The Gendered Process of Migration: Labour-Market Behaviour of Left-Behind Wives in Mexico

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ABSTRACT

This paper explores the effect of male emigration from Mexico on women's labour-market behaviour. It borrows from existing gender, labour-market, and migration literature and uses nonlongitudinal data extracted via an ethnosurvey approach by the Mexican Migration Project (MMP). Its aim is to point to the scarcity of migration studies focusing on women left behind and provide evidence from the Mexican case that may push the research frontier further. The results show that Mexican women's labour-market behaviour may face normative constraints that limit their ability to undertake paid work. This is exacerbated by living in a household where the main provider is a migrant and whose absence results in an increased burden of unpaid domestic labour on his non-migrant spouse. This study contributes to a growing line of research suggesting that women's economic choices in developing countries can be shaped by gender norms rather than by economic or institutional characteristics alone.

A mis padres, que tomaron la difícil decisión de emigrar por un mejor futuro para sus hijas.

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IV. LIST OF ABBREVIATIONS AND ACRONYMS

- CA Canada
- CONAPO National Population Council (*Consejo Nacional de Población*)
- FLFP Female labour force participation
- HH Household
- HoH Head of household
- LFP Labour force participation
- NAFTA North American Free Trade Agreement
- OECD Organisation for Economic Co-operation and Development
- U.S. United States

V. INTRODUCTION AND RESEARCH QUESTION

Gender inequality is present in developing and developed economies, and is indicative of countries' normative environments (Jayachandran, 2015). Over time, different regions, countries, and ethnic groups develop gender norms, which determine how men and women are perceived and integrated into economic, social, and political activities. In recent decades, the distribution of economic activities along gender lines has increasingly incorporated women. This trend has been observed in both developing and developed economies (Killingsworth and Heckman, 1986). Thus, an interesting angle to evaluate the persistence of gender norms is the feminization of labour markets, particularly since dismantling gender discrimination in the labour place contributes to countries' economic performance, efficiency, and growth (Chattopadhyay and Duflo, 2004; Fortin, 2005; Goher, 2013; Kabeer, 2016; Klasen and Minasyan, 2017; Rothstein, 1995). This represents a prime policy opportunity; as policymakers across developing countries target women's inclusion into the economy, it is crucial to evaluate what influences their decisions to join the labour market.

Mexico is a country with deeply entrenched gender norms, where women's inability to access services and windows of opportunity remains a structural challenge. Similarly to other Latin American countries, within-country gender disparities are informed by culture (Segrest et al., 2003; Wilson, 2003). However, unique to the Mexican context is the historic emigration of men, leaving gaps in the labour supply and challenging patriarchal concepts of the stay-at-home wife. While the process of Mexican migration to the U.S. has been analyzed through a gendered lens, the focus has been primarily on immigrant men, with a few studies focusing on immigrant women, and fewer ones on women left behind. Studies evaluating women as immigrants have considered their labour-market behaviour from diverse angles, comparatively evaluating why women from different countries of origin behave differently and under what circumstances (Pedraza, 1991). On the other hand, the focus on the 'left-behind' wife has surged in recent decades, with evidence from Latin America, the Middle East, and South East Asia. Overall, the literature lacks a consensus on the gender norm mechanisms that inform women's labour-market behaviour across regions, particularly in ethnically and culturally diverse countries where gender norms vary, such as Mexico.

I perform an exploratory analysis of the effect of male migration out of Mexico on the labour-market behaviour of left-behind wives using time-series survey data from the Mexican Migration Project. Exploring this question contributes to a growing literature focusing on the left-

behind families of migrants. Additionally, it provides evidence that women's labour-market behaviour can be informed by normative considerations beyond utilitarian or economic ones. Section VI provides an extensive literature review on 1) the feminization of global labour markets, 2) women's labour-market behaviour as influenced by gender norms, 3) the disruptive effect of migration on labour-markets, and 4) global evidence on the effect of male emigration on left-behind wives. Section VII describes the methodological approach. Section VIII provides an overview of the Mexican case. Section IX includes findings from descriptive statistics using data on both migrant and non-migrant households. This is complemented by a mutinomial logistic regression to test the relationship between male emigration and the labour-market behaviour of wives left behind. Section X concludes and outlines areas for further research.

