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# The impact of economic policy and structural change on gender employment inequality in Latin America, 1990-2010

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## I. Introduction

The main purpose of this paper is to analyze the impact of economic policy and structural change on gender inequality in employment and economic opportunities for a set of 18 Latin American countries over the time period 1990-2010.<sup>1</sup> We use three different methodologies to explore this question: 1) statistical description of changes in a range of gender inequality in economic opportunity variables in the 1990s versus the 2000s; 2) estimates of the growth elasticity of employment for women and for men; and 3) econometric analysis of the determinants of gendered employment and unemployment levels, as well as the determinants of gender inequality in these variables.

We begin by considering recent trends in growth, and the contemporaneous declines in household income inequality and poverty experienced throughout Latin America since the early 2000s. We include a careful review of the new literature seeking to evaluate the relative roles of government policy, macroeconomic structure, and global economic conditions in creating these new circumstances. We spend a good bit of time considering these analyses partly because they provide an analytical framework for evaluating gender inequality. But we also underscore what these types of analyses miss. From a gender perspective in particular, using the household as the unit of analysis ignores issues of the intra-household distribution of resources and responsibilities. And focusing on household income – regardless of its source – implicitly presumes that all improvements (whether it be, for instance, from labor income or a social pension) have equivalent effects on individual well-being. By contrast, our focus on gender-specific labor market outcomes indicates whether and how changes in economic policy and structure affect more than household income, and whether these changes contribute to creating the conditions for sustainable and transformative improvements in well-being and gender inequality.

## II. Growth, household income inequality and poverty

By recent standards, much of the last decade has been a good one for GDP growth in Latin America. As illustrated in Table 1, for the region as a whole, annual real per capita growth averaged 3.9 percent during the expansionary period 2003-08. Growth then turned negative in 2009 (-1.8 percent) as a consequence of the global economic crisis but rebounded to 4.2 percent in 2010. During the business cycle prior to that, 1990-2002, per capita growth averaged only 2.2 percent during the expansionary years of 1990-97, before declining to an annual average of only 0.2 percent in 1998-02, when the fallout from the global financial crisis spurred what was later referred to as the “lost half-decade.” The strong aggregate growth performance of the last decade masks some stark country-level differences, however. For instance, comparing per capita growth rates during the expansionary periods of the 1990s (1990-97) versus the 2000s (2003-08), Argentina’s average annual per capita growth increased from 4.2 to 7.5 percent, Panama’s from 3.5 to 6.5 percent, and Peru’s from 2.1 to 5.8 percent. Conversely, three countries had poorer growth performances in 2003-08 than in 1990-97: El Salvador, Guatemala and Chile. Overall, however, the GDP growth record is

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<sup>1</sup> The country sample includes: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Paraguay, El Salvador, Uruguay, and Venezuela.

much better in the 2000s than the 1990s, with the majority of countries also quickly recovering from the global collapse of consumer demand in 2009.

That most countries in the region experienced sustained increases in growth is certainly an important and positive development. But that substantial declines in inequality and poverty accompanied this higher growth is more significant and promising from a well-being perspective. Figure 1 illustrates the household income Gini index by region in 1990, 1997, 2002 and 2008, and Table 2 lists the index by individual country for the same years.<sup>2</sup> The years 1990 and 1997, the beginning and end of the 1990s expansionary period, give a sense of how growth affected income inequality in the 1990s – for the most part either holding steady or increasing. During the “lost half-decade” 1998-02, inequality increased in most countries. Conversely, between 2002 and 2008, we see notable declines in the Gini index in all regions, going from 53.1 to 51.2 in the Central America and Mexico region, 54.5 to 50.9 in the Andean Region, and from 53.8 to 49.8 in South America. Looking at the individual country indices in Table 2, we see declines in every country during this latter period with just two exceptions: Colombia and Nicaragua.<sup>3</sup>

Class inequality calculated separately for women and men (that is, intra-gender inequality), can be measured as the average monthly female (male) income of the bottom to top quintiles. We observe some evidence of declining intra-gender inequality during this period, with the greatest improvements observed in Ecuador and Venezuela (Table 3). These results are somewhat surprising in that conditional cash transfer programs would have been expected to reduce within-gender income gaps, but there is little evidence of this for Argentina or Mexico, where the relative share of the bottom income quintile for women and men worsened. For many of those countries that experienced greater intra-gender equality from the early to late 2000s, the percentage point increase in the income of the bottom quintile relative to the top was greater for men than women. That said, fully a third of the countries for which we have data experienced a worsening of the intra-gender income distribution.

As suggested by considering intra-gender inequality, optimism about household income inequality trends should be guarded. Gini coefficients based on household surveys may not fully describe the degree of inequality within countries. One reason is that household income surveys collapse male and female income and thus obscure trends in the degree of gender inequality. Secondly, there are measurement problems in household surveys, which often omit sources of income for the very wealthy. An alternative measure, the functional distribution of income, can overcome this problem. Data for Latin America show that the

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<sup>2</sup> These Gini indices are from the Inequality and Development in Latin America (IDLA) dataset, and include both net (for wage earners) and gross (for the self-employed that pay taxes) income. Note that while broad patterns are the same, the IDLA indices are slightly lower than those recorded in the ECLAC-CEPALSTAT database; we used the former because of broader country and time series coverage. See Data Appendix for more information.

<sup>3</sup> Palma (2011) finds evidence Gini trends are primarily driven by changes in the share of income accruing to the top 10 percent. According to Palma’s evidence, the share of income going to the middle of the distribution is quite stable, but the bottom 10 percent of the distribution has been rendered less able to defend its share of the distribution as a result of the forces of globalization that have shifted bargaining power. Palma also notes that income inequality in Latin America, though reduced in recent years, is a uniquely unequal region relative to the rest of the world.

wage share of income, defined as the ratio of labor compensation to gross value added, has declined since the early 1980s, with no upward trend in the 2000s, in contrast to the Gini based on household surveys (Rodriguez and Jayadev 2010). The wage share of income does not, of course, capture redistribution via social expenditures and tax policies. But changes in labor shares do shed light on structural and political economy factors that contribute to changes in interpersonal inequality that should be taken into consideration in conjunction with the Gini and gender equality indicators.

Turning to issues of poverty, Figure 2 gives a regional snapshot of changes in poverty rates over the period, with poverty defined as the level of household resources necessary to satisfy basic nutritional and non-nutritional needs.<sup>4</sup> For Central America and Mexico, poverty rates have consistently declined since the early 1990s, though the percentage point decline in poverty from the early to late 2000s (from 52.2 to 42.2 percent) is almost twice the decline between the early 1990s and early 2000s (5.7 percentage points). Both the Andean Region and South America experienced increases in poverty rates between the early 1990s and 2000s (largely the result of the lost half-decade), with formidable declines in poverty rates between the early to late 2000s. During the 2000s, the poverty rate in the Andean Region declined from 54.2 to 40.8 percent, or 13.4 percentage points, and in South America from 37.9 to 23.6 percent, or 14.3 percentage points. These figures, along with those documenting the decline in household income inequality, suggest that the recent economic boom experienced in Latin America has been more widely shared than in previous eras. Given declines in the wage share, one inference, however, is that improvement in the Gini is primarily attributable to social policies rather than income-equalizing structural changes. Whatever the source, whether we can extend the observation of greater household equality to changes in gender inequality is one of the questions we seek to answer in this paper. This is particularly important since as we noted, income inequality measures are at the household level, implicitly assuming pooling of income, and as a result can mask intra-household inequality along gender lines.

### *Evaluating the role of government policy, macroeconomic structure and global economic conditions*

The good economic news of the mid- to late-2000s coincided with progressive political changes in the region. A number of what we (and others) refer to as left-of-center (LOC) governments were democratically elected, ushering in a new era of reform in economic and social policy. At the same time, favorable global economic conditions lowered the “price” of reform, and scholarly debates on the relative importance of political regime versus a variety of macroeconomic policies and circumstances in lowering household income inequality and promoting shared growth ensued. Although none of this (macro) dialogue addresses the issue of gender inequality, it offers a useful basis for thinking about how to best structure our own inquiry.

In terms of characterizing LOC macro policy, its core pillars emphasize macro stability, fiscal prudence, and free trade and capital flows, a stance that is essentially the same as the

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<sup>4</sup> For more information see the technical note at: [http://website.eclac.cl/sisgen/SisGen\\_Badeinso\\_estimaciones\\_pobreza\\_cepal.asp?idioma=I](http://website.eclac.cl/sisgen/SisGen_Badeinso_estimaciones_pobreza_cepal.asp?idioma=I), accessed 5/3/12.



standard orthodox prescriptions (Cornia 2010; Madrid, Hunter and Weyland 2010; Ocampo and Vallejo 2012). Beyond that, there are a number of other characteristics attributed to the LOC policy model that constitute a marked departure from policies common in the 1990s, when neoliberal economic orthodoxies still held sway throughout the region. The global macro stance is designed to support competitiveness while at the same time protecting the domestic economy from the instabilities of global financial integration. These policies include managing real exchange rates to maintain competitiveness and stability, accumulating international reserves to assist in managing exchange rates, and lowering external indebtedness and dependence on foreign capital for borrowing (Cornia 2010; Damill and Frenkel 2012; Ocampo 2007). There has been less emphasis during the post 1990 period, however, on state-led development to promote industrialization than in the 1950s and 1960s (Peres 2011).<sup>5</sup> On the fiscal front, in addition to maintaining budget balance, there is increased emphasis on engaging in neutral or counter-cyclical fiscal policy, though the desire to maintain budget balance serves as a constraint across all types of governments (Cornia 2010; Ocampo 2007). It is not clear, however, how entirely distinctive LOC macro policy actually is, both because a number of non-LOC governments in the region have adopted similar policies, and because global economic conditions – increasing terms of trade and global demand for natural resource commodities, greater availability of external finance as interest rates have sagged in the global North, and increasing migrant remittances – have made “good” macro policy much easier to conduct.

What may be more important, from a poverty and inequality perspective at least, is that LOC governments have demonstrated a willingness and aptitude for using social and labor policies as a vehicle for state activism. Increases in social public expenditures, and changes in the structure of social spending, are targeted towards lowering inequality and poverty (Barrientos 2011; Ocampo and Vallejo 2012). Labor market policy reforms have included real minimum wage increases and efforts to increase formalization (Keifman and Maurizio 2012). Indeed, there seems to be a new willingness among a variety of governments in Latin America – not just LOC governments – to experiment with progressive social programs such as expanding and de-privatizing pension coverage and maintaining conditional cash transfers, perhaps reflecting widespread disappointment with the neoliberal reforms of the 1980s and 1990s, as well as greater confidence in government capacity and the social contract (Cornia, Gómez-Sabaini and Martorano 2011). But there has been a lot more movement on the social than labor market policy front – one reason that we emphasize gender inequality in employment in our own analysis.

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<sup>5</sup> A very recent exception is Brazil's Greater Brazil Plan launched in August of 2011 to increase productivity and counter the recent decline of the industrial sector. As part of the plan, several labor-intensive and high-tech manufacturing industries (clothing, footwear, furniture and software) have had their payroll taxes of 20% abolished. Some observers have identified policies to promote global economic integration as a form of industrial policy. This could be termed competitiveness policy, or as the mainstream would say, “getting prices right,” by enlarging the space for market mechanisms to determine allocation and production decisions. From another perspective, however, industrial policy is an intentional effort to “get prices wrong,” using taxes, subsidized credit, and other incentives to move a country up the industrial ladder from commodities and labor-intensive manufactures to the production of capital- and skill-intensive goods in the face of widespread market failures to inhibit private sector leadership (Amsden 1989.) A distinct feature of industrial policy is the setting of targets and the allocation of resources to achieve those targets.

Questions about the link between LOC policies, salutary economic conditions, and the decline in household income inequality have spurred a handful of econometric studies of the issue, though the results are still preliminary in that they are confined to working papers that have yet to undergo peer review. Though the time periods under consideration are broadly the same, concentrating on the 1990s and 2000s, each study employs a slightly different model and controls for different things, so the results are not strictly comparable. But a brief overview of this work gives us a sense of how economists model the macroeconomic dynamics of household income inequality in Latin America, an essential point of reference in thinking about gender.

Cornia, Gómez-Sabaini and Martorano (2011) evaluate the impact of fiscal policy on the household income Gini index and economic growth while controlling for a number of other variables (including lagged dependent ones). Fiscal policy, measured as the ratio of taxes to GDP and the budget deficit to GDP, is positively correlated with growth in the former case and negatively in the latter. The upshot is that the net effect of government activity (captured by taxes to GDP) is good for growth, though funding those activities by running budget deficits is not. In the equation where the income Gini is the dependent variable, when fiscal policy is measured as the ratio of direct to indirect taxes, it is negatively correlated with inequality, so efforts to make tax systems more closely linked with income than consumption have had progressive income effects. When fiscal policy is measured as social protection spending, the effect is statistically insignificant, probably because social protection spending includes both social assistance and social security, and the latter is only slightly progressive as this spending is concentrated among formal sector workers, a group that is already well-situated in terms of income (Cornia 2012). Of the other control variables included in the analysis, only GDP growth and the education Gini are statistically significant correlates of income inequality, while the minimum wage index is not.

One set of studies explicitly evaluates the impact of political regime on household income inequality as measured by the Gini index, and the general conclusion is that LOC governments are associated with larger declines in inequality, even after controlling for public policies, global economic conditions, and economic structure [though the latter controls are the most limited] (Cornia 2010, 2012; McLeod and Lustig 2010; Birdsall, Lustig and McLeod 2011). There is a difference of opinion, however, on which type of LOC government has had a bigger impact.

Cornia (2010, 2012) includes two political dummy variables in years when a LOC government is in power: one for populist/radical left governments (which includes Venezuela, Bolivia and Nicaragua), and one for social democratic governments (which includes Argentina, Brazil, Chile, the Dominican Republic, Ecuador, Panama, Paraguay and Uruguay). He finds that the populists had a bigger impact on redistribution than the social democrats, even after all the controls are added. In terms of controls, there are some differences in the relative importance of the variables included in the two Cornia studies, but the overall results are broadly consistent. Economic growth, which is treated as an endogenous variable, has rather modest progressive effects on household income distribution. Government policy, as measured by public social expenditures, the ratio of direct to indirect taxes, and the minimum wage index multiplied by the percent of total employment in the formal sector, is strongly progressive. Appreciated real effective exchange

rates (as they have been in the latter 2000s) are associated with higher inequality. Global economic conditions have had what Cornia describes as a “limited average effect” on declining inequality in recent years (Cornia 2012: 37), with the strongest effects coming from terms of trade (progressive), and much less of an impact from migrant remittances (progressive) and the stock of foreign direct investment (regressive). The distribution of education is measured somewhat differently in the two studies, but is significantly progressive in both. The later (2012) study also accounts for declines in the dependency ratio – it is somewhat surprisingly regressive – and increases in (primarily women’s) labor force participation, with not much of an impact.

McLeod and Lustig (2010) come to a different conclusion, using an alternative categorization of political regime, controlling for the number of years a regime has been in power, and employing a different model as well as underlying microdata for the Gini. They find that while the social democrats (which include only Brazil, Chile and Uruguay) have a strongly progressive impact on the income Gini after policy and other economic controls are added, the left populists (which include Argentina, Bolivia, Ecuador, Nicaragua and Venezuela) have no statistically discernable impact. Control variables overlap somewhat with the Cornia papers, including public social expenditures, terms of trade and remittances, with results that are generally similar. Additional variables include government consumption as a share of GDP (regressive), per capita income (no impact), inflation (slightly regressive), merchandise exports as a share of GDP (progressive), and fuel exports as a percent of merchandise exports (regressive). In a parallel set of analyses of poverty, changes in female labor force participation and the real minimum wage are alternately added and found to lower poverty rates, but most of the global economic variables are excluded in these regressions. Using the same LOC categorizations and core model as McLeod and Lustig (2010) but focusing on income impacts by quintile, Birdsall, Lustig and McLeod (2011) find that not only are the social democrats more progressive than the left populists, but that the latter redistribute income to quintiles three and four only.

Clearly, methods of categorization and modeling affect conclusions about the impact of policy and political regime. This is even more apparent when one considers issues of gender. For instance, with regard to the finding social public expenditures lower household income inequality, the gender effects of such policies, particularly conditional cash transfer programs, have been questioned (Molyneux 2007). These programs in general condition income supports on children’s school attendance, participation in parent-teacher meetings and nutrition and health education sessions, as well as doctor visits for immunizations. The requirement to fulfill these obligations necessitates a reorganization of household time patterns, with potential impacts on time to engage in paid labor. Because of gendered norms, it is primarily women who perform the unpaid tasks of fulfilling conditions required to access program payments, and thus such programs may actually reduce women’s relative access to income or gender equality, even as children’s status improve. So in regard to assessing the impact of social policy on inequality, we are reminded of the limits inherent in focusing solely on household-level income inequality.

There is a lot in this literature that is instructive, for instance the finding that social public expenditures, minimum wages, the terms of trade and exports as a share of GDP all have progressive household income effects, while appreciated real exchange rates and fuel exports

as a share of GDP tend to have regressive effects. From a policy perspective at least, the implications of the findings on LOC governments are not clear. From a social perspective, turning our focus to gender differences in employment and economic opportunity will not only enable us to consider inequality from a different vantage point, it will also give us a sense of how changes in economic policy and structure have affected gendered labor markets as well.

### **III. Statistical Overview of Gender Inequality in Economic Opportunities**

In this section we give a statistical portrait of a number of key gender variables, including those used in the elasticity and econometric analyses to follow. Our focus on gender differences in economic opportunity, as opposed to, for instance, gender inequality in capabilities such as health or education, is primarily because there is not much inequality to explain in the capabilities domain (at least as measured by the standard variables). Figure 3 illustrates this point in the case of the female-to-male ratio of average years of education in the population over 15, which incorporates past as well as current gender inequality. Even restricting ourselves to the 1990 figures, only four countries, the Dominican Republic, Colombia, Venezuela and Chile have ratios lower than 0.9. If one were to instead consider only current secondary enrollment, women surpass men in the majority of countries during the entire period under consideration. Turning to our measures of economic opportunities, the results are quite different.

#### *Employment*

Figure 4 illustrates average female-to-male employment to population ratios for those aged 15 and over in the 1990s versus the 2000s, while Figure 5 illustrates the percentage point change in that ratio between the two periods. We focus on employment rather than labor force participation because the former does not include the unemployed, an issue we evaluate separately. We also include regional averages for this and the other gender inequality variables, though these are not weighted by population. The relative employment ratios are generally low but increasing over time, and while men's employment to population ratio declined somewhat in a number of countries, the main impetus behind the increase is increasing employment for women across the board. Women's relative employment is generally highest in the Andean Region, followed by South America and then Central America and Mexico. The largest increase between the 1990s and 2000s is in the Andean Region, where Colombia experienced the biggest change, an increase of 0.18 percentage points, equivalent to an increase of 42.9 percent. It is also in the Andean Region that the relative employment ratio reaches its highest values, in Bolivia (0.74) and Peru (0.75). Within the Central America and Mexico region, El Salvador seems to be somewhat of an outlier, with patterns closer to those found in South America. Among South American countries, Chile is an outlier with much higher levels of relative employment inequality than its regional neighbors: in the 2000s Chilean women's relative employment averaged 0.52, compared to a regional average of 0.61.

It is instructive to consider the relationship between levels and changes. The correlation coefficient between women's relative employment in the 1990s and the change in that ratio between the 1990s and 2000s is -0.15, so countries that started out with higher levels of

inequality in the 1990s are not changing more than countries that began with lower levels of inequality. A strong negative correlation would be indicative of convergence, with more gender unequal countries “catching up” to more gender equitable countries. This is not the case for the Latin American region.

It is notable that the increase in the female to male employment to population ratio is only partially due to the increase in female employment rates. Over the last two decades, the male employment to population ratio fell in all of the countries in our sample, with the largest decline (-3.66 percentage points) occurring in Chile. For the sample as a whole, as a result, 19 percent of gender improvements in the female to male employment rate ratio are due to lower male employment rates. There is, in other words, a gender conflictive component to improvements in gender equality in employment.

### *Unemployment*

Average female-to-male unemployment rates in the 1990s and 2000s, as well as the percentage point change between the two periods are illustrated in Figures 6 and 7 respectively. Unemployment, along with employment as a share of population, is one of the more gender unequal categories considered, with women experiencing much higher unemployment rates than men across both decades. Moreover, women’s relative unemployment actually increased in the majority of countries between the 1990s and 2000s. This pattern is partly attributable to the gender-differentiated unemployment effects associated with the 2009 economic crisis in South America, where the female-to-male unemployment ratio was 0.13 percentage points higher in 2008-09 than in the 2000s as a whole. However, in the other two regions women’s relative unemployment actually declined in the late 2000s relative to the decade as a whole.

Looking back at Figure 6, we see an exception to the pattern of increasing relative unemployment for women in Central America and Mexico. The majority of countries in this region experienced declines in women’s relative unemployment across the two decades, resulting in an essentially equal regional average for the 1990s (1.46) and the 2000s (1.47) only because of the large increases in the ratio for Guatemala and Honduras. Women’s unemployment rates were actually lower than men’s in El Salvador in both decades, and in Guatemala in the 1990s. The result for Guatemala should be interpreted with caution, as it could be what we in the economics trade term a “statistical artifact.” The 1990s figure for Guatemala is based on only one data point from 1999, and though there have been significant increases in women’s unemployment throughout the 2000s relative to men’s, the levels are relatively low, with women’s unemployment starting at 1.4 percent in 1999 and increasing to 4.3 percent in 2002 before declining back down to 2.4 percent in 2006. At the same time, men’s unemployment declined from 2.2 to 1.5 percent between 1999 and 2006. Without the Guatemala outlier, the average decline in women’s relative unemployment for the Central America and Mexico region would have been -0.10 percentage points, a very substantial gender equalizing change. The patterns for El Salvador are not a statistical artifact; there is lots of data for both the 1990s and 2000s that all point to the fact that Salvadoran men have much higher unemployment rates than women throughout both periods. Another particular standout in Figure 6 is the Dominican Republic, where women’s relative unemployment is more than 2.5 times higher than men’s in both decades.

## *Informalization*

Figures 8 and 9 illustrate the average ratio and percentage point change (respectively) of female-to-male urban informalization rates in the 1990s versus the 2000s. Women generally have higher informalization rates than men across the two decades, with the exception of the Dominican Republic in the 2000s (there is no data for the 1990s), and Venezuela in both decades. Focusing on Figure 9, the gender ratio declined everywhere except for Costa Rica, Guatemala, and Chile, where it increased 0.1, 0.14 and 0.04 percentage points respectively. The increases in Costa Rica and Guatemala are especially large considering the magnitude of the regional average for Central America and Mexico, -0.03. Relative to other regions, South American women's relative informalization rates are generally higher, and declines between the decades about average. But there are some important qualifications to this portrait. The negative but modest declines in informalization inequality in the Central America and Mexico region are driven by improvements in El Salvador and Honduras. Improvements in the Andean Region were driven primarily by declines in inequality in Bolivia and Colombia. Additionally, it is important to note that Bolivia had the highest relative informalization rate in the 1990s, so the large decline there is very gender-equalizing by the region's standards. This relationship is also reflected in the correlation coefficient between women's relative informalization rates in the 1990s and the percentage point change in that ratio between the 1990s and 2000s (-0.46), indicating that countries with higher ratios in the 1990s experienced larger declines in the 2000s.

## *Wages*

Turning to wages, Figure 10 illustrates the female-to-male urban wage ratio for wage earners between the ages of 20 and 49 who work 35 or more hours a week, so among gendered measures of income inequality, one would expect this to be one of the more equal. Figure 11 illustrates the percentage point difference in the average ratio between the two decades. Gender wage ratios are generally high and increasing, with the exception of Peru, where the ratio declined by 0.15 percentage points. There are few obvious differences cross-regionally, though the South American countries seem to exhibit more gender-based wage inequality than the other regions. This is particularly true if we leave Argentina out of the group; without Argentina, the regional average for the female relative wage is 0.73 in the 1990s and 0.81 in the 2000s.

**Figure 12** illustrates another way to consider the gender wage ratio by plotting changes in that ratio against those for the minimum wage as a share of the average wage. Because the urban gender wage ratio captures only full-time workers between the ages of 20 and 49, we find it useful to consider its dynamics relative to those for the low-wage sector as captured by the minimum wage – as women are over-represented in low-wage employment (Rubery and Grimshaw 2011). Changes for both variables are measured as the percentage point difference between the average value in the 2000s and that of the 1990s. So, for instance, the average gender wage ratio for Argentina in the 1990s was 0.873 and for the 2000s was 0.894, so the percentage point difference is 0.021 – Argentina's value on the y-axis in Figure 12. The average value of the minimum wage as a share of the average wage was 0.189 in the 1990s and 0.328 in the 2000s, so the percentage point difference for the x-axis is 0.138. Our

first observation is that there appears to be virtually no correlation between the two series; the trend line is essentially flat and the correlation coefficient 0.054. But if we do not include the four countries where the gender wage ratio declined – Bolivia, Colombia, the Dominican Republic and Peru – the correlation coefficient increases to 0.71.<sup>6</sup> So countries that experienced declines in gender wage inequality for full-time urban sector workers were also more likely to experience increases in the minimum-to-average wage ratio.

### *Poverty and Extreme Poverty*

Figures 13 and 14 show how ratio of female-to-male poverty rates changed between the 1990s and 2000s. As in section II, we take ECLAC's figures on poverty, which reflect whether or not one has the resources needed to meet basic nutritional and non-nutritional needs. Gendered poverty rates are figured from household surveys by simply calculating the number of women and men between the ages of 20 and 59 that reside in poor households.<sup>7</sup> Such a definition is problematic from a gender perspective because it does not account for the different constraints and opportunities that women and men have in their communities and households, and presumes an equitable intra-household distribution of income. Though the data's time series availability makes it useful for comparisons, we caution readers that it reflects a very limited aspect of gendered poverty dynamics. That noted, we see that women in almost every country have higher poverty rates than men (where they do not, as in Honduras during the 2000s, the rates are equal). With the exception of Costa Rica and Venezuela, countries in the South American region tend to have more gender inequality in poverty than those in other regions, with a regional average of 1.07 in the 1990s and 1.14 in the 2000s. As suggested by these ratios, gender inequality in poverty increased in the 2000s relative to the 1990s in most countries. Looking at Figure 14, we can see that of the countries experiencing a decline in the gender poverty ratio across the two periods, all except for Bolivia are located in the Central America and Mexico Region. The only countries in this region where the gender poverty ratio increased are Costa Rica (from 1.24 to 1.30, or 0.06 percentage points), and Mexico (from 1.03 to 1.06, or 0.03 percentage points) – though we do not have data for the Dominican Republic and Panama in the 1990s. The largest increases in the gender poverty ratio are in South America, where during the 2000s the average female-to-male poverty ratio reached highs of 1.20 in Argentina and Uruguay, and 1.19 in Chile.

To investigate the impact of the global economic crisis in the late 2000s on these patterns, Figure 15 illustrates the difference between the average gender poverty ratio in 2009-10 and the average for the entire 2000s decade. If the reason for increasing ratios across the two decades is due to the crisis, the differences in Figure 15 will be comparable to or larger than those depicted in Figure 14. The crisis seems to have had the least apparent impact in Central America and Mexico. This conclusion is clearer if we take out the figures for the Dominican Republic and Panama to make the regional change comparable to that illustrated in Figure 14 (which does not include these countries due to lack of data). When we do, the

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<sup>6</sup> Taking out Honduras, a positive outlier, lowers the correlation coefficient value to 0.49, still quite high.

<sup>7</sup> See the technical note at

[http://websie.eclac.cl/sisgen/SisGen\\_MuestraFicha.asp?indicador=1694&id\\_estudio=212](http://websie.eclac.cl/sisgen/SisGen_MuestraFicha.asp?indicador=1694&id_estudio=212) for more information.

regional average difference between female-to-male poverty rates in 2009-10 relative to the 2000s declines from 0.03 to -0.01 percentage points, though it is important to note that Mexico and Costa Rica were hard hit by the crisis in terms of gender inequality in poverty. Turning to the Andean region, the impact of the crisis on the gender poverty ratio is clear, with a regional average difference of 0.04 percentage points in the late 2000s relative to the entire decade. Venezuela experienced the largest increase in the poverty ratio, 0.05, followed by Colombia with 0.03. We see the most pronounced impact of the crisis in the South American region, driven in particular by increasing gendered poverty ratios in Argentina, Chile, and to a lesser extent Brazil.

Figures 16 through 18 repeat Figures 13 through 15, only with data on the ratio of female-to-male extreme poverty, which reflects whether or not one has the resources necessary to fulfill basic nutritional needs only. The patterns illustrated in Figures 16 and 17 are similar to those in Figures 13 and 14, with increases in gender inequality for most countries as one moves from the 1990s to 2000s, increasing from 1.12 to 1.14 in the Central America and Mexico Region, 1.12 to 1.16 in the Andean Region, and 1.09 to 1.19 in South America. The gender ratios for extreme poverty tend to be larger than those for poverty overall. For instance, regional averages for the gendered extreme poverty ratio range between 0.02 to 0.05 percentage points higher than those for poverty overall. At the individual country level, the difference between extreme and overall poverty range from a low of -0.04 in El Salvador in the 2000s (when the overall poverty ratio was 1.05 and the extreme poverty ratio 1.00), to a high of 0.14 in the Dominican Republic in the 2000s (when the overall poverty ratio was 1.23 and the extreme poverty ratio 1.37). Comparing Figures 14 and 17 in particular, we also see that changes in the gendered poverty ratio – whether positive or negative – are everywhere larger in magnitude than the figures for overall poverty, with the only exception being Nicaragua.

