Intergenerational Transmission of Working Behaviour: Preferences or Gender Role Identity? *

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Abstract

The positive association between parents and offspring's working status is well-established in the literature. In this paper we provide evidence on the gender role identity hypothesis behind the intergerenerational transmission of working behaviour among women from one generation to the next. We study the transmission of working behaviour between mothers and offspring in Uruguay. Based on longitudinal survey data combined with administrative labour records, we exploit the variation in the proportion of peers with working mothers across classes within schools to investigate to what extent the exposure to working women at early stages of the life cycle determines female labour supply as a young adult. Our results show that a higher exposure to working mothers has positive effects on women's labour outcomes. The magnitude of the effect is sizeable, and an increase in the peers variable by one standard deviation results in an increase of 6.3% in the probability of women ever having had a formal employment at age 24. Interestingly, the analysis of separate effects by peer's sex shows that the main effect is fully driven by same-sex peers. Robustness checks and estimates from an alternative empirical strategy give support to our results suggesting an impact of non-traditional factors such as gender norms on women's working behaviour.

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1 Introduction

The role of women in society has changed in recent decades, with women's participation in the labour market increasing dramatically (Chioda and Verdú, 2016). The causes of this phenomenon can be attributed to factors on both the supply and demand sides of the labour market. From the demand side, the main explanatory factor is the increase in the participation of the service sector over industrial production (Olivetti and Petrongolo, 2016; Fernandez, 2007). Among the main factors affecting the labour supply is the gender convergence in education attainment, the diffusion of time and labour saving technology, the availability and use of contraception methods (the pill), the expansion of care systems, and the updating of marriage and divorce laws (Blau and Kahn, 2017; Fernandez, 2007; Goldin, 1990). An emerging literature focuses on the role of the evolution of cultural beliefs and changes in gender norms behind the changes in the role of women in society (Bertrand et al., 2015; Fernández and Fogli, 2009; Fernandez, 2007). However, this remains an empirical question that depends on the specific context and moment in time.

Gender norms are social expectations about appropriate behaviours for men and women in a society (Bittman et al., 2003). They also comprehend expectations on the appropriate relationships between genders (Seguino, 2007). These norms are deeply embedded in both the formal and informal institutions of societies and transmitted from an early age through the socialization process. The transmission and social learning process of norms involves many actors that vary over the life cycle, with families being key at early stages and giving way to peers as children grow up. Social norms on gender roles can have effects at several levels, structuring identities, interactions, and institutions. In particular, these norms shape children's attitudes towards risk, their confidence and preferences, with long-lasting effects on other economic outcomes during adulthood (Bertrand, 2020; Fortin, 2015; Dohmen et al., 2012). Understanding how these attitudes and preferences are formed and transmitted from generation to generation turns crucial to identify potential obstacles girls face in their future economic outcomes.

In this paper we study the transmission of working behaviour between mothers and offspring in Uruguay. Following a similar approach to Olivetti et al. (2020) we investigate the role of socialisation during childhood on a woman's labour supply. Based on longitudinal data combined with administrative labour records, we exploit the variation in the proportion of peers with working mothers across classes within schools to estimate the intergenerational transmission of working behaviour. That is, to what extent the exposure to working women at early stages of the life cycle (while in first grade of primary school) determines female labour supply as a young adult.

Our results show that a higher exposure to working mothers has positive and robust effects on women's early adulthood labour outcomes. The magnitude of the effect is sizeable. An increase in the proportion of peers with working mothers by one standard deviation is associated with an increase of 6.3% in the probability of ever having had a formal employment at age 24. Results for the relationship between gender norms and female labour supply are similar or even higher compared to previous evidence (Rodríguez-Planas and Tanaka, 2022; Olivetti et al., 2020; Fernandez, 2007). Interestingly, the analysis of separate effects by peer's sex shows that the main effect is fully driven by same-sex peers.

Moreover, results hold when relying on an alternative empirical strategy. We follow Fernández et al. (2004) that measure the exposure to working women using the average fertility ratio of working women relative to non-working women, and exploit the variability between geographic localities in Uruguay. Based on Population Censuses Data, our estimates show a positive relationship between exposure to working mothers at early stages and women's working behaviour during adulthood. Moreover, our results also show that a higher exposure to working mothers leads to an increase in the probability of men being in couple with a working women.

The main challenge in this analysis is disentangling the mechanisms behind the main effects. To this aim, we run the same regressions for men. If the exposure to working mothers affect women's employment through changing gender-role identities we expect finding no effect among the men's sample. On the contrary, if affecting through changing preferences towards work, then we expect finding effects on men's labour supply as well. Our findings show no peer effects among men but some same-sex correlations when differentiating the effects by peers' sex. However, while the effects for women are consistently positive and significant across outcomes and specifications, the estimates for men are of lower magnitudes, less precise and not always significant. Taken together, these results align with both the gender-role identity hypothesis and also the transmission of preferences towards work.

This paper contributes to two strands of the literature. First, to the growing literature on gender norms. While there is extensive evidence on the role of culture and gender norms in shaping economic outcomes (Fernández and Fogli, 2009; Fernandez, 2007; Fortin, 2005), this evidence based on the epidemiological approach relies on aggregated data at the country -of ancestry- level as a proxy for culture. In contrast, our paper relies on longitudinal survey and administrative data at the individual level. Additionally, evidence on the gender norm's formation process is still scarce, with some evidence on the importance of the economic and cultural environments (Jayachandran, 2015; Alesina et al., 2013), the educational contexts (Querejeta, 2024; Dhar et al., 2022; Carlana, 2019; Alan et al., 2018), and the intergenerational transmission (Dhar et al., 2019; Farré and Vella, 2013; Fernández et al., 2004; Bisin and Verdier, 2001). Our paper relates to the latter, by adding new evidence on the effect of exposure to working mothers on female labour force participation in a developing country. For developed countries, there is evidence on the positive association between labour force participation of mothers and daughters (Olivetti et al., 2020; Dhar et al., 2019; Castro et al., 2018; Farré and Vella, 2013; Morrill and Morrill, 2013), and between the labour force participation of the husband's mother and his wife working behaviour (Campos-Vazquez and Velez-Grajales, 2014; Bütikofer, 2013; Kawaguchi and Miyazaki, 2009; Fernández et al., 2004). To the best of our knowledge, there are only a handful of studies from developing country contexts. Campos-Vazquez and Velez-Grajales (2014) use a Mexican nationally representative survey and find that husband's mother labour force participation increases the probability of the husband having a working wife. The authors further show the effects are driven by less-educated males. Uruguay emerges as an interesting case-study due to the contrasting realities of being one of the countries in the region with the highest female labour participation (Marchionni et al., 2019) and egalitarian gender views (Galván et al., 2023), but with significant labour gender gaps that remain after controlling for human capital characteristics (Colacce et al., 2020).

