**  
**Manufacturing Sector, Argentina, 1991-2001**

	(1)	(2)	(3)	(4)	(5)
Without a high-school degree	-0.015*** (0.003)	-0.015*** (0.003)	-0.015*** (0.003)	-0.008*** (0.002)	-0.006*** (0.002)
High-School Graduates	-0.005 (0.003)	-0.005 (0.003)	-0.005 (0.003)	0.003 (0.003)	0.004 (0.003)
College Graduates	0.018*** (0.005)	0.017*** (0.006)	0.017*** (0.006)	0.025*** (0.005)	0.023*** (0.005)
Import Penetration	No	Yes	Yes	Yes	Yes
Exports	No	No	No	No	No
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes	Yes	Yes
Regional Indicators	Yes	Yes	Yes	Yes	Yes
Sector Indicators	Yes	Yes	Yes	Yes	Yes
Observations	34,091	34,091	34,091	34,091	32,238

Source: Acosta and Gasparini (2007).

Note 1: \* Significant at 10% level. \*\* Significant at 5% level. \*\*\* Significant at 1% level.

Note 2: The regression also includes demographic controls (education, age, and gender) interacted with yearly indicators, as well as year, industry, and regional fixed effects.

Note 2: Robust Huber-White standard errors in parenthesis (clustering by industry).

Note 3: Control variables in Column (4) are lagged one period, while control variables in Column (5) are lagged two periods.

**Table 6.2**  
**Model of change in the share of skilled labor, 92-96**

	(1)	(2)
DLog (ST/L)	0.629 [0.198]***	0.673 [0.194]***
Share of skilled labor <sub>1992</sub>		-0.065 [0.022]***
Constant	1.798 [0.231]***	2.997 [0.408]***
IV Digit Industry Dummies	Yes	Yes
Observations	975	975
R-squared	0.15	0.17

Robust standard errors in brackets

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

ST/L=spending in technology per worker

Regressions at the firm level.

Source: Bustos (2006) based on technology survey (ETIA).

**Table 8.1**  
**Profile of active union affiliate and non affiliate workers, and participation rates (household heads or their spouses), 2007**

Individual and household characteristics for workers			
	Union members	Non union members	All workers
Formal	81.8%	38.0%	43.5%
Wage earner	83.3%	41.9%	47.1%
Public employee	36.0%	10.2%	13.3%
Men	60.0%	48.8%	50.2%
Age	45.0	44.1	44.2
Rural area	23.2%	23.8%	23.7%
Below median p.c. income	31.4%	48.2%	46.2%
Basic needs deficit	11.0%	16.5%	15.9%
Woman head of household	40.8%	53.0%	51.5%
Monoparental household	13.4%	18.2%	17.6%
Unionization rates			
	All workers	Wage earners	Formal wage earners
<b>All</b>	12.1%	20.4%	26.9%
<b>By total household income level</b>			
Below 750 \$AR (31% of households)	4.9%	6.6%	8.6%
Between 750 and 1500 \$AR (37% of households)	9.3%	13.9%	18.6%
Above 1500 \$AR (32% of households)	19.6%	33.7%	36.8%
<b>By education level</b>			
Up to complete primary school	11.0%	23.5%	36.0%
Secondary school (complete or incomplete)	10.1%	15.3%	20.8%
Some tertiary or university studies	17.5%	24.9%	28.1%

Source: Own calculations based on the Encuesta de Percepción de Programas Sociales (see Cruces and Rovner, 2008).



**Table 9.1**  
**The distributional impact of social spending**

	Concentration index		Gini-pre (iii)	Kakwani progressivity index			SPE/Yd (vii)	Redistributive impact (vi)*(vii) (viii)	Gini-post (iii)-(viii) (ix)
	SPE	Taxes		SPE	Taxes	Total			
	(i)	(ii)		(iii)-(i) (iv)	(ii)-(iii) (v)	(iv)+(v) (vi)			
1980	-0.144	0.361	0.391	0.535	-0.030	0.505	0.149	0.075	0.316
1981	-0.120	0.356	0.428	0.549	-0.072	0.476	0.143	0.068	0.360
1982	-0.116	0.362	0.421	0.537	-0.060	0.477	0.098	0.047	0.374
1983	-0.130	0.363	0.431	0.561	-0.068	0.493	0.118	0.058	0.373
1984	-0.131	0.351	0.440	0.572	-0.089	0.483	0.135	0.065	0.375
1985	-0.131	0.369	0.410	0.541	-0.040	0.501	0.141	0.070	0.339
1986	-0.139	0.366	0.420	0.559	-0.054	0.505	0.158	0.080	0.340
1987	-0.129	0.371	0.445	0.574	-0.074	0.500	0.168	0.084	0.361
1988	-0.115	0.374	0.454	0.569	-0.080	0.489	0.143	0.070	0.384
1989	-0.129	0.405	0.516	0.646	-0.111	0.534	0.126	0.068	0.449
1990	-0.115	0.376	0.462	0.577	-0.087	0.491	0.137	0.067	0.395
1991	-0.129	0.367	0.463	0.593	-0.096	0.496	0.147	0.073	0.390
1992	-0.122	0.340	0.452	0.574	-0.112	0.462	0.151	0.070	0.382
1993	-0.129	0.344	0.446	0.575	-0.102	0.473	0.169	0.080	0.366
1994	-0.133	0.350	0.455	0.588	-0.105	0.483	0.173	0.083	0.371
1995	-0.129	0.353	0.483	0.612	-0.130	0.482	0.168	0.081	0.402
1996	-0.135	0.358	0.487	0.622	-0.129	0.493	0.157	0.077	0.410
1997	-0.141	0.356	0.485	0.626	-0.129	0.497	0.160	0.080	0.405
1998	-0.138	0.362	0.504	0.642	-0.141	0.501	0.166	0.083	0.421
1999	-0.140	0.368	0.493	0.634	-0.125	0.509	0.184	0.094	0.400
2000	-0.142	0.379	0.507	0.648	-0.128	0.521	0.178	0.093	0.414
2001	-0.145	0.384	0.525	0.670	-0.141	0.529	0.188	0.099	0.425
2002	-0.172	0.391	0.554	0.725	-0.163	0.563	0.148	0.083	0.471
2003	-0.182	0.400	0.544	0.725	-0.144	0.582	0.141	0.082	0.461
2004	-0.175	0.390	0.518	0.693	-0.128	0.565	0.146	0.083	0.435
2005	-0.171	0.393	0.512	0.683	-0.119	0.564	0.158	0.089	0.423
2006	-0.165	0.392	0.493	0.659	-0.101	0.558	0.171	0.095	0.398

Source: own calculations based on various sources (see text).

**Table 10.1**  
**Macroeconomic crisis**  
**Changes in output, poverty and inequality**

Crisis	Changes		
	Output	Poverty	Inequality
1982	-5%	3	-0.7
1985	-9%	2	-3
1989	-11%	25	6.3
1995	-4%	5	2.7
2002	-17%	24	3.6

Source: own calculations based on National Accounts and EPH.

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