Looking now at Figure 18, which compares the average extreme poverty ratio in 2009-10 to the average for the entire 2000s, some distinctive patterns relative to the numbers on overall poverty in Figure 15 emerge. First, the gender inequality effect of the crisis is much more pronounced in the Central America and Mexico and Andean Regions when we consider extreme poverty instead of overall poverty. Four countries drive this result: the Dominican Republic, Panama, Colombia, and Venezuela, where the impact of the crisis on the gendered extreme poverty ratio is much more pronounced than the overall poverty ratio. Taking these four countries as a group, the extreme poverty ratio in 2009-10 was on average 0.07 percentage points higher than the average for the decade as a whole, compared to a difference of 0.04 for overall poverty. Conversely, for the South American region, increases in the extreme poverty ratio (0.03 percentage points) are smaller than those for the overall poverty ratios (0.05 percentage points) depicted in Figure 15. And while Argentina and Chile experienced the largest increases in the overall gendered poverty ratio as a result of the crisis, Brazil is the standout in terms of extreme poverty, with a gender ratio 0.07 percentage points higher in 2009-2010 than the average for the 2000s (1.14 compared to 1.07).

### *Gender and Household Inequality*

As we noted earlier, declines in household income inequality as measured by the Gini coefficient may differ from trends in gender equality. We conduct a comparison of the



correlation of these two variables, by examining the change in the Gini coefficient from the 1997s to 2008 (or most recent year), as compared to the change in the female/male employment rate ratio. If greater income equality were strongly correlated with gender equality in employment, we would expect to see an inverse relationship between the Gini and the F/M employment rate. In fact, we observe the opposite, as illustrated in Panel A of Figure 19. Those countries that had the strongest reduction in household income inequality experienced the weakest improvement in women's relative access to employment. This does not mean that women are not relatively better off in terms of income equality. It does suggest the possibility that income equality has primarily been achieved via social transfers rather than through employment. To examine this, we look at changes in the F/M poverty rate ratio against changes in the Gini. Panel B in Figure 19 shows a weak positive relationship between the Gini and the F/M ratio of poverty. That said, if we consider only those countries that have experienced a reduction in the Gini (greater equality), it can be observed that there is a strong positive relationship between the Gini and F/M poverty rate. This suggests that whatever policies reduced household income inequality disproportionately reduced female poverty.

### *Summary of gender inequality findings*

- **Employment.** Differences between women and men in employment-to-population ratios declined in the 2000s relative to the 1990s, with the average female-to-male ratio for the Latin American region as a whole increasing from 0.50 in the 1990s to 0.59 in the 2000s. We found no evidence for convergence; countries with more employment inequality did not experience larger changes than those with less.
- **Unemployment.** Inequality in unemployment – with women facing higher unemployment rates than men – is among the more gender unequal categories considered. This type of inequality increased in the 2000s relative to the 1990s in the Andean and South American regions, holding essentially steady in the Central America and Mexico Region. Only in South America is there a clear link between the gendered effects of the late 2000s crisis and the increase in unemployment inequality.
- **Informalization.** Women have higher rates of urban informalization than men in almost all the countries studied, with declines in the female-to-male informalization ratio in the 2000s relative to the 1990s for the majority of countries. The size of the informalization ratio's decline is correlated with the level of informalization inequality, with countries in the South American region experiencing the largest declines in the ratio, but starting out at higher levels of inequality, suggesting some convergence.
- **Urban wage ratio.** There have been improvements between the 1990s and 2000s in the gender wage ratio for urban full-time workers. These changes have generally been more positive than those experienced in the minimum-to-average wage ratio, suggesting that women working full-time in the urban sector have experienced more improvements in wages than women working in low-wage sectors. But more direct research on this question must be conducted to bear this tentative conclusion out.
- **Poverty.** Women have higher poverty rates than men, a difference that increased in the 2000s relative to the 1990s in most countries outside the Central America and Mexico Region. The late 2000s crisis had little impact on poverty inequality in the Central America and Mexico region, with the exception of Costa Rica and Mexico,

which both experienced substantial increases in gender inequality in poverty during this period. The Andean Region also saw gendered poverty inequality rise during the crisis, especially Colombia and Venezuela. The largest increases in gender inequality in poverty that accompanied the crisis were in the South American Region, especially Argentina and Chile, and to a lesser extent Brazil.

- ***Extreme Poverty.*** Extreme poverty is generally more gender unequal than overall poverty, but at the same time exhibits the same broad country and time series patterns as overall poverty, with increases in the 2000s relative to the 1990s. The impact of the crisis on gender inequality was more intense in the Central America and Mexico and Andean Regions when we consider extreme rather than overall poverty inequality, primarily due to big increases in extreme poverty ratios in the Dominican Republic, Panama, Colombia and Venezuela. Although the impact of the crisis on extreme poverty inequality in the South American region is substantial, it is less pronounced than the effect on overall poverty inequality.
- ***Gender and Household Inequality.*** Though both the household income Gini index and women's relative employment rates have improved for most countries in the Latin American region since the late 1990s, those countries with the greatest declines in household income inequality experienced the least improvement in gendered employment inequality, suggesting that declines in income inequality have not been achieved by better employment opportunities for women. Conversely, among countries with declining income inequality, women's relative poverty rates are strongly positively correlated with changes in the income Gini, so less household income inequality is associated with lower rates of gendered poverty inequality. This indicates that the policies or circumstances causing decreases in income equality also disproportionately reduced female poverty.

#### **IV. The Responsiveness of Employment to Economic Growth**

In this section we consider the relationship between economic growth and employment from a gender-aware perspective by estimating the growth elasticity of employment for women and men. While economic growth may be necessary for substantial improvements in development and declines in poverty, it is not sufficient; it is the "employment nexus" that enables individuals to participate in the benefits of growth in a sustained, transformative manner (Osmani 2004; Van der Hoeven and Lubker 2006). One way to think about this is in terms of the elasticity of employment to growth, which refers to the extent to which an increase in production enhances both the quantity and quality of employment. This elasticity involves both demand and supply side factors. On the demand side, the responsiveness of gendered employment to growth will depend on: 1) the sectoral composition of output, or the extent to which the growth of output is concentrated in more labor-intensive sectors, and the gender composition of those sectors; 2) the labor intensity of the techniques used in growing sectors; and 3) the extent to which the domestic and international terms of trade improve for workers in labor-intensive sectors, or whether this type of employment is associated with increases in real wages (Osmani 2004). On the supply side, even when growth does generate labor demand, for that increased demand to result in improved living standards and non-conflictive declines in gender inequality, both women and men have to be

situated to take advantage of these opportunities, what Osmani calls the “integrability factor” (Osmani 2004; 2006).<sup>8</sup>

Because of data availability, here we focus on the relationship between growth and employment generation as measured by the number of women and men aged 15 and older who are employed (see the data appendix for data computation details). A useful way to think about these dynamics, and what we miss by not dealing directly with employment quality as well as quantity, is illustrated by equation 1, which gives the arithmetic identity that income or output ( $Y$ ) is, by definition, equal to employment ( $E$ ) multiplied by labor productivity ( $q$ , which equals output divided by employment). If we consider changes in these variables, as represented by delta ( $\Delta$ ) in equation (2), then we see that changes in output are distributed between changes in employment and changes in productivity.<sup>9</sup> If the responsiveness of employment to economic growth declines, productivity improvements, which are ultimately necessary to increase wages and improve living standards, will have negative effects on labor demand.

$$(1) \quad Y = Eq$$

$$(2) \quad \Delta Y = \Delta E + \Delta q$$

We econometrically estimate the growth elasticity of employment based on

$$(3) \quad \ln E_{it} = \alpha_i + \beta \ln Y_{it} + \varepsilon_{it}$$

where  $\ln E_{it}$  is the natural log of employment in country  $i$  in year  $t$ ,  $\ln Y_{it}$  is the natural log of real income in local currency units for country  $i$  in year  $t$ ,  $\alpha_i$  is the country-specific intercept, and  $\varepsilon_{it}$  the error term. In this form, the coefficient estimate of  $\beta$  can be interpreted as the growth elasticity of employment – the percent change in employment that results from a one percent change in GDP. We run separate regressions for female and male employment, as well as consider gender differences by industrial structure and time period.

Because economic structure is a key determinant of employment elasticity, in addition to estimating equation (3) for the Latin American region as a whole, we run separate regressions for countries grouped according to their industrial and trade structures. We constructed three indices in order to categorize countries. A fuel and ores index was calculated as the sum of the natural logs of: 1) exports as a percent of GDP, 2) the ratio of the share of fuel and ores to manufactured exports, and 3) the ratio of manufactured imports to exports. The latter contributes to an index that allows countries primarily intensive in fuel and ores to be ranked above those with manufacturing expertise. An agricultural index was constructed in a similar fashion with the exception that the second component is the ratio of the share of agriculture value added in GDP to share of manufacturing value added in GDP. Finally, a manufacturing index was constructed as the sum of the natural logarithm of two

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<sup>8</sup> This paragraph is based on Braunstein (2012: 7-8).

<sup>9</sup> This perspective is drawn from Kapsos (2005).

components: 1) the ratio of manufacturing exports as a share of merchandise exports to the sum of fuel, ore, and agricultural export shares in merchandise exports, and 2) the ratio of manufactured exports to imports. Annual values of the indices were calculated and then summed over the time period 1990 to 2010. Countries with average indices that ranked above the mean for all countries were categorized as intensive in that industry (no country could be ranked as intensive in more than one industry). For example, the mean manufacturing index, averaged across countries and over the time period 1990 to 2010, is 7.65. Countries with manufacturing indices greater than 7.65 were grouped as manufacturing-intensive economies. A similar process was used to categorize countries as fuel and ore intensive and agricultural economies. Using this method, Guatemala, Honduras, Nicaragua, and Paraguay are categorized as agricultural economies; Bolivia, Chile, Colombia, Ecuador, Peru, and Venezuela are categorized as fuel and ore intensive economies, and the remainder are in the manufacturing group. A component country list of these groups is provided in Table 4.

Table 5 lists gender-specific elasticity estimates and their female-to-male ratios for the Latin American region as a whole and countries grouped according to the industrial and trade structure indices. Time periods considered include 1991-2010 and shorter spans that correspond to different growth periods (the expansionary years 1991-97, the “lost half-decade” 1998-2002, and 2003-2010). We also present GDP growth for the country group and period under consideration so readers can get a sense of how much growth and employment actually changed. Where estimates were not statistically significant at the 10 percent level or above, the elasticity is given in italics.<sup>10</sup>

Looking first at the Latin American region estimates, we see that both female and male employment is inelastic with respect to growth. That is, a one percent increase (decrease) in GDP results in a less than one percent increase (decrease) in employment for both women and men. However, women’s employment is much more responsive to growth than men’s. In the 1991-2010 period, a one percent increase in GDP was associated with a 0.95 percent increase in women’s employment and a 0.54 percent increase in men’s, resulting in a female-to-male elasticity ratio of 1.76. Looking at the three sub-periods qualifies this picture substantially, however. The elasticity of women’s employment declined from 0.87 in the 1991-97 period to 0.67 in the 2003-2010 period, while men’s has remained virtually the same at 0.46 and 0.44 respectively. These patterns are reflected by a decline in the female-to-male employment elasticity ratio from 1.89 in the early 1990s to 1.52 in the latter 2000s. Elasticities for both women and men are lowest in the low growth years of 1998-2002, indicating that what growth there was during this period created very little employment. Similar results are presented in Kapsos (2005). In sum, women’s employment, while still more responsive to economic growth than men’s employment, has become less responsive to growth in the 2000s relative to the 1990s, both absolutely and relative to men. On the other hand, men’s elasticities have remained fairly constant across the two decades, after a dip in the 1998-2002 period. So for women at least, productivity improvements have become increasingly associated with declines in labor demand.

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<sup>10</sup> All of the estimates in Table 5 are highly significant. Only when we get to Table 6 does statistical significance decline anywhere below a 90 percent confidence interval.

One issue to consider more carefully is the point that women across Latin America have experienced significant increases in labor force participation over the period, while men have experienced slight declines: mean labor force participation rates for women increased from 40.0 to 51.8 percent between 1990 and 2010, while for men it declined slightly from 82.0 to 80.7 percent.<sup>11</sup> Figure 20 illustrates these patterns in terms of employment to population ratios, the variable used for the multivariate econometric analysis to follow, with specific percentages given in 1991, 1997, 2003 and 2010 to correspond with the sub-periods in Table 5. Since female employment participation increased so much, the higher elasticities for women could be driven by a secular shift in female labor supply behavior rather than gender differences in labor demand induced by growth. The female employment to population ratio increased from 35.8 to 40.1 percent between 1991 and 1997, an increase of 4.3 percentage points, and from 42.6 to 47.5 percent between 2003 and 2010, an increase of 4.9 percentage points. Given that the increase in the early period is similar to that in the later period, the decline in the growth elasticity of women's employment across the two periods does not seem to be driven by a slowdown in women's employment participation.

Another way to assess the role of labor supply is by controlling for the size of the labor force in the econometric estimates of elasticity, which we do in Table 6, still limiting the discussion to the results for the Latin American region as a whole. We focus on relative magnitudes and changes over time in the discussion of Table 6 – as opposed to absolute values – because these estimates are not true elasticities as they are defined above, but rather an indication of the relative importance of economic participation in the elasticity estimates. The higher the elasticity in Table 6 relative to that estimated in Table 5, the less important labor supply is in generating employment. While the estimated elasticities are predictably much lower than those in Table 5, women's employment is still more elastic than men's employment. Turning to the sub-periods, the 2003-2010 period looks better in terms of the employment generation capacity of growth relative to the 1990-97 period once we control for labor supply. But all this means is that employment generation in the 1990s was more sensitive to participation rates, a finding consistent with our conclusion based on considering changes in participation rates alone.

Now we turn to the results for countries grouped according to industrial structure, beginning with manufacturing economies in Table 5. Somewhat surprisingly, elasticities are lower in this group than the region as a whole, as well as lower than the other two groups, economies characterized by heavy dependence on fuel and ores and agriculture. For the 1991-2010 period, the growth elasticity of employment is 0.82 for women and 0.46 for men, with a female-to-male ratio of 1.78. Though both estimates are lower than those for the whole region, the gender ratio is essentially the same. Turning to the estimates for the three sub-periods, elasticities are markedly lower especially for women but also men, and there is less change over time when we consider them relative to those for the Latin American region as a whole. Comparing the 1991-97 and 2003-10 periods, the elasticity for women goes from 0.66 to 0.60, and for men from 0.36 to 0.38, resulting in a decline of the female-to-male elasticity ratio from 1.83 to 1.58. So while the gender gap in elasticities is comparable to those estimated for the entire Latin American region, the responsiveness of employment to growth is lower. This may seem counterintuitive in that it is sometimes presumed that

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<sup>11</sup> Authors' calculations based on data from WDI database.

economies characterized by large manufacturing sectors are more effective at producing jobs. But a higher proportion of growth in this group is getting captured by increases in productivity. Controlling for labor supply, as illustrated in Table 6, gives a slightly different picture. The results in Table 6 fall in line with those for the region as a whole, with little responsiveness of employment to growth in the 1990s once we control for labor supply, shifting to stronger elasticities in the 2003-10 period. This result is consistent with that found for the region, with employment becoming less responsive to increases in labor force participation in the latter 2000s, especially for women.

Going back to Table 5 and considering the 1991-2010 results for the fuel and ores group, we see that elasticities are high for women (1.03) but not so much for men (0.46) relative to the Latin American region and the other country groups. As we move sequentially through the three sub-periods elasticities decline, though much more for women than for men, with female elasticity ending up at 0.62 and men's at 0.43 for the 2003-2010 period. Thus the gender gap decreases quite a bit, with the female-to-male elasticity ratio declining from 2.12 in the 1991-97 period to 1.44 in the 2003-2010 period. It is also interesting to note that female elasticity results for the last period are in line with the Latin American region and the manufacturing group. What happened in this group that women's employment elasticity declined so much? One thing to consider is that female employment to population ratios increased much more in this region than elsewhere. In 1991, the female employment rate was 34.8 percent. By 2002, it had increased to 46.6 percent, ending up in 2010 at 51.4 percent. The elasticity estimates that control for labor supply in Table 6 also suggest that increasing participation is part of the explanation. According to these results, the share of employment growth associated with increases in labor supply is more constant across the three periods, and with so many women entering the labor market in the 1990s, employment elasticities are consequently higher.

Turning now to the primarily agricultural group, Table 5 indicates that this group hosts by far the highest elasticities for both women and men. Over the entire 1991-2010 period, for every one percent increase in GDP growth women's employment expanded 1.12 percent and men's 0.70 percent, giving a female-to-male elasticity ratio of 1.60, the lowest value in the 1991-2010 column. Looking across the sub-periods, we don't see a decline in the responsiveness of employment to growth in the 2003-2010 period relative to the early 1990s. In fact, female elasticity is slightly lower in the earlier than the latter period (1.05 versus 1.09), while men's stays virtually the same (0.72 versus 0.71), as reflected by the increase in the female-to-male elasticity ratio (1.46 versus 1.54). Still, we do see the same type of elasticity decline in the middle period (1998-2002) witnessed in the other country groups. Note, however, that GDP growth is lower during booms and higher during busts than in the other groups, so even though elasticities are higher, employment creation is more constant because growth is less volatile. The results for the agricultural country group listed in Table 6 when we control for labor supply show elasticities that are somewhat more in line with other groups and the region as a whole, though the estimates for the 1991-97 period are not statistically significant, and those for women in the 1991-2010 are quite low. Comparing the sub-periods indicates that economic participation is less important in the 2003-2010 for employment growth than in earlier periods, as is the case for the other country groups. In addition, the relatively large magnitudes recorded in Table 5 indicate that economic

participation has an important role to play in generating employment in agricultural countries overall, particularly among women.

As a detail reference, Table 7 gives elasticity estimates by specific country for 1991-2010 for the entire 1991-2010 period (shorter spans involve too few observations to produce meaningful results). In eight out of the 20 countries, the responsiveness of female employment to growth is greater than one, meaning that a one percent increase in growth raises female employment by more than one percent. Colombia has the highest elasticity for women (1.66), but not for men (0.71), giving one of the highest values in the female-to-male elasticity ratio of 2.34. Paraguay boasts the highest elasticity for men at 1.00, with a similarly high value for women (1.25), resulting in the lowest gender elasticity ratio in the table, 1.25. Table 8 repeats these estimates while controlling for the size of the labor force, which results in about half of the estimates losing their statistical significance. The big standout in this table is the Dominican Republic, where controlling for labor supply substantially *increases* the responsiveness of female employment to economic growth (from 0.66 in Table 7 to 0.79 in Table 8), the only case in this study to do so, while decreasing it for men.

The last group of elasticity estimates in Table 9 include formal employment only based on estimates of the percent of the urban population engaged in informal sector work. These elasticities are not strictly comparable to the prior estimates because we do not have observations for all years, and in general there are more observations for the 2000s than the 1990s. Focusing on the 2003-2010 period (which give the most robust estimates), in comparison to Table 5 we see that elasticities on formal employment are generally higher than those for overall employment. This is particularly salient in the case of men's employment in the agricultural group, where the elasticity of formal employment is 1.7 in Table 9 compared to 0.71 for total employment in Table 5. These results make sense in that people have to earn some sort of income to survive, and so informal employment is less sensitive to the ups and downs of the business cycle than formal employment, at least in those countries where informal employment serves as a type of residual employment when opportunities are few in the formal sector. Interestingly, the differences between formal and total employment elasticities are smallest for the manufacturing country group, which is consistent with an interpretation that informal employment is not a residual source of employment in this group, but rather integrated with the economy in ways that parallel the behavior of formal employment.

### *Summary of elasticity results*

- The growth elasticity of employment is higher for women than for men. For the Latin American region as a whole during the 1991-2010 time period, elasticities were 0.95 for women and 0.54 for men.
- Both women and men experienced lower elasticities in the 2000s than the 1990s, so there is less employment generation associated with growth in the 2000s relative to the 1990s. The one exception is in the agricultural country group, where elasticities remained roughly constant.
- Though elasticities for both female and male employment are declining over time, women's is falling faster than men's, resulting in an average female-to-male elasticity ratio of about 1.7 in the 1990s and 1.5 in the latter 2000s.

- The lowest elasticities for both women and men are in the manufacturing country group, with the highest in the agricultural country group.
- The growth elasticity of employment is more sensitive to labor supply effects in the 1990s than the 2000s, suggesting some sort of structural change (a decline, according to our estimates) in the employment-generating capacity of labor supply.
- Formal employment is more responsive to changes in growth than total employment, especially in the agricultural country group.

## V. Econometric Analysis

### A. Model

We now turn to an exploration of the effect of macro-level variables on gender equality using regression analysis. One set of regressions analyzes the determinants of the ratio of female to male employment rates and separately, female and male employment rates. In a second set of regressions, we evaluate the determinants of female and male unemployment rates, as well as the female to male ratio.<sup>12</sup> We test the effect on gender equality of three sets of variables: 1) social and employment policies; 2) macroeconomic policies; and 3) measures of economic structure. One of the challenges in this type of analysis is potential multicollinearity – some of the independent variables may be correlated with each other, making it difficult to isolate the individual effects of the independent variables. Thus, for example, capital account liberalization may lead to an increase in private capital flows, but this will also have an effect on the real exchange rate. Simultaneous inclusion of private capital flows and exchange rates as independent variables may therefore result in insignificant coefficients on one or both variables because the data are not able to isolate the impact of each of these variables. This is in part due to the nature of macroeconomic variables, and a function of the limited time series data available (for example, quarterly data would have been preferable). One way we address this is by estimating a parsimonious reduced form equation to focus on the key macro phenomena that may contribute to gendered outcomes in employment and unemployment.

We employ two measures of social and employment policy: social public expenditures made by central governments as a share of GDP and the minimum wage relative to the average monthly wage. The motivation for including these two explanatory variables is as follows. Social expenditures that level gender inequalities may improve women’s relative educational attainment and health, permitting greater participation in employment and higher wages.

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<sup>12</sup> The employment-to-population ratio and the unemployment rate are inversely related but are not perfectly correlated. The first is a measure of the proportion of the working age population that is employed (whether or not a person declares him or herself to be an active labor market participant). The unemployment rate is a measure of the proportion of labor market participants who cannot find employment. There is a gender dimension to these two variables. Women are less likely than men to be in the labor force due to gender norms, such as household responsibilities. As a result, the female to male unemployment rate may be artificially lower than it would otherwise be. The female-to-male employment rate ratio captures differences in women’s and men’s access to work for the working age population, regardless of how a person defines their labor market status. It is therefore a more precise measure of gender differences in employment (though it tells us nothing about the quality of that work, including the pay).



Minimum wage increases may be gender-equalizing since women are over-represented in low wage employment (Rubery and Grimshaw 2011). This can be a particularly useful tool in the face of gender job segregation shaped by norms and stereotypes that reduces women's bargaining power vis-à-vis employers relative to that of men. Of course, mainstream theory argues that higher minimum wages can lead to employment losses since higher wages reduce the demand for labor. There is, however, some empirical evidence to the contrary. That research suggests that higher minimum wages at worst have negligible effects and may even have positive effects on employment, resulting from the demand-side stimulus of higher wages and efficiency wage effects. Rather than using the minimum wage index as an explanatory variable, we employ a measure of the minimum wage relative to the average monthly wage as an explanatory variable. We anticipate that the higher the minimum wage relative to the average monthly wage, the stronger the effect on pay, and potentially on women's relative employment.

Our macro policy variables are the real effective exchange rate (REER), the real interest rate (the nominal lending rate minus the rate of inflation), and public investment as a share of GDP.<sup>13</sup> Monetary policies and explicit exchange rate policies affect the REER, with a depreciation (an increase in the REER) stimulating demand for export goods and reducing import demand. Gender equality in employment may be positively affected by an increase in the REER if resulting job increases are in sectors in which women are more concentrated or simply as a result of an economy-wide demand stimulus that generates female-intensive employment expansion.<sup>14</sup>

Monetary policy also affects the real interest rate. Both the lending rate and the rate of inflation respond to changes in the policy interest rate.<sup>15</sup> A higher real interest rate can lower private investment since the cost of borrowing rises, thereby contributing to a decline in employment. Whether such effects are gendered or not depends in part on the type of gender job segregation that exists. If men are more concentrated in interest-rate sensitive industries (such as capital-intensive industries), men's employment may be more strongly affected than women's.

Finally, under the category of macroeconomic policy, we examine the effect of public investment. Public investments in physical infrastructure such as electricity, water and sanitation, and transportation may have a significant impact on gendered access to

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<sup>13</sup> Previous studies have included the fiscal balance as an explanatory variable. Because this variable is correlated with one of our independent variables, GDP growth, and due to the limited time series available, we have chosen not to include this variable in our regressions. We also ran regressions that included this variable in place of GDP and it was not statistically significant.

<sup>14</sup> Although we do not evaluate formal-informal sector effects, it is useful to note that an increase or depreciation in the REER can have an ambiguous effect on gender concentration in the informal sector. This is because some informal jobs are complementary to formal sector jobs, with the manufacturing informal sector serving as a flexible and contingent source of labor that fluctuates with export demand. Also, a depreciation that stimulates export demand may be more likely to lead to an increase in informal sector employment if export demand is seen as volatile and temporary, discouraging the incentive to hire workers on formal contracts.

<sup>15</sup> The real interest rate then collapses the effects both of changes in the money supply (or policy interest rate) as well as the effects of monetary policy on inflation. In future research with an extended time series, it would be useful to disaggregate these two components of monetary policy to assess their labor market effects.

employment if such investments reduce women's time poverty and care burden (Agénor and Canuto (2012). For Guatemala, Gammage (2010) finds evidence that access to piped-in water and to the electric grid reduces the probability of being both time and income poor, with clear gender implications.

A country's structure of production also has gender implications due to gender norms and stereotypes that contribute to industrial and occupational gender job segregation. A large gender-aware literature documents the rise in the female share of employment as economies shift production to labor-intensive manufactures. Women are under-represented as employees in capital-intensive industries such as mining and petroleum-related production activities. Further, as an economy industrially upgrades, there is some recent evidence of a defeminization of manufacturing employment (Tejani and Milberg 2010). We use two explanatory variables to capture these effects. First, we include the ratio of manufacturing exports to imports as an explanatory variable, with the ratio assumed to rise as an economy moves up the industrial ladder.<sup>16</sup> Second, we use the share of fuel and ores as a percentage of exports.<sup>17</sup> Theoretically, we would anticipate that as the share of fuels and ores in exports rises, male employment outcomes would improve more than women's.

The terms of trade, which reflect the structure of imports and exports and their price and income elasticities, can have income effects generally. Commodity price booms improve a country's terms of trade – making it possible to import more goods with a given level of exports. They can also raise the incomes of workers employed in sectors that are experiencing booms, in particular agriculture. To the extent that women differentially benefit, an improvement in the terms of trade can be gender equalizing. The employment effects, however, are ambiguous. Insofar as an improvement in the terms of trade stimulates aggregate demand for domestically produced labor-intensive goods, women may differentially benefit from increased employment in the economy as a whole or in the agricultural sector. On the other hand, an improvement in the terms of trade may stimulate investment in male-dominated extractive industries.

Finally, we include GDP growth as an explanatory variable. Some authors argue growth is gender equalizing (World Bank 2012), although there is contrary evidence for Latin America and Asia (Seguino 2003, 2007). Growth could also be equalizing if women more than men gain access to newly created jobs. There is evidence of a two-way causality between gender inequality and growth, with the strength and direction of those relationships mediated by the structure of an economy and the pattern of gender job segregation, an issue that becomes important for the econometric analysis and is discussed in more detail below (Costa, Silva, and Vaz 2009; Klasen and Lamanna 2009; Seguino 2010).<sup>18</sup>

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<sup>16</sup> An alternative measure is per capita GDP per worker, but country limitations on the availability of these data precluded its use as an explanatory variable in our regressions.

<sup>17</sup> We do not have data on fuel and ores as a percentage of GDP, and therefore use exports of these goods as a second-best proxy.

<sup>18</sup> It would have been useful to include determinants of female and male labor supply in our model, as measured by the age dependency ratio (the ratio of young and old to working age population). The dependency ratio is a proxy measure of care burdens, which if differentially borne by women, can affect their ability to participate in paid labor markets. This variable, however, performed poorly and counter-intuitively, a finding also noted by Cornia, *et al* (2010). This may be because the variable is poorly measured, or because our time

## B. Data

A full accounting of data sources is provided in the Data Appendix. We have already given an overview of the employment and unemployment variables in section III. Here we limit the discussion to the macroeconomic policy and structure variables, as well as the statistical properties of the data as they pertain to the econometric analysis to follow.

Beginning with the social and employment policy variables, Figures 21 and 22 give a sense of the nearly universal increase in central governments' social public spending in the 2000s relative to the 1990s, with Ecuador being the only country where this type of spending as a share of GDP declined. Interestingly, it was in the Central America and Mexico Region that we see the largest average increase in social spending across the two decades.