Second, this paper contributes to the peer effects literature. While there is extensive evidence on the short and long-run peer effects on educational outcomes (Bifulco et al., 2014), evidence on the persistence of peer influence on labour outcomes in the long-run is scarcer (Olivetti et al., 2020; Bifulco et al., 2014; Black et al., 2013). This is mainly because of data requirements on early peers' information combined with long-run outcomes at the individual level. The data used in this paper is novel in the context of developing countries by providing combined longitudinal survey data with administrative records of formal labour trajectories. Moreover, little is known about the peer effects on gender norms (Querejeta, 2024; Garcia-Brazales, 2021; Olivetti et al., 2020). The theory and evidence of gender development show that sex role stereotypes develop as early as age two (Kuhn et al., 1978), and by age five children begin to self-perceive their gender and behave according to cultural and social norms. Therefore, primary schools play a fundamental role in the socialization process of gender norms. In fact, our results show that peer interactions at early stages (while in first year of primary school) contribute to modify gender roles and increase women labour force participation while young adults.

Finally, from a policy perspective, the evidence on how gender norms are transmitted from generation to generation and its consequences on female labour trajectories makes the case for policies aiming at promote female labour force participation that can also have dynamic implications on subsequent generations. This is especially important for developing countries lagging behind in female labour force participation and labour gender gaps.

The rest of the paper proceeds as follows. Section 2 describes the data, estimation sample, and variables used in the analysis. The identification strategy and evidence on its validity is presented in Section 3. Section 4 shows the main results of the exposure to working mothers at early stages of the life course on female working behaviour at young adulthood, and provides evidence on their robustness and mechanisms. Section 5 provides evidence relying on a alternative empirical strategy. Finally, in Section 6 we discuss our results and conclude.

2 Data Description

We rely in two sources of information. First, data from the Uruguayan Longitudinal Well-being Study (hereafter ELBU)[1]. ELBU's Wave I was applied to students in first grade, draw from a nationally representative sample of all students enrolled at public primary school in 2004.[2] The in-school survey was conducted during 2004, with a total of 3,188 students interviewed in Wave I. The sampling design provides information on all children if there were up to two first-grade classes within each selected school, or two classes were randomly selected if more than two classes in the same school. There is information of more than one class for 82% of schools, which is crucial for our

[1]Data and all related documents are available through this link.

[2]ELBU follows the cohort of children in first grade of public primary schools in 2004. Public schools covered 90% of children attending schools that year, yet likely to under-represent children from the highest socioeconomic backgrounds. It is representative of departmental capital cities. The sample was drawn by the Institute of Statistics (FCEA-UDELAR) from the school size Census of 2002 carried out by national administration of public education (ANEP). Sixty schools in Montevideo and the metropolitan area, and fifty schools in five capital cities (Artigas, Canelones, Colonia, Florida, Montevideo, Paysandú, and Rivera) participated in the study.

identification strategy. Between 2016-17 a total of 1,368 were interviewed again in Wave IV. The longitudinal nature of the data is novel for our analysis providing information on students during childhood and early adulthood. The data includes students' demographic and socioeconomic information, and crucially also includes parent's working status at Wave I. Second, administrative records of formal workers registered in the social security institute of Uruguay. The data includes individuals' monthly records until December 2022, that is, up to around 24 years of age.

Estimation sample. Our primary dataset consists of a combination of survey data and administrative records for students enrolled in first grade of public primary school during 2004. To estimate the effect of early exposure to working mothers on future working behaviour, we restrict the sample to individuals with non-missing information in the main variables for analysis (at Wave I), in classes with more than 3 students and in schools with two or more classes. The estimation sample consists of 2,309 students -1,177 men and 1,131 women-, in 134 classes from 58 schools.

Main variables and descriptive statistics. Table 1 presents summary statistics for the main variables separately by sex. Among female students, the average age at Wave I (first grade) is 6, 27% of the students were the only children at their household and 66% lived with both parents. 47% were from the capital city (Montevideo) and 21% lived in households from low socioeconomic background[3]. 67% of mothers had at least some secondary education, and 56% were working at Wave I while 81% of fathers did. As per Wave IV, the average age is 18, 66% of women were still attending school, 91% have already reached secondary education or more, 48% had experienced previous grade repetition, and 13% have already had a child of her own (i.e., early pregnancy experience). Regarding the outcomes, we rely on administrative records on labour trajectories up to the age of 24 and compute three binary variables: taking value 1 if the person ever had a job ('Ever employed'), another taking value 1 if the person ever had a job for at least 3 consecutive months ('At least 3 months'), and if ever had a job for at least 6 consecutive months ('At least 6 months'). Due to the nature of the data, all employment outcomes refer only to formal employment. 65% of women in our sample were ever employed, 62% had at least a three consecutive months-job, and 56% a six-month job. Among male students, the percentage that were attending school, the level of education, and early pregnancy experience at Wave IV are lower, and previous grade repetition is higher compared to female students. Finally, the main independent variable is the peer variable computed as the leave-one-out distribution of class peers with working mothers excluding the student himself (herself). This peer variable is computed using the whole Wave I information before excluding any cases for the estimation sample so to account for the actual class composition. The proportion of peers with working mothers at Wave I is 54%, with a standard deviation of 0.16 for both, men and women.

[3]Computed as a binary variable taking value 1 if they are not owners nor tenants, but occupants of their home.

Table 1: Descriptive statistics

	Men			Women		
	Mean	SD	Obs.	Mean	SD	Obs.
Characteristics at Wave I						
Age	6.43	0.62	1,177	6.39	0.57	1,131
Was only child	0.28	0.45	1,177	0.27	0.44	1,131
Lived with parents	0.66	0.47	1,177	0.66	0.47	1,131
Capital city	0.45	0.50	1,177	0.47	0.50	1,131
Low SES	0.23	0.42	1,177	0.21	0.40	1,131
Mother secondary educ. or more	0.66	0.48	1,177	0.67	0.47	1,131
Own mother worked	0.58	0.49	1,177	0.56	0.50	1,131
Own father worked	0.80	0.40	1,177	0.81	0.39	1,131
Lives near school	0.79	0.41	1,177	0.82	0.39	1,131
Characteristics at Wave IV						
Age	18.25	0.74	476	18.19	0.71	510
Currently attending school	0.59	0.49	476	0.66	0.47	510
Own secondary educ. or more	0.89	0.32	449	0.91	0.29	486
Previous repetition	0.58	0.49	476	0.48	0.50	510
Any child	0.03	0.17	476	0.13	0.34	510
Low SES	0.23	0.42	461	0.25	0.44	495
Outcome variables (labor registries)						
Ever employed	0.67	0.47	1,177	0.65	0.48	1,131
At least 3 months	0.63	0.48	1,177	0.62	0.49	1,131
At least 6 months	0.58	0.49	1,177	0.56	0.50	1,131
Main independent variable (Wave I)						
Peers with working mothers	0.54	0.16	1,177	0.54	0.16	1,131

Notes: The table shows the mean and the standard deviation of student characteristics at Waves I and IV, the outcome variables at age 24 using labour administrative registries, and the main independent variable at Wave I for both male and female students. **Source:** author's elaboration based on ELBU's Waves I and IV, and labour administrative registries.

