Deceleration in Female Labor Force Participation in Latin America[*]

by Leonardo Gasparini and Mariana Marchionni[♦]

Abstract

After half a century of sustained growth, female labor force participation has decelerated in Latin America, especially among married vulnerable women. Based on a large database of microdata from household surveys this paper documents this recent deceleration and provides evidence on the determinants. We argue that the fast economic growth experienced by the region in the 2000s was an important driving force: lower unemployment and higher earnings of male partners plus increased social assistance may have reduced the pressing need for vulnerable women to take low quality jobs.

JEL codes: J2, J1
Keywords: female labor force participation, Latin America, poverty, inequality

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1. Introduction

Arguably, the strong increase in female labor force participation (LFP) is among the most salient socioeconomic changes in Latin America in the last half-century. This fact not only implies a profound transformation in the daily life of millions of Latin American women and families, but also has substantial economy-wide labor and social consequences. Poverty, inequality, unemployment and education—just to mention a few social issues—are all affected by a more intense entry of women into the workforce. Although remarkable, this long-run pattern of female gains has not been enough to close the gender gap. Gender equality in the labor market remains a difficult challenge in the region.

This paper explores a change in the trend of female labor force participation that makes the situation potentially more worrisome: after around half a century of sustained growth, there are clear signs of a widespread and significant deceleration in the entry of women into the Latin American labor markets. That deceleration took place even when the typical factors that account for the long-run increase in female LFP, such as innovations or expansions in health, home and work technologies and some cultural changes, continued operating (Busso and Romero Fonseca, 2015). The deceleration appears to have begun in the early 2000s, and it applies to all groups of women, but particularly to those who are married, and in more vulnerable households.[1] Therefore, the slower entry of women into the workforce has delayed the closing of the gap in labor participation not only between men and women, but also between vulnerable women and the rest.[2]

Although a similar pattern has emerged in other regions of the world, such as the US since around the 1990s (Blau and Kahn, 2013; Goldin, 2014), some Nordic economies, and some East and South Asian countries, the stagnation in female labor force participation is not a general phenomenon among developed or developing economies, which suggest that the recent deceleration observed in Latin America has regional origins that need to be explored.

This paper makes two contributions to the literature on gender and labor participation in Latin America.[3] First, we provide careful evidence on female LFP based on microdata from a large set of national household surveys. In particular, the paper unveils a potentially interesting fact, which has not

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[1] We do not make distinctions between women who are legally married and women who cohabitate with a partner in consensual unions; for simplicity we include both groups under the label *married*.

[2] It also makes improbable the fulfillment of the gender-equity Millennium Development Goals (MDGs) related to female employment.

[3] See Amador *et al.* (2013); Chioda (2011); Elías and Ñopo (2010); Piras (2004); and World Bank (2012 a, b), among others.

been sufficiently highlighted yet: after several decades of steep and uninterrupted increase, the pace of growth in female labor force participation substantially slowed down in the 2000s. We believe this changing scenario should be placed high in the research agenda, jointly with the traditional inquiry on the causes of the long-run increase in female LFP.

Second, the paper delves into various alternative hypotheses on the contrast between the rapid growth in female labor force participation in the 1990s and the deceleration in the 2000s. Identifying causal relationships for complex socioeconomic variables in a large geographic region is extremely difficult. The evidence shown in this paper is not conclusive, and it admits alternative explanations. Our preferred interpretation of the existing body of evidence is that the fast economic growth experienced by the region in the 2000s was an important—although not the only—determinant of the deceleration in female LFP. Lower unemployment and higher earnings of other income earners in the household (mostly male partners), plus increased social assistance, may have reduced the pressing need to take low quality jobs for vulnerable women.

The rest of the paper is organized as follows. In section 2 we briefly describe the data and present the basic evidence of deceleration in female labor force participation in Latin America. In section 3 we estimate the contribution of changes in the distribution of different variables to the observed changes in female LFP based on decomposition exercises. In section 4 we argue that the hypothesis that the deceleration is the result of the female LFP approaching a ceiling is not very plausible. Then, we turn in section 5 to our preferred hypothesis that links the deceleration to the fast economic growth experienced by the region in the 2000s. Section 6 deepens into that argument by exploring the movements of female LFP along the business cycle. Section 7 closes with some concluding remarks.

2. The deceleration in female LFP

There are two main types of data sources that are useful to study labor force participation: household surveys and censuses. This paper is based on the former, given that survey data allows a closer monitoring of the developments in the labor market, as information is collected on a yearly basis and not every ten years as in censuses.[4] In particular, our evidence is obtained by processing microdata from a large database of national household surveys: the Socioeconomic Database for Latin America and the

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[4] For a methodological discussion of this and other topics see our companion book (Gasparini and Marchionni, 2015).

Caribbean (SEDLAC), a project jointly developed by CEDLAS at the Universidad Nacional de La Plata and the World Bank's LAC poverty group (LCSPP). We focus the analysis on unweighted averages across all Latin American countries, and restrict the sample to people aged 25 to 54 years old.[5] The study covers the period 1992-2012. That period is naturally divided into two decades: 1992-2002 and 2002-2012. Certainly, the division is arbitrary, but it captures changes in some fundamental socioeconomic variables: in contrast to the previous decade, in the early 2000s most Latin American economies entered a phase of strong economic growth with falling poverty and inequality, while their governments intensified social and labor policies. For simplicity, we label the period 1992-2002 as 'the 1990s' and the period 2002-2012 as 'the 2000s.'

The strong increase in female LFP is arguably one of the central stylized facts that describes the dynamics of the Latin American labor markets in the second half of the twentieth century (Chioda and Demombynes, 2010; Chioda, 2011). We find that while the process of increasing female labor force participation continued at high speed in the 1990s, it substantially lost pace in the 2000s (Figure 1). While female LFP rose at a rate of 0.9 percentage points per year between 1992 and 2002, that rate went down to 0.3 percentage points in the following decade. The LFP of prime-age males remained above 95%, with no significant changes over the period.

The deceleration in female LFP has taken place in all groups, but it is particularly noticeable among married and vulnerable women, *i.e.* women with low levels of education, living in rural areas, with children and married to low-earnings partners (Figure 2). For example, while in the 1990s LFP increased 0.8 points a year for women with low education (without a high school degree) and 0.24 points for those with tertiary education, in the 2000s the rates were 0.17 and 0.13 points a year, respectively. The contrast between decades is also noticeable across quintiles of the spouses' income distribution (fourth panel in Figure 2). In fact, for women in the first quintile LFP grew by 14 percentage points in the 1990s but only 1 percentage point in the following decade, while the difference between decades was less marked—but still noticeable—for women from quintile 5, whose LFP grew 10 and 2 percentage points in the 1990s and 2000s, respectively.