VI. LITERATURE REVIEW

a. The feminization of global labour markets

In the last few decades, global labour markets have experienced a "feminization", meaning an increase of female labour force participation (FLFP) coupled with a decrease or stagnation of male labour force participation (LFP). Between 1975 and 1995, women's LFP increased in 74% of developing countries and 70% of developed ones, while men's LFP decreased in 66% of developing countries and 95% of developed ones (Standing, 1999). This has been heavily influenced by rising international trade of goods and services, redirecting of trade and investment to economies with relatively lower labour costs, a "technological revolution" on the global divisions of labour, increased precariousness in labour markets across developing and industrializing economies, and an "erosion of the legitimacy of welfare systems" (ibid. p. 584).

The feminization of labour markets has not necessarily been accompanied by an 'empowerment' or increased well-being of women, nor with an equalizing of the gender divide; and evidence is mixed and contradictory (Kabeer, 2008). Instead, it reflects the 'flexibility' of the female labour force which often adapts to meet the labour demand where male employment is stagnant or falling (Kabeer, 2008). Globally, one out of every two adult women participates in the labour force compared to three out of four men (World Bank, 2020), and women who do participate earn less than their male counterparts (Jayachandran, 2020).

b. The emergence of gender norms

The origins of gender norms have been traced back to countries' colonial experience through earlier divisions of agricultural and farming practices (Alesina et al., 2013; Boserup, 1970; Sen, 1990); historical family configurations (Tur-Prats, 2018); religiosity (Algan and Cahuc, 2003; Guiso et al., 2003); countries' oil reserves (Ross, 2008); and others. Further, norms and culture transcend borders and generations and are persistent over time. For example, Fernández and Fogli (2009) evaluate how ancestral culture shapes FLFP of second-generation immigrant women in the U.S. They proxy culture using total fertility rates (TFR) and FLFP from the country of origin of the women's parents. They find that women whose parents came from countries with higher levels of TFR have more children, and women whose parents came from countries with higher levels of FLFP work more. Similarly, Hansen et al. (2015) find that societies that transitioned from hunting-gathering to agriculture earlier, exhibit lower levels of female employment. This is because an increase time spent in agricultural activities led to an increase in fertility which forced women to spend less time in economic activities[1]. "The longer that women have specialized in child-rearing, the more entrenched is the norm that economic production is the domain of men" (Jayachandran, 2020, p. 3).

c. Explaining women's labour market behaviour

Research on the effects of gender norms on women's economic choices disputes their measurement and isolation and how this effect is altered by exogenous shocks to the labour force. Yet, it suggests that women's economic decisions can be influenced by beliefs and preferences regarding their perceived role in society (Fernández and Fogli, 2009; Fortin, 2005; Levine, 1993; Vella, 1994). This is true across regions and income-levels. In a study of 25 OECD countries, Fortin (2005) concludes that cross-country variation in female employment is mostly explained by gendered attitudes that view women's role as homemakers and men's as breadwinners[2]. Similarly, in an evaluation of FLFP in the U.S. over the past 120 years, (Fernández, 2013) finds that FLFP and culture are codetermined and have evolved together; as cultural change results from society endogenously learning about the long-run benefits of employment for married women.

[1] One reason increased time in agricultural activities may have increased fertility is that it increased income, which had a positive effect on fertility (Hansen et al., 2015).
[2] This study excludes Mexico.

Across developing countries, Jayachandran (2020) finds the U-shape model for female employment (*Appendix D)* does not fully grasp the effect of social norms or stigma over time or their cross-country variation. Further, Campaña et al., (2018) evaluate cross-country differences in the impact of gender norms on the distribution of total time worked between men and women in Mexico, Peru, and Ecuador. By constructing an index to measure egalitarianism, they argue that countries with more egalitarian gender norms exhibit more egalitarian distributions of time worked between men and women. Time-use data is useful for understanding gender inequalities in the labour market, since women tend to perform most informal or unpaid domestic and care work that countries' LFP records generally exclude.

d. Social responses to women's labour-market behaviour

Women's labour-market decisions can change society's and women's own perceptions around their capabilities, rights, and contributions (Kabeer, 2008). These perceptions translate into social rewards and penalties and depend on the geo-temporal economic, social, and normative environment, working conditions, and whether this work is remunerated (Agarwal, 1997; Kabeer, 2013; Kandiyoti, 1988; Moore, 1994).

