



All the contents of this journal, except where otherwise noted, is licensed under a Creative Commons Attribution License

Exploring cross-country heterogeneity in the relation between female labor force participation and fertility in Latin America

Angelita Alves de Carvalho*
Daniela Polessa de Paula**

In Latin America, despite an apparent convergence on the relation between female labor force participation (FLFP) and total fertility rates (TFR), there are differences between and within countries that must be considered. This paper aimed to understand the heterogeneity in the relation between the FLFP rate and the TFR in Latin American from 1990 to 2018 in order to identify cross-country patterns. Using World Bank data for the 20 countries in Latin America, clustering longitudinal data was performed, and mixed-effect models were fitted to quantify the heterogeneity. Three patterns of relationship were observed in Latin American countries: low TFR and intermediate FLFP, high TFR and high FLFP, and high TFR and low FLFP. The heterogeneity identified suggests the diversity of socio-economic and cultural factors influences the dynamics of the relation between FLFP and TFR in Latin America.

Keywords: Fertility. Female employment. Heterogeneity. Latin America.

* Escola Nacional de Ciências Estatísticas, Instituto Brasileiro de Geografia e Estatística (ENCE/IBGE), Rio de Janeiro-RJ, Brazil (litaacarvalho@yahoo.com.br; <https://orcid.org/0000-0002-9342-4181>).

** Escola Nacional de Ciências Estatísticas, Instituto Brasileiro de Geografia e Estatística (ENCE/IBGE), Rio de Janeiro-RJ, Brazil (danielapaula@gmail.com; <https://orcid.org/0000-0002-0576-7361>).

Introduction

As is the case in several developed countries, Latin American women are increasingly entering the labor market; whereas the Female Labor Force Participation rate (FLFP) reached less than 40% in 1990, it was close to 55% in 2014 (GASPARINE *et al.*, 2015; NOVTA; WONG, 2017). Female insertion has occurred unevenly and has taken place especially in certain sectors and occupations, which, for the most part, involves lower incomes, worse working conditions and lower social prestige. Traditionally, there is female predominance in self-employment occupations, trade in goods, domestic employment, service provision and civil services (ABRAMO; VALENZUELA, 2005).

Recently, Gasparine and Marchionni (2017) and Serrano *et al.* (2019) have emphasized the process of decelerating female insertion at work in Latin America. The slowdown seems to have initiated in the early 2000s, manifesting across diverse cohorts of women, notably pronounced among married women and those residing in socioeconomically vulnerable conditions.

The authors have delineated that economic cycles, characterized by abrupt and rapid upswings in economic growth during the 2000s, coupled with diminished unemployment rates and augmented earnings for male partners, alongside an escalation in social protection measures, may have mitigated the imperative for women in precarious circumstances to engage in low-quality employment. These factors are posited as potential contributors to the observed deceleration in female labor supply within the region. The favorable economic conditions in the country are discouraging female labor force participation due to effects on fertility, marriage, and income. Nevertheless, a shift is observed as Latin American women increasingly adopt the identity of working women, empowered by emancipative values and education. This evolving self-perception, coupled with a reduction in social constraints, has become a crucial motivator for women to enter the labor market in the Latin American region (CARRILES ÁLVAREZ *et al.*, 2019).

This differentiated inclusion of women in the labor market stems from their reproductive choices, which have also undergone changes. The Total Fertility Rate (TFR) has been steadily decreasing in recent decades for all Latin American countries, from approximately 3 children per woman in 1990 to close to the replacement level in 2012. However, there are still important regional differences, condensing into basically 3 groups of countries: those that have TFR below the replacement level (the majority), those with TRF close to the replacement level and a minority with TFR still close to 3 children per woman on average (SAAD, 2011). However, more recent studies have indicated a certain pattern of convergence in fertility levels among countries in the region, with a few exceptions (VILLARRAGA, 2018; BRENES-CAMACHO, 2018; SACCO; BORGES, 2018).

It is therefore clear that there is a link between female insertion in the labor market and fertility. Understanding the direction of this effect and its changes over time has been the objective of several demographic studies. This is because the relation between women's employment and having children is likely to be bidirectional. Another way of

understanding this relation involves data analysis, which can be women-focused (micro) or country-focused (macro) analyses. Bongaarts *et al.* (2020) were interested in explaining the relation between having children and employment (opposite of the interest of this paper) and this paper is a good example for these different approaches. They analyze data from 58 low- and middle-income countries in macro and micro levels, where at the macro level, the research indicates a consistent inverse correlation between the number of resident children and women's employment across various global regions, even when accounting for potential confounding variables. On a micro level, the study reveals that, on average, this correlation is most pronounced for employment in modern and transitional occupations, somewhat less pronounced for mixed occupations, and nearly negligible for traditional occupations. The impact of having children at home on women's employment varies, with a greater negative effect observed when the children still require care.

Focusing on the effect of the labor market on women's reproductive lives, studies from a micro-level perspective confirm that participation in the labor market is associated with fertility to different degrees, depending on gender and context. There is a positive correlation between employment and the increased probability of procreation among men. For women, this association depends, decreasing where there are institutions to support working mothers, and intensifying in nations with family welfare regimes. Gender equality is identified as a crucial factor influencing the relationship between employment and fertility in these investigations. (MATYSIAK; VIGNOLI, 2008; MILLS *et al.*, 2008; BALBO *et al.*, 2013).

In a macro perspective, there is a negative relation between working and having children. This trend has been observed and analyzed in developed countries, especially in the OECD (Organization for Economic Co-operation and Development) up through the 1990s, at which point there was a reversal in this relation and it became positive. In fact, nowadays, higher fertility rates were observed in countries with higher female labor force participation rates. The factors that explain this can be distinct, for example, the weakening of the work–family conflict for women, institutional changes or exogenous factors affecting both variables (AHN; MIRA, 2002; ENGELHARD; PRSKAWETZ, 2004; KÖGEL, 2004; MATYSIAK; VIGNOLI, 2008; MISHRA; NIELSEN; SMYTH, 2010; BREHM; ENGELHARDT, 2015; OSHIO, 2019). In the relationship between female employment and fertility, institutions are crucial. Fertility exhibits a positive response to higher female employment, especially in countries where institutions actively support work–motherhood reconciliation and promote gender-equitable attitudes within couples (AHN; MIRA, 2002; ARPINO *et al.*, 2015).

