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PARENTHOOD AND THE GENDER GAPS IN THE BRAZILIAN LABOR MARKET

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This paper investigates how parenthood differently affects the working trajectory of men and women in the labor market. Based on data from the quarterly National Household Sample Survey (PNADC), provided by the Brazilian Institute of Geography and Statistics (IBGE), we start by estimating the gender gaps in labor force participation and wages over the last decade. We then show that the labor market participation gap is more pronounced in the presence of a child in the household, especially when women become mothers at a young age. Theresultsare dependent on mothers' characteristics, such as age and education.The evidence presented here contributes to the literature about gender inequalities in Brazil, especially attheintersection of parenthood and gender differences in the labor market.

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Keywords: Gender Gap. Labor Market. Parenthood. Brazil.

JEL Codes: J13, J16, J31

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1. Introduction

The increase in paid male labor in the Industrial Revolution and the increase of female paid labor after World War II weakened traditional social norms and generated a shift in attitudes. Changes in family economies were brought by the emergence of the male breadwinner in the 19th centrury and the transition from male breadwinner to dual-earners in the 20th century (Ruggles (2015)).

Higher participation in the labor force is a key variable in long-term economic development. As the economy grows, more individuals participate in the labor market and are willing to share the benefits of a stronger economy. Labor force participation, therefore, is both a crucial driver of growth and one of its consequences. A range of multidimensional variables, including education, fertility rates, legal settings, occupational differences, and structural inequalities, drive employment trends. In this sense, womens labor force participation in relation to mens is an important measure of their status in society (Mammen and Paxson (2000)).

There are at least seven historical determinants of changing gender roles: agricultural technology, language, geography, pre-industrial societal characteristics, family structures, religion, and historical shocks. Taking them into account, it is possible to affirm that the costs and benefits of having children have never been equally divided between men and women (Giuliano (2017)).

Juhn and McCue (2017) found that marital status is not associated with low pay for women, but having children is. It is known that women spend, on average, more hours than men on housework and childcare, so comprehending the gender disparities at home is important to understand gender inequalities in the labor market. Adda et al. (2017) showed that fertility intentions and professional choices are associated, making parenthood a complex phenomenon that often begins before a child arrives. Future mothers and fathers may imagine their experiences of parenthood according to their past and present contexts, making their desire to have children subject to downward or upward adjustments over the life course (Liefbroer (2009)).

The fact that women are primarily responsible for taking care of the household responsibilities and their children creates barriers for them to participate in the labor force and occupy high-paying positions. As the coverage of daycare centers is insufficient in developing countries, young children are usually cared for by a woman in their family, whether their mother, grandmother, aunts, or older sisters. The presence of adult family members in the household besides a couple can potentially mitigate domestic demands. In Brazil, household arrangements are diverse, and they are associated with mothers' work outcomes. Aragao and Villanueva (2021) showed that living with other adults is positively associated with mothers' work opportunities, especially in the presence of female relatives, which facilitates mothers' participation in the labor force in Brazil.

In ten years, the economic situation of women has improved in Brazil, but they still live in a much more unfavorable context than men in terms of labor market indicators, especially after having children. Machado et al. (2018) studied the trajectory of the gender gap over time and over the life cycle in the formal labor market in Brazil. Even with industry controls, they found a remaining gender wage gap between 10 and 20% independent of educational attainment.

Historically, participation in the labor market and wages are lower for women than men. From the beginning of the 2000s until the advent of the Covid-19 pandemic in 2020, many countries have experienced a decreasing trend in gender inequality. In Brazil, the female participation rate in the labor market grew to 54.34% in 2019. However, the pandemic interrupted female progress, taking the 2021 rate to 51.56%, equivalent to that observed in 2012.

We present evidence on the magnitude of the gaps between men and women (with and without children) in Brazil, analyzing how they have changed over the last decade. Our analysis goes deeper into the gender differences by comparing parents with childless couples. To do so, we closely follow two papers: Angelov et al. (2016), who analyze the trajectory of salary differences between fathers and mothers in Sweden; and Chung et al. (2017) in the United States.

Our paper uses microdata from the National Household Sample Survey - PNADC, provided by the Brazilian Institute of Geography and Statistics - IBGE for one decade, from 2012 to 2021, allowing us to investigate the changes that occurred before and after the pandemic. We use econometric models to estimate the gender gap in labor force participation, interacting information on gender with dummy variables for the presence of a child. We adjust the model to account for heterogeneous effects depending on the child's age and the age at which the mother had her first child.

To accurately estimate the consequences of the presence of children on the gender participation gap, our model includes controls for age, race, educational level, geographic region, and the number of people living in the household. Because men and women (as well as their labor force participation) may have different socioeconomic characteristics, the inclusion of sociodemographic information on individuals in the models seeks to ensure that participation gaps are not overestimated.

We find that the gender gap in labor force participation is higher for men and women with children than for those couples without children. These differences remain relatively stable over time. In addition, we found that the participation gap between men and women increases considerably after the birth of a child. This gap narrows as children grow, but it takes a long time to reach the levels observed for childless couples.

This article is structured in five sections: the section following the introduction describes the dataset and sample used to calculate the gaps between men and women; the third section explains the method and specification of the model; the fourth section presents the results; and finally, we present the conclusions.

2. Data

We use microdata from the Continuous National Household Sample Survey (PNADC) for the fourth quarter of each year to analyze the scenario before the Covid-19 pandemic (2012 and 2019) and the more recent years (2020 and 2021) allowing us to observe what happened during the pandemic. The PNADC is provided by the Brazilian Institute of Geography and Statistics (IBGE) and contains information on the Brazilian labor market, including sociodemographic and employment characteristics relevant to our analysis.

This article investigates the evolution of differences in labor market participation between co-resident men and women and how these differences vary in the presence of children. The sample of interest covers only heterosexual couples living together who do not have children or who have at least one child of both spouses up to 18 years of age. We consider men and women who are officially married but also those who live in union with their partners. In our sample, there are 288,220 households (80,814 in 2012; 85,222 in 2019; 51,678 in 2020 and 70,506 in 2021) with a couple in each.

Our primary variable of interest is an indicator of whether or not the person participates in the labor force. Individuals who are in the labor force are those who are working or looking for a job. The second variable refers to the hourly wage, conditional on being employed. We also explore a set of control variables: sex, age (in years), race (black, brown, yellow, white, and indigenous), location (rural and urban), number of people living in the household, region (North, Northeast, South, Southeast and Midwest) and educational attainment.

The analyzed sample shows that 55% of households have at least one child, and the average number of residents is 3.22. Individuals live predominantly in urban areas (80%) and mainly in the Southeast and Northeast regions. Most women declare themselves white (45.4%) or brown (45.2%). These proportions are similar for men. On average, women in our sample are more educated than men, as we observe a lower (higher) fraction of women in the inferior (superior) educational level groups. More details on sample composition can be found in Appendix A.

3. Empirical Strategy

BASELINE MODEL. We start our analysis by studying couples with and without children.To examine to which extent the gender gap in labor force participation varies in the presence of a child, we estimate the following econometric model:

$$y_i = \alpha + \delta W_i + \theta C_i + \beta W_i \times C_i + Z_i'\Theta + \in_i \tag{1}$$

where y_i is a dummy variable indicating 1(one) if individual i is participating in labor force, and 0 (zero) otherwise. W_i indicates 1 (one) if individual i is a woman (zero otherwise) and C_i indicates 1 (one) if individual i has a child (zero otherwise). The parameter of interest, β, measures the differential gender gap in the presence of achild. The vector of variables Z_i comprises a large set of controls (age, race, education, region, household size and urban), which are included in the regression to mitigate the consequences of unobserved factors in our analysis.The term $\in_i$ represent the error term.