Independent wage work has been associated with increases in respect and recognition by family members, bargaining power in household (HH) decisions, public mobility, and attention given to personal health and purchasing power (Kabeer, 2008). As such, it represents a greater challenge to male authority in conjugal relations than in other family relations (ibid.). Women who enter the labour market are also disproportionately affected by a 'second shift' of household work and responsibilities ascribed to them (Kabeer, 2013). For example, women perform most unpaid domestic work across developing countries (Kabeer, 2013, 2008). Additionally, women may have to give their earnings to their husbands or fathers, limiting their bargaining power in financial decisions (Elson, 1999).

In contrast, the relationship between self-employment and empowerment has been difficult to extract, as it often implies unstable and unsafe working conditions, and a lack of social security and labour protection schemes embedded in the formal sector (Banerjee and Duflo, 2011). Many times, women decide to enter informal employment out of need or inability to obtain formal employment (ibid.). Further; unmarried women experience more positive effects with formal and

informal work than married women due to the socially ascribed responsibilities on wives (Gates, 2002; Kabeer, 2008).

In the sense that women's labour market behaviour is influenced by gender norms, a shock to the labour supply, such as migration, provides an opportunity to test the persistence of such norms and to understand which interventions could increase women's LFP.

e. Migration as a shock to labour markets

Migration is a gendered process "both reflecting and potentially altering gender relations" (Radel et al., 2010). It introduces a shock to the gendered distribution of economic activities through labour-force alterations of the sender and receiving communities. This is because the entire migration experience is shaped by "gendered cultural considerations" (Broughton, 2008, p. 569). For example, Broughton (2008) finds that Mexican men adopt one of three gendered roles to justify their migration decision: the traditionalist, the adventurer, and the breadwinner. The traditionalist views crossing the border as risky and impulsive. The adventurer perceives it as an opportunity, and the breadwinner as a necessity (ibid). This implies that people's rational decision to migrate considers economic, physical, and time costs—as neoclassical economics posits (Cerrutti and Massey, 2001)—and also costs associated with their perception of societal roles and responses to their behaviour.

In dual-earner couples, the wife's labour market behaviour is significant in the couple's decision to migrate and the probability of migration is inversely related to her labour force commitment (Sandell, 1977). Unlike neoclassical theorists that view women as passive actors in household decisions, new economic labour migration theories point to a 'collaborative household decision'. Thus, the man is no longer responsible for evaluating economic choices and selecting the household's utility-maximizing outcome. For example, Pedraza (1991) argues that the migration decision in Mexico is based on power differentials between the husband and wife. In her model, the husband leaves alone because the wife is excluded from the decision-making process and not because of utility-maximizing choices. Yet, neither of these branches theorize women as independent decision-makers (Cerrutti and Massey, 2001).

The literature further suggests that a family's migration decision disproportionately affects immigrant women's employment across geographic contexts (Donato et al., 2014). This could explain why entire families are less likely to migrate than individuals (Clark and Withers, 2002).

For example, in an earlier study of immigrant families in the U.S., Sandell (1977) finds that migration increases the husband's earnings, but not the wife's. Although the literature traditionally assumed women to migrate only if their husbands did, "the wife's labour market involvement is a significant consideration in a (husband-wife) family's decision to migrate" (Sandell, 1977, p. 504). If families expect the wife's wages or employment to suffer, they may decide not to migrate altogether. Additionally, if migration is meant to be temporal as with seasonal agricultural workers, women are less likely to join their husbands. Temporary migration is mostly carried by men in their productive years who make money abroad and return home every season. Conversely, permanent immigrants migrate with their families, with the goal of remaking a life abroad (Pedraza, 1991).

f. Importance of embedding migration research in normative frameworks

The effects of migration on the labour-market behaviour of women left-behind is under-researched. Studies on Mexican migration increased since the 1970s, but "…all studies shared one important shortcoming: none focus on women" (Donato et al., 2008, p. 331). This has since shifted, with recent studies also focusing on the demographic shifts of migration. Yet, the analyses on the effect of male emigration from Mexico on left-behind women are few and disproportionately focus on issues such as psychological or public health responses (for example, see Caballero et al. 2008; Estrada, Barneveld, and Maya 2019). Further, the literature on Mexican migration does not disentangle how economic and family motivations interact with women's "decision making, women's latitude to move independently, or the extent to which various structural constraints undermine labour force participation as a motivation for female migration" (Cerrutti and Massey, 2001, p. 189).

