

The U-shaped relationship between economic development and female labour participation: micro-level evidence from Mexico

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The U-shaped feminization hypothesis

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The U-shaped feminization hypothesis



NBER WORKING PAPER SERIES

THE U-SHAPED FEMALE
LABOR FORCE FUNCTION IN
ECONOMIC DEVELOPMENT AND
ECONOMIC HISTORY

Claudia Goldin

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1050 Massachusetts Avenue
Cambridge, MA 02138
April 1994

The U-shaped feminization hypothesis

- Claudia Goldin (1994) found a U-shaped pattern between female labour participation rates and different levels of economic development across countries.

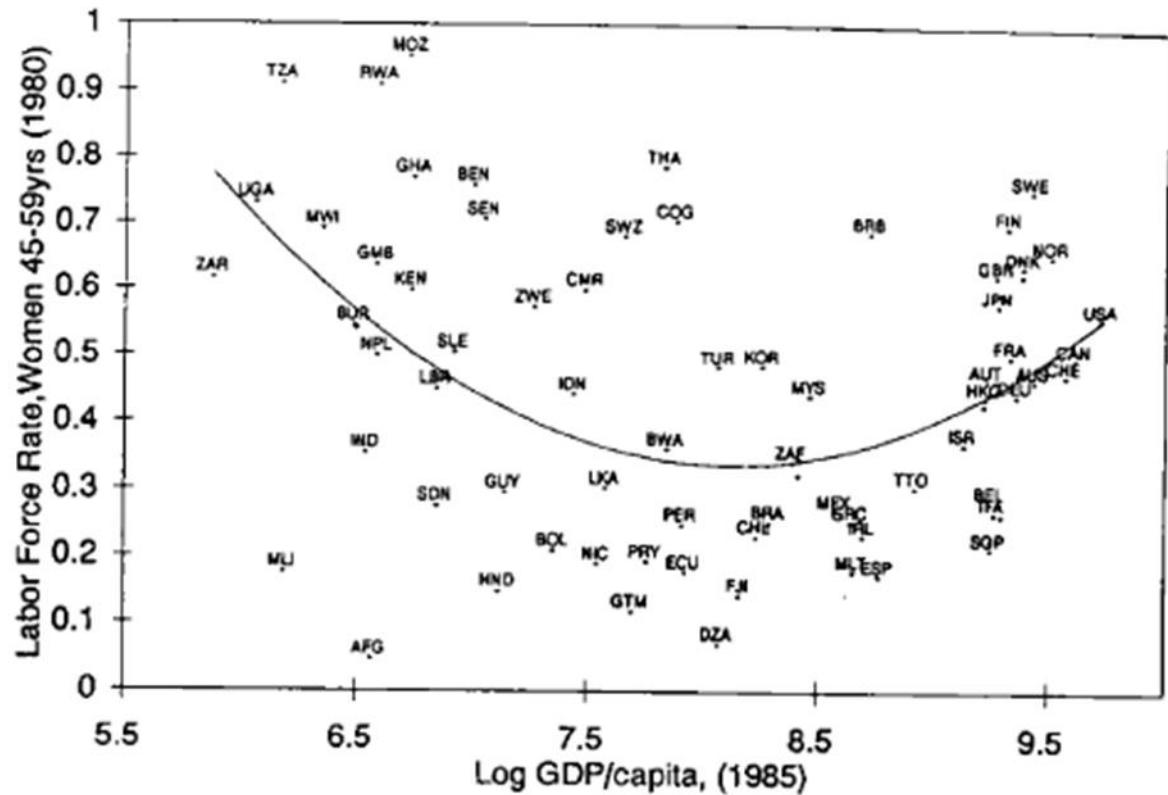


Figure 1: Labor force participation rates for women 45 to 59 years old (c. 1980) and the log of GDP/capita (1985, \$1985)

Source: Goldin (1994)

The U-shaped feminization hypothesis

According to Goldin's (1994) theory,

- FLPRs are **high** in agricultural countries,
- FLPRs tend to **decline** in industrial countries,
- FLPRs **rise** again in service-oriented countries.

The U-shaped feminization hypothesis

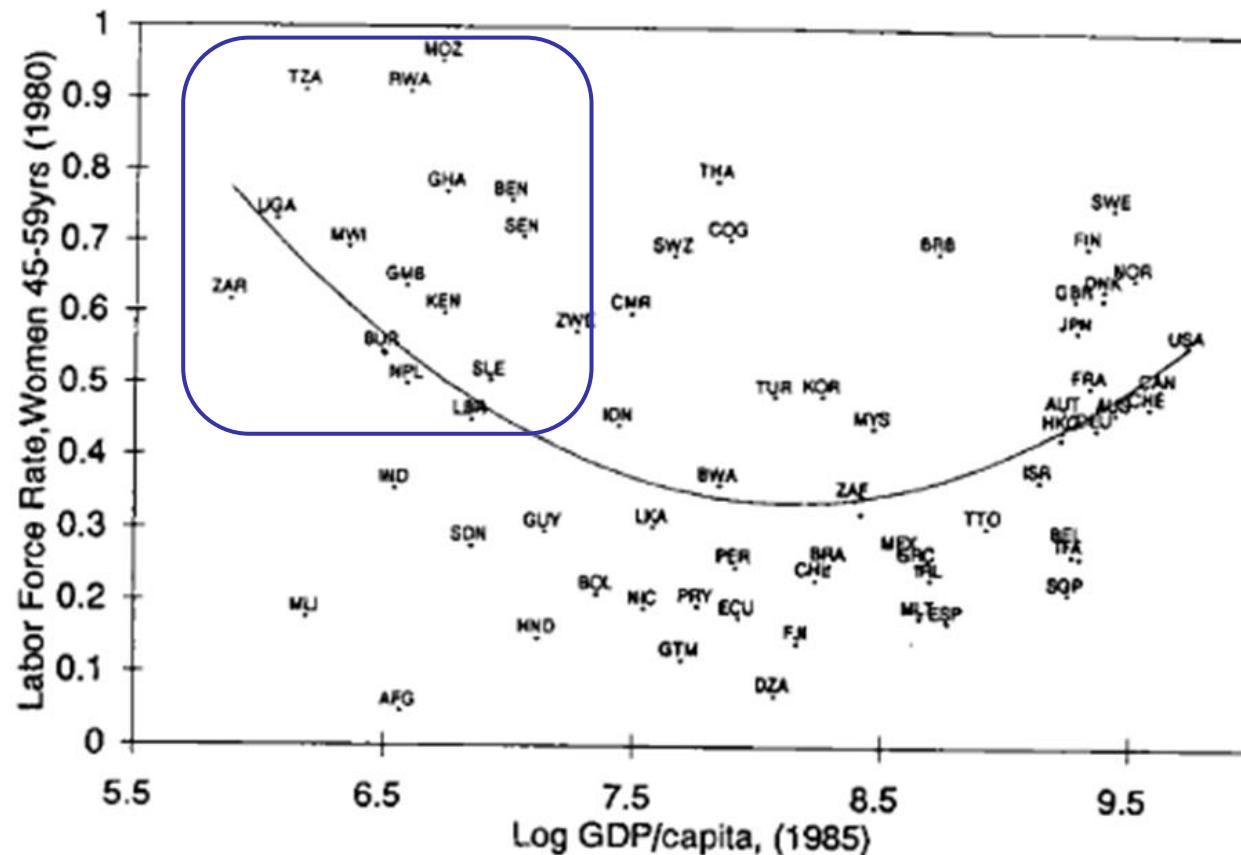


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The U-shaped feminization hypothesis

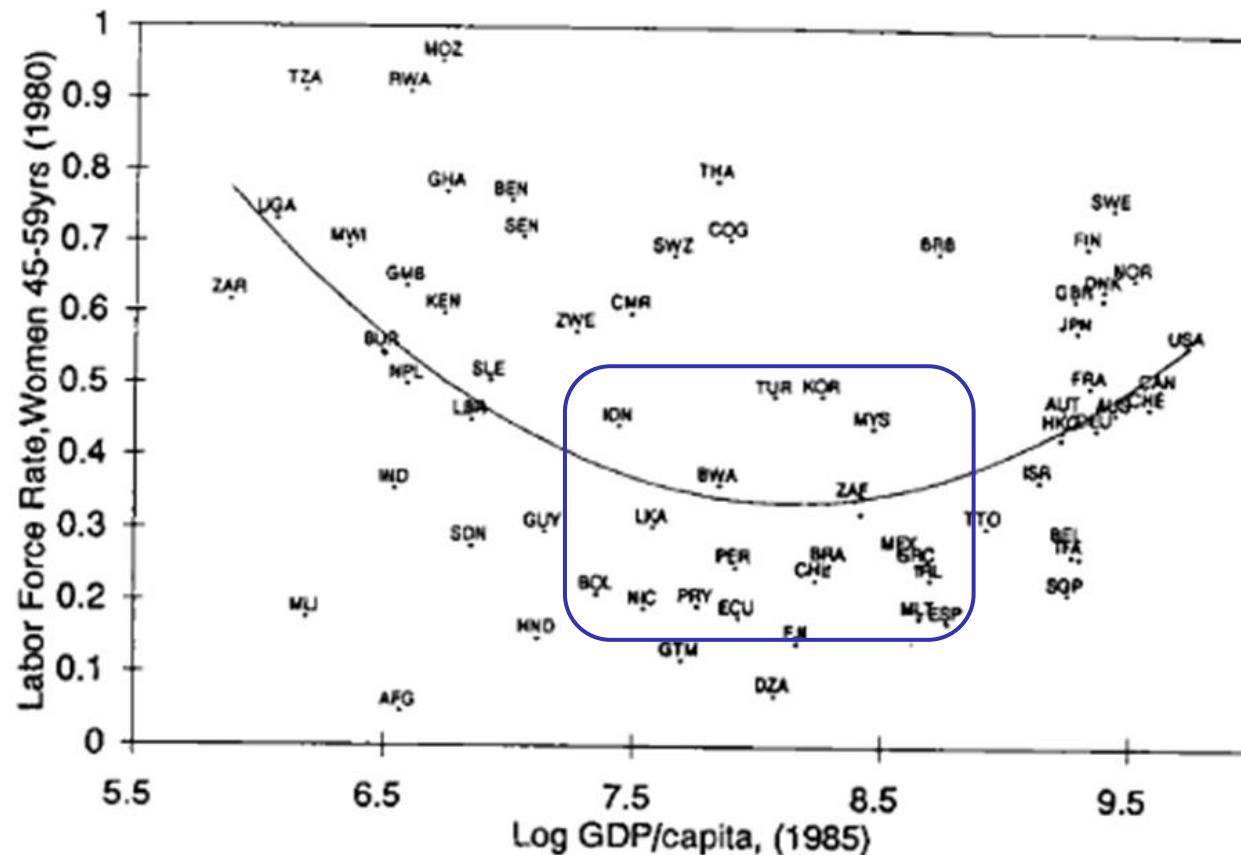


Figure 1: Labor force participation rates for women 45 to 59 years old (c. 1980) and the log of GDP/capita (1985, \$1985)

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The U-shaped feminization hypothesis

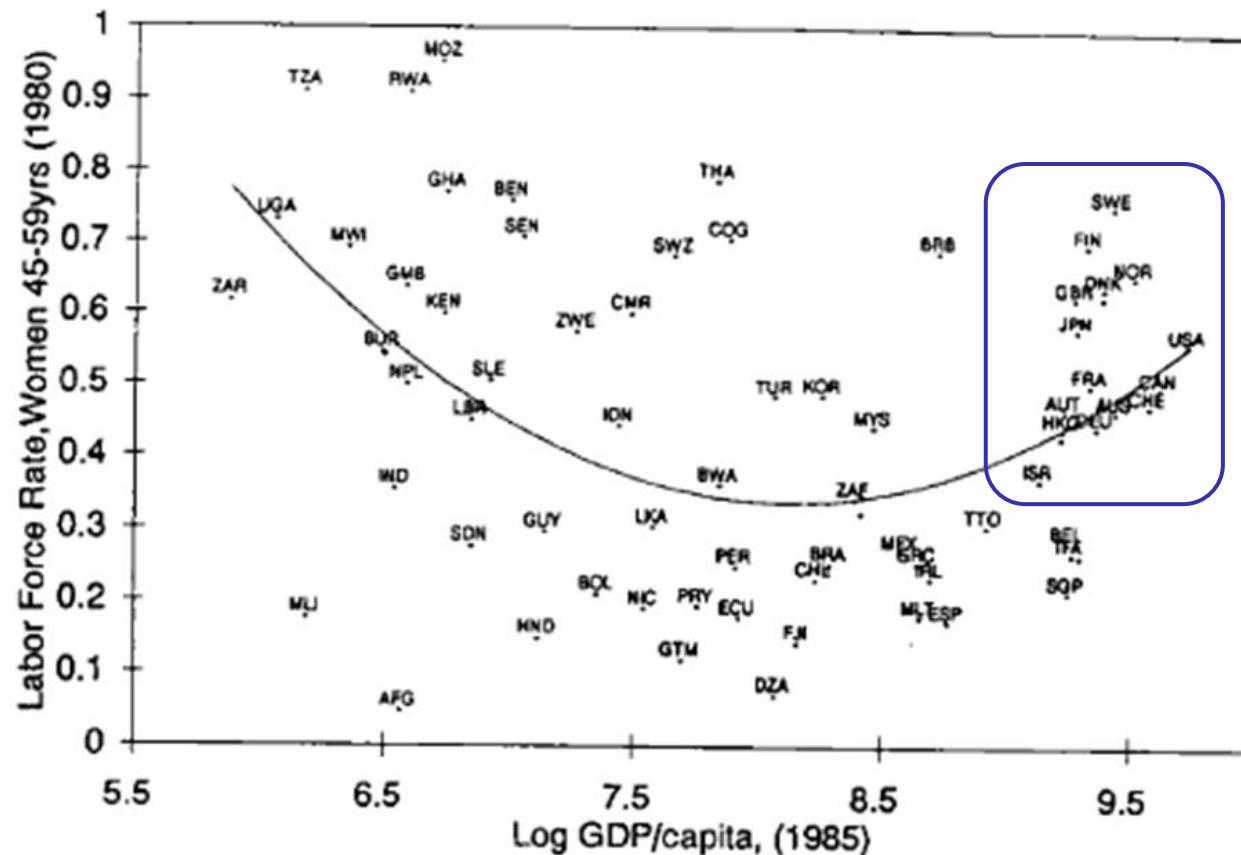


Figure 1: Labor force participation rates for women 45 to 59 years old (c. 1980) and the log of GDP/capita (1985, \$1985)

Source: Goldin (1994)

The U-shaped feminization hypothesis

- The peak of FLPRs in low-income countries where agriculture predominates
 - Salaries and productivity rates are extremely low (both in agriculture and non-agricultural activities).
 - Fertility rates and dependency ratios are particularly high at this stage of economic development.
 - The agricultural sector is labour-intensive, due to low investment in agricultural machinery.
 - Female jobs in family farms are compatible with child rearing.

The U-shaped feminization hypothesis

- The decline of FLPRs in middle-income countries with a strong industrial sector
 - The blue-collar jobs that are now available in the labour market are mostly performed by men. Why?
 - Job characteristics: Men are the ones typically working in mining or construction.
 - Caretakers: Industrial jobs are incompatible with child rearing.
 - Stigmas: Husbands can be judged as negligent by friends or family if their wives are working in industrial jobs.
 - Income effect: Wives can request their husbands to exit the labour market to avoid physically demanding jobs (or vice versa).
 - Preferences: Employers hire men over women because there is a male education gap at this stage of economic development.

