Rooted Decisions: Childhood Exposure to Labor Markets and Women's Work*

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Abstract

How does early exposure to labor markets affect women's work in adulthood? Using Indonesian data, I find strong and persistent effects of longer exposure to high-female employment places, especially during the formative years between ages 6 and 15. My estimation strategy compares women who moved from their birthplace at different ages but now live in the same location. I find that women from high-employment areas have 5 percentage points higher employment than those from lower-employment areas, suggesting that about 23% of the spatial inequality in women's work is passed to the next generation, likely through learning of birthplace gender norms.

Keywords: gender inequality, local labor markets, place effects

JEL Codes: J16, R19, O1

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1 Introduction

There are surprisingly large and persistent differences in female labor force participation (FLFP) rates within multiple countries at different levels of development. I show this in figure 1, where I illustrate the high dispersion in subnational FLFP rates within several developing countries and the United States. The FLFP rate gap between two localities within these countries is as large as 15 percentage points (p.p.) for most of them.[1] This large within-country FLFP dispersion has generally gone unnoticed in the literature (Charles et al., 2023), and, as a consequence, we know very little about its causes and implications for women's outcomes. In particular, there is scarce evidence of whether exposure to localities with high or low female labor market participation affects adult women's work choices. Consequently, we have limited insight into the extent to which current disparities are a constant feature of these localities or whether they are transmitted across generations.

In this paper, I use rich data from Indonesian internal female migrants to show that subnational FLFP dispersion strongly affects the labor market outcomes of women born across different Indonesian localities.[2] I identify the birthplace causal effect by leveraging variation from women who live in the same labor market as adults but who left their birthplace at different ages. This approach essentially compares the labor supply of women who migrated in early childhood versus those who left in their early teens. If women born in high-FLFP places are more likely to work the longer they stay there, I attribute this to the effect of longer exposure. Under the assumption that omitted variable bias is constant for women migrating at different ages, this strategy allows me to distinguish the causal effect of the origin labor market from differences in women's characteristics. In addition, by focusing on the birthplace rather than the destination labor market, I uncover variation more likely to be driven by women's labor supply choices rather than structural labor demand differences

[1] Using the interquartile range as a benchmark, the gap between the localities at the 75th and the 25th FLFP percentiles is over 15 p.p. for seven out of the ten countries in the figure. It is 28 p.p. for China, 22 p.p. for Indonesia, and 10 p.p. in the United States.

[2] Migration is relatively common in Indonesia, with approximately one in five Indonesians residing outside their birth locality.

across locations.

Indonesia is an ideal setting to study place effects on women's labor supply because it is a large nation with within-country FLFP variation similar to other developing countries. Additionally, Indonesia offers rich representative datasets tracking people's birthplace and current location at a detailed geographic level. My main analyses source data from the 1985, 1995, and 2005 Intercensal Surveys and all waves of the Indonesian Family Life Survey (IFLS). These datasets track respondents' birthplace, current location, and migration history at a geographic level not available in traditional sources from other countries (Bryan and Morten, 2019). Throughout the paper, I identify localities as Indonesian "regencies," which are administrative geographies akin to counties in the United States. The average regency in my dataset is approximately twice the size of the US state of Rhode Island and houses eight hundred thousand people.

I find that spending late childhood and early teens in high-FLFP areas makes women more likely to work as adults. Moreover, the longer they stay in these areas, the more likely they are to join the labor force later in life. In my preferred specification, living in a place at the 75th FLFP percentile between the ages of 6 and 14 makes women five percentage points (p.p.) more likely to work than those living in a 25th percentile place. These magnitudes are quantitatively important as they imply that approximately 23% of the current spatial inequality in FLFP is transmitted to the next generation through birthplace effects. In contrast, I do not find such effects for men. Depending on the specification, staying longer in high-FLFP locations has either no effect or a negative effect on men's employment in adulthood.

These findings highlight the importance of early exposure to the local environment in shaping gender disparities in the labor market, even within the same country. They mirror the persistence in fertility decisions found by Fernández and Fogli (2006) and Fernandez and Fogli (2009) for second-generation immigrants to the United States, and they highlight that women's labor supply decisions can be influenced by factors present long before they reach

working age.

My results are consistent with a setting where birthplace effects act through internalizing norms around women's work. Using data from the Ethnographic Atlas (Murdock, 1967), I show that a regency's FLFP captures variation in pre-modern gender norms within Indonesia. Moreover, the birthplace effects are concentrated during the formative period of late childhood and early adolescence, a time when children's views are still malleable but beginning to solidify (Markus and Nurius, 1986). This aligns well with evidence that children's views about women's standing in society are susceptible to change during these ages (Dhar et al., 2022; Olivetti et al., 2020).

I do not find support for alternative mechanisms highlighted by previous literature: (i) higher investment in schooling, (ii) marriage and household formation, and (iii) changes in parental investment (Molina and Usui, 2022; Fernández et al., 2004; Blau et al., 2011). There is little evidence indicating that women who are more exposed to high-FLFP locations stay longer in school or that they choose husbands with different characteristics. Moreover, high-FLFP locations have worse schooling completion rates across the board, suggesting that they have lower-quality schooling. In addition, if changes in parental investments were the primary driver behind these outcomes, they would have to occur at a very specific time in the child's life to account for my results. While this is possible, it does not seem very likely.

My estimates assume that omitted variable bias is constant across migration age; that is, the correlation between birthplace FLFP and unobserved determinants of women's labor supply is the same regardless of when they left their birthplace. Differences in factors I do not control for between women born in different locations are not sufficient to violate this assumption. For example, women from high-FLFP locations may be more likely to work because their parents had higher resources to invest in their education compared to those from low-FLFP locations. This would create differences between women from different origins that are not driven by birthplace effects. However, such differences do not necessarily violate the constant bias assumption. A violation would require the resource gap to be larger

(or smaller) for women migrating at older ages. In the paper, I provide evidence that the gap in resources and other covariates remains fairly constant across migration ages, thereby supporting my identification assumption.

This paper first lies at the intersection of the culture and the place effects literature. Research using the "epidemiological approach" to culture shows that FLFP and cultural proxies from the countries of ancestry can predict immigrants' work and fertility decisions (Fernández et al., 2004; Fernandez and Fogli, 2009; Fernández, 2013; Nollenberger et al., 2016). I contribute to this literature by adapting the "epidemiological approach" to study the determinants of within-country variation in women's work choices in a large developing country. Additionally, I extend it using techniques inspired by the place effects literature (Chetty and Hendren, 2018a,b; Milsom, 2023) to show that exposure to one's place of birth during a critical developmental period can continue influencing women's choices even after the exposure ceased. This complements existing evidence showing that *current* exposure to labor markets can affect women's expectations, labor supply, and educational investment (Molina and Usui, 2022; Boelmann et al., 2021; Milsom, 2023; Moreno-Maldonado, 2019), while also highlighting the rich within-country variation in the determinants of women's choices recently noted in the literature (Charles et al., 2023; Boelmann et al., 2021).

More broadly, this paper also contributes to the literature showing that where people grow up and live has important implications for intergenerational mobility (Chetty and Hendren, 2018a,b), racial inequality (Chetty et al., 2020), human capital accumulation (Molina and Usui, 2022), criminal activity (Damm and Dustmann, 2014), and political behavior (Brown et al., 2023). I add to this literature by providing new evidence linking women's birthplace to their adult outcomes in a large developing country. This complements existing work showing that spatial inequality is particularly important for women's human capital investment in West Africa (Milsom, 2023).

Finally, my paper contributes to the vast literature on the determinants of women's labor supply. This research has primarily exploited cross-country differences in female labor

supply to study its determinants and implications (Olivetti and Petrongolo, 2008, 2014; Blau et al., 2020; Blau and Kahn, 2015). In this paper, I document the existence of large and persistent differences in female labor supply within multiple developing countries and explore some of its implications. In this way, my approach aligns more closely with recent literature documenting that factors such as commuting and sexism can explain geographic differences in women's labor supply within the United States and France (Black et al., 2014; Moreno-Maldonado, 2019; Le Barbanchon et al., 2021; Charles et al., 2023).

2 Data

2.1 Data sources

My main analyses use data from the Indonesian Intercensal Survey (SUPAS) and the Indonesian Family Survey (IFLS). These datasets record detailed data on people's birthplaces, their migration histories, and their labor supply. I supplement them with place characteristics coming from the Indonesian Census, the National Socioeconomic Survey (SUSENAS), and data on traditional practices from the Ethnographic Atlas.

My primary results come from the Intercensal Survey (Central Bureau of Statistics, 1985, 1995, 2005; Minnesota Population Center, 2023), a decennial survey containing social and demographic information for approximately 0.5% of the Indonesian population. This dataset has two advantages that make it uniquely suitable to study place effects on female labor supply. First, it records people's birthplace, previous location, and current location at the "regency" level. Regencies are administrative units similar to US counties that are commonly used as proxies for local labor markets (Magruder, 2013; Bazzi et al., 2023). Their size allows me to study differences in women's employment across smaller geographic units than what is possible with alternative datasets.[3]

[3]Datasets available for other countries track geographic information only for states or provinces, which in most cases are either too big or too few to be interesting (Bryan and Morten, 2019).

Second, rich migration data allows me to recover the age at which people left their birthplace. The survey records how long each respondent has lived in their current location. With this data, I can determine the age at which individuals *who have only migrated once in their lifetime* left their birthplace. These are people whose previous place of residence is the same as their birthplace. This is the key variation that I exploit in my identification strategy.

I supplement my main results using data from the IFLS, a representative panel that contains rich socioeconomic information that allows for the study of potential confounders (Central Bureau of Statistics, 1985, 1995, 2005). However, this comes at the cost of a smaller sample size. The panel tracks approximately 34,000 Indonesians across five survey years: 1993, 1997, 2000, 2007, and 2014.[4]

I source data on the prevalence of cultural practices from the Ethnographic Atlas (Murdock, 1967). The atlas records traditional and pre-modernization practices at the ethnic group level. Following Bau (2021), I match the practices of 45 ethnic groups to individual data from the 2010 Indonesian Census using the language spoken at home. I then aggregate the data at the regency level. I focus on practices closely related to gender or marriage: location after marriage, emphasis on female chastity, bride price, use of plow agriculture, and polygamy. For more details about the definition of these variables, please refer to appendix C.3.

I extract place characteristics from the 1980-2010 Indonesian Decennial Censuses (Central Bureau of Statistics, 1980, 1990, 2000, 2010; Minnesota Population Center, 2023) and 2012, 2013, and 2014 National Socieconomic Surveys (SUSENAS) (Central Bureau of Statistics, 2019, 2020). The Censuses and SUSENAS are similar, but the Census has larger samples. I compute all regency characteristics by restricting the sample to people aged 18 to 64 and aggregating it at the regency level. Whenever possible, I compute these aggregates from the

[4]I use retrospective work and migration history questions to create a panel tracking the respondents' location history since birth and their yearly employment history from 1988 to 2014. Additional details on the IFLS sample can be found in the appendix section C.2.

censuses.

2.2 Measurement

My main measure of women's labor supply is a dummy equal to one if she was employed during the year.[5] This is the variable I can most consistently track across years and datasets. As a robustness check, I also examine alternative measures such as being a paid worker, total weekly hours worked, and being a full-time worker.

I link women's labor supply choices to the characteristics of their birthplace. This requires having geographic units with boundaries that remain fixed over time. Unfortunately, regency boundaries underwent significant changes from decade to decade. For example, just between 2000 and 2010, 154 new regencies were established. To address this issue, I use regency aggregates with fixed boundaries between 1970 and 2010. These aggregates were built by IPUMS International and consist of 268 geographic units that are slightly larger than the "original" regencies in the data (Minnesota Population Center, 2023). Moving forward, I refer to these regency aggregates as regencies. For additional details, refer to appendix C.4.

I proxy for moving distances by calculating the distance between current and birthplace regencies centroids. Although this method might overestimate distances for moves around the borders of neighboring regencies, it is a good proxy for moves between non-contiguous regencies.

I define migration as living outside one's birthplace regency. For my main analysis, I restrict the sample to one-time internal migrants. This allows me to separate the effects of the birthplace from those of the current location and determine the migration age. When I link women's employment to birthplace characteristics, such as FLFP or urbanicity, I source these from the 2010 Indonesian Census.

[5]This definition classifies unpaid and family workers as employed. The patterns I discuss look similar when I focus on paid workers only.

2.3 Summary statistics

In this section, I provide a data overview using the pooled 1985, 1995, and 2005 Intercensal Surveys. Table 1 gives statistics for the whole sample and by gender. The table highlights three features of the Indonesian labor market. First, internal migration is common, with approximately one-fifth of Indonesians residing outside their birthplace. These internal migrants are my analysis's primary focus, representing a large cross-section of the Indonesian population. Second, the labor market is predominantly informal and agricultural, with 49% of workers being self-employed and the same share working in agriculture. Third, there are large gender gaps in types and rates of employment. Women are 38 p.p. less likely to work than men.[6] Furthermore, women are five times more likely to be unpaid or family workers. Most unpaid workers work in agriculture (75%) and the retail industry (19%). Women are also more likely to work in the service and manufacturing industries.

Table 2 zooms in on women, distinguishing between non-migrants, all migrants, and women who migrated at 17 or younger (hereafter young migrants). Compared to non-migrants, female migrants are more educated but less likely to be employed. They are also more likely to hold salaried jobs and live in urban areas. Moreover, despite some differences in education, marriage rates, and fertility, young female migrants are similar to the typical migrant.

The final rows of table 2 provide details on women's migration. Moves are primarily motivated by reasons other than work, with over 85% associated with either education or "other reasons". Although the survey does not break down the "other" category, IFLS data suggests that most of these moves are family-related. The last row summarizes migration distances in kilometers. On average, migrants undertake long-distance moves covering 687 kilometers (426 miles). Even though young migrants travel shorter distances, their moves still span 438 kilometers (272 miles).

Table 3 characterizes migration flows by urbanicity of the origin and destination regencies.

[6] While this is a large gap, it is typical of Southeast Asia

Following Bryan and Morten (2019), I classify regencies into urban or rural according to the share of the regency's population living in areas classified as urban by the Indonesian Central Bureau of Statistics. I label as urban all regencies with an urban share above 43.3%. I chose this cutoff to match the share of people living in urban regencies with the aggregate urban share in the Indonesian Census. Table 3 shows migration is not exclusive to rural regencies as migration rates are similar in urban and rural regencies. Moreover, migration is not solely rural-to-urban. Panel A breaks down flows by origin and destination urbanicity and shows large urban-to-rural, rural-to-rural, and urban-to-urban flows.[7] Finally, panel B shows considerable heterogeneity in employment rates within each regency classification. Thus, differences between rural and urban regencies are not the main driver of the dispersion in female labor supply.

3 Two facts about women's labor supply

In this section, I use data from IPUMS International to present two facts on female labor supply. First, I show that large within-country differences in women's labor supply are pervasive across the world. Next, I zoom in on Indonesia and characterize the large and highly persistent dispersion in female labor supply across regencies.

3.1 Fact 1: Within-country dispersion in women's labor supply is pervasive across countries

Table 4 provides a snapshot of the within-country variation in women's and men's employment rates for several countries. These countries were selected from a larger set with disaggregated regional employment data in IPUMS International.[8] For all countries, I re-

[7] I observe similarly large flows when splitting regencies at the median FLFP rate. There is movement in all possible FLFP directions: low-low, low-high, high-low, and high-high. It is not the case that women primarily migrate towards high-FLFP locations.

[8] Data for the full set of countries is available in table A.1. All insights discussed in this section generalize to this larger set of countries. Further details about the cross-country data are available in appendix C.1

strict the sample to people aged 18 to 64 and compute the employment rates at the smallest geographical unit available, often corresponding to an administrative unit similar to a county or a municipality. The table orders countries from highest to lowest dispersion in female employment rates, as measured by the interquartile range (IQR) in employment.

This table highlights three insights on women's employment. First, columns (1) to (3) show that, despite the significant differences in the mean, all countries exhibit large variations in women's employment rates *within* their borders.[9] For most countries the gap between the 75th and 25th percentile localities is above 15 percentage points (p.p.).

Second, the large dispersion is widespread across countries at different levels of development and geographic regions. Table 4 includes countries from Asia, the Americas, Africa, and Europe. It also includes middle-income countries like Indonesia and Mexico, and high-income countries such as USA and Spain. These findings suggest that the factors driving this dispersion are not limited to specific regions or income levels.