Figure 23 illustrates the real monthly minimum wage relative to the average monthly wage by country and region, contrasting the average ratio in the 1990s with that of the 2000s. While most countries did experience an increase in this ratio, the countries with lower minimum wages in the 1990s did tend to experience larger percentage point increases in the minimum-to-average wage ratio across the two decades. This is reflected by the correlation coefficient  $-0.36$  between the average ratio in the 1990s and the percentage point change between the 1990s and the 2000s.

In terms of the macroeconomic policy variables, Figure 24 shows the course of the REER index by country and region. We can see that the early 1990s were characterized by real exchange rate appreciation for most countries (as illustrated by declines in the index), depreciating or stable trajectories beginning in the late 1990s, and a tendency towards some appreciation in the later half of the 2000s – though this pattern is much more pronounced in South America and the Andean Region than in Central America and Mexico. The policy stance underlying these patterns shifted in the late 1990s and early 2000s, when most countries adopted managed exchange rate regimes designed to maintain a competitive real exchange rate and to avoid large appreciations (Damill and Frenkel 2012).

Figure 25 illustrates real interest rate averages for different eras of economic growth: the early 1990s (1990-97), the “half-lost decade” (1998-2002), the boom of the 2000s (2003-08), and the most recent global crisis and beginning of recovery (2009-2010). High real interest rates are sometimes used as a monetary policy lever to help manage inflation and keep globally mobile capital at home, but such a policy stance can come at the cost of growth and employment if it inhibits investment due to the consequent higher costs of borrowing. It is generally the case that real interest rates were lower in the 2000s than the 1990s, indicating a better environment for investment. For a number of countries the difference between the two decades is substantial. Comparing the boom years 1990-97 with 2003-08, we see lower

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series is so short. It was not possible to transform the dependency ratio in such a way as to obtain plausible coefficient estimates on this and other variables, and we therefore decided not to include it in our model, absent a better measure of care burdens. It should be noted, therefore, that our estimates may suffer from omitted variable bias and should be viewed with caution.

real interest rates in the 2000s in all countries for which we have data except for Guatemala, Honduras and Paraguay. Some of these differences are very large. Between the two boom periods, real interest rates declined more than 50 percent in Mexico, Nicaragua, Bolivia, Ecuador, Argentina, Chile and Uruguay. However, real interest rates are still relatively high in a number of countries, exceeding 10 percent in 2009-10 in the Dominican Republic, Honduras, Peru, Brazil and Paraguay.

Figure 26 illustrates public investment as a share of GDP by country, contrasting the average for 1990-94 with 2006-2010. Multi-year averages are used to smooth out what can be substantial fluctuations from year to year, such as when the government undertakes a large capital improvement project. Also note that this ratio captures only capital improvements, such as land improvements, the building of roads, schools, or health and sanitation facilities. Clearly, there are other types of public spending that one could reasonably argue should be counted as investment, such as subsidies for student loans, daycare, or other direct investments in human capital. Thus, this data only measures the role of public investments in physical capital, missing the other types of investments in human capital. Though we do not have data on public investment for Chile, the other countries in South America tend to have lower levels of public investment as a share of GDP in both the early 1990s and late 2000s, topping out in the 2000s with Paraguay at 3.7 percent and Uruguay at 4.9 percent. We find the highest public investment shares in the latter 2000s in the Andean Region, led by Venezuela, Ecuador and Bolivia, with public investment shares of 12.5, 10.1 and 9.3 percent respectively. In Central America and Mexico, four out of the seven countries for which we have data experienced declines in public investment as a share of GDP: Costa Rica, El Salvador, Honduras and Nicaragua. The average share for these four in the latter period is 3.5 percent. Of those in this region hosting increases in public investment in the late 2000s, Guatemala, Mexico, and Panama, the average share is 4.6 percent.

An indicator of economic structure that reflects the degree of industrial upgrading is the ratio of manufactured exports to manufactured imports. As a country moves up the industrial ladder, we would expect that ratio to rise. A caveat is that semi-industrialized economies continue to be dependent on imported capital and high-tech goods and so the rise in this ratio may in fact be very slow over time. The data in Figure 27 by region show a downward trend for most countries in the Central American region and South America, exceptions being Mexico, Chile, and Argentina. In contrast, here too the Andean region shows signs of higher value-added exports (as evidenced by the rise of manufactures in exports) relative to imports.

Figure 28 illustrates the average share of fuel and ores in merchandise exports for the entire 1990-2010 period by country. While the magnitude of this ratio in particular countries does vary over time (sometimes as a result of changes in the denominator, merchandise exports), we give an average for the whole period only to remind readers of the broad structural differences across countries. Comparing these ratios with the industrial groupings in Table 4, we see that the fuel and ores group, which includes Bolivia, Chile, Colombia, Ecuador, Peru and Venezuela also have the highest ratios in Figure 28, with averages ranging from a low of 38 percent in Colombia to a high of 87.4 percent in Venezuela. The next category of countries – roughly in the 15 percent range – includes Mexico, Argentina and Brazil. That

leaves all the countries in Central America, and Paraguay and Uruguay, with ratios that range between a low of 0.6 percent in Paraguay to a high of 6.1 percent in Guatemala.

Figure 29 explores secular trends in the terms of trade by region. As we noted, improvements in the terms of trade can improve the incomes of workers employed in sectors where export prices are rising. How gender equality is affected depends on a country's gendered pattern of employment concentration. A second avenue by which gender equality may be affected is via the effect on government revenues, with commodity price booms leading to increases in public sector revenues and expenditures, which may or may not be gender-equalizing. Commodity price increases in the 2000s have led to improvements in the terms of trade in some countries in all regions (Figure 29). The most pronounced improvements have been in the Andean region, with Venezuelan gains substantially outpacing those of other countries. In South America, too, there have been some improvements, though they are modest, with the exception of Chile. Finally, the terms of trade in Central America and Mexico show little change since the early 1990s.

It is useful to note trends in trade openness, which is viewed by some scholars as a stimulus to productivity growth. Whatever the effect of trade openness on productivity growth, if it worsens the current account deficit, it is a drag on short-run GDP growth and thus employment. Figure 30 shows the change in the share of trade in GDP (exports plus imports) plotted against the current account surplus (deficit). The data in that figure show a correlation between the expansion of trade as a share of GDP and the current account deficit. Net gender employment effects are thus ambiguous *a priori*. This is because expansion of trade may create jobs in female-dominated sectors but declines in job availability due to a rise in imports that may swamp any positive export effects on employment.

Finally, while we do not use the dependency ratio in our regressions, it is useful to observe their trends from 1990 to 2010 (Figure 31). All countries have experienced a decline in dependency ratios. Plotting the average annual decline against the average dependency ratio, we observe that those countries with the highest average ratios also experienced the largest declines.

### *Diagnostics*

Most variables were converted into natural logs for ease of comparison of coefficients. Real interest rates and GDP growth were not so converted since these variables take on negative values. We tested all the variables in our panel for unit roots using Fisher-type panel unit root tests with an augmented Dickey-Fuller specification applied to the individual countries. We used the Fisher test because our panel is slightly unbalanced due to occasional missing observations. The Fisher test assumes an AR(1) process in the underlying Dickey-Fuller test specification. The Fisher test was performed without and with a deterministic time trend. All transformed variables were found to be stationary (results available on request).

### **C. Estimation Strategy**

To explore the determinants of gendered labor market outcomes in Latin America for the period 1990-2010, we employ two estimation techniques: simple OLS and two stage least

squares (2SLS). For the OLS estimates, we use a fixed effects panel estimation technique to control for country-specific factors not otherwise captured in our independent variables that may influence gender outcomes. Fixed effects panel data (alternatively termed pooled cross-sectional data) analysis allows us to study the effect of our independent variables over time, controlling for country-specific differences not captured by our independent variables. (In other words, the intercept term is allowed to vary by country).<sup>19</sup>

Formally, the model we test is of the form:

$$(4) \quad \text{Gender}_{it} = \alpha + \beta X_{it} + \mu_i + \varepsilon_{it}$$

where *Gender* is our gender variable of interest in country *i* and year *t*; *X* is a vector of the nine independent variables identified in the previous discussion;  $\mu$  is the time-invariant country fixed effect; and  $\varepsilon$  is the error term. This approach is useful in ascertaining whether there are common effects of the independent variables across this group of countries. It should be noted, however, that even where we find no evidence of common effects (as when a coefficient is statistically insignificant), independent variables may have notable effects on individual countries and thus a group-wise analysis does not preclude the usefulness of country-level analyses. That said, to the extent we find common effects (statistically significant coefficients on our independent variables), this allows us to generalize regionally about the gender effects of the independent variables.

One potential problem with the fixed effects model we have specified is that the growth rate of GDP is itself influenced by gender inequality and by several independent variables (including the real interest and exchange rates). We therefore use two-stage least squares (2SLS) to account for the endogeneity of GDP growth. The instruments for the growth rate of GDP are the growth rate of gross fixed capital formation (public and private), the terms of trade (log), the real exchange rate (log), the real interest rate, and the female share of the labor force (log). The latter variable is included due to evidence that gender equality in labor force participation exerts a positive effect on GDP growth based on a selection distortion argument – greater gender balance in labor force participation draws more heavily from the available pool of talent, thus stimulating efficiency and national income growth (Costa, Silva, and Vaz 2009; Klasen and Lamanna 2009).

#### **D. Discussion of Results**

Table 10 shows regression results for female-to-male employment, and female and male employment separately, while Table 12 reports results for the unemployment rate ratio, female unemployment, and male unemployment. We report fixed effect and 2SLS regression results that include all of our independent variables with the exception of public investment and fuel and ores as a percent of exports. We then report regression results that include these latter two variables. The reason we report results in this way is that there are a

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<sup>19</sup> We report robust standard errors, and F-tests reveal in all cases that the fixed effect model is better than a pooled OLS model (with no country-specific intercepts). All 2SLS regressions pass the test for validity of instruments.

large number of missing observations for the latter two variables, and two countries drop out of our regressions, Chile and the Dominican Republic. A comparison of the results from the two sets of regressions provides some information on the robustness of our results.

Beginning with the results for employment, social spending has a positive effect on relative employment rates in all regressions and the size of this effect is quite large as compared to the coefficients on the other variables. Specifically, a ten percent increase in social spending as a share of GDP raises the female to male employment rate ratio between 1.2 to 3.2 percent. One of the implications of this result is that, despite social programs that may increase women's care burden, social spending overall does not appear to inhibit their relative employment. The minimum wage also has a positive and significant effect on this ratio in all but one equation, though the size of that effect is smaller than social spending. This contradicts neoclassical hypotheses that higher minimum wages lead to employment losses for the lowest wage earners, in this case women.<sup>20</sup> It is notable that GDP growth itself has an insignificant effect on female relative employment. Whereas in Asian labor-intensive export manufacturing economies, women's share of employment tends to rise with growth, this does not occur in Latin America.<sup>21</sup>

The effect of the ratio of manufactured exports to imports on the ratio of female to male employment rates is alternatively positive or negative, but in no case is the coefficient significant. The terms of trade index has a positive effect on relative female employment and that effect is quite large. This could be tied to the positive association between TOT and public budgets, or an increase in women's employment in tradable sectors benefiting from the commodity price boom. It is also consistent with the high growth elasticity of female employment in the agricultural and fuel and ores country groupings illustrated in Table 5. In contrast, the coefficient on the real exchange rate, where a higher value indicates a currency depreciation, is positive and significant only in the fixed effects regression on 16 countries (column 3). The effect of the real interest rate is significant only in the 2SLS regressions and that effect is positive. While this might suggest that men are more concentrated in interest-rate sensitive industries, the female employment regressions do not bear this out, as we will see below. In columns 3 and 4, we find that as the share of public investment rises, the female/male employment ratio rises. This effect is significant in the 2SLS regression but not the fixed effects model. Finally, as the share of fuel and ores in exports rises, we observe a positive effect on female relative employment. This is somewhat surprising, given that this sector is male-dominated and might be expected to benefit men's employment more than women's. It could be that there are spillover effects on women's employment as a result of expansion of this sector not captured by the GDP growth variable.

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<sup>20</sup> This does not preclude the possibility, however, that increases in the minimum wage reduce the demand for formal labor, shifting workers to the informal sector. We do not have sufficient data to rigorously evaluate this possibility. That said, a simple bivariate fixed effects regression that estimates the impact of changes in the real exchange rate on the female/males ratio of the share of workers employed in the informal sector yields a significant negative effect – that is, a depreciation *reduces* relative female informality. This regional-level impact on relative female/male informality may differ from country-specific effects.

<sup>21</sup> This observation does not necessarily contradict our findings on the growth elasticity of employment because the elasticity estimations do not control for any of the policy or economic structure variables included here (nor for the endogeneity of growth). A good next step in linking these two findings would be to conduct a multivariate regression analysis of the determinants of elasticity.

We now examine the determinants of just female employment. This is a useful exercise insofar as our concern is women's absolute rather than relative well-being. Turning to the determinants of the female employment rate (columns 5-8), social spending and minimum wages exert a strong positive effect on female employment in all regressions. Neither GDP growth nor the ratio of manufacturing exports to imports has a statistically significant effect on women's employment rates. The latter thus fails to provide support for the defeminization hypothesis, at least for this set of countries and time period. The terms of trade have a positive and statistically significant effect on female employment, as large as or larger than social spending and minimum wages.

The determinants of male employment differ substantially from those of women (columns 9-12). Here we observe that social spending has a *negative effect* on male employment in the 2SLS regressions. Though a full understanding of why this coefficient is negative would require deeper analysis, one possibility is that social spending that equalizes the playing field for women in terms of education, health, and income supports results in higher female employment, some of which displaces male workers. Minimum wage hikes, however, have a positive effect on men's employment in most of these equations, although the size of that effect is smaller than for women. Here again, we note that higher wages do not lower employment, perhaps due to the demand-side impact whereby workers spend a higher portion of their income than high-income groups.

An interesting finding is that GDP growth has a positive significant effect on men's employment rate, holding constant variables that control for the structure of the economy. This effect holds, however, only in the fixed effects regressions and is not robust. Manufacturing exports to imports and the terms of trade have no discernible effect on men's employment, while the real exchange rate exerts a positive, if small effect only in equation 12, which omits Chile and the Dominican Republic. In contrast, public investment exerts upward pressure on men's employment and while significant, the effect is not as large as on women's employment. Oddly, fuel and ore exports do not have a significant effect on men's employment, in contrast to the effect on women's. This raises our suspicion that fuel and ores is picking up some sort of spillover effect limited primarily to female-dominated industries.

We now turn to the results on the determinants of unemployment in Table 11. As a first note, these results are less robust than those with the employment rate ratio as the dependent variable. One explanation for this is the great variation in the way unemployment is measured across the region and over time within countries (Ball, de Roux, and Hofstetter 2011). Series covering different age groups and different definitions of unemployment are used, with some counting discouraged workers and some not.

Regarding the regression results for the determinants of the female to male unemployment rate ratio (columns 1-4), most of the explanatory variables are insignificant. It is particularly noteworthy that the effect of the minimum wage is insignificant, suggesting that higher minimum wages (relative to the average monthly wage) do not contribute to higher relative female unemployment rates. Also, previous research suggests that the real exchange rate has an impact on unemployment, with depreciations stimulating exports and therefore demand



for labor (Frenkel and Ros 2006). That effect is not in evidence in these regressions, however. The only explanatory variable that shows a consistent (positive) statistically significant effect in three out of the four regressions is GDP growth. This implies that growth episodes are gender disabling, insofar as the ratio of female to male unemployment rises. As we will see in columns 5-12, this is because men's unemployment falls more than women's in response to increases in GDP. In the 2SLS regression that excludes public investment and fuel and ores as explanatory variables (column 2), the ratio of manufacturing exports to imports also shows a positive significant effect on the unemployment rate ratio, but this effect does not hold in the remaining regressions. Finally, in the fixed effects regressions (columns 1 and 3), we see the real interest rate has a negative effect on the female/male unemployment rate ratio.

The regression results are somewhat more illuminating when we consider the determinants of female and male unemployment separately. For females, we observe that increases in the minimum wage have a negative significant effect on unemployment and these effects are quite large (and larger than in the employment regressions). GDP growth has a negative effect as we might expect, but this effect holds only in the fixed effects regressions. The coefficient estimates on the ratio of manufacturing exports to imports (hypothesized to contribute to defeminization of employment) are inconsistent, though significant in some of the regressions. Public investment has a significant negative effect on female unemployment, a result that is consistent with the employment regressions, and here, too, the effect is quite large. The share of fuel and ores in exports also exerts a negative effect on the female unemployment rate in the 2SLS regression, but not the fixed effects model. One concern with these results is that the terms of trade have a positive effect on female unemployment (only in the reduced sample of countries), and yet in the employment regressions (Table 11), terms of trade also had a positive effect on women's employment rate. We are not able to explain these results, and given the small sample size, would suggest caution in drawing any inferences from these coefficient estimates without further investigation.

With regard to the determinants of male unemployment, increases in the relative minimum wage reduce male unemployment in all four regressions (columns 9-12) and that effect is significant. GDP growth, too, exerts downward pressure on male unemployment, but this effect is significant only in the fixed effects regressions. We observe the same inconsistent pattern of estimated effects of the ratio of manufactured exports to imports as in the female unemployment regressions. The terms of trade have a significant positive effect on male unemployment in only the fixed effects model for the full sample, while the real exchange rate reduces male unemployment only in the 2SLS full sample regression. Neither of these independent variables produces sufficiently robust results that would allow us to make inferences about their effect on unemployment with any degree of certainty. And finally here, too, both public investment and fuel and ores as a share of exports reduce male unemployment, although only in the 2SLS regressions for the reduced sample (column 12).

### *Summary of Econometric Results*

Several notable patterns emerge from these regression results. Most notably, relative minimum wages appear to be a boon to employment, both female and male, but the effect on women's employment is larger. Social spending too exerts a positive effect on gender

equality in the employment regressions. Public investment benefits both women and men, though there is some evidence that women's employment increases more from such investment. Finally, the terms of trade appear to be gender equalizing in terms of employment. It is not clear what the pathways by which terms of trade improvements lead to increased relative female employment. It is notable, however, that terms of trade fluctuations that reflect commodity price booms are by their nature unstable, and hence not a viable policy vehicle for promoting gender equality. Real exchange rates, on the other hand, are a policy vehicle for stimulating female employment as these results show. This exchange rate-female employment nexus is straightforward. Real depreciations that lower the price of export goods achieve two goals. They stimulate employment-generating demand for the export good, and in female-dominated labor-intensive industries, reduce the pressure to lower wages as a means to achieve competitiveness.

Notable in these econometric results is that GDP growth does not exhibit robust positive and significant gender effects on labor market outcomes, consistent with the findings of Seguino (2007). Finally, some of our remaining economic structure variables produce surprising results. The ratio of manufactured exports to imports appears to have little effect on female or male employment or their ratio, but produces inconsistent coefficient estimates in the unemployment regressions. This is an area for more research, as better and more extensive data become available. And finally, surprisingly, the expansion of fuels and ores as a share of exports appear to have positive effects on female relative and absolute employment rates, for reasons that are not clear.

We caution again that our model does not include measures of unpaid labor burdens, as proxied by dependency ratios or fertility rates, due to the poor performance of these variables in the regressions and their effects on the remaining independent variables that appear implausible. Our results, therefore, may suffer from omitted variable bias, though this is more of a concern with the employment regressions than the unemployment regressions.

## **VI. Concluding Remarks**

The increases in growth and declines in inequality and poverty that have characterized much of the last decade in Latin America are promising indicators of a structural break with the crises of the 1980s and the lackluster neoliberal economic record of the 1990s. In this paper we take stock of these changes from the perspective of gender inequality in economic opportunities, exploring whether there is a link between approaches to and experiences of economic development and women's relative access to economic opportunity. On the stock-taking front, there is much improvement: women's relative employment and wages are up (though the former is still low by world standards), while their relative rates of informalization are down. But we also see more gender inequality in unemployment and poverty, though the disproportionately negative impact of the 2009 economic crisis on women is likely driving these results, at least for the South American region. In terms of the growth elasticity of employment, the absolute and relative responsiveness of women's employment to growth decreased noticeably in the latter 2000s relative to the 1990s.

Moving beyond stock-taking and into making causal connections is more complex, partly because conducting a multivariate statistical study is simply more analytically demanding and

data requirements are intensive. While some of the variables in our regressions performed poorly or in unexpected ways, three variables stand out as having consistent gender equalizing effects in the labor market – social spending, minimum wages, and public investment. Less important or consistent were the effects of economic structure and GDP growth.

In a review of neoliberal development macro and its gendered employment effects, Braunstein (2012) makes a number of observations that would be worthwhile to explore in more detail. For instance, globalization policies in the Latin American region seem more geared towards managing global capital flows and domestic inflation than creating employment, particularly for women. The continued promotion of liberalized trade and capital flows, coupled with the weak relationship between the real effective exchange rate index and women's employment, are consistent with such an interpretation. Unpacking the role of changes in the terms of trade in terms of public budgets, the real exchange rate, and industrial structure would also be important in this regard. At the core of many of these issues is the absence of widespread, employment-generating industrial and development policies. Governments have proceeded much farther in terms of increasing and strategically targeting social spending, as evidenced by the role of social public expenditures in the regressions. But the evidence provided in this paper suggests that the effect of various development paths on gender inequality in economic opportunity has been less palpable.

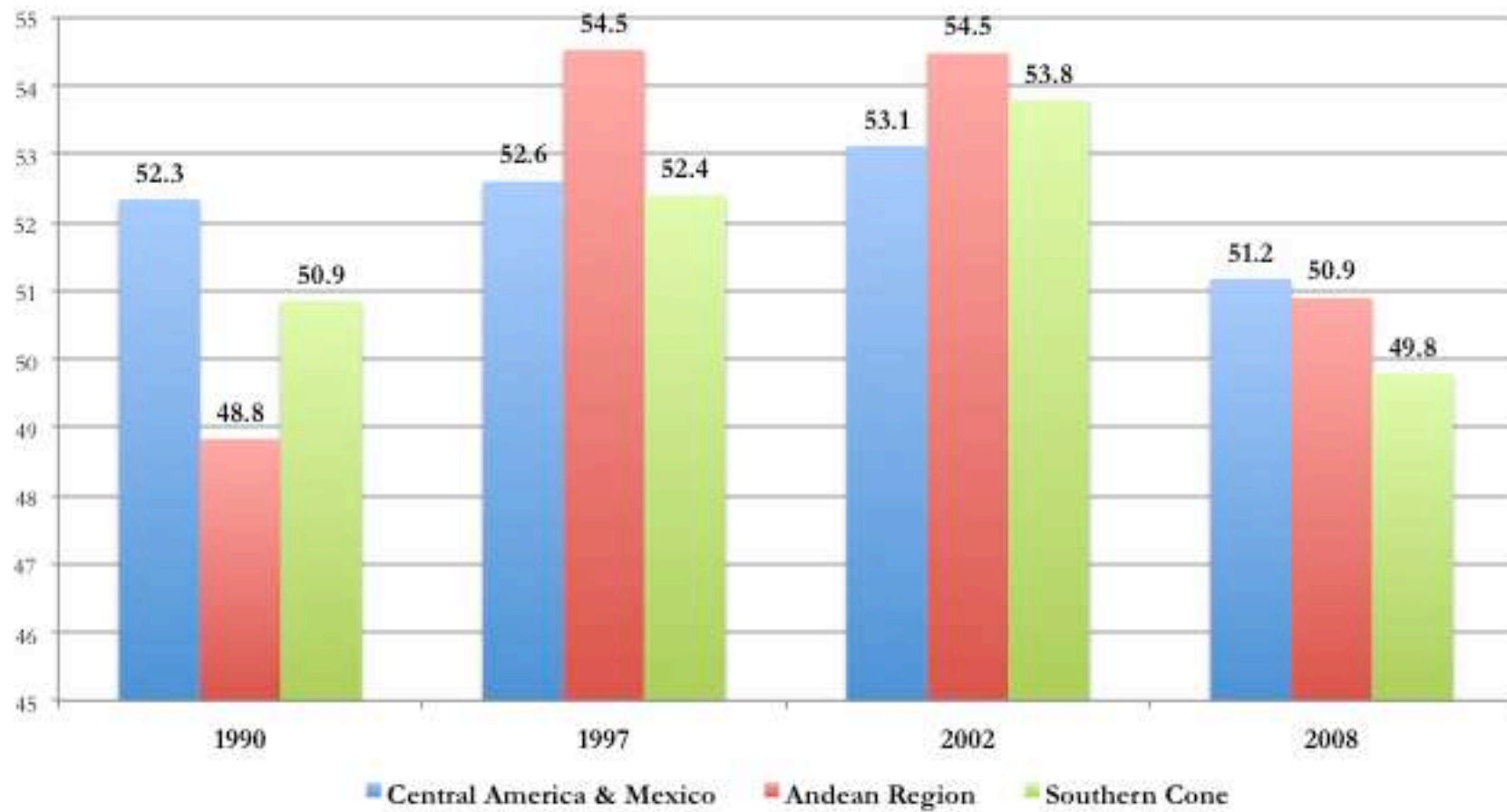
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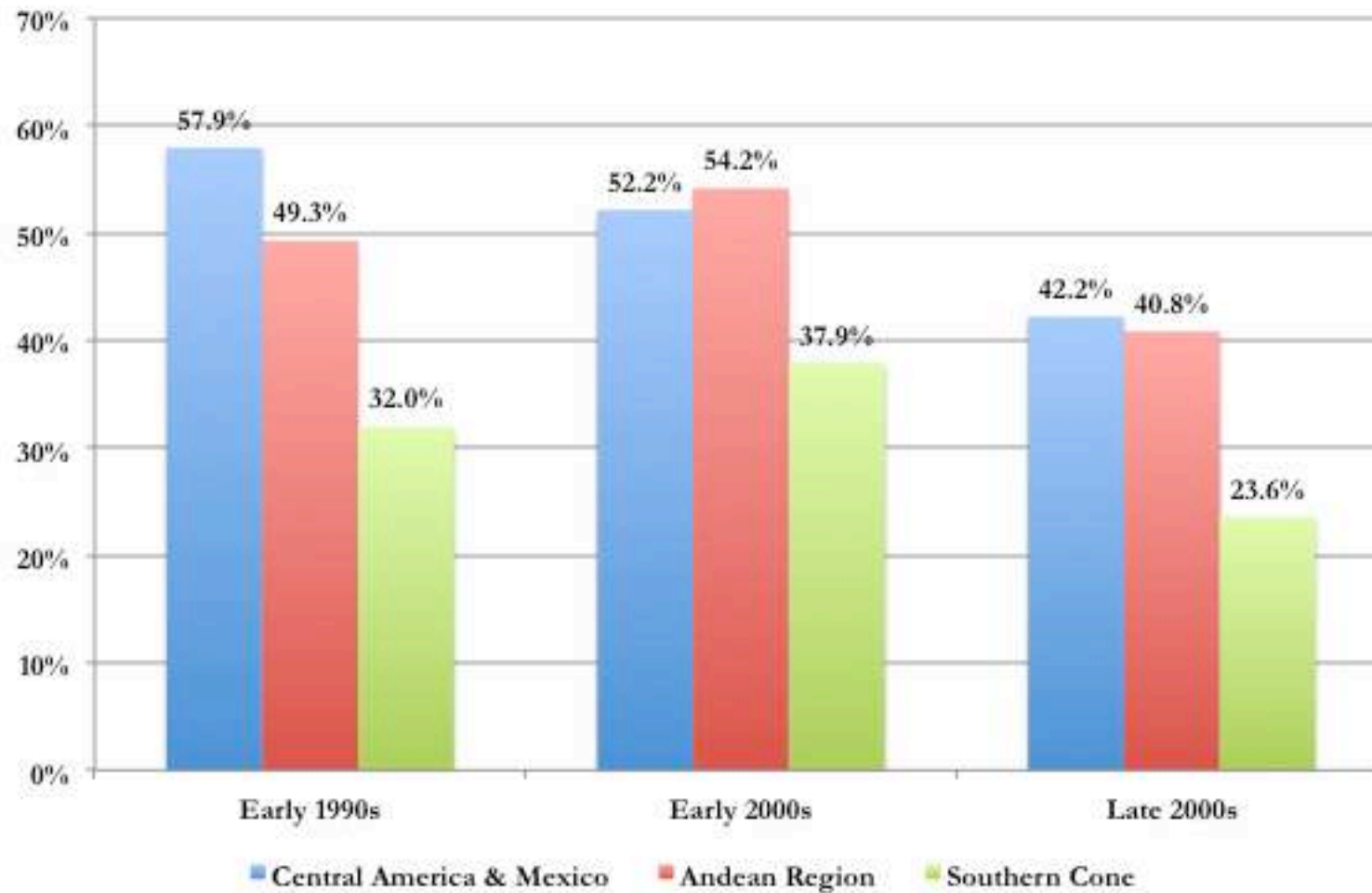
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Figure 1. Income Gini index by region, various years



Source: Authors' compilation of data from the IDLA database. Note that while broad patterns are the same, these indices are slightly lower than those in the ECLAC-CEPALSTAT database. IDLA database used because of broader country and time coverage.