EFFECTS OF BIRTH AND CHILD'S AGE. Starting from the main equation in (1), we seekto identify the role played by the birth of a child on the gender participation gap over the years by splitting the dummy variable C_i according to indicators for the age of the youngest child in the household. So, we estimate the following:

$$y_i = \alpha + \delta W_i + \sum_{j=0}^{18} \theta_j I_i(j) + \sum_{j=0}^{18} \beta_j W_i \times I_i(j) + Z_i'\Theta + \in_i \tag{2}$$

In this model, $I_i(j)$ indicates 1(one) if individual i has a child with j years of age (and zero if a different age or in the absence of a child), which varies from $j = 0$ (before being one year old) to $j = 18$. On this specification, the parameters θ_j reveal the heterogeneous pattern in the differential effect of having a child from time of birth until a child reaches 18 years old.

It is important to note that $C_i = \sum_{j=0}^{18} I_i(j)$, so that the baseline comparison group is still the couples without a child.

EFFECTS OF MOTHER'S AGE AT BIRTH OF FIRST CHILD. Similarly, we also interact the dummy variable C_i in our baseline model with indicators $A_i(h)$ for the age, h, of the mother when she had the first child, in which h varies yearly from 18 years or less to 40 years old or more.

$$y_i = \alpha + \delta W_i + \sum_{h=18-}^{40+} \theta_h A_i(h) + \sum_{h=18-}^{40+} \beta_h W_i \times A_i(h) + Z_i'\Theta + \in_i \tag{3}$$

Other Heterogeneities. In the following equation we seek to understand the heterogeneous effect of having a young child (up to five years old) by age and education of the mothers.To do so, we estimate the following equation:

$$y_i = \alpha + \delta W_i + \sum_{g=1}^{2} \theta_g I_i(g) + \sum_{g=1}^{2} \beta_g W_i \times I_i(g) + Z_i'\Theta + \in_i \tag{4}$$

Where $I_i(g)$ indicates that individual i has a child in one of the two age group g, splitinto 0-5 or 6-18 years of age. This equation is estimated for different cuts of the sample. We first split the sample according to the age of the individuals by age brackets:24 years old or less, 2530, 31-35 and 36 years old or more. Finally, we also estimate the model within each of the following mothers educational level: without high school, High school and Bachelor degree or higher.

4. Results

In this section, we present the gender differentials in the labor force participation as measured by the econometric model for the years 2012 and 2021[1]. We start by showing general results on labor force participation and some heterogeneities by age and education. Then we finalize the section by measuring the wage differentials. All tables in this section follow a similar pattern: for each year, there are two columns, in which the first refers to the econometric model without controls and the second one adds control variables.

4.1. *General Results*

Table 1 shows the participation gap between mothers and fathers in the labor force is notably higher than the gender gap between childless women and men in the last decade. In 2012 (columns 2) the participation in the labor market of women without children was 24.72 percentage points (p.p) lower than that of men without children, while for couples with children, this differential was 37.16 p.p.

These gaps decreased in 2019, reaching 20.98 p.p. for women (relative to men) without children and 31.44 p.p. for mothers (relative to fathers), as can be seen in Appendix B. Comparing 2012 (column 2) and 2021 (column 4), we observe a drop in the gap of approximately 3 p.p. for couples without children and 4 p.p. for couples with children, meaning the motherhood penalty in the labor market was harsher ten years ago.

Evidences about the phenomenon of motherhood penalty in Brazil, regarding labor market participation and wages can be found in Guiginski et al. (2019); Muniz and Veneroso (2019); Rosa et al. (2020); Andrade and da Cunha (2021), while for men, it is observed a wage premium. Brazilian married men receive higher salaries than single men, and that is especially true for men in the highest wage tier (Guiginski et al. (2019); Tenoury et al. (2021)).

1 In the Appendix B we show results for 2019 and 2020.

TABLE 1
GENDER GAP IN THE LABOR FORCE PARTICIPATION

	Q4 2012		Q4 2021	
	(1)	(2)	(7)	(8)
women(A)	-0.2046***	-0.2472***	-0.1669***	-0.2150***
	(0.0033)	(0.0030)	(0.0033)	(0.0029)
With child (B)	0.2130***	0.0116***	0.2419***	0.0221***
	(0.0030)	(0.0037)	(0.0032)	(0.0038)
Women with child (C)	-0.1500***	-0.1244***	-0.1358***	-0.1143***
	(0.0043)	(0.0039)	(0.0046)	(0.0040)
Constant (D)	0.7251***	0.8596***	0.6969***	0.8296***
	(0.0024)	(0.0026)	(0.0023)	(0.0024)
Observations	161,615	161,612	141,006	141,006
R-squared	0.1329	0.3075	0.1094	0.3420
Controls	No	Yes	No	Yes
Gender gap - Childless (A)	-0,2046	-0,2472	-0,1669	-0,215
Gender gap with child (A+C)	-0,3546	-0,3716	-0,3027	-0,3293

Source: PNADC. IBGE. Note: Controls include fixed effects of age, race, education, region, household size and urban. The results for 2019 and 2020 can be seen in Appendix B. Standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1

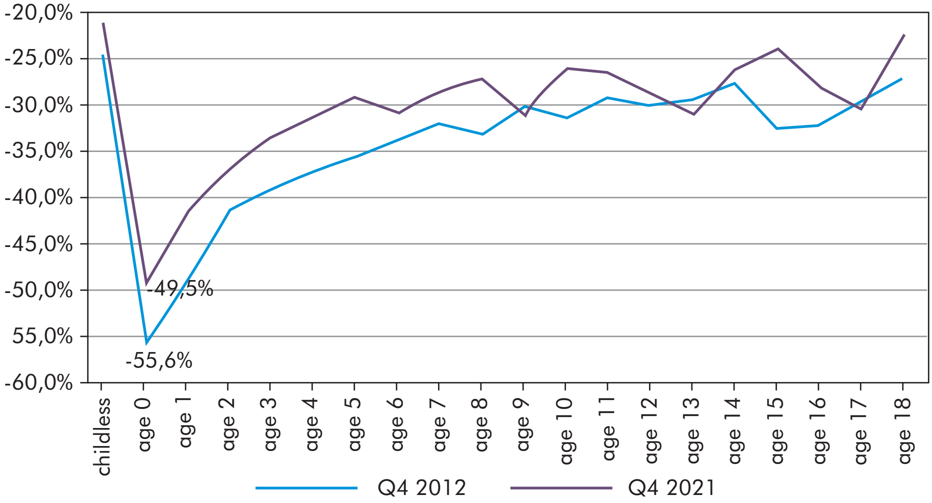
The disparities between mothers and fathers in the labor market have been also documented worldwide: in Chile (Berniell et al. (2021)), Israel (Gafni and Siniver (2018)), Denmark (Kleven et al. (2019)), Germany (Glaubitz et al. (2022)), in South Korea (Choi and Park (2019)), in Russia (Lebedinski et al. (2022)), and in the United States (Glauber (2018); Chung et al. (2017)), to cite a few.

Labor market interruptions for women occur around childbirth. Children need care, especially younger children. In this way, the age of the children matters for women's trajectory and professional choices. Childcare changes as children age pre-school children demand more from parents than school-age children.

Figure 1 shows the differences in labor force participation for men and women after childbirth and how it evolves as the child grows. Preschool-aged children (0 to 5 years old) need more care; thus childs age matters for women's career paths and professional choices. The younger the youngest child in the household is, the less likely it is for the mother to be in the labor force. In 2021, women with newborn children (younger than one-year-old) were 49.5 p.p less likely to be in the labor market when compared to fathers. In 2012, the gap was 55.6 p.p.

As children grow, women tend to increase their probability of being in the labor force. Mothers with 7-year-old children, for example, in 2021, showed a participation gap of 28.3 p.p., but they only approach the levels observed before motherhood after the child becomes an adult. For instance, in both years 2012 and 2021, it seems that only 18 years after childbirth, the gender gap closes (23 p.p. in 2021), in the sense that it is approximately that gap observed between women and men without children (22 p.p. in 2021).