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[5] To process microdata within each country we weight the data using the sample weights that correspond to each national survey. However, when we compute averages across countries we do not use population weights, in order to avoid that the assessment of the phenomenon under study is strongly affected by highly-populated countries, such as Brazil and Mexico, while almost ignoring the situation in other less-populated nations. Table A1 in the Appendix summarizes information about the national surveys used in this study. For more details on the data, see SEDLAC (2015).

Figure 1: Female and male labor force participation
Latin America, 1992-2012.
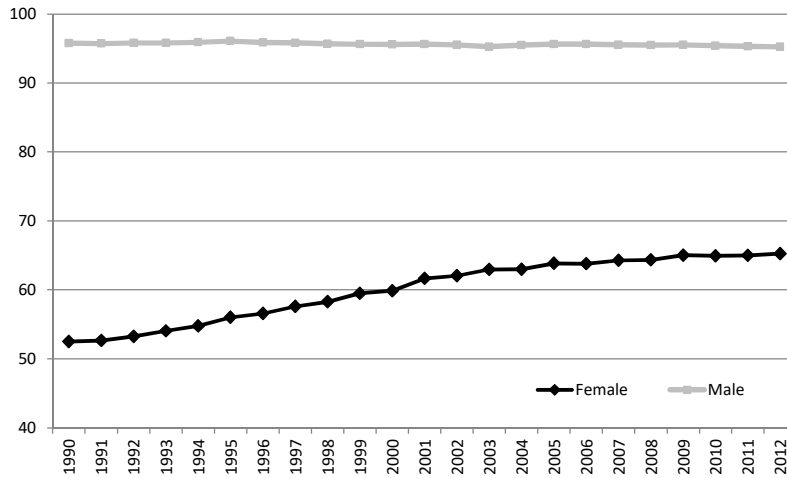
Source: own calculations based on microdata from national household surveys.
Note: adults aged 25-54. Unweighted means for Latin American countries.

Figure 2: Female labor force participation by group
Latin America, 1992-2012.
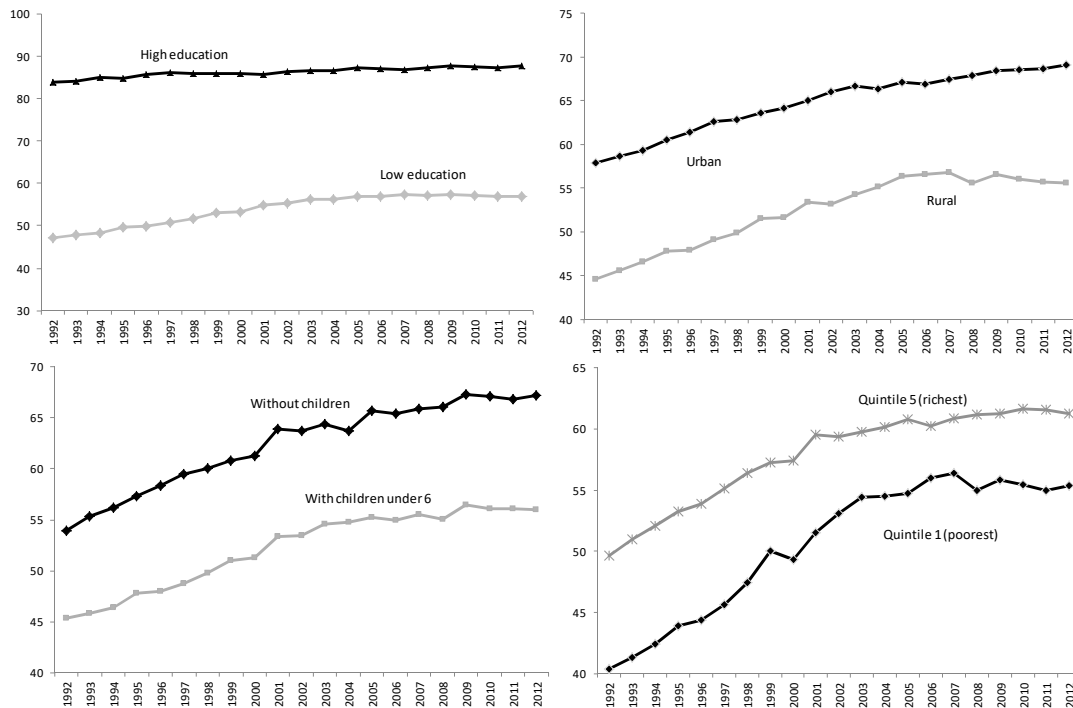
Source: own calculations based on microdata from national household surveys.
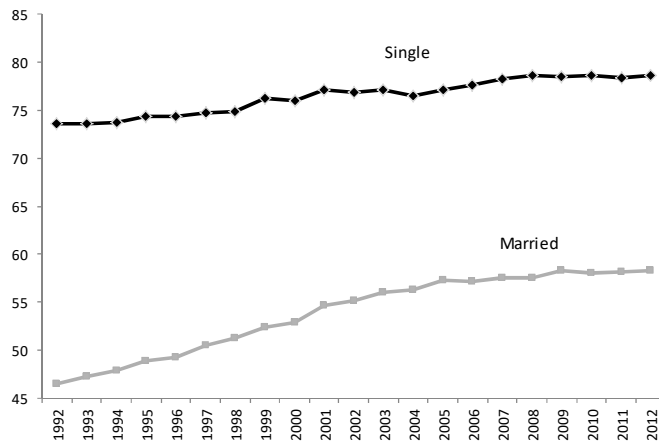Note: women aged 25-54. Unweighted means for Latin American countries. Education: low=less than secondary complete, high=tertiary complete. Quintiles of the spouses' income distribution (national quintiles of individual income).

Similarly to the developments in other regions of the world, in Latin America the increase in female LFP was specially marked among married women. LFP among single women was already high in the early 1990s and increased at lower rates. For both groups the rapid increase came to a halt in the early 2000s; that stop is particularly evident among the married, since it contrasts with the dramatic growth in the previous decade (Figure 3).

Figure 3: Female labor force participation by marital status
Latin America, 1992-2012

Source: own calculations based on microdata from national household surveys.
Note: women aged 25-54. Unweighted means for Latin American countries. Married: includes formal and consensual unions.

Regarding other labor variables, changes in hours of work for female workers were not large, not very different between decades, and not significantly different from those of men. Likewise, changes in unemployment seem to have been small and with no significant gender differences. These patterns reinforce the claim that the dynamics of labor force participation are among the most noticeable labor phenomena with a clear gender dimension over the last decades.[6]

In the following sections we carry out a preliminary examination of the factors that could be behind the deceleration in female LFP. We start with a typical within-between decomposition.

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[6] The dynamics of the *ninis* (neither working nor studying) phenomenon has also a clear gender dimension. The share of women *ninis* has dropped over the period of analysis while the share of men *ninis* increased marginally (de Hoyos et al., 2016). Even though the decreasing trend characterizes both decades, the share of female *ninis* decreased faster during the 1990s. For women aged 25-54, the share of *ninis* decreased at a rate of 0.9 percentage points per year in the 1990s, but only 0.5 percentage points per year in the 2000s, which is consistent with the deceleration in female LFP in the latter decade.