3 Identification Strategy

To identify the effect of the exposure to working mothers on women's employment behaviour, we estimate the following equation:

$$y_{icst+1} = \alpha + \beta_1 AE^m_{(-i)cst} + \beta_2 E^m_{icst} + \beta_3 X_{icst} + \lambda_s + \epsilon_{ics} \tag{1}$$

where y_{icst+1} is the outcome variable measured at time $t+1$ for individual i who was enrolled in class c and school s at time t. $AE^m_{(-i)cst}$ measures the leave-one-out proportion of class peers with working mothers, without taking into account student i. Thus, our coefficient of interest, β_1, accounts for the average effects of exposure to working mothers. E^m_{icst} is a dummy variable taking value 1 if student's own mother was working at time t. X_{icst} is a set of individual control variables at time t, including household composition, mother's level of education, father's employment status, socio-economic level, region of residence, and distance to school. λ_s are school-level fixed effects to control for potential sorting of students into schools, and ϵ_{ics} are individual standard errors clustered at the class level. We refrain from including control variables at time $t+1$ (e.g., level of education, having any child, among others in Wave IV) as they are likely to be endogenous and also

affected by the exposure to working mothers at early stages. Moreover, excluding these also allows a higher and potentially less biased estimation sample if in the presence of non-random attrition.

Our empirical strategy relies on the quasi-random variation in the proportion of peers with working mothers between classes within schools. Following Olivetti et al. (2020) and Lavy and Schlosser (2011), we perform two complementary analysis to investigate the validity of our identification strategy.

First, we provide evidence on the variability in our measure of exposure to working mothers. Table A.1 in the Appendix shows descriptive statistics for the raw proportion and number of peers with working mothers, and the residual variation that is left after removing school fixed effects. Results for female students show that, on average, 53.6 percent of peers' mothers were employed at the time of Wave I (12 peers), with a standard deviation of 15.9 percent (7.2 peers). The share of peers with working mothers ranges from 6.2 to 100 percent. The residual variation that is left after including school fixed effects and individual's controls reduced to 9.9 percent (4.4 students), accounting for 62 percent of the overall raw variation in the female sample. Results for the male student's sample are similar. That is, despite reduced variation in the proportion of peers with working mothers after removing school fixed effects, the extent that is left is still considerable as a source of variation for the identification of causal effects. Alternatively, Figure A.1 in the Appendix also provides support of sufficient variation in the proportion of peers with working mothers after removing school fixed effects and other controls.

Second, we perform a balancing test to explore whether classes with varying proportions of peers with working mothers are balanced in other characteristics. Table A.3 in the Appendix shows the results of regressing students' predetermined characteristics on the proportion of peers with working mothers and school fixed effects. Only one out of 9 variables resulted significant at the 10 percent level, providing evidence in support of no systematic bias.[4] In any case, all variables are included as controls in the main model specification.

Another potential challenge arise from the fact that we are measuring early exposure to working mothers only through first grade peers, and do not observe peers' composition at later stages. We argue that first grade classmates are a key reference group based on data from ELBU. In Wave III (at age 14) individuals were asked to name up to 5 of their closest friends. Information on the place where they meet and when they first met is also collected. 38% of individuals in our estimation sample declare friends from primary school, of which 77% were first grade mates. That is, 30% of individuals in our estimation sample declare first grade friends. These percentages are slightly higher among female students.[5]

In sum, we provide evidence of enough variability in the proportion of peers with working mothers between classes within schools and of no selection of students to classes. Taken together, these results support our identification strategy.

[4] Querejeta (2024) provides further evidence in favour of students being assigned to classes following an as-good-as-random process.

[5] The proportion of students in our estimation sample declaring at age 14 that they are still friends of first grade mates is slightly lower among individuals from lower socioeconomic background (26%). This pattern is mostly explained by male students.

4 Effect of exposure to working mothers on female employment

4.1 Baseline results

Table 2 reports peer effects estimates for our three main outcome variables on employment behaviour. All specifications include individual control variables and school fixed effects, and standard errors are clustered at the class level.

Coefficients are positive and statistically significant for the three considered outcomes, indicating that among women a higher exposure to working mothers while in primary education led to better employment outcomes during young adulthood. We find that an increase in the proportion of peers with working mothers by one standard deviation (0.16 pp as shown in Table 1) is associated with an increase in the probability of ever having had a formal employment at age 24 by 0.041 percentage points[6], which represents an increase of 6.3% of the outcome average in our sample[7].

Our results are similar to those found for the relationship between gender norms and female labour supply in the US. Olivetti et al. (2020) reports peer effects of 7%–9% in the probability of women working for pay at age 26–32, and Fernandez (2007) finds that an increase of one standard deviation in the country of ancestry's FLFP - cultural *proxy* - results in a 8% increase of average women's hours worked. Our results are however higher to that reported by Rodríguez-Planas and Tanaka (2022) who find that an increase of one standard deviation in the share of individuals with non-traditional beliefs results in an increase of 0.016 percentage points in women's work in Japan.

The coefficient associated with own mother employment status is positive in all cases but only significant at conventional levels for the outcome variable measuring at least 3 months of consecutive formal employment. However, it is almost significant for at least 6 months (p-val=0.103) and ever employed (p-val=0.166). It is worth noting that the estimate of running a simple regression of female employment on their own mother past working status is positive and statistically significant for all outcomes. The evidence on this is not conclusive with positive and significant correlations between female employment and own mother's employment found by Olivetti et al. (2020), but no association between the labour force participation of wives' mothers on wives' labour behaviour for the Mexican case based on Campos-Vazquez and Velez-Grajales (2014).

[6]Obtained from computing: $\beta_1 * AE^m_{SD}$ = 0.256 * 0.16 = 0.04096.
[7]Obtained from computing: $\frac{\beta_1 * AE^m_{SD}}{y_{Avg}} = \frac{0.256 * 0.16}{0.65}$ = 0.06302.