The U-shaped feminization hypothesis

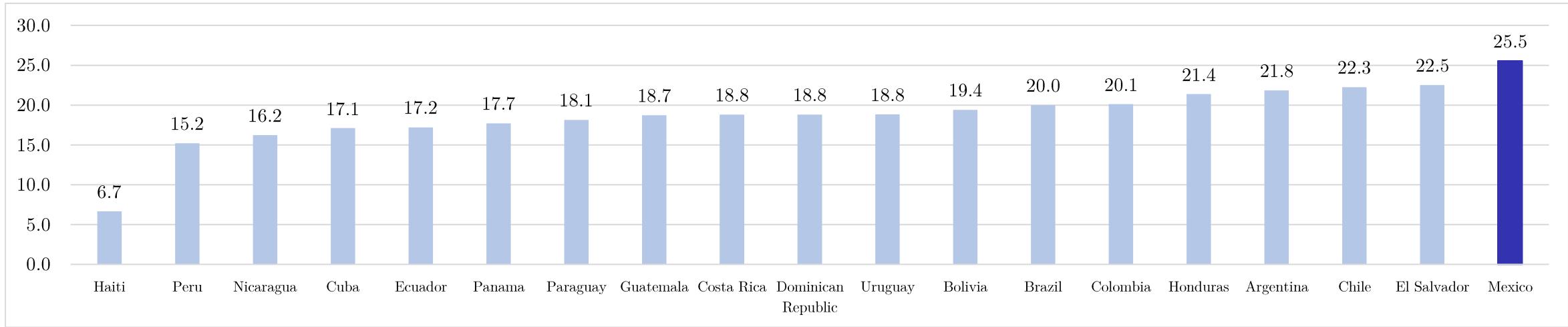
- The rise of FLPRs in high-income countries with a service-oriented economy
 - Several white-collar jobs are now available... and lots of them are done by women! Why?
 - Lack of social stigmas towards jobs in sales, education, health, and financial services as they are not physically demanding.
 - The gender gap in education between men and women disappears at the final stage of economic development.
 - White-collar jobs offer better salaries compared to blue-collar jobs.
 - In this economic context, the substitution effects is now stronger than the income effect.

Research question

- Goldin's theory suggests that the U-shaped pattern observed across countries replicates within middle-income countries.
- In other words, it implies that in middle-income countries like Mexico...
 - FLPRs will be higher in regions of the country with a high % of agricultural jobs.
 - FLPRs will decline in regions of the country with a high % of industrial jobs.
 - FLPRs will be higher in regions of the country with a high % of service jobs.
- There are no studies yet confirming or rejecting these hypotheses.
- This prompts the question: Are women less likely to work in regions of the country with a higher share of industrial jobs?
- Mexico is an optimal country to answer this research question.

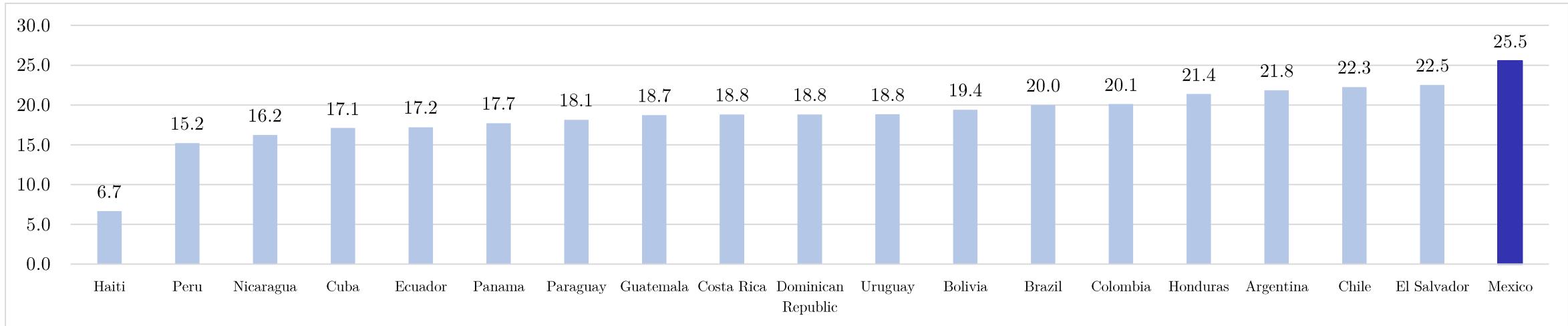
Why is Mexico an interesting case study?

Industrial jobs as a share of total employment in Latin American countries (2019)

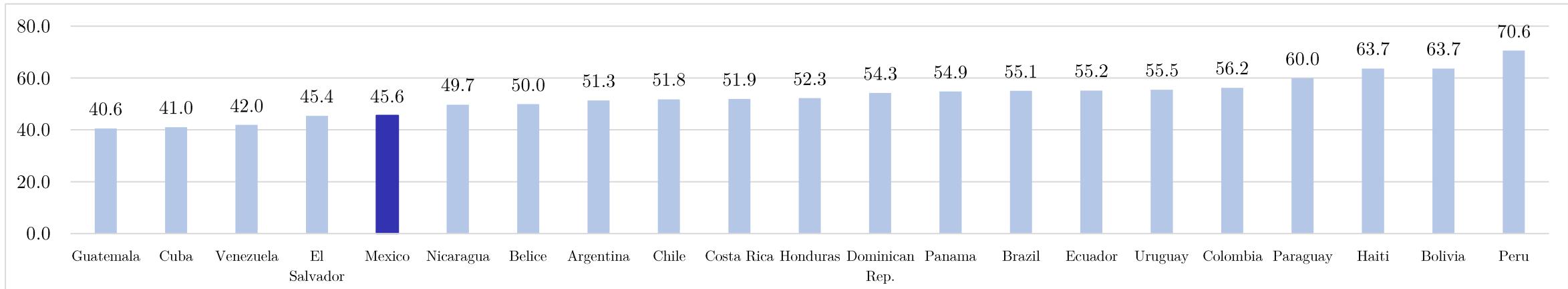


Why is Mexico an interesting case study?

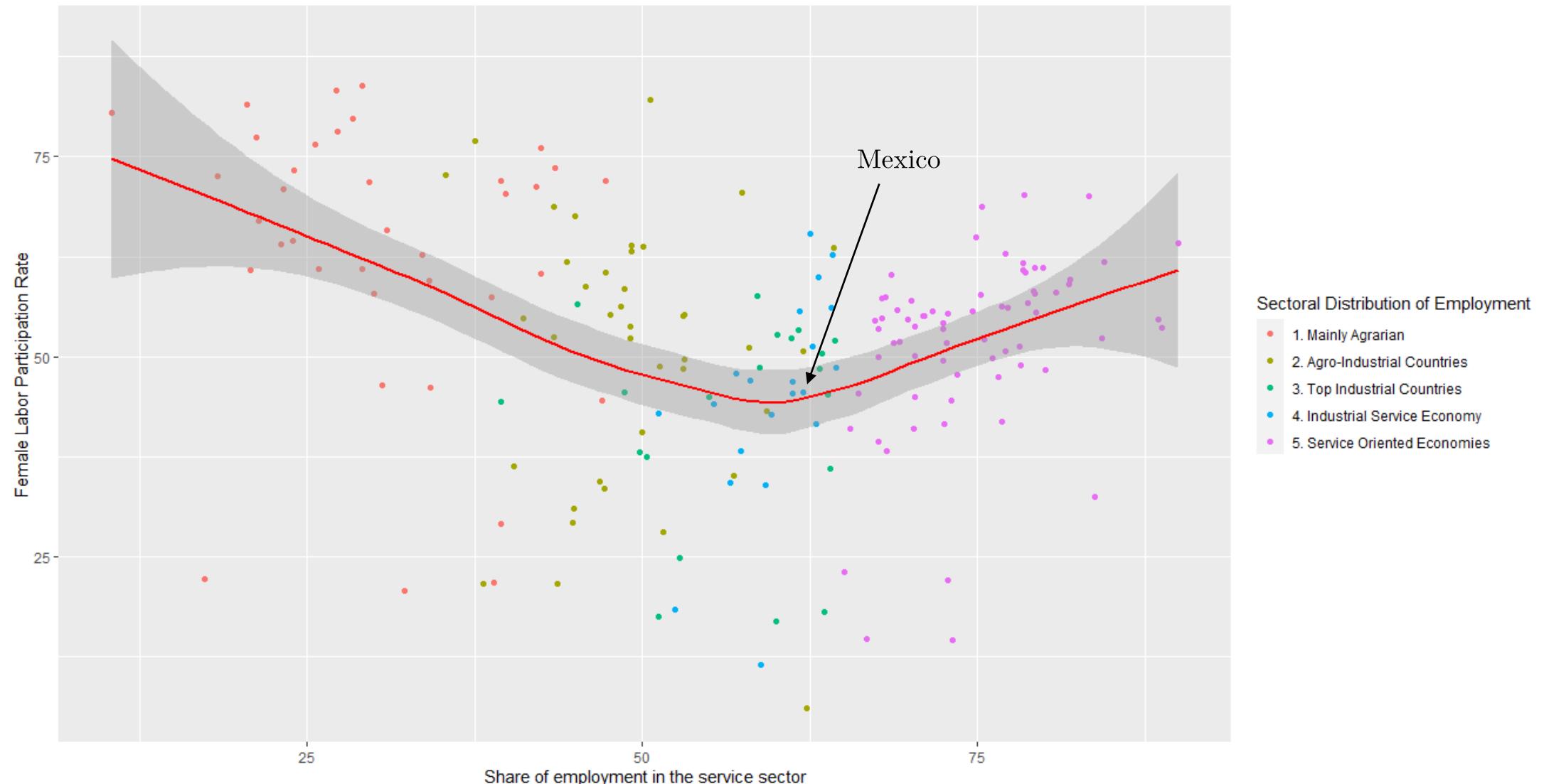
Industrial jobs as a share of total employment in Latin American countries (2019)



Female labour participation rates in Latin American countries (2019)

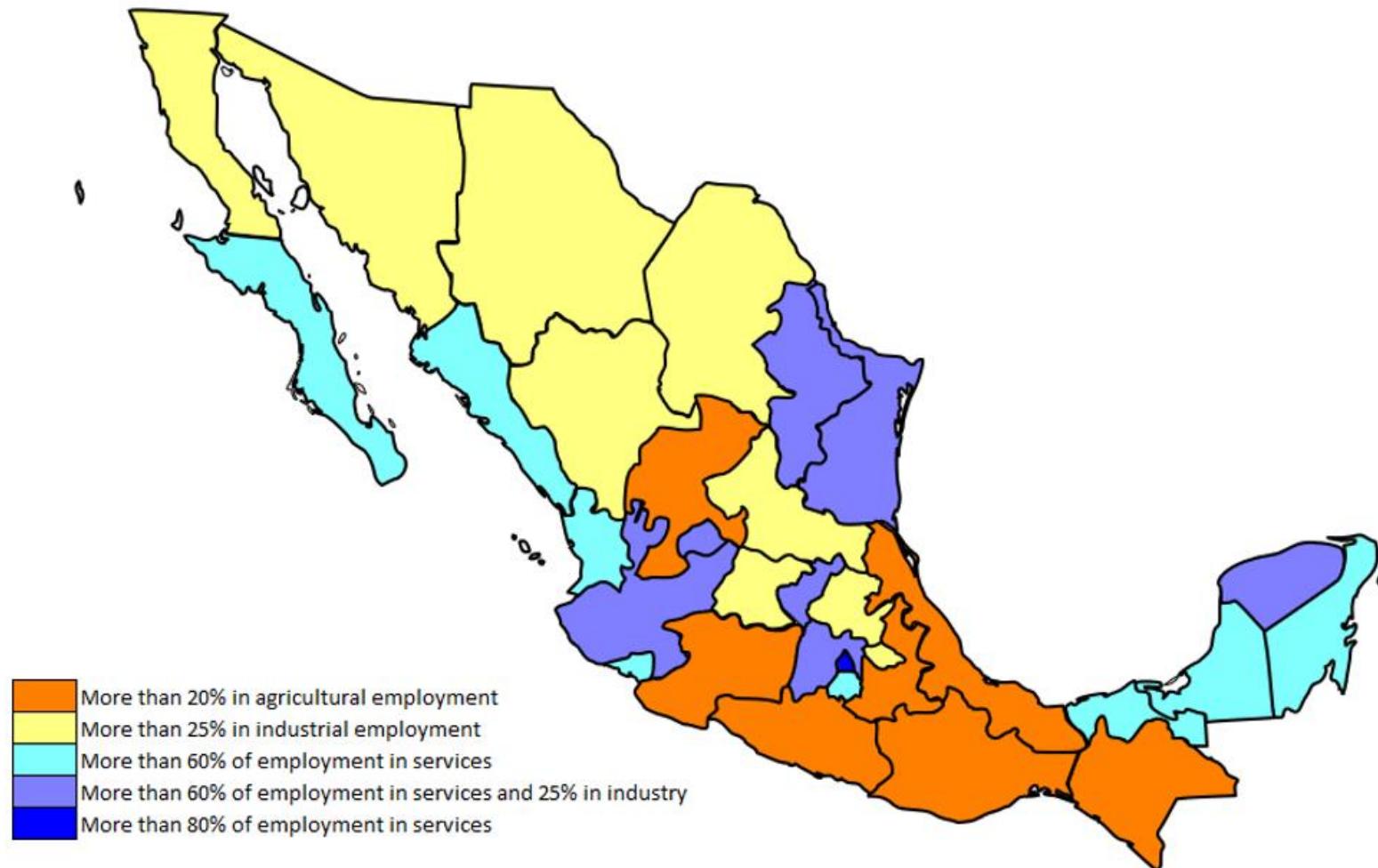


Why is Mexico an interesting case study?



Why is Mexico an interesting case study?

Map of the sectoral distribution of employment in Mexican states (1st quarter of 2019)



Literature Review

Literature Review

Four approaches to study the U-shaped feminization hypothesis:

1. Across countries, using cross-sectional data.

(Çağatay and Özler, 1995; Clark *et al.*, 2003; Heath and Jayachandran, 2016; Psacharopoulos and Tzannatos, 1989; Verick, 2014)

2. Across countries, across time.

(Gaddis and Klasen, 2014; Gottlieb *et al.*, 2023; Luci, 2009; Mammen and Paxson, 2000; Olivetti, 2013; Tam, 2011)

3. Within countries, across time.

(Lahoti and Swaminathan, 2016; Ngai *et al.*, 2022, Olivetti, 2013)

4. Within countries, using cross-sectional data.

(Roncolato, 2016; [Lopez-Moreno 2024](#))

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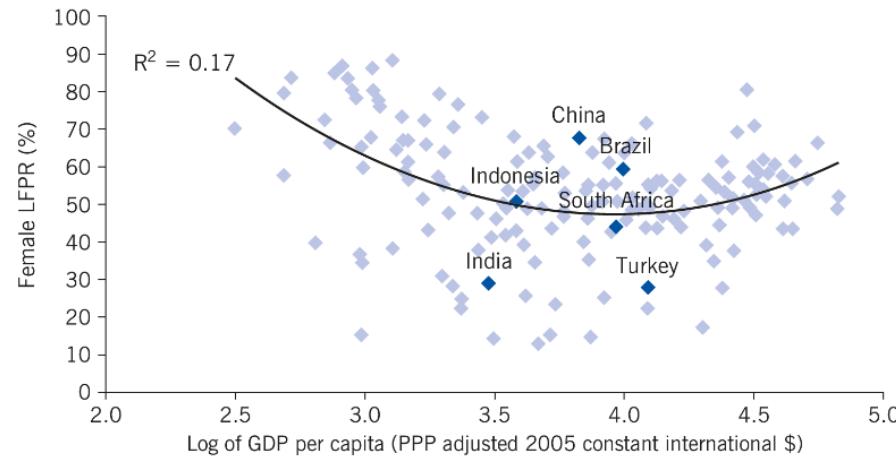
4. Within countries, using cross-sectional data.

