Women in paid employment: a role for public policies and social norms in Guatemala

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ABSTRACT
With only 32% of women in the labor market, Guatemala has one of the lowest rates of female labor force participation (FLFP) in the Latin America and Caribbean region and in the world. We explore information from different micro data sets, including the most recent population censuses (2002 and 2018) to assess the drivers of recent progress. Between 2002 and 2018, FLFP increased from an average of 26% to 32% nationwide. This increase was partly explained by increases in the school attainment of women, reduction in fertility and the country’s structural transformation towards services. However, a large part of the increase remains unexplained. Exploring 2018 data, we show that social norms, attitudes towards women and public policies are important determinants of FLFP. The analysis suggests that, taken together, these factors can all become an important source of increased participation of women in the labor market moving forward.

Introduction

During most of the 2000s Guatemala grew at a relatively high rate, fertility rates declined, and educational attainment of women rose without precedent. However, female labor force participation (FLFP, henceforth) remained the lowest in the Latin America and the Caribbean region (LCR, henceforth) with a rate of only 32% in 2018 according to the population census. Despite its high-middle-income status, Guatemala is today one of the countries in the world with the lowest rates of FLFP (World Bank, 2021).

This under-utilization of female labor poses a large cost to the country’s growth rate. Most women are not engaged in paid jobs outside the house, which generally remain low paid, and tend to be the main caregivers for children or the elderly in the household. There is also a wide dispersion in FLFP rates within the country with municipalities where not even one out of 10 women aged 15–64 participate in the labor market and some others where more than half of women participate.

This paper investigates the role of different factors in influencing women’s decision to participate in paid employment in Guatemala. We also investigate the forces affecting its trajectory between 2002 and 2018, as well as the wide within-country dispersion in 2018. We assess the role of (i) individual and household socioeconomic characteristics (such as level of education or number of children); (ii) local social norms and attitudes towards women (at home and in the community); (iii) social public policies (such as investments in pre-schools); and (iv) local labor market characteristics (such as the male-to-female employment ratio or the composition of employment across sectors). We conjecture that regional differences in these factors influence women’s willingness and ability to participate in paid employment as they all shape incentives and ultimately
individual behaviors. For instance, municipalities with lower levels of gender discrimination in the labor market or those with higher shares of women in public service may be more attractive for women’s participation. These factors have evolved differently over time across municipalities. The share of women with secondary education or more increased everywhere, but while in some municipalities the improvement was below 5% points, in some others it was above 25% points. A similar pattern appears when looking at fertility. The number of children younger than 13 declined in all municipalities; the reduction was, on average, around 0.5 children in some municipalities, but it was close to 1.5 in others. The drivers of FLFP also present important variation across municipalities in a given year. For instance, the availability of public preprimary centers in 2017 was as low as one per 100 children for ages 4–6 in some municipalities, while it was close to 2 in others.

We contribute to a large literature on this topic in developing countries. Goldin (1995) and Mammen and Paxson (2000) argue that at early stages of development, women participate in the labor market doing unpaid work in family businesses or farms. With development, there is an exit of women from the labor force driven by the income effect of men moving to blue-collar jobs. With higher levels of development, FLFP increases due to a sectoral shift towards services making more white-collar jobs available to women. Figure 1 reports the level of FLFP for women aged 15–64 and GDP per capita across countries in 2018. Guatemala ranks position 146 (out of 173 countries) and is among the bottom half of the distribution faring poorly relatively to country peers. In the same GDP range, countries such as Lao PDR and Vietnam stand at the top of the distribution. Figure 2 reports a similar graph but now across 333 Guatemalan municipalities. The figure reports a strong positive correlation within the country and suggests that increased growth and productivity will, all else constant, increase the average FLFP.

Klasen (2019) discusses alternative hypotheses to a ‘U-shaped’ pattern between FLFP and development in developing countries. Cross-country differences in FLFP are affected by historical differences in economic structure impacting women’s economic opportunities. Changes in FLFP, in turn, are affected by how much FLFP depends on households’ economic conditions, how jobs grow relative to the supply of women, whether growth strategies promote female employment, and to what extent women could overcome barriers in the sectors where they predominantly work.

The literature also looked at the drivers of cross-country differences in FLFP (Gaddis & Klasen, 2014; Goldin, 1995; Jayachandran, 2020). This evidence suggests that socioeconomic characteristics of households, such as the level of education or the presence of children, are important drivers of participation (see Gasparini et al., 2015 for 18 Latin American countries and Berniell et al., 2021 for Chile). Social norms and attitudes towards women in society also

Figure 1. Female labor force participation rate and GDP per capita in 2018. Cross-country perspective. Sources: World Development Indicators (World Bank, 2021). Notes: FLFP of women ages 15–64.
mediate women’s decisions (see Bursztyn et al., 2018 for Saudi Arabia). There is also evidence of the positive impacts on FLFP of policies that subsidize childcare or that expand the public network of centers (see Berlinski & Galiani, 2007 for Argentina, and Padilla-Romo & Cabrera-Hernández, 2019 for Mexico).

We contribute to the existing literature in at least three ways. First, we explore simultaneously the role of several factors as drivers of FLFP: individual and household characteristics, the role of social norms and attitudes towards women, the role of public policies and that of local labor market factors. Most of the literature to date typically reports the influence of few factors, either individual and household characteristics alone or accompanied by one institutional or policy observable variable (see Busso & Romero Fonseca, 2015; Klasen & Pieters, 2012; Klasen et al., 2021; Lopez-Acevedo, Devoto, et al., 2021; Lopez-Acevedo, Freije Rodriguz, et al., 2021; Sorsa et al., 2015). In contrast, our paper explores different data sets for Guatemala and is thus able to differentiate the role of a wide set of factors.

Second, we explore nationwide data and within-country dispersion by relying on the two most recent national censuses collected by the Guatemala National Institute of Statistics (INE, in its Spanish acronym). Differences across more than 1.5 million female household heads or spouses in active age in 333 municipalities and 22 departments in Guatemala between 2002 and 2018 are empirically explored. Furthermore, the 2018 census is combined with unique survey and administrative data at the subnational level. In contrast, most studies exploring within-country variation in FLFP typically rely on household or labor force surveys alone.

Third, our empirical specification accounts for within-country differences in migration and rates of crime and violence. These are well-known drivers of FLFP and development more broadly in the Central American region. Both factors are likely to impact women’s decision to participate in the labor market (Antman, 2015; Heath, 2013). Guatemala is a country with high levels of crime and violence, and particularly of gender-based violence, while remittances are a very important driver of consumption and growth.

We closely relate to Bhalotra and Fernandez (2021). Exploring Mexican census data, they assess the role of different drivers of the increase in FLFP between 1960 and 2015. Changes in women’s education and in the occupational structure of employment account for the change, except during the 1990s when the increase in FLFP remains largely unexplained. The authors conjecture that unobservable factors such as changes in social norms regarding marriage or fertility could be
driving these changes. In our paper, we can observe proxies of social norms, attitudes towards women and of social policies, and we explore their role to explain the within-country variation in FLFP.

We combine several nationwide micro data sets. First, we rely on the 2002 and 2018 national censuses to quantify and analyze changes in FLFP over this period. The censuses capture information on FLFP, individual and household characteristics and local labor market factors. Second, we analyze the drivers of FLFP in 2018 computing municipality and department-level variables from the 2017–2018 Census of Human Resources of the Central Government (INE), 2017 Crime statistics (INE), and 2017 Latinobarómetro survey to create measures of social norms and attitudes towards women. These variables capture the extent to which women participate in household decision-making, the share of females among high-wage public sector employees (as a proxy for public visibility), rates of intrafamily violence against women, and the share of individuals endorsing gender parity in parliament or in the judicial system. Finally, we rely on subnational information on social public policy produced by INE, the Foundation for the Development of Guatemala (FUNDESA in its Spanish acronym), and the Central American Institute of Fiscal Studies (ICEFI in its Spanish acronym) to assess its impact on women’s incentives to participate in the labor market. These policy variables include the number of preprimary centers in each municipality, public spending on education and health at the department level, and a measure of municipal road accessibility (all measured in 2017).

We start by assessing changes in FLFP between 2002 and 2018. We assume that the probability of FLFP in each year can be represented by a linear probability model. We explore the Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973) using individual and household characteristics and local labor market variables as possible drivers of this change. Our decomposition results point to significant unexplained differences in FLFP over time.