Third, columns (4) to (6) show that the large within-country dispersion in employment is primarily concentrated among women. With the exceptions of Brazil, the United States, and Spain, women's dispersion is substantially larger than men's. In ten out of the seventeen countries, women's dispersion *more than doubles* men's. Therefore, while men work at high rates across all regions within these countries, women's rates vary significantly by locality.[10]

3.2 Fact 2: The dispersion of female labor supply is highly persistent

Figure 2 zooms in on Indonesia. The map shows women's employment rates in all 268 regencies, grouped by color into quintiles. Darker blues indicate higher employment rates.

[9] Appendix table A.2 shows that the within-country dispersion in women's employment is not the result of regional variation in the rates of unpaid employment. For Indonesia, 55% (IQR 12 p.p.) dispersion remains when I focus on paid employment only. This –reduced– IQR of 12 p.p. is more than twice that of men's.

[10] While the district employment rates are measured with error, I find it unlikely that this is the primary dispersion driver. The variation in women's employment is much larger than men's across most countries. Even if measurement error were greater for women, this difference would have to be substantial to account for the gender differences in table 4.

The map highlights that the dispersion in women's employment extends across the whole country and is not driven by any particular province, island, or group of regencies.

This large dispersion in women's employment rates could stem from (i) temporary economic shocks that depress women's employment in some parts of Indonesia, (ii) measurement error, or (iii) structural differences across regencies that are correlated with employment. If the dispersion is mainly due to temporary shocks or measurement error, we should expect low employment rate persistence. This is because temporary shocks should fade over time, and I expect measurement error to be independent across decades. In contrast, high persistence suggests that structural factors are driving the variation.

Columns (1) to (3) of table 5 show autocorrelation estimates for the regency-level employment rates across different time horizons. The high autocorrelation estimates suggest that the variation in women's employment rates is primarily driven by structural differences across regencies. They start at 80% for the ten-year horizon and stay as high as 70% for the thirty-year horizon. As a benchmark, column (4) reports a simultaneous correlation with men's employment rates of 51%. This means women's employment rates are more correlated with themselves 30 years apart than with men's employment rates in the same year.[11] The next sections analyze whether being exposed to this persistent regional inequality during childhood has permanent consequences on women's labor supply choices in adulthood.

4 Empirical strategy and results

I start this section by showing that, conditional on the current place of residence, birthplace is highly predictive of women's labor supply in adulthood. This persistence can reflect the causal effect of birthplace or a spurious correlation driven by women's unobserved characteristics. I use data on age at migration to separate these two sources of variation and show evidence that the longer female migrants stay in their birthplace, the stronger its predictive

[11] The large persistence of female employment rates is not exclusive to Indonesia. Appendix figure B.1 shows that large 10-year auto-correlations also arise in other countries. For most countries, this auto-correlation is over 67%.

power. I interpret this as evidence that a longer stay has a causal effect on women's labor supply decisions.

4.1 Birthplace is highly predictive of women's labor supply

I start by comparing the labor supply of women who *live in the same location* but were born in different regencies using a specification inspired by the epidemiological approach from Fernandez and Fogli (2009). I regress a dummy equal to one if the person is employed in year t (e_{it}) on year by current-regency fixed effects ($\omega_{c(i)t}$), birthplace FLFP rate ($p_{b(i)}$), and a set of individual and regency-level controls X_{it}. They might include age, religion, education, etc.

$$e_{it} = \omega_{c(i)t} + \boldsymbol{b} p_{b(i)} + X_{it}\kappa + \varepsilon_{it} \tag{1}$$

The rationale for including birthplace FLFP rates as a regressor is that they capture all the factors that help determine the regency's aggregate female labor supply (Fernandez and Fogli, 2009).[12] I compute these rates using data from the 2010 census for all women aged 18 to 64.[13]

I call the $\boldsymbol{b}$ slope the birthplace persistence coefficient. It measures the relationship between women's labor supply and the prevailing FLFP in their birthplace after netting out the place of current residence effect. This slope is primarily identified out of contemporaneous differences in labor supply between women who live in the same regency but who were born in different localities.

A large positive $\boldsymbol{b}$ estimate does not necessarily imply a causal relationship between birthplace FLFP rates and women's choices. Yet, it is interesting as it indicates that birthplace

[12] Fernandez and Fogli (2009) focus their exercise on second-generation immigrants in the US to test transmission of gender norms. The analogous exercise in my context would use the children of internal migrants. However, the Intercensal Survey does not track parents' regency of birth.

[13] The results are robust to changes in the age range used to compute FLFP rates. The participation rates of women aged 18-64 are almost perfectly correlated with those of women aged 18-50.

predicts the choices of women who no longer reside there.

Table 6 shows birthplace persistence coefficient ($\boldsymbol{b}$) estimates. Column (1) shows a 0.33 estimate for a baseline specification that includes no additional controls. To illustrate this magnitude, consider two women, Putri and Amanda, who both live in Jakarta. Putri was born in the city of Probolinggo in East Java, where the FLFP rate is 40%, while Amanda was born in Sukoharjo in Central Java, where the rate is 62%. These rates place Probolinggo and Sukoharjo at approximately the 25th and the 75th FLFP percentiles. The 0.33 coefficient implies that Putri is 7.3 percentage points less likely to work than Amanda, a 17% difference relative to the mean employment rate in my data. Controlling for women's age and education in columns (2) and (3) barely modifies the estimate.[14]

Table 6 also shows that the large birthplace persistence in labor supply is mostly exclusive to women. Columns (4) to (6) display estimates from regressions relating men's employment to their birthplace's *FLFP* rate. All estimates are below 0.10 (about 30% of women's) and imply little variation in men's employment rates across regencies. For example, the estimate in column (6) implies an IQR gap of only 1.7 p.p.

The persistence in women's employment choices could still be driven by variation in other demographic or socioeconomic factors across regencies. In table 7, I use the rich data from the IFLS to rule out other potential explanations. First, in columns (1) to (3), I reproduce the persistence estimates for the IFLS female migrants using specifications analogous to those in table6. Reassuringly, these results confirm the Intercensal Survey estimates, with a similarly large implied IQR of 8 p.p. and little persistence for men.

Columns (5) to (8) of table 7 rule out childhood socioeconomic status and maternal labor supply as main drivers of these results. Columns (5) and (6) examine the role of childhood socioeconomic conditions, using variables such as the number of books, the number of people per room, and whether their father was in formal employment. These variables come from a

[14] I find similar results when narrowing the sample to women who migrated at 17 years old or younger, a group whose destination location is more likely to be determined by their parents rather than their own choices (see appendix table A.4).

set of questions about respondents' households when they were 12 years old. Adding these controls has little effect on the estimates. Columns (7) and (8) test whether the persistence is driven by differences in maternal labor supply across regencies. Previous literature highlights the effect of maternal labor supply on women's choices (Fernández et al., 2004; Morrill and Morrill, 2013; Olivetti et al., 2020). High-FLFP regions have more working mothers, which could lead to the observed persistence. I can link a subset of IFLS women to their mothers. For these, I computed the share of years their mother reported having worked and included this as a control in the regression. Column (7) recalculates the persistence for this smaller sample, while column (8) controls for the mother's work history. The presence of a working mother is positively associated with the daughter's labor supply. Nevertheless, the persistence estimate in column (8) is still sizable, indicating it is not solely driven by maternal labor supply differences across regencies. Since these additional controls may not fully alleviate concerns that selection drives this persistence, I turn to a strategy that exploits migration age below.

4.2 The birthplace persistence is stronger the longer you stay

In this section, I exploit differences in migration age to argue that birthplace persistence reflects a causal effect. First, I illustrate how migration age data helps me identify the birthplace effects and describe the required identification assumptions. Next, I show that persistence is stronger the longer women stay in their birthplace and that it is primarily driven by access to paid employment. The section concludes by showing evidence supporting my identification assumptions.

4.2.1 Exploiting data on length of stay

I augment expression (1) by (i) allowing the coefficient on FLFP to vary by migration age ($\boldsymbol{b_a}$), and (ii) allowing the regency fixed effects to vary by year and migration age ($\omega_{c(i)at}$):

$$e_{it} = \omega_{c(i)at} + \boldsymbol{b}_a p_{b(i)} + X_{it}\kappa + \varepsilon_{it} \tag{2}$$

This specification augments Fernandez and Fogli (2009)'s approach by using a strategy inspired by Chetty and Hendren (2018a). The age-specific persistence coefficients b_a are identified from variation within regency-year-age cells. In other words, they stem from comparing the labor supply choices of women living in the same destination regency but who were initially exposed to different FLFP rates for different durations. Therefore, differences in the b_a across ages are driven *only* by differences in the exposure length to the origin FLFP.[15]

In specification (2), I focus on the effect of the origin labor market. Two reasons support this choice. First, persistent effects from the origin location, even after the exposure has ceased, are interesting in their own right. Second, by considering the origin rather than the destination, I can argue more effectively that any effects stem from women's labor supply choices rather than differences in labor demand structures across locations.

I can decompose the age-specific slopes into a cumulative causal effect up age a ($\boldsymbol{\sigma}_a$), and a selection term $\boldsymbol{\gamma}$:

$$\boldsymbol{b}_a = \boldsymbol{\sigma}_a + \boldsymbol{\gamma}$$

the selection term γ reflects omitted variable bias (See appendix D for details). This parameter captures the fact that women from the same origin are likely to share characteristics

[15]The regency fixed effects also vary by survey year to allow flexibility on the effect of the current labor market. My dataset includes data from 1985 to 2005, and Indonesia experienced important structural changes during this time. For example, there was a 15% decline in the share agricultural employment, which went from 52% in 1991 to 44% in 2005 (World Bank, 2024).

that make them more (or less) likely to work but which are not driven by a place effect. For example, parents in areas with high FLFP might be richer and more likely to invest in their daughters' education. Under the key assumption that omitted variable bias is constant across migration age (i.e., γ is age-independent), I can identify the causal effect at any given age (π_a) by subtracting the persistence coefficients across migration ages:[16]

$$\boldsymbol{\pi}_a \quad = \quad \boldsymbol{b}_{a+1} - \boldsymbol{b}_a$$

Moreover, the coefficient for the least exposed cohort gives an estimate of the omitted variable bias: $\boldsymbol{\gamma} = \boldsymbol{b}_0$.

Adding regency-year-migration age fixed effects imposes considerable data requirements. Identifying the birthplace coefficients requires regency-year-age cells big enough to contain women from different origin regencies. However, because the number of people migrating at any given age is small relative to the number of regencies, I am forced to bin migration ages into multi-age cells: (i) 0 to 3, (ii) 4 to 7, (iii) 8-11, (iv) 12 to 14 years old, and one-year cells thereafter. Appendix table A.3 shows that this grouping creates cells of reasonable sizes.

When sample size becomes a concern, I also adopt a less demanding specification that uses regency-by-year ($\omega_{c(i)t}$) and year-by-migration age fixed effects (λ_{at}):

$$e_{it} \quad = \quad \omega_{c(i)t} + \lambda_{at} + \boldsymbol{b}_a p_{b(i)} + \boldsymbol{d}_a p_{c(i)} + X_{it}\kappa + \varepsilon_{it} \tag{3}$$

where I control for the current regency FLFP ($p_{c(i)}$) to capture the effect of longer exposure to the current location. While this specification offers the advantage of being less demanding than (2), it restricts how the destination regency affects women's choices. In practice, however, the results under (2) and (3) are quite similar.

[16] Chetty and Hendren (2018a) identify the place effects by exploiting variation in the age of migration across siblings within the same family. I cannot apply this strategy to my data because neither the Intercensal Survey nor IFLS contains sibling information.

4.2.2 Longer stay in high-FLFP regency make women more likely to work

Figure 3 displays birthplace persistence estimates ($\boldsymbol{b_a}$) by migration age for both women and men. My sample remains restricted to people who left their birthplace at 17 or younger. The regressions control for a quadratic polynomial in age, as well as regency-year-age and education-level fixed effects. The coefficients were rescaled to allow direct interpretation as the implied gap between women born in regencies at the 75th FLFP percentile versus the 25th percentile.

Figure 3 shows a striking slope pattern: women with longer exposure to high-employment locations are more likely to work. Women's slopes increase from 5.1 p.p. for the least exposed women (those leaving at the age of three or younger) to 10.7 p.p. for the most exposed. Women leaving a high-FLFP regency before the age of three have minimal exposure to their birthplace, and yet these results imply that they are more likely to work than women who left low-FLFP regencies at the same age. I interpret the 5.1 p.p. slope as reflecting unobservable differences that make women from high-FLFP more likely to work from the outset. In contrast, I ascribe the 5.6 p.p. increase in the slopes as stemming from the effect of longer exposure to high-FLFP regencies.

These results suggest that place effects play an important role in driving geographic differences in women's labor supply. The 5.6 p.p. increase is large when compared to multiple benchmarks: it is approximately one-fourth of the gap in FLFP between the 75th and 25th regencies, and it is 14% of the employment rate in the sample (40%).[17]

Figure 3 also suggests that birthplace effects act before late adolescence. The slopes after 14 years old are roughly constant. This suggests that additional exposure late in adolescence has little effect on women's labor supply choices. Although figure 3 shows a sharp increase at 12-14 years old, these slopes are noisy. It is possible that the effects are more gradual than figure 3 suggests.[18] In fact, in appendix figure B.3 I estimate specification (3), which

[17]The employment rate for the women in the young migrant sample has changed remarkably little since 1985. It was 36% in 1985, 40% in 1995 and 42% in 2005.

[18]I can reject the hypothesis that all slopes are the same at the 1% significance level. Moreover, the 12-14

allows more disaggregated age bins. While overall qualitatively similar, the estimates at early ages are more unstable, with slight increases at 3-5 and after 6 years old, which could be consistent with more gradual exposure effects.

Figure 3 also presents estimates for men. Similar to women, men from high-FLFP locations are more likely to work at the outset. However, all slopes from age 4 onwards are smaller than those for ages 0-3. A decline in the slopes suggests that very early exposure to these locations makes men less likely to work, though the patterns are less clear than women's. In all, there is a decline of 3.3 p.p. between the first and last slope. If were to take this decline seriously and combine it with women's results, they imply a decline of 8.9 p.p. in the gender gap in employment because of longer exposure to high-FLFP regencies.

The gender differences in figure 3 give less support to several explanations for these results. For example, if when moving households started prioritizing their children's employment opportunities between 8 and 14 years old, one would expect these changes to affect both men and women, yet there is little change in men's coefficients during these ages. To account for these results, it must be that parents from high-FLFP regencies differentially prioritize more their daughter's prospects than their son's.

The clear contrast across genders also arises in IFLS data. Figure B.4 shows estimates from a variation of specification (3) using the IFLS. The figure reproduces closely the increasing persistence for women, coupled with little overall movement for men. Although qualitatively similar, the IFLS estimates imply a birthplace effect of 9.4 p.p., about twice the size of my main Intercensal Survey estimates. Moreover, the persistence tapers off later: at 15-16 rather than 12-14.

4.2.3 Longer stay translates into similar patterns for other outcomes

Figure 4 shows that longer exposure to high-FLFP labor markets translates into higher paid employment and working hours. Panel (a) breaks down employment into paid and

slope is significantly greater than the 0-3 slope at the 1% level.

unpaid. Unpaid work accounts for about a 35% of all female employment. The documented increase in employment is unlikely to represent more economic independence for women if it were entirely driven by unpaid work. However, panel (a) shows that these results are driven by *paid employment*. The rise in the coefficients between 0 and 17 years old translates into an increase of 3.8 p.p. in the likelihood of paid employment. This is 68% of the effect on any employment from figure 3. This contrasts with the lack of any clear patterns for unpaid work.

Figure 4 panel (b) shows results for weekly hours of work. Since hours data is unavailable in the 2005 Intercensal Survey, these results rely on the 1985 and 1995 surveys only. Although the estimates are noisier, they align with the previous results: staying in high-FLFP places raises women's labor supply. The overall increase in the slopes up to 17 years old translates into an increase of 3 weekly hours. This is 33% relative to the mean of 15 hours.

So far, all the evidence presents a consistent picture: longer stay in high-FLFP regencies translates into higher attachment to the labor market in adulthood. More-exposed women are more likely to be employed and work longer hours. A natural question is whether they earn higher wages. Appendix figure B.6 shows birthplace persistence coefficients for regressions with total earnings and hourly wages as dependent variables. They restrict the sample to the much smaller group of migrant women with non-zero earnings in the 1995 survey, as earnings information was unavailable in 1985 and 2005. Because of the small sample, I am forced to use wider age bins. The results are noisy, but they give a vague suggestion that longer exposure to high-FLFP locations could lead to higher earnings.