(Roncolato, 2016; [Lopez-Moreno 2024](#))

Literature Review

Cross-country analysis using cross-sectional data

Figure 3. Data for 169 countries show a U-shaped relationship—a decline and then a rise in female labor force participation as economies develop (2010)



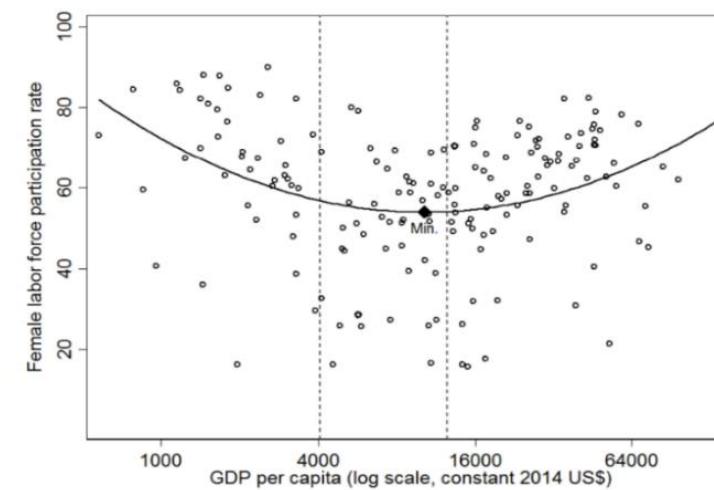
Note: Analysis is based on International Labour Organization estimates for 169 countries, which include a large number of imputed values.

Source: ILO, Key Indicators of the Labour Market, 8th Edition. Online at: http://www.ilo.org/empelm/what/WCMS_114240/lang--en/index.htm; World Bank, World Development Indicators database. Online at: <http://data.worldbank.org/data-catalog/world-development-indicators>

IZA
World of Labor

Obtained from Verick (2014)

Figure 3. Relationship between GDP per capita and female labor force participation rate across countries



Notes: GDP per capita is the purchasing power parity-adjusted value in 2014; female labor force participation is for females age 15-64 and is from the World Bank's World Development Indicators. The vertical lines represent the thresholds between lower and lower-middle-income countries (\$4000 in 2014 dollars), and between lower-middle or upper-middle-income countries (about \$12,500).

Obtained from Heath & Jayachandran (2017)

Evidence supporting the U-shaped hypothesis across countries in a specific point in time

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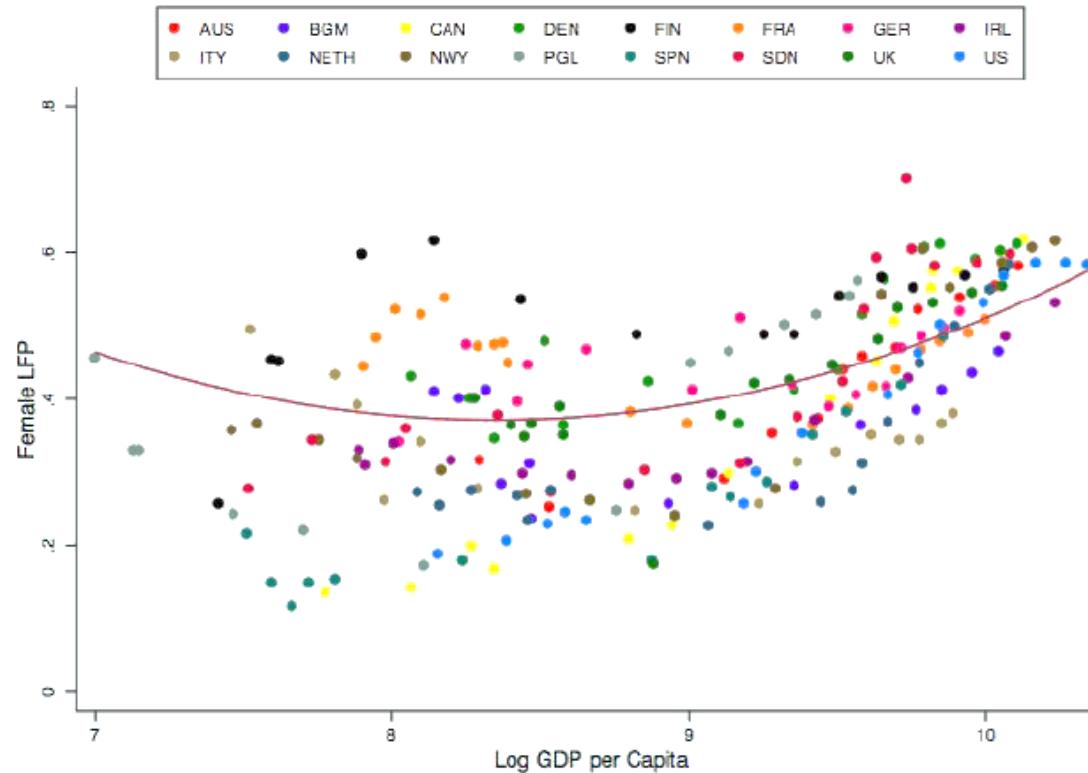
4. Within countries, using cross-sectional data.

(Roncolato, 2016; [Lopez-Moreno 2024](#))

Literature Review

Cross-country analysis using panel data

Figure 2: Female labor force participation and economic development: 1890-2005

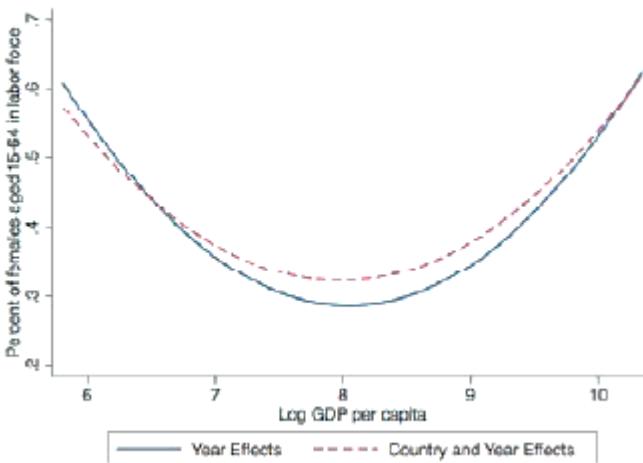


Obtained from Olivetti (2013)

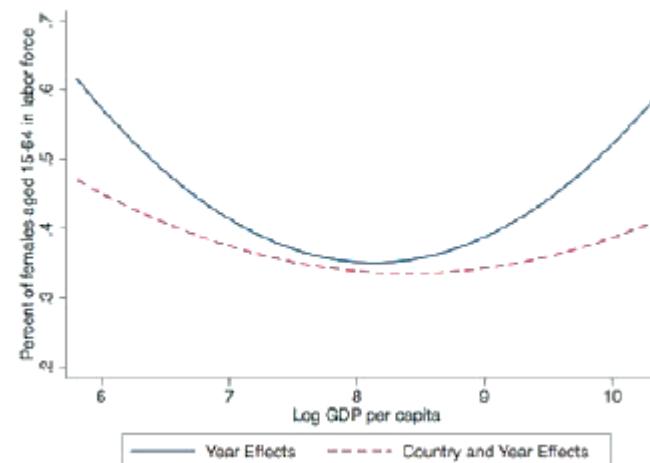
Literature Review

Claudia Olivetti (2013) also used a fixed effect model to examine the U-shaped relationship across countries and across time.

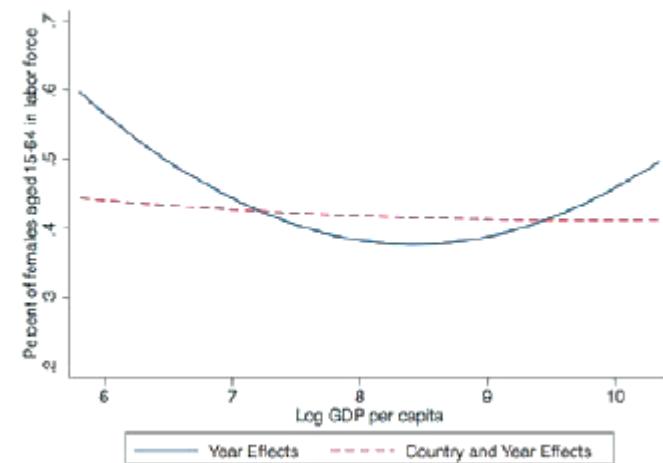
Panel A: 1890-2005, Developed Economies



Panel B: 1950-2005, Full Sample



Panel C: 1950-2005, Excludes OECD countries



Obtained from Olivetti (2013)

Literature Review

- Gaddis and Klasen (2014) criticized the papers confirming the U-shaped hypothesis based on cross-country analyses, as they consider that this can lead to the *Kuznets fallacy*.
- Their argument: the U-shaped relationship must be found not only in cross-country studies but also in within-country studies across time.
- Failing to find the U-shaped relationship within countries indicates that this economic theory has significant pitfalls.

Literature Review

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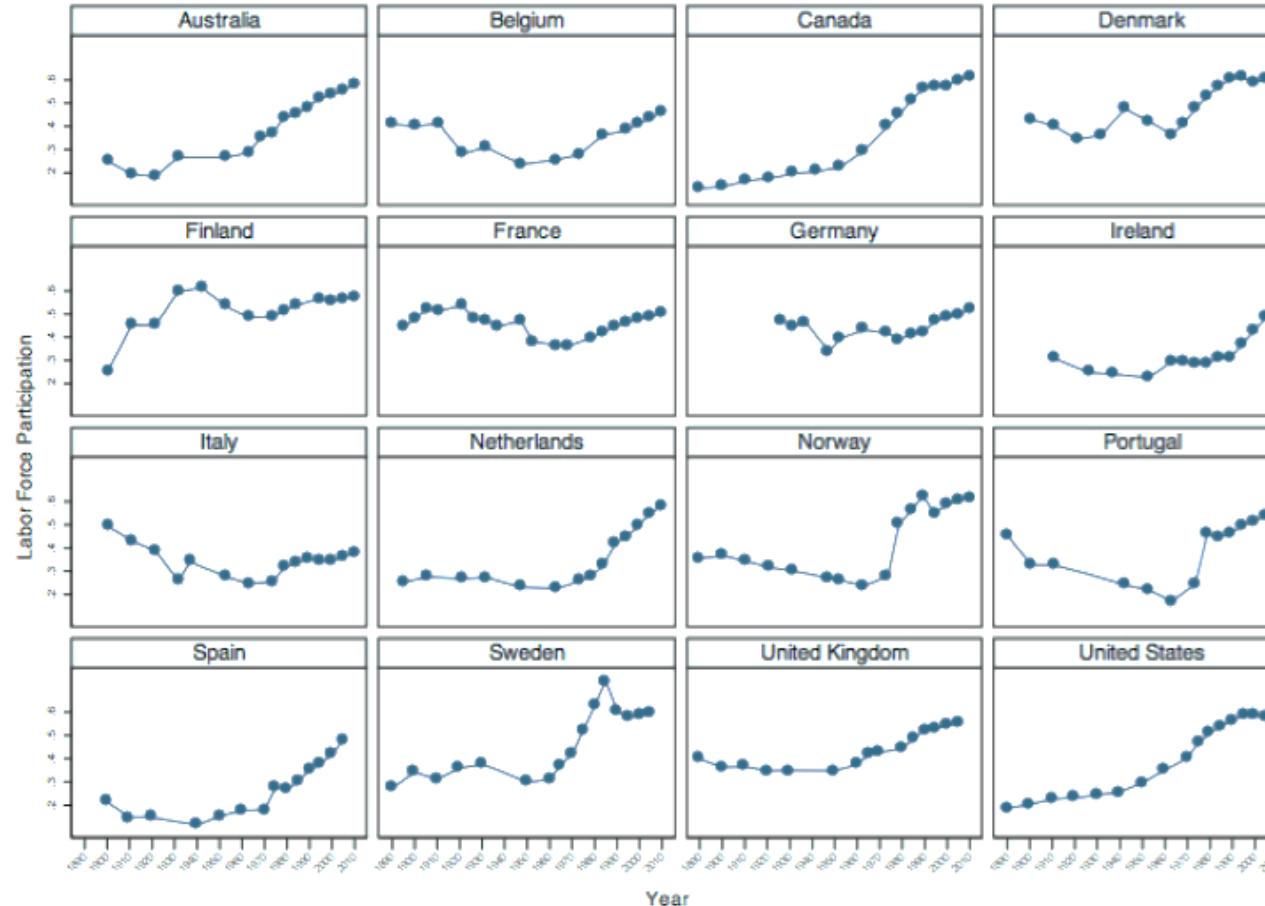
(Lahoti and Swaminathan, 2016; Ngai *et al.*, 2022, Olivetti, 2013)

4. Within countries, using cross-sectional data.

(Roncolato, 2016; [Lopez-Moreno 2024](#))

Literature Review

Within-country analysis, across years



Obtained from Olivetti (2013)

Literature Review

Four approaches to study the U-shaped feminization hypothesis:

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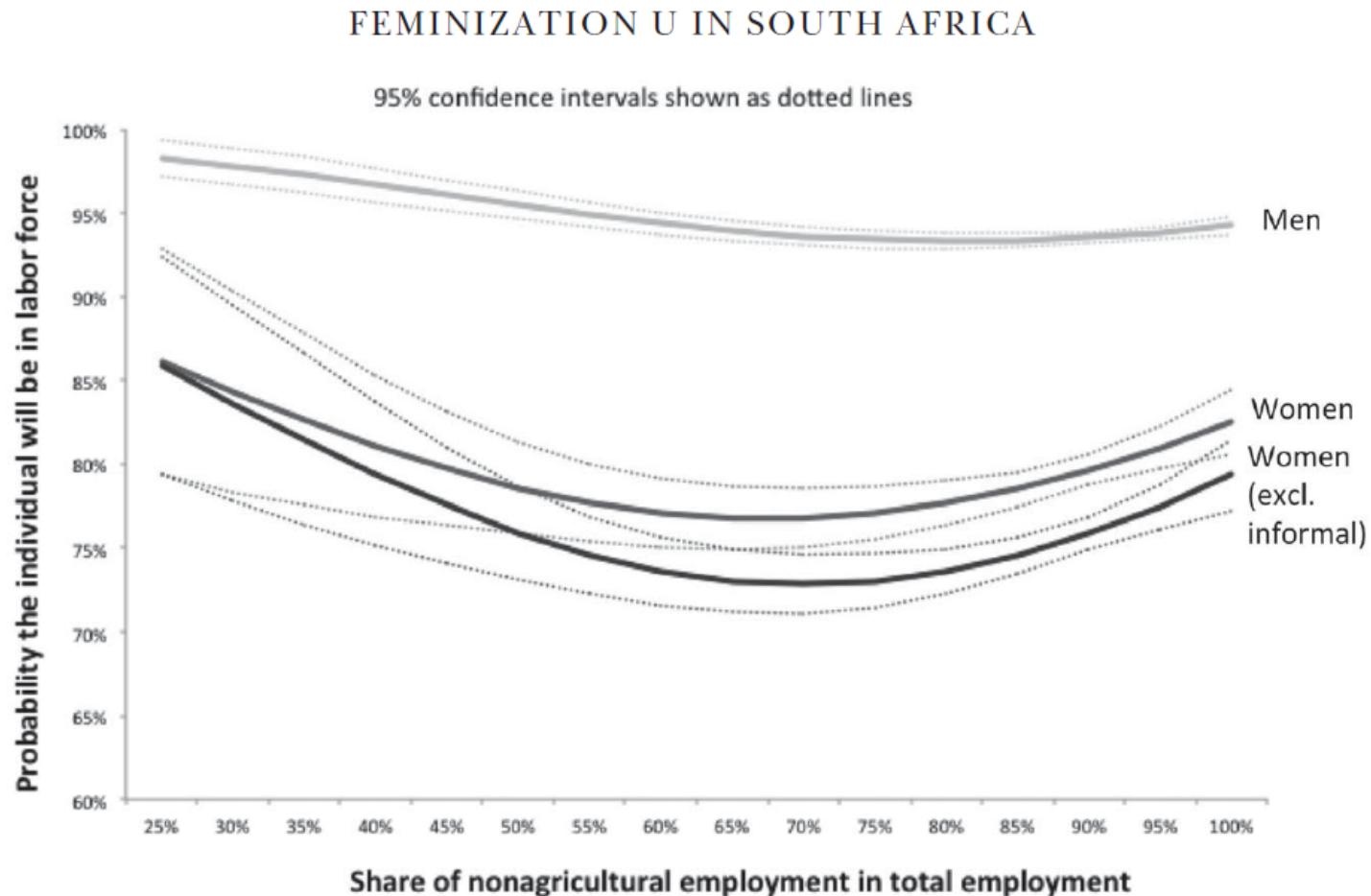


4. Within countries, using cross-sectional data.

(Roncolato, 2016; Lopez-Moreno 2024)

Literature Review

Within-country analysis, using cross-sectional data



Obtained from Roncolato (2016)

Empirical strategy

Empirical strategy

- Are women less likely to work in regions of the country with a higher share of industrial jobs?
- This paper answers this research question by making a **within-country analysis** of Mexico using **cross-sectional data**.