3. Decompositions

In order to assess the impact of changes in the distribution of some variables on the aggregate rate of female LFP we implement a decomposition in which the population of potential female workers is partitioned based on some covariate of labor participation, say educational levels. The change in the aggregate rate of female LFP over time could be decomposed into two terms: a weighted average of the changes in LFP within groups—the *within* effect—and a weighted average of the changes in the share of women in each group—the *composition* effect.[7] Analytically,

$$\Delta P_t = \underbrace{\sum_k \bar{w}_k \, \Delta P_k}_{Within} + \underbrace{\sum_k \bar{P}_k \, \Delta w_k}_{Composition}$$

where P is the overall rate of female labor force participation, P_k is the participation rate for group k and w_k is the fraction of women in group k; Δ stands for changes between time t and $t+1$, $\bar{w}_k = (w_{kt} + w_{kt+1})/2$ and $\bar{P}_k = (P_{kt} + P_{kt+1})/2$.

If changes in the distribution of the variable used to define the groups are the main drivers of changes in LFP, the second term will be relatively large. Consider the case of education. If more women have access to higher educational levels, which are linked to higher labor participation, then the process of education expansion could be the main driver of the global increase in female LFP. The results of the decomposition in the first panel of Table 1 help assessing this hypothesis. On average, female LFP increased 9.1 points in the 1990s. The within effect accounts for 6.6 points, meaning that if no changes in education had occurred in that decade female LFP would have nonetheless increased by that amount. The composition effect implies that if the propensity to participate in the labor market had not changed within groups over the decade, female LFP would have nonetheless increased 2.5 points due to a more educated composition of the female population.[8, 9]

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[7] See Elías and Ñopo (2010) and Amador *et al.* (2013), among others who implement this decomposition.

[8] A word of caution about the interpretation of these results. The decomposition suggests that for some autonomous reason there was an expansion in education in Latin America, and almost mechanically a more educated pool of women implied higher LFP. In this light the results of the decompositions indicate, for instance, that the policies that were successful in fostering labor participation in the 2000s were mainly the education policies that allowed the expansion of schooling in the previous decades. Of course, the real world could be more complicated. It could be for instance that in the past the government encouraged employment in a sector that requires skilled labor intensively, and that the increased demand stimulated women to get into high school or college to get a job in that

The results in Table 1 suggest that changes in education, marriage, fertility and location all favored a more intense labor market involvement of women.[10] Nowadays, women are more educated, have less children and are more likely to remain single than two decades ago. In this scenario, even with the same conditional propensity to participate in the labor market, the overall female LFP should increase. The contribution of these factors to the observed increase in female LFP in the 1990s was significant but not dominant; instead, the role played in the 2000s seems to have been decisive: without the changes in the structure of the female population—in particular, in terms of education—, the deceleration in the growth of female LFP in Latin America in the 2000s documented in the previous section would have probably been more marked.

Using similar decompositions Gasparini and Marchionni (2015) also find evidence that changes in the structure of employment toward more women-friendly tasks may have also contributed to increasing labor force participation. Instead, changes in the sectoral structure of the economy may have operated in direction of the observed deceleration in female LFP, although that impact was probably rather small, leaving the phenomenon of strong deceleration largely unexplained.

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sector. In this case it is the sector/employment policy what is triggering the reaction in the rest of the variables. In stressing the results of the decompositions we implicitly assume that these more complicated channels are of second order of importance, which at least for education, we believe it is not a strong assumption.

[9] Besides changes in the propensity to participate in the labor market, the within effect may be also driven by changes in the composition of groups in terms of unobserved characteristics, which may be playing a role on the differential patterns observed in the first versus the second period under analysis. Unfortunately, we cannot test this hypothesis with the available data, nor do we have anecdotal evidence of changes in this direction.

[10] Beccaria *et al*. (2015) find similar results for the case of Argentina.

Table 1: Decomposition of changes in female LFP
Latin America, 1992-2012.

	1992-2002	2002-2012	1992-2012
Education			
Difference	9.1	3.6	12.7
Effects			
Within	6.6	0.9	7.4
Composition	2.5	2.7	5.3
Age			
Difference	8.9	3.5	12.4
Effects			
Within	9.0	3.7	12.7
Composition	-0.1	-0.1	-0.3
Marital status			
Difference	8.5	4.3	11.2
Effects			
Within	8.1	3.5	9.7
Composition	0.4	0.8	1.5
Children			
Difference	10.0	3.7	13.7
Effects			
Within	9.5	3.0	12.6
Composition	0.5	0.7	1.1
Area			
Difference	7.7	3.9	11.6
Effects			
Within	7.2	3.8	10.9
Composition	0.5	0.1	0.7

Source: own calculations based on microdata from national household surveys.
Note: women aged 25-54. Unweighted means for Latin American countries.

Combining a meta-analysis with a multivariate regression framework based on a panel dataset of Latin American countries, Busso and Romero Fonseca (2015) study trends in factors that have been typically singled out as key determinants of female LFP, such as contraceptive methods, household appliances, telework and others, and find that changes in these factors could not account for the recent deceleration in female LFP.[11] They conclude that innovations or expansions in health, home and work technologies, and some cultural changes seem important to account for the long-run increase in female LFP in Latin America, but these factors cannot explain the recent deceleration. In fact, the deceleration took place despite the fact several of those factors continued operating.

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[11] See for instance Greenwood *et al.* (2005) for the role of home production, Albanesi and Olivetti (2009) for the effects of technological progress in health and nutrition, and Goldin and Katz (2002) for the impact of the contraceptive methods.

4. Approaching a ceiling?

As any share, the rate of labor force participation has a ceiling. Of course, the only 'hard' ceiling is 100%, but a host of reasons—frictions, cultural factors, individual preferences, and economic factors—usually make it unattainable. In fact, the rate for prime-age men seems to have reached a ceiling in Latin America, as in most regions of the world. The unweighted mean of the rate for males aged 25 to 54 across Latin American countries has been around 95.5% at least for the last two decades.

Despite the large increase over the last half century, female labor force participation rates are still far from those of men. The mean rate for prime-age women in Latin America is around 65%, still 30 points lower than that of their male counterparts. Yet, the evidence suggests that, unlike previous decades, in the last years this gap is shrinking very slowly, and that female LFP is even reaching a plateau in some economies of the region. One possible explanation for this deceleration is that female LFP is approaching a ceiling. This should be thought as a 'conditional' ceiling: female LFP will not trespass a certain level if some cultural and policy factors remain stable. In that sense, the women's ceiling is 'softer' than that of men, but still relevant, since only cultural transformations or strong policy interventions may substantially alter its level. If the interpretation of the recent deceleration as a nearby ceiling is correct, and no major cultural or policy changes occur, then we should expect female LFP in Latin America to reach a plateau, and the wide gap with men to persist in the future.