Finally, figure 5 presents results for marriage and fertility outcomes. Marriage and fertility decisions are often intertwined with local norms and women's labor supply decisions (Fernandez and Fogli, 2009; Jayachandran, 2021). For all the panels, the birthplace FLFP remains as the main regressor. Panel (a) shows results for the number of children in the household, while panel (a) shows results for age at first marriage (for those already married). All waves from the Intercensal Survey include data on the number of children present

in the household, but data on age at first marriage is unavailable in 1985. Consequently, the estimates in panel (b) are based on a smaller sample and are noisier. Nevertheless, both panels present a picture aligned with small but significant reductions in fertility and delays in marriage. The decline in the slopes from ages 0 to 15 in panel (a) implies a reduction in fertility of 0.14 children of all ages (8.7% of the mean of 1.59 children). There are no such effects for men (see appendix figure B.5). Similarly, panel (b) suggests small delays in marriage. The slope increase between 4 and 16 implies a five-month delay of marriage (2.8% relative to a mean age of 18).

4.2.4 The data supports the constant selection assumption

The causal interpretation of the birthplace persistence coefficients hinges on the assumption that selection is independent of migration age. More precisely, conditioning on the current location and other controls, I require the relationship between women's unobserved characteristics and birthplace FLFP to be constant across migration ages. Below, I present results showing that selection along several observable dimensions is fairly constant across emigration ages, suggesting the likely validity of this identification assumption in my dataset.

Consider the identification assumption as analogous to parallel trends in Difference-in-Differences. While I anticipate that there are unobservable differences between women from high and low FLFP regions, this does not pose an issue for my approach. However, if factors correlated with female employment change differently across migration ages for these two groups, I might incorrectly attribute this variation to a causal effect.

I cannot test the constant selection assumption. However, I can test whether the correlation between the birthplace FLFP and several observable characteristics is the same no matter the age at which women migrated. To do this, I use a slight modification of my main specification in (2) and regress women's characteristics y_i on regency-year-age fixed effects (when possible), birthplace FLFP $p_{b(i)}$, and interactions between migration age and

birthplace FLFP:[19]

$$y_i = \omega_{c(i)at} + \beta p_{b(i)} + \sum_{a=3}^{a=18} \beta_a 1_a \times p_{b(i)} + X_i\kappa + \varepsilon_{it} \tag{4}$$

as in previous sections, I normalized the FLFP rates so that the slopes show the IQR gaps.

In model (4), I set 0 to 3 as the base category. Therefore, the β_a slopes show the difference between the age-a and the 0-3 slopes. This specification allows for easy comparison across different outcomes, as all estimates are centered around zero when the constant selection assumption holds. Under constant selection across all the ages, all the interaction terms β_a should be jointly zero.[20]

Figure 6 presents β_a estimates for three sets of outcomes: destination characteristics in panels (a) and (b), reasons for migrating in panel (c), and socioeconomic characteristics in panel (d).

Figure 6 panel (a) uses FLFP in the destination regency as the outcome variable. If parents from high-FLFP regions were increasingly selecting locations where more women work, the correlation between birthplace and destination FLFP should increase for older migrants. However, panel (a) shows that this correlation remains constant regardless of migration age, with all β_a being insignificant and close to zero. Panel (b) shows similar results when using the share of women with at least middle school education in the destination regency as the outcome. This tests whether older migrants select locations with better education outcomes for women. Panel (b) shows no evidence of this.

In panel (c), I test whether older migrants exhibit differential changes in their migration motives. The increase in birthplace persistence can reflect shifts in migration motives for older girls. The 1985 Intercensal Survey includes information on the self-reported reason

[19] When regency-year-age fixed effects cannot be included because, for example, the outcome is a destination regency characteristic, I add year and migration age fixed effects.

[20] Even if all the slopes are not jointly zero, identification is still possible within the subset of ages where constant selection assumption holds. For instance, if the constant selection holds during the ages of 6 to 14 but not outside this range, I can still identify the exposure effects between 6 and 14.

for migrating, distinguishing between work, education, and other reasons.[21] In panel (c), I narrow the sample to observations from the 1985 survey and use migration motives as the outcome. Due to the smaller sample size, I group migration ages into five-year bins for moves before 15.[22]

Panel (c) shows little evidence of changing selection for education moves (filled circles). I cannot reject that all coefficients are jointly zero with 95% confidence. However, the panel suggests women from high-FLFP regencies become more likely to move for work as they grow older (hollow circles). This is indeed a concern for my results. Suppose the employment results were driven by work-related migration. In that case, the increase in persistence should disappear once I control for the work-move dummy (or its interaction with migration age dummies). I test this in appendix table A.10. Column (1) shows that, at baseline, staying up to 16 is associated with an increase of 4.9 percentage points in employment. Columns (2) and (3) indicate that three-quarters of this increase remains after controlling for a work-migration dummy and its interactions with migration age.[23]

Finally, in panel (d), I present IFLS evidence on selection by childhood socioeconomic background. IFLS respondents provided retrospective information on their household characteristics when they were 12. Since the exact migration age is unavailable for moves before 12 years old, all coefficients in panel (d) represent the difference between age a and 0-11 slopes.[24] The panel shows estimates when the outcomes are dummies indicating the father had formal employment and had more than 11 books at home. In developing countries, formal jobs often provide better pay and benefits, while the number of books at home is a proxy for parental education level. If birthplace effects were driven by selection on parental background, then I would expect a clear upward trend for both outcomes. This would reflect

[21] The survey does not specify whose job initiated the move, although they presumably refer to the respondent's job. Moreover, although the Intercensal Survey bundles family-related reasons into "other", IFLS data suggests family-related reasons drive the great majority of the "other" category.

[22] Figure B.2 in the appendix confirms that the increase in birthplace persistence of employment also holds in this smaller sample.

[23] Although this increase is no longer statistically significant, the sample in table A.10 is just one-sixth of the sample in my baseline results.

[24] The Intercensal Survey suggests the typical migrant in this group left at six years old.

that richer and more educated parents from high-FLFP regencies became more likely to migrate as their children grew older. However, there is little evidence of this, and I cannot reject that the slopes are jointly zero with 95% confidence.

5 Discussion: why does birthplace matter?

Here I examine evidence supporting four mechanisms: (i) culture, norms, and learning, (ii) human capital, (iii) marriage and household formation, and (iv) changes in parental investments.

5.1 Culture, norms, and learning

Birthplace effects could reflect internalization or learning of local norms and practices around women's work. Epidemiological research sees country of ancestry FLFP rates as a summary measure that captures variations in preferences, beliefs, and culture that influence aggregate female employment and can be passed down through generations (Fernandez and Fogli, 2009).

In table 8, I use data from the Ethnographic Atlas (Murdock, 1967) to document that FLFP rates capture meaningful variation in cultural practices and gender norms *within Indonesia*. Columns (1) to (3) show results from regressing the regency's FLFP rates on the prevalence of several traditional or pre-modern norms/practices, as well as other regency characteristics. I include as regressors the prevalence of practices related to gender or marriage, namely matrilocality, emphasis on female chastity, bride price, use of plow agriculture, polygamy, and male-only agriculture. Column (1) shows that these variables are highly significant, and they alone account for 30% in the variation of FLFP rates. Moreover, columns (2) and (3) show these variables remain jointly significant when including additional controls, such as the regency's industrial and age structures and overall education levels. In addition, appendix table A.5 shows these practices are predictive of other female outcomes such as

age at first marriage and number of children. In contrast, columns (4) to (6) in 8 show that they have little bite when using the regency's male LFP rate as the outcome.

Table 8 suggests that women born in high-FLFP regencies are exposed to a distinct set of norms and cultural practices that could impact their choices and preferences. Combined with the importance of late childhood and early adolescence in my main results, this aligns well with evidence from psychology and economics that identifies this period as key for preference formation. Early adolescents are mature enough to form their own opinions but receptive to external influences (Markus and Nurius, 1986). For instance, Dhar et al. (2022) find long-lasting effects from interventions targeting gender views of Indian teenagers, and Olivetti et al. (2020) show that exposure to classmates' working mothers during secondary has long-term effects on women's work decisions in the US.

5.2 Human capital

Exposure to birthplace could affect women's labor supply via their career expectations and their educational investment. Being exposed to an environment where women actively participate in economic activities could alter their career expectations and make them more likely to invest in education. For example, Molina and Usui (2022) show that in high-FLFP Japanese municipalities, young women exhibit greater educational aspirations, leading to increased investment in schooling.

However, investment in education is unlikely to account for my results. High-FLFP regencies have worse primary and secondary completion rates (see appendix table A.6). Moreover, there is little evidence that women who stay longer in these regencies invest more in education. If schooling drove the patterns observed in figure 3, I should observe increasing persistence when I use schooling measures as the outcome. Appendix figure B.7 shows no evidence of this when the outcome is the likelihood of completing secondary school. Although the figure suggests an apparent increase in the likelihood of completing primary school, these slopes are imprecise, and I cannot reject that all of them are equal (i.e., null

birthplace effects).[25]

5.3 Marriage and household formation

Previous research emphasizes the interaction between husbands' background and women's labor market choices (Fernández et al., 2004; Blau et al., 2011). In appendix figure B.8 I restrict the sample to women with identified husbands in the Intercensal Survey and test whether high-exposure women choose husbands of certain backgrounds. I focus on five main traits: being an internal migrant, born in above-mean-FLFP regency, high-school graduate, employed, and salaried. If high-exposure women were selecting husbands with different backgrounds, there should be clear trends in the slope estimates. The lack of such pattern in both panels of figure B.8 suggests that women with low and high exposure select partners with similar traits.[26]

5.4 Changes in parental investment

Molina and Usui (2022) suggests that exposure to local labor market opportunities influences parental investment in girls' education. There are two main ways through which parental investment could explain my results. Although I cannot fully discard these explanations, they do not seem very plausible in my context.

The first explanation is pure selection. The increasing persistence could reflect that parents who stayed longer in high-FLFP regencies happened to invest more in their children. If parents who stayed longer in high-FLFP regencies invested more in their daughters' education, one would expect that girls from these locations came from families with higher socioeconomic backgrounds. However, panel (d) of figure 6 shows little evidence of selection

[25] I also cannot reject that all slopes from 8 to 17 are the same. Additionally, the *employment* persistence coefficients remain unchanged when I control for interactions between birthplace FLFP, migration age, and completed primary dummies. If higher employment were mainly due to higher completion rates of primary school, the coefficients in figure 3 should flatten once I control for this triple interaction.

[26] I also studied whether women's choices are affected by the length of their husband's exposure to high-FLFP regencies. Nevertheless, the sample is small and I lack the power to draw any meaningful conclusion.

on parental socioeconomic background. Moreover, since high-FLFP regencies have worse educational outcomes, it is likely that high-investment parents would leave these locations earlier rather than later.

Another possibility is that staying longer in these locations affected parental investment. However, there is little evidence that staying longer in these locations is associated with higher education. Admittedly, investment could act through channels other than schooling, but changes in investment would need to occur at a very specific time in the children's development to fully account for my results.

6 Robustness

My results are robust to multiple variations in the estimation strategy. My main estimates limit the sample to women migrating at 17 or younger and source birthplace FLFP from the 2010 Indonesian Census. Section 6.1 shows that I obtain similar results when I restrict the sample to women migrating up to 16 or up to 18 years old. Section 6.2 shows I get similar estimates when sourcing the FLFP from the census prior to the Intercensal Survey year. Section 6.3 addresses the possibility that early entry to the labor market drives my results. Finally, section 6.4 shows evidence against marriage-related migration.

6.1 Maximum age at migration in the sample

My main results include all women who migrated at 17 or younger. A concern with this sample is that women migrating at 17 or 18 are likelier to consider their job prospects when migrating.

Appendix table A.7 shows results for different maximum migration ages. The table estimates the employment effect of longer stays for two women: one born in a regency at the 75th FLFP percentile and another born at the 25th percentile, assuming both stayed in their birthplace until age 16. That is, these estimates are the difference between the gaps at

16 and 0-3 years old.

Changing the maximum migration age has minimal effects on my estimates. Narrowing the sample to 16 or younger in column (1), or widening it to 18 or younger in column (3) generates results close my baseline (column (2)). Furthermore, the persistence coefficients (b_a) from the three samples exhibit similar behavior and are quite similar in magnitude, with the bulk of the increase occurring between 6 and 14 years old. I interpret this as evidence that my results are not driven by different selection patterns for the oldest migrants.

6.2 Reference year for the birthplace FLFP

My main results source birthplace FLFP rates from the 2010 Indonesian Census. Although FLFP rates are very persistent (see section 3.2), the rates in the 2010 census could be a poor proxy for the rates "experienced" by the women from the 1985 and 1995 Intercensal Surveys.

Appendix figure B.9 shows that my results are robust changes in the FLFP reference year. The dark red (filled) circles show estimates when I source birthplace FLFP rates from the census prior to the Intercensal Survey year,[27] while the orange (hollow) circles show my baseline estimates. The results for both women in panel (a) and men in panel (b) are fairly similar under both strategies.

6.3 Child labor

Child labor is a potential concern for my estimates. While contemporary child labor rates in Indonesia are generally low, this was not true in the 1980s. The share of children aged 10-14 working declined from 11% in 1980 to approximately 3% in 2010.[28] Moreover, the strong positive correlation between FLFP and female child labor (FCL) rates raises the possibility that birthplace effects could be driven by early labor market entry (See appendix

[27] That is: 1980 census for the 1985 survey, 1990 for 1995, and 2000 for the 2005 Intercensal Survey.
[28] Information about work is available only for people aged 10 or more.

figure B.10)

However, my estimates are robust to controlling for FCL rates. Appendix figure B.11 shows birthplace persistence estimates when controlling for birthplace FCL rates. The baseline estimates in orange (hollow circles) control for regency-year-age fixed effects, a quadratic polynomial on age, and education fixed effects. The estimates in red (filled circles) add as control the birthplace FCL rate, while the purple estimates (plus sign markers) add interactions between migration age and the birthplace FCL rate. The estimates are largely unaffected by the inclusion of the child labor rates.

6.4 Marriage-related migration

Marriage could drive the birthplace persistence in employment if there is an interaction between birthplace, migration age and marriage. Early marriage is associated with worse health and economic outcomes for women (Corno and Voena, 2023). If women from low-FLFP regencies are more likely to marry and migrate around 12-15 years old, this could explain why they are less likely to work later in life.

Appendix figure B.12 uses detailed IFLS marriage history data to test whether marriage-related migration drives the employment patterns. First, in panel (a), I show the relationship between migration and women's marriage.[29] I classify migration episodes as marriage-related if the respondent married the year before, the year, or the year after she migrated. I then regress the marriage-related dummy on migration age fixed effects and interactions between migration age and birthplace FLFP. The plotted interaction estimates in panel (a) show a clear decline in the coefficients, suggesting that women from high-FLFP regencies become less likely to migrate due to marriage the longer they stay in their origin. This could explain the employment patterns I document.

Nevertheless, panel (b) shows no evidence that selection on marriage-related migration accounts for the employment effects. Panel (b) displays the baseline IFLS estimates

[29]The IFLS collected marriage-history information for women only.

(red/hollow circles) along with results that control for interactions between migration age and the marriage-migration dummy, and interactions between migration age, the marriage-migration dummy, and birthplace FLFP (orange/filled circles). If selection on marriage migration drove the birthplace effects, the trend should flatten once I account for the marriage motive. Nevertheless, the patterns remain virtually unchanged.

7 Conclusions

In this paper, I provide new evidence on the large and persistent geographic variation in women's labor supply within multiple countries at different levels of development. I then focus on Indonesia, a large developing country home to more than 118 million women.

I link childhood exposure to Indonesia's spatial FLFP inequality and women's adult labor market outcomes. Using the traditional "epidemiological" approach from previous literature, I first document that birthplace is highly predictive of the labor supply choices of internal female migrants. Women currently exposed to the same labor market make very different choices when they come from places with different FLFP rates.

I use rich data on migration history to argue that more prolonged exposure to these locations affects women's work choices. By using migration age data, I show that women exposed longer to high-FLFP labor markets are more likely to work as adults than those exposed longer to low-FLFP locations. These effects are large and are driven by exposure during the formative years between the ages of 6 and 14. In all, staying in a location at the 75th FLFP percentile between 6 and 14 makes women five percentage points more likely to work than those staying in a 25th percentile location. The validity of these estimates hinges on the assumption that omitted variable bias is constant across migration age, which is supported by the data.

These results are consistent with the internalization of local gender norms. Longer exposure to high-FLFP locations is also associated with small marriage delays and lower fertility.