Empirical strategy

- This paper replicates the empirical strategy of Roncolato (2016) with one major change.
- Roncolato (2016) analysed the sectoral distribution of employment in municipalities of South Africa using 2 categories:
 1. Share of agricultural jobs
 2. Share of non-agricultural jobs
- Lopez-Moreno (2023) analysed the sectoral distribution of employment in municipalities of Mexico using 3 categories:
 1. Share of agricultural jobs
 2. Share of industrial jobs
 3. Share of service jobs

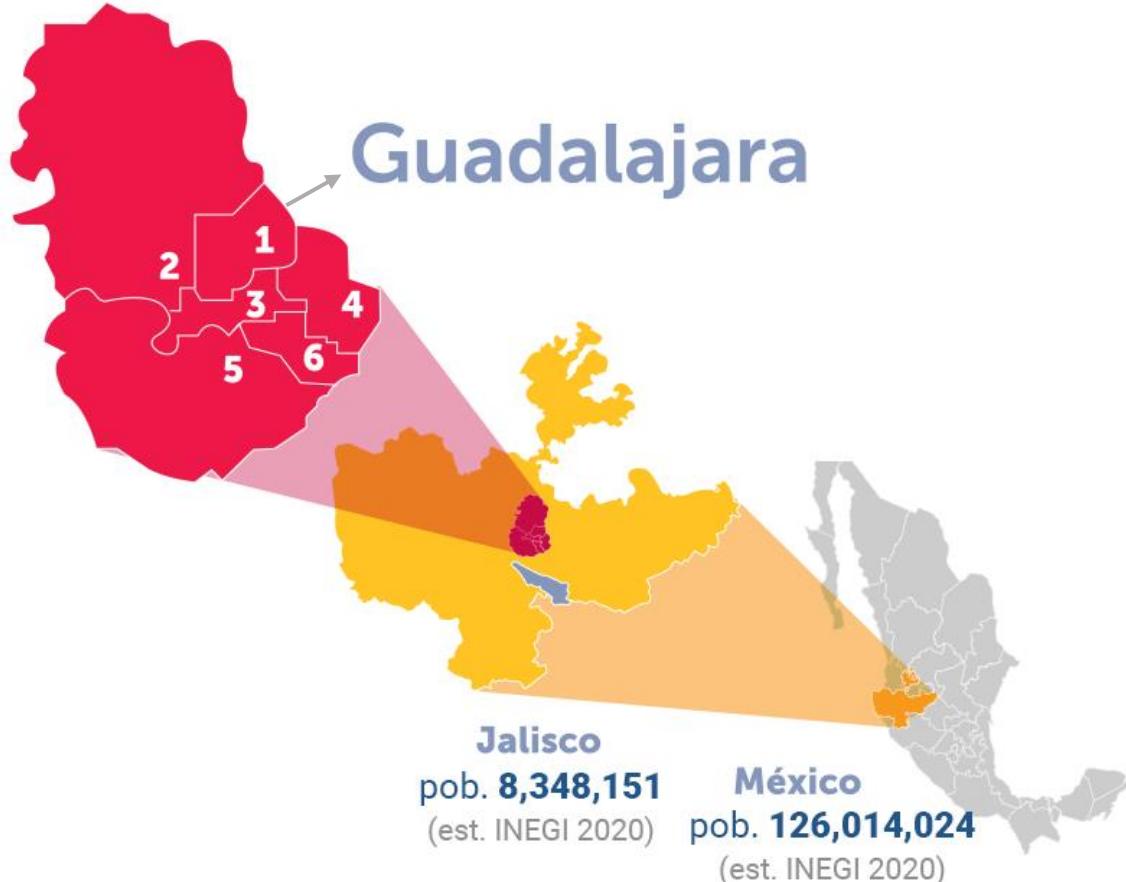
Empirical strategy



Empirical strategy



Empirical strategy



Guadalajara, Jalisco, Mexico
Sectoral distribution of employment
(1st quarter of 2019)

- Agriculture: 0.32%
- Industry: 24.59%
- Services: 74.76%

(Second largest city in Mexico)

Empirical strategy



Tequila, Jalisco, Mexico
Sectoral distribution of employment
(1st quarter of 2019)

- Agriculture: 14.40%
- Industry: 36.07%
- Services: 49.53%

Dataset

- The analysis is based on a repeated cross-sectional dataset obtained from Mexico's National Employment Survey (ENOE).
- ENOE is largest household survey in the country and the primary source of Mexico's labour market statistics.
- My dataset has 1,258,438 observations
 - 310,935 from the 1st quarter of 2005
 - 312,167 from the 1st quarter of 2010
 - 313,934 from the 1st quarter of 2015
 - 321,402 from the 1st quarter of 2019

Econometric model

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

“ Y ” is a binary variable that captures if each **woman** in the sample is part of the economically active population or not.

This is the dependent variable of the model, and it takes value of 1 if a **woman** is economically active, and 0 if they are part of the non-economically active population.

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

“*Share*” is the main independent variable of the model, and it captures the percentage of jobs either in agriculture, industry, or services as a share of total employment in each municipality at a given year.

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

“*Share*” is the main independent variable of the model, and it captures the percentage of jobs either in agriculture, industry, or services as a share of total employment in each municipality at a given year.

1. Percentage of **agricultural** jobs in each municipality
2. Percentage of **industrial** jobs in each municipality
3. Percentage of **service** jobs in each municipality

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

Percentage of agricultural jobs in a given municipality, in a given year.

Percentage of industrial jobs in a given municipality, in a given year.

Percentage of service jobs in a given municipality, in a given year.

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

Share² captures the squared values of the percentage of jobs in agriculture, industry, and services at the municipal level.

This variable is included to account for any potential non-linear relationship between female labour participation and the percentage of jobs in any of the three economic sectors.

Econometric model

$$Y_{i,m,t} = \beta_0 + \boxed{\beta_1} Share_{s,m,t} + \boxed{\beta_2} Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

β_1 and β_2 are the coefficients of interest throughout the paper.

They will capture if there is a positive or negative relationship between the percentage of jobs in agriculture, industry or services at the municipal level and the likelihood that a woman is part of the economically active population.

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x \boxed{X'_{i,m,t}} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

X' is a vector of potential explanatory variables that control for individual characteristics of each woman in the sample:

- Age
- Age squared
- Marital Status
- Level of education
- Number of kids that each woman in the sample has given birth to

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x \boxed{HH'_{i,m,t}} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

HH is a vector of control variables that capture different household characteristics, which include:

- Socio-economic stratum of the household
- Number of kids below five years old in the household,
- Total household members,
- Sex of the household head,
- Age of the household head,
- Level of education of the household head.
- Household location: rural or urban
- Population size of the household location

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

" ϑ " is a vector of control variables that capture different characteristics of the municipality where each respondent lives.

- Percentage of women in the municipality that are single
- Percentage of women in the municipality with elementary school or less
- Average age of women in the municipality
- % of people in the municipality that migrated from their city or home-town to keep or maintain their current job

Econometric model

$$Y_{i,m,t} = \beta_0 + \beta_1 Share_{s,m,t} + \beta_2 Share_{s,m,t}^2 + \beta_x X'_{i,m,t} + \beta_x HH'_{i,m,t} + \beta_x \vartheta'_{m,t} + \mu_{e,t} + \varepsilon_i$$

- $i \in \{1, \dots, N\}$ is an index for each individual respondent,
- $m \in \{1, \dots, M\}$ is an index for municipalities,
- $t \in \{2005 \text{ 1Q}, 2010 \text{ 1Q}, 2015 \text{ 1Q}, 2019 \text{ 1Q}\}$ is an index for the specific years and quarters considered for this study,
- $s \in \{\text{agriculture, industry, services}\}$ represents the variables that captures the percentage of jobs in each economic sector,
- $e \in \{1, \dots, 32\}$ is an index for the 32 states in Mexico.
- μ represents the fixed effects included in the model to control for unobserved heterogeneity across time or across Mexican states.
- (The fixed effects considered the first quarter of 2005 and Mexico City as the base categories).

Results

Results

| VARIABLES | (1) Women | (2) Women | (3) Women | (4) Men | (5) Women | (6) Women | (7) Women | (8) Men | (9) Women | (10) Women | (11) Women | (12) Men |
|---|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| % of agricultural jobs at the municipal level | -0.0090*** (0.0001) | -0.00593*** (0.00045) | 0.00065 (0.00089) | 0.00079 (0.00094) | | | | | | | | |
| % of agricultural jobs at the municipal level (squared) | | | -0.00008*** (0.00001) | 0.00003** (0.00001) | | | | | | | | |
| % of industrial jobs at the municipal level | | | | 0.0034*** (0.0003) | 0.00257*** (0.00056) | 0.00687*** (0.00157) | -0.00520*** (0.00171) | | | | | |
| % of industrial jobs at the municipal level (squared) | | | | | -0.00007*** (0.00002) | 0.00006** (0.00003) | | | | | | |
| % of service jobs at the municipal level | | | | | | | 0.0089*** (0.0001) | 0.00490*** (0.00053) | 0.01129*** (0.00164) | 0.00675*** (0.00149) | | |
| % of service jobs at the municipal level (squared) | | | | | | | | | -0.00006*** (0.00001) | 0.00004*** (0.00001) | | |
| Control variables at the individual level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Control variables at the household level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Control variables at the municipal level | X | ✓ | ✓ | X | X | ✓ | ✓ | X | X | ✓ | ✓ | X |
| Year/quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| State fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Clustered standard errors at the municipal level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Constant | -0.0859*** (0.0113) | -3.18415*** (0.17039) | -3.12731*** (0.16905) | -1.16940*** (0.06549) | -0.1650*** (0.0123) | -2.92330*** (0.17564) | -2.96848*** (0.17628) | -1.04266*** (0.06696) | -0.8089*** (0.0161) | -3.29559*** (0.18293) | -3.40730*** (0.18489) | -0.89741*** (0.07056) |
| Observations | 613,153 | 609,070 | 609,070 | 548,764 | 613,153 | 609,070 | 609,070 | 548,764 | 613,153 | 609,070 | 609,070 | 548,764 |
| Robust standard errors in parentheses | | | | | | | | | | | | |
| *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | | | | | |

Results

| VARIABLES | (1) Women | (2) Women | (3) Women | (4) Men | (5) Women | (6) Women | (7) Women | (8) Men | (9) Women | (10) Women | (11) Women | (12) Men |
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| % of agricultural jobs at the municipal level | -0.0090*** (0.0001) | -0.00593*** (0.00045) | 0.00065 (0.00089) | 0.00079 (0.00094) | | | | | | | | |
| % of agricultural jobs at the municipal level (squared) | | | -0.00008*** (0.00001) | 0.00003** (0.00001) | | | | | | | | |
| % of industrial jobs at the municipal level | | | | 0.0034*** (0.0003) | 0.00257*** (0.00056) | 0.00687*** (0.00157) | -0.00520*** (0.00171) | | | | | |
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| % of service jobs at the municipal level | | | | | | | 0.0089*** (0.0001) | 0.00490*** (0.00053) | 0.01129*** (0.00164) | -0.00675*** (0.00149) | | |
| % of service jobs at the municipal level (squared) | | | | | | | | | -0.00006*** (0.00001) | 0.00004*** (0.00001) | | |
| Control variables at the individual level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Control variables at the household level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Control variables at the municipal level | X | ✓ | ✓ | X | X | ✓ | ✓ | X | X | ✓ | ✓ | X |
| Year/quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| State fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Clustered standard errors at the municipal level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Constant | -0.0859*** (0.0113) | -3.18415*** (0.17039) | -3.12731*** (0.16905) | -1.16940*** (0.06549) | -0.1650*** (0.0123) | -2.92330*** (0.17564) | -2.96848*** (0.17628) | -1.04266*** (0.06696) | -0.8089*** (0.0161) | -3.29559*** (0.18293) | -3.40730*** (0.18489) | -0.89741*** (0.07056) |
| Observations | 613,153 | 609,070 | 609,070 | 548,764 | 613,153 | 609,070 | 609,070 | 548,764 | 613,153 | 609,070 | 609,070 | 548,764 |
| Robust standard errors in parentheses | | | | | | | | | | | | |
| *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | | | | | |

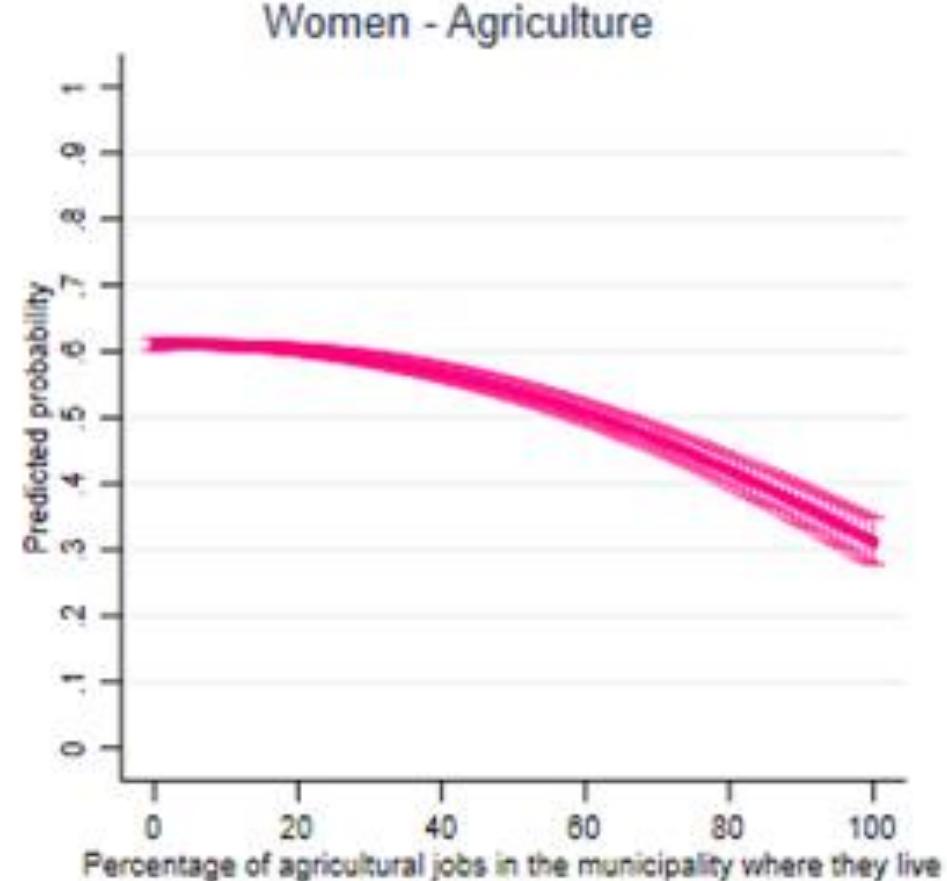
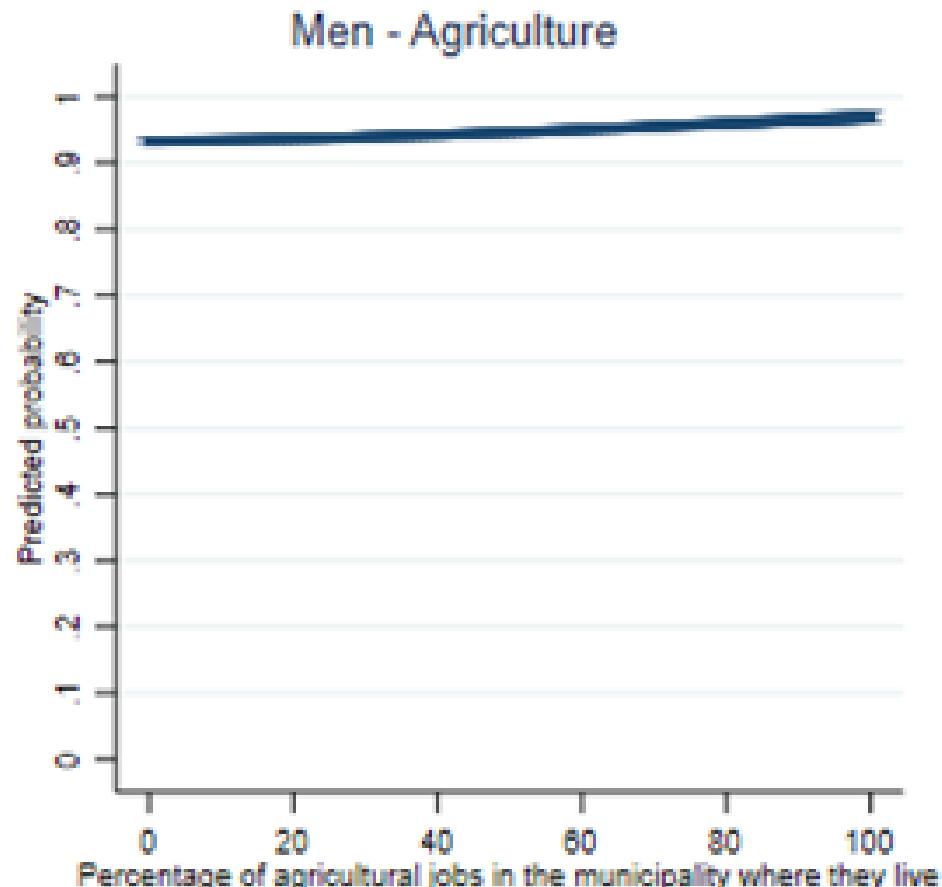
Results

| VARIABLES | (1) Women | (2) Women | (3) Women | (4) Men | (5) Women | (6) Women | (7) Women | (8) Men | (9) Women | (10) Women | (11) Women | (12) Men |
|---|------------------------|--------------------------|--------------------------|--------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| % of agricultural jobs at the municipal level | -0.0090*** (0.0001) | -0.00593*** (0.00045) | 0.00065 (0.00089) | 0.00079 (0.00094) | | | | | | | | |
| % of agricultural jobs at the municipal level (squared) | | | -0.00008*** (0.00001) | 0.00003** (0.00001) | | | | | | | | |
| % of industrial jobs at the municipal level | | | | 0.0034*** (0.0003) | 0.00257*** (0.00056) | 0.00687*** (0.00157) | -0.00520*** (0.00171) | | | | | |
| % of industrial jobs at the municipal level (squared) | | | | | | -0.00007*** (0.00002) | 0.00006** (0.00003) | | | | | |
| % of service jobs at the municipal level | | | | | | | 0.0089*** (0.0001) | 0.00490*** (0.00053) | 0.01129*** (0.00164) | -0.00675*** (0.00149) | | |
| % of service jobs at the municipal level (squared) | | | | | | | | | -0.00006*** (0.00001) | 0.00004*** (0.00001) | | |
| Control variables at the individual level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Control variables at the household level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Control variables at the municipal level | X | ✓ | ✓ | X | X | ✓ | ✓ | X | X | ✓ | ✓ | X |
| Year/quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| State fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Clustered standard errors at the municipal level | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Constant | -0.0859*** (0.0113) | -3.18415*** (0.17039) | -3.12731*** (0.16905) | -1.16940*** (0.06549) | -0.1650*** (0.0123) | -2.92330*** (0.17564) | -2.96848*** (0.17628) | -1.04266*** (0.06696) | -0.8089*** (0.0161) | -3.29559*** (0.18293) | -3.40730*** (0.18489) | -0.89741*** (0.07056) |
| Observations | 613,153 | 609,070 | 609,070 | 548,764 | 613,153 | 609,070 | 609,070 | 548,764 | 613,153 | 609,070 | 609,070 | 548,764 |
| Robust standard errors in parentheses | | | | | | | | | | | | |
| *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | | | | | |

Results: Marginsplot

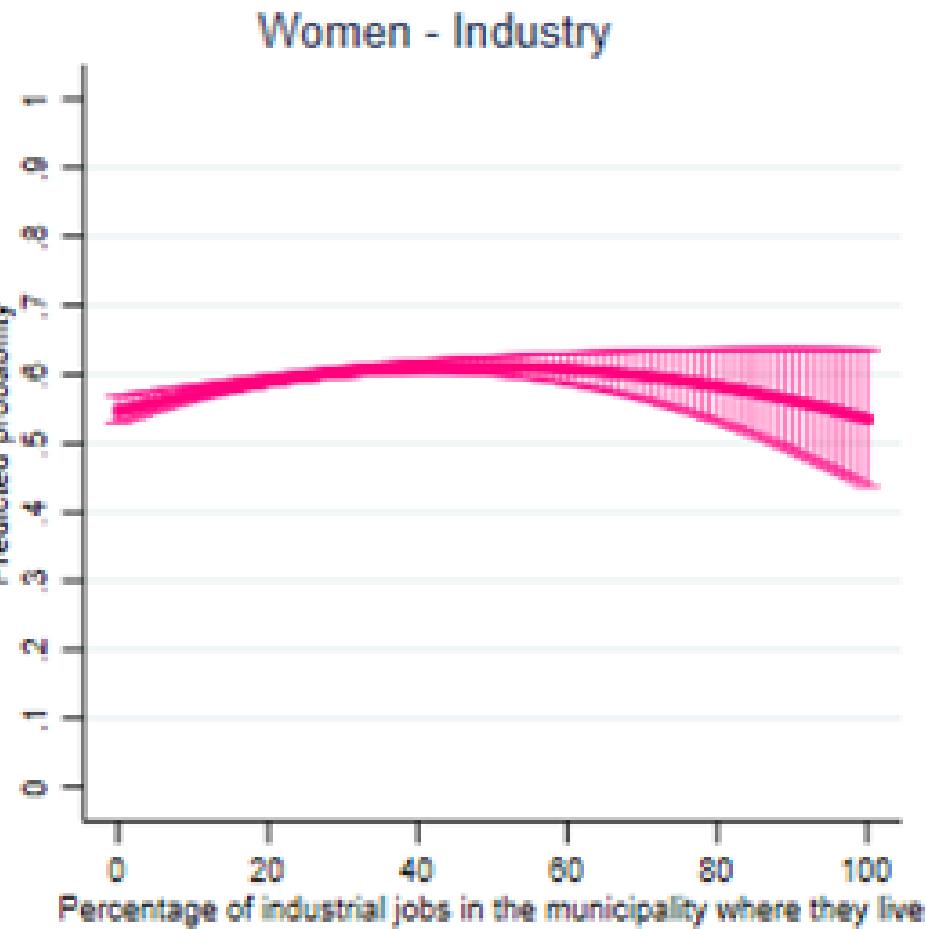
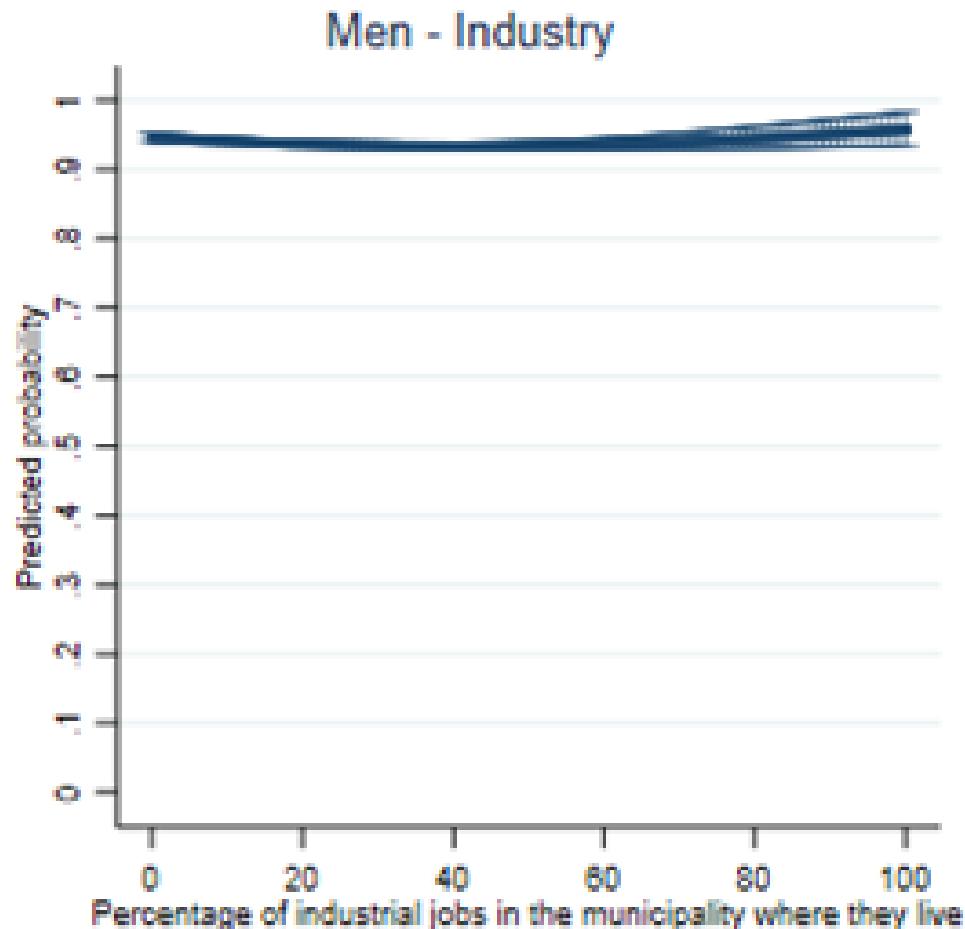
Results: Marginsplot

Predicted probability that Mexican men and women are economically active depending on the % of agricultural jobs



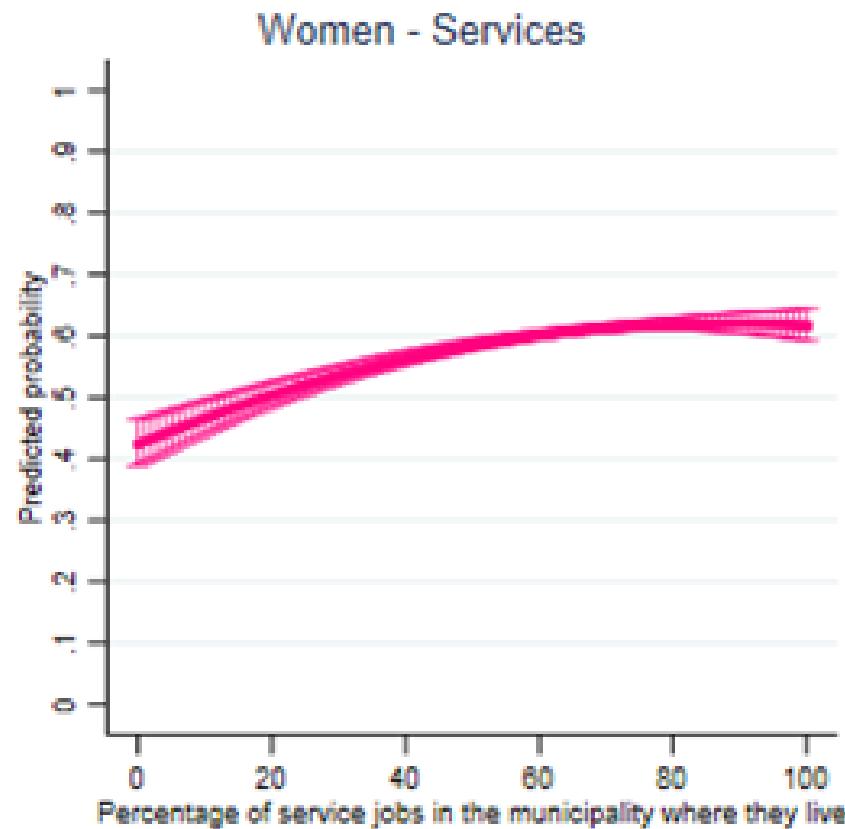
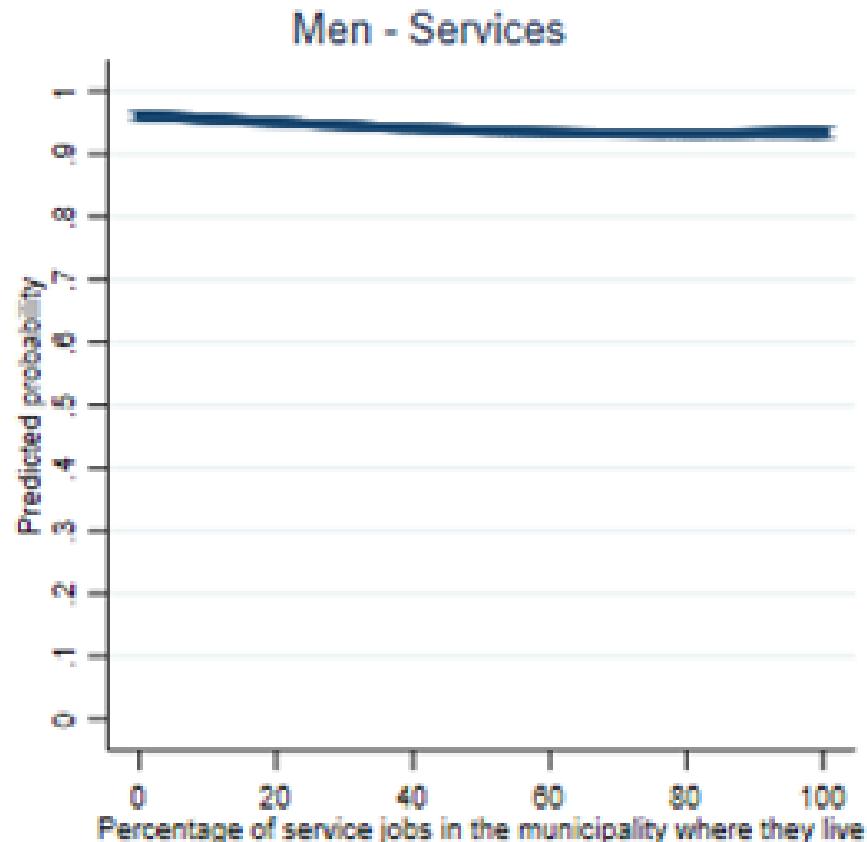
Results: Marginsplot