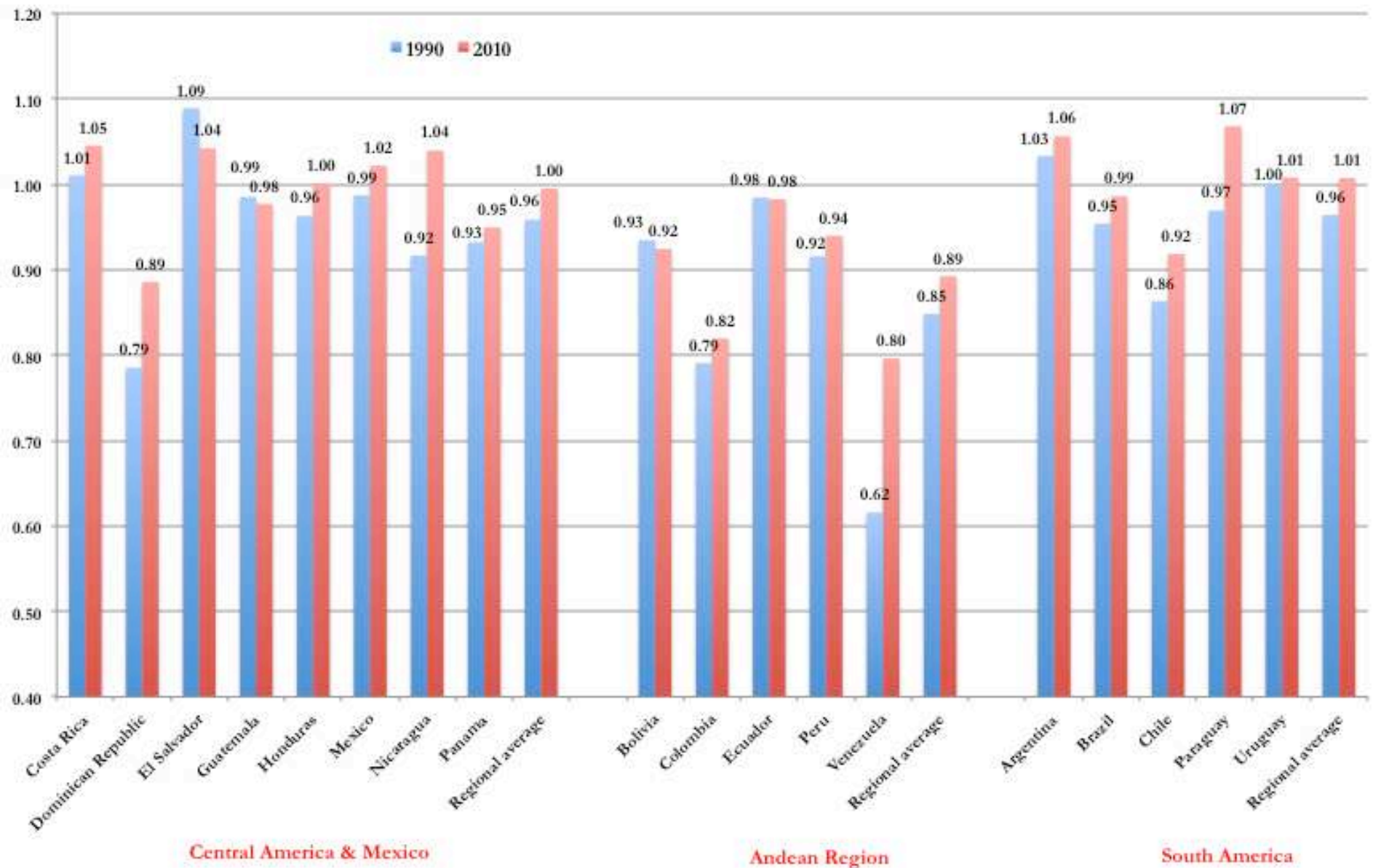
Figure 2. Poverty rate by region, 1990s and 2000s



Source: Authors' compilation of data from ECLAC-CEPALSTAT. Poverty rate based on estimates on the cost of resources needed to satisfy basic nutritional and non-nutritional needs. Figures for Argentina are urban only.

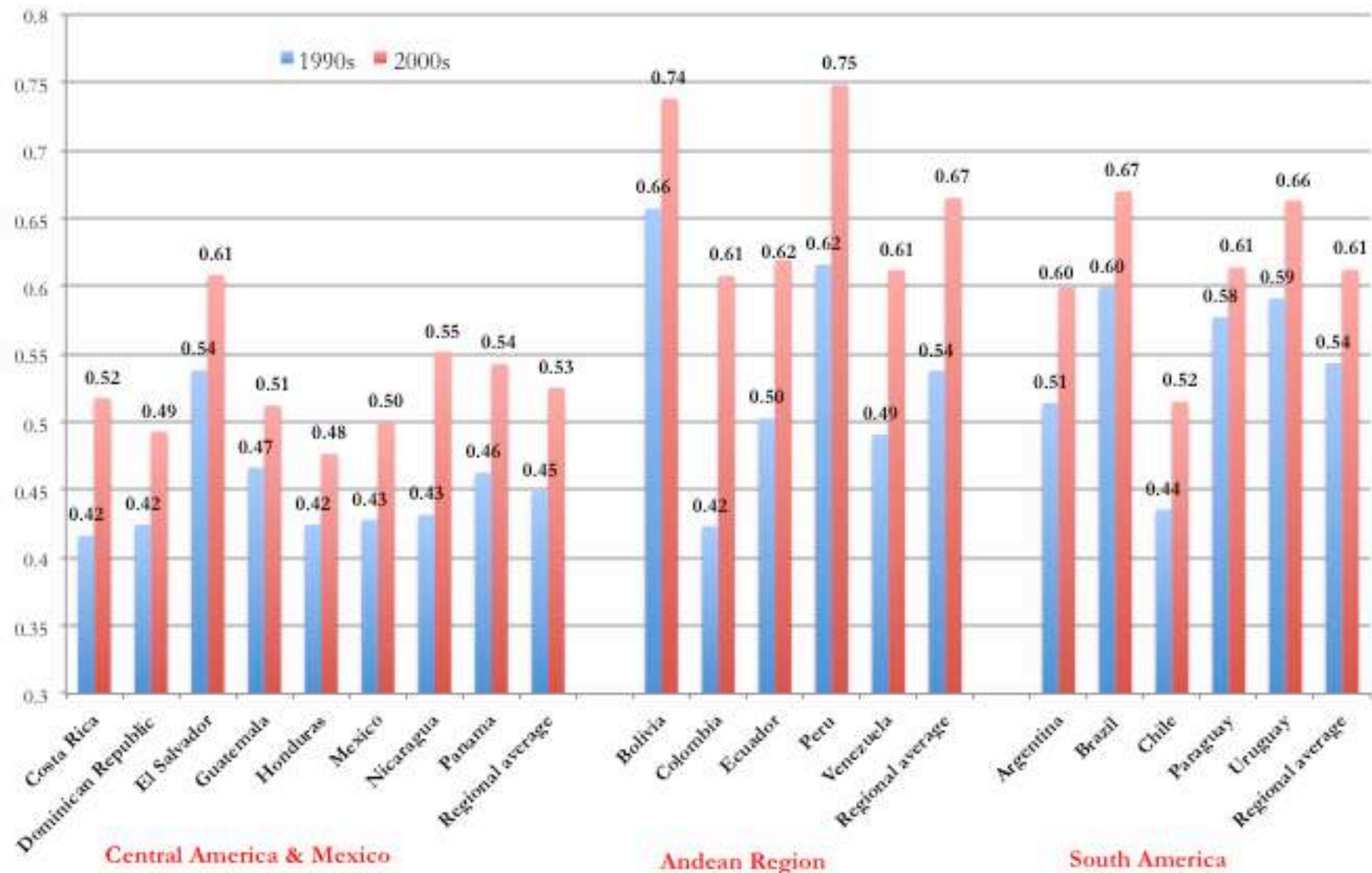


Figure 3. Female-to-male average years of education in population aged 15 and older, 1990 and 2010



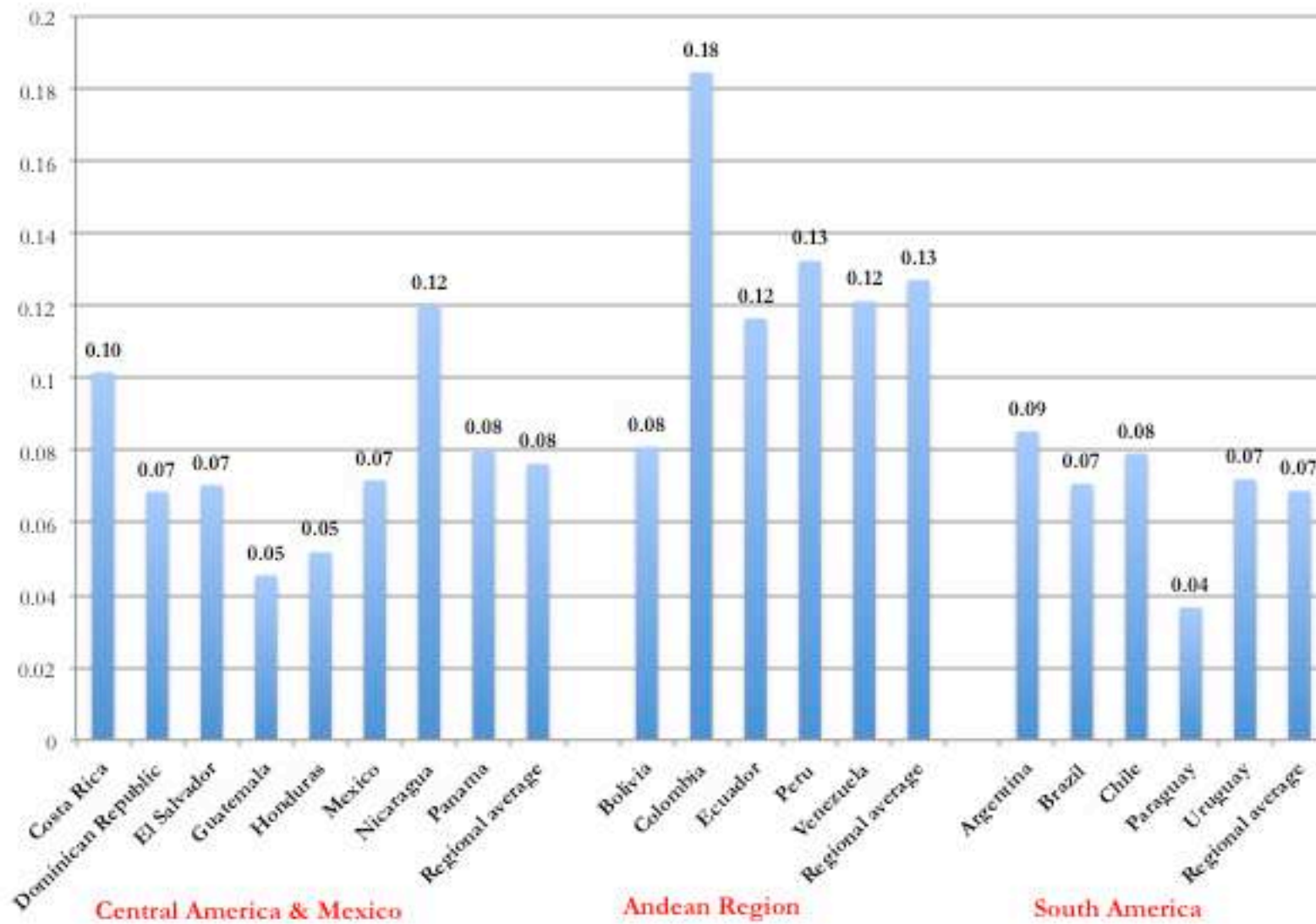
Source: Authors' calculations based on data from Barro and Lee (2011).

Figure 4. Average female-to-male employment to population ratio (15+), by country and region, 1990s versus 2000s



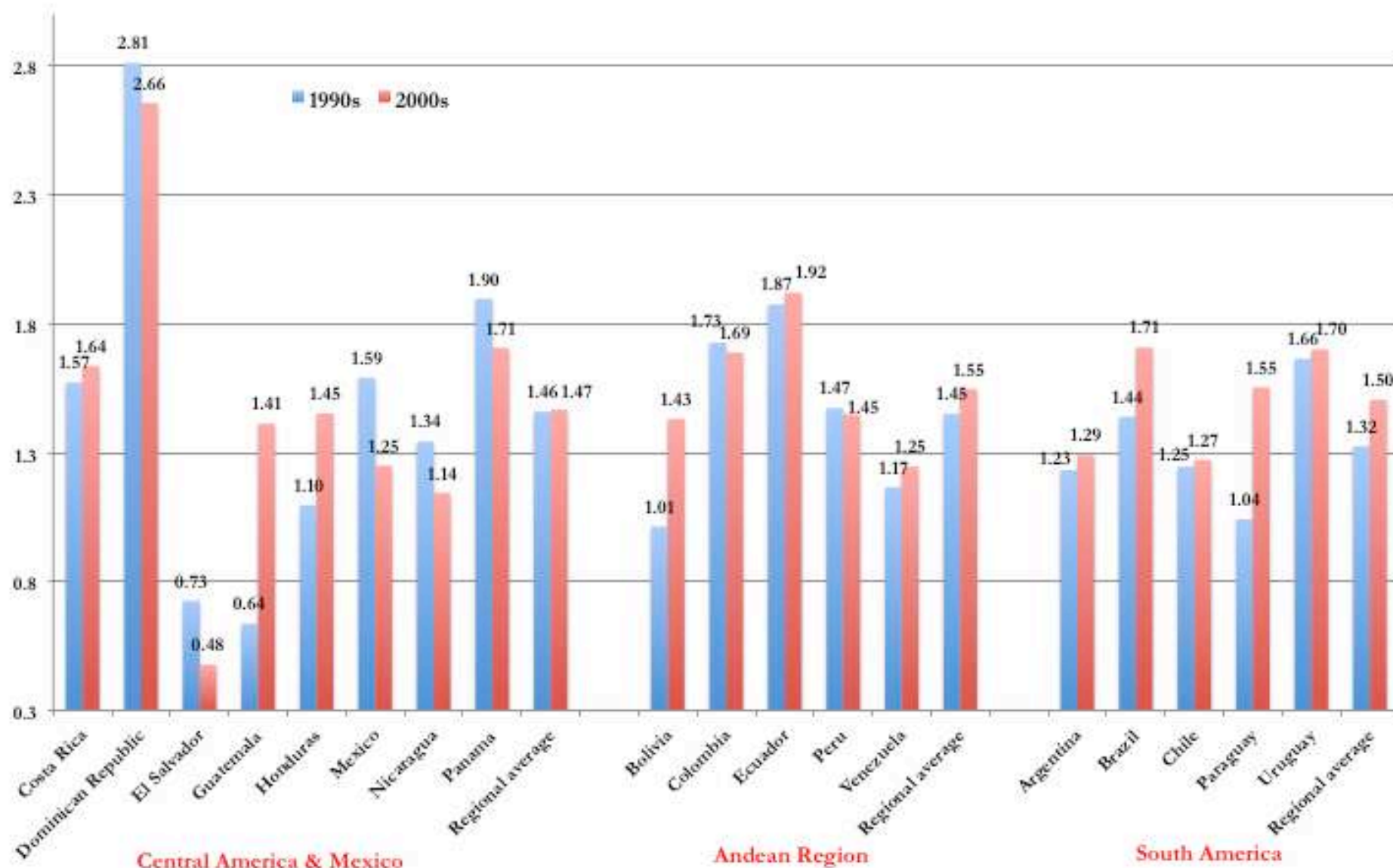
Source: Authors' calculations based on WDI database.

Figure 5. Percentage point change in average female-to-male employment to population ratio (15+), from the 1990s to the 2000s



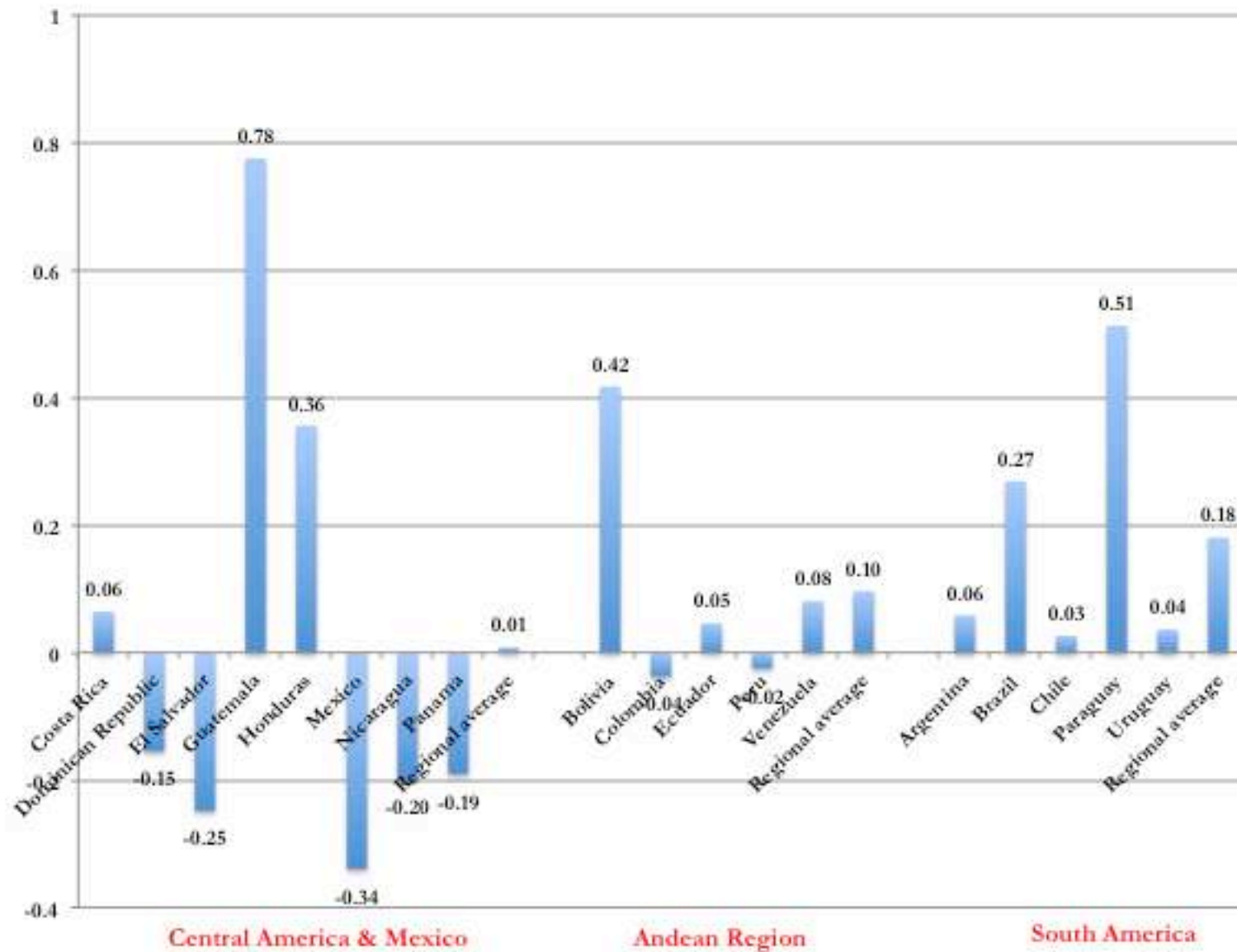
Source: Authors' calculations based on WDI database.

Figure 6. Average female-to-male unemployment rate by country and region, 1990s and 2000s



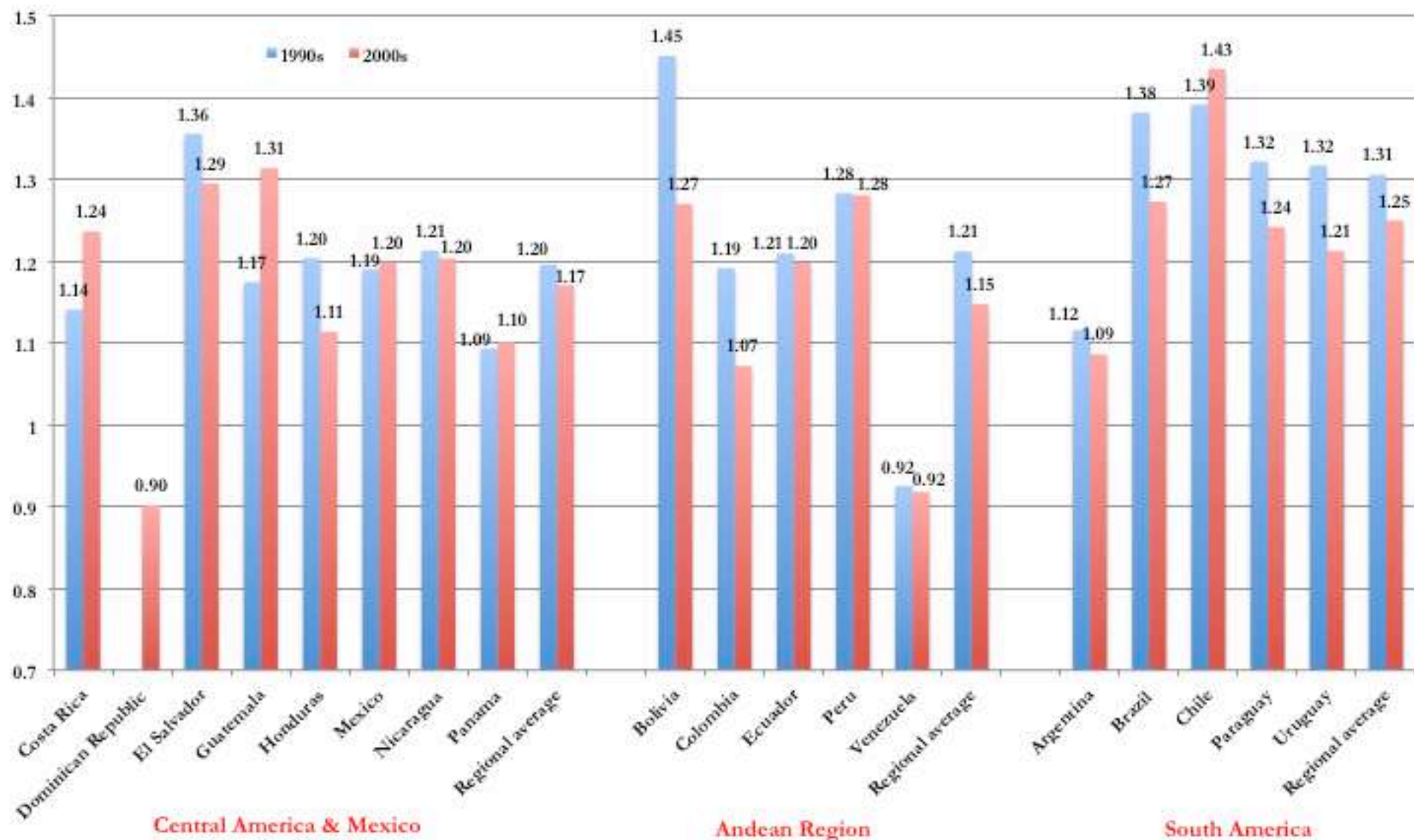
Source: Authors' calculations based on WDI database.

Figure 7. Percentage point change in female-to-male unemployment rate from the 1990s to 2000s, by country and region



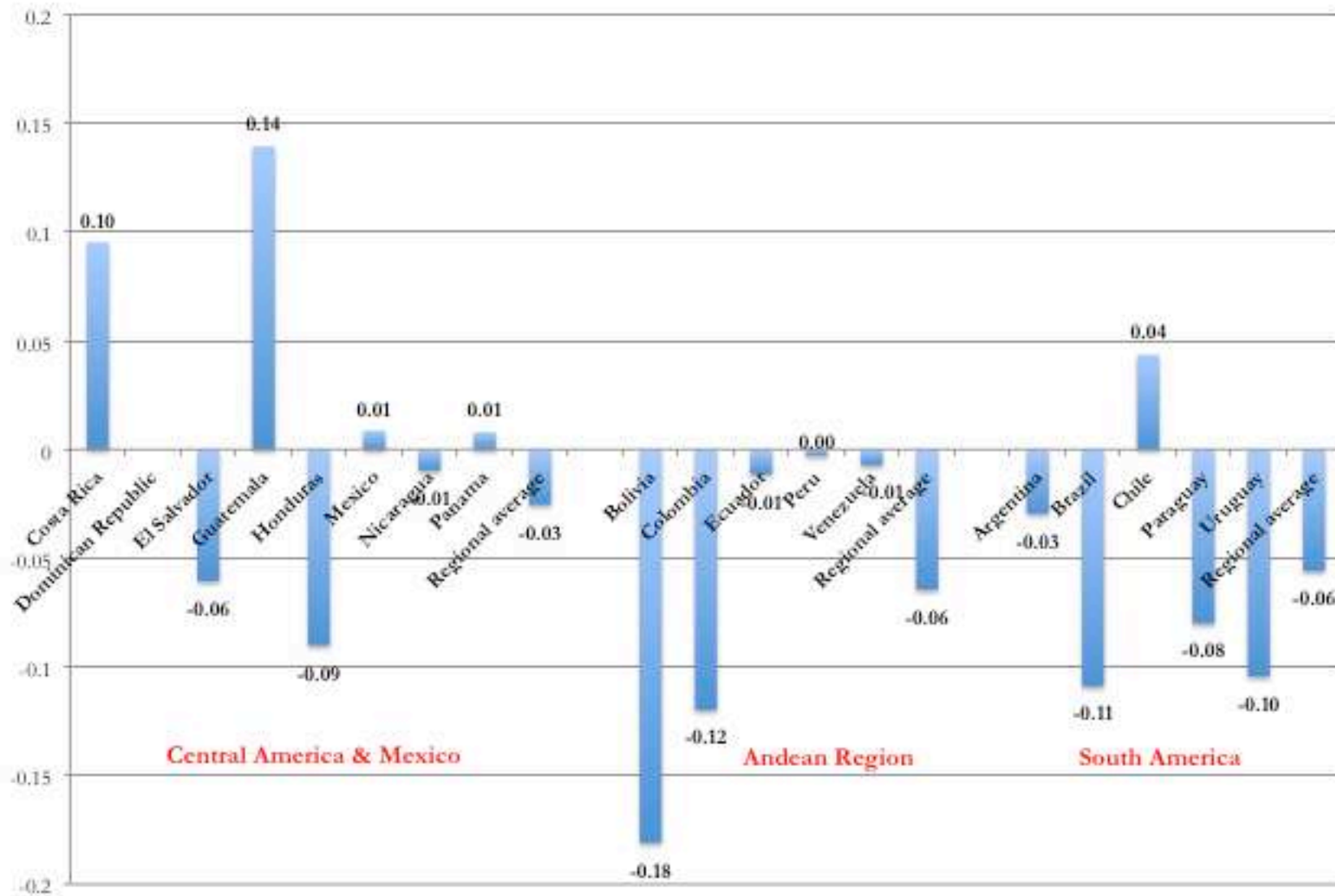
Source: Authors' calculations based on WDI database.

Figure 8. Average female-to-male urban informalization rate by country and region, 1990s and 2000s



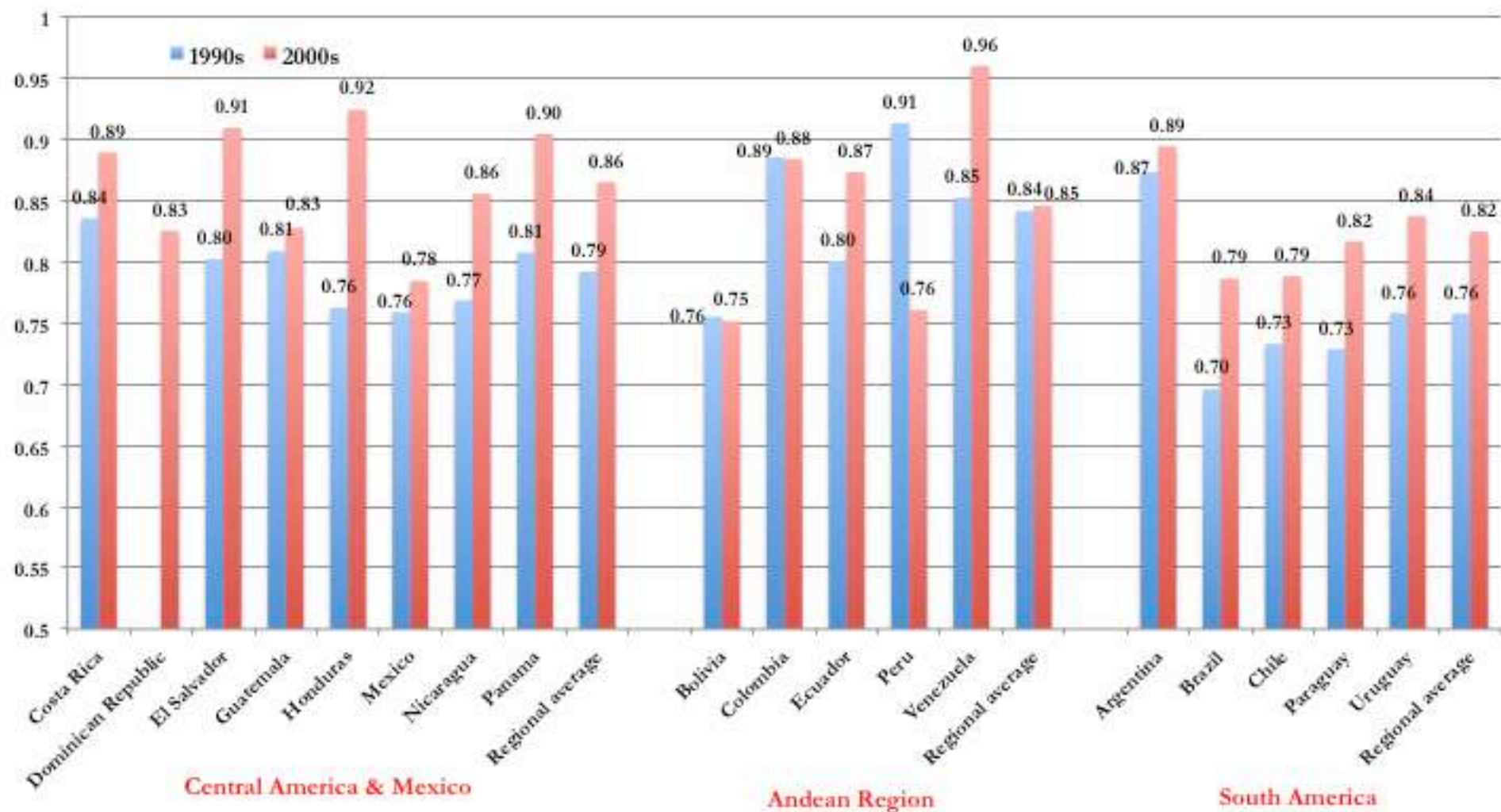
Source: Authors' calculations based on data from ECLAC-CEPALSTAT.