Moreover, the effects are concentrated during formative ages when norms are malleable. The data do not support the idea that investment in education or selection based on family background are the main drivers of these results. Nevertheless, additional research is necessary to further understand how local labor markets affect women's choices.

References

Alesina, A., Giuliano, P., and Nunn, N. (2013). On the origins of gender roles: Women and the plough. *Quarterly Journal of Economics*, 128(2):469–530.

Angrist, J. D. and Pischke, J.-S. (2009). *Mostly harmless econometrics : an empiricist's companion*. Princeton University Press.

Autor, D. H. and Dorn, D. (2013). The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market. *American Economic Review*, 103(5):1553–1597.

Bau, N. (2021). Can policy change culture? Government pension plans and traditional kinship practices.

Bazzi, S., Hilmy, M., and Marx, B. (2023). Religion, Education, and the State.

Black, D. A., Kolesnikova, N., and Taylor, L. J. (2014). Why do so few women work in New York (and so many in Minneapolis)? Labor supply of married women across US cities. *Journal of Urban Economics*, 79:59–71.

Blau, F. D. and Kahn, L. M. (2015). Immigration and the distribution of incomes. In *Handbook of the Economics of International Migration*, volume 1.

Blau, F. D., Kahn, L. M., Comey, M., Eng, A., Meyerhofer, P., and Willén, A. (2020). Culture and gender allocation of tasks: source country characteristics and the division of non-market work among US immigrants. *Review of Economics of the Household*, 18(4):907–958.

Blau, F. D., Kahn, L. M., and Papps, K. L. (2011). Gender, Source Country Characteristics, and Labor Market Assimilation among Immigrants. *The Review of Economics and Statistics*, 93(1):43–58.

Boelmann, B., Raute, A., and Schonberg, U. (2021). Wind of Change? Cultural Determinants of Maternal Labor Supply. *SSRN Electronic Journal*.

Brown, J. R., Cantoni, E., Chinoy, S., Koenen, M., and Pons, V. (2023). The Effect of Childhood Environment on Political Behavior: Evidence from Young U.S. Movers, 1992-2021. *NBER Working Paper Series*.

Bryan, G. and Morten, M. (2019). The Aggregate Productivity Effects of Internal Migration: Evidence from Indonesia. *Journal of Political Economy*, 127(5):2229–2268.

Central Bureau of Statistics (1980, 1990, 2000, 2010). Indonesian Population Census.

Central Bureau of Statistics (1985, 1995, 2005). Indonesian Intercensal Survey.

Central Bureau of Statistics (2019). *Survei Sosial Ekonomi Nasional (Susenas), 2012 Core, https://doi.org/10.7910/DVN/12TVW1*. Harvard Dataverse, V1.

Central Bureau of Statistics (2020). *Survei Sosial Ekonomi Nasional (Susenas), 2016 Kor, https://doi.org/10.7910/DVN/BOXZWU*. Harvard Dataverse, V2.

Central Bureau of Statistics (2021). The Indonesian Population Census.

Charles, K. K., Guryan, J., and Pan, J. (2023). The Effects of Sexism on American Women: The Role of Norms vs. Discrimination. *Journal of Human Resources (forthcoming)*.

Chetty, R. and Hendren, N. (2018a). The impacts of neighborhoods on intergenerational mobility I: Childhood exposure effects. *Quarterly Journal of Economics*, 133(3):1107–1162.

Chetty, R. and Hendren, N. (2018b). The impacts of neighborhoods on intergenerational mobility II: County-level estimates. *Quarterly Journal of Economics*, 133(3):1163–1228.

Chetty, R., Hendren, N., Jones, M. R., and Porter, S. R. (2020). Race and economic opportunity in the United States: An intergenerational perspective. *Quarterly Journal of Economics*, 135(2):711–783.

Compton, J. and Pollak, R. A. (2014). Family proximity, childcare, and women's labor force attachment. *Journal of Urban Economics*, 79:72–90.

Corno, L. and Voena, A. (2023). Child marriage as informal insurance: Empirical evidence and policy simulations. *Journal of Development Economics*, 162:103047.

Damm, A. P. and Dustmann, C. (2014). Does growing up in a high crime neighborhood affect youth criminal behavior? *American Economic Review*, 104(6):1806–1832.

Dhar, D., Jain, T., and Jayachandran, S. (2022). Reshaping Adolescents' Gender Attitudes: Evidence from a School-Based Experiment in India. *American Economic Review*, 112(3):899–927.

Farre, L. and Ortega, F. (2021). Family Ties, Geographic Mobility and the Gender Gap in Academic Aspirations. *SSRN Electronic Journal*.

Fernández, R. (2013). Cultural change as learning: The evolution of female labor force participation over a century. *American Economic Review*, 103(1):472–500.

Fernández, R. and Fogli, A. (2006). Fertility: The role of culture and family experience. *Journal of the European Economic Association*, 4(2-3):552–561.

Fernandez, R. and Fogli, A. (2009). Culture: An empirical investigation of beliefs, work, and fertility. *American Economic Journal: Macroeconomics*, 1(1):146–177.

Fernández, R., Fogli, A., and Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *Quarterly Journal of Economics*, 119(4):1249–1299.

International Labour Organization (2021). ILOSTAT database: Country profiles.

Jayachandran, S. (2021). Social Norms as a Barrier to Women's Employment in Developing Countries. Technical Report 3, National Bureau of Economic Research, Cambridge, MA.

Le Barbanchon, T., Rathelot, R., and Roulet, A. (2021). Gender Differences in Job Search: Trading off Commute against Wage.

Magruder, J. R. (2013). Can minimum wages cause a big push? Evidence from Indonesia. *Journal of Development Economics*, 100(1):48–62.

Markus, H. and Nurius, P. (1986). Possible Selves. *American Psychologist*, 41(9):954–969.

Milsom, L. (2023). The Changing Spatial Inequality of Opportunity in West Africa. *Journal of Public Eco*, 225.

Minnesota Population Center (2023). *IPUMS International: Version 7.4 [dataset].* MN: IPUMS.

Molina, T. and Usui, E. (2022). Female Labor Market Opportunities and Gender Gaps in Aspirations. *SSRN Electronic Journal*.

Moreno-Maldonado, A. (2019). Mums and the City Female labour force participation and city size.

Morrill, M. S. and Morrill, T. (2013). Intergenerational links in female labor force participation. *Labour Economics*, 20:38–47.

Murdock, G. P. (1967). *Ethnographic Atlas*. University of Pittsburgh Press, Pittsburgh.

Nollenberger, N., Rodríguez-Planas, N., and Sevilla, A. (2016). The math gender gap: The role of culture. In *American Economic Review*, volume 106, pages 257–261. American Economic Association.

Office of the Registrar General and Census Commissioner (2011). Census tables. https://censusindia.gov.in/census.website/data/census-tables#.

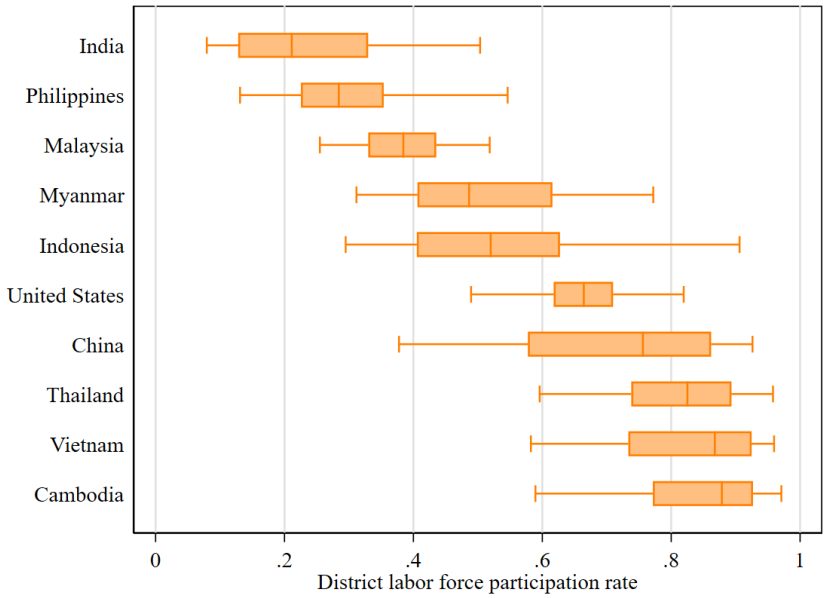
Olivetti, C., Patacchini, E., and Zenou, Y. (2020). Mothers, Peers, and Gender-Role Identity. *Journal of the European Economic Association*, 18(1):266–301.

Olivetti, C. and Petrongolo, B. (2008). Unequal pay or unequal employment? A cross-country analysis of gender gaps. *Journal of Labor Economics*, 26(4):621–654.

Olivetti, C. and Petrongolo, B. (2014). Gender gaps across countries and skills: Demand, supply and the industry structure. *Review of Economic Dynamics*, 17(4):842–859.

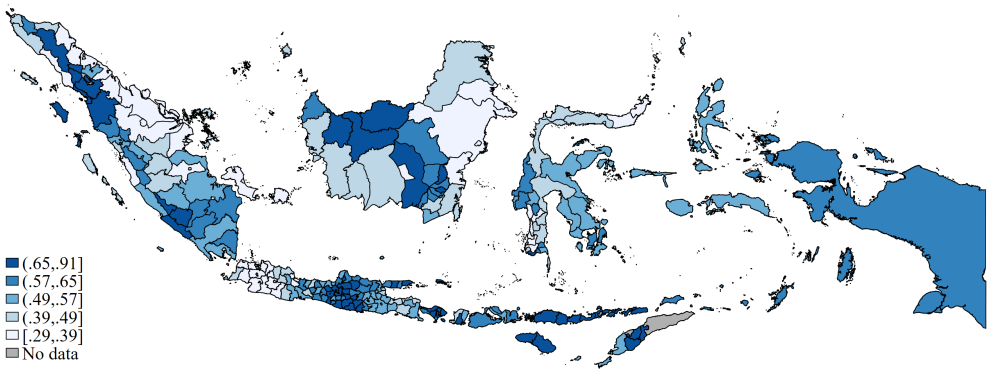
World Bank (2024). World Development Indicators. https://data.worldbank.org/indicator/SL.AGR.EMPL.MA.ZS?view=chart&locations=ID.

Figure 1: There is large FLFP rate dispersion within countries



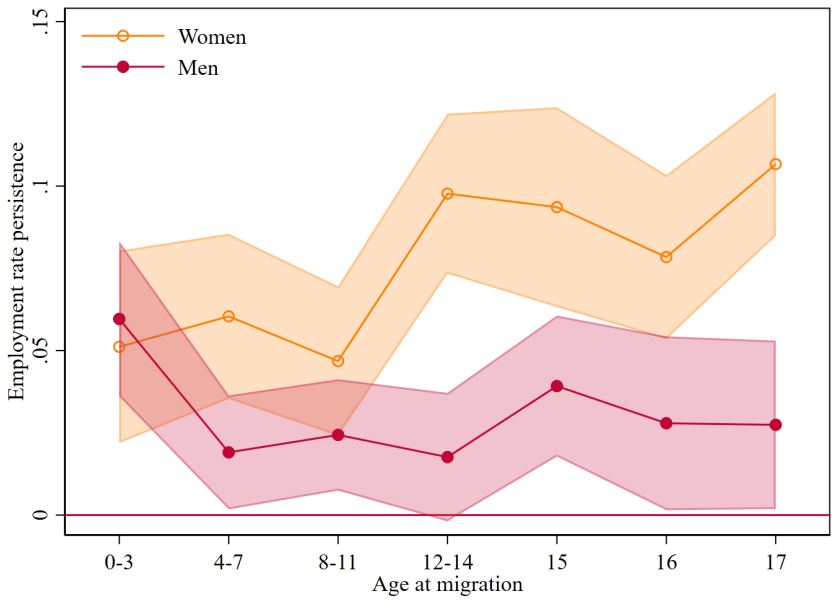
Note: The figure shows the distribution of FLFP rates for a subset of Asian countries with geographic data available in IPUMS. The sides of the box show the values at the 25th and 75th percentiles, while the interior line indicates the median. The whiskers show the values farthest from the median but within 1.5 times the interquartile range. Countries are ordered by the median rate. I compute the rates for the smallest geographic unit available, often corresponding to a district, county, or municipality. Appendix C.1 details the construction of the cross-country dataset.

Figure 2: Indonesia's female employment rate by regency, 2010



Notes: The figure shows regency-level employment rates for women aged 18-64 across the 268 regencies with fixed 1970-2010 boundaries. Each color groups a fifth of the regencies. Data from the 2010 Indonesian census.

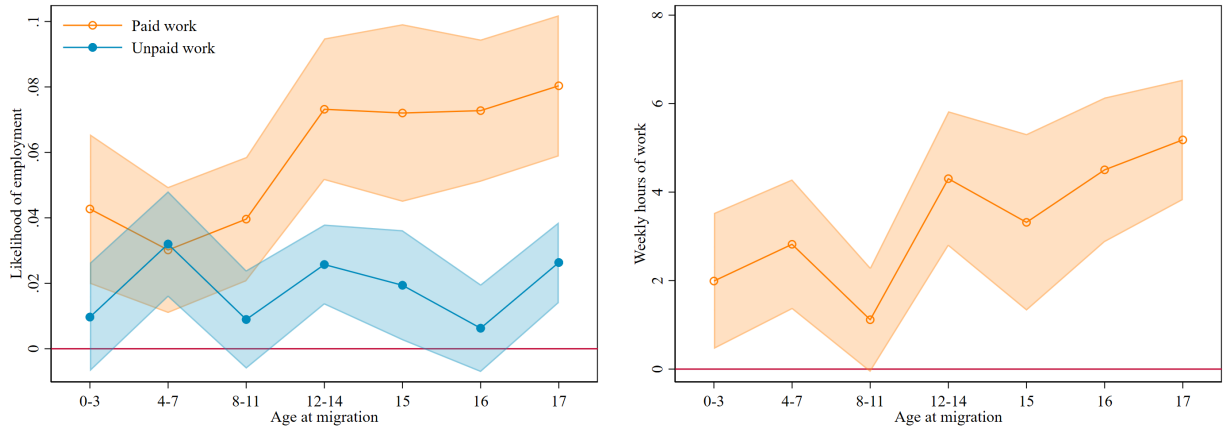
Figure 3: Length of stay and likelihood of employment



Notes: The figure shows estimates of the birthplace persistence coefficients by migration age $\boldsymbol{b_a}$, rescaled to represent the implied gap between women from 75th and 25th FLFP percentile regencies. The regression controls for regency-year-migration age fixed-effects, a quadratic polynomial on age, and education level fixed-effects. Standard errors are clustered by the regency of birth. The figure shows 90% confidence intervals. Data from the 1985, 1995, and 2005 Intercensal surveys.

Figure 4: Results on alternative labor market outcomes

(a) **Type of employment** (b) **Weekly hours and full time employment**

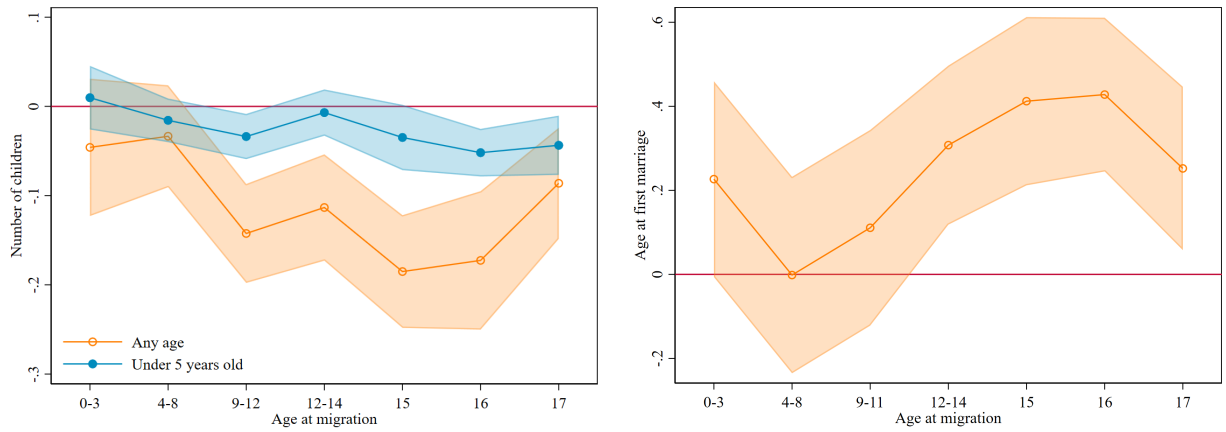


Notes: The figure shows estimates of the birthplace persistence coefficients by migration age $\boldsymbol{b_a}$, rescaled to be interpreted as the implied gap between women from 75th and 25th FLFP percentile regencies. Data from the 1985, 1995, and 2005 Intercensal Surveys. The figure shows 90% confidence intervals.