FIGURE 1 – Gender Gap in the Labor Force Participation by Age of the Youngest Child



Source: PNADC provided by IBGE. Note: Estimations with controls. More details in the Appendix B.

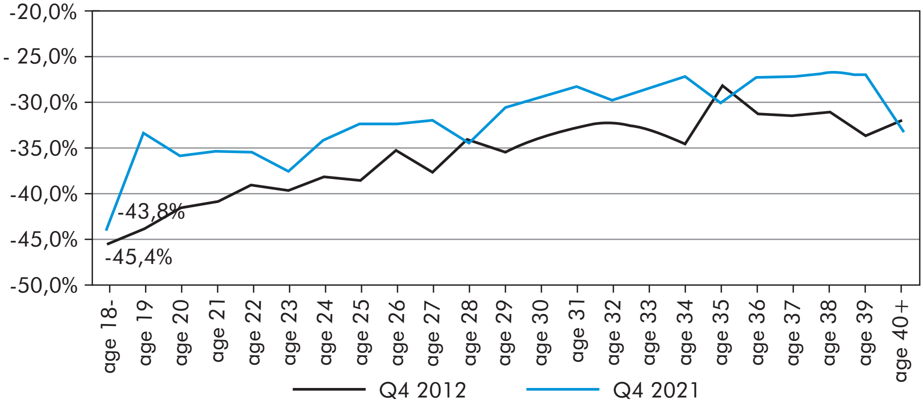
Being primarily responsible for taking care of the household and the children limits women's access to and permanence in the labor market. Machado and Pinho Neto (2016) show that approximately half of the female workers leave the formal labor market within 47 months of maternity leave in Brazil. This period of approximately 4 years coincides with the phase of child development that requires more care. All in all, these results suggest that motherhood can have a prolonged and persistent effect on women's participation in the labor market.

The literature suggests that the age at which a woman has a child impacts her entry in the labor market and her occupational choices. The timing and age window in which motherhood begins affects subsequent earnings trajectories and wealth accumulation, especially when they happen during critical career-building stages. Yu and Xie (2018) found that each additional child lowers hourly wages by about 12 percent in China. In Brazil, postponing motherhood has a positive impact of 1.55% on women's earnings for each year of postponement according to Andrade and da Cunha (2021).

The advent of motherhood usually occurs i) at the beginning of their adult life (18 to 24 years old), 2) at the beginning of their professional life (25 to 35 years old) if they went to university, or iii) in the phase of consolidation of their professional career (31 to 49 years). Figure 2 shows the gender gap in the labor force participation by mothers age at birth of the first child.

Women who became mothers at younger ages are less likely to participate in the labor force. In 2012, women who were mothers at 18 years old or less were 45.4 p.p less likely to be in the labor force compared to fathers. In 2021, that scenario did not change much: the same group was 43.8 p.p less likely to be in the market.

FIGURE 2 – Gender Gap in the Labor Force Participation by Mothers Age at Birth of First Child



Source: PNADC provided by IBGE. Note: Estimations with controls. More details in the Appendix B.

On the other hand, women who became mothers in their 30s had more time to advance their education and careers before motherhood, so that we observe higher chances of staying in the labor market after the arrival of children. Before the pandemic, 38-year-old mothers showed the smallest gap (compared to fathers): 19.6 p.p. in 2019.

4.2. Heterogeneities by Age and Education

Table 2 presents the gaps between childless women and men and between mothers and fathers according to the age of the youngest child and the mothers age. As aforementioned, pre-school-aged children have different needs compared to those who are old enough to attend school. The age group division in the table considers the association between age, educational attainment, and professional trajectory.

As expected, women who were younger mothers and had pre-school-aged children present the highest gap (compared to fathers): 55.52 p.p. in 2012 and 47.4 p.p. in 2021. While for older women, this gap is 35.93p.p. in 2012 and 32.3p.p. in 2021.

The results in Table 3 show that mothers of pre-school-aged children who did not finish high school have fewer chances to participate in the labor force: 52.28 p.p. less than fathers in 2021. Among mothers of pre-school-aged children who have undergraduate degrees, the gap is 16.55 p.p. in relation to fathers. Meanwhile, educated childless women present the smallest gap in relation to their male peers: 12.07 p.p. in 2012 and 11.04 p.p. in 2021.

Van Winkle and Fasang (2020) found that the gaps between white mothers and fathers in the United States are wide early in life. Women who become mothers in early adulthood generally interrupt their studies and are unable to find high-paying jobs in the long term, while older women have had the opportunity to complete higher education and have a consolidated position in the labor market before having children.

TABLE 2
GENDER GAP IN LABOR FORCE PARTICIPATION BY AGE OF MOTHER AND YOUNGEST CHILD

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	24 or younger		25-30		31-35		36 or older	
Q4 2012								
Women (A)	-0.3395***	-0.3215***	-0.1903***	-0.1958***	-0.1687***	-0.1900***	-0.1891***	-0.2535***
	(0.0091)	(0.0104)	(0.0083)	(0.0089)	(0.0098)	(0.0106)	(0.0042)	(0.0038)
Child 0-5 (B)	-0.0072	0.0431***	-0.0053	0.0463***	0.0141*	0.0059	0.3391***	0.0101
	(0.0083)	(0.0131)	(0.0072)	(0.0103)	(0.0084)	(0.0104)	(0.0067)	(0.0070)
Child 6 a 18 (C)	-0.0495**	-0.0031	-0.0111	0.0458***	0.0048	0.0182*	0.2951***	0.0183***
	(0.0228)	(0.0246)	(0.0092)	(0.0118)	(0.0086)	(0.0106)	(0.0047)	(0.0052)
Women x Child 0-5 (D)	-0.2232***	-0.2337***	-0.2489***	-0.2455***	-0.2097***	-0.2025***	-0.1365***	-0.1058***
	(0.0118)	(0.0115)	(0.0101)	(0.0100)	(0.0119)	(0.0116)	(0.0095)	(0.0086)
Women x Child 6-18 (E)	0.0376	-0.0060	-0.1523***	-0.1526***	-0.1164***	-0.1077***	-0.0669***	-0.0492***
	(0.0322)	(0.0315)	(0.0129)	(0.0128)	(0.0121)	(0.0120)	(0.0066)	(0.0059)
Constant (F)	0.9672***	0.9318***	0.9633***	0.9268***	0.9445***	0.9505***	0.6049***	0.7702***
	(0.0064)	(0.0092)	(0.0058)	(0.0081)	(0.0069)	(0.0088)	(0.0029)	(0.0031)
Observations	16,899	16,892	28,628	28,617	28,172	28,165	87,916	87,911
R-squared	0.3077	0.3538	0.2170	0.2508	0.1596	0.2055	0.1344	0.3265
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Gender Gap								
Childless(A)	-0,3395	-0,3215	-0,1903	-0,1958	-0,1687	-0,19	-0,1891	-0,2535
With Child 0-5 (A+D)	-0,5627	-0,5552	-0,4392	-0,4413	-0,3784	-0,3925	-0,3256	-0,3593
With Child 6-18 (A+E)	-0,3019	-0,3275	-0,3426	-0,3484	-0,2851	-0,2977	-0,256	-0,3027
Q4 2021								
Women (A)	-0.2430***	-0.2246***	-0.1382***	-0.1506***	-0.1374***	-0.1557***	-0.1666***	-0.2307***
	(0.0111)	(0.0125)	(0.0091)	(0.0098)	(0.0101)	(0.0109)	(0.0038)	(0.0033)
Child 0-5 (B)	-0.0052	0.0636***	-0.0033	0.0536***	0.0130	0.0336***	0.3560***	0.0106*
	(0.0106)	(0.0150)	(0.0083)	(0.0115)	(0.0089)	(0.0112)	(0.0064)	(0.0064)
Child 6-18 (C)	0.0119	0.0890***	-0.0171	0.0491***	-0.0088	0.0327***	0.3100***	0.0214***
	(0.0329)	(0.0339)	(0.0115)	(0.0140)	(0.0098)	(0.0119)	(0.0047)	(0.0050)
Women x child 0-5 (D)	-0.2353***	-0.2494***	-0.2575***	-0.2506***	-0.1845***	-0.1838***	-0.1181***	-0.0923***
	(0.0150)	(0.0145)	(0.0117)	(0.0114)	(0.0126)	(0.0122)	(0.0090)	(0.0079)
Women x child 6-18 (E)	-0.0843*	-0.1372***	-0.1651***	-0.1653***	-0.1103***	-0.1067***	-0.0576***	-0.0457***
	(0.0465)	(0.0451)	(0.0162)	(0.0159)	(0.0138)	(0.0135)	(0.0067)	(0.0058)
Constant (F)	0.9525***	0.9089***	0.9627***	0.9284***	0.9518***	0.9390***	0.5965***	0.7521***
	(0.0079)	(0.0101)	(0.0064)	(0.0085)	(0.0071)	(0.0091)	(0.0027)	(0.0027)
Observations	10,276	10,272	17,836	17,830	18,934	18,929	93,960	93,958