Despite the fact that OECD countries have social, economic, cultural and social welfare policies that are quite distinct from those in Latin American countries, it is important to also examine the relation between female integration into the labor market (and the ways in which this integration occurs) and the number of children born alive per woman in the Latin American context. Studies on these relations for other regions and developing countries are becoming more common. Among the studies on all the countries that make up Latin America, those of Schockaert and Dutreuilh (2005), Cruces and Galiani (2007) and Tortarolo (2014), specifically,

also point to the existence of a negative relation between these two variables. Schockaert and Dutreuilh (2005) point out, however, that in this context, the relation between the FLFP and TFR has some important differences relative to this relation in other contexts, as there is greater instability in this relation in Latin America than in developed countries, which generates variation in the influence the type of employment has on fertility. Additionally, due to the heterogeneity among countries in terms of TFR levels, one can find divergent trends; that is, depending on the set of countries to be analyzed, the relation can sometimes be strong and negative, sometimes weak or nonexistent, and sometimes even positive, depending on the life cycle of the woman as demonstrated in Bongaarts *et al.* (2020).

The studies carried out so far, have either been country-specific or have neither addressed more recent data sets nor focused on research into the temporal relation between the FLFP and TFR. This study, therefore, focuses on understanding at a macro level, the impact of female employment and reproductive life. Its central objective is to understand the heterogeneity in the relation between female labor force participation and total fertility rate in Latin American countries from 1990 to 2018. Using a modern clustering technique to identify temporal cross-country patterns, first, a cluster of Latin American countries was estimated, then descriptive models 1 (TFR) and 2 (FLFP) were created, and finally model 3 was estimated, which seeks to verify the FLFP effect on TFR. Despite understanding that there is a possibility of additional analysis, the TFR relation in FLFP is not the focus of this study. Random effects were tested for the intercept and all the covariates included in the models. An improvement in the model was found only when considering the random effect in the intercept, using the likelihood ratio test. The covariates were therefore included as fixed effects.

Theories and trends in the relation between female labor force participation and fertility

The relation between female employment and family formation has been at the top of the demographic research agenda for decades. Different theoretical expectations exist about the relation between female employment and fertility. The most cited to understand this relation have been the New Home Economics theory and the Second Demographic Transition theory, where both assume that increasing female labor force participation is negatively associated to fertility. The Second Demographic Transition theory (VAN DE KAA, 1987; LESTHAEGHE, 2020) states that changing values and the reprioritization of self-realization lead to a fertility decline in response to improved female economic independence and the increased goal of self-fulfillment. The New Home Economics considers fertility decisions as a function of individual preferences and the cost of children under an income constraint (BECKER, 1991). In this framework, increasing the costs of having a child increases their quality, but also decreases the number of children born. Female income gains increase along with female education, but the cost of raising a child also becomes greater, discouraging fertility. Indeed, when not in the labor force, the opportunity cost of having a child is reduced

and, additionally, there is time available for childbearing and rearing, which in turn may facilitate the decision to have a(nother) child (BECKER, 1991).

In line with the role incompatibility hypothesis proposed by Engelhardt *et al.* (2004), an increase in female labor force participation rates is associated with a decline in fertility. This is attributed to the challenges of harmonizing the demands of childrearing with the requirements of employment. Consequently, institutions are deemed pivotal in shaping the connection between employment and fertility, as they influence the feasibility of women seamlessly integrating work and family responsibilities. Empirically, this relation has been explored both through macro and micro level studies and in both ways: impacts of fertility on women's labor market outcomes and the impact of women's work on fertility.

In the case of macro-level studies that attempt to explain the relation between female employment and national fertility levels, these have pointed to a negative relation between these two variables, which was the norm in high-income countries during the 1960s and 1970. A change in the correlation between the female labor force participation rates and TFR was observed, where the correlation in developed countries was negative in the early 1970s, but beginning in the late 1980s, it became positive and approximately 0.5. This change may have been due to lack of employment, as it occurred simultaneously with an increase in unemployment rates. The authors concluded that persistent unemployment must have contributed to a faster decline in fertility (AHN; MIRA, 2002).

Brehm and Engelhardt (2015) ratified this trend of switching from negative to positive relations; however, they pointed to the fact that the correlation between the female labor force participation rate and the fertility rate after 1985 consists of very different relations when analyzing the distribution of fertility by age. The situation within the younger group is described by a decrease in both fertility and female participation in work, while the effects between countries have become increasingly different. The fertility decisions of older women seem to be separate from the influences of the labor market, although the variation within countries is high. In contrast, women between the ages of 20 and 30 seem to be most affected by the incompatibility between having children and having a paid job. While these effects seem to have exceeded their lows in the mid-1990s, convergence between countries is apparent only for women in their 30s.

More recently, Oshio (2019) has shown for OECD countries that this positive trend in the time series correlation between FLFP and the TFR tends to become stronger when newer data sets are used, even after controlling for country-specific heterogeneity. In this study, the author states that higher female employment rates can lead to social and institutional contexts more favorable for having children, causing the relation between these two variables to become more positive and driving the U-shaped relation between female work and fertility.

The U-shape has often been found in different studies such as in fertility as well as in female work. Arpino *et al.* (2015) observed a U-shaped relationship between changes in gender role attitudes and fertility. Initially, as countries move from traditional to more

gender-symmetric models, fertility decreases. However, beyond a certain point, increased gender egalitarianism becomes positively associated with fertility. The shape of this relationship is influenced by the level of agreement between men and women, with greater consensus accelerating changes and strengthening the impact of gender egalitarian attitudes on fertility. On the other hand, Verne (2015) pointed to the relation between female labor market participation and economic development and more recently, Altuzarra *et al.* (2019) analyzed 28 countries in the European Union during the period 1990-2016 and showed the existence of a U-shaped relation between female labor force participation and economic development. Studies for Latin America show that, in general, they also identify negative tendencies in the relation between female labor force participation and fertility rates (EMARA, 2016; CARVALHO, 2018, FINLAY, 2019). As found for developed countries, Matysiak and Vignolli (2008) and Castro-Martín and Martín-García (2013) observed that the negative effect of the relationship between women entering the labor market and child-rearing, has become weaker over more recent periods. Carvalho showed that when an analysis of individual countries is carried out, this relation is reaffirmed, since, for practically all the countries analyzed, except Cuba and Honduras, there is a negative relation between the indicators. But the analysis for all countries showed that this relation does not seem to be linear, but rather in U-shaped. It is also noted that this relationship has changed over time, indicating that the relationship between work and fertility is becoming weaker and more unstable in LA when compared to developed countries, possibly due to the specificities involving each country. The reasons for this weakening are quite distinct in each context. Many studies in developed countries have shown that women who are in the public sector and have more flexible or mid-length working days usually opt for larger families. In addition, women have different ways of reconciling work and childcare, as they have alternatives and/or jobs that facilitate these double/triple roles. That is, in developed countries, work-family welfare policies directly affect fertility because the opportunity costs of being in the labor market and of having children are lower for these women (ENGELHARDT; PRSKAWETZ, 2004; BELLANI; ESPING-ANDERSEN, 2013). It is precisely the continued investment in this type of public policy that Tomas Kögel (2004) identified as causing the relation between the rate of female participation in the labor force and the fertility rate to change from negative to positive after 1985, especially in Scandinavian countries, which reinforces the findings of studies that point to less incompatibility between maternal life and working routines, probably due to policies implemented in countries that are intent on facilitating family life.