Figure 5: Length of stay, marriage, and fertility

(a) Number of children

(b) Age at first marriage

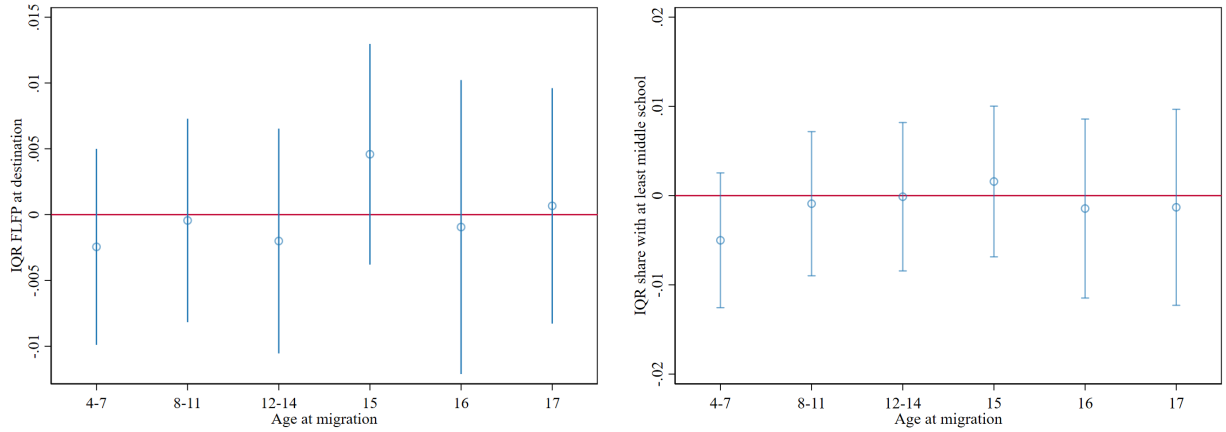


Note: The figure shows estimates of the birthplace persistence coefficients by age of emigration $\boldsymbol{b_a}$, rescaled to be interpreted as the implied gap between women from 75th and 25th FLFP percentile regencies. Panel (a) uses information from the 1985, 1995, and 2005 surveys. Panel (b) uses data from 1995 and 2005 Intercensal surveys. The regression controls for regency-year-migration age fixed-effects, a quadratic polynomial on age, and education level fixed-effects. The figure shows 90% confidence intervals.

Figure 6: Little evidence of selection and migration age

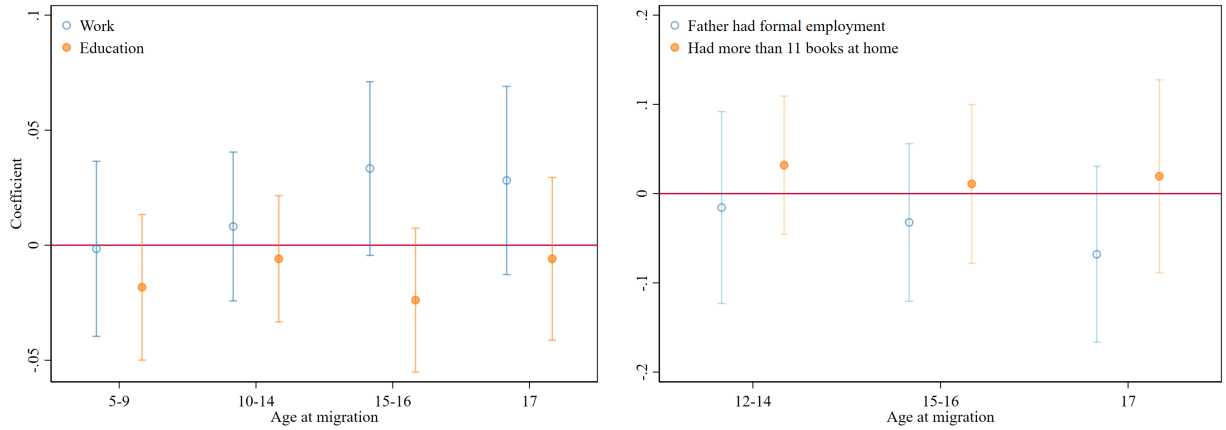
(a) FLFP at destination

(b) Share of women with at least middle school at destination



(c) Reason for migrating

(d) Socioeconomic background



Notes: The figure displays the coefficients on the interactions between migration age and FLFP at birthplace (β_a) using specification (4). Each set of coefficients comes from a different regression. The displayed coefficients show the change in the birthplace persistence coefficients relative to the slopes for the least exposed women. Each panel controls for the primary birthplace FLFP slope, migration age, religion, education-level fixed effects, and a quadratic polynomial in age. In addition, panels (c) and (d) control for current regency fixed effects. Data on migration motive is available only on the 1985 Intercensal Survey, therefore panel (c) limits the sample to this year. Due to the much smaller sample, panel (c) groups migration ages into 5-year cells for the earlier cohorts. Panels (a) to (c) use data from the Intercensal Surveys, while panel (d) uses IFLS data. The smaller IFLS sample requires coarser age binning in panel (d). Standard errors clustered by the regency of birth. The figure shows 95% confidence intervals.

Table 1: Summary statistics by gender

	All	**Women**	**Men**
	(1)	(2)	(3)
Migrant	0.21	0.20	0.22
Age	35.54	35.36	35.72
Married	0.71	0.72	0.71
Attended at least high school	0.23	0.20	0.27
Urban	0.37	0.37	0.38
Muslim	0.81	0.81	0.81
Employed	0.66	0.47	0.85
Type of worker			
Self-employed	0.49	0.38	0.56
Salaried	0.34	0.27	0.37
Unpaid / family worker	0.17	0.35	0.07
Industry of employment			
Agriculture	0.49	0.51	0.48
Services	0.36	0.37	0.36
Manufacturing	0.09	0.11	0.08
Construction	0.05	0.01	0.07
Observations	1,317,825	667,691	650,134

Notes: Data from the pooled 1985, 1995, and 2005 Intercensal Surveys. The sample is restricted to people aged 18 to 64 years old. Migration is defined as residing outside of one's birthplace.

Table 2: Women's characteristics by migration status and age of migration

		Migrants	
	Non-migrants	**All**	**Left at 17 or younger**
	(1)	(2)	(3)
Age	35.50	35.43	30.51
Married	0.71	0.75	0.66
Attended at least high school	0.16	0.31	0.25
Urban	0.30	0.65	0.61
Muslim	0.81	0.83	0.85
Children in household	0.71	0.72	0.63
Children ever born[1]	0.92	0.91	0.91
Employed	0.48	0.42	0.40
Type of worker			
Self-employed	0.39	0.34	0.33
Salaried	0.24	0.42	0.40
Unpaid / family worker	0.37	0.24	0.27
Industry of employment			
Agriculture	0.56	0.30	0.35
Services	0.32	0.59	0.52
Manufacturing	0.11	0.11	0.12
Construction	0.01	0.01	0.01
Reason for migrating[2]			
Work		0.14	0.10
Education		0.06	0.07
Other		0.81	0.83
Migration distance (km)		687	447
Observations	518,018	134,031	40,366

Notes: Data from the pooled 1985, 1995, and 2005 Intercensal Surveys. Column (1) shows data from women who have never migrated. Column (2) shows data for women living outside their birthplace, while column (3) shows data for those who left their birthplace at 17 or younger. [1]Number of children ever born is available in the 1995 Intercensal Survey only. [2]Data on migration reasons is from the 1985 Intercensal Survey only, as the 1995 and 2005 surveys provide this information for a very limited set of migration episodes.

Table 3: Women's migration flows by regency urbanicity

	Birth regency		
	Rural	**Urban**	**Total**
	(1)	(2)	(3)
Number of regencies	168	100	268
Share of women born in these regencies	0.39	0.61	100
Migration rate	0.18	0.23	0.20
A. Share of emigres living in:			
Rural regencies	0.44	0.31	0.38
Urban regencies	0.56	0.69	0.62
B. Characteristics of origin regency			
Women's employment rate			
Average	0.57	0.46	0.53
SD	0.14	0.11	0.14

Notes: I define migration as living outside the regency of birth. I classify regencies as urban if their share of the population living in an urban area is above 43.3%. I choose the cutoff to match the urban share at the national level. Data from the Intercensal Survey.

Table 4: There is large dispersion in female employment within countries

	Women			Men			Average unit population	N. geographic units
	IQR	SD	Mean	IQR	SD	Mean		
Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
China	0.28	0.17	0.71	0.14	0.10	0.85	266,748	2,845
Indonesia	0.22	0.14	0.53	0.05	0.04	0.87	533,867	268
Myanmar	0.21	0.13	0.51	0.07	0.05	0.86	83,531	362
Panama	0.20	0.12	0.33	0.04	0.08	0.80	56,049	35
Vietnam	0.19	0.12	0.82	0.06	0.06	0.90	79,146	674
Brazil	0.19	0.11	0.48	0.19	0.11	0.73	59,010	2,040
Mexico	0.17	0.11	0.30	0.09	0.08	0.80	27,853	2,330
Cambodia	0.16	0.11	0.84	0.08	0.05	0.90	50,186	174
Thailand	0.16	0.11	0.81	0.08	0.06	0.88	58,290	670
South Africa	0.16	0.11	0.30	0.06	0.06	0.53	138,127	224
Argentina	0.15	0.10	0.53	0.08	0.06	0.83	75,022	312
Philippines	0.13	0.10	0.30	0.08	0.06	0.82	40,423	1,274
Chile	0.12	0.08	0.51	0.05	0.04	0.79	57,826	192
Bolivia	0.12	0.06	0.58	0.05	0.03	0.86	70,323	80
Spain	0.11	0.08	0.51	0.09	0.06	0.61	105,902	286
Malaysia	0.11	0.07	0.38	0.06	0.04	0.84	91,509	133
USA	0.09	0.07	0.67	0.10	0.07	0.77	202,635	722

Notes: SD and IQR stand for Standard Deviation and Interquartile Range. The table shows statistics from a cross-section of countries in IPUMS with data available at a small geographic level. For all countries, I use the 2010 census sample or the closest available year. Rows are ordered from highest to lowest dispersion in women's labor supply. I aggregate data at the smallest geographical unit available, except for the USA, where I use Commuting Zones (Autor and Dorn, 2013). Column (7) shows the total population for the average geographic unit in each country. These are unweighted cross-locality means. For more details, see table A.1 and section C.1.

Table 5: Persistence in regency-level female employment rates, 1980-2010

Regressor	(1)	(2)	(3)	(4)
Female employment 10 years ago	0.80			
	(0.02)			
Female employment 20 years ago		0.72		
		(0.03)		
Female employment 30 years ago			0.70	
			(0.04)	
Same-year male employment				0.51
				(0.04)
Observations	800	534	268	1,071

Notes: The table shows the autocorrelation of regency-level employment rates across different time horizons. Column (4) shows the simultaneous correlation between male and female employment. Data from the 1980-2010 Indonesian Census taken from IPUMS International. Robust standard errors in parenthesis.

Table 6: Birthplace persistence estimates for employment

	Women			**Men**		
	(1)	(2)	(3)	(4)	(5)	(6)
Female LFP rate at birthplace ($p_{b(i)}$)	0.33***	0.32***	0.33***	0.10***	0.08**	0.08***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)
Mean employment rate	0.423	0.423	0.423	0.862	0.862	0.862
Implied IQR gap	0.073	0.072	0.074	0.022	0.019	0.017
Regency-year FE	✓	✓	✓	✓	✓	✓
Age		✓	✓		✓	✓
Education			✓			✓
Observations	110,872	110,872	110,872	115,772	115,772	115,772
R^2	0.07	0.07	0.09	0.06	0.22	0.23

Notes: This table uses data from the pooled 1985, 1995, and 2005 Intercensal Surveys and restricts the sample to people who reside outside their birthplace. The implied IQR gap shows the predicted employment gap between someone born at a regency at the 75th percentile and someone born at the 25th FLFP percentile. The IQR in FLFP rates across regencies is 22 percentage points. Standard errors clustered by the regency of birth in parenthesis. When applicable, regressions control for a quadratic polynomial in age and fixed effects for four education categories.

Table 7: Birthplace persistence estimates for women's employment in the IFLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female LFP rate at birthplace ($p_{b(i)}$)	0.38***	0.39***	0.35***	0.37***	0.34***	0.34***	0.29***	0.24**
	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.08)	(0.08)
Mother's work history								0.08**
								(0.03)
Mean employment rate	0.54	0.54	0.54	0.54	0.54	0.54	0.51	0.51
Implied IQR gap	0.08	0.09	0.08	0.08	0.08	0.08	0.06	0.05
Sample	Full	Full	Full	Full	Full	Full	Known mother	Known mother
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Regency FE	✓	✓	✓	✓	✓	✓	✓	✓
Age		✓	✓	✓	✓	✓	✓	✓
Religion			✓	✓	✓	✓	✓	✓
Education				✓	✓	✓	✓	✓
Childhood SES					✓	✓		
Siblings						✓		
Mother worked								✓
Observations	64,501	64,501	64,501	64,501	64,501	64,501	18,135	18,135
N individuals	6,115	6,115	6,115	6,115	6,115	6,115	2,640	2,640
R^2	0.10	0.12	0.13	0.14	0.14	0.14	0.14	0.14

Notes: Uses data from the IFLS. Sample restricted to people residing outside their birthplace. The implied IQR gap shows the implied employment gap between someone born at a regency at the 75th FLFP percentile and someone born at the 25th percentile. The IQR of FLFP rates across regencies is of 22 percentage points. Standard errors clustered by the regency of birth. When indicated, the regressions control for a quadratic polynomial in age and fixed effects for seven religion and four education categories. Mother's work history is measured as the share of years I observe the mother working. For the average woman, the mother's work history coefficient in column (8) indicates a 4.7 percentage point increase in the likelihood of working if her mother also worked.

Table 8: Regency FLFP rates are highly correlated with traditional gender norms

	Women			**Men**		
Dep. var.: employment rate	(1)	(2)	(3)	(4)	(5)	(6)
Matrilocal	-0.16***	-0.13***	-0.12***	-0.01	0.02	0.01
	(0.04)	(0.03)	(0.03)	(0.02)	(0.01)	(0.01)
Emphasis on female chastity	-0.20***	-0.12***	-0.07*	-0.02	0.02	0.00
	(0.05)	(0.04)	(0.03)	(0.01)	(0.01)	(0.01)
Practices bride price	-0.11***	-0.05**	-0.05*	-0.01	0.01	0.00
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Plow agriculture	-0.14*	-0.08	-0.04	-0.02	0.01	0.01
	(0.06)	(0.05)	(0.04)	(0.01)	(0.01)	(0.01)
Polygamy	0.18***	0.15***	0.12***	0.03	0.01	0.02
	(0.05)	(0.04)	(0.04)	(0.02)	(0.01)	(0.01)
Agriculture is male only	0.03	0.10*	0.06	0.02	0.05***	0.01
	(0.05)	(0.04)	(0.04)	(0.01)	(0.01)	(0.01)
Share in agriculture		0.70***	0.98***		0.19***	0.15***
		(0.10)	(0.12)		(0.04)	(0.04)
Share in manufacture		0.66***	0.92***		0.21***	0.17***
		(0.13)	(0.12)		(0.05)	(0.05)
Share in services		0.77***	0.26		0.02	0.09
		(0.20)	(0.20)		(0.09)	(0.07)
Share urban			0.13			0.02
			(0.07)			(0.02)
In java			-0.05			-0.02*
			(0.02)			(0.01)
Age structure			✓			✓
Male's education			✓			✓
Joint significance of norms variables	15.52	9.32	9.40	2.01	3.42	2.23
Observations	258	258	258	258	258	258
R^2	0.29	0.52	0.69	0.04	0.58	0.73

Notes: Uses data from the 2010 Indonesian Census and the Ethnographic Atlas. Sample restricted to people aged 18-64 and aggregated to the regency level. Robust standard errors in parenthesis.