R-squared	0.2304	0.2942	0.1867	0.2453	0.1300	0.2015	0.1296	0.3624
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Gender Gap								
Childless(A)	-0,2430	-0,2246	-0,1382	-0,1506	-0,1374	-0,1557	-0,1666	-0,2307
With Child 0-5 (A+D)	-0,4783	-0,4740	-0,3957	-0,4012	-0,3219	-0,3395	-0,2847	-0,3230
With Child 6-18 (A+E)	-0,3273	-0,3618	-0,3033	-0,3159	-0,2477	-0,2624	-0,2242	-0,2764

PNADC provided by IBGE. Controls include fixed effects of age, race, education, region, household size and urban. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Educated women tend to live in more favorable socioeconomic conditions, being able to circumvent the limitations imposed by motherhood easily. For example, they have more resources to obtain support or even put their children to attend kindergartens/private schools. Thus, labor market participation for educated women is potentially less affected by motherhood than for women with lower educational attainment.

TABLE 3
GENDER GAP IN LABOR FORCE PARTICIPATION BY AGE GROUP OF THE YOUNGEST CHILD AND MOTHERS EDUCATIONAL ATTAINMENTATTAINMENT

	(1)	(2)	(3)	(4)	(5)	(6)
Mother's education	**Less than highschool**		**Highschool**		**Undergraduate or more**	
Q4 2012						
Women (A)	-0.2468***	-0.2933***	-0.1856***	-0.2089***	-0.0693***	-0.1207***
	(0.0043)	(0.0040)	(0.0061)	(0.0063)	(0.0077)	(0.0076)
Child 0-5 (B)	0.3100***	0.0373***	0.1027***	-0.0002	0.1404***	-0.0166
	(0.0048)	(0.0056)	(0.0060)	(0.0077)	(0.0085)	(0.0113)
Child 6-18 (C)	0.2691***	0.0269***	0.0760***	-0.0082	0.1114***	-0.0097
	(0.0047)	(0.0053)	(0.0064)	(0.0079)	(0.0089)	(0.0114)
Women x child 0-5 (D)	-0.2874***	-0.2401***	-0.1982***	-0.1752***	-0.0950***	-0.0662***
	(0.0068)	(0.0063)	(0.0085)	(0.0081)	(0.0120)	(0.0107)
Women x child 6-18 (E)	-0.0954***	-0.0828***	-0.0455***	-0.0424***	-0.0138	-0.0086
	(0.0067)	(0.0062)	(0.0090)	(0.0087)	(0.0126)	(0.0113)
Constant (F)	0.6286***	0.7902***	0.8643***	0.9339***	0.8456***	0.9460***
	(0.0030)	(0.0033)	(0.0043)	(0.0054)	(0.0055)	(0.0070)
Observations	98,601	98,599	45,958	45,956	17,056	17,048
R-squared	0.1888	0.3289	0.1261	0.2131	0.0469	0.2541
Controls	No	Yes	No	Yes	No	Yes
Gender Gap						
Childless(A)	-0.2468	-0.2933	-0.1856	-0.2089	-0.0693	-0.1207
With Child 0-5 (A+D)	-0,5342	-0,5334	-0,3838	-0,3841	-0,1643	-0,1869
With Child 6-18 (A+E)	-0,3422	-0,3761	-0,2311	-0,2513	-0,0831	-0,1293

Q4 2021						
Women (A)	-0.2198***	-0.2668***	-0.1546***	-0.1853***	-0.0585***	-0.1104***
	(0.0045)	(0.0041)	(0.0058)	(0.0058)	(0.0067)	(0.0064)
Child 0-5 (B)	0.3582***	0.0583***	0.1539***	0.0258***	0.1569***	-0.0175*
	(0.0061)	(0.0067)	(0.0061)	(0.0073)	(0.0075)	(0.0090)
Child 6-18 (C)	0.3032***	0.0430***	0.1281***	0.0291***	0.1233***	-0.0092
	(0.0062)	(0.0064)	(0.0064)	(0.0074)	(0.0078)	(0.0091)
Women x child 0-5 (D)	-0.2977***	-0.2560***	-0.2031***	-0.1758***	-0.0860***	-0.0551***
	(0.0086)	(0.0077)	(0.0086)	(0.0080)	(0.0106)	(0.0092)
Women x child 6-18 (E)	-0.1337***	-0.1233***	-0.0753***	-0.0682***	-0.0177	-0.0111
	(0.0088)	(0.0078)	(0.0091)	(0.0084)	(0.0111)	(0.0097)
Constant (F)	0.5707***	0.7075***	0.8128***	0.8920***	0.8193***	0.9253***
	(0.0032)	(0.0032)	(0.0041)	(0.0048)	(0.0047)	(0.0055)
Observations	70,702	70,702	46,236	46,235	24,068	24,064
R-squared	0.1625	0.3542	0.1036	0.2450	0.0440	0.2857
Controls	No	Yes	No	Yes	No	Yes
Gender Gap						
Childless(A)	-0.2198	-0.2668	-0.1546	-0.1853	-0.0585	-0.1104
With Child 0-5 (A+D)	-0,5175	-0,5228	-0,3577	-0,3611	-0,1445	-0,1655
With Child 6-18 (A+E)	-0,3535	-0,3901	-0,2299	-0,2535	-0,0762	-0,1215

PNADC provided by IBGE. Controls include fixed effects of age, race, education, region, household size and urban. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

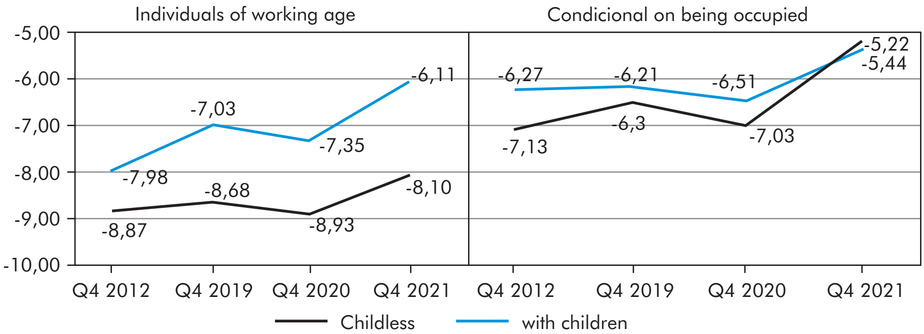
4.3. *Effects on Wages*

Figure 3 presents the gender gap in hourly wage considering two scenarios: on the left, we see the gender gap for all individuals aged 15 to 64, including those unemployed who do not have income (i.e. we assume zero income for unemployed); while on the right, we see the gender gap conditioning on being employed. In 2021, considering all individuals of working age, mothers received R$8.10 less than fathers per hour, while childless women received R$6.11 less than childless men (see Appendix B.).