A plateau in female participation has emerged in the US since around the 1990s (Blau and Kahn, 2013; Goldin, 2014). Goldin (2006) reports that participation rates for women of almost all ages, education levels and marital statuses have leveled off in the US. The rate of LFP for women aged 25 to 54 slowly grew from 74.6% to 75.9% between 1992 and 2002, and descended to 74.5% by 2012. This fact has led many to wonder whether the economy has reached some sort of natural rate of female labor force participation. That situation may also apply to Latin America, although at a lower ceiling.

Interestingly, although a similar pattern to the US characterizes some Nordic economies (Denmark, Finland, and Iceland), the stagnation in female labor force participation is not a widespread phenomenon among the developed economies. In fact, the rate of female LFP in the richest 20 western economies grew at 0.6 points a year in the 1990s and at 0.5 points a year in the following decade (from 70% in 1992 to 75.9% in 2002, to 80.4% in 2012). Although there are some mild signs of deceleration, female labor force participation still continue growing at healthy rates in most developed economies.

Figure 4 shows the rates of female labor force participation for women aged 25 to 54 for groups of developed OECD countries. The plateau is only visible for the US, at a level 10 points higher than the Latin American average rate.[12] The comparison with Japan and Korea is interesting: the gap in female LFP with Latin America tended to vanish over the 1990s, but grew again in the 2000s given the deceleration in Latin America and the stable rates of growth in the two Asian countries.

Figure 4: Female labor force participation
Regions of the world, 1992-2012
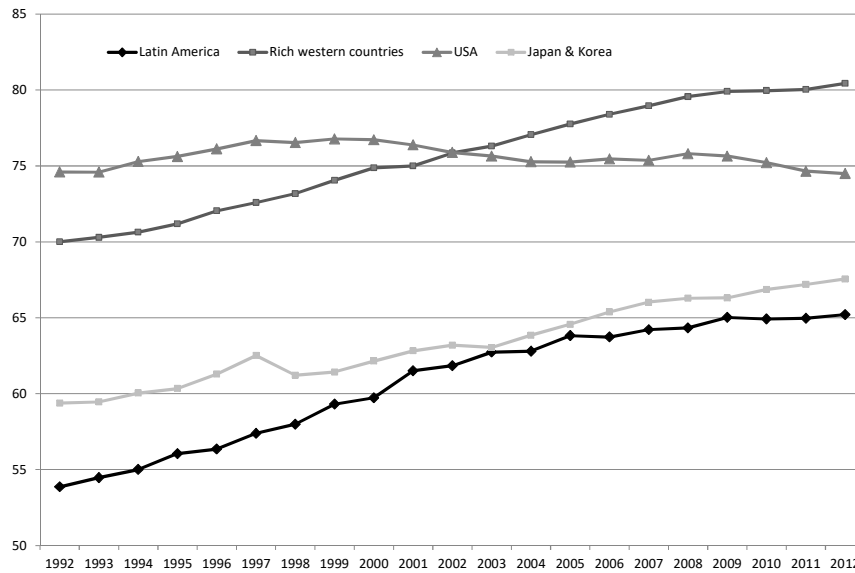
Source: OECD Online Employment Database and own calculations for Latin America http://www.oecd.org/els/emp/onlineoecdemploymentdatabase.htm#unr.
Note: women aged 25-54. Latin America and rich western countries: unweighted means.

Data from the World Development Indicators reveal that there are signs of stagnant—or even decreasing in some cases—female labor force participation in some East and South Asian countries, but not in Africa, Middle East, Eastern Europe and Central Asia, where rates were similar or even higher in the 2000s than in previous decades. A similar assessment emerges from the EAPEP Database (ILO, 2011). Data from that source suggests that rates of female LFP in Central America are among the lowest in the world; in fact, they only exceed the rates of the Islamic countries of Northern Africa and Middle East, for which the inclusion of women in the labor market is limited, due mostly to cultural reasons. On average, the participation of South American women is higher than in some areas of

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[12] The stagnation in the US has been linked to weaker 'family-friendly' policies, including parental leave and part-time work entitlements (Blau and Kahn, 2013).

Africa and South Asia, but lower than in Europe, Eastern Asia, and most of the non-Muslim Africa.

Unfortunately, it is impossible to tell whether the recent deceleration in female LFP in Latin America is the natural pattern of convergence to a nearby ceiling. However, although we could not rule out this possibility, we consider it as unlikely because of several reasons. First, with a few exceptions, developed countries and several developing countries have female LFP rates well above those in Latin America and still increasing, so it is difficult to believe that the natural rate in Latin America will rest at levels substantially lower than in most of the world. If Latin America were indeed reaching a ceiling, the permanent gap with more developed countries, and even with other developing countries, would be large, growing, and not easy to explain. For instance, even though Spain and Portugal are culturally very close to Latin America, their female LFP rates (81.1% and 85.5%, respectively) are much higher than those in the region.[13]

A second argument against the existence of a nearby ceiling is that the deceleration occurred in most Latin American countries, regardless of the initial level of female LFP. We would expect that only countries with already relatively high levels of LFP experience a reduction in the rate of growth starting a pattern of convergence to a long-run level. However, as Figure 5 documents, the deceleration took place also in countries with a relatively low rate of female LFP, and hence, in principle, with a longer way to go toward the equilibrium long-run level.

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[13] Using information drawn from the World Values Survey, Inglehart and Norris (2003) find that Latin American countries, Spain and Portugal are in the same region of the "cultural map of the world", based on the survival/self-expression dimension which includes a wide range of beliefs and values. Interestingly for our study, they find that "these values are strongly correlated with attitudes toward the role of women". Inglehart and Baker (2000) reach a similar conclusion.

Figure 5: Female labor force participation rate
Latin American countries, 1992-2012.
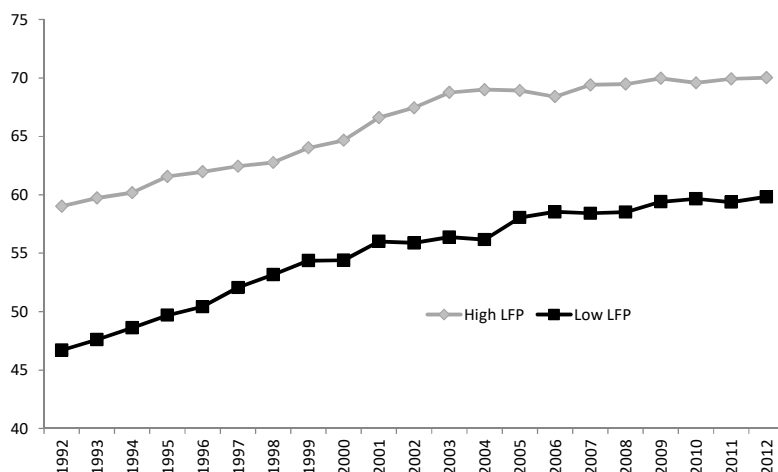
Source: own calculations based microdata from national household surveys.
Note: Women aged 25-54. Unweighted means by group of countries. High: countries with female LFP above the median (average 1992-1995). Low: countries with female LFP below the median (average 1992-1995).