Predicted probability that Mexican men and women are economically active depending on the % of industrial jobs



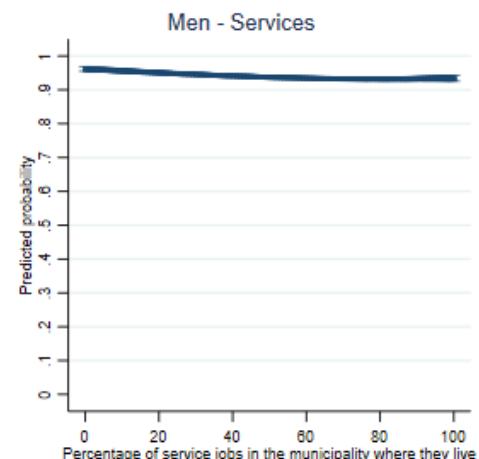
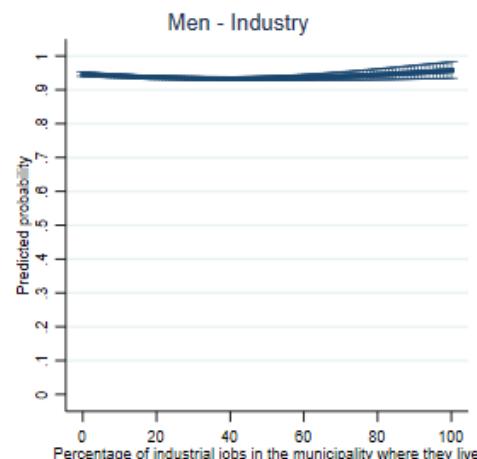
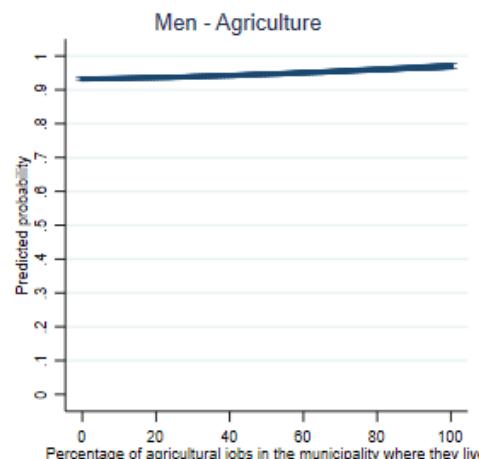
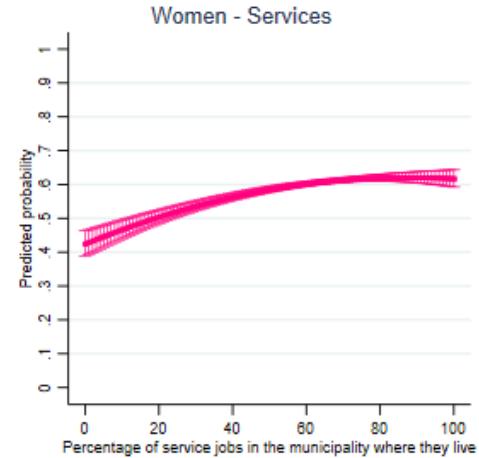
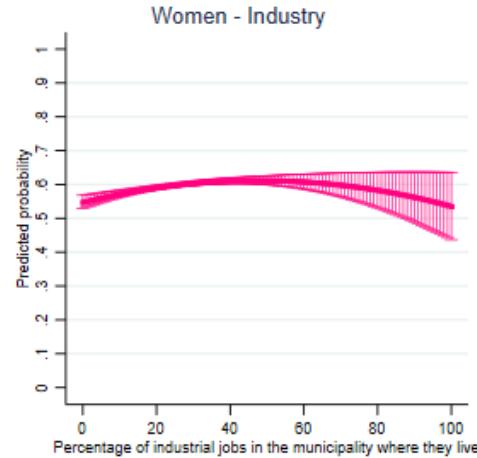
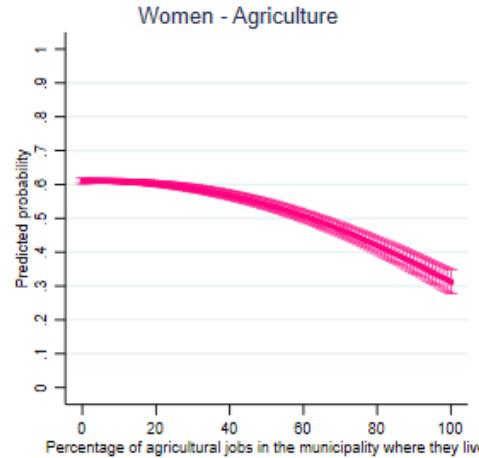
Results: Marginsplot

Predicted probability that Mexican men and women are economically active depending on the % of service jobs



Results: Marginsplot

Predicted probability that Mexican men and women are economically active depending on the % of agricultural, industrial or service jobs in the municipality where they live



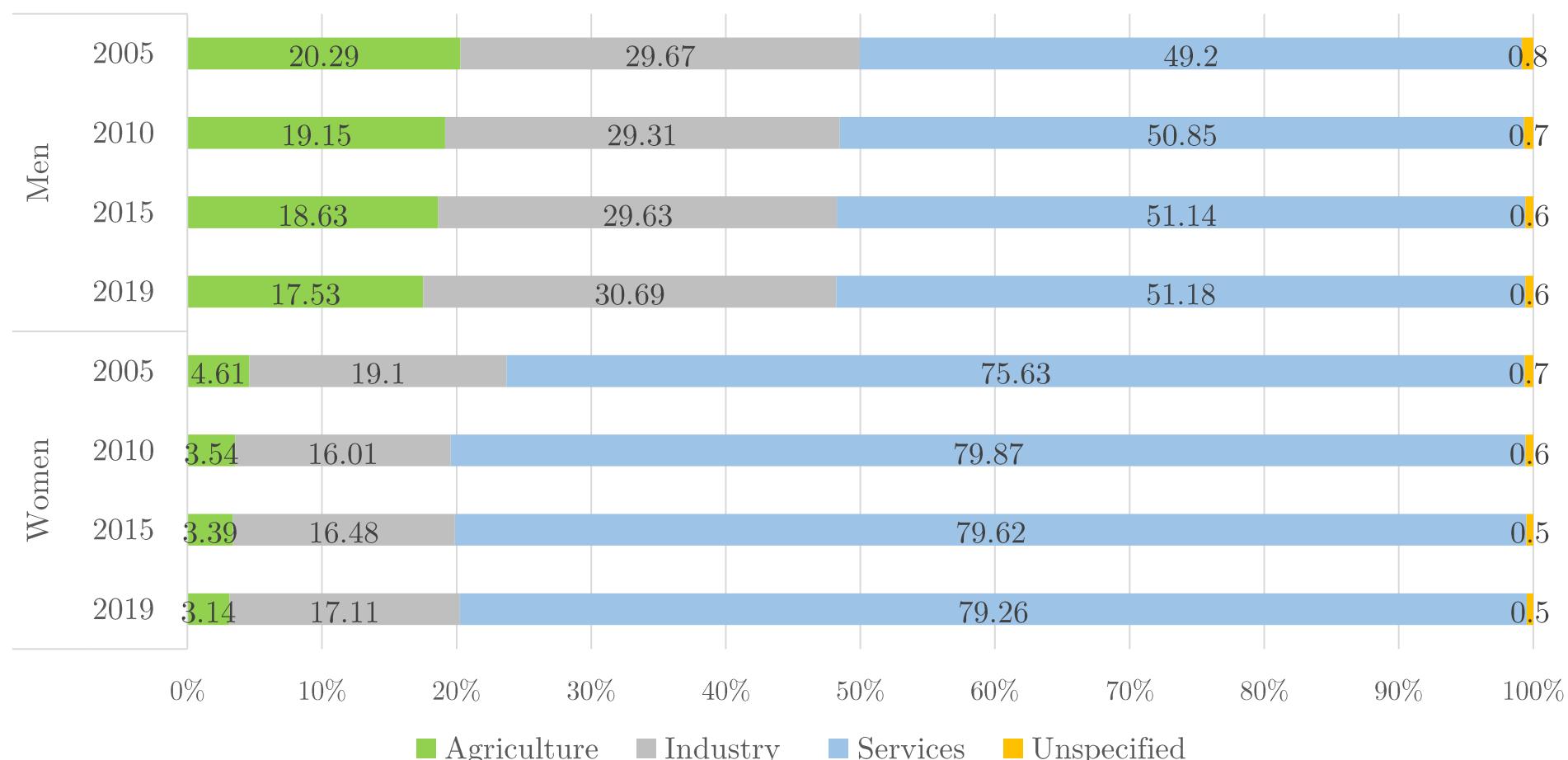
Background data

Background data

- The following graph shows that...
- Sectoral distribution of the male workforce,
20% work in agriculture
30% work in industry
50% work in services
- Sectoral distribution of the female workforce,
3% work in agriculture
17% work in industry
80% work in services

Background data

Percentage of Mexicans working in agriculture, industry and services (by sex).



Background data

- The following graph shows that...
- Agricultural workforce in Mexico:
10% women and 90% men.
- Industrial workforce in Mexico:
25% women and 75% men.
- Service workforce in Mexico,
49% women and 51% men.