Wage inequality is a persistent issue once women manage to overcome barriers to entry into the labor force.Yahmed (2018) found that in Brazil the adjusted gender wage gap is on average 24% among formal employees and about 20% among informal employees in 2015.

Womens chances of upward occupational mobility diminish the longer they are out of the labor force (Aisenbrey et al. (2009)). Given women are not represented in high-income sectors, occupations, and job positions, gender pay gaps are larger at the top of the earnings distribution (Blau and Kahn (2017)). Moreover, temporary exit from the labor market and a reduction in work hours after childbirth hinder mothers earnings. Household specialization, time constraints, change in human capital, and employer discrimination are factors that create occupational differences between parents and childless couples (Van Winkle and Fasang (2020).

FIGURE 3 – Gender gap in hourly wage



Source: PNADC provided by IBGE. Note: Estimations with controls. More details in the Appendix B.

In the scenario at the right, in which they are already occupied in the labor force, the wage differential between women and men (with and without children) is not substantially different. Taking together, these results indicate that the wage differential between couples with and without children comes mostly from labor market participation rather than from wage differences in the labor market itself. Cortés and Pan (2020) calculated that nearly two-thirds of the overall gender earnings gap is accounted for by the differential impacts of parenthood on men and women in the United States.

As the main caregivers of children, mothers are seen by employers as more likely to leave their jobs to devote themselves to family and, after the birth of their children, reduce their hours of paid work (Blau and Kahn (2017)). Villanueva and Lin (2020) indicate that employer discrimination against mothers and individual characteristics of labor supply, such as differences in human capital and work preferences, are the main explanations for the observed differences between mothers and non-mothers and, consequently, between mothers and fathers. Generally, mothers abdicate from labor market experiences as their number of children increases, while fathers with a high number of children might be motivated to seek higher wages (Van Winkle and Fasang (2020)).

The results in this section indicate that over the last ten years, the gender disparities have reduced but remained significant, especially in the presence of young children. Although this paper does not explore in detail the mechanisms behind this phenomenon, the literature presents evidence, such as the depreciation of female human capital and its lower accumulation due to motherhood; women's choice of more flexible occupations with lower salaries; and discriminby employers against mothers and women who potentially will be mothers. Moreover, as the principal caregivers of children, mothers may be seen by some employers as more likely to leave their jobs to devote themselves to family life and, after childbirth, reduce their work hours.

5. Conclusion

Our findings call attention to the gender inequalities in the Brazilian labor market and the effect the pandemic had on them. Gender divisions of social roles and access to resources, including decision-making, make men and women experience the labor market differently, especially in times of crisis. The results show that the economic effects of having a child differ significantly between men and women, although there have been improvements in female participation over the past years.

We found that the participation gap between mothers and fathers in the labor force is notably higher than the gender gap between childless women and men in the last decade. Women who became mothers at younger ages are less likely to participate in the labor force.

Childrens age matters for womens trajectory and professional choices. The younger the youngest child in the household is, the less likely it is for the mother to be in the labor force. As children grow, women tend to increase their probability of being in the labor force. Women who were younger mothers and had pre-school-aged children present the highest gap. Moreover, mothers of pre-school-aged children who did not finish high school have fewer chances to participate in the labor force.

In relation to the gender earnings gap, we calculated that in 2021 mothers received 8.10 reais less than fathers per hour, while childless women received 6.11 reais less than childless men. Measuring the gaps in wages and labor participation between men and women, specifically between fathers and mothers, and outlining the trajectory of these differentials over the last decade, contributes to the debates on obstacles and possibilities for mid and long-term mitigation of gender inequalities and the effect of Covid-19 in the Brazilian labor market. Future research may explore sub samples stratified by total household composition, geographic region, race/color, or spousal education.

In Brazil, having children is associated with an increase in the gender gap in labor force participation and wages for heterosexual couples, due to the decrease in the income of women when they become mothers. Interrupting and changing this pattern permeates complex sociological issues, such as the historical association between family formation processes and gender norms. In this sense, the results show the urgency of public policies to promote gender equality and balance between work and family life, such as the expansion of daycare centers and full-time schools in Brazil; the possibility of flexible arrangements in full-time positions; and the increase in paternity leave alongside the creation of an extensive parental leave.

References

Adda, J., C. Dustmann, and K. Stevens (2017). The career costs of children. Journal of Political Economy 125(2), 293–337.

Aisenbrey, S., M. Evertsson, and D. Grunow (2009). Is there a career penalty for mothers' time out? a comparison of germany, sweden and the united states. Social Forces 88(2), 573–605.

Andrade, J. L. and M. S. da Cunha (2021). The impact of postponing motherhood on women's income in brazil. Economia Aplicada 25(1), 65–92.

Angelov, N., P. Johansson, and E. Lindahl (2016). Parenthood and the gender gap in pay. Journal of labor economics 34(3), 545–579.

Aragao, C. and A. Villanueva (2021). How do mothers work? kin coresidence and mothers work in latin america. Demographic Research 45, 917–956.

Berniell, I., L. Berniell, D. De la Mata, M. Edo, and M. Marchionni (2021). Gender gaps in labor informality: The motherhood effect. Journal of Development Economics 150, 102599.

Blau, F. D. and L. M. Kahn (2017). The gender wage gap: Extent, trends, and explanations. Journal of economic literature 55(3), 789–865.

Choi, S. and M. Park (2019). Parenthood wage differentials in south korea. KDI School of Pub Policy & Management Paper (19-15).

Chung, Y., B. Downs, D. H. Sandler, R. Sienkiewicz, et al. (2017). The parental gender earnings gap in the united states. Technical report.

Cortés, P. and J. Pan (2020). Children and the remaining gender gaps in the labor market. Technical report, National Bureau of Economic Research.

Gafni, D. and E. Siniver (2018). The motherhood penalty: Is it a wage-dependent family decision? The BE Journal of Economic Analysis & Policy 18(4).

Giuliano, P. (2017). Gender: An historical perspective. Glauber, R. (2018). Trends in the motherhood wage penalty and fatherhood wage premium for low, middle, and high earners. Demography 55(5), 1663–1680.

Glaubitz, R., A. Harnack-Eber, and M. Wetter (2022). The gender gap in lifetime earnings: The role of parenthood.

Guiginski, J. T. et al. (2019). O prêmio salarial masculino do casamento no brasil.

Juhn, C. and K. McCue (2017). Specialization then and now: Marriage, children, and the gender earnings gap across cohorts. Journal of Economic Perspectives 31(1), 183–204.

Kleven, H., C. Landais, and J. E. Søgaard (2019). Children and gender inequality: Evidence from denmark. American Economic Journal: Applied Economics 11(4), 181–209.

Lebedinski, L., C. Perugini, and M. Vladisavljević (2022). Child penalty in russia: evidence from an event study. Review of Economics of the Household, 1–43.

Liefbroer, A. C. (2009). Changes in family size intentions across young adulthood: A life-course perspective. European Journal of Population/Revue européenne de Démographie 25(4), 363–386.

Machado, C., M. C. Neri, and V. R. de Pinho Neto (2018). The gender gap, education, and the life cycle profile in the brazilian formal labour market. Technical report, WIDER Working Paper.

Machado, C. and V. R. d. Pinho Neto (2016). The labor market consequences of maternity leave policies: evidence from brazil.

Mammen, K. and C. Paxson (2000). Women's work and economic development. Journal of economic perspectives 14(4), 141–164.