Finally, a third argument against the ceiling hypothesis stresses the fact that in most Latin American countries the leveling off pattern is more noticeable among vulnerable women, who are still far from the participation levels of their more educated richer counterparts, and then presumably far from a ceiling.

5. Participation and economic growth

We have documented the contrast between the last two decades in terms of female labor force participation. The contrast also applies to other economic variables, a fact that hinders the search for causal relationships. In this section we focus on economic growth since female labor participation is particularly sensitive to the macroeconomic environment. Changes in economic conditions affect female LFP directly, but also indirectly through a strong interdependence with the employment status of other household members, particularly male spouses.

The (unweighted) mean value of per capita GDP in Latin America grew at 2.8% annually in the 1990s; the rate almost duplicated in the 2000s (5.7%). In particular, the economies in the region grew at the very fast rate of 8% between 2003 and 2008. The 2000s were not only a decade of higher growth but also more macroeconomic stability with more stable growth rates, low inflation and absence of big crises, which were endemic to Latin America in the previous decades.

Figure 6 illustrates the fact that the deceleration in female LFP occurred in coincidence with a strong rise in GDP growth rates.[14] Besides this temporal correlation, there are arguments to link the two patterns. The strong economic growth that experienced the region in the 2000s allowed a surge in incomes that may have retarded the entry of women into the labor market. Without a more pressing need to look for a job, and given the higher earnings of their spouses or the cash transfers of new social programs, some women may have delayed their decision to participate in the labor market.

Figure 6: Female LFP and per capita GDP
Latin America, 1992-2012.
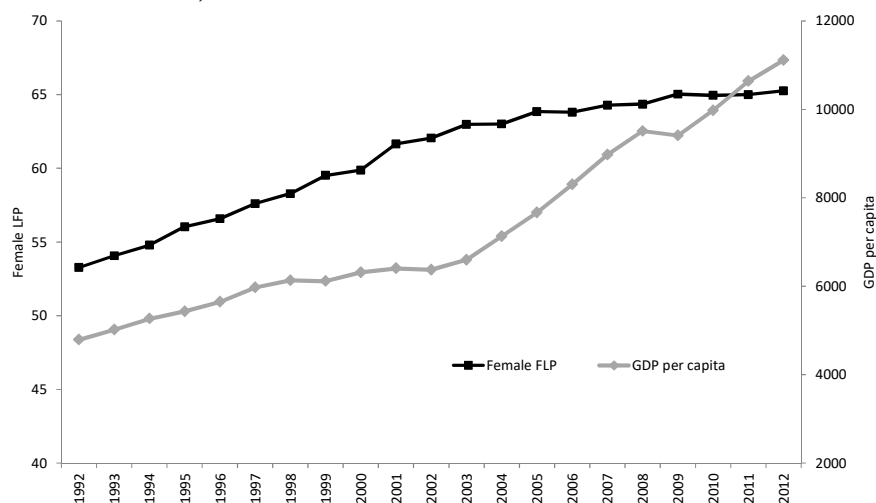
Source: own calculations based on microdata from national household surveys. GDP per capita (in PPP adjusted US$) from WDI.
Note: Women aged 25-54. Unweighted means for Latin American countries.

The argument could be viewed as a variant of the added-worker effect.[15] This effect is typically invoked to account for the increase in female LFP during recessions. As the main breadwinner becomes unemployed or faces a wage cut, secondary workers—typically female spouses—enter the workforce to compensate for the reduced household income, implying a counter-cyclical pattern of female LFP.

Conversely, during a strong expansion, as the male breadwinner improves his job conditions, and household real income increases, female spouses may be less willing to join the workforce. In many cases, it is likely that the adjustment in female behavior does not imply the extreme change of leaving a job, but rather it could imply retarding the entry into the labor market.

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[14] The linear correlation coefficient between changes in female LFP and per capita GDP is -0.50 and statistically significant.
[15] See Katz (1961), Mincer (1962), Lundberg (1985), Maloney (1991) and Mattingly and Smith (2010).

With a more favorable economic environment in their households, women may not be compelled to accept any type of job, and instead they may wait longer for better job matches, or may delay their labor market participation a few years in order to spend more time with their children or older adults requiring care.

The argument views the family as a decision making unit and assumes that some women are secondary workers with a less permanent attachment to the labor market than their partners, a situation that is more frequent among less skilled women in the region. Under this framework, a married woman may choose to postpone her entry into the labor market taking advantage of the income gain of her husband. Since individual incomes are pooled within the family, an increase in one individual's income may result in other family members gaining time to spend in other activities—*e.g.* taking care of the children—by working less in the labor market. Of course, for a counter-cyclical pattern to emerge, this income effect must outweigh the substitution effect: in a better economic scenario workers—both men and women—face better opportunities and as the earning power increases they may be more attracted to the labor market.[16]

There is evidence on the added-worker effect in some Latin American countries. For instance, for Argentina, Cerruti (2000) finds that female LFP increased during the nineties as a response to increasing instability and unemployment among male primary earners. Also for the case of Argentina, Paz (2009) finds a sizeable impact of the labor status of husbands (employed or unemployed) on the probability of their spouses to enter the workforce, mostly as informal workers. Fernandes and Felício (2005) and Parker and Skoufias (2004) find similar results for Brazil and Mexico, respectively.

It is important to notice that this channel is likely to be more relevant for women in vulnerable households. Unskilled poor women with children are more likely to act as secondary workers, having more sporadic and loose links with the labor market, and hence their labor behavior is more sensitive to the economic conditions. In addition, these are the women whose households benefited more from the improved economic scenario of the 2000s through three channels: a reduction in unemployment, a relative larger increase in labor income and an increase in non-labor incomes.

Figure 7 illustrates the first factor by showing unemployment rates for prime-age men, *i.e.* those who are likely the husbands of prime-age women.

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[16] Of course, for a counter-cyclical pattern to show in the data, the income effect must also outweigh the effect of other driving factors of LFP that could be positively correlated with economic growth. For instance, a large literature finds that the fast increase in female LFP in Western Europe and the US after World War II was mainly due to several technological and cultural changes which were much stronger than the (negative) added-worker effect coming from the post-war high economic growth rates (Fernández, 2013; Goldin, 2014; Greenwood *et al.*, 2005; Olivetti, 2013).