However, these same patterns of relation between FLFP and TRF have not been observed in developing countries. The study of Abo-Zaid (2020) showed that the female laborforce participation rate and the tax rate explain a significant portion of fertility of developed nations, but fully fails to account for fertility in developing countries. A possible explanation for this result is that the typical economic considerations that people in developed countries make regarding fertility are not, in general, equally relevant for developing nations.

Recently, Bhalotra *et al.* (2021) tried explaining both ways, the impacts of fertility on women's labor market outcomes and the impact of women's work on fertility for different countries' income. In the first case, the authors found that shocks or policies decreasing fertility often result in persistent increases in women's labor force participation and broader improvements in their labor market outcomes, with differences based on affected regions, cohorts, differences in women's skills, and the extent of gender discrimination in employment practices. Conversely, in the opposite side, women's employment tends to lower fertility, though the size of replacement and income effects varies across regions. Distinctions are observed in the impact of job acquisition and loss, as well as substantial differences between current changes in individual employment status and shifts in labor market opportunities. Behrman and Gonalons-Pons (2020) investigated the association between women's employment and fertility in many countries and found that women's employment wage is negatively correlated with total fertility rates and unmet need for family planning and positively correlated with modern contraceptive methods in every major world region. The authors highlight the important regional differences in the magnitude of these associations, and Latin America presents a curious trend.

On one hand, the negative associations between women's employment and TFR and unmet need for family planning are significantly larger for Latin America than any other region, as is the positive association between women's employment and modern contraceptive use. In part, this could be related to the fact that Latin American countries in our study underwent both a large fertility transition and a dramatic increase in women's (BEHRMAN; GONALONS-PONS, 2020, p. 24) employment during the period of our study.

In the Latin American context, authors (CAMOU, 2015; CHIODA, 2016; GASPARINI; MARCHIONNI, 2017; KLASSEN, 2018; SERRANO *et al.*, 2019; CARVALHO, 2018) showed the relevance of economic development, education, lower fertility rates, and economic policies, such as childcare support, as determinants of FLFP in Latin America and the Caribbean, the authors argue that these factors, as revealed in U-shaped theory studies, are not deemed sufficient explanations for the trends observed in the countries within the region. Other researchers (CHIODA, 2016; KLASSEN, 2018) converging on the necessity for additional exploration of Female Labor Force Participation determinants in Latin America and the Caribbean, the authors highlight women's preferences and social factors as promising avenues for investigations. Chioda (2016) presented the assessment of the influence of family dynamics in Latin America. It emphasizes the lasting impact of robust social norms, linking women's involvement in household chores to the perception that children may be negatively affected if mothers work. Despite this, the report observes a significant shift in younger cohorts, indicating a greater inclination toward the labor market compared to older women. This shift suggests an increasing preference among women for an identity as working professionals.

Schockaert and Dutreuilh (2005) associate the diminishing correlation between female employment and fertility with a decline in formal employment opportunities and a rise in the number of women engaged in the informal sector or self-employment. These shifts coincided

with the economic crises of the 1980s, 1990s, and 2010s. In other words, “the other hand, the weakening of the relationship between employment and fertility is due mainly to a reduction in the share of wage employment and other types of modern occupation, combined with an increase in the number of women working in the informal sector or who are self-employed” (SCHOCKAERT; DUTREUILH, 2005, p. 18). The authors said that in this context it is important to understand the other dimensions that directly influence this relation, such as poverty and the vulnerability of female workers, through gender studies that involve the analysis of the autonomy and decision-making powers within the family of women employed outside home, the experience of women in different social situations, and the significance attached to their work and to motherhood (SCHOCKAERT; DUTREUIL, 2005).

In this sense, the study of Carriles Álvares *et al.* (2019) advances in discussions about the importance of Women’s Identity and Women’s Emancipative Values for the increase in FLFP and showed that while the first is similar in comparison to OECD countries, the second is three-fold greater in more advanced economies than in the Latin American region. The study’s conclusion highlights that despite significant social progress in the region it is discernible that restrictive social forces and conservative values persist, impeding gender equality and thereby hindering the growth of FLFP in the region. Emara (2016) also highlights that here, it is not the fact that women work or not that has great importance in determining fertility rates, but the type of work and the characteristics of the work that women perform. Finlay (2019) adds that, in this context, it is essential to think about economic inequalities between countries because richer countries show a greater decline in women’s work with each additional child than poorer countries, precisely because of the higher opportunity cost of women’s work in wealthier contexts.

Recently, Klasen *et al.* (2021) investigated the micro-level determinants of labor force participation of urban married women in eight low and middle-income economies (Bolivia, Brazil, India, Indonesia, Jordan, South Africa, Tanzania, and Vietnam) and found that “the returns to the characteristics of women and their families differ substantially across countries, and this explains most of the cross-country differences in participation rates. Overall, the economic, social, and institutional constraints that shape women’s labor force participation remain largely country-specific. Nonetheless, rising education levels and declining fertility consistently increased participation rates, while rising household incomes contributed negatively in relatively poorer countries, suggesting that a substantial share of women work out of economic necessity”.

Methodology

Database, variables and countries analyzed

World Bank (WB 2019a, 2019b), data were used for the 20 Latin American countries, namely Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic,

Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela for the period 1990-2018. The indicators analyzed were the total fertility rate (TFR), representing the average number of children born alive per woman, and the female labor force participation (FLFP) rate. The latter represents, according to the World Bank (WB, 2019b), the percentage of the female population between 15-64 that is economically active, i.e., the percentage of all women who provide labor for the production of goods and services during a specific period, multiplied by 100.

Data analysis

Descriptive analyses were carried out for the indicators, and correlations were calculated for each year in the period between 1990 and 2018 for all the countries analyzed. Clusters of countries were created on the basis of the relation between FLFP and the TFR over the years. In general, clustering techniques aim to divide the population into homogeneous subgroups based on the level of similarity between individuals (EVERITT; LEESE; LANDAU, 2001). In this study, longitudinal data were clustered to find those countries that have had similar relations between FLFP and the TFR over the years based on the joint trajectory of FLFP and the TFR for each country during the period of study. The R software package *kml3d* was used. The average silhouette method was used to determine the optimal number of clusters.