Table 2: Effects of peers with working mothers on females

	Ever employed	At least 3 months	At least 6 months
Peers with working mothers	0.256*	0.297**	0.243*
	(0.13)	(0.14)	(0.14)
Own mother worked	0.042	0.055*	0.049
	(0.03)	(0.03)	(0.03)
Mean	0.65	0.62	0.56
Observations	1131	1131	1131
Adjusted R2	0.066	0.069	0.078

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers, own mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

Table 3 shows the results of estimating the same equation but differentiating by peers' sex. That is, separately estimating the effect of exposure to female peers with working mothers and to male peers with working mothers.[8] This approach provides a more narrow definition of peer groups. While the main specification considers all classmates as peers, the assumption in this alternative specification is that individuals are closer to same-sex classmates. Considering the same information of Wave III as in Section 3, we observe that among those that at age 14 declare still having friends from first grade of primary school, 93% are same-sex friends. Indeed, our results suggest the main effect is driven by female peers' mothers working behaviour. That is, among women peer effects are fully explain by spillovers from mother's behaviour of the same sex peers.

Table 3: Effects of peers with working mothers on females - By peers sex

	Ever employed	At least 3 months	At least 6 months
Female Peers with working mothers	0.251***	0.239***	0.159*
	(0.08)	(0.09)	(0.09)
Male Peers with working mothers	-0.017	0.047	0.064
	(0.10)	(0.10)	(0.10)
Own mother worked	0.046	0.058*	0.050
	(0.03)	(0.03)	(0.03)
Mean	0.65	0.62	0.56
Observations	1131	1131	1131
Adjusted R2	0.068	0.070	0.077

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers by peer's sex, own mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

4.2 Robustness checks

In this subsection we report the results of robustness analyses giving support to the main results. All estimations are reported in the Appendix.

Including Wave IV controls. The main specification excludes control variables from Wave IV

[8] Table A.2 in the Appendix shows descriptive statistics for the raw proportion of female and male peers with working mothers, and the residual variation that is left after removing school fixed effects. Results provides support of sufficient variation identification of effects by peers' sex.

that might also had been affected by exposure to working mothers during early stages. This because these endogenous variables can be conceptualised as mechanisms. For instance, level of education or having had an early pregnancy could eliminate the indirect influence of exposure to working mothers on a woman's working behaviour. Moreover, excluding these also allows a higher and potentially less biased estimation sample if in the presence of non-random attrition. We run the main specification now including Wave IV control variables (i.e., excluding attritors). Table A.4 in the Appendix shows that the baseline results hold with this alternative specification.

Including other peer characteristics. As in Olivetti et al. (2020) we investigate to what extent our results could be driven by other contextual variables omitted in the main specification. Thus, we further test if the results hold when considering further peer characteristics in the main specification such as proportion of peers with educated mothers and proportion of peers from low socioeconomic status. Table A.5 in the Appendix shows that our main peer effect remains positive and statistically significant with the exception of 'At least 6 months' that turns non-significant (p-val=0.130).

Fathers. The main specification refrains to include the proportion of peers with working fathers. This based on the fact that employment among fathers is about 80% in our estimation sample, thus having little variation to exploit for peer effects. To test if the peer effect captured through the mother's working behaviour is a confounder effect of the socioeconomic level of the household, we run the same specification including as the main independent variable the proportion of peers with working fathers.[9] Table A.6 in the Appendix shows no peer effects from father working behaviour.

4.3 Mechanisms

In this subsection we explore some of the mechanisms that may be behind our main peer effect.

Gender roles or working preferences. To deep-dive into the mechanisms behind the peer effect, we run the main specification for the male students' subsample. If the exposure to working mothers affect women's employment through changing gender-role identities we expect finding no effect among the male's sample. On the contrary, if affecting through changing student's preferences towards work, then we expect finding peers effects on men labour supply as well. Results in Table A.7 in the Appendix show no peer effect among male students. This points towards the gender-role identity theory behind the peer effects among women. However, when differentiating the effects by peers' sex we find that same sex peer effects are in play for some outcomes also among male students (Table A.8). We will discuss this further in Section 6.

Gender attitudes and behaviours. We rely on novel information collected in Wave IV eliciting gender attitudes towards employment to explore if the exposure to working mothers at early stages affect behaviours and attitudes during early adulthood. Results in Table A.9 in the Appendix show that the exposure to working mothers significantly reduces agreement with the statement *"If possible, I would stop working to devote entirely to my family"* (Sacrificing job for family). There is no

[9] This is computed following the same procedure as the main peer variable, that is, as the leave-one-out distribution of class peers with working fathers excluding the student himself(herself) using all the information from Wave I.

effect on agreement with *"If my husband's salary were higher I would stop working"* (Sacrificing job for husband), nor with *"Even if my household income were sufficient, I would not stop working to preserve my autonomy"* (Importance of autonomy). Regarding behaviours, we find a reduction in the likelihood of having had any child although not significant at conventional levels (p-val=0.155). Recall that average age at the moment of measuring fertility experience -Wave IV- is 18 (Table 1), therefore this interesting result suggests a reduction in early pregnancy as a potential mechanism behind the positive peer effect on female employment.

Social capital. Finally, another potential mechanism could be the intergenerational transmission of employers and social capital. To explore the presence of this mechanism in our setting, we run the same specification distinguishing between mothers with formal or informal employment based on labour administrative records. The hypothesis is that the formal labour market sector can operate as a source of social capital. That is, parents with more attachment to the formal sector accumulate a broader network of social capital that children can use as part of their job search strategies. Indeed, Table A.10 in the Appendix shows a significantly higher correlation between a mother's formal working status and her children's formal job experience. Moreover, the peer effect seems to be fully driven by the proportion of peers with mothers working in the formal sector rather than the informal sector. It is important to recall that our main outcomes refer to formal employment, thus we can interpret this result as intergenerational transmission of networks, aspirations, and preferences towards a type of employment with specific characteristics such as those in the formal sector (stability and social protection).

5 Alternative empirical strategy: Geographic variation

In this section, we examine whether the exposure to working women during early stages of the life cycle affects female employment using an alternative empirical strategy. Following Fernández et al. (2004), we explore the correlation between a measure of working mothers in one generation and female employment in the next generation. We quantify the exposure to working women using the average fertility ratio of working women relative to non-working women and exploit the variation between geographic localities in Uruguay to analyse the intergenerational transmission of gender norms related to employment. The hypothesis is that the higher the proportion of children raised by working women, the higher the proportion of men and women in the next generation whose mothers worked. This exposure to working women would promote investing in market skills, particularly among women of the next generation. Thus, in presence of intergenerational transmission of gender norms, women born in localities with a higher fertility ratio are expected to exhibit higher employment rates when adults. Likewise, men exposed to working women are expected to exhibit greater preferences for a working wife. That is, we expect a positive correlation between the fertility ratio of one generation and female employment in the next generation.