While unemployment rates did not change much for skilled men, they plunged for the unskilled during the 2000s. On average, the unemployment rate descended from 6.5% in 2002 to 3.5% in 2012. If female labor participation decisions are sensitive to the unemployment situation of the male spouse, Figure 7 suggests a potentially relevant added-worker effect, particularly among unskilled women who are typically married to unskilled men. [17]

Figure 7: Unemployment rates for men
Latin America, 1992-2012.
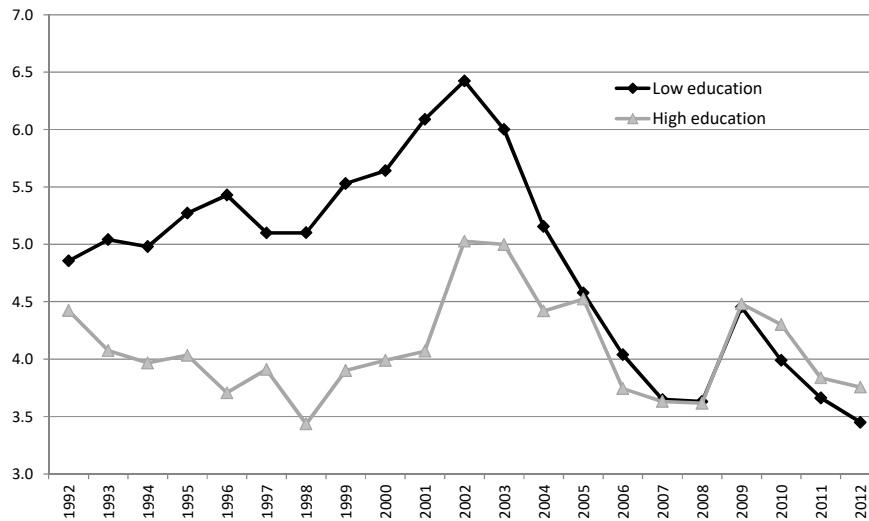
Source: own calculations based on microdata from national household surveys.
Note: Men aged 25-54. Education: low=less than secondary complete, high=tertiary complete. Unweighted means for Latin American countries.

Regarding the second channel, the economic expansion of the 2000s implied a generalized increase in real earnings. Interestingly, this increase was more intense among the unskilled. Figure 8 shows that the hourly wage gap between skilled and unskilled prime-age male workers substantially decreased in the 2000s. This fact suggests that not only did household incomes increase for women in more vulnerable households, but also that the increase was higher than for the non-poor, a fact that once again suggests a stronger added-worker effect for vulnerable women.

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[17] On the presence of positive assortative mating in Latin America see for instance Ganguli *et al.* (2014) and Torche (2010).

Figure 8: Hourly wage gap between men with high and low education
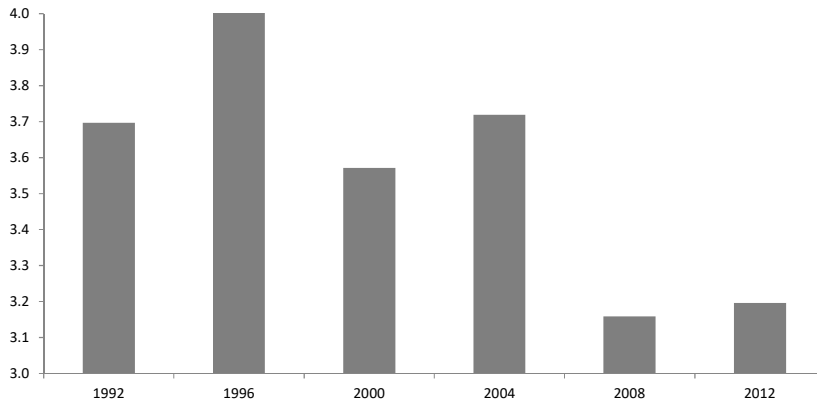Latin America, 1992-2012.

Source: own calculations based on microdata from national household surveys.
Note: Men aged 25-54. Education: low=less than secondary complete, high=tertiary complete. Unweighted means for Latin American countries.

In addition to the improvements in the labor market, cash transfers from new poverty-alleviation programs were other significant source of increased income for the vulnerable households, and hence constitute another channel to the added-worker argument discussed above. Vulnerable households greatly benefitted from the sizeable increase in the social protection systems that took place in all Latin American countries in the 2000s.

The strong economic growth of the 2000s brought about an improvement in the fiscal situation that in turn allowed a substantial expansion in social spending. In particular, since the implementation of *Progresa* in Mexico and *Bolsa Escola* in Brazil, conditional cash transfers programs (CCTs) have continued to expand in the region (Figure 9). CCTs are programs that consist of cash transfers to poor households, conditional on households making certain investments on their children's human capital—education, health and nutrition. The benefits of these programs are largely targeted on the poor. Cruces and Gasparini (2012) estimate that on average 78% of the transfers of these programs accrue to the bottom two quintiles of the income distribution. In a sample of 7 Latin American countries in 2014, the average share of the main CCT on the household total income of participants was 33% for households in the bottom quintile of the income distribution.[18] CCTs have been identified as an important factor driving the increase in household real income in more vulnerable household, and hence a significant determinant of the observed fall in income poverty and inequality in the region during the 2000s. Although they are typically the main pillar of the social protection system for the poor, CCTs are not the

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[18] Own calculations based on national household surveys of Argentina, Bolivia, Ecuador, Peru, Mexico, Panama and Uruguay.

only policy instrument toward the most disadvantaged. Non-contributory pensions, for instance, have increasingly expanded in the region during the 2000s, adding another source of income for vulnerable households (Bando *et al.*, 2016).

Figure 9: Coverage of CCT programs (% of total population)
Latin America, 1992-2012.
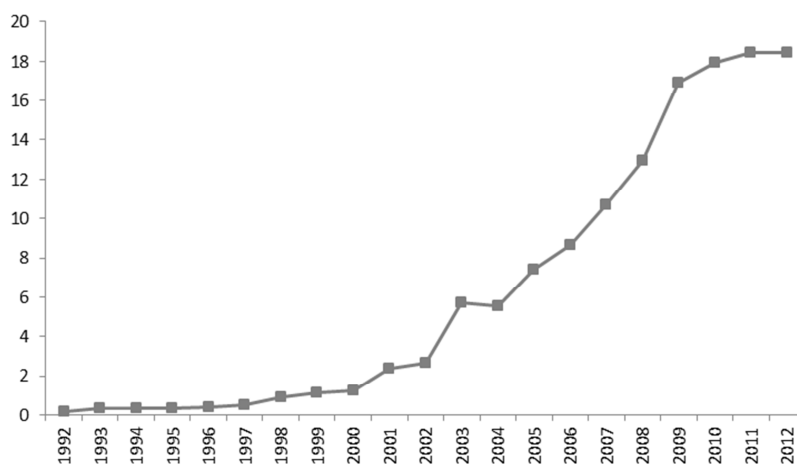
Source: own calculations based on the non-contributory social protection programs database, Social Development Division, ECLAC.
Note: Unweighted means for Latin American countries.