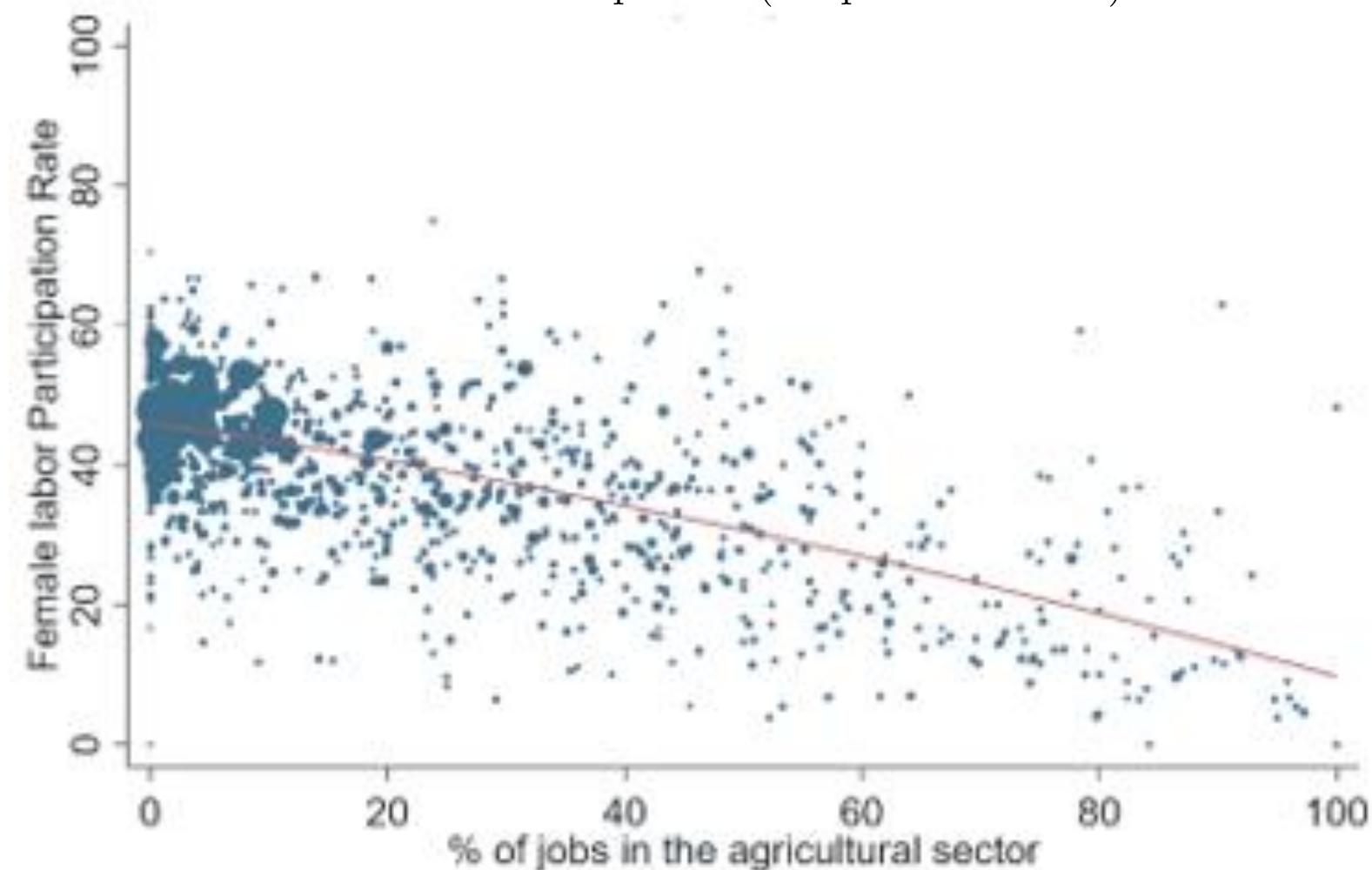
Background data

Percentage of men and women in each economic sector



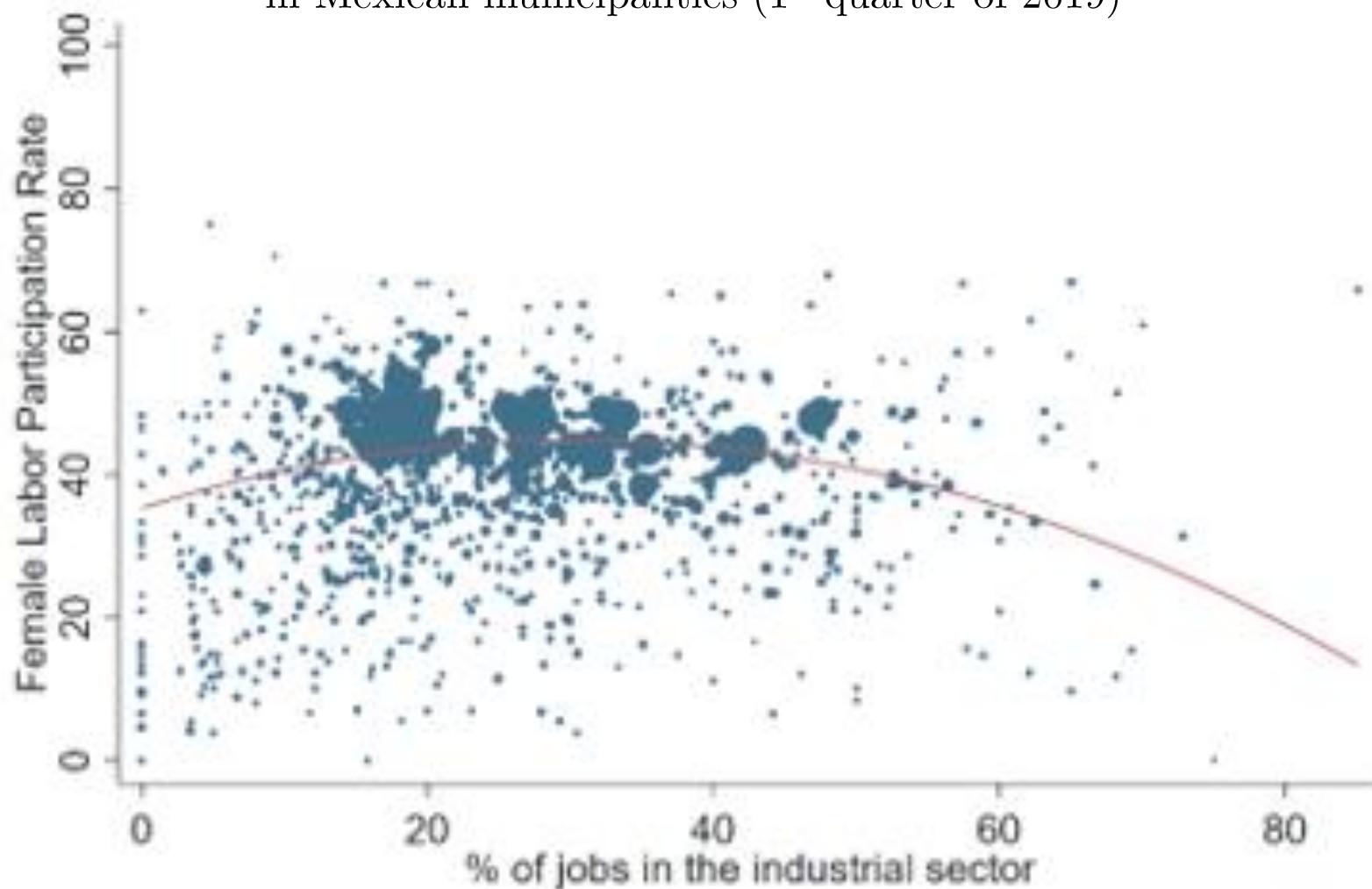
Background data

FLPRs and share of agricultural jobs
in Mexican municipalities (1st quarter of 2019)



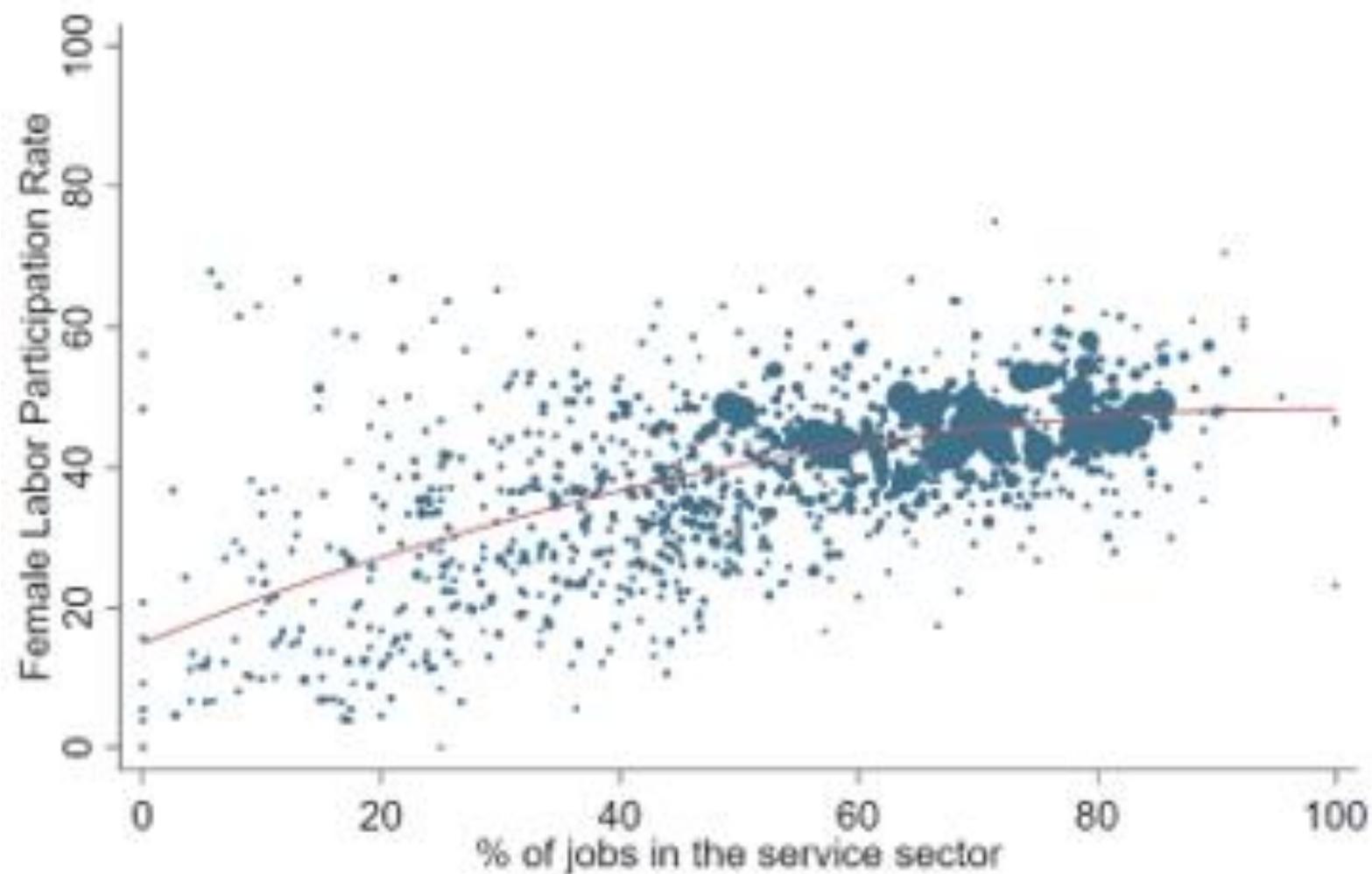
Background data

FLPRs and share of industrial jobs
in Mexican municipalities (1st quarter of 2019)



Background data

FLPRs and share of service jobs
in Mexican municipalities (1st quarter of 2019)



Relevance



Charles Gottlieb <gottlieb.charles@gmail.com>
To Isaac Lopez Moreno Flores



01/06/2023

I am slightly surprised that FLFP is so low in municipalities with a high share of agricultural employment. In our paper, we find that female participation in low-income countries is high and is driven by female employment in the agricultural sector.

It might be that the poorest municipalities have income levels that correspond to a middle-income rather than a low-income country, thereby locating municipalities in the range of income where female LFP is lowest.

Best,

Charles

Relevance

Re: New working paper about female labour participation in Mexico



Goldin, Claudia <cgoldin@harvard.edu>
To Isaac Lopez Moreno Flores



Thu 28/09/2023 19:38

Isaac:

Many thanks for sending this. Since I'm giving a lecture to my class on this topic on Monday, this was perfect timing.
You should probably add a cite to Claudia Olivetti's piece, which (I think) was the first rigorous test of a fixed-effects model of the U. You can find it on her website. It was around 2015.

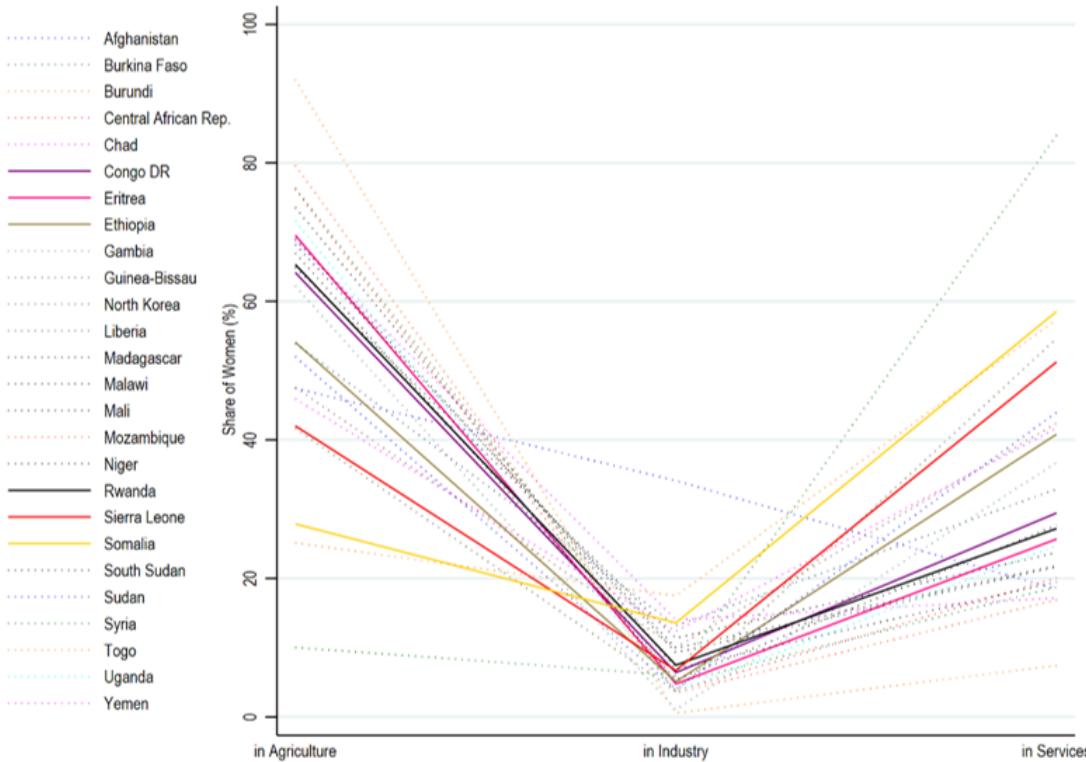
Best wishes,
Claudia

Claudia Goldin
Henry Lee Professor of Economics
Lee & Ezpeleta Professorship in the Arts and Sciences
Harvard University
<http://scholar.harvard.edu/goldin/home> [scholar.harvard.edu]

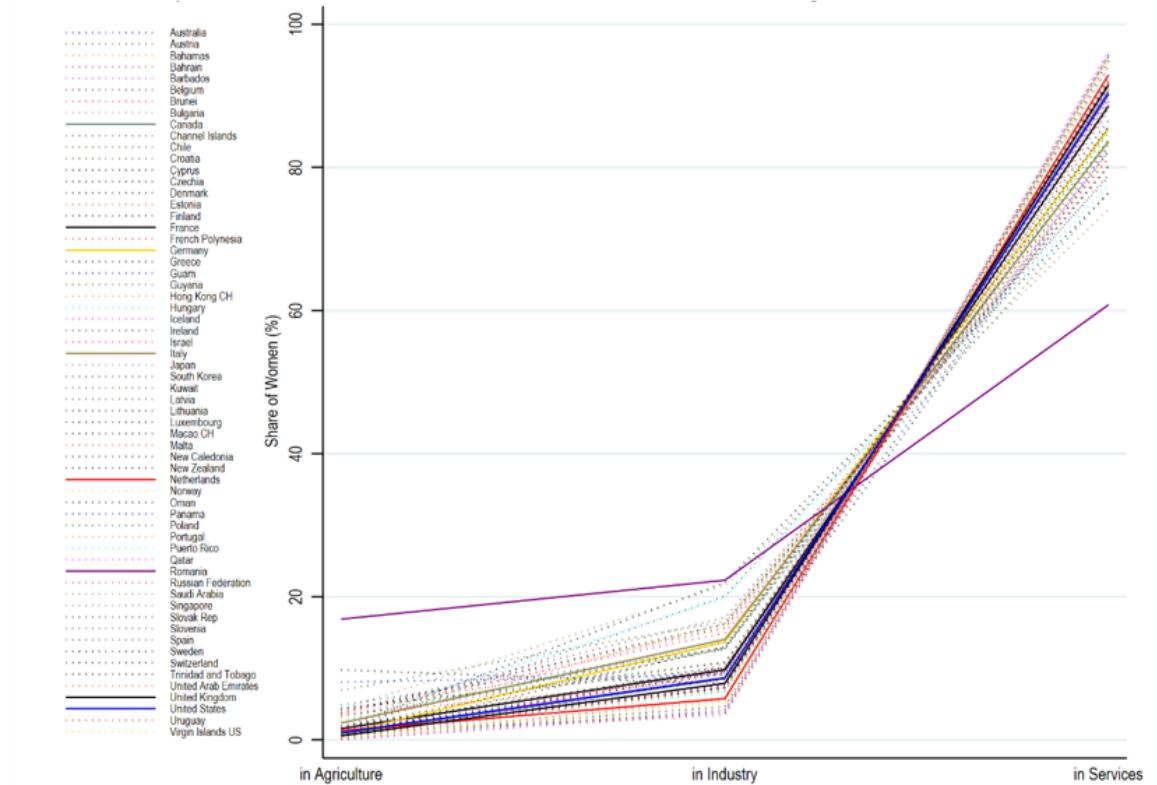
Sectoral distribution of female workforce across countries