Then, we consider a simple reduced-form model to estimate the impact of a more extended set of local drivers on FLFP in 2018. This reduced form model faces at least two challenges. First, despite our efforts, there could still be non-observable drivers of FLFP that are simultaneously correlated with the individual, household, or municipality-level variables included in the model. For instance, unobserved personality traits, such as self-confidence, could be positively correlated with women’s role in main household decisions and with their participation in the labor market, generating an upward bias. Second, it is possible that FLFP drives some of the correlations and not necessarily the other way around, making it very difficult to exclude ‘reverse-causality’ biases. For instance, larger availability of labor market opportunities for women in certain locations could raise women’s bargaining power within the household impacting their degree of participation in household decision-making (Majlesi, 2016). Both threats make it difficult to interpret the estimated coefficients as causal impacts. We mitigate these concerns by controlling for a wide set of observable variables at the individual, household, and municipality level, including department fixed effect, and exploring lagged values of explanatory variables when data are available. Despite all efforts, our findings should be interpreted cautiously. Ultimately, the analysis makes a strong case for the simultaneous importance of the four sets of proposed factors as drivers of the current levels of FLFP in Guatemala.

Our results show that, between 2002 and 2018, FLFP increased 5.7% points, from an average of 26% to 32% nationwide. At the same time, we observe an increase in women’s level of education, a reduction in fertility (as proxied by the number of children ages 0–12 living in the household), and an increase in the share of services in total employment. These changes explain part of the increase in FLFP over time. However, a large component remains unexplained. This suggests that factors not included in the model, such as social norms and attitudes towards women or public policies, could be important drivers of changes in FLFP over time. Our analysis of the within-country variation exploring 2018 data is fully aligned with this conclusion.
The cross-section findings show strong correlations across local social norms and FLFP. FLFP is higher when women participate in household decision-making and is smaller when the rate of intrafamily violence against women is higher. We also find a positive association between FLFP and aspirations on local gender parity. There is also strong evidence of the correlation between public policies and women’s incentives to work: a larger number of local preprimary centers per child or local public investments in education or health are positively associated with FLFP for mothers and women living with elderly.

In alignment with the findings in the Oaxaca-Blinder decomposition, the results exploring the within-country variation in FLFP reinforce the importance of individual and household characteristics and local labor market factors. While there is a strong positive within-country relation between FLFP and education, marriage is negatively associated. FLFP is also smaller among mothers, with a larger correlation for those with younger children. The presence of the mother or mother-in-law in the same household is positively associated with FLFP, suggesting that additional help with domestic tasks, all else constant, increases time to work outside the house. There is a negative association with having a working spouse and a positive relation with proxies of household income stability. The former likely captures an income effect, as it is robust to controlling for the role of social norms. Access and use of labor-saving technology are positively associated with FLFP.

Data and descriptive statistics

We combine different sources of data. For the decomposition of the change in FLFP between 2002 and 2018, we exploit data from the 2002 and 2018 national censuses which are representative at the municipality level. This allows the measurement of within-country variation in FLFP and several of its drivers at the municipal level. FLFP is defined as the number of women ages 25–49 who report working or seeking work during the previous week divided by the total number of women in the same age range. We do not consider women of younger ages to avoid selection problems due to educational decisions. We consider all women below 50 years old as we are interested in analyzing the association between FLFP and motherhood, among other factors. We restrict the sample to woman living in households where they or their partner is the household head. We align with ILO definition and include work across all sectors of activity and the informal economy. We explore information on individual characteristics (age, level of education, race, marital status), household structure (number of children younger than 13, number of household members older than 12, presence of mother or mother-in-law), household headship, whether the spouse works, type of employment of other household members, dwelling characteristics, location, and sectoral structure of municipal employment.

Next, we assess the importance of a wide set of drivers of FLFP within Guatemala in 2018 relying on the variables defined above and adding characteristics that are not available in the 2002 census. These include the use of internet, availability of home appliances (washing machine), remittances, and women’s participation in household decision-making.

Additionally, we explore different datasets to define variables that capture social norms including (i) share of women in high-paying public sector jobs (in the central administration) at the department level (Census of Human Resources of the Central Government collected by INE in 2017–2018), (ii) intrafamily violence at the municipality level (collected by INE in 2017); and (iii) share of males agreeing with gender parity in congress and in the judicial system relative to the entire population (2017 Latinobarómetro). Obtaining information that fully captures the social norms and attitudes toward women in a society is a difficult task. Given the data constraints, we selected the variables mentioned above as an attempt to approximate different dimensions of the social norms and attitudes that mediate women’s decision and ability to participate in the labor market. Variable selection is based on evidence showing that decision-making arrangements that empower women more are more likely to result in higher
FLFP (Heath & Tan, 2020); female role models can challenge social norms affecting aspirations or expanding labor market decision sets (Porter & Serra, 2020); gender-based violence is influenced by gender norms and can reduce FLFP reinforcing gender inequalities (Chakraborty et al., 2017); and men’s preferences and beliefs about gender roles can have an impact on FLFP (Bursztyn et al., 2018).

We proxy the influence of social public policies with (i) municipal number of preprimary centers (collected by INE in 2017), (ii) per capita spending in education and health at the department level (collected by ICEFI in 2017), and (iii) municipal road accessibility (collected by FUNDESA in 2018).

The set of local labor market characteristics includes the per capita GDP at the municipality level in 2017 (collected by FUNDESA), the male-to-female employment ratio and the sectoral structure of (male) employment in each municipality based on the 2018 census, and the municipality crime rate in 2018 (collected by INE).

The main 2018 census sample includes 1,696,260 women 25–49 years old living in households where they or their partner is the household head. Our final sample covers a total of 333 municipalities (out of 340 total) and 22 departments (out of 22). FLFP increased from 26% to 32% between 2002 and 2018. Women in the 2018 sample are, on average, middle-aged, married, and low educated; most of the married women have an employed husband, while women having children younger than 13 have more than one child on average. Access and use of technology is low. When looking at subnational variables, we find an average of 6 reported cases of intrafamily violence against women per 1,000 women in the municipality and an average of 9 men agreeing with having gender parity in congress or in the judicial system per 10 people agreeing in the department population. The average number of preprimary centers is 1.5 per 100 children ages 4–6.

The Online Appendix presents and discusses descriptive statistics in detail for all the variables we use in our analysis.

**Empirical model**

In the next subsections, we present the econometric strategy followed to analyze the drivers of the change in FLFP between 2002 and 2018 and those of the within-country dispersion in FLFP in 2018.

**Explaining the FLFP change between 2002 and 2018**

To analyze the role of individual and household characteristics and local labor market drivers in explaining the change in FLFP between 2002 and 2018, we estimate an Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973). We start by proposing a linear model of the probability to participate in the labor market for woman \(i\), in municipality \(m\) and year \(t\):

\[
Y_{int} = \alpha + \beta_t X_{int} + \delta_t W_{mt} + \gamma_t I_d + \epsilon_{int}.
\]

(1)

The dependent variable \(Y_{int}\) takes the value 1 when woman \(i\) in municipality \(m\) and year \(t\) participates in the labor market and 0 otherwise. \(X_{int}\) contains individual and household characteristics including age, education, ethnicity, marital status, household head, number of children in different age ranges, number of persons older than 12, presence of mother or mother-in-law, whether the spouse works, an income stability measure, a Home and WASH index, and a dummy of urban location. \(W_{mt}\) captures local labor market drivers at the municipality level and includes the structure of male employment and \(I_d\) are department fixed effects.

The decomposition of equation (1) between \(t\) (2002) and \(t'\) (2018) takes the following form:
\[ \Delta_{t} \bar{Y} = \hat{\beta}'(\bar{X}_{t} - \bar{X}_{t}) + \hat{\delta}'(\bar{W}_{t} - \bar{W}_{t}) + \bar{X}_{t}'(\hat{\beta}' - \hat{\beta}_{t}) + \bar{W}_{t}'(\hat{\delta}' - \hat{\delta}_{t}) + (\hat{\gamma}' - \hat{\gamma}_{t}) + \text{Residual}. \] (2)

The overbars in equation (2) denote averages and \( \hat{\beta}, \hat{\delta} \) and \( \hat{\gamma} \) are estimated coefficients. The first two terms on the right-hand-side of equation (2) are the part of the overtime change in FLFP that is explained by changes in observed characteristics (‘explained component’). The following terms capture the part that is explained by changes in returns to those characteristics and by changes in the returns to department fixed effects, while the last term is a residual or part of the overtime change in FLFP that cannot be explained by the change in characteristics or the change in returns. The last four terms together are the ‘unexplained’ component of the change in FLFP.