Muniz, J. O. and C. Z. Veneroso (2019). Diferenciais de participação laboral e rendimento por gênero e classes de renda: uma investigação sobre o ônus da maternidade no brasil. Dados 62.

Rosa, A. M. P., M. S. da Cunha, and M. R. Vasconcelos (2020). Evidências sobre o impacto da maternidade no mercado de trabalho brasileiro, 1995-2015. Econômica 22(1).

Ruggles, S. (2015). Patriarchy, power, and pay: The transformation of american families, 1800–2015. Demography 52(6), 1797–1823.

Tenoury, G. N. C. d. S., R. C. Madalozzo, and S. R. Martins (2021). Diferença salarial e taxa de participação no mercado de trabalho brasileiro: uma análise a partir do sexo dos indivíduos. Estudos Econômicos (São Paulo) 51, 33–72.

Van Winkle, Z. and A. E. Fasang (2020). Parenthood wage gaps across the life course: A comparison by gender and race. Journal of Marriage and Family 82(5), 1515–1533.

Villanueva, A. and K.-H. Lin (2020). Motherhood wage penalties in latin america: The significance of labor informality. Social Forces 99(1), 59–85.

Yahmed, S. B. (2018). Formal but less equal. gender wage gaps in formal and informal jobs in urban brazil. World Development 101, 73–87.

Yu, J. and Y. Xie (2018). Motherhood penalties and living arrangements in china. Journal of Marriage and Family 80(5), 1067–1086.

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A Appendix A: Summary Statistics

Table A1:
Descriptive Statistics - Households

	(1)	(2)
Variables	**mean**	**SD**
With Children	0.5493	0.4976
Household size	3.2234	1.1809
Urban	0.8428	0.3640
Female	0.5000	0.5000
North	0.0802	0.2716
Northeast	0.2564	0.4366
Southeast	0.4223	0.4939
South	0.1617	0.3681
Central-West	0.0794	0.2704
N	288.220	

Source: PNADC provided by IBGE

TABLE A2
DESCRIPTIVE STATISTICS - MEN AND WOMEN

	(1)	(2)	(3)	(4)	(5)	(6)
	Total		Female		Male	
Variables	**mean**	**SD**	**mean**	**SD**	**mean**	**SD**
Race						
White	0.4470	0.4972	0.4537	0.4979	0.4403	0.4964
Black	0.0904	0.2867	0.0837	0.2769	0.0971	0.2961
Yellow/Asian	0.0070	0.0833	0.0072	0.0846	0.0068	0.0820
Brown	0.4522	0.4977	0.4518	0.4977	0.4525	0.4977
Indigenous	0.0033	0.0576	0.0034	0.0584	0.0032	0.0569
No identification	0.0002	0.0129	0.0002	0.0133	0.0002	0.0124
Education						
Illiterate	0.0402	0.1964	0.0335	0.1799	0.0469	0.2113
Incomplete Elementary School	0.2837	0.4508	0.2552	0.4360	0.3121	0.4634
Complete Elementary School	0.0895	0.2855	0.0855	0.2796	0.0935	0.2912
Incomplete High School	0.0607	0.2388	0.0620	0.2411	0.0594	0.2365
Complete High School	0.3129	0.4637	0.3268	0.4691	0.2989	0.4578
Incomplete Undergraduate	0.0406	0.1973	0.0429	0.2026	0.0383	0.1919
Complete Undergraduate	0.1725	0.3778	0.1941	0.3955	0.1508	0.3579
N	576,440		288,220		288,220	

Source: PNADC provided by IBGE

B APPENDIX B: ADDITIONAL RESULTS

B.1 General Results - Others Periods

TABLE B1
GENDER GAP IN THE LABOR FORCE PARTICIPATION

	Q4 2012		Q4 2019		Q4 2020		Q4 2021	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
women (A)	-0.2046***	-0.2472***	-0.1630***	-0.2098***	-0.1703***	-0.2220***	-0.1669***	-0.2150***
	(0.0033)	(0.0030)	(0.0030)	(0.0026)	(0.0041)	(0.0036)	(0.0033)	(0.0029)
With Child (B)	0.2130***	0.0116***	0.2298***	0.0144***	0.2576***	0.0211***	0.2419***	0.0221***
	(0.0030)	(0.0037)	(0.0029)	(0.0034)	(0.0039)	(0.0046)	(0.0032)	(0.0038)
women with child (C)	-0.1500***	-0.1244***	-0.1274***	-0.1046***	-0.1401***	-0.1163***	-0.1358***	-0.1143***
	(0.0043)	(0.0039)	(0.0041)	(0.0036)	(0.0055)	(0.0048)	(0.0046)	(0.0040)
Constant (D)	0.7251***	0.8596***	0.7100***	0.8421***	0.6619***	0.8114***	0.6969***	0.8296***
	(0.0024)	(0.0026)	(0.0021)	(0.0022)	(0.0029)	(0.0031)	(0.0023)	(0.0024)
Observations	161,615	161,612	170,439	170,439	103,356	103,354	141,006	141,006
R-squared	0.1329	0.3075	0.1045	0.3327	0.1159	0.3337	0.1094	0.3420
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Gender Gap								
Childless couple (A)	-0,2046	-0,2472	-0,163	-0,2098	-0,1703	-0,222	-0,1669	-0,215
With Child (A+C)	-0,3546	-0,3716	-0,2904	-0,3144	-0,3104	-0,3383	-0,3027	-0,3293

PNADC provided by IBGE. Controls include fixed effects of age, race, education, region, household size and urban. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B2:
Gender Gap in the Labor Force Participation by Age of the Youngest Child