Appendix

A Tables

Table A.1: Within-country dispersion of female employment, full set of countries

Country	Women			Men			Pop.	Obs.
	IQR	SD	Mean	IQR	SD	Mean		
Benin	0.35	0.19	0.44	0.08	0.06	0.76	57,764	77
Zimbabwe	0.30	0.19	0.59	0.13	0.08	0.77	70,597	88
Guinea	0.29	0.19	0.52	0.11	0.09	0.84	22,567	209
China	0.28	0.17	0.71	0.14	0.10	0.85	266,748	2,845
Nepal	0.26	0.17	0.63	0.05	0.03	0.81	191,443	72
Ecuador	0.24	0.13	0.43	0.03	0.03	0.83	104,465	78
Zambia	0.23	0.15	0.50	0.09	0.07	0.64	108,098	55
Indonesia	0.22	0.14	0.53	0.05	0.04	0.87	533,867	268
Myanmar	0.21	0.13	0.51	0.07	0.05	0.86	83,531	362
Panama	0.20	0.12	0.33	0.04	0.08	0.80	56,049	35
Tanzania	0.20	0.12	0.69	0.09	0.05	0.82	178,632	113
Vietnam	0.19	0.12	0.82	0.06	0.06	0.90	79,146	674
Brazil	0.19	0.11	0.48	0.19	0.11	0.73	59,010	2,040
Mexico	0.17	0.11	0.30	0.09	0.08	0.80	27,853	2,330
South Africa	0.16	0.11	0.30	0.06	0.06	0.53	138,127	224
Cambodia	0.16	0.11	0.84	0.08	0.05	0.90	50,186	174
Thailand	0.16	0.11	0.81	0.08	0.06	0.88	58,290	670
Costa Rica	0.16	0.08	0.37	0.05	0.04	0.73	48,673	55
Nicaragua	0.16	0.09	0.31	0.10	0.06	0.81	38,849	68
Argentina	0.15	0.10	0.53	0.08	0.06	0.83	75,022	312
Kenya	0.15	0.10	0.68	0.06	0.06	0.79	513,569	35
Sierra Leone	0.15	0.11	0.71	0.15	0.09	0.75	27,333	126
Togo	0.14	0.10	0.72	0.08	0.05	0.80	75,345	37
Philippines	0.13	0.10	0.30	0.08	0.06	0.82	40,423	1,274
Mauritius	0.13	0.20	0.53	0.03	0.06	0.83	16,626	50
Bolivia	0.12	0.06	0.58	0.05	0.03	0.86	70,323	80
Chile	0.12	0.08	0.51	0.05	0.04	0.79	57,826	192
Spain	0.11	0.08	0.51	0.09	0.06	0.61	105,902	286
Malaysia	0.11	0.07	0.38	0.06	0.04	0.84	91,509	133
Greece	0.10	0.06	0.43	0.05	0.04	0.66	42,492	156
Uganda	0.10	0.10	0.83	0.05	0.05	0.89	111,479	136
USA	0.09	0.07	0.67	0.10	0.07	0.77	202,635	722
Ghana	0.08	0.05	0.76	0.06	0.05	0.78	122,422	102
Senegal	0.06	0.05	0.19	0.09	0.06	0.58	233,811	27
Bangladesh	0.02	0.03	0.06	0.04	0.03	0.87	1,335,491	60

Notes: SD and IQR stand for Standard Deviation and Interquartile Range. The table shows statistics for all countries in IPUMS with geographic data below the state/province level. Rows are ordered from the highest to the lowest IQR in women's employment rates. For all countries, I use the 2010 census sample or the closest available year. I aggregate data at the smallest geographical unit available, except for the USA, where I use Commuting Zones (Autor and Dorn, 2013). Column (7) shows the total population for the average geographic unit in each country.

Table A.2: Within-country dispersion in female paid/unpaid employment

	All employment		Paid employment		
Country	**IQR**	**Mean**	**IQR**	**Mean**	**Observations**
Benin	0.35	0.44	0.37	0.41	77
Zimbabwe	0.30	0.59	0.30	0.59	88
Guinea	0.29	0.52	0.24	0.43	209
Nepal	0.26	0.63	0.27	0.62	72
Ecuador	0.24	0.43	0.23	0.42	78
Zambia	0.23	0.50	0.06	0.27	55
Indonesia	0.22	0.53	0.12	0.34	268
Panama	0.20	0.33	0.21	0.33	35
Tanzania	0.20	0.69	0.21	0.67	113
Vietnam	0.19	0.82	0.11	0.72	674
Brazil	0.19	0.48	0.20	0.46	2,040
Mexico	0.17	0.30	0.16	0.27	2,330
Thailand	0.16	0.81	0.09	0.69	670
South Africa	0.16	0.30	0.16	0.30	224
Costa Rica	0.16	0.37	0.16	0.37	55
Nicaragua	0.16	0.31	0.16	0.31	68
Argentina	0.15	0.53	0.15	0.53	312
Kenya	0.15	0.68	0.15	0.68	35
Sierra Leone	0.15	0.71	0.16	0.66	126
Togo	0.14	0.72	0.17	0.59	37
Philippines	0.13	0.30	0.12	0.28	1,274
Mauritius	0.13	0.53	0.13	0.52	50
Bolivia	0.12	0.58	0.12	0.56	80
Chile	0.12	0.51	0.12	0.51	192
Malaysia	0.11	0.38	0.11	0.38	133
Spain	0.11	0.51	0.11	0.50	286
Greece	0.10	0.43	0.10	0.43	156
Uganda	0.10	0.83	0.12	0.76	136
Ghana	0.08	0.76	0.08	0.61	102
Senegal	0.06	0.19	0.05	0.17	27
Bangladesh	0.02	0.06	0.02	0.06	60

Notes: IQR stands for Interquartile Range. The table shows data from all countries in table A.1 with data that distinguishes unpaid workers from other worker types.

Table A.3: Number of migrant women by survey year and migration age cells

	Survey year			
Age cell	**1985**	**1995**	**2005**	**Total**
0-3	1,071	1,635	1,539	4,245
4-8	1,495	1,606	1,988	5,089
8-12	1,818	2,123	2,386	6,327
12-14	1,884	2,547	2,624	7,055
15	1,258	1,341	1,501	4,100
16	1,145	1,602	1,628	4,375
17	1,317	2,038	2,195	5,550
18	1,544	2,417	2,655	6,616
Total	11,532	15,309	16,516	43,357

Notes: The table shows the number of migrant women by survey year and migration age cell. Data from the 1985, 1995 and 2005 Intercensal Surveys.

Table A.4: Birthplace persistence estimates for employment among young migrants

	Women			**Men**		
	(1)	(2)	(3)	(4)	(5)	(6)
Women's employment rate at birthplace ($p_{b(i)}$)	0.33***	0.33***	0.34***	0.20***	0.16***	0.13***
	(0.03)	(0.03)	(0.03)	(0.05)	(0.04)	(0.03)
Mean employment rate	0.42	0.42	0.42	0.86	0.86	0.86
Implied IQR gap	0.07	0.07	0.08	0.04	0.03	0.03
Regency-year FE	✓	✓	✓	✓	✓	✓
Age		✓	✓		✓	✓
Education			✓			✓
Observations	36,738	36,738	36,738	31,718	31,718	31,718
R^2	0.08	0.08	0.09	0.10	0.27	0.29

Notes: This table uses data from the pooled 1985, 1995, and 2005 Intercensal Surveys and restricts the sample to women who reside outside their birthplace and migrated at 17 or younger. The implied IQR gap shows the implied employment gap between someone born at the 75th percentile and someone born at the 25th FLFP percentile regency. The IQR in FLFP rates across regencies is 22 percentage points. Standard errors clustered by the regency of origin in parenthesis. When applicable, regressions control for a quadratic polynomial in age and fixed effects for five religious and four education categories.

Table A.5: Marriage and fertility are highly correlated with traditional gender norms

	Age at first marriage			**Number of children born**		
	(1)	(2)	(3)	(4)	(5)	(6)
Matrilocal	-0.42	-1.04***	-0.90***	0.10	0.20	0.26*
	(0.34)	(0.29)	(0.27)	(0.12)	(0.12)	(0.12)
Emphasis on female chastity	-1.71***	-2.57***	-1.71***	-0.43**	-0.23	-0.32*
	(0.30)	(0.29)	(0.25)	(0.14)	(0.13)	(0.15)
Practices bride price	1.14***	0.91***	0.57**	0.23***	0.30***	0.33**
	(0.18)	(0.16)	(0.18)	(0.07)	(0.08)	(0.13)
Plow agriculture	0.37	-0.25	-0.38	-0.02	0.09	-0.04
	(0.54)	(0.60)	(0.54)	(0.16)	(0.15)	(0.14)
Polygamy	1.11*	1.33*	1.09*	0.34*	0.29*	0.34**
	(0.55)	(0.58)	(0.54)	(0.13)	(0.12)	(0.12)
Agriculture is male only	0.18	-0.67	-0.98*	-0.54***	-0.35*	-0.06
	(0.41)	(0.37)	(0.41)	(0.16)	(0.14)	(0.17)
Share in agriculture		-2.61**	0.20		1.15**	0.91*
		(0.89)	(1.01)		(0.37)	(0.44)
Share in manufacture		-1.22	1.43		0.48	-0.12
		(1.15)	(1.02)		(0.43)	(0.53)
Share in services		2.17	-1.52		0.90	1.79
		(2.07)	(1.84)		(0.84)	(0.91)
Share urban			1.07			-0.26
			(0.64)			(0.23)
In java			-0.66**			0.28
			(0.22)			(0.17)
Age structure			✓			✓
Male's education			✓			✓
Observations	258	258	258	258	258	258
R^2	0.32	0.60	0.76	0.22	0.36	0.45
F joint significance of norms variables	20.68	31.06	13.88	19.10	9.85	4.59

Notes: Uses data aggregated at the regency level from the 2005 Intercensal Survey, the 2010 Indonesian Census and the Ethnographic Atlas. Sample restricted to women aged 18-64. Robust standard errors in parenthesis.

Table A.6: High-FLFP regencies have worse educational outcomes for women

Regency group	**Years of schooling** (1)	**Primary completed** (2)	**Secondary completed** (3)
Low FLFP	7.86	0.78	0.30
	(0.13)	(0.01)	(0.01)
High FLFP	6.82	0.70	0.21
	(0.13)	(0.01)	(0.01)
Observations	258	258	258

Notes: This table uses data from the 2005 Intercensal Survey and splits regencies at the median FLFP rate.

Table A.7: Estimates are robust to changing age threshold

	Maximum migration age		
	18	**17**	**16**
	(1)	(2)	(3)
Effect estimate 0-15 years old	0.039	0.040	0.041
	(0.025)	(0.025)	(0.025)
Regency'age-year FE	✓	✓	✓
Age	✓	✓	✓
Education	✓	✓	✓
Observations	42,394	35,874	30,423
R^2	0.16	0.16	0.16

Notes: This table shows the implied gap in the likelihood of employment for two women, one born in a regency at the 75th percentile of the FLFP distribution and another born in a regency at the 25th percentile, assuming they stayed in their birthplace until they turned 15. Columns differ only in the maximum migration age for the women in the sample. The estimation uses data from the pooled 1985, 1995, and 2005 Intercensal Surveys and restricts the sample to women who reside outside their birthplace. Standard errors are clustered by the regency of birth. All regressions control for a quadratic polynomial in age and fixed effects for four education categories.

Table A.8: Female labor force participation rates by country: IPUMS vs ILOSTAT

Country	**IPUMS (ages 18-64)**	**ILOSTAT (ages 15+)**	**Difference**
Cambodia	0.82	0.81	0.01
China	0.74	0.64	0.10
Indonesia	0.50	0.51	-0.01
Malaysia	0.43	0.43	-0.00
Myanmar	0.50	0.53	-0.03
Philippines	0.33	0.48	-0.15
Thailand	0.77	0.64	0.13
United States	0.67	0.58	0.10
Vietnam	0.79	0.72	0.07

Notes: Uses data from IPUMS international and ILOSTAT. I restrict the sample in IPUMS to people aged between 18-64 years old.

Table A.9: IPUMS samples for cross-country data

Country	**Geographic unit**	**Years of sample**	
Argentina	Department	2010	2001
Bangladesh	Upazila	2011	2001
Benin	Commune	2013	2002
Brazil	Municipality	2010	2000
Cambodia	District	2013	2008
Chile	Department	2017	2002
China	Prefecture	2000	
Costa Rica	Cantón	2011	2000
Ecuador	Cantón	2010	2001
Ghana	District	2010	2000
Greece	Municipality	2011	2001
Guinea	Sub-prefecture	2014	
Indonesia	Regency	2010	2000
Kenya	District	2009	1999
Malaysia	District	2000	1991
Mauritius	Municipal ward	2011	2000
Mexico	Municipality	2010	2000
Myanmar	Township	2014	
Nepal	Municipality	2005	1995
Panama	District	2010	2000
Philippines	Municipality	2010	2000
Senegal	Department	2013	2002
Sierra Leone	Sierra Leone	2015	2004
South Africa	Municipality	2011	
Spain	Municipality	2011	2001
Tanzania	District	2012	2002
Thailand	District	2000	1990
Togo	Prefecture	2010	
Uganda	County	2014	2002
USA[1]	Commuting zone	2012	
Vietnam	District	2009	2001
Zambia	Constituency	2010	2000
Zimbabwe	District	2012	

Notes: The table details the source samples from IPUMS International. All cross-country comparisons are based on the most recent sample. The less recent samples were used only for cross-country comparison of employment rate persistence. [1]USA data for 2010 comes from the 5-year ACS sample for 2012.

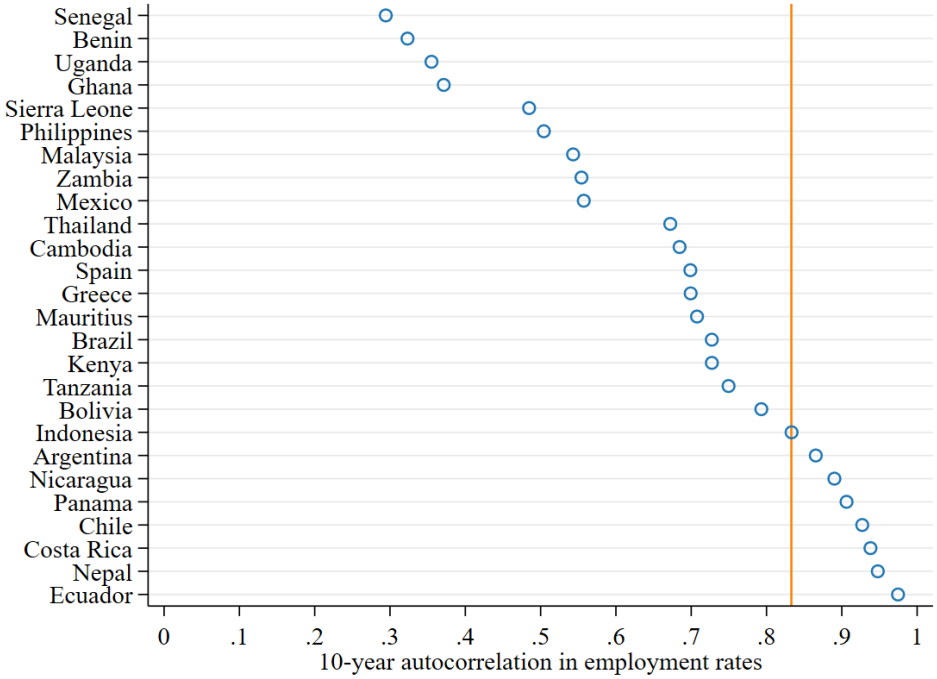
Table A.10: Birthplace effect estimates when controlling for migration motive

	(1)	(2)	(3)
Effect estimate 0-16 years old	0.049*	0.037	0.037
	(0.024)	(0.024)	(0.024)
Work move		✓	✓
Work move× Migration age			✓
Migration age FE	✓	✓	✓
Regency FE	✓	✓	✓
Age	✓	✓	✓
Religion	✓	✓	✓
Education	✓	✓	✓
Observations	11,532	11,532	11,532
R^2	0.11	0.15	0.15

Notes: This table shows the implied gap in the likelihood of employment for two women, one born in a regency at the 75th FLFP percentile and another born in a 25th FLFP percentile regency, assuming they stayed in their birthplace until they turned 16. Uses data from the 1985 Intercensal Survey and restricts the sample to women who reside outside their birthplace. Standard errors clustered by the regency of birth in parenthesis. All regressions control for a quadratic polynomial in age and fixed effects for five religious and four education categories.