Figure 9. Percentage point change in female-to-male urban informalization rate from the 1990s to 2000s, by country and region



Source: Authors' calculations based on data from ECLAC-CEPALSTAT.

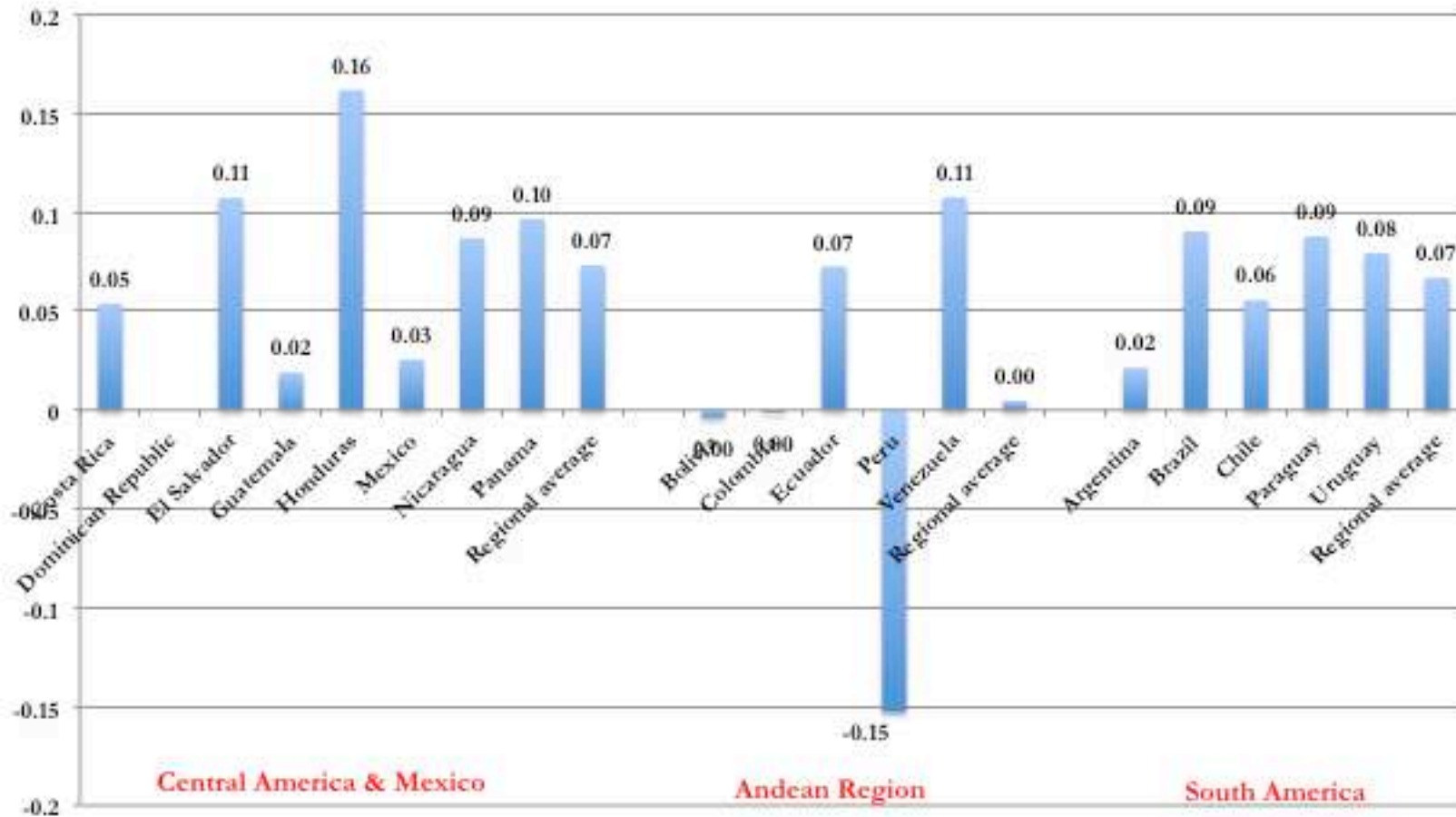
Figure 10. Average female-to-male urban wage ratio by country and region, 1990s and 2000s



Source: Authors' calculations based on data from ECLAC-CEPALSTAT.

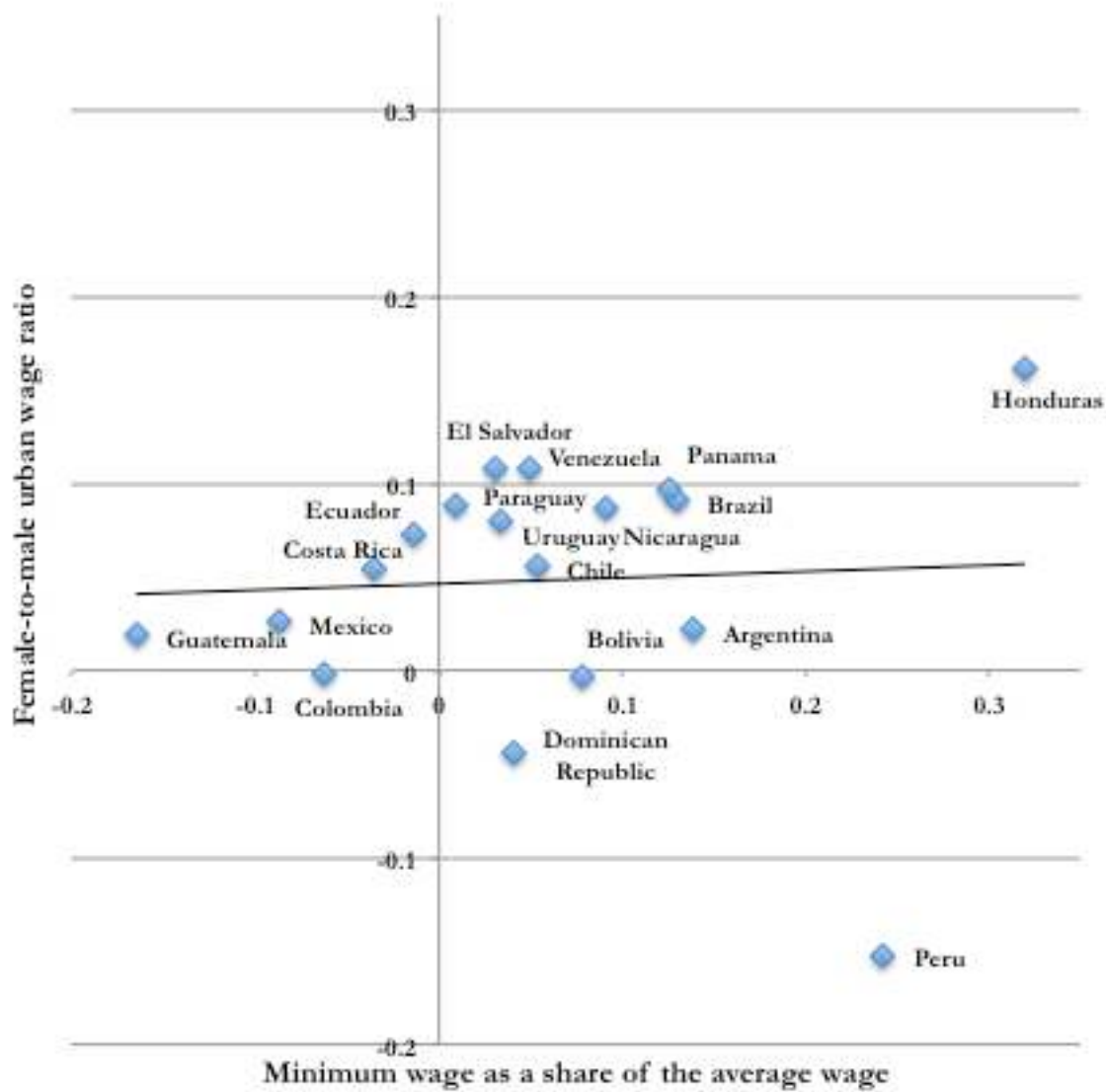


Figure 11. Percentage point change in female-to-male urban wage ratio from the 1990s to 2000s, by country and region



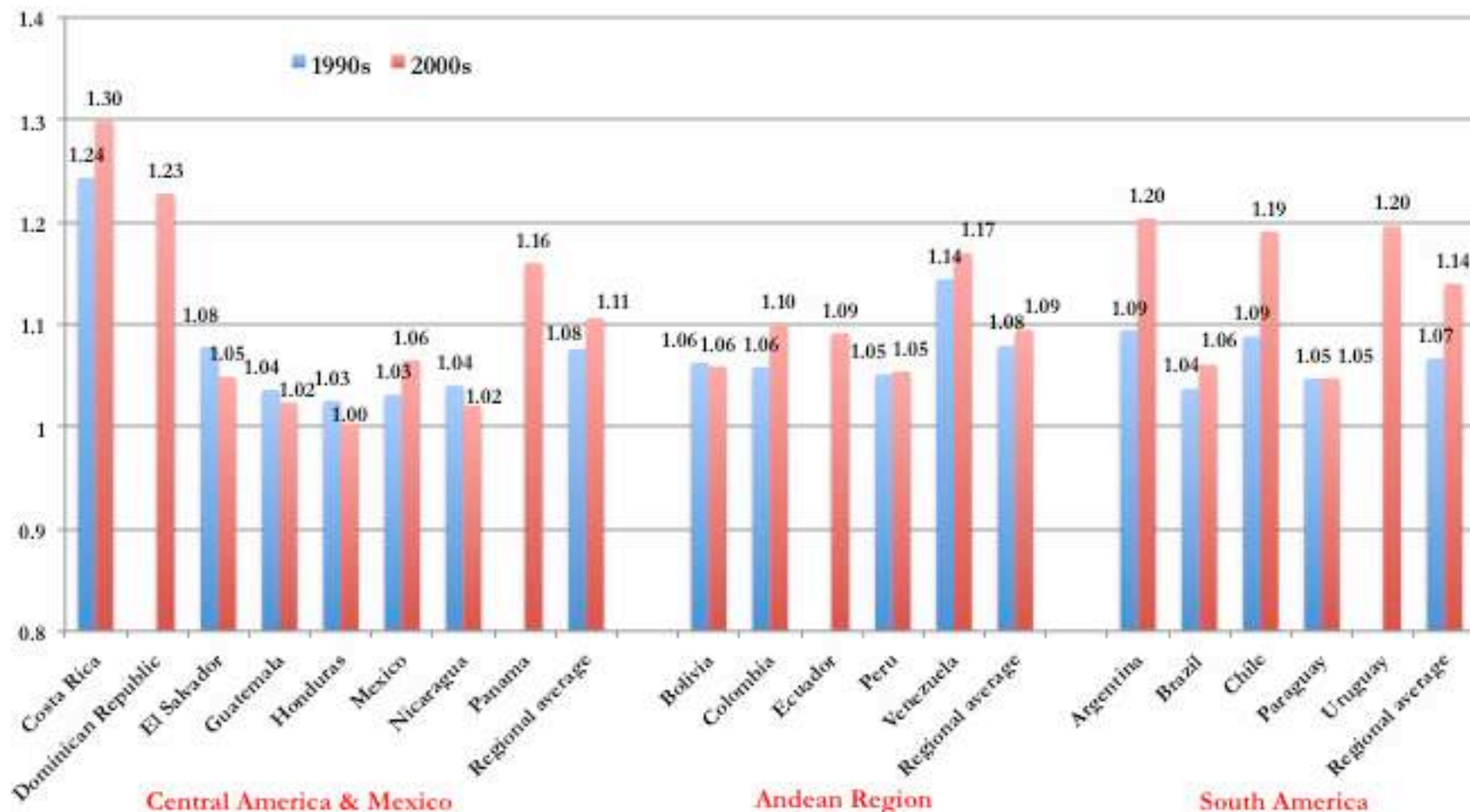
Source: Authors' calculations based on data from ECLAC-CEPALSTAT.

Figure 12. Gender wage ratio relative to the minimum-to-average wage: Percentage point changes in average values from the 1990s to the 2000s



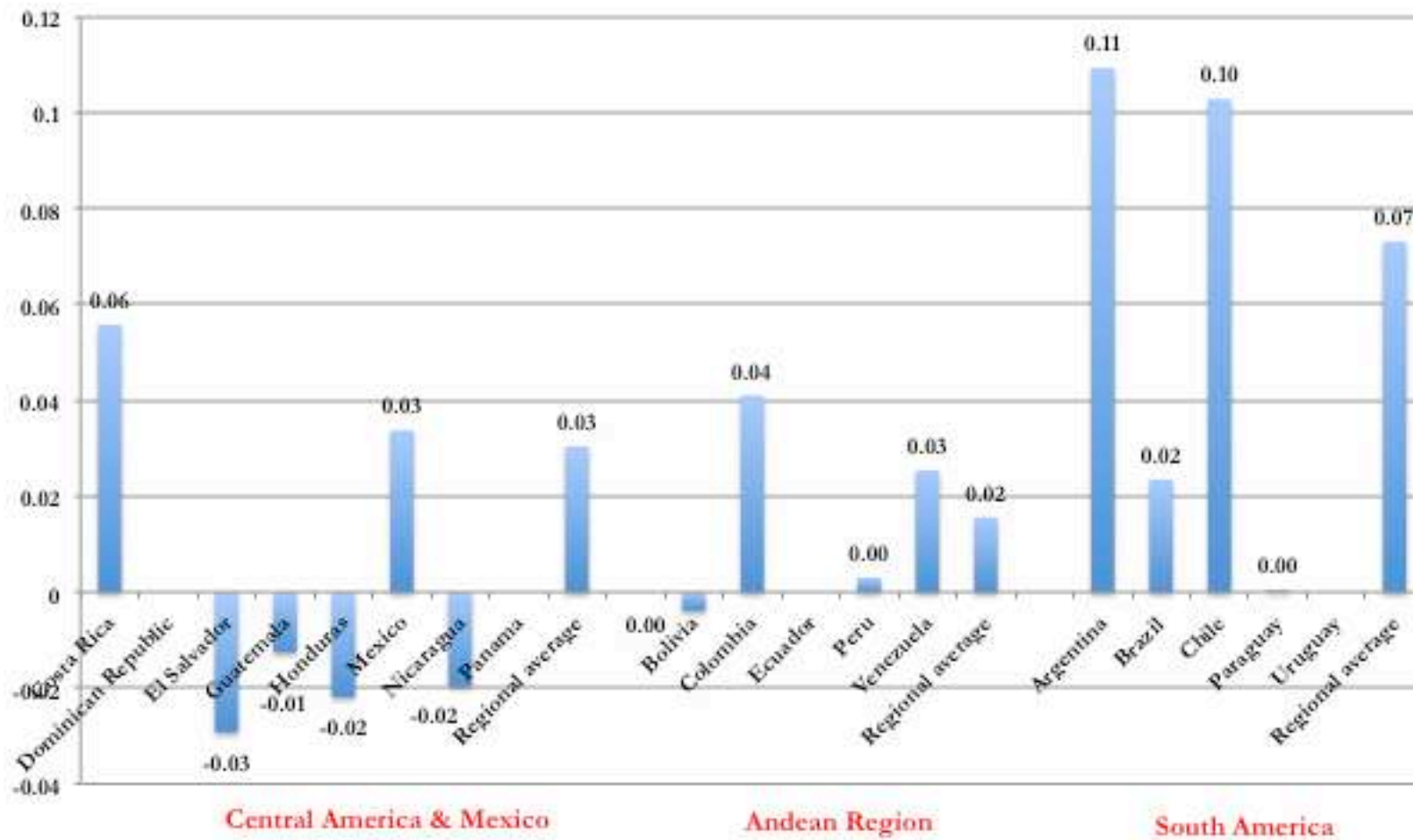
Source: Authors' calculations based on data from CEPAL household survey data. Note that authors do not have observations for all years, and that the 1990s average female-to-male urban wage ratio for El Salvador is taken from 2000, and that of the Dominican Republic from 2002.

Figure 13. Average female-to-male poverty rates by country and region, 1990s and 2000s



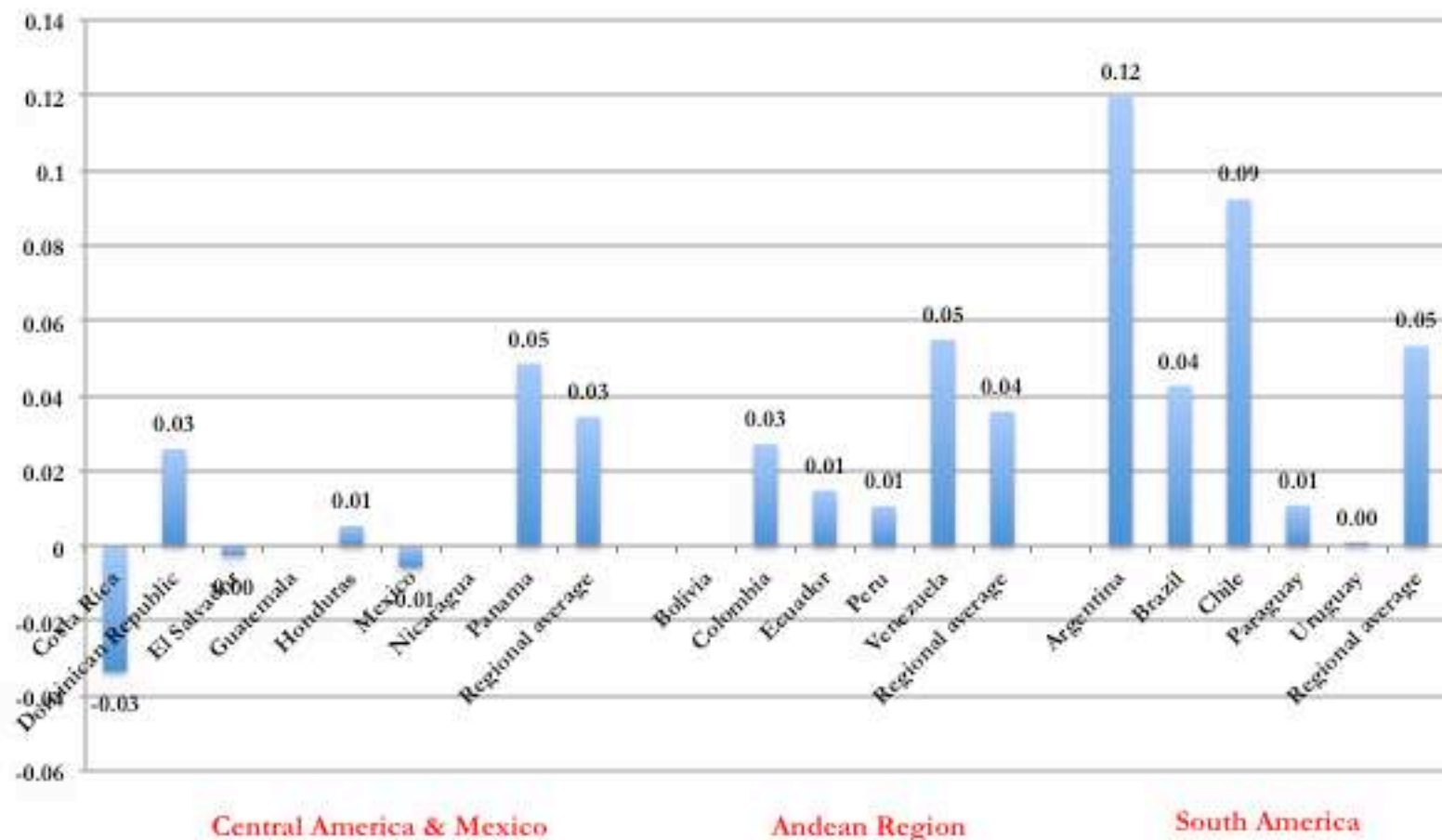
Source: Source: Authors' calculations based on feminization of poverty indices data from ECLAC-CEPALSTAT. Poverty rates are based on estimates of the cost of resources needed to satisfy basic nutritional and non-nutritional needs. Figures for Argentina refer to urban only.

Figure 14. Percentage point change in female-to-male poverty rates from the 1990s to 2000s, by country and region



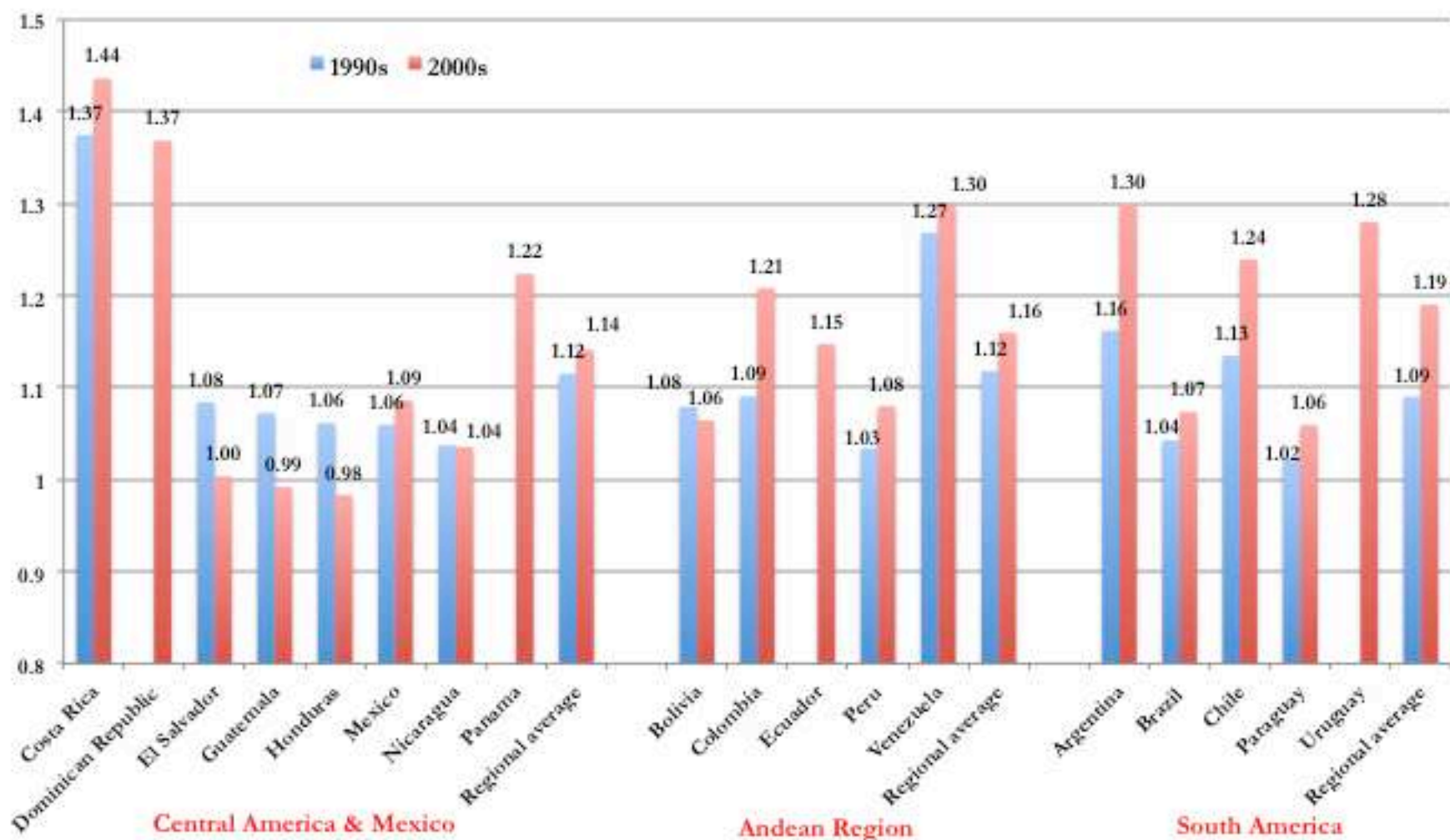
Source: Authors' calculations based on data in Figure 12.

Figure 15. Difference between female-to-male poverty rates: 2009-10 average versus 2000s average



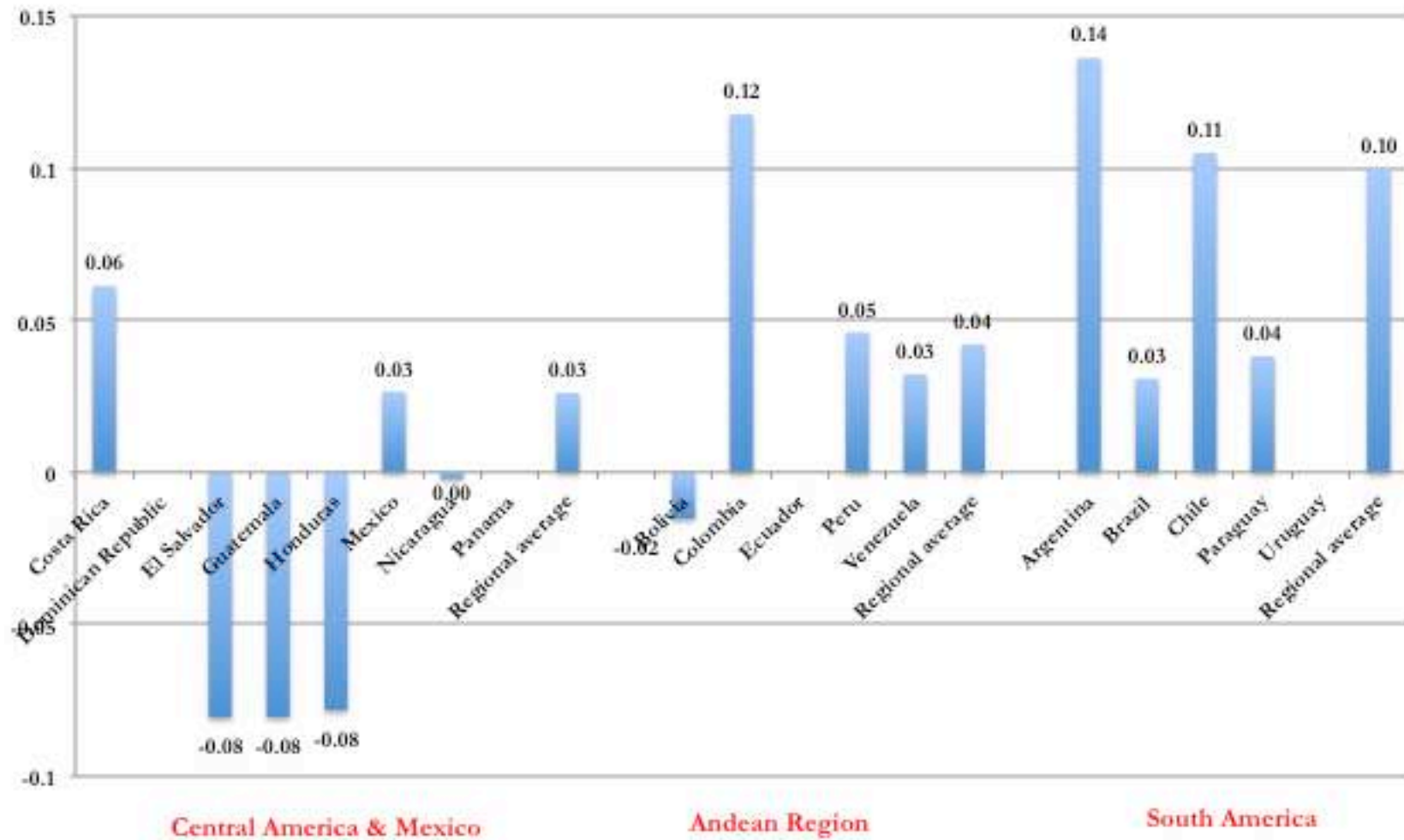
Source: Authors' calculations based on data described in Figure 12.