	Q4 2012		Q4 2019		Q4 2020		Q4 2021	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
women	-0.2046***	-0.2491***	-0.1630***	-0.2109***	-0.1703***	-0.2230***	-0.1669***	-0.2160***
age 0	0.2405***	0.0169**	0.2498***	0.0114*	0.2796***	0.0157*	0.2574***	0.0176**
age 1	0.2309***	0.0107*	0.2450***	0.0097	0.2851***	0.0246***	0.2652***	0.0240***
age 2	0.2316***	0.0079	0.2497***	0.0119*	0.2809***	0.0126	0.2573***	0.0170**
age 3	0.2292***	0.0062	0.2473***	0.0100	0.2703***	0.0170**	0.2623***	0.0155**
age 4	0.2240***	0.0061	0.2380***	0.0006	0.2790***	0.0145	0.2605***	0.0201***
age 5	0.2254***	0.0082	0.2500***	0.0169**	0.2696***	0.0123	0.2556***	0.0202**
age 6	0.2243***	0.0088	0.2336***	0.0041	0.2522***	0.0020	0.2523***	0.0172**
age 7	0.2152***	0.0056	0.2331***	0.0139*	0.2637***	0.0083	0.2460***	0.0140
age 8	0.2127***	0.0091	0.2312***	0.0182**	0.2689***	0.0270**	0.2453***	0.0155*
age 9	0.2128***	0.0148*	0.2300***	0.0118	0.2238***	-0.0079	0.2365***	0.0207**
age 10	0.2046***	0.0139	0.2175***	0.0155*	0.2505***	0.0291**	0.2324***	0.0214**
age 11	0.1929***	0.0097	0.2163***	0.0236**	0.2377***	0.0251**	0.2500***	0.0436***
age 12	0.1887***	0.0127	0.2043***	0.0212**	0.2438***	0.0345***	0.2038***	0.0138
age 13	0.1846***	0.0069	0.2054***	0.0305***	0.2326***	0.0500***	0.2199***	0.0428***
age 14	0.1732***	0.0112	0.1928***	0.0215**	0.2374***	0.0603***	0.1796***	0.0045
age 15	0.1807***	0.0279**	0.1912***	0.0391***	0.2209***	0.0433***	0.1721***	0.0176
age 16	0.1371***	0.0171	0.1507***	0.0121	0.1912***	0.0570***	0.1874***	0.0293**
age 17	0.1314***	0.0169	0.1469***	0.0159	0.1775***	0.0343**	0.1710***	0.0559***
age 18	0.1025***	0.0167	0.1287***	0.0122	0.0860***	-0.0390**	0.1198***	0.0193
women with child age 0	-0.3528***	-0.3072***	-0.2972***	-0.2540***	-0.2909***	-0.2548***	-0.3168***	-0.2785***
women with child age 1	-0.2819***	-0.2430***	-0.2315***	-0.1927***	-0.2600***	-0.2222***	-0.2379***	-0.2015***
women with child age 2	-0.2018***	-0.1644***	-0.1658***	-0.1317***	-0.1876***	-0.1534***	-0.1860***	-0.1561***
women with child age 3	-0.1737***	-0.1426***	-0.1528***	-0.1206***	-0.1861***	-0.1552***	-0.1506***	-0.1203***
women with child age 4	-0.1530***	-0.1239***	-0.1037***	-0.0768***	-0.1080***	-0.0764***	-0.1231***	-0.0980***
women with child age 5	-0.1342***	-0.1078***	-0.0972***	-0.0720***	-0.1098***	-0.0845***	-0.0986***	-0.0774***
women with child age 6	-0.1092***	-0.0880***	-0.0659***	-0.0485***	-0.0925***	-0.0682***	-0.1140***	-0.0929***
women with child age 7	-0.0921***	-0.0732***	-0.0837***	-0.0712***	-0.1068***	-0.0847***	-0.0900***	-0.0714***
women with child age 8	-0.0979***	-0.0828***	-0.0735***	-0.0642***	-0.0963***	-0.0816***	-0.0767***	-0.0579***
women with child age 9	-0.0669***	-0.0552***	-0.0703***	-0.0584***	-0.0404**	-0.0298**	-0.1020***	-0.0932***
women with child age 10	-0.0749***	-0.0662***	-0.0628***	-0.0605***	-0.0756***	-0.0653***	-0.0507***	-0.0457***
women with child age 11	-0.0508***	-0.0447***	-0.0659***	-0.0636***	-0.0452**	-0.0463***	-0.0547***	-0.0498***
women with child age 12	-0.0548***	-0.0515***	-0.0675***	-0.0688***	-0.0956***	-0.0888***	-0.0677***	-0.0734***
women with child age 13	-0.0515***	-0.0469***	-0.0329**	-0.0428***	-0.0797***	-0.0963***	-0.0878***	-0.0941***
women with child age 14	-0.0287*	-0.0301**	-0.0584***	-0.0616***	-0.0888***	-0.0962***	-0.0433**	-0.0461***
women with child age 15	-0.0762***	-0.0786***	-0.0440**	-0.0550***	-0.0859***	-0.0902***	-0.0145	-0.0255
women with child age 16	-0.0577***	-0.0743***	-0.0140	-0.0316*	-0.0497**	-0.0753***	-0.0560***	-0.0661***
women with child age 17	-0.0356*	-0.0515***	-0.0403**	-0.0536***	-0.0825***	-0.1015***	-0.0603***	-0.0854***
women with child age 18	0.0023	-0.0228	-0.0370*	-0.0541***	0.0210	0.0098	0.0202	-0.0111
Constant	0.7251***	0.8622***	0.7100***	0.8440***	0.6619***	0.8140***	0.6969***	0.8316***
Observations	161,615	161,612	170,439	170,439	103,356	103,354	141,006	141,006
R-squared	0.1430	0.3160	0.1115	0.3384	0.1222	0.3392	0.1164	0.3478
Controls	No	Yes	No	Yes	No	Yes	No	Yes

PNADC provided by IBGE. Controls include fixed effects of age, race, education, region, household size and urban.
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE B3:
GENDER GAP IN THE LABOR FORCE PARTICIPATION BY MOTHERS AGE AT BIRTH OF FIRST CHILD

	Q4 2012		Q4 2019		Q4 2020		Q4 2021	
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
women	-0.4523***	-0.4538***	-0.4108***	-0.4163***	-0.4293***	-0.4322***	-0.4336***	-0.4379***
age 19	0.0228*	0.0218*	-0.0094	-0.0128	-0.0073	-0.0120	-0.0165	-0.0286*
age 20	-0.0000	-0.0031	0.0103	-0.0022	0.0143	0.0037	-0.0047	-0.0123
age 21	0.0086	0.0026	-0.0043	-0.0193	0.0137	-0.0029	-0.0200	-0.0409***
age 22	0.0012	-0.0060	-0.0041	-0.0216*	-0.0030	-0.0233	-0.0156	-0.0378***
age 23	0.0129	0.0034	-0.0017	-0.0201*	-0.0081	-0.0306*	0.0045	-0.0207
age 24	0.0131	0.0024	0.0051	-0.0203*	-0.0181	-0.0476***	-0.0082	-0.0359***
age 25	0.0006	-0.0142	-0.0096	-0.0370***	0.0012	-0.0294*	-0.0017	-0.0290**
age 26	0.0025	-0.0145	-0.0056	-0.0352***	-0.0040	-0.0434***	-0.0008	-0.0383***
age 27	0.0056	-0.0148	0.0051	-0.0338***	0.0037	-0.0454***	-0.0023	-0.0416***
age 28	0.0076	-0.0196*	0.0066	-0.0318***	0.0172	-0.0413***	-0.0089	-0.0500***
age 29	0.0004	-0.0262**	0.0112	-0.0375***	-0.0032	-0.0613***	-0.0068	-0.0565***
age 30	0.0026	-0.0279***	0.0135	-0.0365***	-0.0007	-0.0638***	-0.0087	-0.0594***
age 31	-0.0021	-0.0329***	-0.0132	-0.0706***	0.0102	-0.0555***	-0.0147	-0.0674***
age 32	-0.0074	-0.0428***	-0.0039	-0.0564***	0.0039	-0.0675***	-0.0030	-0.0606***
age 33	-0.0112	-0.0472***	-0.0087	-0.0666***	0.0080	-0.0652***	-0.0029	-0.0701***
age 34	-0.0098	-0.0522***	-0.0047	-0.0639***	-0.0000	-0.0831***	-0.0205	-0.0791***
age 35	-0.0214*	-0.0587***	-0.0155	-0.0801***	-0.0405**	-0.1096***	-0.0115	-0.0824***
age 36	-0.0294**	-0.0619***	-0.0077	-0.0803***	0.0093	-0.0816***	-0.0007	-0.0742***
age 37	-0.0314**	-0.0713***	-0.0089	-0.0823***	-0.0163	-0.1058***	-0.0238	-0.0999***
age 38	-0.0400**	-0.0749***	-0.0609***	-0.1253***	-0.0119	-0.0901***	-0.0381**	-0.1198***
age 39	-0.0451***	-0.0779***	-0.0621***	-0.1062***	-0.0589***	-0.1258***	-0.0445**	-0.1063***
age 40	-0.0997***	-0.1083***	-0.0862***	-0.1313***	-0.1054***	-0.1622***	-0.0733***	-0.1181***
women x age 18 or less	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
women x age 19	0.0207	0.0143	0.0714***	0.0709***	0.0025	-0.0048	0.1094***	0.1028***
women x age 20	0.0457***	0.0377**	0.0200	0.0152	-0.0278	-0.0355	0.0863***	0.0778***
women x age 21	0.0517***	0.0450***	0.0715***	0.0700***	0.0712***	0.0629**	0.0860***	0.0831***
women x age 22	0.0708***	0.0643***	0.0620***	0.0522***	0.0864***	0.0752***	0.0912***	0.0841***
women x age 23	0.0631***	0.0571***	0.0967***	0.0864***	0.0741***	0.0658***	0.0699***	0.0628***
women x age 24	0.0774***	0.0714***	0.0933***	0.0839***	0.1293***	0.1210***	0.1049***	0.0973***
women x age 25	0.0793***	0.0680***	0.1044***	0.0950***	0.0928***	0.0783***	0.1216***	0.1140***
women x age 26	0.1099***	0.1011***	0.1321***	0.1227***	0.1260***	0.1134***	0.1249***	0.1127***
women x age 27	0.0854***	0.0776***	0.0928***	0.0819***	0.1045***	0.0921***	0.1291***	0.1182***
women x age 28	0.1245***	0.1132***	0.0925***	0.0825***	0.1217***	0.1077***	0.1068***	0.0950***
women x age 29	0.1141***	0.0996***	0.1166***	0.1093***	0.1491***	0.1349***	0.1453***	0.1307***
women x age 30	0.1284***	0.1149***	0.1346***	0.1221***	0.1560***	0.1424***	0.1595***	0.1454***