To estimate the variability in FLFP and the TFR and the relation between these indicators, mixed linear models were adjusted for each cluster and for the region. Mixed linear models are widely used in longitudinal data analysis and allow for the incorporation of both populations (fixed) and subject-specific (random) effects (FITZMAURICE; LAIRD; WARE, 2011). It is particularly appealing to include the heterogeneity between countries when modeling the TFR and FLFP data.

Analyzing the variability over different periods from 1990 to 2018, the data were divided into five different segments: period 1: 1990-1995, period 2: 1996-2001, period 3: 2002-2007, period 4: 2008-2013 and period 5: 2014-2018. Within each period, a linear spline was fitted and connected by knot points. The corresponding coefficient for each spline represents the rate of increase or decrease for FLFP and the TFR during each period. The random effect was incorporated into the intercept, which allows for a country-specific effect in the first year (1990). Three linear mixed models were fitted:

Model 1: $TFR \sim \alpha + \beta_1 \text{period1} + \beta_2 \text{period2} + \beta_3 \text{period3} + \beta_4 \text{period4} + \beta_5 \text{period5} + \varepsilon$

Model 2: $FLFP \sim \alpha + \beta_1 \text{period1} + \beta_2 \text{period2} + \beta_3 \text{period3} + \beta_4 \text{period4} + \beta_5 \text{period5} + \varepsilon$

Model 3: $TFR \sim \alpha + \beta_1 FLFP * \text{period1} + \beta_2 FLFP * \text{period2} + \beta_3 FLFP * \text{period3} + \beta_4 FLFP * \text{period4} + \beta_5 FLFP * \text{period5} + \varepsilon$

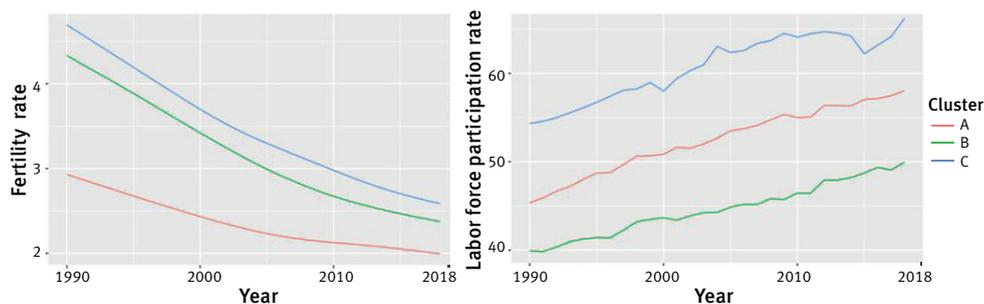
The likelihood ratio test was used to compare the models and correlation structure. The first-order autoregressive correlation structure, AR (1), presented a better fit. The significance level was set at $p < .05$. R 3.5.0 software was used for all analyses.

Results

In the cluster analysis, the groupings were created based on the joint evolutionary trajectories of the FLFP and TFR of each country. Three clusters were found. Cluster A (low TFR and intermediate FLFP) consists of 10 countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Panama, Uruguay and Venezuela. Cluster B (high TFR and low FLFP) consists of 6 countries: Mexico, Nicaragua, Dominican Republic, El Salvador, Honduras and Guatemala. Finally, cluster C (high TFR and high FLFP) consists of 4 countries: Bolivia, Peru, Haiti and Paraguay.

In Figure 1, we can observe the differences between the clusters regarding the average trajectories of fertility and female labor force participation. Overall, average fertility decreases in all clusters, while average female labor force participation tends to increase over the period. In cluster A, average fertility decreases from approximately 3 to approximately 2, cluster B decreases from 4.4 to 2.4, and cluster C from 4.8 to 2.6. Regarding female labor force participation, the average rate in cluster A varies between 45 and 58, that of cluster B varies between 40 and 50 and that of cluster C varies between 54 and 67. These average trajectories reflect heterogeneity among the Latin American countries. In clusters B and C, we have countries with high average fertility relative to cluster A, while their average female participation rates are comparatively low and high, respectively. Cluster A is the most stable cluster in terms of average fertility and is the cluster with the lowest fertility in the period.

FIGURE 1
Average trajectories of the female labor force participation rate and total fertility rate for each cluster Latin America – 1990-2018



Source: Author's calculations based on WB (2019).

Table 1 shows the average and variability of TFR and FLFP between the countries in each cluster, for all time periods and for each decade analyzed. The average fertility rate in the countries in cluster C is higher than in clusters A and B, in every period and decade analyzed. The variability in the TFR between the countries in cluster A is lower than between the countries in clusters B and C for most periods analyzed. For all clusters, a reduction in variability can be seen from 2010 to 2018 compared to previous decades. Thus, the countries

within each cluster have become more similar in terms of fertility in the last years analyzed. Regarding FLFP, cluster B countries have the lowest average rates over the entire period and in each decade analyzed. In contrast to fertility, the variability of FLFP between countries in the years from 2000 to 2018 shows a decrease only among countries in clusters A and B and an increase among countries in cluster C.

TABLE 1
Mean and variability of the TFR and FLFP across countries in each cluster
Latin America – 1990-2018

Cluster	Variable	Period of time	Mean across countries	Variability across countries (1)
A	TFR	1990-2018	2.36	0.38
		1990-1999	2.68	0.48
		2000-2009	2.27	0.38
		2010-2018	2.09	0.34
	FLFP	1990-2018	50.63	5.86
		1990-1999	44.99	7.23
		2000-2009	51.77	6.53
		2010-2018	56.25	5.54
B	TFR	1990-2018	3.19	0.59
		1990-1999	3.92	0.82
		2000-2009	3.03	0.61
		2010-2018	2.49	0.36
	FLFP	1990-2018	46.86	4.84
		1990-1999	43.59	5.57
		2000-2009	47.51	5.68
		2010-2018	50.12	5.01
C	TFR	1990-2018	3.5	0.5
		1990-1999	4.25	0.66
		2000-2009	3.33	0.50
		2010-2018	2.78	0.31
	FLFP	1990-2018	60.69	2.41
		1990-1999	56.42	3.37
		2000-2009	62.16	4.35
		2010-2018	64.22	6.19

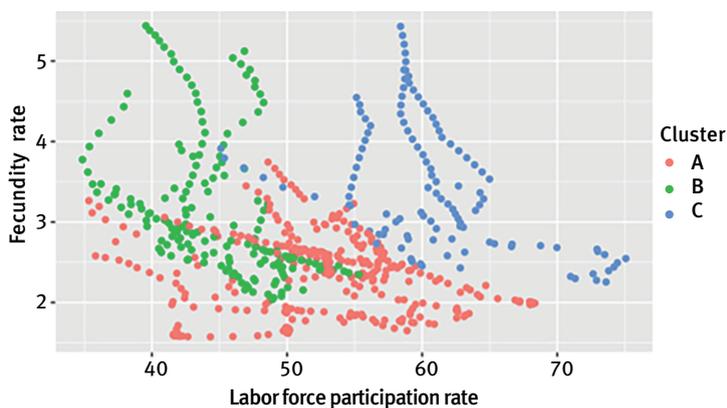
Source: Author's calculations based on WB (2019).