Figure 16. Average female-to-male extreme poverty rates by country and region, 1990s and 2000s



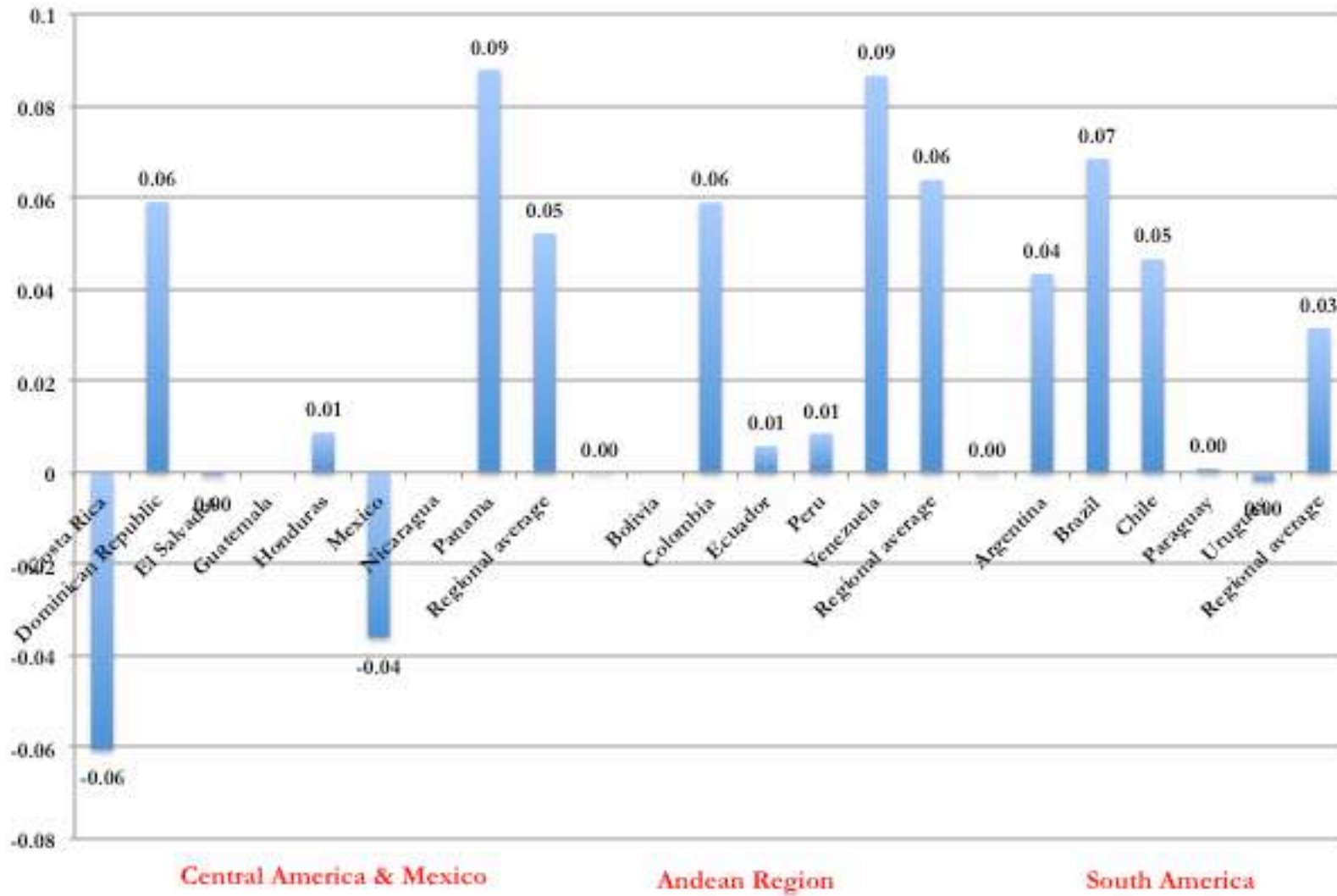
Source: Source: Authors' calculations based on feminization of extreme poverty indices data from ECLAC-CEPALSTAT. Extreme poverty rates are based on estimates of the cost of resources needed to satisfy basic nutritional needs. Figures for Argentina refer to urban only.

Figure 17. Percentage point change in female-to-male extreme poverty rates from the 1990s to 2000s, by country and region



Source: Authors' calculations based on data in Figure 15.

Figure 18. Difference between female-to-male extreme poverty rates: 2009-10 average versus 2000s average



Source: Authors' calculations based on data described in Figure 15.



Figure 19. Gender and Household Income Inequality

Panel A

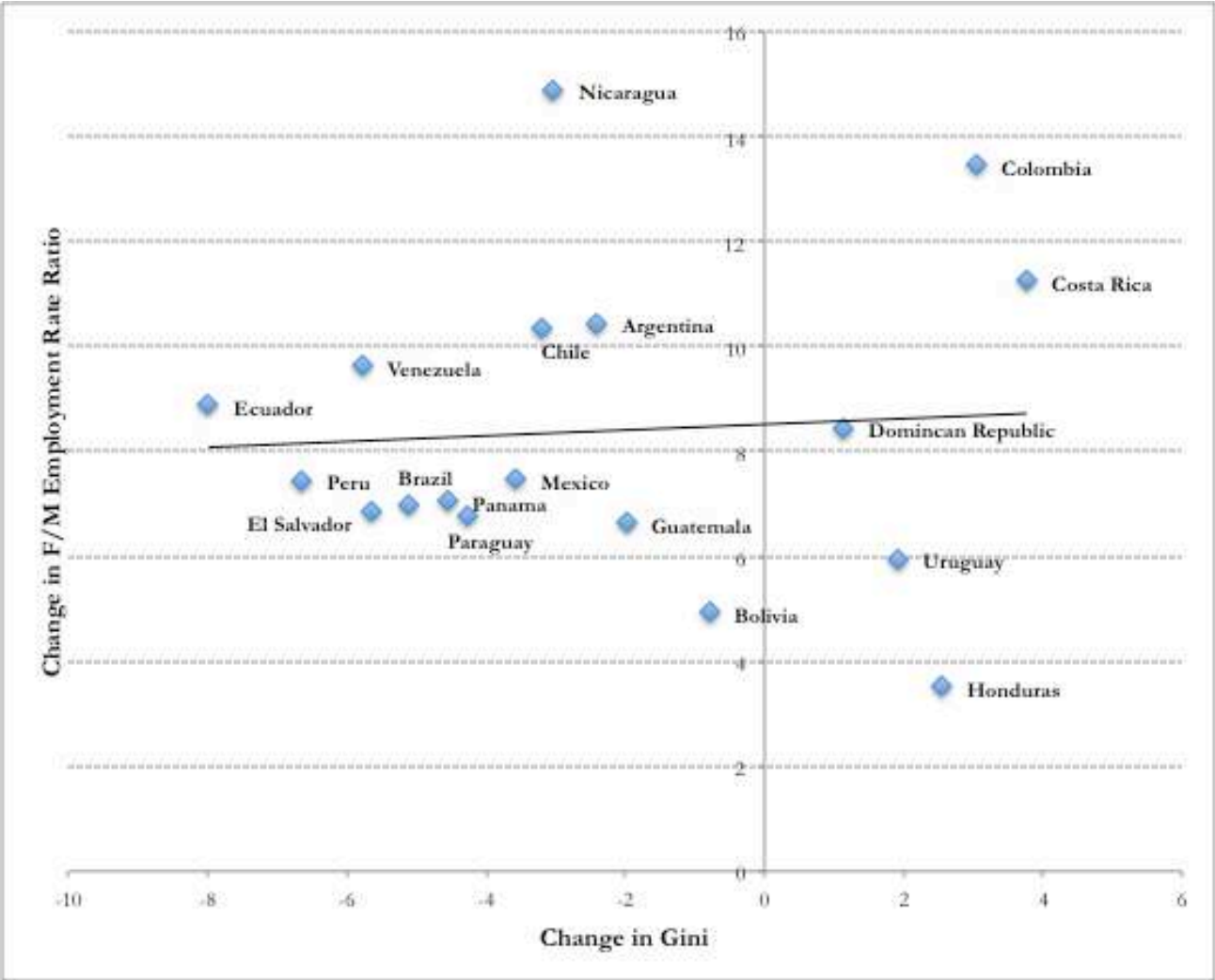


Figure 19. Gender and Household Income Inequality *continued*

Panel B

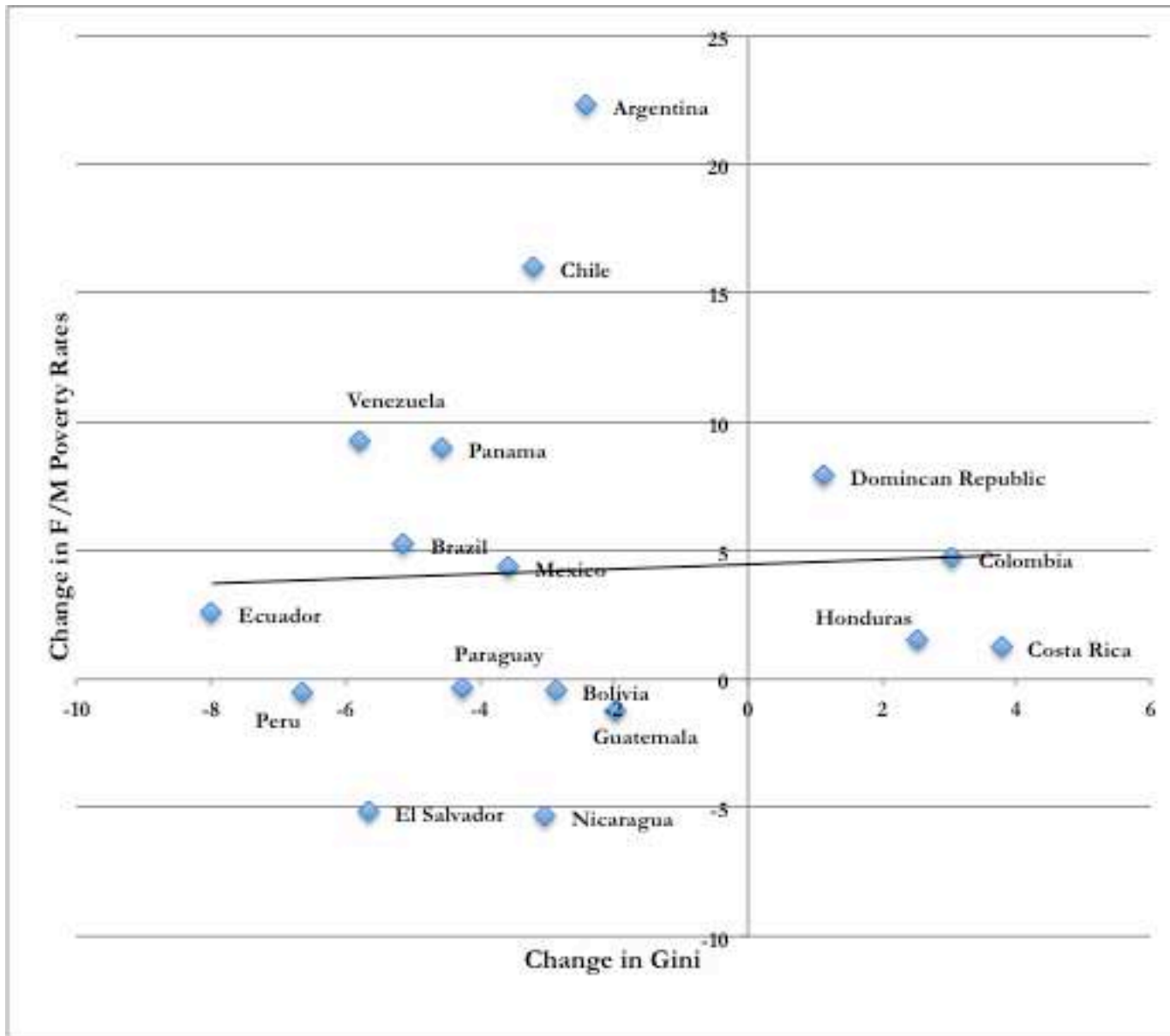
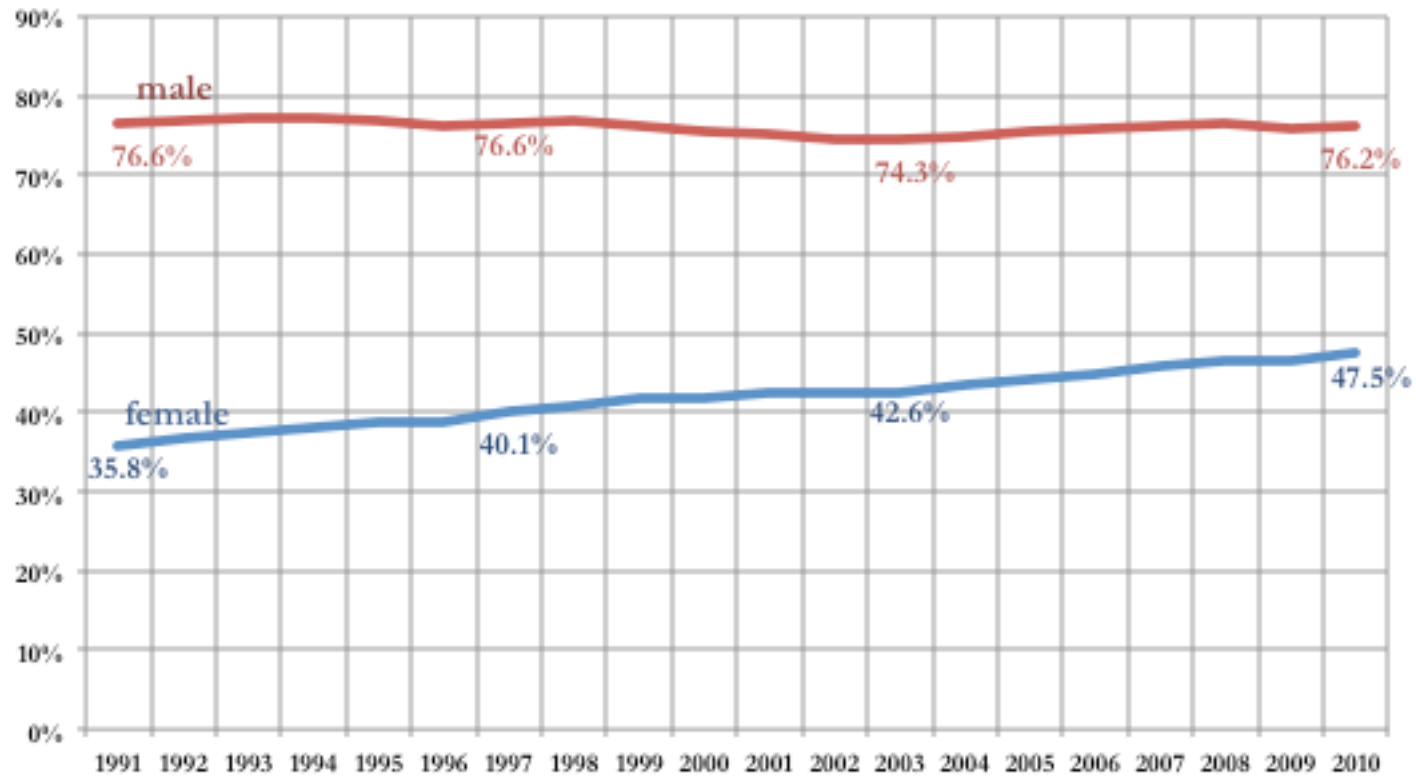
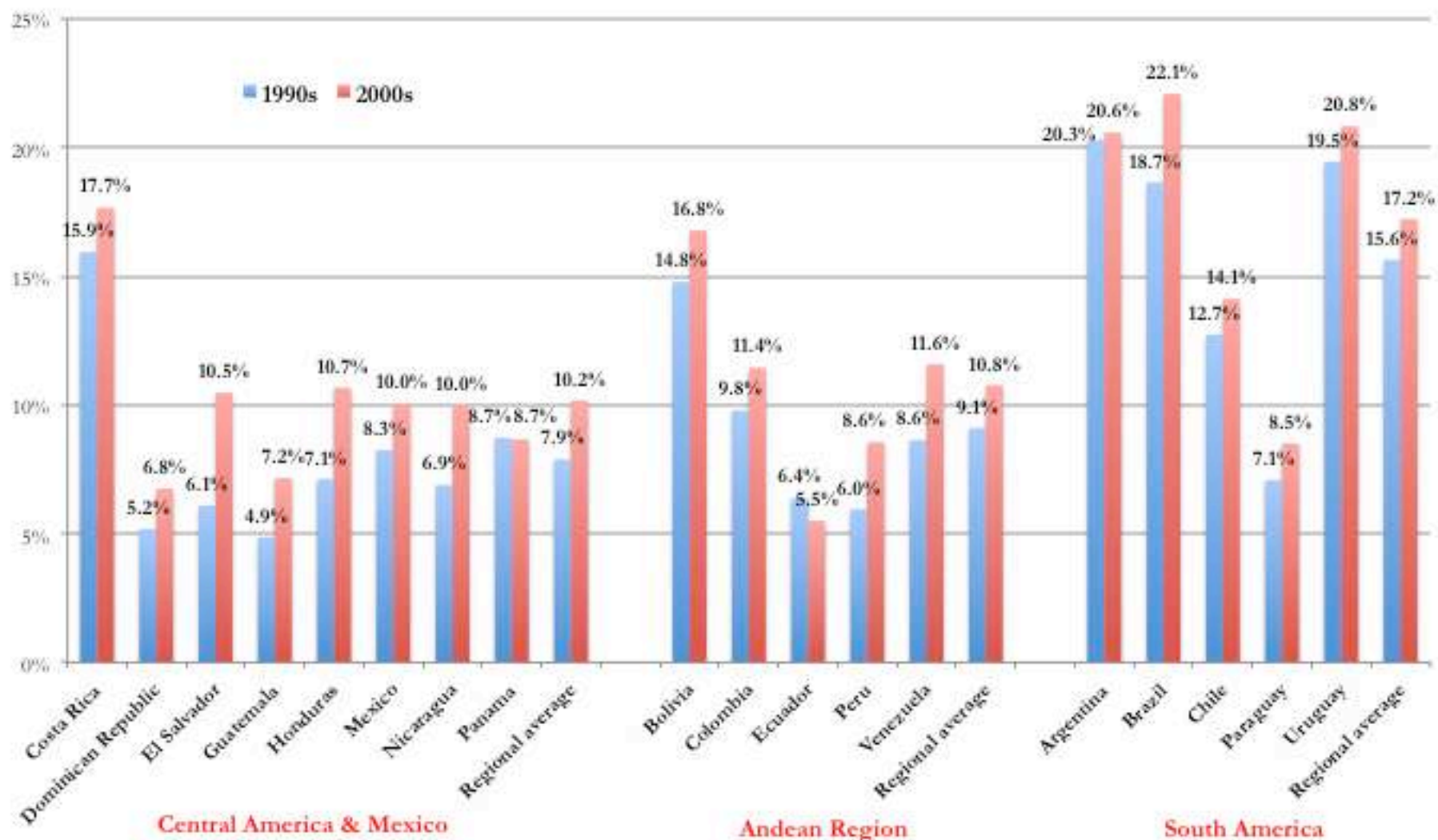


Figure 20. Employment to population ratio by sex, 1991-2010



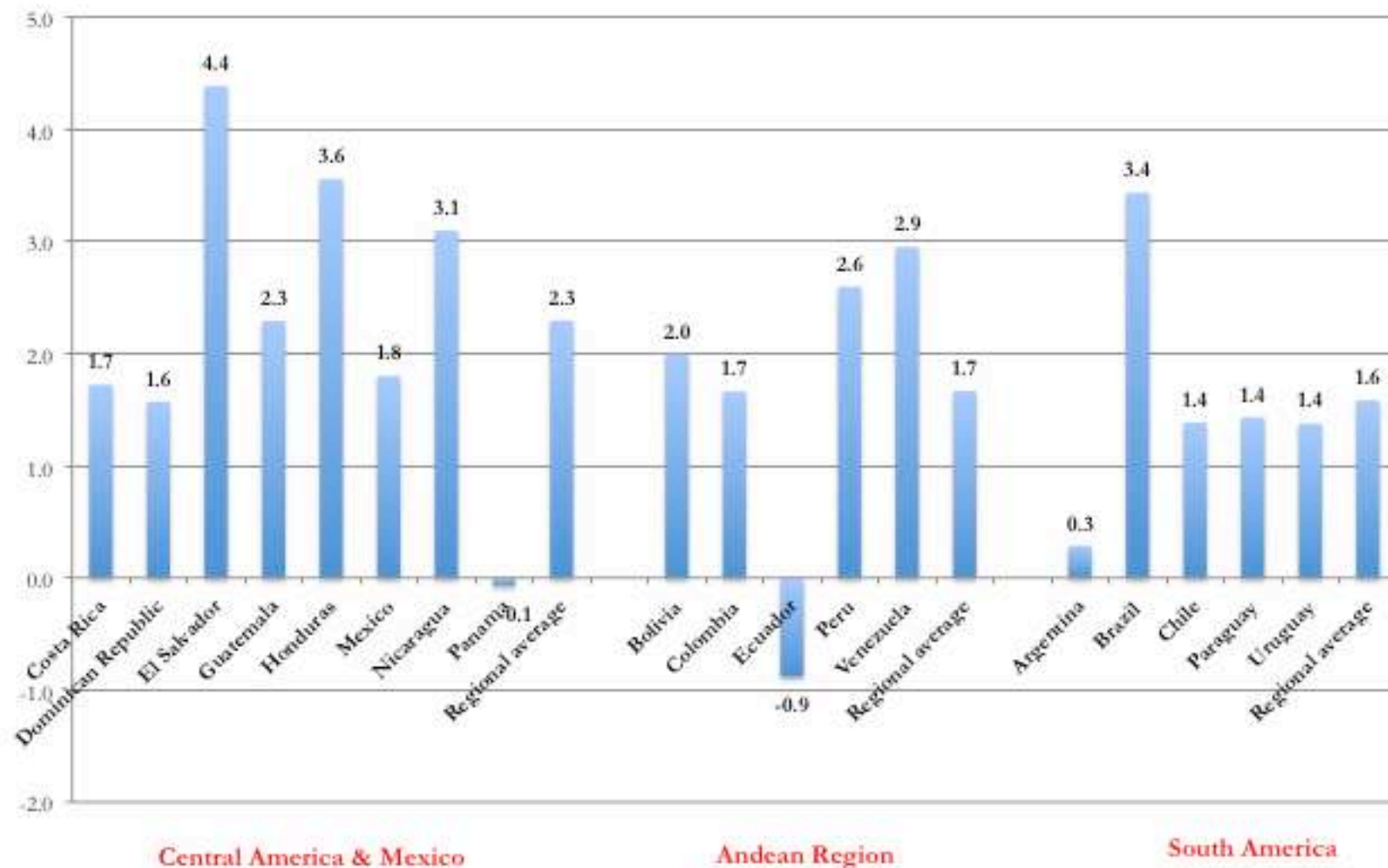
Source: Authors' calculations based on data from WDI database. Data includes those 15 and older.

Figure 21. Average social public expenditure as a share of GDP by country and region, 1990s and 2000s



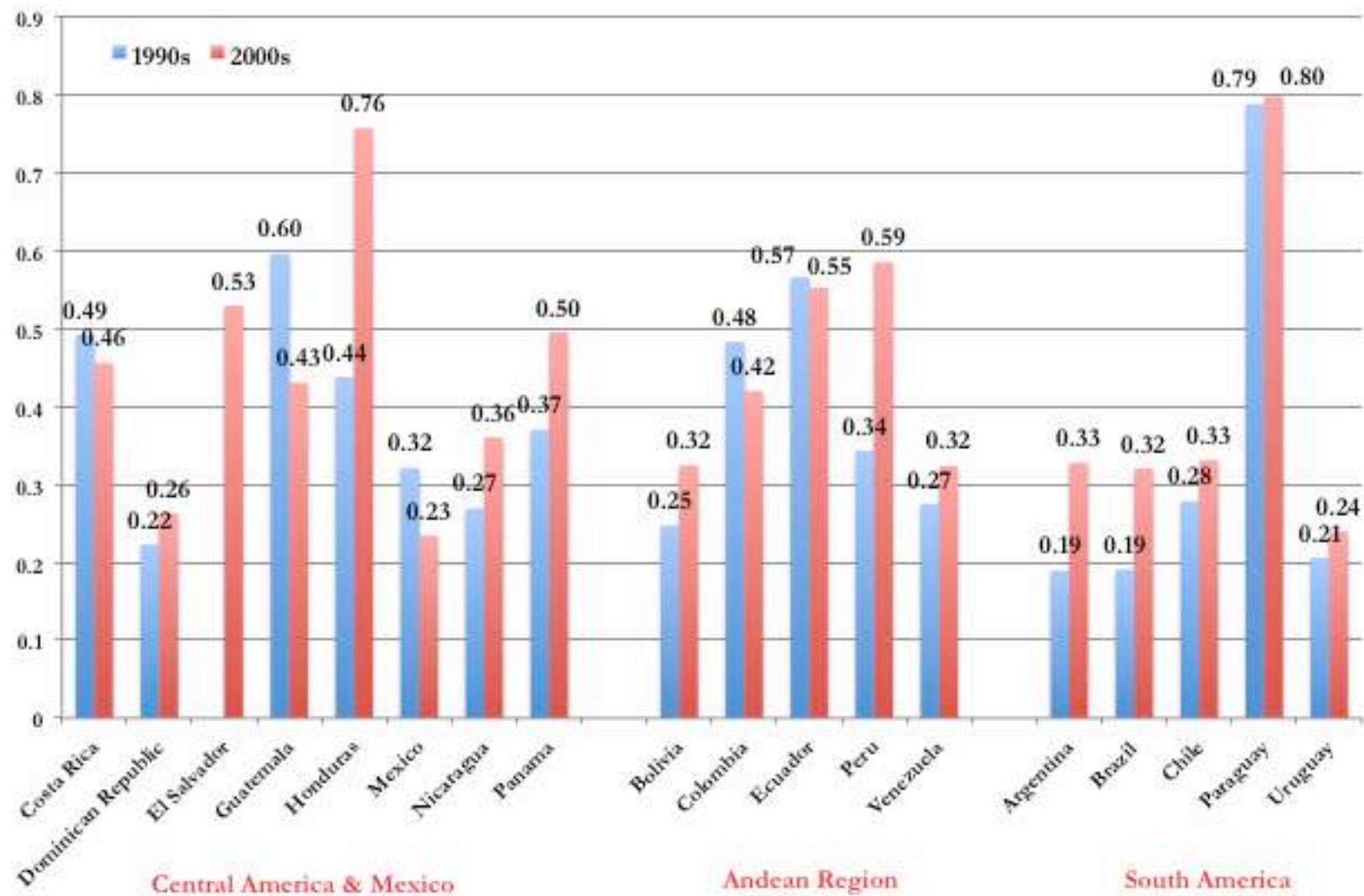
Source: Authors' calculations based on data from IDLA and ECLAC-CEPALSTAT.

Figure 22. Percentage point change in average social public expenditure as share of GDP, 1990s to 2000s, by country and region



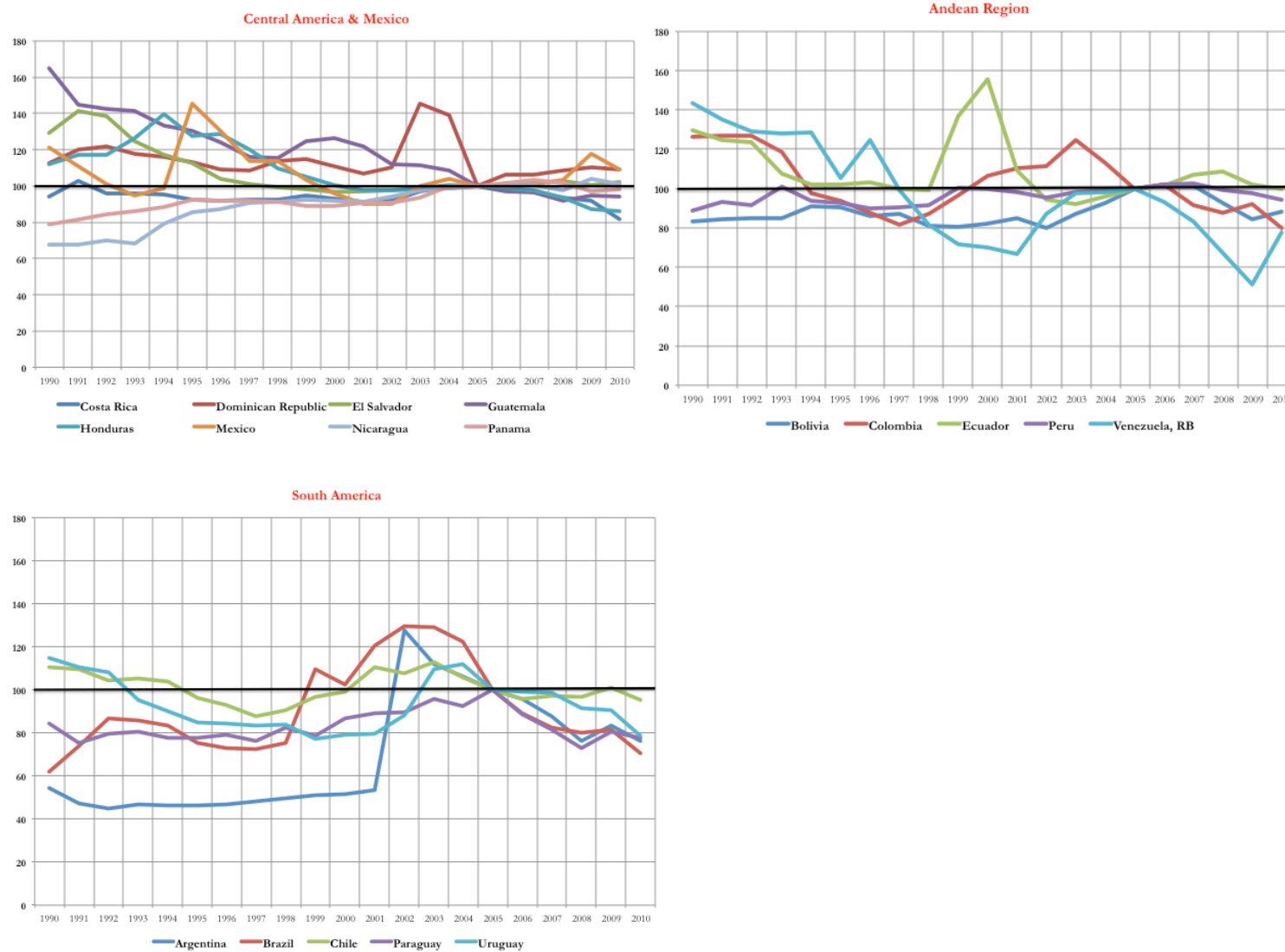
Source: See Figure 18.