The expansion of CCT programs in Latin America was accompanied by a profusion of impact evaluations. Regarding the effect on female labor supply, they mostly find negative but small effects. For instance, for Mexico's *Progresa* program there are no statistically significant effects on women's labor force participation and hours worked (Alzúa et al., 2012; Parker and Skoufias, 2000; Skoufias and di Maro, 2006). Nor are there any significant effects on the labor participation of women in the Nicaragua's *Red de Protección Social* (Maluccio and Flores, 2005). However, more recent evaluations do find negative effects on female labor supply: Novella *et al.* (2012) for Honduras, Fernández and Saldarriaga (2014) for Peru, and Gasparini *et al.* (2015) for Argentina. As Busso and Romero Fonseca (2015) conclude from their meta-analysis, it is likely that the expansion of CCTs in Latin America did not cause a decrease in female LFP when some of the programs were launched, but the subsequent expansion seems to have contributed to halt the positive trend in female labor supply in recent years.

In sum, through several channels the strong economic expansion that Latin America experienced in the 2000s had a more intense positive impact on the incomes of vulnerable households, which are precisely those where women are more prone to alter their labor force participation decisions based on the

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family economic perspectives. It follows from this argument that we should observe a stronger deceleration in LFP for married, unskilled, more vulnerable women, a fact that is consistent with the evidence discussed in section 2.

Of course, this is far from a conclusive piece of evidence supporting the added-worker effect, but it suggests that this factor may have played a relevant role in the recent deceleration of female LFP. The next section elaborates more on this issue by exploring labor force participation along the economic cycle in a regression framework.

6. Participation and the economic cycle[19]

In this section we explore the movements of labor force participation over the business cycle within a simple econometric framework. In particular, we build a panel of countries from 1992 to 2012 and run fixed-effect regressions of female LFP and other labor variables.[20] As right-hand-side variables we include the log of real per capita GDP (adjusted for PPP) taken from WDI, and   alternatively a decomposition of GDP into two terms: a cyclical and a trend component. To divide GDP into components we use the Hodrick–Prescott filter.[21]

The results from the regressions suggest that female labor supply is associated to the economic changes, and that this link is much stronger than for men (Table 2). In particular, there is a highly significant effect of both the trend and the cyclical component on female LFP, although with different signs (second column in Table 2). The trend component of growth is associated to an increase in female LFP: a 10% long-run expansion in GDP is associated to a 2.45-percentage-point increase in female labor supply on average. Instead, the short-term movements are countercyclical: a 10% short-run expansion in GDP is associated to a fall in female labor supply of about 2.39 percentage points.[22] This piece of evidence seems to support the

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[19] We are very grateful to Pablo Gluzmann for his active participation in this section.
[20] The panel includes information for 17 Latin American countries over the period 1992-2012. The specific countries and years are the following: Bolivia (1993,1997, 1999-2002, 2005, 2007-2009, 2011), Brazil (1992, 1993, 1995-1999, 2001-2009, 2011, 2012), Chile (1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009, 2011), Colombia (2001-2005, 2008-2012), Costa Rica (1992-2012), Dominican Republic (1996, 1997, 2000-2012), Ecuador (1994, 1995, 1998, 1999, 2003-2012), El Salvador (1995, 1996, 1998-2012), Guatemala (2000, 2006, 2011), Honduras (1992-1998, 2001-2011), Mexico (1992, 1994, 1996, 1998, 2000, 2002, 2004-2006, 2008, 2010, 2012), Nicaragua (1993, 1998, 2001, 2005, 2009), Panama (1995, 1997-2012), Paraguay (1997, 1999, 2001-2011), Peru (1997-2012), Uruguay (1992, 1995-1998, 2000-2012), and Venezuela (1992, 1995, 1997-2011).
[21] See Hodrick and Prescott (1997).
[22] Employment is also related to the GDP growth, both for men and women. The trend component is particularly strong for women; instead, the cyclical component is not

hypothesis of the recent deceleration driven by the exceptional growth rates of the 2000s.[23]

As a consequence of the aforementioned results, the men-women gender gap in labor force participation has a negative relationship with the trend in GDP, but a positive relationship with the cyclical component (sixth column in Table 2). Along the development process, female labor force participation increases, cutting down the gender gap. However, short-term expansions are associated to a reduction in the entry of women into the workforce, and hence a widening of the gender gap, possibly due to the reasons discussed in the previous section.

Table 2: Models of labor force participation
Latin American countries, panel 1992-2012.

	Female		Male		Relative (male/female)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log per capita GDP	20.8		-1.3		-0.663	
	(12.93)***		(2.07)**		(10.80)***	
Cyclical component		-23.9		1.6		0.747
		(4.04)***		(1.07)		(4.32)***
Trend component		24.5		-1.5		-0.78
		(16.23)***		(2.29)**		(12.79)***
Constant	-127.8	-161.4	107.0	109.1	7.628	8.689
	(8.73)***	(11.76)***	(18.98)***	(18.03)***	(13.64)***	(15.66)***
Observations	235	235	235	235	235	235
R-squared	0.89	0.91	0.72	0.73	0.83	0.86

Notes: Country fixed effects estimations based on an unbalanced panel of 17 countries (see footnote 20 for more details). Labor force participation as percentage of adults (women or men) aged 25-54. Robust t statistics in parentheses. *significant at 10%; ** significant at 5%; *** significant at 1%.

In Table 3 we divide the analysis by education into three groups: (1) women without a secondary degree, (2) those with a high school degree but without a college degree, and (3) those with a degree from a tertiary institution. Interestingly, the negative cyclical component is larger and highly significant for those women with less years of formal education (less than complete secondary school), and smaller for the rest. This difference is consistent with the story discussed in the previous section, where less skilled and more vulnerable women are those more prone to react to economic fluctuations. In particular, the sudden and strong expansion of the Latin American economies in the 2000s may have been associated to a larger deceleration in the labor supply for this group of women.

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significant. Unemployment increases when GDP falls; both the trend and the cyclical components are significant for both genders.

[23] Consistent with these findings, Busso and Romero Fonseca (2015) conclude from a meta-analysis that the effects of changes on macroeconomic conditions on female labor supply are likely explanations of its cyclical changes.

Table 3: Models of labor force participation by education group
Latin American countries, panel 1992-2012.