(1) For each country, the average per period was taken and the standard deviation was used to assess the variability.

The relation between female labor force participation and fertility for the countries of each cluster over time can be seen in Figure 2, which contains the trends for each country in the clusters. We can see the different trends in the associations that reflect the heterogeneity between the clusters. The countries in clusters B and C have stronger correlations between the indicators during the study period than does cluster A, and the transition from a positive to a negative correlation in these clusters occurs years before that in cluster A. Analyzing the different periods, we find that in cluster C, this change occurs between 1995 and 2004. This may have been driven by the variation in female participation shown in Figure 3 since

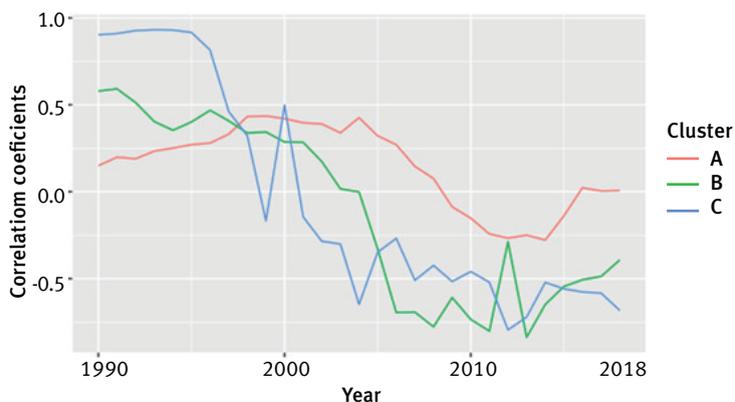
the greatest variation in the average female participation rate occurs during this period. For cluster B, the change in the correlation occurs between 2000 and 2008. As the trajectory of female labor force participation in cluster B is the most stable among the clusters, this change may have occurred due to the sharp decrease in the fertility rate during this period (Figure 2). For cluster A, the change in the direction of the correlation occurs between 2004 and 2012, possibly due to a reduction in the rate of decline in fertility (Figure 2).

FIGURE 2
Relation between the female labor force participation and total fertility rates over time
Latin America – 1990-2018



Source: Author's calculations based on WB (2019).

FIGURE 3
Cross-sectional correlation coefficients between female labor force participation rate and the total fertility rate
Latin America – 1990-2018



Source: Author's calculations based on WB (2019).

Table 2 below shows the results of the mixed-effects models for the region and for each cluster. The table presents estimates of the variability in the TFR and in FLFP in each period analyzed, i.e., how much the rates changed from one year to the next in each of the

periods on average. Initially, five linear splines were included as fixed effects, indicating the five time periods. An improvement in model adjustment was identified when the AR1 structure was used and the intercept was added as a random effect for the TFR and FLFP ($LTR < 0.01$), showing the importance of accounting for the heterogeneity between countries, even within each cluster, relative to the initial rates in 1990. The estimates for the variability in the TFR differed significantly from zero (for all models, $p < 0.001$) for the general model (all countries) and for the models for each cluster except during the period between 2014 and 2018 for Cluster B. We can see the differences in the estimates between clusters regarding the variability in each period, which shows the diversity in the rate of decline in fertility among groups of countries, mainly between clusters B and A and clusters C and A, which was expected, since Figure 3 shows that cluster A has the lowest and most stable average fertility trajectory. In relation to female participation rates, we can see that for cluster C, the only period with significant variability was from 2002 to 2007, while for cluster B, the periods with significant variability were from 1996 to 2001 and from 2008 to 2013, and for cluster A, all periods had significant variability except for the final period from 2014 to 2018.

TABLE 2
Results of Models 1 and 2: estimates of the variability in the TFR and FLFP in each period
Latin America – 1990-2018

Period of time	Model 1: fixed effects (linear splines), random effects (intercept). Total Fertility Rate (TFR)				Model 2: fixed effects (linear splines), random effects (intercept). Female Labor Force Participation (FLFP)			
	All countries	Cluster A	Cluster B	Cluster C	All countries	Cluster A	Cluster B	Cluster C
Intercept	3.8*	3.0*	4.4*	4.84**	44.9*	44.4*	39.4*	54.3*
1 - 1990-1995	-0.08*	-0.05*	-0.09*	-0.1*	0.6***	0.7*	0.4	0.6
2 - 1996-2001	-0.07***	-0.05*	-0.09*	-0.11**	0.4*	0.4*	0.4**	0.2
3 - 2002-2007	-0.06**	-0.04*	-0.08*	-0.07*	0.5*	0.5*	0.2	0.8*
4 - 2008-2013	-0.03*	-0.01*	-0.05*	-0.07*	0.3*	0.3*	0.5*	-0.2
5 - 2014-2018	-0.02*	-0.02*	-0.03	-0.03**	0.3**	0.3	0.4	0.3

Source: Author's calculations based on WB (2019).

Note: * p-value<0.100, ** p-value<0.050, *** p-value<0.001.

Table 3 shows the estimates of the coefficients from Model 3. In the general model for all countries, it is observed that the female labor force participation rate was significant in explaining fertility, with an increase of 0.027 in average fertility for each one-unit increase in the female labor force participation rate. The positive correlations are found to be moderate during the periods before 2006 (Figure 2). Periods 2 and 4 were also significant, indicating that a one-year increase in period 2 led to an average reduction in fertility of -0.096, and in period 4, the average reduction was -0.109. None of the interactions between time and female participation were significant. For Cluster A, female participation was significant, indicating a decrease of -0.01 in fertility. For the same cluster, only period 2 was significant, indicating that a one-year increase in period 2 resulted in an average reduction in fertility of -0.10. No interaction between time and female participation was significant. In Cluster

B, female participation was significant in explaining fertility, with an increase of 0.068 in the average fertility rate for each increase of one unit in the female participation rate. The correlations were found to be moderately positive through 2006 (Figure 3). Periods 3 and 4 were also significant, indicating that a one-year increase in period 3 led to an average reduction in fertility of -0.39, and in period 4, the mean reduction was -0.56. The interactions between time and female participation, $FLFP * period3 = -0.01 (0.004)$ and $FLFP * period4 = 0.01 (0.004)$, were significant, showing that a one-unit increase in the participation rate from one year to another during period 3 generated a reduction in average fertility of -0.01 in that period.