**Explaining the within-country variation in FLFP in 2018**

To analyze the drivers behind the within-country dispersion in FLFP in Guatemala in 2018, we estimate model (1) using an expanded set of explanatory variables taking advantage of the richer information available for 2018:\(^{12}\)

\[ Y_{im} = \alpha + \beta X_{im} + \delta W_{m} + \gamma I_{d} + \varepsilon_{im}. \] (3)

\( X_{im} \) includes the set of drivers related to individual and household characteristics and a variable that captures social norms and attitudes towards women within the household. \( W_{m} \) includes drivers with variation at the subnational level (municipality or department). They include social norms measures, public policy-related variables and local labor market factors. We estimate different models. All models include the set of variables in \( X_{im} \) and the set of local labor market drivers at the subnational level. Variables capturing social norms and attitudes towards women and public policies are included one at a time.

Variables in \( X_{im} \) are the same set of individual and household characteristics mentioned in the previous subsection. We also include remittances, use of internet and household appliances (washing machine), and a variable capturing the role of social norms and attitudes towards women within the household (whether women participate in main household decisions). The local labor market factors included in \( W_{m} \) are the logarithm of the per capita GDP, the male-to-female employment ratio, the structure of male employment and the crime rate, all measures at the municipality level.

The set of social norms variables at the subnational level includes the share of women among high-paid employees in the central government at the department level. We interact this variable with an indicator of university education. We expect high paying public sector jobs to be more attractive to higher educated individuals. The other variables capturing social norms and attitudes towards women are the intrafamily violence against women in each municipality, and the share of males (compared to all) agreeing with gender parity statements at the department level.

The set of public policy variables includes the number of public preprimary centers in each municipality interacted with a dummy of having a child 4–6 years old, the logarithm of the per capita spending in education in each department interacted with a dummy of having a child 0–12 years old, the logarithm of the per capita spending in health in each department interacted with a dummy of living with a person 60 years or older, and the municipality road accessibility.

\( I_{d} \) are department fixed effects that capture supply and demand conditions of local labor markets not controlled for with the set of FLFP drivers included in the model. We include \( I_{d} \) except when the driver of FLPP is defined at the department level. \( \varepsilon_{im} \) is an error term.

Model (3) is estimated by ordinary least squares and standard errors clustered at either the municipality or department level depending on the level of variation of the driver that is analyzed.
Main findings

In the next subsections, we present the results obtained from estimating models (2) and (3) presented above.

**Decomposition of the change FLFP: 2002–2018**

We start by decomposing the observed change in FLFP between 2002 and 2018. Table 1 reports the results. Column (1) reports the FLFP in each year and the difference, and columns (2) and (3) show the explained and unexplained components of the decomposition, respectively. For comparative purposes, columns (4) to (6) present results for men. We group the variables into individual characteristics, household characteristics, economic situation of the household, local labor market factors, and geography variables.

The overall explained variation by the observable drivers (or the explained component) more than explains the observed increase in FLFP of 5.69% points between 2002 and 2018. Accounting only for changes in the mean value of the observable characteristics would have led to an increase in the FLFP rate of 15% points. On the other hand, the variation in the returns of these characteristics together with any other unobserved factors (as captured by the unexplained component) would have led to a decrease in the FLFP rate.

Among the explained components, changes in the employment composition over time are the largest contributor. The descriptive statistics (in the Online Appendix) document a strong reduction in agricultural employment and an increase in the share of services between 2002 and 2018.

Table 1. Oaxaca-Blinder decomposition of the change in FLFP between 2002 and 2018.

|                  | Women       |               |          | Men         |               |          |
|------------------|-------------|---------------|----------|-------------|---------------|----------|
|                  | Overall (1) | Explained (2) | Unexplained (3) | Overall (4) | Explained (5) | Unexplained (6) |
| **Year 2018**    | 0.320       | [0.0217]***   | 0.912    | 0.00689***  | 0.0121        | 0.0199   |
| Year 2005        | 0.264       |               | 0.880    | [0.00845]***| 0.0319        |          |
| **Difference**   | 0.0569      | [0.00706]***  |          | 0.00564***  |               |          |
| **Total effect** | 0.153       | −0.0964       | 0.153    | 0.0121      | 0.0121        |          |
| Individual       | 0.0257      | 0.02523***    |          | 0.00263     | 0.00263       |          |
| **characteristics** | [0.00235]***| [0.00323]***  |          | [0.000881]***| [0.00212]     |          |
| Household        | 0.0139      | −0.118        |          | −0.00445    | 0.0131        |          |
| **characteristics** | [0.00155]***| [0.00713]***  |          | [0.000517]***| [0.00669]*    |          |
| Economic situation| 0.00624     | 0.00943       |          | 0.00551     | −0.00869      |          |
| **Local labor**  | 0.14        | −0.0757       | 0.14     | 0.00795     | −0.0325       |          |
| market variables | [0.0255]***  | [0.0288]***   |          | [0.0235]*** | [0.0288]      |          |
| Geography        | 0.00341     | 0.0199        |          | 0.000449    | 0.0594        |          |
| **Constant**     | −0.332      | [0.0306]***   |          | 0.0188      | [0.0339]      |          |
| **Observations** | 2,909,416   | 2,909,416     | 2,530,941| 2,530,941   | 2,530,941     |          |

Sources: 2002 and 2018 national census of Guatemala (INE).
Notes: Standard errors clustered at the municipality level in brackets. *** p<0.01, ** p<0.05, * p<0.1. Women and men ages 25–49 who either have spouses that are household heads or that are household heads themselves and who live in municipalities appearing in both censuses (331 municipalities). Individual characteristics: age and its squared, dummies of educational level and belonging to an indigenous group. Household characteristics: dummy of being married, number of children 0–3, 4–6, and 7–12, number of household members 13 or older, presence of mother/mother-in-law, household headship. Economic situation: indicators of working spouse and income stability, and household & WASH index. Local labor market variables: share of male employment by sector. Geography factors: indicator of urban area and department fixed effects. Table A1 in the Appendix provides details on variables’ definitions.
Together, these changes are positively associated with higher FLFP. Additionally, higher educational attainments and the fall in fertility contributed to the increase in FLFP.

The large unexplained component in the change of FLFP suggests that, without accounting for changes in characteristics, changes in their returns or other factors not included in the model would have led to a reduction of FLFP of 9.6% points. The large size of the unexplained component suggests that other (unobservable) factors were likely important during this period. Candidates of omitted factors are social norms regarding the role of women at home and in society and public policies. The next subsection assesses the drivers of the within-country variation in FLFP in 2018 considering observable proxies for these variables with significant subnational variation.

The results for men indicate that their LFP increased 3.2% points over the period. Changes in their individual characteristics (such as level of education) and in the economic situation (such as the income stability measure) contributed positively to the increase. Contrary to the sample of women, changes in household characteristics contributed negatively. This can be explained by a positive association between the number of children and male LFP and the reduction of fertility over time.

**Drivers of within-country variation in FLFP in 2018**

Figures 3 to 6 and Tables A2 to A4 in the Appendix present the results of model (1) for women, while Table A4 in the Online Appendix presents results for men. Figures 3 and 4 report the simplest model accounting only for individual and household characteristics and local labor market variables as explanatory factors. Figure 5 adds to the previous model the set of variables proxying social norms and attitudes towards women, and Figure 6 adds to the first model the set of public policy variables. Acknowledging the challenges posed by the proposed reduced form equation, we refrain from making causal statements.

**Individual and household characteristics**

The results show a strong relation between FLFP and education. Figure 3 shows that the participation of women with primary level of education is 2.1% points higher than that of women with no education. The gradient for women with a secondary education is 11.2% points, and for women with a university level, it is 30.1% points. FLFP increases with age at a decreasing rate and indigenous women are more likely to participate in the labor market than non-indigenous women. Married women are 17.4% points less likely to participate in the labor market than unmarried women. All these results are in line with evidence for LCR and other developing countries (Busso & Romero Fonseca, 2015; Gasparini et al., 2015; Klasen et al., 2021; Marchionni et al., 2019).

Fertility is negatively associated with FLFP and the age of the children matters: mothers of younger children are less likely to participate in the labor market. The negative relation is particularly large for children 0–3 years old. Women having an additional child in this age range are 4% points less likely to participate in the labor market than other women, while for children 4–6 or 7–12 the correlations are below one percentage point.