5.1 Data and Empirical Strategy

To study the association between the exposure to working mothers and female employment of the next generation we rely on the Population Censuses carried out by the National Institute of Statistics. We consider individuals in the 1996 and 2011 Censuses, and assign locality-level variables according to their place of birth using data from the 1975 and 1985 Census, respectively.[10] Thus, we explore the correlation between a measure of working mothers in the locality of origin and female employment 21-26 years later.

Estimation sample. The sample consists of individuals aged 25-35, with non-missing information in the main variables for analysis, born in urban localities in Uruguay where the number of women between 30 and 45 years of age was equal or above the median. We consider localities that exist both in the 1996 and 2011 Censuses. The estimation sample comprises around 846,000 individuals between 25 and 35 years of age[11]. This represents 88% and 95% of the people in that age group in the Population Censuses of 1996 and 2011, respectively.

Main variables and descriptive statistics. Table A.11 in the Appendix shows the main descriptive statistics of the variables used in the analysis. Women represent just above half of the population, the average age is 30, about 20% of individuals in our estimation sample reached tertiary education, and more than 60% are in a relationship. Regarding the outcomes, employment rates increased from 73% to 80% between 1996 and 2011, and these are slightly higher among people in couple. Finally, the main independent variable is the fertility ratio in the locality of origin. This is computed as the ratio between the average number of children of working women and non-working women, considering women aged between 30 and 45.[12] The average fertility ratio is above 0.70 during the analyzed period.

Methodology. To test the hypothesis of intergenerational transmission of gender norms related to female employment, we estimate the following equation:

$$Y_{isdt} = X'_{isdt}\alpha_0 + \alpha_1 L_{sdt-20} + \alpha_2 (f_w / f_n)_{sdt-20} + \gamma_t + \delta_d + \epsilon_{isdt} \tag{2}$$

Where Y_{isdt} is the outcome variable for individual i of the locality s in the region d for the year t. We estimate two separate models. For women, we estimate the probability of being employed, where Y_{isdt} is a dummy variable equal to 1 if the woman is employed and 0 otherwise. For men, we estimate the probability of being in a couple with a working woman, where Y_{isdt} is a dummy variable taking value 1 if his partner is employed and 0 otherwise. X_{isdt} is a set of control variables including: age, marital status, educational level, a dummy taking value 1 if the locality of residence

[10] We do not use 1963 and 2004 Censuses as it is not possible to compute the variables required for the analysis.

[11] We do not explore the effects for older age groups due to their distance from the treatment. For each person, exposure to working women is measured using the fertility ratio in the locality of origin considering information of that locality from 21-26 years ago. Therefore, the older the person the greater the probability that the measure of exposure does not correspond to the one in their locality of origin. Table A.12 in the Appendix shows evidence of the robustness of the main results using a subsample of individuals residing in the same locality in which they were born.

[12] Figure A.2 in the Appendix pictures the histogram of the average number of children of working women and non-working women for both Censuses, and Figure A.3 the histogram of the fertility ratio.

is the same as the locality of origin, the number of children under 12 in the household, and access to sanitation (*proxy* for socioeconomic status). Additionally, we include two variables at the locality level: L_{sdt-20} is the employment rate of women aged between 30 and 45, and $(f_w/f_n)_{sdt-20}$ the average fertility ratio of working women relative to non-working women.[13] The inclusion of lags for the employment rate and the fertility ratio allows us to control for factors that simultaneously affect female employment and fertility of each locality. Therefore, α_2 is our coefficient of interest and accounts for the average effect of the exposure to working women of one generation on female employment of the next generation. Additionally, we include year (γ_t) and region (δ_d) fixed effects. ϵ_{isdt} are individual level standard errors clustered at the locality level.

The empirical strategy exploits the variation in the fertility ratio at the locality level and over time. Figure A.3 and Table A.11 in the Appendix provide evidence on the variation in the intensity of treatment by geographic locality for both Censuses. Moreover, the average fertility ratio has increased over time from 0.72 to 0.79.

5.2 Results

Table 4 presents the results of the exposure to working women in the probability of women's employment by marital status, and in the probability of men being i an couple with a working woman. The estimates indicate the presence of intergenerational transmission of gender norms, as the correlation between the fertility ratio of one generation and female employment in the next generation is positive and significant.[14] The magnitude of the effect is sizeable, a one standard deviation increase in the fertility ratio leads to an increase in female employment of 1.5 pp in the following generation (2.3% increase relative to the average rate of 65%). Also, the results suggest higher effects on female employment among single women compared to women in couples, although the difference is not significant.[15]

The last column of Table 4 shows the results on the likelihood of men being in a relationship with a working woman. The estimates indicate the importance of this mechanism, showing a positive and significant correlation with the fertility ratio. The magnitude of the effect remains consistent for couples in both civil unions and marriages.[16] Table A.12 in the Appendix provides evidence of the robustness of these results using a subsample of the population residing in the same locality where they were born.

[13] f_w and f_n are the average number of children of working women and non-working women, respectively.

[14] Estimates for the male subsample shows positive and significant effects, but of smaller magnitude than for females, suggesting a greater effect of exposure to working women on female employment. T-test Prob > chi2 = 0.0028.

[15] T-test Prob > chi2 = 0.3189.

[16] Results available upon request.

Table 4: Association between exposure to working women and female employment.

	Women's employment			Men in couple with
	Total	In couple	Single	working woman
Fertility ratio	0.088***	0.086***	0.115***	0.052**
	(0.024)	(0.025)	(0.034)	(0.024)
Obs.	424,438	289,512	92,173	221,815
R-square	0.152	0.165	0.082	0.137

Notes: The Table shows the results of regressing the probability of female employment by marital status and the probability of men being in a couple with a working woman on the measure of exposure to working women at young ages and the control variables. Clustered standard errors at the locality level in parentheses. * p < 0.10; ** p < 0.05; *** p < 0.01. The sample consists of individuals between 25 and 35 years of age. **Source:** Population Censuses 1975, 1985, 1996 y 2011.