women x age 31	0.1397***	0.1256***	0.1559***	0.1451***	0.1395***	0.1223***	0.1741***	0.1552***
women x age 32	0.1424***	0.1325***	0.1656***	0.1524***	0.1398***	0.1252***	0.1542***	0.1405***
women x age 33	0.1312***	0.1243***	0.1640***	0.1513***	0.1350***	0.1155***	0.1663***	0.1522***
women x age 34	0.1177***	0.1090***	0.1496***	0.1387***	0.1405***	0.1264***	0.1832***	0.1653***
women x age 35	0.1785***	0.1687***	0.2094***	0.1947***	0.1618***	0.1440***	0.1534***	0.1366***
women x age 36	0.1528***	0.1414***	0.1747***	0.1633***	0.1967***	0.1847***	0.1821***	0.1665***
women x age 37	0.1456***	0.1397***	0.1789***	0.1706***	0.1581***	0.1440***	0.1788***	0.1656***
women x age 38	0.1516***	0.1427***	0.2319***	0.2206***	0.1370***	0.1112***	0.1859***	0.1712***
women x age 39	0.1257***	0.1181***	0.1904***	0.1721***	0.1788***	0.1564***	0.1848***	0.1683***
women x age 40	0.1413***	0.1309***	0.1410***	0.1310***	0.1742***	0.1581***	0.1244***	0.1097***
Constant	0.9430***	0.9680***	0.9478***	0.9950***	0.9269***	0.9856***	0.9514***	1.0031***
Observations	93,946	93,946	84,146	84,146	49,706	49,706	65,627	65,627
R-squared	0.1782	0.2165	0.1374	0.1991	0.1422	0.1979	0.1431	0.2023
Controls	No	Yes	No	Yes	No	Yes	No	Yes

PNADC provided by IBGE. Controls include fixed effects of age, race, education, region, household size and urban. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE B4

GENDER GAP IN LABOR FORCE PARTICIPATION BY AGE OF MOTHER AND YOUNGEST CHILD

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	24 or younger		**25-30**		**31-35**		**36orolder**	
Q42019								
women (A)	-0.2644***	-0.2465***	-0.1282***	-0.1411***	-0.1266***	-0.1394***	-0.1266***	-0.1394***
	(0.0096)	(0.0108)	(0.0081)	(0.0088)	(0.0087)	(0.0093)	(0.0087)	(0.0093)
child 0-5(B)	-0.0097	0.0579***	0.0003	0.0625***	0.0076	0.0295***	0.0076	0.0295***
	(0.0091)	(0.0130)	(0.0072)	(0.0098)	(0.0076)	(0.0093)	(0.0076)	(0.0093)
child 6-18(C)	-0.0061	0.0674**	-0.0087	0.0618***	-0.0119	0.0412***	-0.0119	0.0412***
	(0.0286)	(0.0293)	(0.0102)	(0.0121)	(0.0083)	(0.0099)	(0.0083)	(0.0099)
women x child 0-5 (D)	-0.2262***	-0.2338***	-0.2469***	-0.2414***	-0.1832***	-0.1812***	-0.1832***	-0.1812***
	(0.0128)	(0.0123)	(0.0102)	(0.0099)	(0.0108)	(0.0104)	(0.0108)	(0.0104)
women x child 6-18 (E)	-0.0756*	-0.1131***	-0.1378***	-0.1367***	-0.1023***	-0.1047***	-0.1023***	-0.1047***
	(0.0405)	(0.0390)	(0.0144)	(0.0141)	(0.0117)	(0.0114)	(0.0117)	(0.0114)
constant (F)	0.9578***	0.9126***	0.9588***	0.9203***	0.9558***	0.9363***	0.9558***	0.9363***
	(0.0068)	(0.0089)	(0.0057)	(0.0075)	(0.0061)	(0.0076)	(0.0061)	(0.0076)
Observations	14,068	14,064	23,612	23,604	25,666	25,66	25,666	25,66
R-squared	0.2436	0.3180	0.1725	0.2308	0.1228	0.1983	0.1228	0.1983
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Gender Gap								
Childles s(A)	-0.2644	-0.2465	-0.1282	-0.1411	-0.1266	-0.1394	-0.1266	-0.1394

With Child 0-5 (A+D)	-0.4906	-0.4803	-0.3751	-0.3825	-0.3098	-0.3206	-0.3098	-0.3206
With Child 6-18 (A+E)	-0.34	-0.3596	-0.266	-0.2778	-0.2289	-0.2441	-0.2289	-0.2441
Q42020								
women (A)	-0.2466***	-0.2490***	-0.1664***	-0.1716***	-0.1567***	-0.1674***	-0.1651***	-0.2308***
	(0.0148)	(0.0167)	(0.0120)	(0.0131)	(0.0130)	(0.0137)	(0.0046)	(0.0040)
Child 0-5 (B)	-0.0040	0.0580***	-0.0083	0.0445***	0.0159	0.0526***	0.3709***	0.0022
	(0.0136)	(0.0203)	(0.0106)	(0.0155)	(0.0111)	(0.0143)	(0.0074)	(0.0076)
Child 6-18 (C)	0.0147	0.0879**	-0.0193	0.0465**	-0.0264**	0.0464***	0.3259***	0.0261***
	(0.0375)	(0.0398)	(0.0145)	(0.0184)	(0.0121)	(0.0150)	(0.0055)	(0.0060)
women x child 0-5 (D)	-0.2851***	-0.2920***	-0.2510***	-0.2498***	-0.1557***	-0.1531***	-0.1043***	-0.0758***
	(0.0192)	(0.0186)	(0.0150)	(0.0146)	(0.0158)	(0.0152)	(0.0105)	(0.0093)
women x child 6-18 (E)	-0.1491***	-0.1791***	-0.1525***	-0.1548***	-0.0599***	-0.0537***	-0.0776***	-0.0653***
	(0.0530)	(0.0515)	(0.0205)	(0.0202)	(0.0171)	(0.0165)	(0.0078)	(0.0068)
constant (F)	0.9442***	0.9104***	0.9454***	0.9094***	0.9334***	0.8975***	0.5618***	0.7305***
	(0.0104)	(0.0142)	(0.0085)	(0.0120)	(0.0092)	(0.0119)	(0.0033)	(0.0033)
Observations	6,618	6,611	12,948	12,939	14,868	14,859	68,922	68,918
R-squared	0.2711	0.3383	0.1896	0.2435	0.1107	0.1925	0.1362	0.3579
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Gender Gap								
Childless(A)	-0.2466	-0.249	-0.1664	-0.1716	-0.1567	-0.1674	-0.1651	-0.2308
With Child 0-5 (A+D)	-0.5317	-0.541	-0.4174	-0.4214	-0.3124	-0.3205	-0.2694	-0.3066
With Child 6-18 (A+E)	-0.3957	-0.4281	-0.3189	-0.3264	-0.2166	-0.2211	-0.2427	-0.2961

PNADC provided by IBGE. Controls include fixed effects of age, race, education, region, household size and urban. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.