The presence of additional household members (older than 12 years) is associated with lower FLFP, while the presence of the mother or mother-in-law is positively related to women’s LFP. A larger family size could decrease FLFP due to larger care needs and household chores or due to an income effect if some household members work and earn an income. Since the model accounts for a working spouse and a measure of income stability, it is likely that the larger care needs explain the negative result. In fact, the positive coefficient of the variable capturing the presence of women’s mother or mother-in-law reinforces this finding. When this person lives in the same household, FLFP is 3% points larger.
Households’ economic conditions are strongly correlated with FLFP. First, there is a negative association with a working spouse. This could be explained either by an income effect or could be the result of social norms.\textsuperscript{14} Second, income stability (at least one household member is a wage employee) is associated with larger FLFP. A possible reason is that the regular employment of other household members could mean access to information and networks for women to find a job outside the home (Klasen & Pieters, 2012). Third, there is a negative association between FLFP and household remittances, possibly capturing an income effect. Fourth, the Home and WASH index, capturing the quality of infrastructure of the dwelling, is positively associated with FLFP. This positive coefficient could be capturing that working women earn an income allowing to improve their living conditions at home.

FLFP in urban areas surpasses the rate in rural locations by 7.5% points. This result could be an indication of the availability of more employment opportunities and services in cities, such as childcare facilities, that can promote FLFP.

Access to and use of technology are also positively linked to FLFP. The participation rate of internet users surpasses that of not users by 11.5% points, probably reflecting better access to information about employment opportunities and endowment of skills that are demanded in the labor market. On the other hand, the LFP rate of women having a washing machine is 3.5% points larger than the rate for women not having one.

**Local labor market factors**

Figure 4 shows that municipalities with higher GDP per capita levels have higher FLFP rates, although the association is not statistically significant. The estimations corresponding to the
variables capturing the sectoral structure of male employment have the expected sign – larger FLFP when the share of services is larger than that of manufacturing – but are not significant. The measure of gender-based discrimination in the labor market is associated with lower rates of FLFP, while the rate of crime is also negatively associated but the estimation is not statistically significant.

Figure 4. FLFP and local labor market variables. Notes: Point estimates and 90% CI from estimating model (1) by OLS. Table A1 in the Appendix provides details on variables' definition, while Table A2 provides complete estimation results.

**Social norms and attitudes**

Figure 5 presents the results of a set of variables capturing social norms and attitudes toward women (relying on our basic specification). The first panel shows that when female family members have participation in main household decisions, FLFP is higher. This could reflect female empowerment and social attitudes within the household that favor women’s participation in the labor market. The share of educated women among high-paid public employees is negatively associated with FLFP of low educated women (less than tertiary education). For highly educated women, the correlation is positive although not statistically significant.

When controlling for intrafamily violence against women there is a negative association with FLFP. This is aligned with the hypothesis of male dominance, and physical and psychological costs of working outside the home when working are the trigger of violence (Chakraborty et al., 2017). We find a positive and strong correlation for the measure capturing gender parity in parliament, while the effect for the variable of gender parity among judges is not statistically significant.
The last panel controls for all the measures capturing social norms and attitudes towards women. We confirm the positive and statistically significant association with women participating in household decisions and with gender parity in parliament.

**Social policy**

Figure 6 presents the results including social policy variables. We find that there is a differential association between the number of preprimary centers per 100 children in the 4–6 age range in each municipality and FLFP depending on whether women have a child in the relevant age range or not. For each additional preprimary center, we estimate an addition of 1.3% points to the LFP of mothers of children aged 4–6 relatively to women without children in that age range.

There is also a differential relation with public spending depending on whether women have children. More public spending in education is associated with higher LFP of mothers of children ages 0–12 with respect to non-mothers, although the correlation is small. When considering the per capita spending on health interacted with having at least one family member 60 years or older, there is a positive association with the LFP of women living with older adults, suggesting that with higher health spending the care needs are reduced. However, the size of the coefficient is small.

The correlation between FLFP and road accessibility is positive although not statistically significant. Finally, we include all the social policy variables and confirm the positive associations mentioned above.
Drivers of male LFP

We then consider male LFP as the main outcome. Results in the Online Appendix show that if anything the number of children has a positive relationship with male LFP, while the presence of the mother or mother-in-law and having a washing machine are not correlated with it. The variables capturing social norms and attitudes towards women and public policies are, in general, not statistically significant. Exceptions include the share of women in high-paying positions in central government, public spending in health, and the municipality road accessibility measure which are all positively associated with male LFP.

Robustness checks

Our results are robust to different samples. First, we expand the sample to include women ages 25–55. Table 2 (columns [1] and [2]) presents results when controlling for individual and household characteristics, local labor market drivers and the number of public preprimary centers interacted with having children in the 4–6 age range. Findings are aligned with previous estimates: (i) there is a negative association between having children and FLFP and the correlation is larger the younger the kids and (ii) a larger number of public preprimary centers in the municipality where a woman lives is positively related to FLFP of women having children in the 4–6 age range.

Our second robustness explores alternative measures of access to preprimary centers. Using census data, we compute a measure for each woman in our sample indicating whether at least one of her children ages 4–6 assists to a preprimary center. Column (3) of Table 2 presents the results of our main specification when including this variable and restricting the sample to women that are mothers of children ages 4–6. Assistance to a preprimary center is still strongly and positively
Table 2. Within-country correlates of FLFP in 2018. Robustness checks. OLS estimates.

|                          | Women 25–55 | Women with child 4–6 | Latinobarometro 2018 | Urban areas only |
|--------------------------|-------------|----------------------|-----------------------|------------------|
|                          | (1)         | (2)                  | (3)                   | (4)              | (5)              |
| **Individual & Household characteristics** |             |                      |                       |                  |
| Age                      | 0.034       | 0.034                | 0.0362                | 0.0408           | 0.0495           |
|                          | [0.000811]*** | [0.000809]***       | [0.00141]**           | [0.00232]***     | [0.00104]***     |
| Age squared              | −0.000433   | −0.000434            | −0.000476             | −0.00534         | −0.00654         |
|                          | [0.0000]**   | [0.0000]**           | [0.0000]**            | [0.0000]**       | [0.0000]**       |
| Primary level            | 0.0227      | 0.0226               | 0.0165                | 0.0207           | 0.0259           |
|                          | [0.0018]**   | [0.0019]**           | [0.0020]**            | [0.00299]**      | [0.00352]**      |
| Secondary level          | 0.115       | 0.115                | 0.101                 | 0.113            | 0.105            |
|                          | [0.0070]**   | [0.0070]**           | [0.00504]**           | [0.0137]**       | [0.00818]**      |
| University level         | 0.304       | 0.303                | 0.310                 | 0.302            | 0.281            |
|                          | [0.0130]**   | [0.0131]**           | [0.0137]**            | [0.0253]**       | [0.0113]**       |
| Indigenous person        | 0.0426      | 0.0416               | 0.0445                | 0.0507           | 0.0560           |
|                          | [0.0064]**   | [0.00656]**          | [0.00672]**           | [0.00859]**      | [0.0103]**       |
| Married                  | −0.155      | −0.155               | −0.220                | −0.174           | −0.163           |
|                          | [0.0039]**   | [0.00396]**          | [0.00509]**           | [0.00603]**      | [0.00736]**      |
| Number of children 0–3  | −0.0403     | −0.0405              | −0.0332               | −0.0398          | −0.0588          |
|                          | [0.0027]**   | [0.00280]**          | [0.00214]**           | [0.00648]**      | [0.00291]**      |
| Number of children 4–6   | −0.0206     | −0.00881             | −0.0138               | −0.0202          | −0.0310          |
|                          | [0.0018]**   | [0.00173]**          | [0.00167]**           | [0.00443]**      | [0.00231]**      |
| Number of children 7–12  | −0.00736    | −0.00741             | −0.00566              | −0.00766         | −0.0134          |
|                          | [0.000999]** | [0.00102]**          | [0.000865]**          | [0.00226]**      | [0.00144]**      |
| Number of people > 12    | −0.0123     | −0.0124              | −0.00634              | −0.0109          | −0.0131          |
|                          | [0.000430]** | [0.000431]**        | [0.000847]**          | [0.000697]**     | [0.000596]**     |
| Presence of grandmother  | 0.0305      | 0.0306               | 0.0320                | 0.0296           | 0.0344           |
|                          | [0.0022]**   | [0.00225]**          | [0.00292]**           | [0.00420]**      | [0.00258]**      |
| Household head           | 0.103       | 0.102                | 0.0978                | 0.104            | 0.119            |
|                          | [0.0038]**   | [0.00386]**          | [0.00525]**           | [0.00672]**      | [0.00333]**      |
| Spouse works             | −0.00507    | −0.00496             | −0.00671              | −0.00746         | −0.0216          |
|                          | [0.00343]**  | [0.00342]**          | [0.00462]**           | [0.00969]**      | [0.00466]**      |
| Income stability         | 0.15        | 0.15                 | 0.128                 | 0.156            | 0.184            |
|                          | [0.00432]**  | [0.00432]**          | [0.00469]**           | [0.0110]**       | [0.00327]**      |
| At least one person receives remittances regularly | −0.061 | −0.0605 | −0.0562 | −0.0674 | −0.0731 |
|                          | [0.00248]**  | [0.00250]**          | [0.00308]**           | [0.00370]**      | [0.00381]**      |
| Household Home & WASH index | 0.00841 | 0.00861 | 0.00722 | 0.00747 | 0.0161 |
|                          | [0.00163]**  | [0.00163]**          | [0.00140]**           | [0.00167]**      | [0.00403]**      |
| Urban                    | 0.072       | 0.0715               | 0.0628                | 0.0748           | -                |
|                          | [0.00541]**  | [0.00554]**          | [0.00587]**           | [0.00590]**      | [0.00720]**      |
| Use internet in the last 3 months | 0.114 | 0.114 | 0.115 | 0.114 | 0.112 |