6 Discussion and final comments

The increase in women's labour force participation in recent decades is one of the most relevant trends in labour markets around the world. Uruguay is no exception and this phenomenon is evident since the second half of the twentieth century. In this paper, we explore the importance of non-traditional factors behind these trends. Using data from the Uruguayan Longitudinal Well-being Study and from Population Censuses, we study the intergenerational transmission of working behaviour in Uruguay, and analyse to what extent female employment is determined by the exposure to working women at early stages of the life cycle. Our results indicate that a higher exposure to working women has robust and positive effects on the probability of female employment in the next generation.

The main challenge in this analysis is disentangling the mechanisms behind the main peer effect. In particular, whether the exposure to working mothers affects women's employment through changing gender-role identities or through changing preferences towards work. If the mechanisms behind the intergenerational transmission is due to gender-role identities, we would expect significant effects among females but lower or null effects on men's labour supply. On the contrary, if due to preferences towards work, then we would expect the working behaviour of mothers and other adult referents to positively affect working behaviours of both men and women in early adulthood. We argue our results support the existence of both mechanisms, providing evidence on the importance of the gender-role identity hypothesis behind the intergerenerational transmission of working behaviour.

Theory and evidence of gender development show that sex role stereotypes develop as early as age two (Kuhn et al., 1978). As kids grow up, they encounter a wider range of stereotypes, and the connections between them increase. By five or six years, children begin to self-perceive their gender and act as expected according to cultural and environmental norms. Primary school plays a fundamental role in this process, as they are the physical space where children spend several hours with their peers and adult references different from their family. The transmission of gender norms related to employment would likely be reflected in a higher probability of employment among women who were exposed to a greater proportion of working women during their childhood. This

greater exposure leads girls to incorporate an ideal gender role in which paid work is reconciled with other family tasks. In addition, they begin to self-perceive that working in adulthood is socially expected from them. Findings from Olivetti et al. (2020) align with this hypothesis, as they show a positive correlation between exposure to working mothers and women's employment -especially those with children-, but no effect on men.

On the contrary, if the peer effect is evident both for women and men it would suggest a transmission of working behaviours and preferences that children acquire from their adult reference group. Galassi et al. (2019) finds that children of permanently employed mothers exhibit a higher probability of being employed when adults, compared to those of never employed mothers. This is observed both for girls and boys, suggesting that the mechanism behind the intergenerational transmission is more related to role model rather than gender-role identities.

Our findings indicate that increased exposure to working women at early stages has consistently positive effects on women's adulthood labour outcomes. Moreover, our alternative empirical strategy (Section 5) also shows that men who grew up in localities with a higher proportion of working women are more likely to couple a working women. This piece of evidence aligns with previous findings for developed countries attributed to the intergenerational transmission of gender norms and culture (Rodríguez-Planas and Tanaka, 2022; Olivetti et al., 2020; Fernández et al., 2004).

On the other hand, our findings show no peer effects among the male's subsample but some same sex correlations when differentiating the effects by peers' sex. This piece of evidence can be interpreted as in support of the working preferences hypothesis (Galassi et al., 2019). However, while the effects for women are consistently positive and significant across outcomes and specifications, the estimates for men are of lower magnitude, less precise and not always significant. That is, while effects are evident both for men and women, these are stronger and more precise for women, indicating that the exposure to working women has a greater impact on female employment than males'.

Taken together, our results align with both the gender-role identity hypothesis and also the transmission of preferences towards work. This paper contributes to previous evidence on the importance of gender norms in shaping economic behaviours, in particular, in the great convergence in men's and women's labour market participation. Furthermore, these findings are of high relevance from a policy perspective for two main reasons. First, as the gender convergence in labour force participation rates has stalled and gender gaps remain high particularly in the developing world, there is a need for policies aimed at speeding up the pace of progress. Understanding the drivers of female labour force participation could help in this regard. In particular, to the extent that gender norms matter in working decisions, implementing policies aiming at altering such norms could increase women's labour participation. Second, policies aimed at increasing female's employment are expected to have dynamic consequences by also affecting subsequent generation of women.

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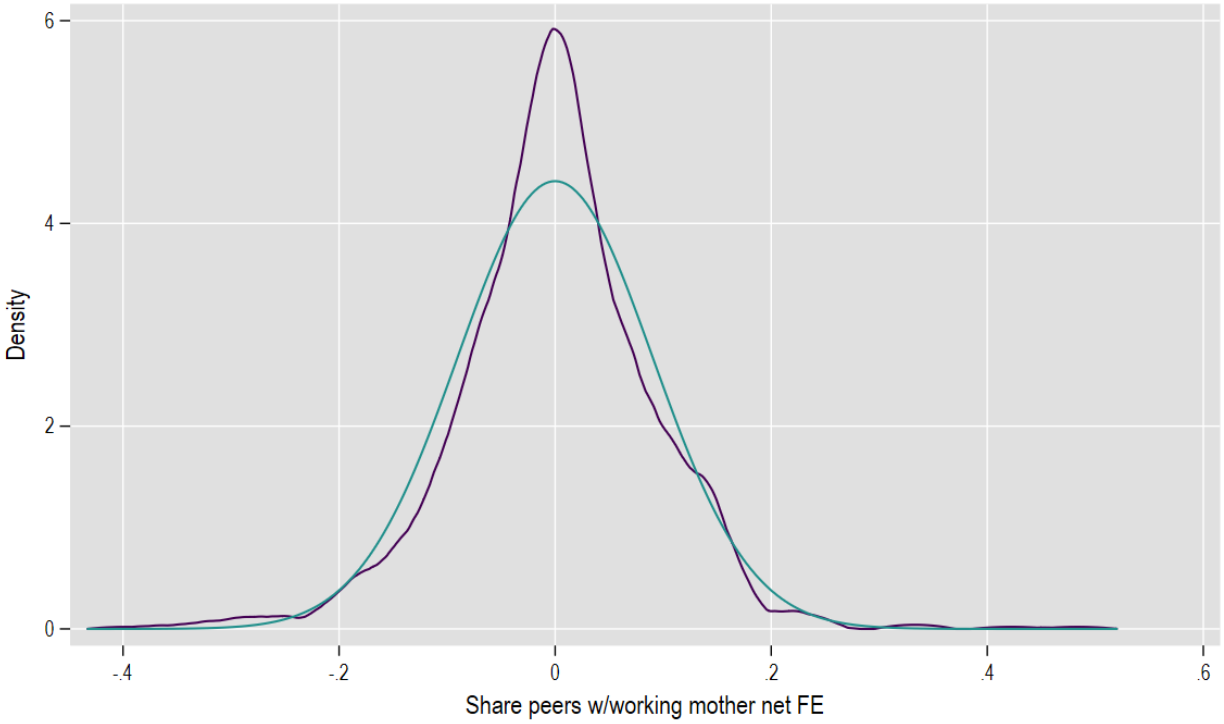
7 Apendix