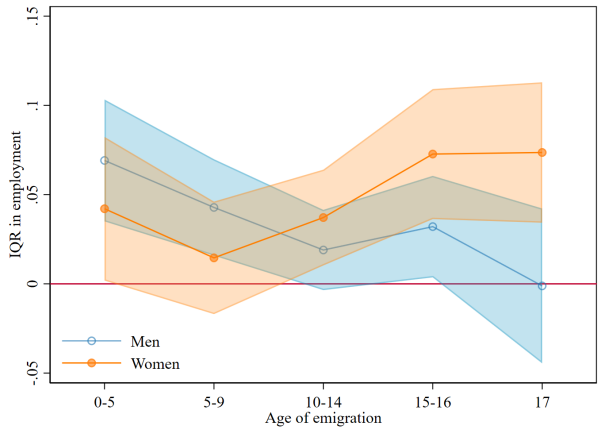
B Figures

Figure B.1: 10-year autocorrelation in female employment rates at the district level for selected countries



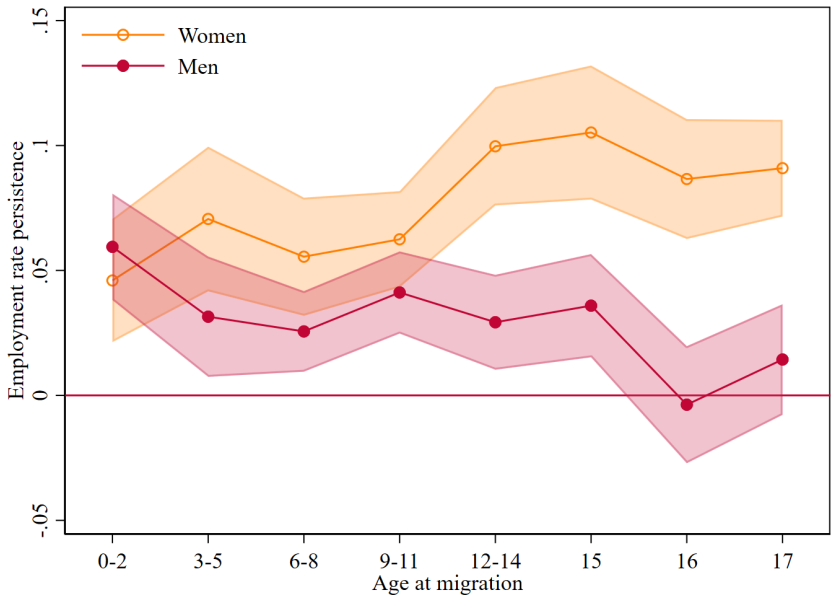
Notes: The figure shows the 10-year autocorrelation in female employment rates. I aggregate data at the smallest geographical unit available which often corresponds to a district/county. Data from IPUMS international.

Figure B.2: Birthplace persistence estimates in the 1985 Intercensal Survey



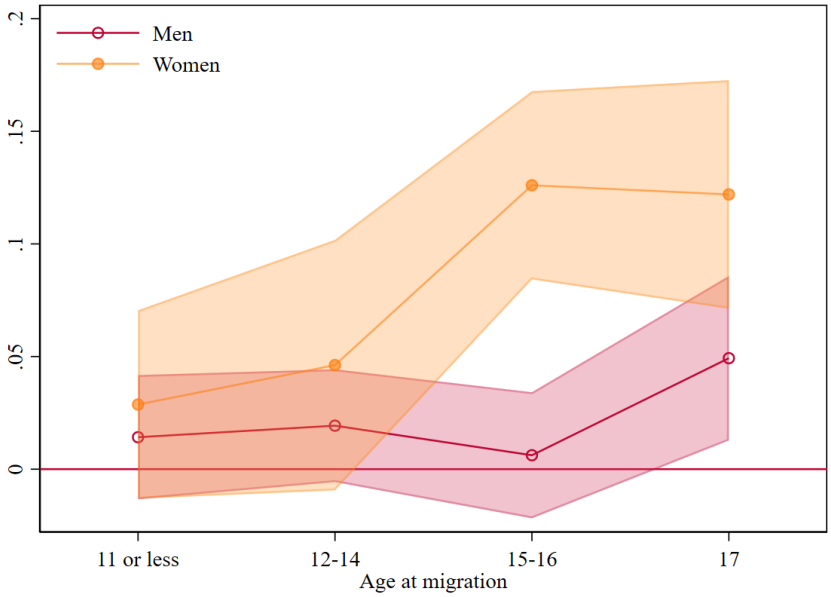
Notes: The figure shows estimates of the birthplace persistence coefficients by migration age $\boldsymbol{b_a}$ when restricting the sample to the 1985 Intercensal Survey. The regressions control for current regency fixed effects, a quadratic polynomial on age, and religion and education-level fixed effects. The figure shows 90% confidence intervals.

Figure B.3: Length of stay and likelihood of employment for narrower age brackets



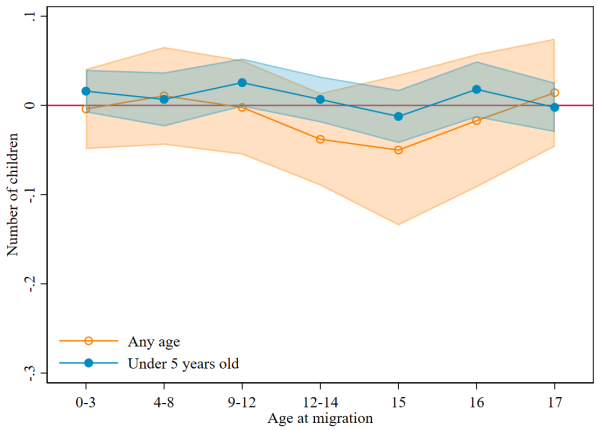
Note: The figure shows estimates of the birthplace persistence coefficients by migration age $\boldsymbol{b_a}$, rescaled to be interpreted as the implied gap between women from 75th and 25th percentile regencies. The regression controls for regency-by-year fixed effects, migration age fixed effects, interactions between destination FLFP and migration age fixed effects, a quadratic polynomial on age, and education level fixed effects. Standard errors clustered by the regency of birth. The figure shows 90% confidence intervals. Data from 1985, 1995, and 2005 Intercensal surveys.

Figure B.4: Birthplace persistence in the IFLS



Note: Uses data from IFLS. The regression controls for year, regency of residency, year, religion, and education FE, and a quadratic polynomial on age. Standard errors clustered by the regency of birth.

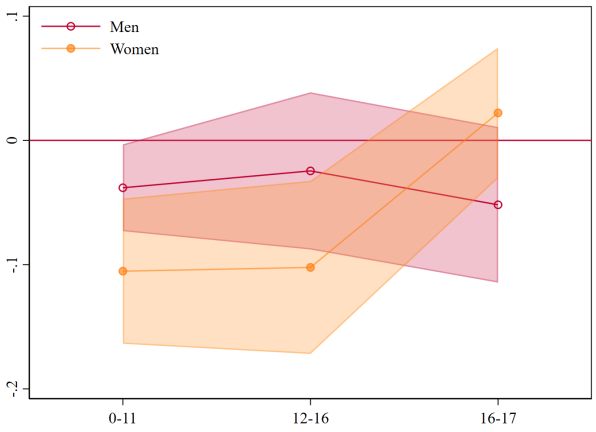
Figure B.5: Men's length of stay and number of children in the household



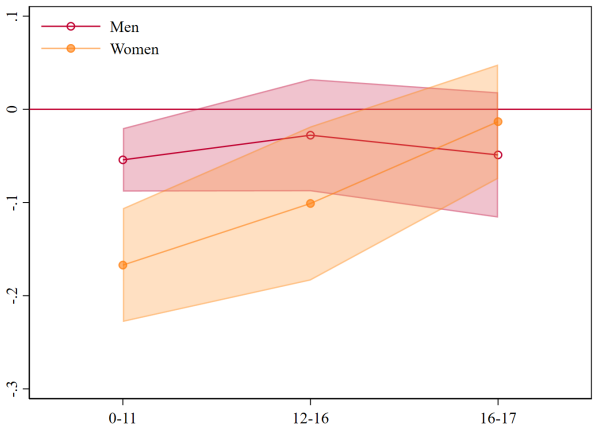
Note: The figure shows estimates of the birthplace persistence coefficients by migration age b_a. It uses data from the 1985, 1995, and 2005 Intercensal surveys. The regression controls for current regency-year-migration age fixed effects, a quadratic polynomial on age, and education level fixed effects. Standard errors clustered by the regency of birth. The figure shows 90% confidence intervals.

Figure B.6: Length of stay and women's earnings

(a) Monthly earnings

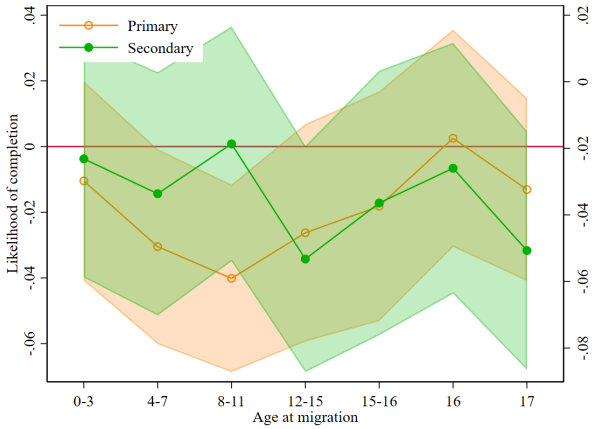


(b) Hourly wages



Note: Sample restricted to migrant women with non-zero earnings. The regression controls for current regency fixed-effects, a quadratic polynomial on age, and education level fixed-effects. The figure shows 90% confidence intervals. Data from the 1995 Intercensal survey.

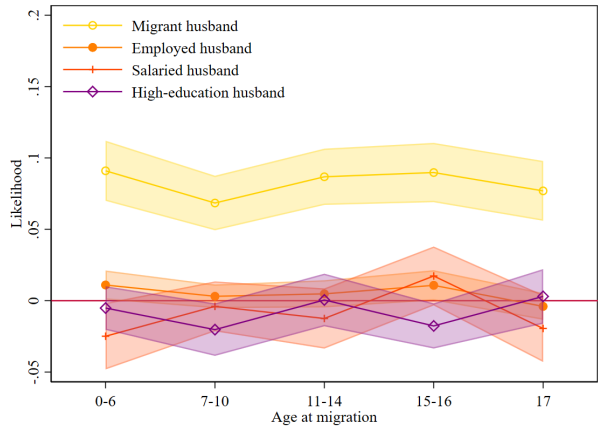
Figure B.7: Length of stay and women's education



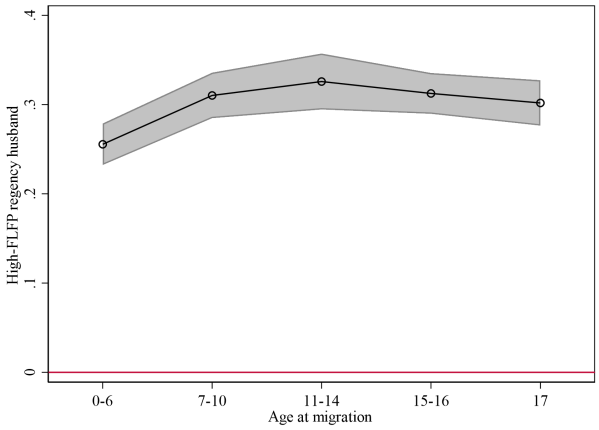
Note: The figure shows the coefficients of the interactions between migration age and birthplace FLFP. Standard errors clustered by the regency of birth. The figure shows 90% confidence intervals. Data from the pooled 1985, 1995, and 2005 Intercensal Surveys.

Figure B.8: Length of exposure and husband's characteristics

(a) Husband's characteristics



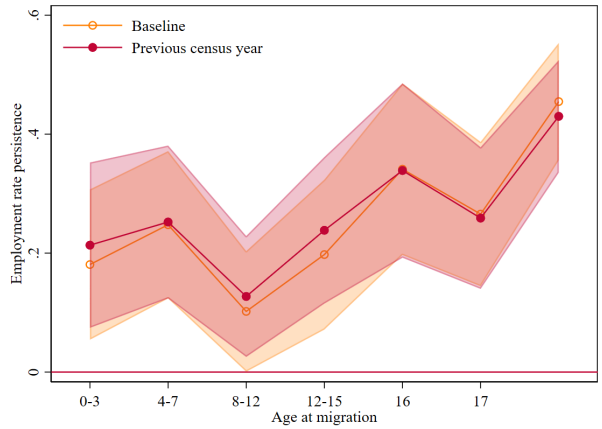
(b) Husband born in high-FLFP regency



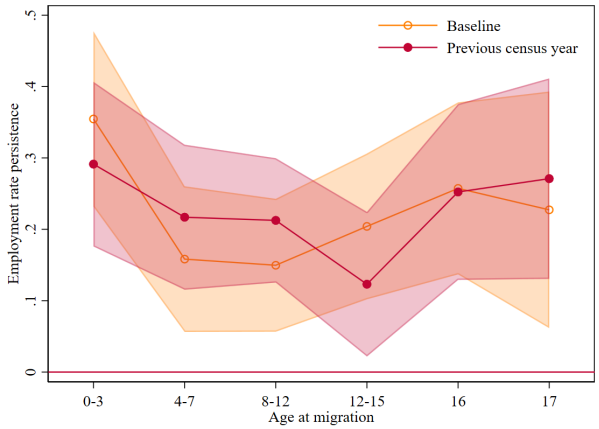
Note: The figure shows birthplace persistence estimates in regressions where the dependent variable is a husband's characteristic. The regression controls for current regency-year-migration age fixed effects, a quadratic polynomial on age, and education level fixed effects. The figure shows 90% confidence intervals. Data from the 1985, 1995, and 2005 Intercensal Surveys.

Figure B.9: Results are robust to changing reference year for FLFP rates

(a) Women

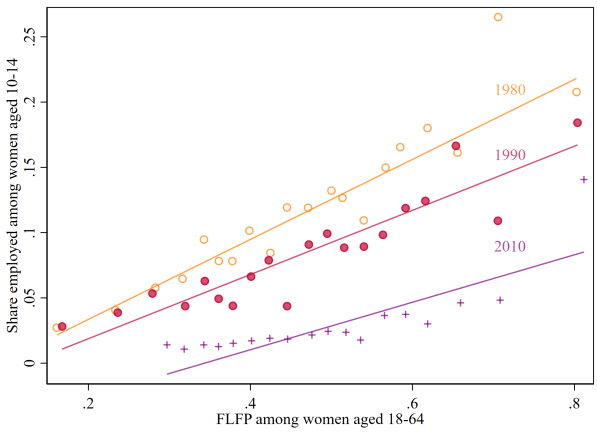


(b) Men



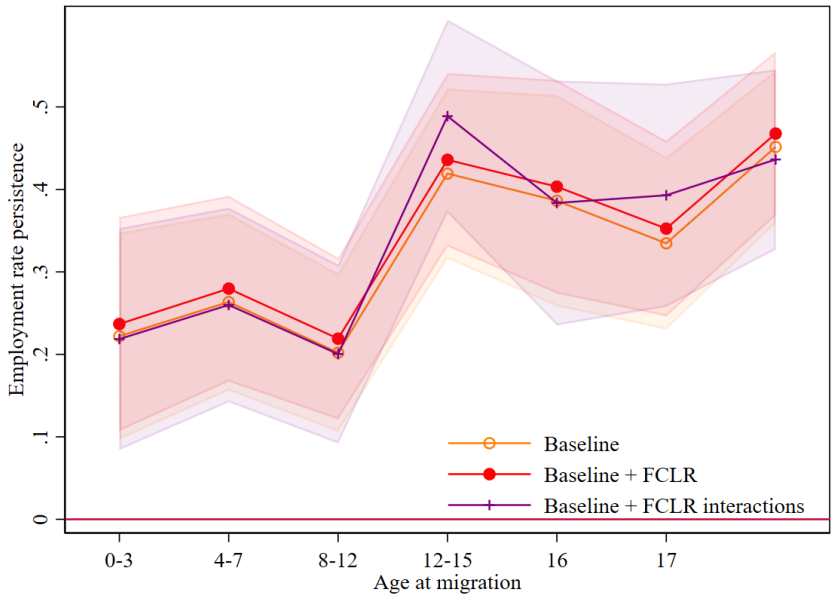
Notes: The figure shows estimates of the birthplace persistence coefficients migration age $\boldsymbol{b_a}$ for different measures of the birthplace FLFP rate. The baseline results source the regency FLFP rate from the 2010 Indonesian Census, while the darker estimates source it from the first census year before the Intercensal Survey year. Panel (a) shows estimates for women, while Panel (b) shows estimates for men. The figure uses individual-level data from the pooled 1985, 1995, and 2005 Intercensal surveys. All regressions control for regency-year-migration age fixed effects, a quadratic polynomial on age, and education fixed effects. Standard errors clustered by the regency of birth. The figure shows 90% confidence intervals.