TABLE 3
Results of Model 3: estimates of the variability in the TFR and FLFP in each period
Latin America – 1990-2018

Period of time	Model 3: Longitudinal model			
	All countries	Cluster A	Cluster B	Cluster C
Intercept	2,570 ***	3,480 ***	1,733 **	4,950 ***
FLFP	0,027 ***	-0,010 *	0,068 ***	0,000
1 - 1990-1995	-0,062	-0,100	-0,001	-0,022 **
2 - 1996-2001	-0,096 **	-0,100 **	-0,168	-0,140
3 - 2002-2007	-0,069	0,030	-0,391 **	-0,270 ***
4 - 2008-2013	-0,109 **	0,050	-0,564 ***	-0,060
5 - 2014-2018	-0,079	-0,150	0,120	-0,230 ***

Source: Author’s calculations based on WB (2019).
 Note * p-value<0.100, ** p-value<0.050, *** p-value<0.001.

Finally, in Cluster C (Table 3, female participation does not significantly explain fertility. Periods 1, 3 and 5 were significant with reductions in average fertility of -0.22, -0.27 and -0.23, respectively. The interactions with periods 3 and 5 were significant but had very low estimates (close to 0.0).

Discussion and conclusion

Data from 1990 to 2018 showed that the relation between female work and fertility is more heterogeneous in Latin America than in developed countries. This implies, as seen in the results, variation and even changes in the influence of women’s work on fertility rates during the period analyzed and even between countries. The cluster analysis resulted in three country groupings based on the patterns of joint FLFP and TFR development. The clustering technique confirmed the heterogeneity between countries through the variability estimates of the mixed linear models regarding fertility trends, female participation and the correlations between these indicators. Cluster B (high TFR and low FLFP), consisting of Mexico, Nicaragua, the Dominican Republic, El Salvador, Honduras and Guatemala, showed the lowest rates of FLFP and intermediate fertility rates in the periods analyzed with countries becoming more similar in the years 2010 to 2018. Therefore, cluster B showed high variability in fertility and low variability in female labor force participation (Models

1 and 2 and Figure 3), with a transition from a positive to a negative correlation occurring between 2000 and 2008 (Figure 3). The cluster C (high TFR and high FLFP), consisting of Bolivia, Peru, Haiti and Paraguay showed the highest rates of FLFP and fertility in the periods analyzed, with countries becoming more similar with respect to TFR and less similar with respect to FLFP in the years 2010 to 2018. Cluster C had high variability in both fertility and female labor force participation in the initial years, especially during the period of 2002-2007 (Models 1 and 2, Figure 3). The transition from a positive to a negative correlation in this cluster occurred between 1995 and 2004 (Figure 3). Cluster A (low TFR and intermediate FLFP), consisting of Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Panama, Uruguay and Venezuela, had the lowest average fertility rate as well as the lowest variability over the whole period analyzed. However, this cluster showed high variability in terms of female labor force participation in the early years and was similar to the other clusters in other periods (Models 1 and 3 and Figure 3). The transition from a positive to negative correlation in this cluster occurred most recently, between 2004 and 2012 (Figure 3). The trend in this cluster has also shown, as of this year, a possible new positive relation. The relation between female labor force participation and fertility was significant for the regions in clusters A and B, although with different trends. In cluster A, female labor force participation was associated with an average reduction in fertility over the period, while that in cluster B aligned with the trend of increasing fertility in the region.

The correlation trend between female participation and fertility over the years, therefore, showed important differences related to the weakening of the negative correlation for cluster A and a relatively stable correlation between countries in clusters B and C. Recent studies in the literature (SCHOCKAERT; DUTREUILH, 2005; CRUCES; GALIANI, 2007; TORTAROLO, 2014), show a trend towards a weakening of the negative correlation for some LAC countries, in line with our results for cluster A, but this trend can vary significantly between countries.

The higher heterogeneity between the countries in Latin America were discussed by Brenes-Camacho (2018) and Sacco and Borges (2018), who found that many Latin American countries, especially those with already reduced fertility rates, were experiencing a period of convergence in their internal fertility levels, as was the case in Argentina. However, these studies also identified some region-specific trends in which fertility levels seem to diverge between and within countries. The study of Torres and Cabrera (2018) showed that there was convergence only in the labor market activity rates in Brazil, Ecuador, Panama and Uruguay; for the rest of the countries, the indicator seems to have diverged. However, it is also necessary to consider the quality of this female integration into the labor market. Bando (2019) points out that although the percentage of women employed has increased faster in Latin America and the Caribbean than in any other region of the world in the last 25 years, many women do not receive the benefits of their work. Latin American and Caribbean women work longer hours than the men of the region, yet more than half of them do not receive pay or profit, as they engage in their labor market activities at home or in the informal sector,

which limits their rights to social protection benefits. The author highlights the impact of gender roles in the region in causing this profile of female participation in the labor market.

These first findings, which still require better interpretation, warn about the increasing importance of the institutional and social context of the countries analyzed when making inferences about the relation between female participation in the labor market and fertility. According to Schockaert and Dutreuilh (2005), studies need to discuss the factors related to poverty and family vulnerability, the increasing autonomy and decision-making powers of working women within the family and different social situations, and the meaning of work and motherhood. These elements make it possible to more fully understand the relation between FLFP and the TFR in the region.

Furthermore, it is important to highlight that although the statistical techniques used provide valuable insights into the trends and patterns of the relationship between the labor force and fertility, the relationship of causality or reverse causality cannot be established, as they are not appropriate techniques for this purpose, despite its limitations, especially the failure to control for the effects of reverse causality when analyzing the relation between female work and fertility, and the possible fall into the ecological fallacy due to the analysis of country level and not individual level, this study presents an effort to think about this topic in the context of pre-pandemic Latin America and presents a modern clustering technique for analyzing cross-country heterogeneity. Our findings indicate different patterns in the relation between FLFP and the TFR, and points to the need for population-specific gender equality policies in Latin American countries. With the continuing reduction in fertility rates and the incompatibility between work and personal life, in particular for women who are required to choose between personal and professional achievement, it is necessary in the current political and social context to understand the importance of the issues relating to family-work balance in Latin American countries as an essential part of the process of guaranteeing reproductive rights.

Acknowledgments

This study was financially supported by the CNPq (National Council of Scientific Research) through a productivity scholarship.

References

- ABRAMO, L.; VALENZUELA, M. E. Women's labour force participation rates in Latin America. *International Labour Review*, v. 144, n. 4, p. 369-400, 2005. <https://doi.org/10.1111/j.1564-913X.2005.tb00574.x>.
- ALTUZARRA, A.; GÁLVEZ-GÁLVEZ, C.; GONZÁLEZ-FLORES, A. Economic development and female labour force participation: the case of European Union countries. *Sustainability*, v. 11, n. 7, p. 1962, 2019.