Figure 23. Minimum wage as a share of average wage by country and region, averages for 1990s and 2000s



Source: Authors' calculations based on data from ECLAC-CEPALSTAT. See data appendix for more details.

Figure 24. Real effective exchange rate index by country and region, 1990-2010 (2005=100)



Source: Authors' compilation based on data from ECLAC-CEPALSTAT, except for Argentina, which the authors figured by multiplying Argentina's nominal exchange rate by the ratio of GDP deflator of the U.S. to that of Argentina's. Note that an INCREASE in the index is equivalent to a depreciation of the exchange rate, and a DECREASE indicates an exchange rate appreciation.

Figure 25. Real interest rate by country and region, various time periods

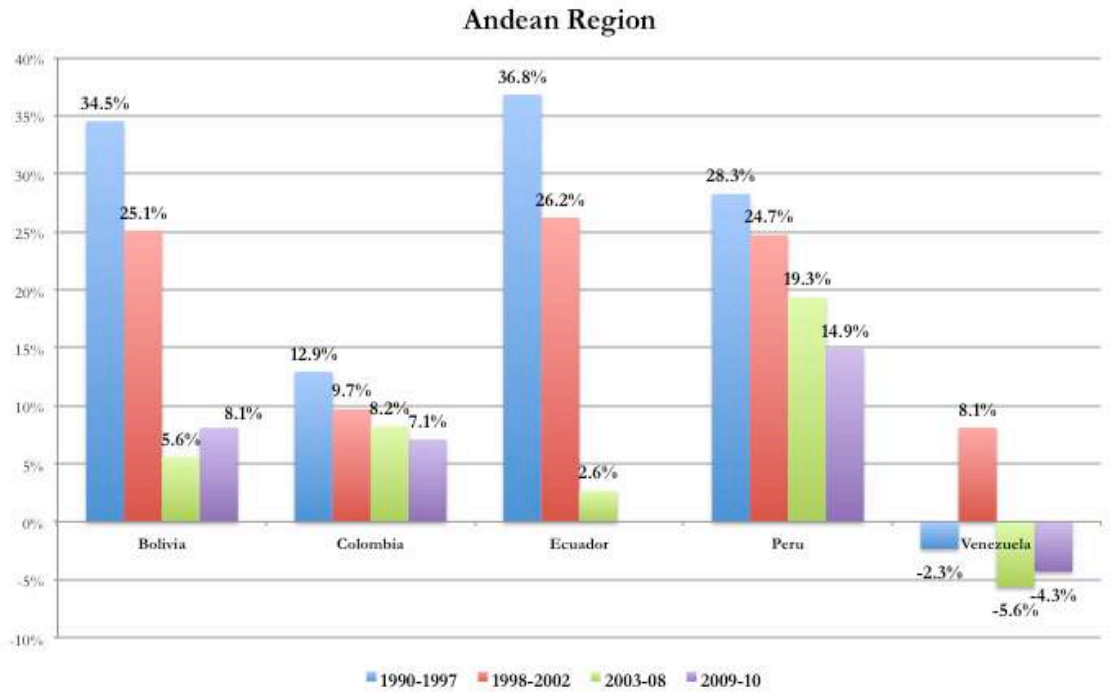
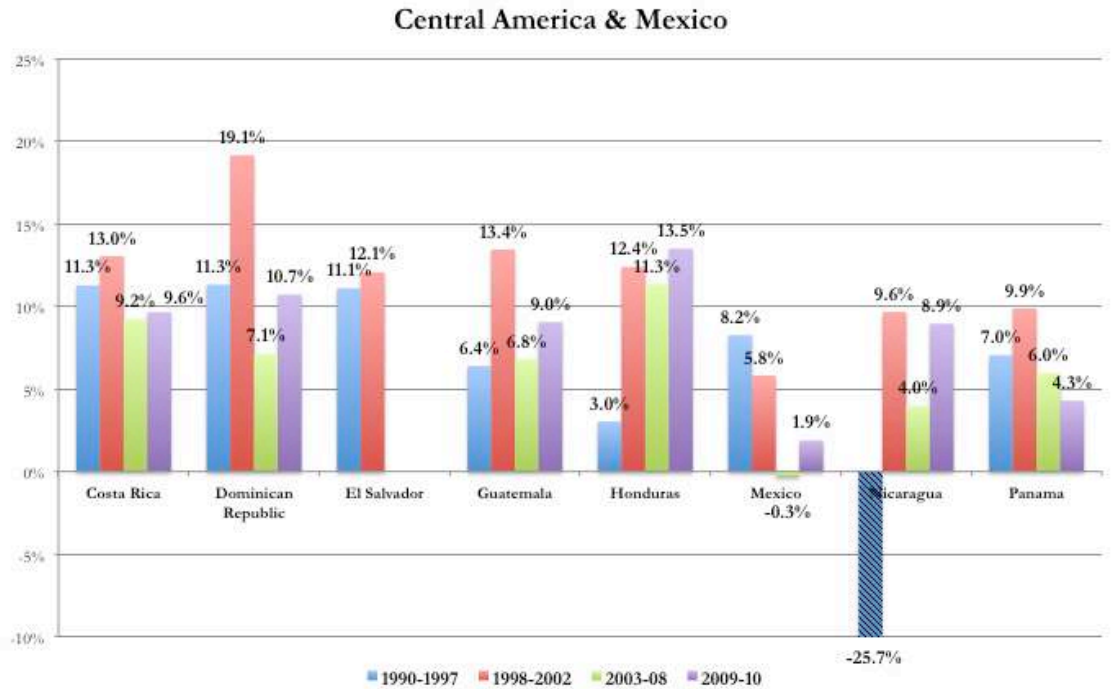
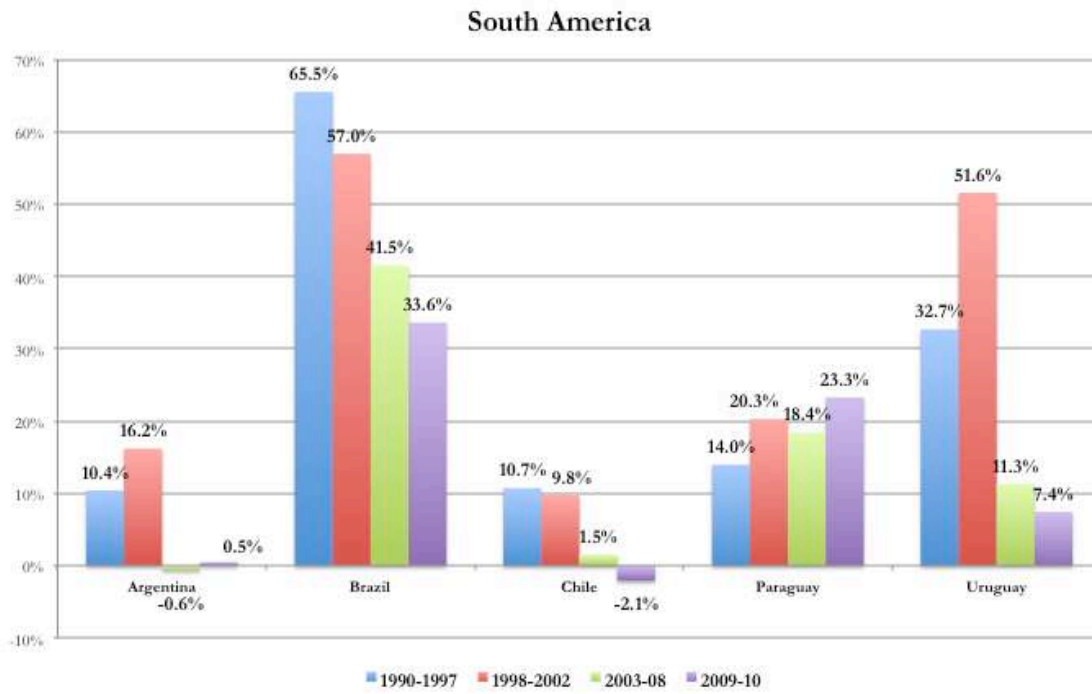


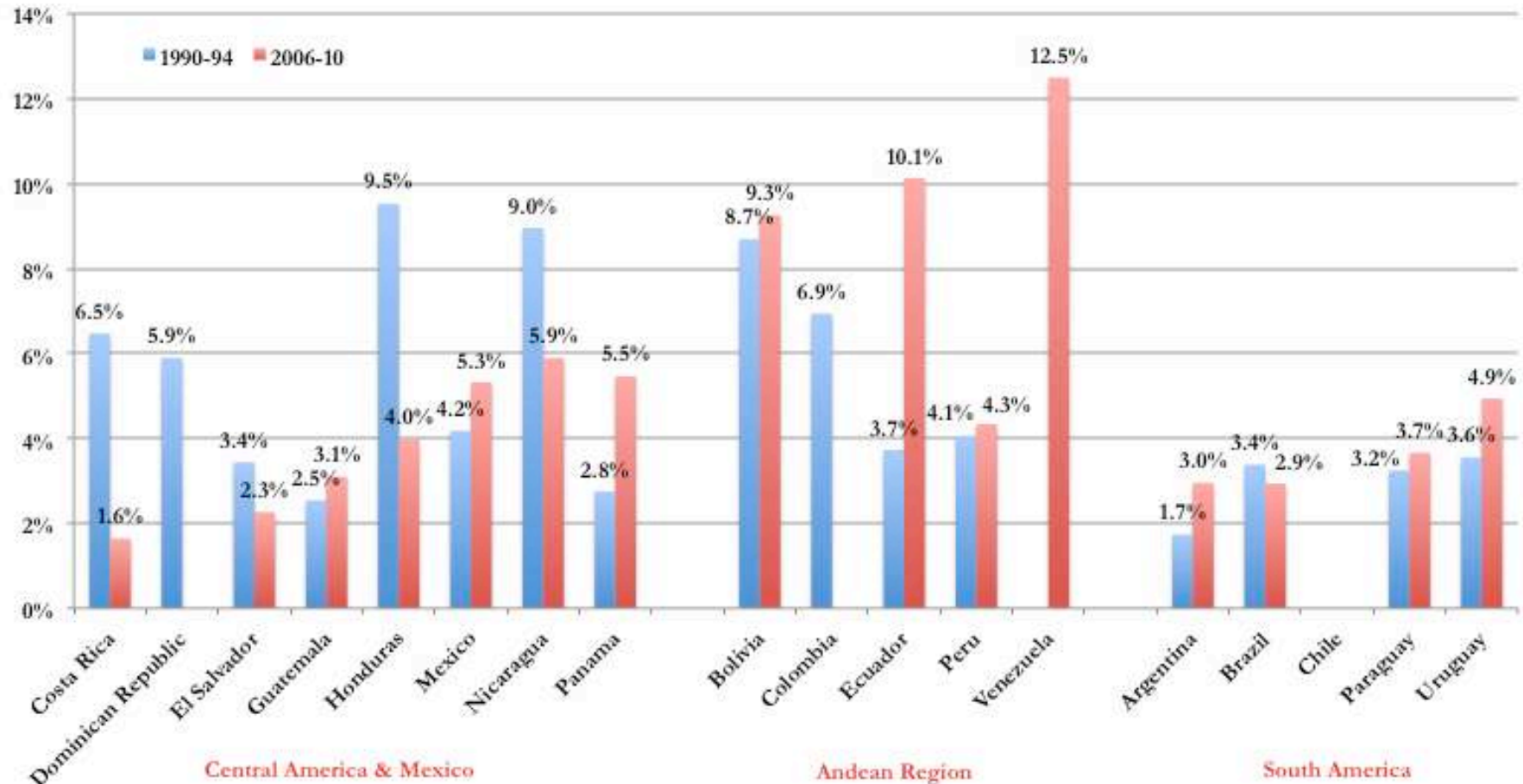


Figure 25. Real interest rate by country and region *continued*



Source: Authors' compilation based on data from WDI database.

Figure 26. Public investment as a share of GDP by country, average for the early 1990s versus the late 2000s



Source: Authors' calculations based on WDI database; see data appendix for details. The figures are the average for the time span specified. The number of observations available for each period varies.

Figure 27. Manufacturing exports as a share of manufacturing imports, by country and region (percent)

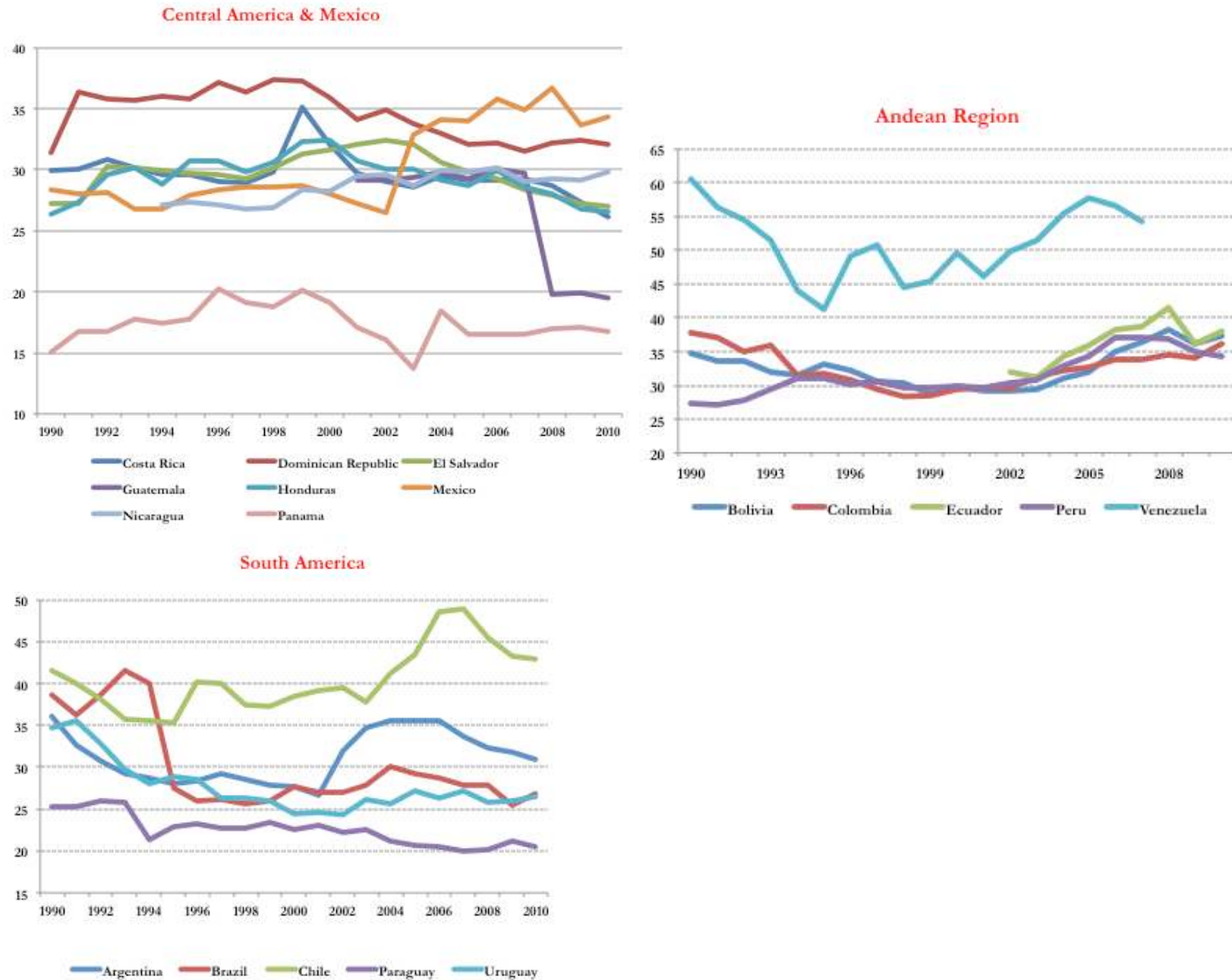
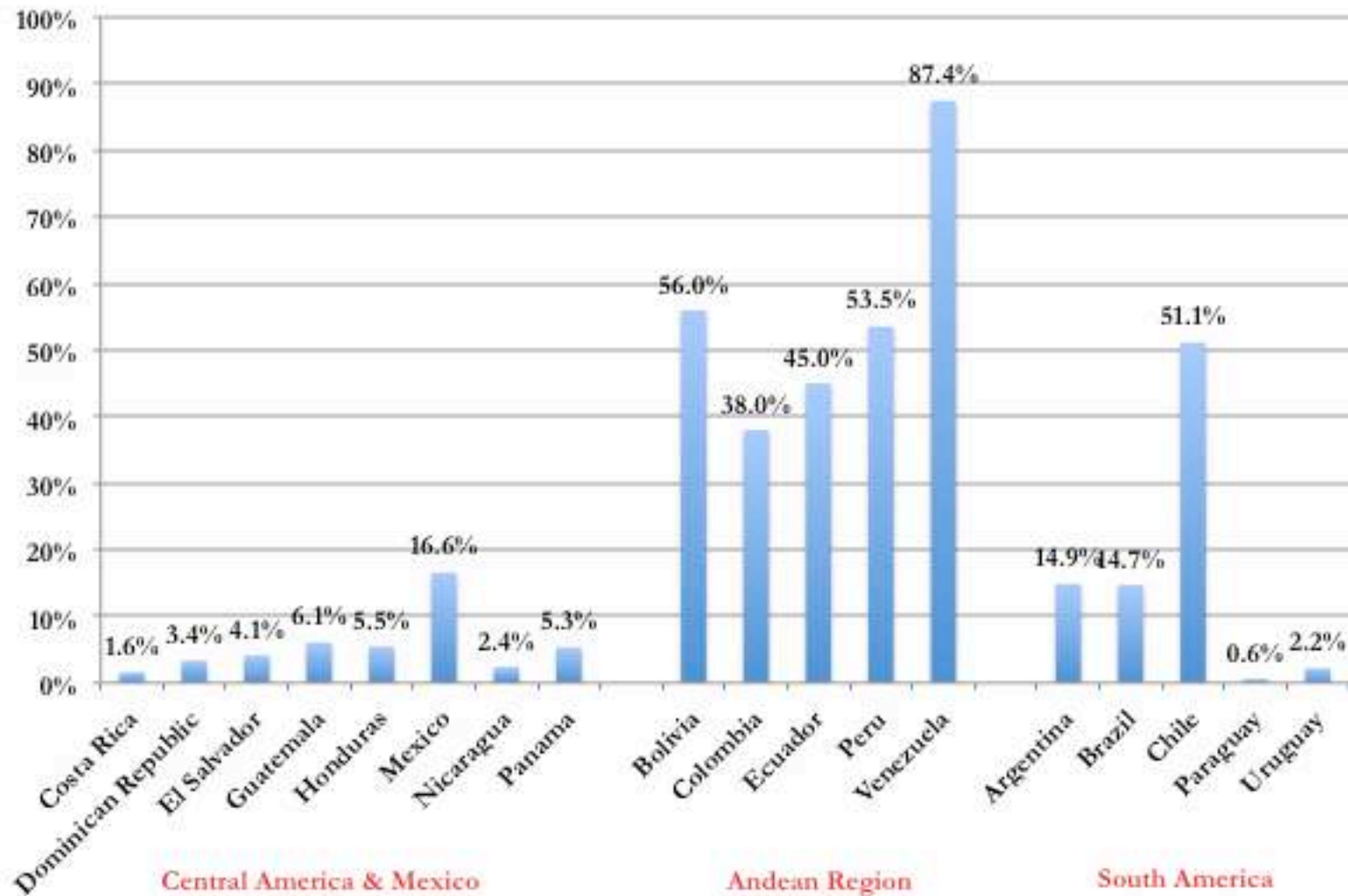
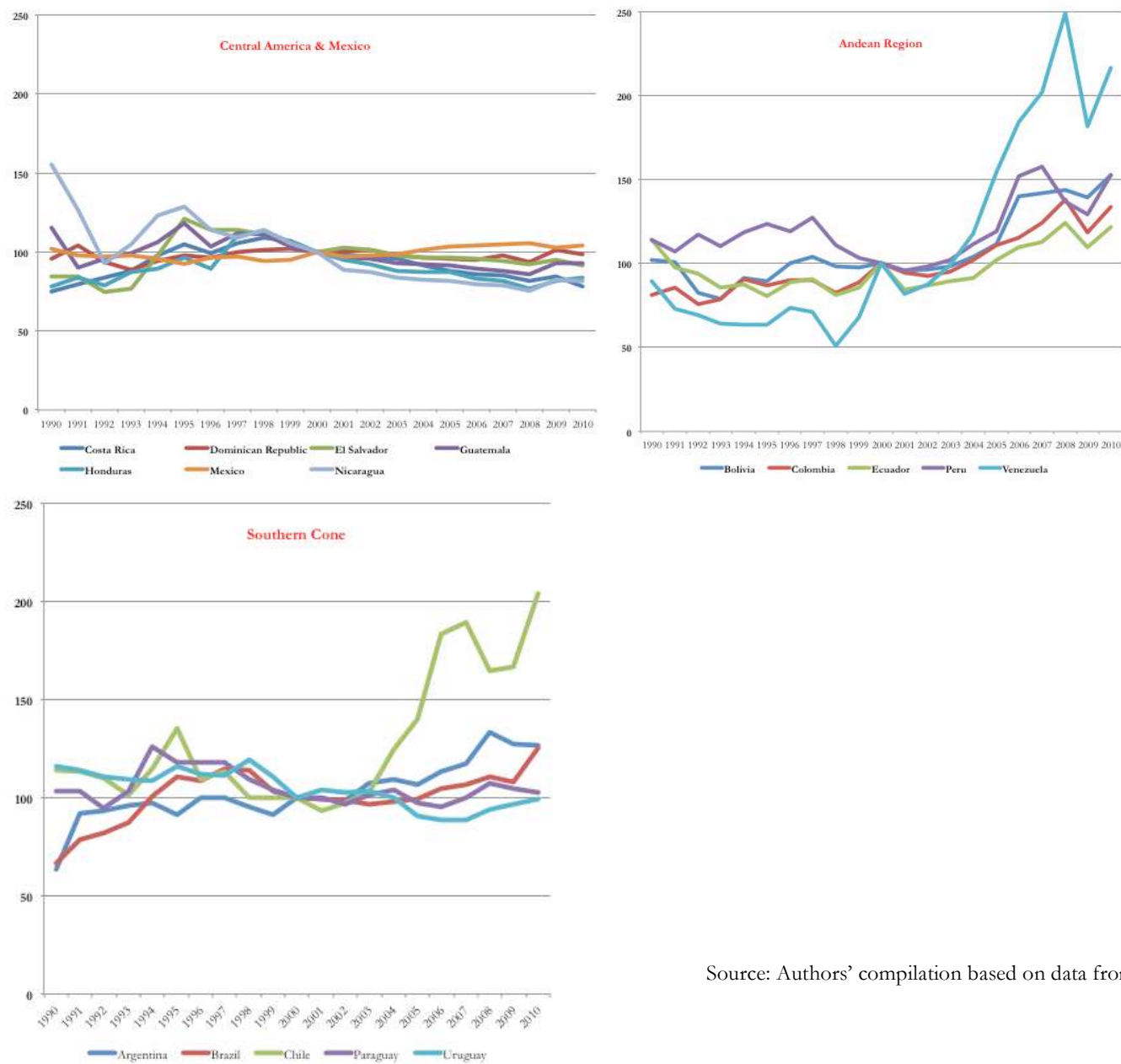


Figure 28. Fuel & ores as a share of merchandise exports by country and region, 1990-2010 average



Source: Authors' calculations based on WDI database.

Figure 29. Terms of trade indices by country and region, 1990-2010 (2000=100)



Source: Authors' compilation based on data from WDI database.

Figure 30. Change in average share of trade and current account in GDP, 1990s and 2000s

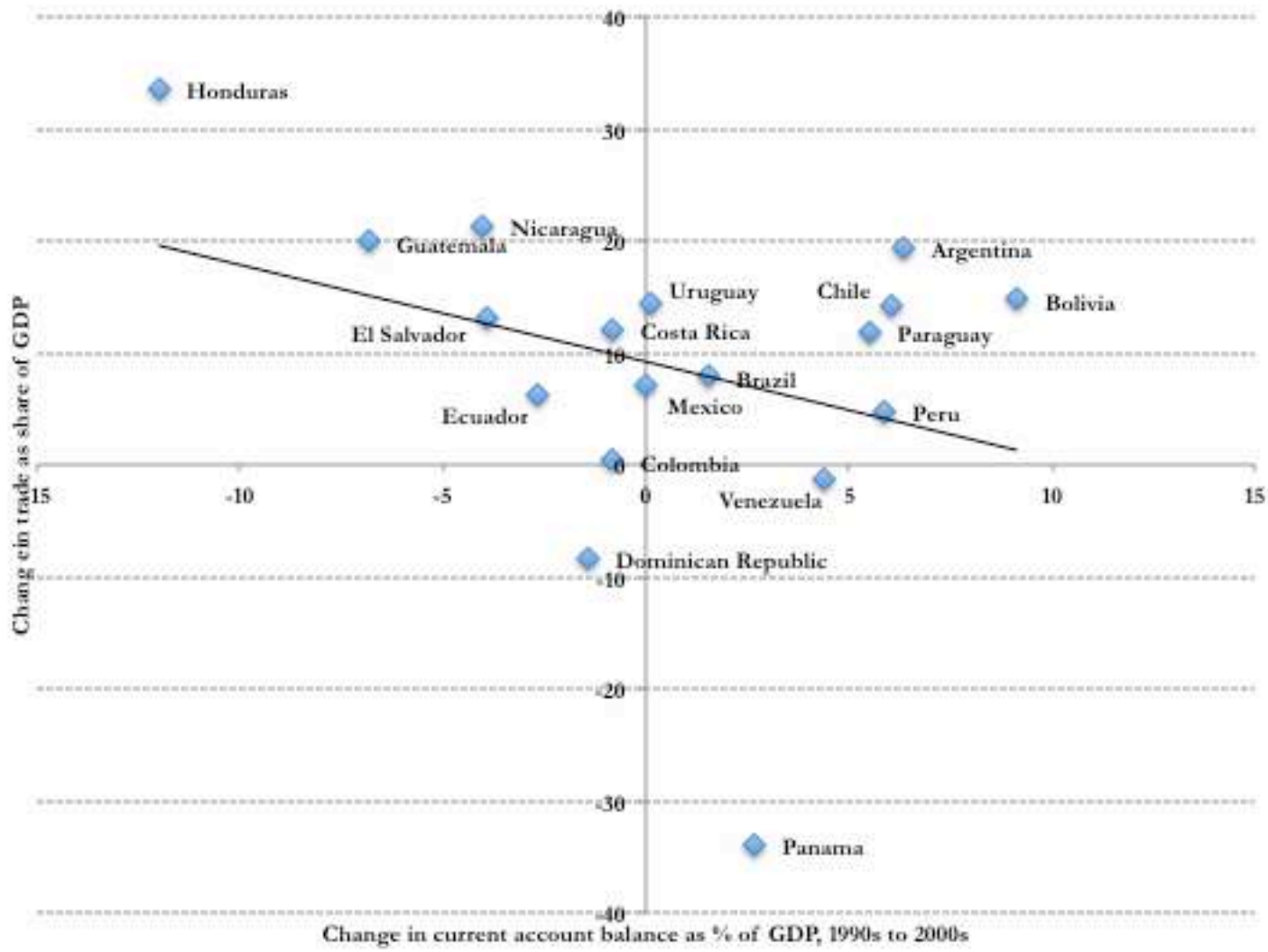
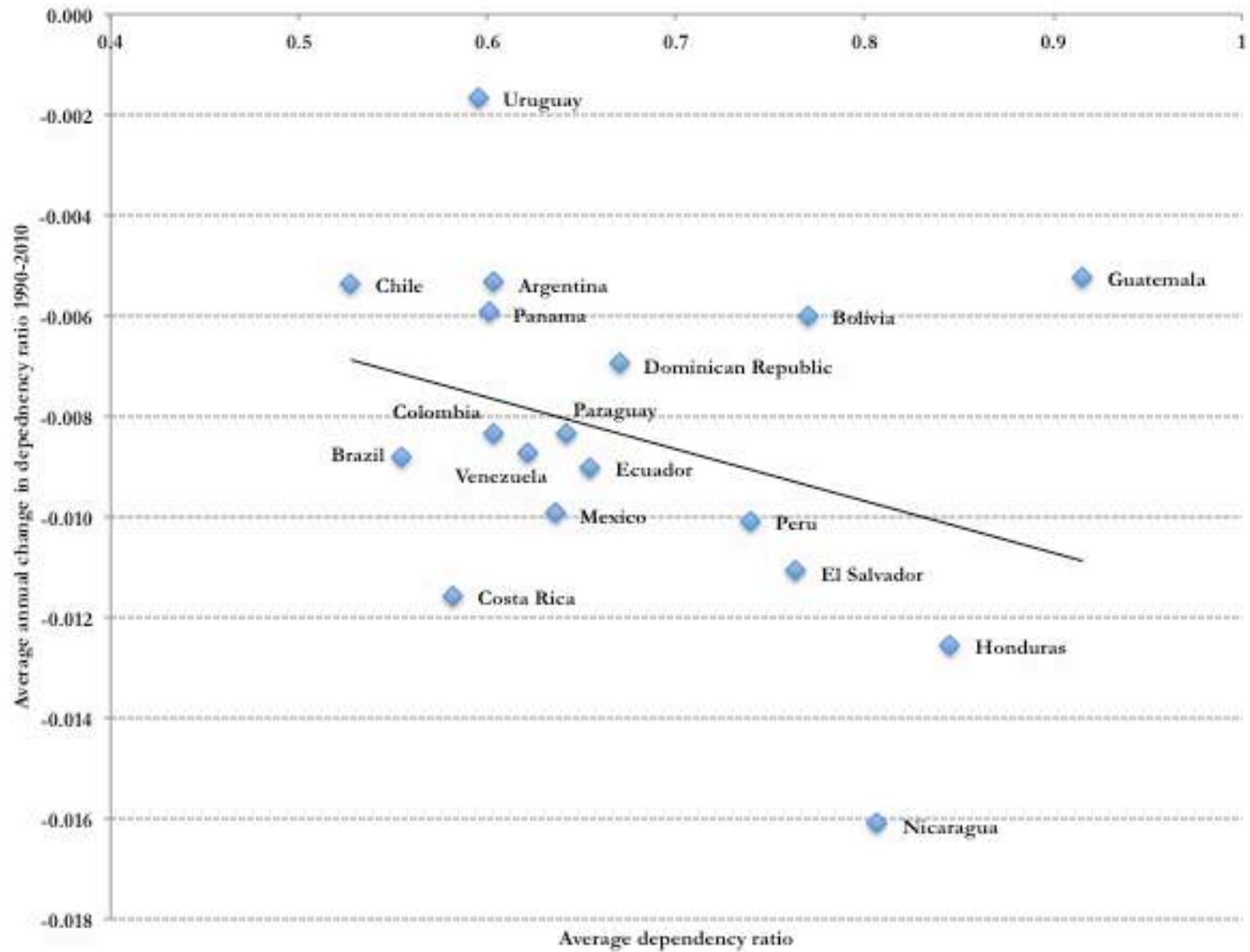