Figure B.10: Indonesia: female child labor and female employment by regency



Note: The figure compares the employment rates of women between the ages of 10-14 and FLFP rates. Censuses ask work-related questions to people aged 10+. Data data from the 1980, 1990, and 2010 Indonesian Censuses.

Figure B.11: Indonesia: birthplace effects controlling for female child labor rates by regency

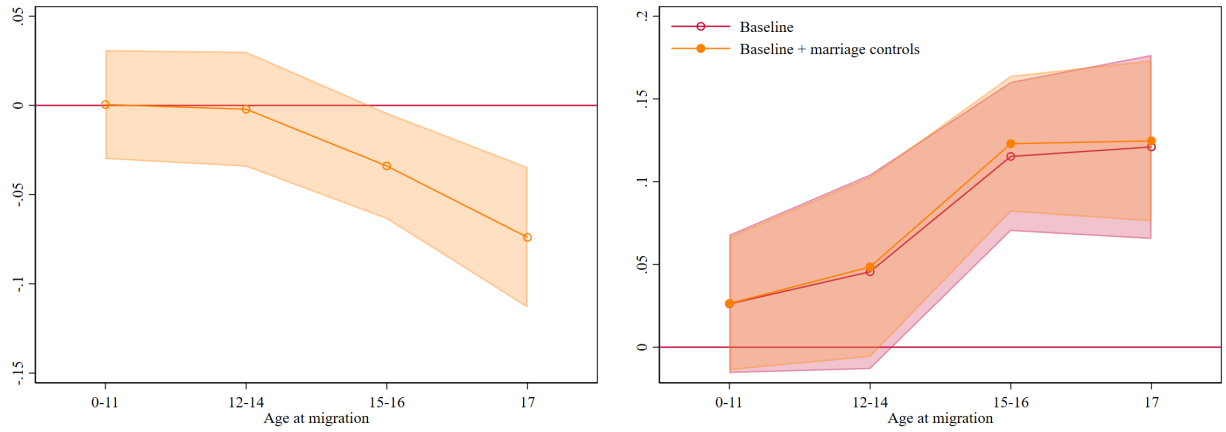


Note: The figure shows estimates of the birthplace persistence coefficients by migration age $\boldsymbol{b_a}$ when controlling for birthplace female child labor rates (FCLR). The baseline regression controls for current regency-year-migration age fixed effects, a quadratic polynomial on age, and education level fixed effects. Baseline + FCLR adds FCLR as a control, while Baseline + FCLR interactions adds interactions between migration-age dummies and the regency's FCLR. The figure shows 90% confidence intervals. Data from the pooled 1985, 1995, and 2005 Intercensal surveys and the 1980, 1990, and 2000 Indonesian Censuses.

Figure B.12: Work, migration age and marriage

(a) Marriage-related migration and birthplace FLFP

(b) Employment controlling for marriage-related migration



Note: The figure shows estimates of the birthplace persistence coefficients by migration age $\boldsymbol{b_a}$ for the outcome indicated in the panel title. The regression controls for year, regency of residency, religion FE, education FE, and a quadratic polynomial on age. Standard errors clustered by the regency of birth. Data from the IFLS.

C Data appendix

C.1 Cross-country data

I use harmonized cross-country data from IPUMS International to build figure 1 and table 4. They show local employment rates for men and women aged 18-64 for a cross-section of countries. For all of them, I use the latest decennial census sample available. In most cases, this corresponds to 2010 or a year close to it.

I define employment using the harmonized employment status (`empstat`). When this variable is not available, I use the class of worker instead (`classwkr`). In these cases, I define a person as employed if they report being a self-employed, salaried, or unpaid worker. In China, employed workers are those who reported working at least 1 day in the past week. Despite these slight definition differences, table A.8 shows that the employment rates I obtained are in line with FLFP rates reported by the International Labor Organization and the World Bank (International Labour Organization, 2021).[30] The differences in the age range I consider drive the discrepancies in the United States, Vietnam, Thailand, and China.

For all countries, I compute subnational employment rates at the lowest geographic unit available. For most countries, this corresponds to a district, a county, or a municipality. The only exception is the United States, where I compute these rates by commuting zone (Autor and Dorn, 2013). Table A.9 provides further details on the unit of aggregation and samples used. I winsorize the employment rates at the 5th and 95th percentiles by country. This reduces the possibility that very small regions drive the dispersion I observe within countries.

Figure 1 also includes information from India. Data for India is not available on IPUMS International. I extracted this information from tabulations of population and employment

[30] The only exception is the Philippines, where the data from IPUMS International implies much lower employment rates. In my data, I obtained a female employment rate of 33% for women aged 18-64. The ILOSTAT database reports a female labor force participation rate of 48% for 15+ women in 2010. The gap between these two figures cannot be accounted for by female unemployment, which is of the order of 4%. That said, I am interested in within-country dispersion. These discrepancies are second-order as long as data collection is consistent within the country.

by district, sex, and age from the 2011 Indian Census (Office of the Registrar General and Census Commissioner, 2011). I restricted the sample to people aged 15 to 59 and computed the share of people declaring to be main workers. Main workers are people who work at least six months a year.

C.2 Indonesian Family Life Survey

I use data from the Indonesian Family Life Survey (IFLS) to replicate my main results from the Intercensal Survey and to study potential mechanisms. The IFLS is a panel survey that tracks data from approximately forty thousand individuals across five waves and is representative of about 83% of the Indonesian population. In my analysis, I primarily use two survey modules: employment history and migration.

I reconstruct individuals' employment histories using retrospective information from the employment module. In each of the five waves of the IFLS (1993, 1997, 2000, 2007, and 2014), respondents reported their employment status, sector of employment, and other job characteristics in the survey year and each of the five prior years.[31] This allows me to construct a job-history panel tracking yearly employment status and job characteristics for each individual from 1988 to 2014.

I complement the job history panel with information on birthplace and migration history. The IFLS provides data about the respondent's regency of birth, the regency of residence at age 12, and detailed information on every migration episode after age 12. This includes the move year and the destination regency, allowing me to reconstruct a yearly history of the regencies of residence for each respondent from age 12 onwards.

Similar to the Intercensal Survey, I define migration as a move across fixed-boundary regencies. I use the IPUMS regency boundary delineation to translate the IFLS regency codes into geographic units with fixed boundaries during 1970-2015. Although the IFLS tracks moves within the same regency, I do not treat them as migration in my analysis.

[31] They were also asked about wages and hours of work. However, this information is not available for all waves.

I determine the age of migration using birthplace and migration history data. For respondents who were still living in their birthplace at age 12, I compute migration age based on the year of their first move. Since the survey asks about "moves after you turned 12," I assign an age of 12 to those whose implied age of migration is below 12. For respondents whose location at age 12 differs from their birthplace, I only know that their first move occurred before they turned twelve.

For my main results, I kept observations of respondents between 18 and 64 years old who lived outside their regency of birth. Most respondents migrated at most twice in their lives: 40% migrated once, while 33% migrated twice. Among those who migrated twice, 70% are return migrants, meaning they lived outside their birthplace regency for several years before returning home. Consequently, for most individuals, my results reflect their work history in their new permanent residency or their history while living outside their birthplace.

Similar to the Intercensal Survey data, I bin the migration ages into four categories: 11 or less, 12 to 14, 15 to 16, and 17. This is because the number of migrants at early ages is small relative to the number of regencies. The first bin is unavoidable due to data limitations, while the next two bins were chosen so that migrant counts are roughly balanced across categories.

C.3 Pre-modern Cultural Practices

Data on pre-modern cultural practices comes from the Ethnographic Atlas (Murdock, 1967). I follow Bau (2021)'s procedure and match the Atlas data on 45 ethnicities to the 2010 Indonesian Census using the main language spoken at home. I extract data on practices related to gender or marriage, as defined below:

- *Matrilocality*: newly-weds reside with bride's family after marriage.
- *Emphasis on female chastity*: there is insistence on female virginity.
- *Bride price*: upon marriage there's transfer of wealth to the bride's family.

- *Plow agriculture*: practiced plow agriculture. Ancestral use of plow is associated with less equal norms (Alesina et al., 2013).
- *Male agriculture*: agriculture is exclusively male.
- *Polygamy*

C.4 Aggregation of regencies

The total number of regencies varied considerably across years. In 1980, there were 286 regencies, but by 2010, there were 493. To ensure a consistent definition of the local labor market across the years, I aggregated regencies into 268 geographic units with fixed boundaries between 1980 and 2010. I took the boundary definitions directly from IPUMS International (Minnesota Population Center, 2023).

For each survey, IPUMS provides a year-specific delineation for the regency of residency, the regency of birth, and a fixed-boundary definition for the regency of current residence. In each survey, I use the mapping between then boundary-consistent and year-specific regencies of residency and apply it to the regency of birth to obtain the fixed-boundary regencies.

D The Empirical Strategy

D.1 Place and women's labor supply: the identification challenge

The place of residence can directly and indirectly affect women's labor supply. Direct effects influence the labor supply of all current female residents. There is considerable empirical evidence documenting these effects, which may arise from factors such as the availability of childcare (Compton and Pollak, 2014), commuting costs (Le Barbanchon et al., 2021; Farre and Ortega, 2021), the industry makeup of employment (Olivetti and Petrongolo, 2014), or the level of gender discrimination in the local labor market (Charles et al., 2023). Variations in these factors across localities can cause geographic differences in women's labor supply.

However, place can also affect women indirectly by shaping their preferences and skills. Women born and raised in locations where many women work may internalize these norms, making them more likely to work as adults (Charles et al., 2023; Boelmann et al., 2021). Additionally, environments with high female employment may encourage women to invest in the skills needed to participate in the labor market (Molina and Usui, 2022). These enduring indirect effects create differences in labor supply among women from different locations, *irrespective* of their current residence. Evidence of these indirect effects is much scarcer in the literature (Charles et al., 2023).

The omitted variable problem

In this paper, my main interest lies in determining whether, conditional on the current place of residence, women's birthplace has a persistent influence on their work choices in adulthood. More formally, let us consider the following model for the probability of employment e_{it} of a female migrant,

$$e_{it} = \omega_{c(i)t} + \boldsymbol{\sigma} p_{b(i)} + \eta_{it} \tag{D.1}$$

In this model, women's employment choices depend on three main factors. First, the place-of-residence fixed effect $\omega_{c(i)}$ captures all the direct effects of location c on female labor supply. These might include commuting costs, childcare availability, and gender discrimination. Second, the birthplace female employment $p_{b(i)}$ is intended to capture the causal effect of growing up in a location where $p_{b(i)}$ percent of the women work. Finally, the error term η_{it} captures all other factors making some female migrants more likely to work than others.

Model (D.1) follows closely the tradition brought forth by the "epidemiological" approach literature (Fernández and Fogli, 2006; Fernández et al., 2004; Fernández, 2013). Women's birthplace could have multiple impacts on women's behavior as adults. Including the prevailing female employment rates as the main regressor in equation (D.1) relies on the idea that

these rates capture place-driven factors vital in determining women's employment choices. Moreover, focusing on birthplace exposure allows me to isolate variation potentially driven by environmental factors –culture and institutions–, from variation driven by purely economic factors, such as wages and income. This specification also facilitates testing whether alternative channels are driving the relationship with the birthplace employment rates (Fernández, 2013).

In model (D.1), $\boldsymbol{\sigma}$ captures the birthplace effects. It gives the counterfactual increase in women's employment if they had been born in a place with one p.p. higher FLFP. In the ideal but unfeasible experiment, I would reassign women's birthplace randomly while keeping their family and the current residency fixed. Random assignment would guarantee that a woman's birthplace is uncorrelated with the error term. Thus, an OLS regression of (D.1) would give a consistent estimate of $\boldsymbol{\sigma}$. In observational data, however, it is likely that the unobserved factors imbued in the error term are correlated with birthplace FLFP. Therefore, the OLS estimates of the FLFP slope will conflate the causal effects of birthplace with omitted variable bias:

$$\begin{aligned} \text{plim } \hat{\boldsymbol{\sigma}} &= \boldsymbol{\sigma} + \frac{\text{cov}(\tilde{p}_{b(i)}, \tilde{\eta}_{it})}{\text{var}\left(\tilde{p}_{b(i)}\right)} \\ &= \boldsymbol{\sigma} + \boldsymbol{\gamma} \end{aligned} \tag{D.2}$$

where tilde accents denote variables that are residualized from regency-year fixed effects (Angrist and Pischke, 2009). Expression (D.2) shows that the OLS coefficient reflects two factors: first, the causal effect of birthplace $\boldsymbol{\sigma}$, but also differences in unobservable characteristics across women from different origins $\boldsymbol{\gamma}$. The critical identification challenge is separating the selection term $\boldsymbol{\gamma}$ from the birthplace effect $\boldsymbol{\sigma}$.

The selection term $\boldsymbol{\gamma}$ highlights that even in the absence of a causal effect, birthplace could capture characteristics about a person or their family that are relevant to their work decision. In the paper, I argue that the causal effect of place is positive ($\boldsymbol{\sigma} > 0$). That

is, being born in a place where more women work makes you more likely to work. In these circumstances, I am more concerned with omitted variable –or selection– bias making women from high-FLFP locations more likely to work than their low-employment counterparts.

Using migration age data to identify place effects

Under additional assumptions, migration age data allows me to distinguish selection from place effects. The argument is similar to that of Chetty and Hendren (2018a). I assume that place effects are stronger the longer women stay there. Thus, the employment choice for women who emigrated at age a is determined as follows:

$$e_{it} = \omega_{c(i)at} + \boldsymbol{\sigma}_a p_b + \eta_{it} \tag{D.3}$$

Here $\boldsymbol{\sigma}_a$ captures the cumulative effect of birthplace up to age a[32]. The causal impact of staying in the birthplace at age a is then $\boldsymbol{\pi}_a = \boldsymbol{\sigma}_a - \boldsymbol{\sigma}_{a-1}$.

By an argument analogous to that in expression (D.2), the OLS estimates will conflate the causal effects of birthplace $\boldsymbol{\sigma}_a$ with the omitted variable bias for women migrating at age a $\boldsymbol{\gamma_a}$:

$$\text{plim } \hat{\boldsymbol{\sigma}}_a = \boldsymbol{\sigma}_a + \boldsymbol{\gamma}_a \tag{D.4}$$

Assumption 1. ***Constant omitted variable bias***

Omitted variable is the same no matter the age of emigration, that is $\boldsymbol{\gamma}_a = \boldsymbol{\gamma}$

This assumption requires that conditional on the location-year-age fixed effects, the correlation between birthplace FLFP and the error term is the same for women who migrated at different ages. To make this point more concrete, let us consider work-related migration as an example. It is conceivable that women who migrated with work in mind would be

[32]The causal effect $\boldsymbol{\sigma}$ in the previous subsection can be interpreted as a weighted average of age-specific causal effects.

more likely to be employed in their destination, and women in their 20s would be more likely to migrate because of work than 12-year-old women. At first glance, this would seem to invalidate the identification strategy. However, my strategy does not require that women migrating at different ages have the same likelihood of migrating for work. Rather, it requires a much weaker condition: the correlation between birthplace FLFP and the likelihood of work migration is the same for women migrating at different ages. Therefore, even though older teenagers are more likely to migrate for work, this does not necessarily violate the identification assumption.

Under the constant omitted variable bias assumption, I can isolate the birthplace effect from the omitted variable bias. By subtracting the OLS estimates of the slopes at different migration ages, the constant selection term $\boldsymbol{\gamma}$ goes away, leaving only the place effects:

$$\begin{aligned} \text{plim } \hat{\boldsymbol{\sigma}}_{\boldsymbol{a}} - \hat{\boldsymbol{\sigma}}_{\boldsymbol{a-1}} &= \boldsymbol{\sigma}_a - \boldsymbol{\sigma}_{a-1} \\ &= \boldsymbol{\pi}_a \end{aligned} \tag{D.5}$$

this expression also shows that identification does not necessarily require constant bias across all *all* migration ages. If, instead, bias is constant only within some age ranges, I can still identify the effects within these ranges. For example, suppose there is reason to believe that the bias for women who migrated between 0 to 6 years is different than for those who migrated between the ages of 7 and 15. If constant selection holds *within* these ranges, I can still identify the place effects within the 0 to 6 and 7 to 15 ranges, respectively.