A. Less than secondary school

	Female		Male		Relative (male/female)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log per capita GDP	17.7		-2.1		-1.036	
	(10.38)***		(3.18)***		(10.13)***	
Cyclical component		-25.6		2.3		1.009
		(3.91)***		(1.37)		(3.56)***
Trend component		21.2		-2.4		-1.206
		(13.33)***		(3.51)***		(11.89)***
Constant	-106.3	-138.9	114.0	117.3	11.363	12.901
	(6.86)***	(9.59)***	(19.21)***	(18.58)***	(12.20)***	(13.97)***
Observations	235	235	235	235	235	235
R-squared	0.91	0.93	0.76	0.77	0.85	0.88

B. Complete secondary school or incomplete college

	Female		Male		Relative (male/female)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log per capita GDP	8.9		-0.6		-0.251	
	(4.80)***		(0.86)		(1.74)*	
Cyclical component		-13.9		-0.5		0.032
		(2.17)**		(0.25)		(0.05)
Trend component		10.8		-0.7		-0.274
		(5.56)***		(0.80)		(1.71)*
Constant	-11.5	-28.6	100.8	100.9	3.25	3.463
	(0.69)	(1.63)	(14.73)***	(13.40)***	(2.46)**	(2.35)**
Observations	235	235	235	235	235	235
R-squared	0.82	0.83	0.69	0.69	0.81	0.81

C. Complete college

	Female		Male		Relative (male/female)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log per capita GDP	7.1		0.2		-0.354	
	(4.45)***		(0.28)		(6.83)***	
Cyclical component		-9.0		2.0		0.425
		(2.48)**		(1.05)		(3.17)***
Trend component		8.4		0.1		-0.419
		(4.68)***		(0.09)		(7.78)***
Constant	22.1	10.1	95.0	96.4	4.726	5.312
	(1.53)	(0.62)	(13.04)***	(12.11)***	(10.00)***	(10.84)***
Observations	235	235	235	235	235	235
R-squared	0.74	0.75	0.46	0.46	0.82	0.84

Notes: Country fixed effects estimations based on an unbalanced panel of 17 countries (see footnote 20 for more details). Labor force participation as percentage of adults (women or men) aged 25-54. Robust t statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

7. Concluding remarks

In this paper we present evidence for a significant deceleration in female LFP in the 2000s, breaking the marked increasing pattern that characterized the region for at least 50 years. Disentangling all the factors that may account for this pattern is not an easy task, since several potential driving factors were simultaneously at play during the period of study. Endogeneity issues and lack of data are among the serious obstacles for the empirical identification of the causal links between female participation and its covariates. Since a comprehensive general equilibrium assessment of all the driving factors is not feasible, this paper takes a more modest approach: we deploy several empirical strategies aimed at contributing with pieces of evidence to assess the relevance of different plausible factors behind the observed patterns in female labor supply. Although certainly imperfect and incomplete, we expect that this patchwork of evidence will shed some light on the processes that have shaped female LFP in Latin America.

We first analyze whether the patterns in female LFP are mainly accounted for by changes in the distribution of some direct determinants of the labor supply decision, or instead they are chiefly the consequence of some more profound transformation in behavior. The results of the decompositions suggest that changes in education, marriage, fertility and location—*i.e.* the composition effect—all favored a more intense labor market involvement of women. Without the observed educational and demographic changes in the female population, the deceleration in the growth of female LFP in Latin America in the 2000s would have been even more marked.

There are several potential causes of the deceleration in the within component of the growth in female LFP. A possible cause of the slowdown in the growth rate of female LFP may be that participation levels are reaching a ceiling or a natural rate that is mainly determined by cultural factors. We argue in this paper that this possibility is unlikely, although certainly not implausible. The deceleration in female labor force participation could be instead just a transient phenomenon. The strong economic growth that experienced the region in the 2000s may have allowed a surge in earnings and social protection benefits that retarded the entry of women into the labor market. In fact, the evidence suggests that on average those that did decide to participate found more decent jobs than in the past. In that light, the deceleration in LFP may not be interpreted as a setback, since it would be the optimal response to a positive economic scenario. If the Latin American economies continue growing, the availability of decent jobs rises, and female's education keeps expanding, female labor force participation is likely to resume its pace of growth in the near future.

However, an alternative interpretation leads to more worrisome conclusions. The initial short-term impact of improved economic conditions and more generous social programs on female labor supply may have undesirable long-term consequences. Women who prefer to stay out of the labor market given the new economic situation may be less prone to participate in the future, even in a scenario of greater supply of decent jobs. Being out of the labor market for some time may imply loss of productivity, and it may also reinforce traditional gender roles in the household. These factors may cause a reduction in attachment to the labor force for women and, ultimately, reduce possibilities for autonomous income generation in the longer term, and hence may significantly dampen the perspectives for poverty and inequality reduction.[24]

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[24] In Gasparini and Marchionni (2015) we project poverty and inequality trends in the region under two alternative scenarios regarding LFP. We conclude that if the observed deceleration of female LFP in the 2000s is the beginning of a stage of low or even null growth in female labor supply, then the contribution of female LFP to the poverty and inequality reduction in the region would be negligible. This almost null effect contrasts with a significant, although small, poverty/inequality-reduction effect that would occur if the growth in female LFP observed in the 1990s and in most of the twentieth century resumed.

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Appendix

Table A1: National household surveys used in this study
Latin America, 1992-2012.

	Name of survey	Acronym	Surveys used
Argentina	Encuesta Permanente de Hogares	EPH	1992-2003
	Encuesta Permanente de Hogares Continua	EPH-C	2003-2012
Bolivia	Encuesta Integrada de Hogares	EIH	1992, 1993
	Encuesta Nacional de Empleo	ENE	1997
	Encuesta Contínua de Hogares	ECH	1999, 2000
	Encuesta de Hogares	EH	2001, 2002, 2005, 2007-2009, 2011, 2012
Brazil	Pesquisa Nacional por Amostra de Domicilios	PNAD	1992, 1993, 1995-1999, 2001-2009, 2011, 2012
Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN	1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009, 2011
Colombia	Encuesta Continua de Hogares	ECH	2001-2005
	Gran Encuesta Integrada de Hogares	GEIH	2008-2012
Costa Rica	Encuesta de Hogares de Propósitos Múltiples	EHPM	1992-2009
	Encuesta nacional de hogares	ENAHO	2010, 2012
Dominican R.	Encuesta Nacional de Fuerza de Trabajo	ENFT	2011
Ecuador	Encuesta de Condiciones de Vida	ECV	1994, 1995, 1998, 1999,
	Encuesta Nacional de Empleo, Desempleo y Subempleo	ENEMDU	2003-2012
El Salvador	Encuesta de Hogares de Propósitos Múltiples	EHPM	1995, 1996, 1998-2012
Guatemala	Encuesta Nacional sobre Condiciones de Vida	ENCOVI	2011
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples	EPHPM	1992-1999, 2001-2011
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	1992, 1994, 1996, 1998, 2000, 2002, 2004-2006, 2008, 2010, 2012
Nicaragua	Encuesta Nacional de Hogares sobre Medición de Nivel de Vida	EMNV	1993, 1998, 2001, 2005, 2009
Panama	Encuesta de Hogares	EH	1995, 1997-2012
Paraguay	Encuesta Integrada de Hogares	EIH	1997, 2001
	Encuesta Permanente de Hogares	EPH	1999, 2002-2011
Peru	Encuesta Nacional de Hogares	ENAHO	1997-2012
Uruguay	Encuesta Continua de Hogares	ECH	1992, 1995-1998, 2000-2012
Venezuela	Encuesta de Hogares Por Muestreo	EHM	1992, 1995, 1997-2012

Source: own elaboration.