Sectoral distribution of female workforce across countries

U-shaped sectoral distribution of the female workforce in low-income countries

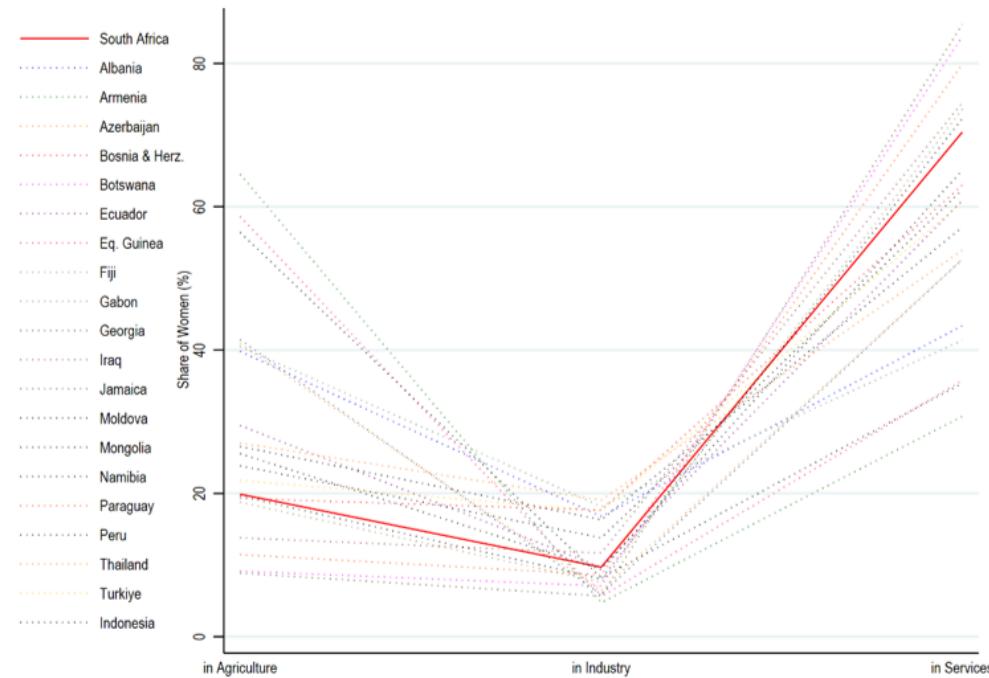


Upward sectoral distribution of the female workforce in high-income countries

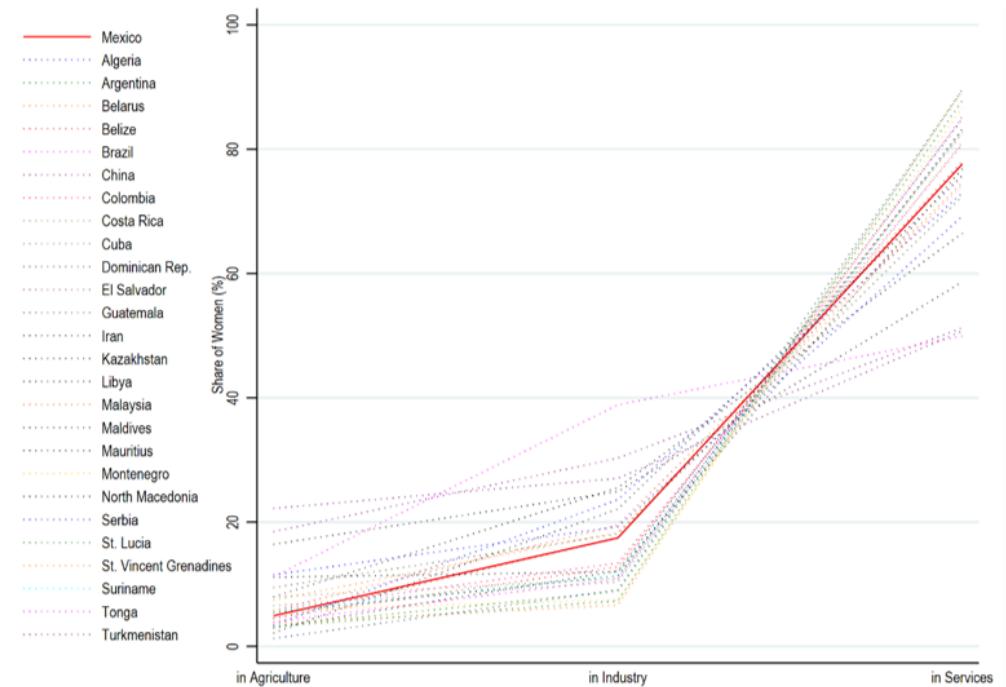


Sectoral distribution of female workforce across countries

U-shaped sectoral distribution of female workforce in upper-middle-income countries



Upward sectoral distribution of female workforce in upper-middle-income countries



Conclusion

- This paper **contradicts** the hypothesis that the decline of female labour participation rates (FLPRs) in middle-income countries is always driven by the lack of women engagement in industrial jobs.
- This paper shows that low FLPRs in Mexico are partially explained by the **lack of participation of women in agricultural activities**.
- The paper suggests that low female labour participation in agriculture might be due to **lack of labour demand**.

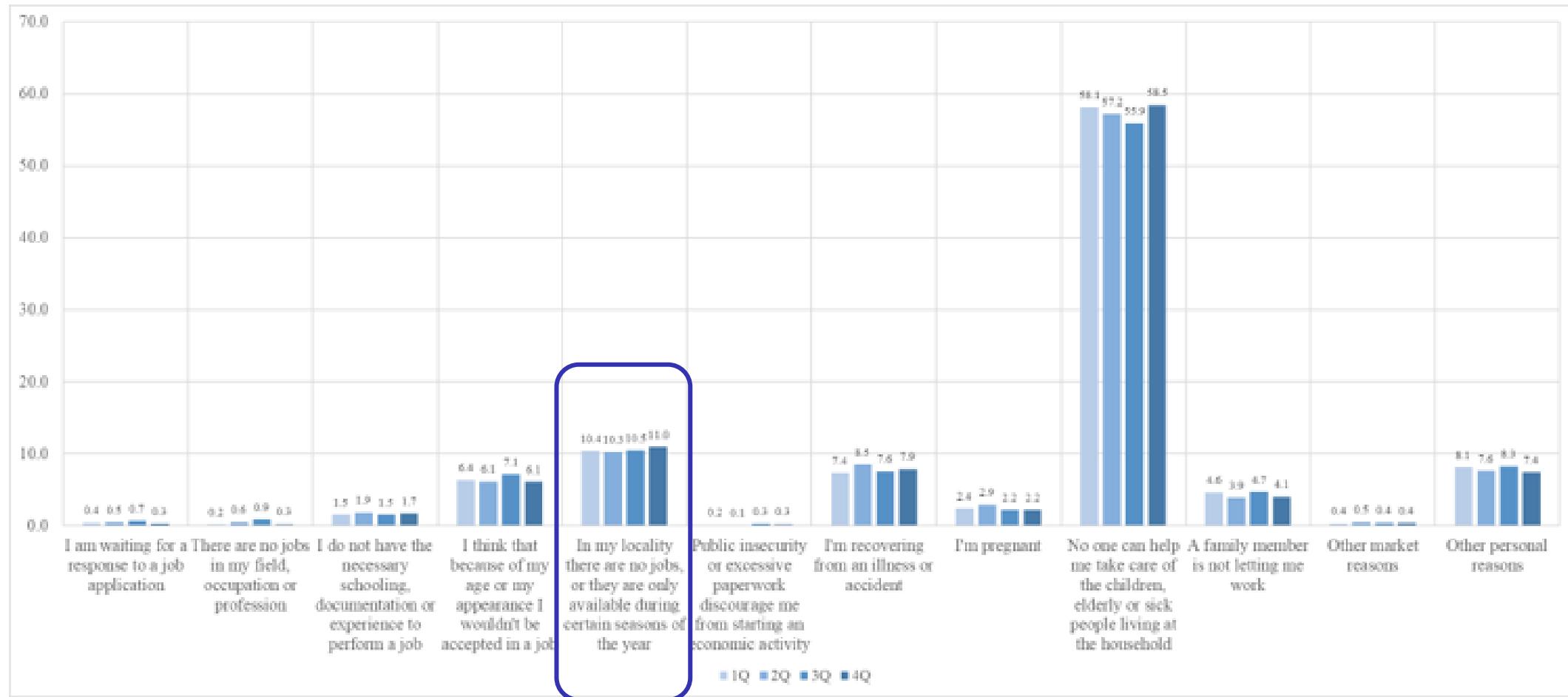
Conclusion

- Finally, this paper shows that the sectoral distribution of employment matters women, while it is irrelevant for men.
- Men's likelihood of being part of the workforce is always above 90%, regardless of the sectoral distribution of employment
- Women's likelihood of being part of the workforce varies depending on the sectoral distribution of employment.
 - Around 30% likelihood if they live in municipalities where agriculture predominates
 - Around 60% if they live in regions with a service-oriented economy

Lack of labour demand

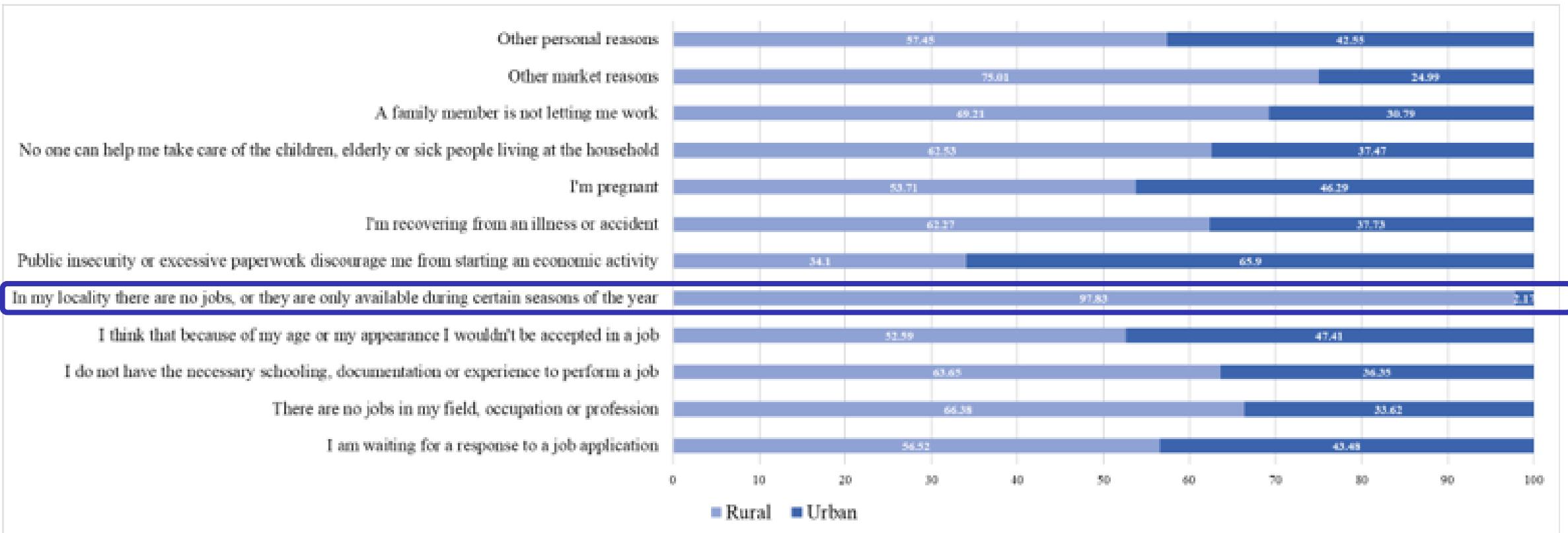
Lack of labour demand

Figure 1.11 - Reasons for not working among working-age women (18–65) who are engaged in domestic chores, Mexico (2019)



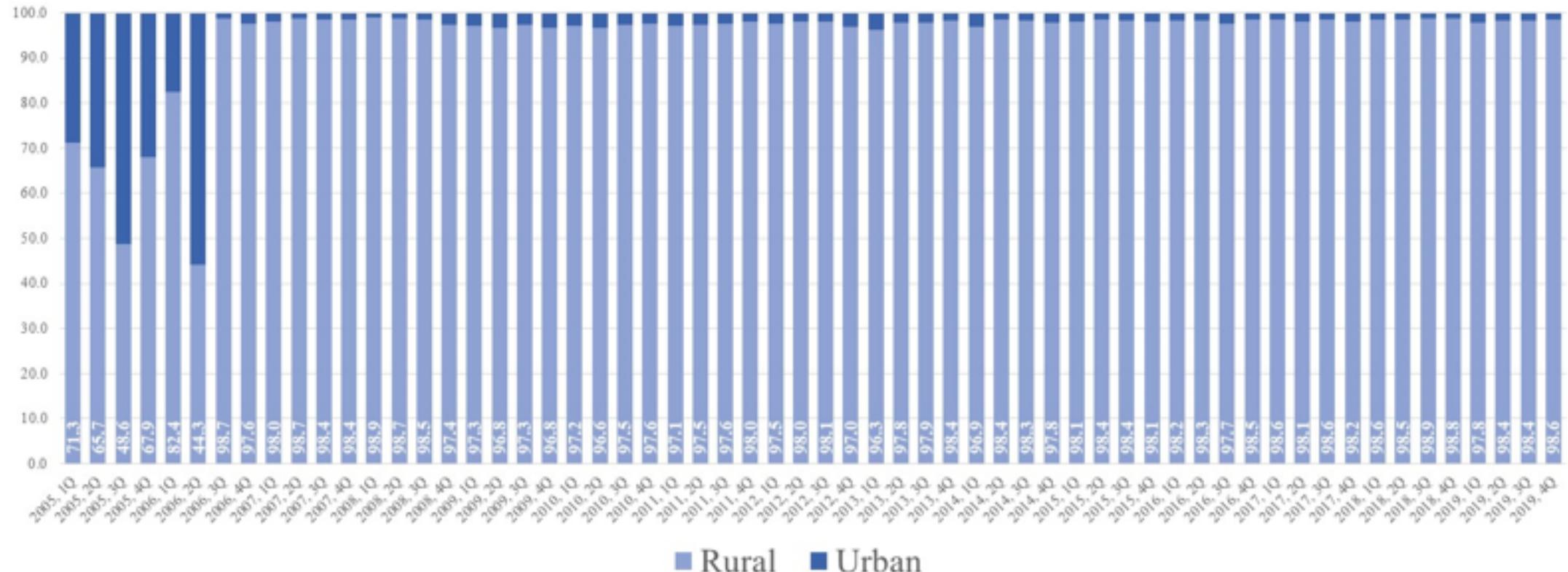
Lack of labour demand

Figure 1.12 - Reasons for not working among working-age women (18–65) engaged in domestic chores, differentiating by urban and rural areas (Mexico, first quarter of 2019)



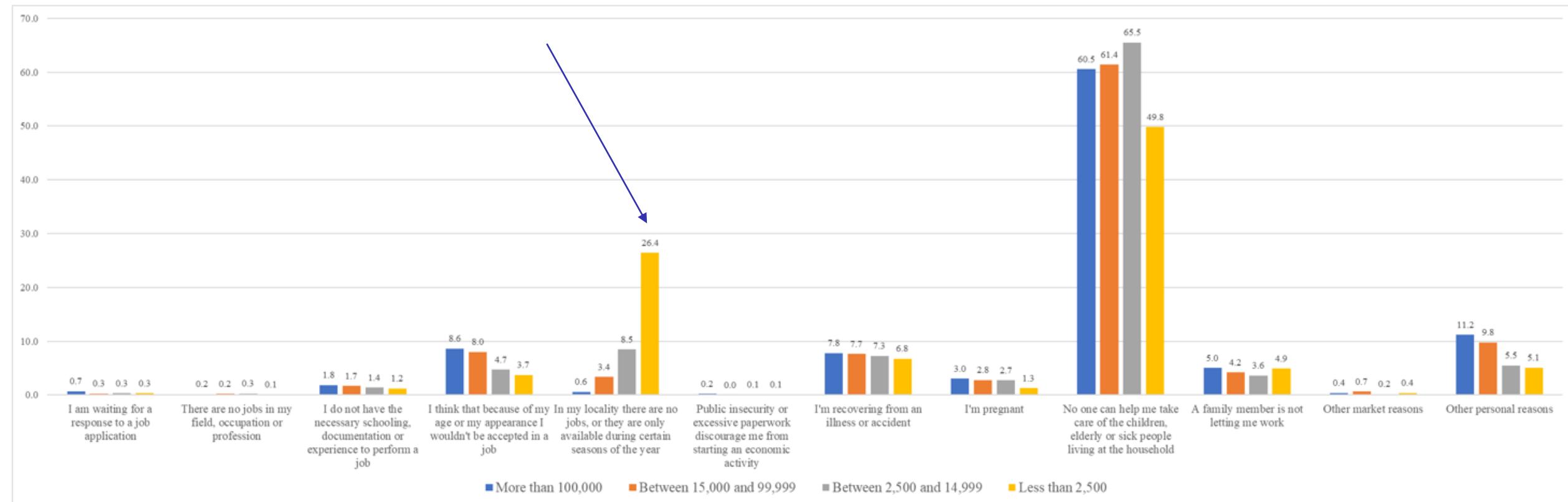
Lack of labour demand

Figure 1.13 - Non-working women due to lack of labour demand, differentiated by urban and rural areas
(Mexico, 2005–2019)



Lack of labour demand

Figure 1.14 - Reasons for not working among working-age women (18–65) engaged in domestic chores, differentiated by locality size (Mexico, first quarter of 2019)



Lack of labour demand

Figure 1.15 - Sectoral distribution of employment in relation to the population size of the locality (Mexico, first quarter of 2019)