AHN, N.; MIRA, P. A note on the changing relationship between fertility and female employment rates in developed countries. **Journal of Population Economics**, v. 15, p. 667-682, 2002. <https://doi.org/10.1007/s001480100078>.

ARPINO, B.; ESPING-ANDERSEN, G.; PESSIN, L. How do changes in gender role attitudes towards female employment influence fertility? A macro-level analysis. **European Sociological Review**, v. 31, n. 3, p. 370-382, 2015.

BANDO, R. Evidence-based gender equality policy and pay in Latin America and the Caribbean: progress and challenges. **Latin American Economic Review**, v. 28, n. 1, 2019. <https://doi.org/10.18235/0001614>.

BALBO, N.; BILLARI, F. C.; MILLS, M. Fertility in advanced societies: a review of research: la fécondité dans les sociétés avancées: un examen des recherches. **European Journal of Population/Revue Européenne de Démographie**, v. 29, p. 1-38, 2013.

BHALOTRA, S.; CLARKE, D.; WALTHER, S. Fertility and female labor force participation. **Handbook of labor, human resources and population economics**. Springer, 2021.

BECKER, G. S. **A treatise on the family**. Enlarged edition. Harvard University Press, 1991.

BEHRMAN, J.; GONALONS-PONS, P. Women's employment and fertility in a global perspective (1960-2015). **Demographic Research**, v. 43, p. 707, 2020.

BREHM, U.; ENGELHARDT, H. On the age-specific correlation between fertility and female employment: Heterogeneity over space and time in OECD countries. **Demographic Research**, v. 32, p. 691-722, 2015. <https://doi.org/10.4054/DemRes.2015.32.23>.

BRENES-CAMACHO, G. Descenso de la razón niño/mujer en unidades subnacionales en Latinoamérica: señales de convergencia. In: SIMPSON, L.; GONZÁLEZ, L. M. (Ed.). **¿Convergencia demográfica? Análisis comparativo de las tendencias demográficas subnacionales en América Latina y el Caribe**. Rio de Janeiro, Brasil: Asociación Latinoamericana de Población, 2018. p. 57-83.

CARRILES ÁLVAREZ, A.; BELTRÁN-GODOY, J. H.; MATA, L. El efecto de la identidad y los valores emancipativos de las mujeres en la participación laboral femenina: una comparación entre América Latina y países de la OCDE. **Nova Scientia**, v. 11, n. 22, p. 323-356, 2019.

CARVALHO, A. C. Fecundidade e participação feminina na força de trabalho: uma análise para a América Latina entre 1990-2015. In: VIII CONGRESSO LATINO AMERICANO DE POPULAÇÃO. **Anais [...]**. México: Alap, 2018.

CHIODA, L. **Work and family: Latin American and Caribbean women in search of a new balance**. Washington, DC: The World Bank, 2016. (Latin American Development Forum Series). Available in: <https://openknowledge.worldbank.org/bitstream/handle/10986/23748/9780821384855.pdf?sequence=3&i>.

CRUCES, G.; GALIANI, S. Fertility and female labor supply in Latin America: new causal evidence. **Labour Economics**, v. 14, n. 3, p. 565-573, 2007. <https://doi.org/10.1016/j.labeco.2005.10.006>.

ENGELHARDT, H.; PRSKAWETZ, A. On the changing correlation between fertility and female employment over space and time. **European Journal of Population**, v. 20, p. 35-62, 2004. <https://doi.org/10.1023/B:EUJP.0000014543.95571.3b>.

EVERIT, B. S.; LANDAU, S.; LEESE, M. **Cluster analysis**. London: Arnold, 2001.

ENGELHARDT, H.; KÖGEL, T.; PRSKAWETZ, A. Fertility and women's employment reconsidered: a macro-level time-series analysis for developed countries, 1960-2000. **Population Studies**, v. 58, n. 1, p. 109-120, 2004.

FINLAY, J. E. Fertility and women's labor force participation in low-and middle-income countries. *In: LEGRAND, T. IUSSP Population, Poverty and Inequality Research Conference*. 2019.

FITZMAURICE, G.; LAIRD, N. M.; WARE, J. H. **Applied longitudinal analysis**. Hoboken, USA: Wiley, 2011.

GASPARINI, L.; MARCHIONNI, M. Deceleration in female labor force participation in Latin America. **Economía**, v. 18, n. 1, p. 197-224, 2017.

GONZALES, M. C.; JAIN-CHANDRA, S.; KOCHHAR, M. K.; NEWIAK, M. M. **Fair play**: more equal laws boost female labor force participation. Washington, DC: International Monetary Fund, 2015. (IMF Staff Discussion Note, 15-02).

KLASEN, S. **What explains uneven female labor force participation levels and trends in developing countries?** Göttingen: Georg-August-Universität Göttingen, Courant Research Centre – Poverty, Equity and Growth (CRC-PEG), 2018. (Discussion Papers, n. 246). Available in: <https://www.econstor.eu/bitstream/10419/175179/1/1014708427.pdf>.

KLASEN, S *et al.* What drives female labour force participation? Comparable micro-level evidence from eight developing and emerging economies. **The Journal of Development Studies**, v. 57, n. 3, p. 417-442, 2021.

KÖGEL, T. Did the association between fertility and female employment within OECD countries really change its sign? **Journal of Population Economics**, v. 17, n. 1, p. 45-65, 2004. <https://doi.org/10.1007/s00148-003-0180-z>.

MATYSIAK, A.; VIGNOLI, D. Fertility and women's employment: a meta-analysis. **European Journal of Population**, v. 24, n. 4, p. 363-384. <https://doi.org/10.1007/s10680-007-9146-2>.

MILLS, M.; MENCARINI, L.; TANTURRI, M. L.; BEGALL, K. Gender equity and fertility intentions in Italy and the Netherlands. **Demographic Research**, v. 18, p. 1-26, 2008.

MISHRA, V.; NIELSEN, I.; SMYTH, R. On the relationship between female labour force participation and fertility in G7 countries: evidence from panel cointegration and granger causality. **Empirical Economics**, v. 38, n. 2, p. 361-372, 2010. <https://doi.org/10.1007/s00181-009-0270-1>.

MYRSKYLÄ, M.; KOHLER, H.-P.; BILLARI, F. C. Advances in development reverse fertility declines. **Nature**, v. 460, n. 7256, p. 741-743, 2009.

NOVTA, N.; WONG, J. **Women at work in Latin America and the Caribbean**. Washington, DC: International Monetary Fund, 2017. (IMF Working Paper, 17-34).

OSHIO, T. Is a positive association between female employment and fertility still spurious in developed countries? **Demographic Research**, n. 41, p. 1277-1288, 2019. <https://doi.org/10.4054/DemRes.2019.41.45>.