Nonetheless, literature on other countries points to several mechanisms by which migration affects women's decision to enter the labour market.

g. Global evidence on the effect of male migration on women left behind

Studies from countries including Egypt, El Salvador, Albania, Nepal, and Tajikistan point to the replacement effect of remittances: when seasonal migration is accompanied by remittances, FLFP in sending country declines. For example, Binzel and Assaad (2011) found that male migration out of Egypt lead to a decrease in wage work, as women take on additional unpaid

domestic work. They argue that this effect is mostly driven by the household's need to substitute the migrant labour as opposed to "a loosening of a financing constraint on family enterprises made possible by the flow of remittances" (ibid., p. 106). Like Mexico, migration from Egypt has been predominantly by men and of temporary nature. Additional evidence from the Philippines, El Salvador, and Nepal supports this argument by suggesting that migration accompanied by remittance income increases the reservation wage of non-migrant relatives left behind, leading to a decrease in their supply of labour (Acosta, 2006; Lokshin and Glinskaya, 2009; Rodriguez and Tiongson, 2001). In all studies, the effect is greater for female than male relatives, but these are not analysed longitudinally. These findings suggest that remittances are not perfect substitutes for domestic and other labour previously done by the migrant. An increase in the lowest wage women are willing to accept for their work implies an increased opportunity cost for taking more time working outside the household after the migrant leaves.

Mendola and Carletto (2009) find that female labour supply in Albania responds not only to current male migration, but also to past migration episodes. Because of the country's long history with seasonal migration, men tend to rely on foreign earnings, leaving local market jobs to non-migrant women. Further, women who live in a household with a current migrant are more likely to engage in unpaid and subsistence work. This suggests that the non-monetary costs associated with the migrant's absence may lead to a higher time, labour, and psychological burden for those left behind. In fact, evidence from Mexico shows that the burden of having a husband abroad on the functioning of the family ranges from financial stress to a substitution of male authority by interference of family members in the decision-making process (Estrada et al., 2019).

A different perspective is presented by Haas and Rooij's (2010) study of rural Morocco, which finds that women's labour market behaviour is mostly influenced by their fear of social exclusion from unaccepted and non-traditional choices. This is framed through Kandiyoti's (1988) 'patriarchal bargaining' which posits that women's bargaining power is constrained by their social environment and identities: class, caste, ethnicity, normative milieu, etc. This explains why women may make 'less-ideal' choices to retain some level of autonomy, by reinforcing some norms and challenging others. For example, women may decide to stay home to justify the receipt of remittances.

Other studies suggest an equalizing effect on the labour market. For example, Abdulloev et al. (2014) find that international emigration out of Tajikistan, which is predominantly male,

contributes to reducing the gender gap in LFP, but by reducing male participation, as is expected with an exodus of men. They conclude that beyond migration, access to higher education has the greatest effect in increasing female LFP. This has important policy implications, for it points to systemic disparities in the education system reflected on the gendered division of labour. In fact, many developing countries have invested in girls' education as a strategy to boost female employment in the long run (Jayachandran, 2020).

In India, Desai and Banerji (2008) examine the effect of male migration out of India on wives' autonomy and LFP. They argue the mechanism by which these two variables are associated is the household's structure: women who live with other family members experience less autonomy and FLFP rates, compared with women who do not live with extended family. Women who live independently can make independent decisions about household administration and their children's education, health, and overall well-being; they also enjoy greater physical mobility and independence and are more likely to take part in the labour force. Further, widows and divorcees are far more likely to have the freedom to make decisions that concern them or their children. However, domestic responsibilities may be imposed on female relatives or daughters who act as mother figures to their younger siblings, thus reinforcing gender norms (Battistella and Conaco, 1998).

The few studies on Mexican left-behind wives are scattered and non-aggregate, often focusing on the effect of migration on FLFP at the state or community level. For this reason, this paper builds on evidence from other developing countries with a similar history of seasonal male emigration. As signaled in this section, existing research provides evidence that individual-level characteristics (education levels and skillset), household characteristics (household composition), and normative characteristics (gender norms) are likely to be as important as economic (income) considerations in the decision-making process of women left behind.

h. Summary of testable hypotheses

Hypothesis 1	Non-migrant women whose husbands send remittances are more likely to experience a higher unpaid workload than paid workload.
Hypothesis 2	Non-migrant women are more likely to enter the labour market if they are more educated.