(Continued)
Table 2. (Continued).

|                                  | Women 25–55 | Women with child 4–6 | Latinobarometro 2018 | Urban areas only |
|----------------------------------|-------------|----------------------|-----------------------|------------------|
|                                  | (1)         | (2)                  | (3)                   | (4)              | (5)              |
| Washing machine                  | [0.0041]**  | [0.0041]**           | [0.0050]**            | [0.0081]**       | [0.0047]**       |
|                                  | 0.025       | 0.0247               | 0.0444                | 0.0347           | 0.0286           |
|                                  | [0.0043]**  | [0.0044]**           | [0.0045]**            | [0.0072]**       | [0.0035]**       |
| Social norms & attitudes towards women | 0.0416      |                      |                       |                  |
| Men-to-all agreement with gender parity in teams | 0.0200**    |                      |                       |                  |
| Social policy variables          |             |                      |                       |                  |
| Public preprimary centers per 100 children 4–6 in the municipality (2017) | 0.0108      |                      |                       |                  |
|                                  | [0.0041]**  |                      |                       |                  |
| Public preprimary centers per 100 children 4–6 in the municipality (2017) * Has child 4–6 | 0.0108      |                      |                       |                  |
|                                  | [0.0170]**  |                      |                       |                  |
| Has child 4–6                    | −0.0274     |                      |                       |                  |
|                                  | [0.0029]**  |                      |                       |                  |
| Children 4–6 assist to preprimary education | 0.0123      |                      |                       |                  |
|                                  | [0.0016]**  |                      |                       |                  |
| Local labor market variables     |             |                      |                       |                  |
| Male/female employment ratio in the municipality | −0.0155     | −0.0157              | −0.0144               | −0.0142          | −0.0157          |
|                                  | [0.0037]**  | [0.0036]**           | [0.0037]**            | [0.0024]**       | [0.0039]**       |
| Log of municipality GDP per capita | 0.0475      | 0.0487               | 0.0443                | 0.0342           | 0.0412           |
|                                  | [0.0245]**  | [0.0245]**           | [0.0255]**            | [0.0130]**       | [0.0329]**       |
| Crimes in the municipality/total population in the municipality | −1.55       | −1.865               | −1.768                | −1.523           | −2.37            |
|                                  | [1.743]     | [1.769]              | [2.081]               | [1.369]          | [1.970]          |
| Share of male employment in primary (municipality) | 0.00393     | 0.00526              | −0.0344               | −0.00259         | 0.0198           |
|                                  | [0.0541]    | [0.0539]             | [0.0528]              | [0.0459]         | [0.0680]         |
| Share of male employment in construction (municipality) | −0.0837     | −0.0848              | −0.204                | −0.123           | −0.933           |
|                                  | [0.0784]    | [0.0780]             | [0.0812]**            | [0.0841]         | [0.0883]         |
| Share of male employment in white services (municipality) | 0.00477     | 0.00716              | −0.0368               | 0.029            | 0.0336           |
|                                  | [0.0819]    | [0.0826]             | [0.0818]              | [0.0785]         | [0.106]          |
| Share of male employment in other services (municipality) | 0.0132      | 0.00382              | −0.0509               | 0.00711          | 0.0535           |
|                                  | [0.0621]    | [0.0624]             | [0.0591]              | [0.0676]         | [0.0859]         |
| Constant                         | −0.738      | −0.733               | −0.644                | −0.72            | −0.881           |
|                                  | [0.232]**   | [0.231]**            | [0.240]**             | [0.131]**        | [0.308]**        |
| Observations                     | 1,983,873   | 1,983,873            | 580,115               | 1,696,260        | 961,743          |
| R-squared                        | 0.247       | 0.248                | 0.228                 | 0.255            | 0.206            |
| Department fixed effects         | Yes         | Yes                  | Yes                   | No               | Yes              |
| Clustered std. errors            | Municipality| Municipality         | Municipality          | Department       | Municipality     |

Notes: Standard errors clustered at the municipality/department level in brackets. *** p < 0.01, ** p < 0.05, * p < 0.1. Table A1 in the Appendix provides details on variables’ definitions.
associated with FLFP. Considering that most preprimary centers are public, we interpret this finding as reinforcing our previous results. It also suggests the importance of public infrastructure to facilitate the entrance of mothers into the labor market.

We also propose different measures of social norms and attitudes towards women in the society using data from 2018 Latinobarómetro. The first captures the share of males considering that a team of women and men will have better results than a team of only men. The second captures the opinions towards women and men being equally skilled in science and technology. The results reported in column (4) of Table 2 show that the positive association holds (but it’s non-significant with the second measure).

Finally, column (5) reports the findings when restricting the sample to urban areas. The direction of the main findings remains the same. However, the negative correlation between FLFP and having young children is larger than in the baseline estimates.

Conclusion

During most years of the first two decades of the 2000s, Guatemala grew at a relatively high rate, fertility rates declined, and female educational attainment rose without precedent. Despite these promising trends, Guatemala remained the country with the lowest FLFP rate in the LCR. This under-utilization poses a large cost to this upper-middle-income country where most women are not engaged in paid jobs. This paper explored a wide set of micro data sets to shed new light on the drivers behind the change in FLFP between 2002 and 2018 and the large within-country dispersion in 2018. We assessed the role of (i) individual and household characteristics, (ii) local social norms and attitudes towards women, (iii) social public policies, and (iv) local labor market characteristics. Traditionally, a small state, weak governance, and chronically low tax revenues lead to limited public investment in infrastructure and human capital, largely explaining the lack of developmental progress and large gaps in social outcomes. We conjecture that regional differences in these factors influence women’s willingness and ability to participate in paid employment.

Even though our sample only covers data up to 2018, the impact of COVID-19 raises an even gloomier scenario for FLFP in Guatemala. Globally, women suffered larger work stoppage rates than men. In Guatemala, women were 20% points more likely than men to lose their jobs in the early stages of the pandemic (Cucagna & Romero, 2021). The larger impact of the pandemic recession on female employment and the unbalanced burden of childcare activities across genders are very likely to further impact women’s LFP.

We showed that the increases in FLFP of 5.7% points between 2002 and 2018 (from 26% to 32%) was partly explained by the drastic increases in the school attainment of women, the reduction in fertility and the country’s structural transformation towards services. However, a large component remained unexplained by the Oaxaca-Blinder decomposition.

Exploring within-country differences in 2018, we showed that social norms, attitudes towards women in the society and public social policies such as the availability of public pre-schools or the investments in health, are all important determinants of FLFP. The analysis suggests that, taken together, these factors can all become an important source of increased FLFP moving forward.