ROSETO-BIXBY, L. Nuptiality trends and fertility in Latin America. *In: GUZMAN, J. M. et al. (Ed.). The fertility transition in Latin America*. Oxford, England: Oxford University Press, 1996. p. 252-293.

SAAD, P. Demographic trends in Latin America and the Caribbean. *In: COTLEAR, D. (Ed.). Population aging: is Latin America ready?* The World Bank, 2011. p. 43-77. Available in: <https://openknowledge.worldbank.org/handle/10986/2542>.

SACCO, N.; BORGES, G. M. Convergencia de la fecundidad y proyecciones de población a nivel sub-nacional. *In: SIMPSON, L.; GONZÁLEZ, L. M. (Ed.). ¿Convergencia demográfica? Análisis comparativo de las tendencias demográficas subnacionales en América Latina y el Caribe Rio de Janeiro, Brasil: Asociación Latinoamericana de Población*, 2018. p. 113-134.

SCHOCKAERT, I.; DUTREUILH, C. Women's employment and fertility in Latin America. **Population**, v. 60, n. 1, p. 149-168, 2005. <https://doi.org/10.1186/s12651-019-0263-2>.

SERRANO, J.; GASPARINI, L.; MARCHIONNI, M.; GLÜZMANN, P. Economic cycle and deceleration of female labor force participation in Latin America. **Journal for Labour Market Research**, v. 53, n. 1, article 13, 2019.

SERRANO, J. *et al.* Economic cycle and deceleration of female labor force participation in Latin America. **Journal for Labour Market Research**, v. 53, n. 1, p. 1-21, 2019.

TORRES, E.; CABRERA, E. R. Convergencia y actividad económica en América Latina y el Caribe. *In*: SIMPSON, L.; GONZÁLEZ, L. M. (Ed.). **¿Convergencia demográfica?** Análisis comparativo de las tendencias demográficas subnacionales en América Latina y el Caribe. Rio de Janeiro, Brasil: Asociación Latinoamericana de Población, 2018. p. 167-207.

TORTAROLO, D. Female labor supply and fertility. Causal evidence for Latin America. **Revista de Economía Política de Buenos Aires**, v. 8, n. 13, p. 27-65, 2014. <https://doi.org/10.3917/popu.501.0157>.

VILLARRAGA, H. G. Convergencia de la fecundidad en los países de América Latina: un análisis a partir de sus divisiones administrativas mayores (DAM). *In*: SIMPSON, L.; GONZÁLEZ, L. M. (Ed.). **¿Convergencia demográfica?** Análisis comparativo de las tendencias demográficas subnacionales en América Latina y el Caribe. Rio de Janeiro, Brasil: Asociación Latinoamericana de Población, 2018. p. 209-238.

WORD BANK. **Fertility rate, total (births per woman)**. 2019a. Available in: <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN>.

WORD BANK. **Labor force participation rate, female (% of female population ages 15+)** (modeled ILO estimate). 2019b. Available in: <https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS>.

VAN DE KAA, D. J. Europe's second demographic transition. **Population Bulletin**, v. 42, n. 1, 1987.

VERME, P. Economic development and female labor participation in the Middle East and North Africa: a test of the U-shape hypothesis. **IZA Journal of Labor & Development**, v. 4, n. 1, p. 1-21, 2015.

About the authors

Angelita Alves de Carvalho is PhD in Demography from the Center for Development and Regional Planning at the Federal University of Minas Gerais (CEDEPLAR/UFGM). Researcher in Geographic Information and Statistics at the National School of Statistical Sciences (ENCE/IBGE), coordinator of the postgraduate program in Population, Territory and Public Statistics at ENCE/IBGE and permanent professor on the postgraduate program in Home Economics at the Federal University of Viçosa (UFV).

Daniela Polessa de Paula is PhD in Biomedical Engineering from Coordination of Postgraduate Programs in Engineering (COPPE/UFRJ). Researcher in Geographic Information and Statistics at the National School of Statistical Sciences (ENCE/IBGE). Collaborating professor at the National School of Public Health Sergio Arouca (ENSP/FIOCRUZ).

Contact address

Angelita Alves de Carvalho
Rua André Cavalcanti, 106 sala 503C, Santa Teresa
20231-050 – Rio de Janeiro-RJ, Brazil

Daniela Polessa de Paula

Rua André Cavalcanti, 106 sala 503C, Santa Teresa

20231-050 – Rio de Janeiro-RJ, Brazil

Resumo

Explorando a heterogeneidade entre países na relação entre participação feminina na força de trabalho e fecundidade na América Latina

Na América Latina, apesar de uma aparente convergência na relação entre taxas de fecundidade total (TFT) e participação feminina na força de trabalho (PFFT), existem diferenças entre e dentro dos países que devem ser consideradas. Este artigo objetiva entender a heterogeneidade na relação entre a PFFT e a TFR na América Latina de 1990 a 2018, a fim de identificar padrões entre países. Usando dados do Banco Mundial para os 20 países da América Latina, dados de agrupamento longitudinal foram realizados e modelos de efeito misto foram ajustados para quantificar a heterogeneidade. Três padrões de relacionamento foram observados nos países latino-americanos: TFT baixa e PFFT intermediária; TFT alta e PFFT alta; e TFR alta e PFFT baixa. A heterogeneidade identificada sugere que a diversidade de fatores socioeconômicos e culturais influencia a dinâmica da relação entre PFFT e TFT na América Latina.

Palavras-chave: Fecundidade. Emprego feminino. Heterogeneidade. América Latina.

Resumen

Explorando la heterogeneidad entre países en la relación entre participación laboral de las mujeres y fecundidad en América Latina

En América Latina, a pesar de una aparente convergencia en la relación entre las tasas globales de fecundidad (TGF) y la participación de femenina en la fuerza de trabajo (PFFT), hay diferencias entre y dentro de los países de la región, que deben ser consideradas. El objetivo de este trabajo es entender la heterogeneidad en la relación entre la tasa de PFFT y la TGF en América Latina desde 1990 hasta 2018, con el fin de identificar patrones entre países. Utilizando datos del Banco Mundial para los veinte países de América Latina, se agruparon datos longitudinales y se ajustaron modelos de efectos mixtos para cuantificar la heterogeneidad. Se observaron tres patrones de relación en los países de América Latina: baja TGF y PFFT intermedia; alta TGF y alta PFFT, y alta TGF y baja PFFT. La heterogeneidad identificada sugiere que la diversidad de factores socioeconómicos y culturales influye en la dinámica de la relación entre la PFFT y la TGF en América Latina.

Palabras clave: Fecundidad. Empleo femenino. Heterogeneidad. América Latina.

Received for publication in 05/06/2023

Approved for publication in 27/10/2023