Figure A.1: Identification validity: Variation in the proportion of peers with working mothers



Notes: The Figure shows the distribution of the residuals from a regression of the proportion of peers with working mothers on school fixed effects and other predetermined individual characteristics. The normal distribution is also plotted. **Source:** Author's elaboration based on ELBU

Table A.1: Identification validity: Variation in percentage and number of peers with working mothers

	Male				*Female*			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Peers with working mothers	0.542	0.155	0.000	1.000	0.536	0.159	0.062	1.000
Peers net FE	0.002	0.099	-0.520	0.496	-0.002	0.099	-0.367	0.425
N. Peers with working mothers	12.851	7.913	1.000	41.000	12.230	7.211	1.000	41.000
Num. peers net FE	0.178	4.640	-18.414	12.188	-0.170	4.446	-18.440	12.197

Notes: The Table shows descriptive statistics for the raw proportion and number of peers with working mothers and that after removing school fixed effects ('net FE'). **Source:** Author's elaboration based on ELBU.

Table A.2: Identification validity: Variation in percentage and number of peers with working mothers (2)

	Male				*Female*			
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Female Peers with working mothers	0.541	0.207	0.000	1.000	0.536	0.206	0.000	1.000
Female Peers net FE	0.005	0.145	-0.621	0.498	-0.005	0.151	-0.688	0.566
Male Peers with working mothers	0.544	0.196	0.000	1.000	0.530	0.206	0.000	1.000
Male Peers net FE	0.003	0.143	-0.679	0.570	-0.002	0.136	-0.531	0.469

Notes: The Table shows descriptive statistics for the raw proportion and number of peers with working mothers and that after removing school fixed effects ('net FE'). **Source:** Author's elaboration based on ELBU.

Table A.3: Identification validity: Balancing tests

	Coef	SE
Own mother worked	0.117*	0.067
Was only child	0.098	0.111
Lived with parents	-0.153	0.117
Low SES	-0.057	0.114
Previous repetition	0.028	0.075
Mother primary educ.	-0.227	0.142
Mother secondary educ.	0.122	0.138
Mother tertiary educ.	0.104	0.073

Notes: The table shows the results of separate regression for each predetermined characteristic on the percentage of peers with working mothers in the class and school fixed effects. For own mother worked dummy, the regression also controls for the percentage of peers with working mothers in the school. Robust standard errors are clustered at the class level. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** Author's elaboration based on ELBU.

Table A.4: Effects of peers with working mothers on females - Wave IV sample

	Ever employed	At least 3 months	At least 6 months
Peers with working mothers	0.347**	0.368**	0.516***
	(0.15)	(0.17)	(0.19)
Own mother worked	0.038	0.050	0.002
	(0.04)	(0.04)	(0.05)
Mean	0.82	0.78	0.70
Observations	475	475	475
Adjusted R2	0.088	0.097	0.100

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers, own mother working status, individual controls at Wave I and IV, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Waves I and IV, and labour administrative registries.

Table A.5: Effects of peers with working mothers on females - Further peers characteristics

	Ever employed	At least 3 months	At least 6 months
Peers with working mothers	0.289**	0.348**	0.237
	(0.14)	(0.15)	(0.16)
Own mother worked	0.044	0.057*	0.049
	(0.03)	(0.03)	(0.03)
Peers with educated mother	-0.045	-0.141	0.003
	(0.12)	(0.14)	(0.13)
Peers Low SES	0.124	0.014	-0.041
	(0.14)	(0.16)	(0.17)
Mean	0.65	0.62	0.56
Observations	1131	1131	1131
Adjusted R2	0.064	0.068	0.076

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers, proportion of peers with educated mothers and proportion of peers from low socioeconomic background, own mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

Table A.6: Effects of peers with working mothers on females - Including fathers

	Ever employed	At least 3 months	At least 6 months
Peers with working fathers	-0.015	0.004	0.123
	(0.18)	(0.15)	(0.17)
Own mother worked	0.038	0.050	0.045
	(0.03)	(0.03)	(0.03)
Own father worked	0.015	-0.007	0.019
	(0.05)	(0.05)	(0.04)
Mean	0.65	0.62	0.56
Observations	1131	1131	1131
Adjusted R2	0.063	0.065	0.076

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working fathers, own father and mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

Table A.7: Effects of peers with working mothers on males

	Ever employed	At least 3 months	At least 6 months
Peers with working mothers	0.139	0.208	0.176
	(0.15)	(0.14)	(0.14)
Own mother worked	0.055*	0.043	0.069**
	(0.03)	(0.03)	(0.03)
Mean	0.67	0.63	0.58
Observations	1177	1177	1177
Adjusted R2	0.031	0.022	0.024

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers, own mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

Table A.8: Effects of peers with working mothers on males - By peers sex

	Ever employed	At least 3 months	At least 6 months
Female Peers with working mothers	0.024	0.012	0.006
	(0.09)	(0.09)	(0.08)
Male Peers with working mothers	0.098	0.207**	0.199**
	(0.09)	(0.08)	(0.08)
Own mother worked	0.056*	0.047	0.073**
	(0.03)	(0.03)	(0.03)
Mean	0.67	0.63	0.58
Observations	1177	1177	1177
Adjusted R2	0.032	0.023	0.027

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers by peer's sex, own mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

Table A.9: Effects of peers with working mothers on females - Further outcomes

	Any child	Sacrificing job for family	Sacrificing job for husband	Importance of autonomy
Peers with working mothers	-0.220	-0.594***	0.105	0.195
	(0.15)	(0.21)	(0.19)	(0.18)
Own mother worked	-0.045	-0.024	0.030	0.015
	(0.04)	(0.05)	(0.03)	(0.05)
Mean	0.13	0.30	0.12	0.69
Observations	508	473	465	481
Adjusted R2	0.025	0.067	0.043	0.048

Notes: The table shows the results of regressing each outcome variable on the proportion of peers with working mothers, own mother working status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Waves I and IV, and labour administrative registries.