Hypothesis 3	Non-migrant women living with extended family members are less likely to participate in the labour force than women who live independently, especially if relatives are female.
Hypothesis 4	Non-migrant women who have daughters are more likely to enter the labour force.

VII. METHODOLOGY

The aim of this study is to build on existing literature across settings through the provision of evidence from time-series data of Mexican migrant and non-migrant households. I first explore the relationship between male emigration from Mexico and the labour-market behaviour of wives left-behind using descriptive statistics. I complement this with a quantitative analysis using multinomial logistic regression (MLR). Data is extracted from the Mexican Migration Project (MMP).

a. Case Selection: The Mexican context

As the greatest source of immigrant labour to the Unites States (Cerrutti and Massey, 2001), Mexican migration been historically comprised of "unskilled or semi-skilled replacement labour" (Pedraza, 1991, p. 316). This has led to gendered consequences and binational policies that have favoured the male migrant over the female one and led to the feminization of local markets, particularly within the manufacturing sector.

The impact of male out-migration on female spouses left-behind has been virtually excluded from the literature. This paper hopes to point to context-specific trends on both migration and women's labour-market behaviour to guide future research on this topic for the case of Mexico.

Focusing on a single country prevents endogeneity caused by omitted variables present in cross-country studies that evaluate variables specific to a country's context, such as norms.

b. Data Sources

The MMP consists of a series of simple random samples gathered yearly between 1982 and 2018 of households from 170 sending communities in Mexico. The surveys were conducted either in Mexico or in the U.S., matching migrants with their community of origin. The dataset contains observations for 28,390 households and 172,637 individuals over 36 years (1982-2018).

Every year, 200 households in three to five communities are randomly selected throughout the country to be surveyed. Communities are chosen to represent a range of sizes, ethnic composition, economic bases, and regions. Weighting factors are added to accurately represent the country's population.

The MPP dataset was selected because it is one of the longest-running datasets on Mexican migration that uses ethnosurveys. It provides information on both the household and on individual characteristics of the migrants themselves, as well as includes data on non-migrant households. Taking into account that most migration studies do not compare migrant and non-migrant households, including a non-migrant control group provides additional insights on the aggregate effects that men and women experience due to male emigration (Haas and Rooij, 2010). Using such a large dataset from sample surveys allows for a more thorough understanding of household characteristics for migrant and non-migrant families in Mexico. Further, using a time-series database provides additional evidence to the one-year, cross-sectional surveys most of the literature on Mexico has been based on.

All tables and figures are produced with data from the MMP unless otherwise stated.

c. Definition of concepts

I borrow Fernández and Fogli's (2009) definition of culture as a combination of individual preferences and beliefs with the societal rewards and punishments resulting from specific actions guided by these beliefs. In this sense, gender norms are a component of culture and dictate a person's ideal role in society based on their gender. These norms shape formal and informal rules that constraint human interaction in a temporal and geographic setting, within and outside of the home.

The household (HH) is "a contained unit composed of kin-related persons who share a set amount of land, labour, capital, and social resources, such as immigrant network ties" (Hondagneu-Sotelo, 1992, p. 395). HH members are not identified by whether they live together or not, which allows migrant households to be theorized as a unit even though individual preferences do not always align but are better understood through a paradigm of power relations. As such, the decision to migrate may or may not be a household (unitary) decision, even when family members together devise household strategies that guide migration.

LFP and employment are used interchangeably. Women are considered unemployed even when actively looking for employment. However, homemakers or unpaid domestic workers are not labelled as unemployed as they consider 'homemaker' to be their principal occupation.

I focus on married women assuming they act with increased independence in the family decision-process when the male HoH has migrated. This assumption is backed by evidence from other developing countries (see Section VI). I use the terms 'non-migrant wife' and 'left-behind wife' interchangeably. Depicting women as the 'left-behind' in Mexico dates back to the *Porfiriato* (1876-1911) when the country experienced waves of male emigration and increased incidences of child-birth out of wedlock and deserting husbands (Escandón, 1987).

d. Descriptive Statistics

Using both individual-level observations and collapsed household-level observations, perform cross-tabulations of dummy variables and Chi-square tests of associations to evaluate aggregate changes over time of 1) male migration, particularly of male HoH, and 2) the labour marker behaviour of wives left-behind, considering household characteristics that may affect this behaviour, including the wives' education levels, the amount of remittances received, and household composition. For the purpose of this analysis, only proportions are considered given that a different number and location of households were surveyed by the MMP each year. Correlations and general trends are observed while no causations can be concluded.