Notes

1. Our special thanks to INE Guatemala for invaluable support in access to the census data and to the Public Sector survey data. Fernando Paredes and Alejandro de la Fuente (World Bank) offered valuable support in data access. We thank Eliana Rubiano Matulevich for several comments. A previous version of this paper has been published as World Bank Policy Research Working Paper (9919), see Almeida & Viollaz (2022).
2. Between 2000 and 2018, Guatemala grew at an average rate of 3.5% compared with 2.7% in Latin America and the Caribbean region. The lower secondary completion rate of women increased from 28.2% to 55.2% and the number of births per woman declined from 4.6 to 2.9 over the same period (World Bank, 2021).
3. Guatemala per capita GDP was approximately $US 9,000 in 2019.
4. Figure 1 reports FLFP in aspirational country peers as defined by the WBG’s Systematic Country Diagnostic (World Bank, 2022) (Peru, Dominican Republic, Serbia, and Georgia) and structural peers (Honduras, Paraguay, Sri Lanka, and Senegal).
5. The Online Appendix presents a brief conceptual framework and a review of the literature on the factors driving FLFP.
6. This paper proposes education, marital status, fertility, and sector and occupational structure of employment at the municipality level as explanatory factors.
7. We follow Berlinski and Galiani (2007) and others and use 49 years old as an upper-bound. They analyze the relationship between FLFP and other labor outcomes, having children of young age and the construction of preprimary schools.
8. The census data can identify mothers and children only in households where women are household heads or when their spouses are.
9. See Table A1 for details on all the variables used throughout the analysis.
10. The gender wage ratio would be a better measure of the level of discrimination in local labor markets, but the 2018 census does not provide information on income variables.
11. House and WASH Index captures the type of dwelling, dwelling property, wall and roof materials, access to water, and type of toilet. Table A1 in the Appendix provides details.
12. Some limitations of having only one year of data is that the analysis is not informative about changes in the relative importance of the drivers of FLFP over time and it is not possible to control for differential labor market trends across municipalities.
13. Because the results of the unexplained component are not invariant to the choice of the excluded categories, we only analyze the total but not the variable by variable results (Fortin et al., 2011).
14. A working wife could be less socially accepted when the husband works.

Disclosure statement

No potential conflict of interest was reported by the authors.

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## Appendix

**Table A1. Variables’ definition.**

| Variable                              | Definition                                                                                                                                                                                                 | Level of Variation |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Age                                   | Age in years                                                                                                                                                                                             | Individual         |
| Education                             | Dummy variables equal one when a woman has no education, primary level of education (complete or incomplete), secondary level (complete or incomplete) or university level (complete or incomplete).                | Individual         |
| Indigenous                            | Dummy variable equals one if a woman identifies herself as Maya, Garifuna or Xinka.                                                                                                                       | Individual         |
| Married                               | Dummy variable equals one if a woman is married or lives with a partner.                                                                                                                                   | Individual         |
| Number of children 0–3                | Number of children ages 0 to 3 who are sons or daughters of the household head.                                                                                                                          | Household          |
| Number of children 4–6                | Number of children ages 4 to 6 who are sons or daughters of the household head.                                                                                                                          | Household          |
| Number of children 7–12               | Number of children ages 7 to 12 who are sons or daughters of the household head.                                                                                                                          | Household          |
| Number of persons>12                  | Number of household members older than 12 years of age.                                                                                                                                                 | Household          |
| Presence of grandmother               | Dummy variable equals one if a woman’s mother or mother-in-law lives in the household.                                                                                                                   | Household          |
| Household head                        | Dummy variable equals one if the woman is the household head.                                                                                                                                            | Individual         |
| Spouse works                          | Dummy variable equals one if the woman’s spouse works. Takes the value 0 for women who are not married or living with a partner.                                                                        | Individual         |
| Income Stability                      | Dummy variable equals one when there is at least one wage earner in the household and is zero otherwise.                                                                                              | Household          |
| At least one person receives remittances regularly | Dummy variable equals one if at least one household member receives remittances on a regular basis.                                                                                                         | Household          |
| Household Home & WASH index           | Index capturing the type of dwelling (equal to 1 if it is a house or apartment), dwelling property (equal to 1 if the family owns it), wall materials (equal to 1 if they are of materials such as bricks or concrete), roof materials (equal to 1 if they are of materials such as concrete or cement), access to water (equal to 1 if through a pipeline) and type of toilet (equal to 1 if connected to a sewerage system or to a septic tank). Index is created using a factor model. | Household          |
| Urban                                 | Dummy variable equal one if woman lives in an urban area.                                                                                                                                               | Individual         |
| Use internet in the last 3 months     | Dummy variable equal one if the woman used the internet in the last three months regardless of the place of use.                                                                                          | Individual         |
| Washing machine                      | Dummy variable equal one if the family owns a washing machine.                                                                                                                                          | Household          |
| Female Decision Making               | Dummy variable equals one if the main decisions in the household are taken by a woman or by a woman jointly with a man and is zero otherwise.                                                          | Household          |
| High Wage Female Workers in the Public Sector | Share of women among all Central Government employees earning a high salary (at least 10,000 Quetzales per month).                                                                                      | Department         |
| Intrafamily VAW                      | Number of cases of intrafamily violence against women in the municipality where each woman lives per 1,000 women 15 or older in the same municipality.                                              | Municipality       |
| Men-to-all agreement with gender parity in Parliament | Ratio between the share of men 18 years old or more that in each department agrees with having gender parity in the Parliament and the share of all people ages 18 or more that agrees with the same statement in the same department. | Department         |
| Men-to-all agreement with gender parity among judges | Ratio between the share of men 18 years old or more that in each department agrees with gender parity among judges and the share of all people ages 18 or more that agrees with the same statement in the same department. | Department         |
| Public preprimary centers            | Number of preprimary centers in each municipality per 100 children ages 4 to 6 in the same municipality.                                                                                                  | Municipality       |
| Per capita public spending in education | Per capita spending in education in 2007 PPP USD.                                                                                                                                                       | Department         |
| Per capita public spending in health  | Per capita spending in health in 2007 PPP USD.                                                                                                                                                         | Department         |

(Continued)
| Variable | Definition | Level of Variation |
|----------|------------|--------------------|
| Municipal Road Accessibility | Kilometers of roads built relative to targets defined in the National Road Plan 2032. | Municipality |
| Male-to-Female employment ratio | Ratio between the employment rate of men ages 15 to 60 in each municipality and the employment rate of women in the same age range and municipality. | Municipality |
| GDP per capita | GDP per capita in 2007 PPP USD. | Municipality |
| Crimes in the municipality/Total population in the municipality | Number of crimes per person | Municipality |
| Share of male employment in primary | Share of male employment in agriculture, forestry and fishing or mining and quarrying | Municipality |
| Share of male employment in manufacturing | Share of male employment in manufacturing sector | Municipality |
| Share of male employment in construction | Share of male employment in construction sector | Municipality |
| Share of male employment in white services | Share of male employment in financial and insurance activities; real estate activities; professional, scientific and technical activities; administrative and support service activities; education; or health. | Municipality |
| Share of male employment in other services | Share of male employment in utilities; wholesale and retail trade; transportation and storage; accommodation and food services activities; information and communication; arts, entertainment and recreation; activities of households as employers; activities of extraterritorial organizations and bodies. | Municipality |
Table A2. FLFP, individual and household characteristics and local labor market variables in 2018. OLS estimates.

|                                | (1)       | (2)       |
|--------------------------------|-----------|-----------|
| **Individual & household characteristics** |           |           |
| Age                            | 0.0407    | 0.0408    |
| Age squared                    | −0.000533 | −0.000534 |
| Primary level                  | 0.0206    | 0.0227    |
| Secondary level                | 0.112     | 0.114     |
| University level               | 0.301     | 0.303     |
| Indigenous person              | 0.0513    | 0.0433    |
| Married                        | −0.174    | −0.173    |
| Number of children 0–3         | −0.0398   | −0.0398   |
| Number of children 4–6         | −0.0201   | −0.0202   |
| Number of children 7–12        | −0.00763  | −0.00782  |
| Number of people>12            | −0.0109   | −0.011    |
| Presence of grandmother       | 0.0297    | 0.0292    |
| Household head                 | 0.105     | 0.104     |
| Spouse works                   | −0.00621  | −0.0088   |
| Income stability               | 0.156     | 0.156     |
| At least one person receives remittances regularly | −0.0663 | −0.066   |
| Household Home & WASH index    | 0.00781   | 0.00818   |
| Urban                          | 0.0754    | 0.0724    |
| Use internet in the last 3 months | 0.115 | 0.113          |
| Washing machine                | 0.0347    | 0.0329    |
| **Local labor market variables** |           |           |
| Male-to-Female employment ratio | −0.0141  | −0.0155   |
| Log of per capita GDP          | 0.0342    | 0.0455    |
| Crime rate                     | −2.086    | −1.799    |
| Share of male employment in primary sector | 0.0185 | 0.00249 |

(Continued)
Table A2. (Continued).

|                                | (1)          | (2)          |
|--------------------------------|--------------|--------------|
| Share of male employment in construction | −0.0982      | −0.0986      |
|                                 | [0.0717]     | [0.0789]     |
| Share of male employment in white services | 0.0619       | 0.0111       |
|                                 | [0.0765]     | [0.0825]     |
| Share of male employment in other services | 0.0273       | 0.00988      |
|                                 | [0.0601]     | [0.0632]     |
| Constant                        | −0.744       | −0.818       |
|                                 | [0.114]***   | [0.235]***   |
| Observations                    | 1,696,260    | 1,696,260    |
| R-squared                       | 0.255        | 0.256        |
| Department fixed effects        | No           | Yes          |

Sources: 2018 national census of Guatemala and 2018 municipality statistics (FUNDESA and INE).
Notes: Women ages 25–49 who either have spouses that are household heads or that are household heads themselves. Standard errors clustered at the municipality level between brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.  