Figure 31. Changes in the dependency ratio



**Table 1. Average annual real per capita GDP growth, various years**

	<u>1990-97</u>	<u>1998-02</u>	<u>2003-08</u>	<u>2009</u>	<u>2010</u>
<b>Central America &amp; Mexico</b>					
Costa Rica	2.2%	2.1%	4.2%	-2.8%	2.7%
Dominican Republic	2.6%	3.8%	4.3%	2.1%	6.3%
El Salvador	3.8%	2.2%	2.4%	-3.6%	0.9%
Guatemala	1.6%	1.3%	1.4%	-1.9%	0.2%
Honduras	0.7%	0.5%	3.5%	-4.1%	0.7%
Mexico	1.3%	1.7%	1.8%	-7.4%	4.2%
Nicaragua	0.1%	2.1%	3.0%	-4.5%	6.1%
Panama	3.5%	1.4%	6.5%	0.8%	3.2%
<b>Andean Region</b>					
Bolivia	2.0%	0.3%	2.6%	1.7%	2.5%
Colombia	2.1%	-0.7%	3.6%	0.2%	2.6%
Ecuador	0.8%	0.2%	3.6%	-1.1%	2.1%
Peru	2.1%	0.2%	5.8%	-0.2%	7.6%
Venezuela	1.6%	-3.3%	5.6%	-4.7%	-3.0%
<b>South America</b>					
Argentina	4.2%	-4.1%	7.5%	0.0%	8.2%
Brazil	0.5%	0.3%	3.1%	-1.5%	6.6%
Chile	5.8%	1.2%	3.6%	-2.6%	4.2%
Paraguay	0.7%	-2.5%	2.7%	-5.5%	13.0%
Uruguay	3.6%	-2.5%	5.0%	2.6%	8.1%
<b>Latin America, average</b>	<u>2.2%</u>	<u>0.2%</u>	<u>3.9%</u>	<u>-1.8%</u>	<u>4.2%</u>

Source: Authors' calculations based on data from WDI database. Growth based on real local currency. Average for Latin America not weighted by population.



**Table 2. Gini index by country, various years**

	<u>1990</u>	<u>1997</u>	<u>2002</u>	<u>2008</u>
<b>Central America &amp; Mexico</b>				
Costa Rica	44.0	44.9	49.8	48.7
Dominican Republic	48.6	48.5	50.0	49.7
El Salvador	52.3	52.2	52.2	46.6
Guatemala	57.7	56.4	58.2	54.4
Honduras	53.5	52.8	56.7	55.3
Mexico	52.2	54.1	51.0	50.5
Nicaragua	55.5	55.3	50.6	52.3
Panama	55.0	56.7	56.4	52.1
<b>Andean Region</b>				
Bolivia	54.5	58.0	60.1	57.2
Colombia	51.9	55.9	55.6	58.9
Ecuador		58.1	55.0	50.2
Peru	46.4	53.7	54.3	47.0
Venezuela	42.5	47.0	47.5	41.2
<b>South America</b>				
Argentina	45.6	48.3	53.3	45.9
Brazil	60.4	59.3	58.3	54.2
Chile	55.1	55.1	54.8	51.9
Paraguay		56.4	57.2	52.1
Uruguay	42.4	42.8	45.4	44.7

Source and notes: See Figure 1.

**Table 3. Trends in Female and Male Income Shares: The Ratio of Q1 to Q5**

	Late 2000s		Percentage point change from early to late 2000s	
	Female	Male	Female	Male
<b>Argentina</b>	9.2%	9.5%	-1.5	-0.6
<b>Bolivia</b>	4.4%	3.7%	1.2	1.1
<b>Brazil</b>	7.3%	7.4%	<b>1.9</b>	<b>2.1</b>
<b>Chile</b>	10.5%	8.8%	<b>1.7</b>	<b>2.5</b>
<b>Colombia</b>	4.8%	5.2%	<b>0.5</b>	<b>0.8</b>
<b>Costa Rica</b>	7.2%	7.7%	-2.9	-2.7
<b>Ecuador</b>	9.0%	8.3%	<b>2.3</b>	<b>2.8</b>
<b>El Salvador</b>	8.3%	7.6%	-0.2	-1.1
<b>Guatemala</b>	4.9%	3.9%	4.9	3.9
<b>Honduras</b>	4.1%	3.9%	-1.9	-3.1
<b>Mexico</b>	4.7%	4.4%	<b>-0.1</b>	<b>0.1</b>
<b>Nicaragua</b>	7.7%	7.2%	7.7	7.2
<b>Panama</b>	6.5%	6.3%	<b>-0.5</b>	<b>0.5</b>
<b>Paraguay</b>	6.0%	5.5%	1.6	1.6
<b>Peru</b>	4.3%	4.6%	<b>0.9</b>	<b>1.0</b>
<b>Dominican Republic</b>	9.0%	9.4%	<b>1.1</b>	<b>1.2</b>
<b>Uruguay</b>	7.1%	7.1%	-1.7	-1.1
<b>Venezuela</b>	19.2%	21.9%	<b>7.8</b>	<b>10.1</b>

Note: Data in bold are for those countries with greater male improvements in equality than female. Q1 refers to the first quintile of the income distribution, and Q5 to the fifth.

Source: Authors' calculations based on CEPALSTAT household survey data.

**Table 4. Countries categorized by industrial and trade structures**

<b>Manufacturing</b>	<b>Fuel &amp; Ores</b>	<b>Agricultural</b>
Argentina	Bolivia	Guatemala
Brazil	Chile	Honduras
Costa Rica	Colombia	Nicaragua
Dominican Republic	Ecuador	Paraguay
El Salvador	Peru	
Mexico	Venezuela	
Panama		
Uruguay		

Notes: See text for explanation of how countries are categorized.

**Table 5. Growth elasticity of employment, various time periods**

	1991-2010	1991-1997	1998-2002	2003-2010
<b>Latin America</b>				
female	0.95	0.87	0.55	0.67
male	0.54	0.46	0.35	0.44
female/male	1.76	1.89	1.57	1.52
GDP growth	3.76%	4.33%	1.76%	4.51%
<b>Group 1: Manufacturing</b>				
female	0.82	0.66	0.38	0.60
male	0.46	0.36	0.26	0.38
female/male	1.78	1.83	1.46	1.58
GDP growth	4.00%	4.69%	1.84%	4.75%
<b>Group 2: Fuel &amp; Ores</b>				
female	1.03	1.04	0.92	0.62
male	0.56	0.49	0.49	0.43
female/male	1.84	2.12	1.88	1.44
GDP growth	3.75%	4.48%	1.26%	4.66%
<b>Group 3: Agricultural</b>				
female	1.12	1.05	0.66	1.09
male	0.70	0.72	0.47	0.71
female/male	1.60	1.46	1.40	1.54
GDP growth	3.30%	3.38%	2.35%	3.83%

Source & notes: Authors' calculations based on the following regression equation:

$\ln E_{it} = \alpha_i + \beta \ln Y_{it} + \varepsilon_{it}$ , where  $\ln E_{it}$  is the natural log of employment in country  $i$  and year  $t$ , while

$\ln Y_{it}$  is the natural log of real income in local currency. GDP growth refers to average annual real growth in local currency units. See data appendix for more details on data sources.

**Table 6. Growth elasticity of employment controlling for labor supply, various time periods**

	1991-2010	1991-1997	1998-2002	2003-2010
<b>Latin America</b>				
female	0.14	<i>0.08</i>	0.11	0.24
male	0.08	<i>0.02</i>	0.11	0.16
female/male	1.75	4.00	1.00	1.50
GDP growth	3.76%	4.33%	1.76%	4.51%
<b>Group 1: Manufacturing</b>				
female	0.22	<i>0.01</i>	0.10	0.25
male	0.10	<i>-0.03</i>	0.11	0.16
female/male	2.20	-0.33	0.91	1.56
GDP growth	4.00%	4.69%	1.84%	4.75%
<b>Group 2: Fuel &amp; Ores</b>				
female	0.10	0.17	0.16	0.25
male	0.06	0.07	0.13	0.22
female/male	1.67	2.43	1.23	1.14
GDP growth	3.75%	4.48%	1.26%	4.66%
<b>Group 3: Agriculture</b>				
female	0.06	<i>0.11</i>	<i>0.08</i>	0.19
male	0.08	<i>0.08</i>	0.13	0.20
female/male	0.75	1.38	0.62	0.95
GDP growth	3.30%	3.38%	2.35%	3.83%

Source & notes: Authors' calculations based on the following regression equation:

$\ln E_{it} = \alpha_i + \beta \ln Y_{it} + \ln LF_{it} + \varepsilon_{it}$ , where  $\ln E_{it}$  is the natural log of (female or male) employment in country  $i$  and year  $t$ ,  $\ln Y_{it}$  is the natural log of real income in local currency, and  $\ln LF_{it}$  is the natural log of the (female or male) labor force. See data appendix for more details on data sources. In cases where the elasticity coefficient  $\beta$  was not statistically significant at a 90 percent confidence interval or more, elasticity estimate is in italics.

**Table 7. Growth elasticity of employment by country, 1991-2010**

	<b>Female</b>	<b>Male</b>	<b>Female/ Male</b>	<b>Average annual GDP growth</b>
Argentina	0.78	0.44	1.77	4.34%
Bolivia	0.96	0.65	1.48	3.73%
Brazil	0.92	0.56	1.64	3.03%
Chile	0.67	0.32	2.09	5.00%
Colombia	1.66	0.71	2.34	3.31%
Costa Rica	1.01	0.57	1.77	4.67%
Dominican Republic	0.66	0.36	1.83	5.52%
Ecuador	1.19	0.68	1.75	3.14%
El Salvador	0.71	0.28	2.54	3.18%
Guatemala	1.08	0.67	1.61	3.66%
Honduras	0.98	0.67	1.46	3.61%
Mexico	1.19	0.63	1.89	2.58%
Nicaragua	1.27	0.63	2.02	3.11%
Panama	0.84	0.55	1.53	5.54%
Paraguay	1.25	1.00	1.25	2.84%
Peru	0.93	0.52	1.79	4.71%
Uruguay	0.57	0.21	2.71	3.13%
Venezuela	1.32	0.80	1.65	2.57%

Source: See Table 5.

**Table 8. Growth elasticity of employment by country controlling for labor supply, 1991-2010**

	<u>Female</u>	<u>Male</u>	<u>Female/ Male</u>	<u>Average annual GDP growth</u>
Argentina	<i>0.15</i>	<i>0.15</i>	1.00	4.34%
Bolivia	<i>-0.05</i>	<i>-0.02</i>	2.50	3.73%
Brazil	<i>0.08</i>	<i>0.20</i>	0.40	3.03%
Chile	<i>0.02</i>	<i>0.01</i>	2.00	5.00%
Colombia	0.14	0.08	1.75	3.31%
Costa Rica	0.17	0.21	0.81	4.67%
Dominican Republic	0.79	0.18	4.39	5.52%
Ecuador	<i>0.08</i>	<i>0.05</i>	1.60	3.14%
El Salvador	<i>0.04</i>	<i>0.03</i>	1.33	3.18%
Guatemala	0.12	0.08	1.50	3.66%
Honduras	<i>-0.01</i>	0.07	-0.14	3.61%
Mexico	0.34	0.25	1.36	2.58%
Nicaragua	<i>0.00</i>	0.15	0.07	3.11%
Panama	0.31	0.20	1.55	5.54%
Paraguay	0.27	0.25	1.08	2.84%
Peru	<i>-0.05</i>	0.03	-1.67	4.71%
Uruguay	0.12	<i>0.05</i>	2.40	3.13%
Venezuela	0.36	0.28	1.29	2.57%

Source: See Table 6. In cases where the elasticity coefficient estimate is not statistically significant at 90 percent or more, the elasticity is recorded in italics.

**Table 9. Growth elasticity of formal employment, various time periods**

	1991-2010	1991-1997	1998-2002	2003-2010
<b>Latin America</b>				
female	0.94	0.53	<i>0.25</i>	0.74
male	0.57	<i>0.22</i>	0.37	0.54
female/male	1.65	2.41	0.68	1.37
GDP growth	3.76%	4.33%	1.76%	4.51%
<b>Group 1: Manufacturing</b>				
female	0.85	0.74	<i>0.46</i>	0.66
male	0.52	0.43	<i>0.52</i>	0.45
female/male	1.63	1.72	0.88	1.47
GDP growth	4.00%	4.69%	1.84%	4.75%
<b>Group 2: Fuel &amp; Ores</b>				
female	0.89	<i>0.46</i>	<i>0.87</i>	0.74
male	0.46	<i>0.05</i>	<i>0.24</i>	0.51
female/male	1.93	9.20	3.63	1.45
GDP growth	3.75%	4.48%	1.26%	4.66%
<b>Group 3: Agriculture</b>				
female	1.51	<i>-0.04</i>	<i>-1.50</i>	1.60
male	1.08	<i>-0.11</i>	<i>0.03</i>	1.70
female/male	1.40	0.36	-50.00	0.94
GDP growth	3.30%	3.38%	2.35%	3.83%

Source & notes: Authors' calculations based on the following regression equation:

$\ln E_{it} = \alpha_i + \beta \ln Y_{it} + \varepsilon_{it}$ , where  $\ln E_{it}$  is the natural log of *formal* employment in country *i* and year *t*,

while  $\ln Y_{it}$  is the natural log of real income in local currency. See data appendix for more details on data

sources. In cases where the elasticity coefficient is not statistically significant at a 90 percent confidence interval or more, elasticity is recorded in italics.



**Table 10. Determinants of female and male employment rates**

	Ratio F/M Employment Rates				Female Employment Rate				Male Employment Rate			
	FE	2SLS	FE	2SLS	FE	2SLS	FE	2SLS	FE	2SLS	FE	2SLS
	1	2	3	4	5	6	7	8	9	10	11	12
Social spending (log)	<b>0.320***</b> (0.082)	<b>0.126***</b> (0.022)	<b>0.204**</b> (0.079)	<b>0.241***</b> (0.020)	<b>0.292***</b> (0.082)	<b>0.0692***</b> (0.0247)	<b>0.185**</b> (0.079)	<b>0.195***</b> (0.0233)	-0.019 (0.018)	<b>-0.057***</b> (0.009)	-0.019 (0.019)	<b>-0.046***</b> (0.009)
Min. wage/Avg. wage (log)	0.078 (0.05)	<b>0.088***</b> (0.024)	<b>0.100**</b> (0.04)	<b>0.130***</b> (0.031)	<b>0.0945*</b> (0.049)	<b>0.169***</b> (0.0261)	<b>0.145***</b> (0.042)	<b>0.221***</b> (0.034)	0.024 (0.016)	<b>0.081***</b> (0.008)	<b>0.045***</b> (0.012)	<b>0.091***</b> (0.01)
Growth of GDP	-0.0003 (0.001)	0.005 (0.004)	-0.0002 (0.001)	0.004 (0.003)	0.002 (0.002)	0.00492 (0.00439)	0.001 (0.002)	0.004 (0.003)	<b>0.002**</b> (0.001)	-0.0001 (0.002)	<b>0.001*</b> (0.0005)	-0.0004 (0.001)
Mfg X/Mfg M (log)	0.061 (0.05)	-0.001 (0.0003)	0.029 (0.051)	-0.001 (0.0003)	0.044 (0.048)	0.00003 (0.0004)	0.028 (0.054)	0.0001 (0.0003)	-0.010 (0.01)	0.001 (0.0002)	-0.0004 (0.009)	0.001 (0.0002)
Terms of trade (log)	<b>0.155*</b> (0.088)	<b>0.242***</b> (0.065)	-0.056 (0.105)	<b>0.318***</b> (0.064)	<b>0.156*</b> (0.087)	<b>0.220***</b> (0.075)	-0.023 (0.108)	<b>0.353***</b> (0.066)	0.004 (0.024)	-0.022 (0.022)	0.033 (0.025)	0.035 (0.024)
REER (log)	0.068 (0.067)	-0.002 (0.042)	<b>0.143***</b> (0.038)	0.063 (0.053)	0.035 (0.059)	0.0105 (0.052)	<b>0.123***</b> (0.036)	<b>0.094*</b> (0.057)	-0.015 (0.015)	0.0124 (0.025)	-0.020 (0.012)	<b>0.031*</b> (0.017)
Real interest rate	-0.001 (0.001)	<b>0.003***</b> (0.001)	-0.0005 (0.001)	<b>0.002***</b> (0.001)		<b>0.004***</b> (0.001)	-0.0006 (0.001)	<b>0.002***</b> (0.001)	-0.0002 (0.0002)	0.0003 (0.0003)	-0.0001 (0.0002)	-0.00001 (0.0002)
Public Investment			0.036 (0.031)	<b>0.059***</b> (0.015)			<b>0.073**</b> (0.029)	<b>0.121***</b> (0.016)			<b>0.036***</b> (0.011)	<b>0.063***</b> (0.007)
Fuel and ores			<b>0.035**</b> (0.012)	<b>0.035***</b> (0.008)			<b>0.030*</b> (0.015)	<b>0.033***</b> (0.008)			-0.005 (0.007)	-0.002 (0.002)
Constant	1.720** (0.612)	2.233*** (0.378)	2.564*** (0.528)	1.085*** (0.323)	1.633** (0.606)	1.816*** (0.484)	2.078*** (0.572)	0.174 (0.349)	4.368*** (0.17)	4.188*** (0.177)	4.119*** (0.146)	3.694*** (0.151)
Observations	283	257	176	172	303	257	176	172	283	257	176	172
Overall R <sup>2</sup>	0.094	0.307	0.260	0.627	0.05	0.260	0.249	0.583	0.1567	0.475	0.371	0.714
No. of countries	18	18	16	16	18	18	16	16	18	18	16	16

Note: Robust standard errors in parentheses. \*\*\* indicates significance at the 1% level, \*\* significance at the 5% level, and \* at the 10% level.

**Table 11. Determinants of female and male unemployment rates**

	Ratio F/M Unemployment Rates				Female Unemployment Rate				Male Unemployment Rate			
	FE	2SLS	FE	2SLS	FE	2SLS	FE	2SLS	FE	2SLS	FE	2SLS
	1	2	3	4	5	6	7	8	9	10	11	12
Social spending (log)	0.019 (0.172)	-0.036 (0.038)	-0.047 (0.142)	0.054 (0.044)	0.103 (0.152)	-0.012 (0.087)	-0.051 (0.189)	0.105 (0.095)	0.083 (0.17)	0.024 (0.071)	-0.004 (0.226)	0.051 (0.076)
Min. wage/Avg. wage (log)	0.078 (0.106)	0.015 (0.047)	0.032 (0.081)	-0.020 (0.074)	<b>-0.224*</b> (0.122)	<b>-0.319***</b> (0.084)	<b>-0.211**</b> (0.095)	<b>-0.496***</b> (0.112)	<b>-0.302**</b> (0.124)	<b>-0.335***</b> (0.066)	<b>-0.243***</b> (0.071)	<b>-0.477***</b> (0.086)
Growth of GDP	0.006* (0.003)	<b>0.015***</b> (0.006)	<b>0.010***</b> (0.003)	<b>0.013*</b> (0.007)	<b>-0.020***</b> (0.004)	0.002 (0.016)	<b>-0.013***</b> (0.004)	0.001 (0.015)	<b>-0.026***</b> (0.005)	-0.013 (0.013)	<b>-0.022***</b> (0.005)	-0.013 (0.011)
Mfg X/Mfg M (log)	0.042 (0.035)	<b>0.002***</b> (0.001)	0.013 (0.039)	-0.001 (0.001)	<b>0.287***</b> (0.081)	-0.002 (0.002)	<b>0.297***</b> (0.072)	<b>-0.137***</b> (0.001)	<b>0.245***</b> (0.083)	<b>-0.004***</b> (0.001)	<b>0.283***</b> (0.088)	<b>0.013***</b> (0.001)
Terms of trade (log)	0.061 (0.068)	-0.065 (0.089)	0.152 (0.114)	-0.059 (0.157)	0.368* (0.182)	0.120 (0.18)	<b>0.730**</b> (0.327)	<b>0.510*</b> (0.268)	<b>0.307*</b> (0.167)	0.185 (0.136)	<b>0.578*</b> (0.326)	<b>0.569***</b> (0.182)
REER (log)	-0.108 (0.107)	0.144 (0.093)	-0.154 (0.105)	0.218 (0.134)	-0.067 (0.177)	-0.305 (0.207)	-0.060 (0.213)	-0.095 (0.26)	0.041 (0.141)	<b>-0.449***</b> (0.17)	0.095 (0.209)	-0.313 (0.192)
Real interest rate	<b>-0.003***</b> (0.001)	0.001 (0.001)	<b>-0.002**</b> (0.001)	0.0003 (0.001)	<b>-0.003***</b> (0.001)	0.002 (0.002)	<b>-0.002**</b> (0.001)	0.0004 (0.002)	-0.001 (0.001)	0.001 (0.001)	0.0003 (0.001)	0.0001 (0.001)
Public Investment			-0.062 (0.086)	-0.042 (0.052)			<b>-0.164**</b> (0.069)	<b>-0.446***</b> (0.087)			-0.102 (0.095)	<b>-0.404***</b> (0.067)
Fuel and ores			0.004 (0.043)	0.0174 (0.015)			0.018 (0.096)	<b>-0.047*</b> (0.026)			0.014 (0.096)	<b>-0.064***</b> (0.019)
Constant	4.750*** (0.512)	4.540*** (0.567)	5.019*** (0.749)	4.231*** (0.911)	0.524 (1.041)	4.305*** (1.306)	0.818 (1.225)	2.997* (1.639)	0.379 (1.277)	4.370*** (1.084)	-1.233 (1.618)	3.371*** (1.188)
Observations	261	233	159	154	261	233	159	154	261	233	159	154
Overall R <sup>2</sup>	0.002	0.114	0.002	0.071	0.002	0.065	0.008	0.412	0.002	0.172	0.002	0.524
No. of countries	18	18	16	16	18	18	16	16	18	18	16	16

Note: Robust standard errors in parentheses. \*\*\* indicates significance at the 1% level, \*\* significance at the 5% level, and \* at the 10% level.

## Data Appendix

Variable	Explanation	Source
<b><i>Overall inequality and poverty</i></b>		
<i>Gini index</i>	Gini index on household income. Few Latin American surveys have questions on taxes, so IDLA works under the presumption that wage earners report net income and the (few) self-employed that pay taxes report gross income, so the index includes both net and gross income receipts (Martorano and Cornia 2011: 13).	Inequality and Development in Latin America (IDLA) dataset, which built the series based on data from SEDLAC, WIID, CEPALSTAT, WDI, SWIID Version 3.0 and national sources, as well as interpolation when data was missing (Martorano and Cornia 2011: 13).
<i>Poverty rate</i>	Percentage of the population that falls below the level of resources necessary to satisfy basic nutritional and non-nutritional needs.	ECLAC-CEPALSTAT
<b><i>Gender Inequality Variables</i></b>		
<i>F/M secondary education</i>	Female-to-male ratio of average years of education in population aged 15 and older	Authors' calculations based on Barro and Lee (2010), version 1.2, Sept. 2011.
<i>F/M employment rate</i>	Female-to-male employment to population ratio, aged 15 and older	Authors' calculations based on employment-to-population data from World Development Indicators (WDI) database.
<i>F/M unemployment rate</i>	Ratio of female-to-male unemployment rates	Authors' calculations based on employment-to-population data from WDI database.
<i>F/M Wage</i>	Female-to-male urban wage ratio for workers between the ages of 20 and 49 who work 35 or more hours per week.	ECLAC-CEPALSTAT
<i>F/M informal employment</i>	Female-to-male ratio of the urban population employed in low productivity sectors of the labor market (informal sector)	Authors' calculations based on data from ECLAC-CEPALSTAT.
<i>F/M poverty rate</i>	Female-to-male ratio of poverty, with the latter described as not having the resources necessary to satisfy basic nutritional and non-nutritional needs. Number of women and men living in poverty refers to the number living in poor households as derived from household surveys.	Authors' compilation of data from ECLAC-CEPALSTAT on the femininity rate of poverty.
<i>F/M extreme poverty rate</i>	Female-to-male ratio of extreme poverty, with the latter described as not having the resources necessary to satisfy basic nutritional needs. Number of women and men living in poverty refers to the number living in poor households as derived from household surveys.	Authors' compilation of data from ECLAC-CEPALSTAT on the femininity rate of extreme poverty/indigence.

### ***Elasticity Estimates***

<b>Variable</b>	<b>Explanation</b>	<b>Source</b>
<i>Employment</i>	Employment in the population 15 and older, female or male	Calculated by multiplying the employment to population ratio by population. Population numbers are in turn figured by dividing the number of people in the labor force (derived by multiplying the total labor force by the percent of the labor force that is female or male) by the labor force participation rate. All data drawn from the WDI database, and refers exclusively to the female or male population aged 15 and older.
<b><i>Policy Variables</i></b>		
<i>Social public expenditure</i>	Central government social spending as a share of GDP	1990-2006 from IDLA dataset; 2007-2010 from ECLAC-CEPALSTAT.
<i>Minimum wage/ Average wage</i>	Monthly real minimum wage divided by the monthly real average wage.	Authors' calculations based on data from ECLAC-CEPALSTAT.
<i>REER</i>	Real effective exchange rate index (2005=100). A decrease is equivalent to an appreciation, and an increase is equivalent to a depreciation.	ECLAC-CEPALSTAT, except for Argentina, which the authors figured by multiplying Argentina's nominal exchange rate by the ratio of GDP deflator of the U.S. to that of Argentina's.
<i>Real interest rate</i>	Nominal lending rate minus the rate of inflation.	WDI database
<i>Public investment</i>	Public gross fixed capital formation as a share of GDP.	Authors' calculations based on two series from the WDI database: private and total gross fixed capital formation as a share of GDP.
<b><i>Economic Structure Variables</i></b>		
<i>Mfg X/Mfg M</i>	Ratio of manufacturing exports to manufacturing imports, normalized	Authors' calculations based on data from WDI database.
<i>Fuel &amp; ores</i>	Fuel & ores as share of merchandise exports	WDI database
<i>Terms of trade</i>	Net barter terms of trade index, (2000=100)	WDI database
<b><i>Other variables</i></b>		
<i>Growth</i>	Annual per capita GDP growth based on real local currency	WDI database
<i>Dependency ratio</i>	Sum of population younger than 15 and 65 and older as a share of the population between 15 and 65.	Authors' calculations based on data from WDI database.