I then quantitatively test the relationship between 1) the proportion of households with a migrant male head of household (HoH) and 2) the employment status of left-behind wives, taking into consideration the multiple contextual variables that may affect this relationship as introduced in Section VI.

e. Multinomial Logistic Regression

Given that descriptive statistics do not have predictive power to differentiate between the effect of male emigration or household characteristics on the labour-market behaviour of left-behind wives, I perform a multinomial logistic regression. An evaluation of the change of this relationship over time is difficult to extrapolate given the available data, since women are surveyed only once in their lifetime. The outcome of interest is whether she is part of the labour force at the time that her husband is abroad.

Given the structure and availability of data, the quantitative model employed fits only 8,471 of the 23, 272 observations after cleaning, or about one third of the sample. This is because the two variables used to include remittance data ("*Remittances*" and "*Remittances Size*") were only recorded for the last 19 of 36 years in the sample. Additionally, since only 200 households are surveyed in three to five communities at a time, time-fixed effects cannot be implemented. The results of this component are inconclusive and serve to point to critical gaps in the data. Neither the multicollinearity nor autocorrelation assumptions were invalidated (see Appendix B).

Households with a woman migrant or with no left-behind wife are only cleaned for the regression analysis and not the descriptive statistics section. Graphs that include all women, men, or households in the sample are properly labelled. The variables of interest are operationalized below.

Dependent Variable

Non-migrant wife's employment status: denotes the left-behind wife's employment status for each household. This is coded (1) unemployed, (2) for homemaker/unpaid domestic worker, and (3) for employed/paid worker. Given that the dependent variable has three or more unordered categories, I use a multinomial logistic regression using employment = 2 : "Homemaker/unpaid domestic worker" as the reference group. This is because the majority of women and left-behind wives in the sample selected "homemaker" as their principal occupation (see *Figures 6 & 7*). The categories are mutually exclusive.

The independent variables are all categorical for the i^{th} household and explained below.

Independent Variables

Migrant Male HoH: having a migrant head of household at the time of the survey, (1) for yes, (0) for no. No is the base category.

Female Relatives: having at least one female relative in the household, (1) for yes, (0) for none. None is the base category.

Daughters: having at least one daughter in the household, (1) for yes, (0) for none. None is the base category.

Non-Migrant Wife's Education: This variable is divided into five categories: (0) having completed less than primary education, (1) having completed primary education, (2) secondary or middle school education, (3) tertiary or high school education, (4) having completed university and beyond.

Remittances: whether the household receives remittances: (1) yes, (0) no. Not receiving remittances is the base category.

Remittances Size: four categories according to responses of how the size of the remittances received compared to the respondents' own salary: (0) n/a or none received, (1) small, (2) intermediate, (3) substantial. Not receiving remittances is the base category.

Control Variables

Sons: having at least one son in the household, (1) yes , (0) none. None is the base category. This is used to control for the sex of the children at home, since the effect of having at least one daughter is included above.

Region: The variable is divided into 5 categories: (1) Border Region, (2) Northern Region, (3) Central Region, (4) Mexico City/Valley Region, and (4) Southeast Region. I borrow Alcázar and Velázquez' (2019) division of the Mexican population based on regional, socio-historical, and cultural characteristics. A list of states, regions, and regional descriptions is included in Appendix C.

f. Limitations

The research design is based on a positivist reductionist approach. An appropriate alternative would incorporate ethnographic studies to disentangle a nuanced understanding of gender norms at the regional level in Mexico, the 'shock' created by migration patterns, and the societal response to women's labour market behaviour. A main trade-off of this approach is the

inability to trace the decision-making process of women left behind. If a household member decides to migrate and the left-behind wife decides to enter the labour market, the economic need may be stronger than the norms that constraint her choices and perceptions. The current approach does not allow for a separation of the economic effect from the norms effect on such behaviour.