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Table A3. FLFP, individual and household characteristics, social norms and attitudes towards women, and local labor market variables in 2018. OLS estimates.

| Individual & household characteristics | (1)       | (2)       | (3)       | (4)       | (5)       |
|---------------------------------------|-----------|-----------|-----------|-----------|-----------|
| Age                                   | 0.0406    | 0.0408    | 0.0408    | 0.0408    | 0.0406    |
|                                       | [0.00102]*** | [0.00234]*** | [0.00102]*** | [0.00232]*** | [0.00231]*** |
| Age squared                           | −0.000531 | −0.000534 | −0.000534 | −0.000535 | −0.000532 |
|                                       | [0.0000]*** | [0.0000]*** | [0.0000]*** | [0.0000]*** | [0.0000]*** |
| Primary level                         | 0.0215    | 0.0216    | 0.0226    | 0.0213    | 0.0209    |
|                                       | [0.00296]*** | [0.00197]*** | [0.00291]*** | [0.00290]*** | [0.00290]*** |
| Secondary level                       | 0.113     | 0.113     | 0.114     | 0.113     | 0.111     |
|                                       | [0.00649]*** | [0.0140]*** | [0.0137]*** | [0.0142]*** | [0.0142]*** |
| University level                      | 0.3       | 0.109     | 0.302     | 0.302     | 0.109     |
|                                       | [0.0126]*** | [0.134]*** | [0.0124]*** | [0.0252]*** | [0.135]*** |
| Indigenous person                     | 0.0445    | 0.0472    | 0.0427    | 0.0493    | 0.0468    |
|                                       | [0.00662]*** | [0.00957]*** | [0.00655]*** | [0.00865]*** | [0.00940]*** |
| Married                               | −0.172    | −0.174    | −0.173    | −0.173    | −0.172    |
|                                       | [0.00461]*** | [0.00585]*** | [0.00459]*** | [0.00596]*** | [0.00601]*** |
| Number of children 0–3                | −0.0395   | −0.0399   | −0.0398   | −0.0399   | −0.0397   |
|                                       | [0.00267]*** | [0.00652]*** | [0.00267]*** | [0.00650]*** | [0.00653]*** |
| Number of children 4–6                | −0.0201   | −0.0202   | −0.0202   | −0.0203   | −0.0202   |
|                                       | [0.00180]*** | [0.00445]*** | [0.00180]*** | [0.00444]*** | [0.00446]*** |
| Number of children 7–12               | −0.00783  | −0.00774  | −0.00777  | −0.00779  | −0.00786  |
|                                       | [0.00103]*** | [0.00226]*** | [0.00103]*** | [0.00226]*** | [0.00228]*** |
| Number of people>12                    | −0.011    | −0.0109   | −0.011    | −0.011    | −0.011    |
|                                       | [0.000423]*** | [0.000697]*** | [0.000422]*** | [0.000694]*** | [0.000716]*** |
| Presence of grandmother               | 0.0299    | 0.0294    | 0.0291    | 0.0297    | 0.0303    |
|                                       | [0.00209]*** | [0.00428]*** | [0.00208]*** | [0.00416]*** | [0.00439]*** |
| Household head                        | 0.0992    | 0.105     | 0.104     | 0.105     | 0.1      |
|                                       | [0.00381]*** | [0.00655]*** | [0.00397]*** | [0.00663]*** | [0.00629]*** |
| Spouse works                          | −0.00907  | −0.00684  | −0.0089   | −0.00725  | −0.0079   |
|                                       | [0.00366]*** | [0.00961]*** | [0.00369]*** | [0.00965]*** | [0.00959]*** |
| Income stability                      | 0.155     | 0.156     | 0.156     | 0.156     | 0.155     |
|                                       | [0.00441]*** | [0.0109]*** | [0.00445]*** | [0.0110]*** | [0.0107]*** |

(Continued)
|                                | (1)  | (2)  | (3)  | (4)  | (5)  |
|--------------------------------|------|------|------|------|------|
| At least one person receives remittances regularly | -0.0664 | -0.0661 | -0.066 | -0.0663 | -0.0666 |
|                                | [0.00250]*** | [0.00368]*** | [0.00251]*** | [0.00370]*** | [0.00365]*** |
| Household Home & WASH index    | 0.00812 | 0.00827 | 0.00817 | 0.00861 | 0.00896 |
|                                | [0.00164]*** | [0.00175]*** | [0.00161]*** | [0.00164]** | [0.00169]*** |
| Urban                          | 0.0722 | 0.0754 | 0.0729 | 0.073 | 0.0732 |
|                                | [0.00548]*** | [0.00487]** | [0.00550]*** | [0.00502]** | [0.00484]** |
| Use internet in the last 3 months | 0.113 | 0.114 | 0.113 | 0.114 | 0.112 |
|                                | [0.00412]*** | [0.00830]*** | [0.00410]** | [0.00795]** | [0.00817]** |
| Washing machine                | 0.0328 | 0.034 | 0.0326 | 0.0338 | 0.0331 |
|                                | [0.00432]*** | [0.00675]*** | [0.00429]** | [0.00697]** | [0.00648]** |
| Social norms & attitudes towards women |       |       |       |       |       |
| Women participates in hhld decision making | 0.0256 |      |      |      | 0.0253 |
|                                | [0.00295]*** | | | | [0.00457]*** |
| High Wage Female Workers in the Public Sector (department level) | -0.115 |      |      |      | -0.0987 |
|                                | [0.0473]** | | | | [0.0418]** |
| High Wage Female Workers in the Public Sector (department level) * University level | 0.359 |      |      |      | 0.357 |
|                                | [0.223] | | | | [0.224] |
| Cases of intrafamily VAW in the municipality (2017)/1,000 women 15+ in the municipality | -0.00121 |      |      |      | -0.00045 |
|                                | [0.000463]*** | | | | [0.000322] |
| Men-to-all agreement with gender parity in Parliament |      | 0.112 |      |      | 0.108 |
|                                | | [0.0291]*** | | | [0.0356]*** |
| Men-to-all agreement with gender parity among judges |      | -0.0206 |      |      | -0.0143 |
|                                | | [0.0270] | | | [0.0216] |
| Local labor market variables   |       |       |       |       |       |
| Male-to-Female employment ratio | -0.0154 | -0.016 | -0.0155 | -0.0147 | -0.0162 |
|                                | [0.00382]*** | [0.00291]*** | [0.00371]*** | [0.00255]*** | [0.00276]*** |
| Log of per capita GDP          | 0.0454 | 0.0345 | 0.0497 | 0.034 | 0.0321 |
|                                | [0.0246]** | [0.0103]** | [0.0249]** | [0.0127]** | [0.0112]** |
| Crime rate                     | -1.713 | -2.042 | -1.54 | -1.66 | -1.516 |
|                                | [1.729] | [1.554] | [1.711] | [1.288] | [1.320] |
| Share of male employment in primary sector | 0.00408 | 0.0255 | 0.00216 | 0.0114 | 0.0227 |
|                                | [0.0543] | [0.0486] | [0.0538] | [0.0429] | [0.0434] |
Table A3. (Continued).