Table A.10: Effects of peers with working mothers by formality status

	Ever employed	At least 3 months	At least 6 months
Peers with mothers in formal sector	0.314**	0.390**	0.459***
	(0.15)	(0.16)	(0.16)
Peers with mothers in informal sector	0.150	0.188	0.180
	(0.15)	(0.15)	(0.16)
Own mother in formal sector	0.200***	0.192***	0.179***
	(0.04)	(0.04)	(0.04)
Own mother in informal sector	-0.027	-0.007	-0.008
	(0.03)	(0.03)	(0.03)
Mean	0.65	0.62	0.56
Observations	1131	1131	1131
Adjusted R2	0.092	0.088	0.097

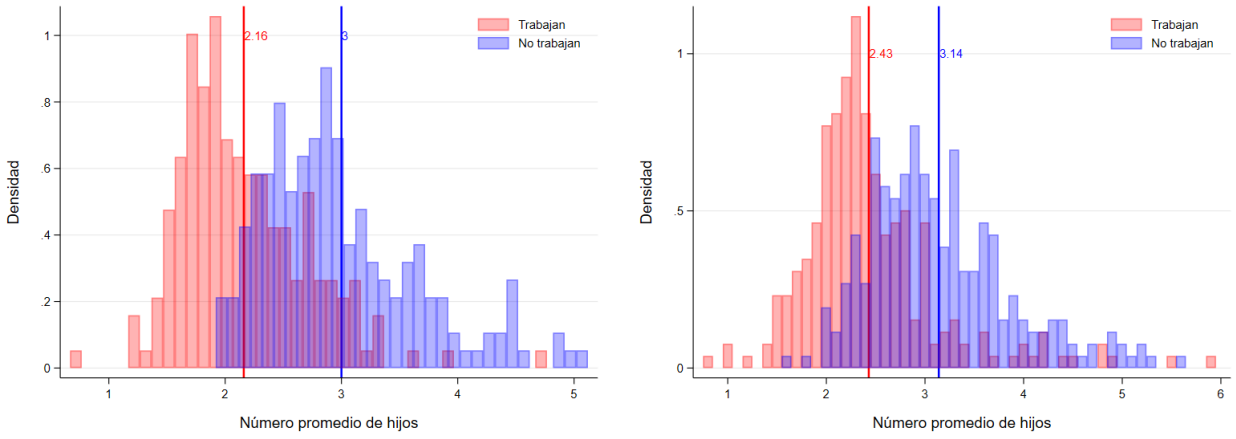
Notes: The table shows the results of regressing each outcome variable on the proportion of peers with mothers working in the formal sector (Wave I year), own mother working and formality status, individual controls at Wave I, and school fixed effects. Robust standard errors clustered at the class level reported in parentheses. *** significant at the 1% level, ** 5% level, and * 10% level. **Source:** author's elaboration based on ELBU Wave I and labour administrative registries.

Table A.11: Descriptive statistics based on Population Census.

	1996			2011		
	Mean	SD	Obs.	Mean	SD	Obs.
Individual characteristics						
Female	0.51	0.50	390,495	0.51	0.50	455,505
Age	30.0	3.2	390,495	30.0	3.2	455,505
Primary education	0.32	0.47	388,460	0.19	0.39	449,778
Secondary education	0.48	0.50	388,460	0.56	0.50	449,778
Tertiary education	0.19	0.39	388,460	0.25	0.43	449,778
In a relationship	0.69	0.46	390,495	0.62	0.48	441,775
Divorced, separated or widowed	0.06	0.24	390,495	0.10	0.30	441,775
Single	0.25	0.43	390,495	0.28	0.45	441,775
Num. adults at home	1.6	4.7	390,495	1.2	1.3	455,505
Low SES	0.04	0.20	385,276	0.03	0.16	441,861
Lives same locality of birth	0.70	0.46	390,495	0.71	0.45	455,505
Outcomes						
Employment	0.73	0.45	390,495	0.80	0.40	455,505
Employment (couple's sample)	0.74	0.44	229,444	0.83	0.37	251,981
Locality characteristics						
Total population	12,154	85,810	189	10,315	80,837	259
Num. women 30-45	1,326	9,879	189	1,006	8,162	259
Employment rate for women 30-45	0.30	0.09	189	0.36	0.12	259
Treatment variable						
Fertility ratio t-20	0.72	0.13	189	0.79	0.19	259

Notes: The Table shows a set of descriptive statistics for the variables used in the analysis according to Census year. The sample is constructed with individuals between 25 and 35 years of age. **Source:** Population Censuses 1975, 1985, 1996 y 2011.

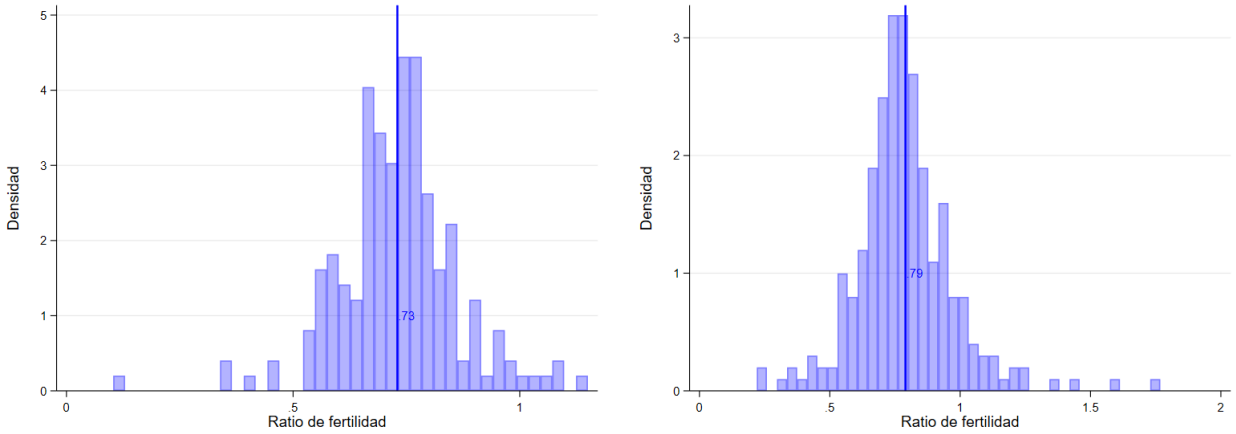
Figure A.2: Distribution of number of children by women occupational status.



(a) 1975

(b) 1985

Figure A.3: Fertility ratio distribution.



(a) 1975 (b) 1985

Table A.12: Relationship between exposure to working women and female employment. Individuals who reside in the same locality of origin.

	Women employment	Men in couple with working woman
Fertility Ratio	0.088**	0.067*
	(0.037)	(0.038)
Obs.	295,429	149,027
R-square	0.156	0.145

Notes: The Table shows the results of regressing the probability of female employment and the probability of men being in a relationship with a working women, on the measure of exposure to working women at early stages and the control variables. Standard errors clustered at the locality level in parentheses. * p < 0.10; ** p < 0.05; *** p < 0.01. The sample comprises individuals aged between 25 and 35, who reside in the same locality in which they were born. **Source:** Population Censuses 1975, 1985, 1996 and 2011.