|                                      | (1)      | (2)      | (3)      | (4)      | (5)      |
|--------------------------------------|----------|----------|----------|----------|----------|
| Share of male employment in construction | −0.103   | −0.0837  | −0.0931  | −0.0894  | −0.0772  |
|                                       | [0.0781] | [0.0914] | [0.0782] | [0.0830] | [0.0800] |
| Share of male employment in white services | 0.0121   | 0.046    | 0.0162   | 0.0534   | 0.055    |
|                                       | [0.0815] | [0.0905] | [0.0814] | [0.0747] | [0.0815] |
| Share of male employment in other services | 0.0143   | 0.0225   | 0.0091   | 0.0257   | 0.0304   |
|                                       | [0.0626] | [0.0658] | [0.0623] | [0.0643] | [0.0628] |
| Constant                              | −0.833   | −0.677   | −0.849   | −0.822   | −0.767   |
|                                       | [0.234]***| [0.126]***| [0.235]***| [0.135]***| [0.125]***|
| Observations                          | 1,696,260| 1,696,260| 1,696,260| 1,696,260| 1,696,260|
| R-squared                             | 0.256    | 0.255    | 0.256    | 0.255    | 0.256    |
| Department fixed effects              | Yes      | No       | Yes      | No       | No       |

Sources: 2018 national census of Guatemala, 2017 and 2018 municipality statistics (FUNDESA and INE), 2017–2018 Census of Human Resources in Central Government (INE), 2017 Latinobarometro. Notes: Women ages 25–49 who either have spouses that are household heads or that are household heads themselves. Standard errors clustered at the municipality level in columns 1 and 3 and at the department level in columns 2, 4 y 5 between brackets. *** p < 0.01, ** p < 0.05, * p < 0.1.
Table A4. FLFP, individual and household characteristics, social policy, and local labor market variables in 2018. OLS estimates.

| Individual & household characteristics | (1)  | (2)  | (3)  | (4)  | (5)  |
|----------------------------------------|------|------|------|------|------|
| Age                                    | 0.0409 | 0.0412 | 0.0408 | 0.0408 | 0.0412 |
| Age squared                            | -0.000536 | -0.000541 | -0.000534 | -0.000534 | -0.000543 |
| Primary level                          | 0.0227 | 0.0207 | 0.0205 | 0.0227 | 0.0207 |
| Secondary level                        | 0.114 | 0.113 | 0.112 | 0.114 | 0.113 |
| University level                       | 0.302 | 0.302 | 0.301 | 0.303 | 0.302 |
| Indigenous person                      | 0.0423 | 0.0511 | 0.0511 | 0.0433 | 0.0492 |
| Married                                | -0.173 | -0.173 | -0.174 | -0.173 | -0.173 |
| Number of children 0–3                 | -0.04 | -0.0376 | -0.0398 | -0.0397 | -0.0381 |
| Number of children 4–6                 | -0.00841 | -0.0174 | -0.0201 | -0.0173 | -0.00689 |
| Number of children 7–12                | -0.00788 | -0.00395 | -0.00759 | -0.00779 | -0.00444 |
| Number of people >12                    | -0.0111 | -0.011 | -0.0109 | -0.011 | -0.0112 |
| Presence of grandmother                | 0.0292 | 0.0298 | 0.0227 | 0.0292 | 0.023 |
| Household head                         | 0.104 | 0.105 | 0.105 | 0.104 | 0.105 |
| Spouse works                           | -0.00869 | -0.00577 | -0.00609 | -0.00903 | -0.0057 |
| Income stability                       | 0.156 | 0.156 | 0.156 | 0.156 | 0.156 |

(Continued)
Table A4. (Continued).

|                                                                 | (1)          | (2)          | (3)          | (4)          | (5)          |
|-----------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|
| At least one person receives remittances regularly              | −0.0655      | −0.066       | −0.0664      | −0.0659      | −0.0657      |
|                                                                 | [0.00252]*** | [0.00374]*** | [0.00382]*** | [0.00250]*** | [0.00377]*** |
| Household Home & WASH index                                     | 0.00839      | 0.0079       | 0.00764      | 0.00821      | 0.00782      |
| Urban                                                           | 0.0719       | 0.0756       | 0.0751       | 0.0723       | 0.0746       |
| Use internet in the last 3 months                               | 0.113        | 0.115        | 0.115        | 0.113        | 0.115        |
| Washing machine                                                 | 0.0325       | 0.0343       | 0.0348       | 0.0328       | 0.0334       |
| Public policy                                                  |              |              |              |              |              |
| Public preprimary centers per 100 children 4–6 in the municipality (2017) | −0.00971 | −0.0103      |              |              |              |
|                                                                 | [0.00422]**  | [0.00416]**  |              |              |              |
| Public preprimary centers per 100 children 4–6 in the municipality (2017) * Has child 4–6 | 0.0127     |              |              |              | 0.0116       |
|                                                                 | [0.00178]*** |              |              |              | [0.00282]*** |
| Has child 4–6                                                  | −0.0294      | −0.0246      |              |              |              |
|                                                                 | [0.00301]*** |              |              |              | [0.00313]*** |
| Log of per capita public spending in education (2017)           | −0.0475      |              |              | −0.0247      |              |
|                                                                 | [0.0371]     |              |              | [0.0368]     |              |
| Log of per capita public spending in education (2017) * Has child 0–12 | 0.0525      |              |              | 0.0391       |              |
|                                                                 | [0.0299]**   |              |              | [0.0262]     |              |
| Has child 0–12                                                 | −0.288       | −0.216       |              |              |              |
|                                                                 | [0.156]**    |              |              | [0.136]      |              |
| Log of per capita public spending in health (2017)              | −0.00439     | −0.00557     |              |              |              |
|                                                                 | [0.00617]    | [0.00594]    |              |              |              |
| Log of per capita public spending in health (2017) * Has family member 60+ | 0.00379 | 0.00292   |              |              |              |
|                                                                 | [0.00129]*** | [0.00138]**  |              |              |              |
| Has family member 60+                                          | −0.00874     | −0.00505     |              |              |              |
|                                                                 | [0.00703]    | [0.00704]    |              |              |              |
| Municipal Road Accessibility                                    | 0.0121       | 0.00925      |              |              |              |
|                                                                 | [0.0134]     | [0.0151]     |              |              |              |
| Local labor market variables                                   |              |              |              |              |              |

(Continued)
|                          | (1)          | (2)          | (3)          | (4)          | (5)          |
|--------------------------|--------------|--------------|--------------|--------------|--------------|
| Male/Female employment ratio in the municipality | −0.0157      | −0.0142      | −0.0138      | −0.0154      | −0.0143      |
|                          | [0.00370]*** | [0.00249]*** | [0.00252]*** | [0.00377]*** | [0.00243]*** |
| Log of municipality GDP per capita | 0.0468       | 0.0338       | 0.0411       | 0.0433       | 0.0374       |
|                          | [0.0247]*    | [0.0125]**   | [0.0180]**   | [0.0248]*    | [0.0182]*    |
| Crime rate               | −2.125       | −2.183       | −2.227       | −1.627       | −2.332       |
|                          | [1.776]      | [1.503]      | [1.560]      | [1.786]      | [1.533]      |
| Share of male employment in primary (municipality) | 0.00398      | 0.0213       | 0.0163       | 0.00838      | 0.0275       |
|                          | [0.0546]     | [0.0455]     | [0.0497]     | [0.0559]     | [0.0490]     |
| Share of male employment in construction (municipality) | −0.0993      | −0.0908      | −0.105       | −0.0964      | −0.0952      |
|                          | [0.0786]     | [0.0942]     | [0.0982]     | [0.0798]     | [0.0947]     |
| Share of male employment in white services (municipality) | 0.0127       | 0.0667       | 0.0561       | 0.0168       | 0.0711       |
|                          | [0.0833]     | [0.0890]     | [0.0911]     | [0.0828]     | [0.0914]     |
| Share of male employment in other services (municipality) | 0.00105      | 0.0286       | 0.0262       | 0.0108       | 0.0193       |
|                          | [0.0635]     | [0.0651]     | [0.0684]     | [0.0630]     | [0.0640]     |
| Constant                 | −0.815       | −0.494       | −0.781       | −0.806       | −0.608       |
|                          | [0.234]**    | [0.264]*     | [0.174]**    | [0.234]**    | [0.256]**    |
| Observations             | 1,696,260    | 1,696,260    | 1,696,260    | 1,696,260    | 1,696,260    |
| R-squared                | 0.256        | 0.255        | 0.255        | 0.256        | 0.255        |
| Department fixed effects | Yes          | No           | No           | Yes          | No           |

Sources: 2018 national census of Guatemala, 2017 and 2018 municipality statistics (FUNDESA and INE), 2017 social spending data (ICEFI).

Notes: Women ages 25–49 who either have spouses that are household heads or that are household heads themselves. Standard errors clustered at the municipality level in columns 1 and 4 and at the department level in columns 2, 3 and 5 between brackets. *** p < 0.01, ** p < 0.05, * p < 0.1.