Another major concern is the possible reverse causality between women's labour-market behaviour and migration. Men may decide to migrate precisely because they expect women left behind to enter the labour market. Arguably, this has nothing to do with women's own decision-making nor with their actual ability to get a job, but it can affect where and how they look for one. Additionally, their ability to enter the labour market depends on an external availability constraint (the job market), that also results from a combination of economic and institutional determinants. Since migrant and non-migrant households may differ along observable and unobservable characteristics, the sample of male migrants is not necessarily representative of the male population, which may result in biased estimates. Further, the weight of individual, social, and systemic determinants may vary not only across regions and communities, but also within households and between individuals.

Additionally, this method does not include time-fixed effects in the regression analysis. This is because only between one and three states are covered in the sample surveyed by the MMP every year. Thus, it is difficult to extrapolate whether any apparent change in women's labour-market behaviour over time is due to differences in states/regions or due to time-related phenomena. Any results from this component must be taken with caution and understood with the purpose of signalling gaps in both data and existing research.

Lastly, any conclusions drawn from this study are specific to the country's context. Nevertheless, there will be lessons and insights that could speak to other cases within Latin America as well as to countries with a similar history of male emigration.

VIII. THE MEXICAN CONTEXT

Contextualizing Gender Inequality

Mexico ranks in the fourth quintile of the Georgetown Women's Peace and Security Index[3] and 76/189 in the UN Gender Inequality Index (11/30 in Latin America and the Caribbean). Gender

[3] The Index ranks 167 countries across 11 gender equality indicators.

disparities are influenced by Mexico's variations in gender norms and cultural differences within the country (Segrest et al., 2003; Wilson, 2003). Additionally, beliefs around women's empowerment differ across its regions (Gaytán and Cantú, 2019). This is embedded in a patriarchal system that views men as breadwinners and women as homemakers (Agarwal, 1997).

A Brief History of Mexican Migration to the U.S.

In 2017, almost twelve million Mexicans lived across the globe. Of those, 98.8% resided in the United States (U.S. Census Bureau, 2020). The main push factors for Mexican migration are economic and employment reasons (Albo and Ordaz Díaz, 2011). While, extensive research has evaluated this phenomenon, most studies have focused on the experiences of migrants themselves as opposed to those of family members remaining in Mexico (Parrado and Flippen, 2005).

Mexican migration to the U.S. formally began as a social phenomenon in the late 1880s with the meeting of train tracks in the city of Juarez, Chihuahua along the U.S.-Mexico border (Durand, 2016). Migration flows from Mexico to the U.S. were historically controlled by the pull factors in the receiving country, opening the doors during surges in the economy and closing them or even deporting migrants during economic crises. After the U.S. entered WWII and a tremendous exodus of male labour took place, the U.S. began the Bracero program which gave Mexican men temporary contracts to work predominantly in the agricultural sector until 1964. For the next two decades, migration from Mexico to the U.S. became irregular and characterised by undocumented entrances. The Immigration Reform and Control Act (IRCA) of 1986 included for the first time provisions in employment and legalization for undocumented immigrants in the U.S (Hondagneu-Sotelo, 1992). However, its provisions gave legal status mostly to men because the majority of Mexican immigrant women lacked formal employment documentation (Donato et al., 2008). In 1993, the First Amnesty Law was passed, permitting about 2.5 million Mexican immigrants to become regularized and access a path to citizenship (Durand, 2016). Since then, border security and apprehension efforts have been tightened (ibid.).

While total migration levels have decreased or reached net zero levels in the last decade, the number of seasonal immigrants to the U.S. has increased or remained constant. Most seasonal migrants coming from Mexico do so thanks to bilateral or trilateral (U.S.-Mexico-Canada) visa schemes H-2A, H2B, TN and TD. Only 45% of Mexican immigrants in 2016 were undocumented.

Of these, a 62% majority has resided in the U.S. for at least a decade. While undocumented migrant inflows are difficult to measure with certainty, this suggests that migration flows to the U.S. from Mexico continue to be dominated by seasonal male migrants. As active male labour exits the country, it introduces a shock to the labour market,.

Labour Force Participation

A fundamental characteristic in the LFP rate in Mexico throughout the past three decades is its gender gap. While women's LFP rate increased from a 33.8% in 1990 to 44.2% in 2019, men are still almost twice as likely to work than women.

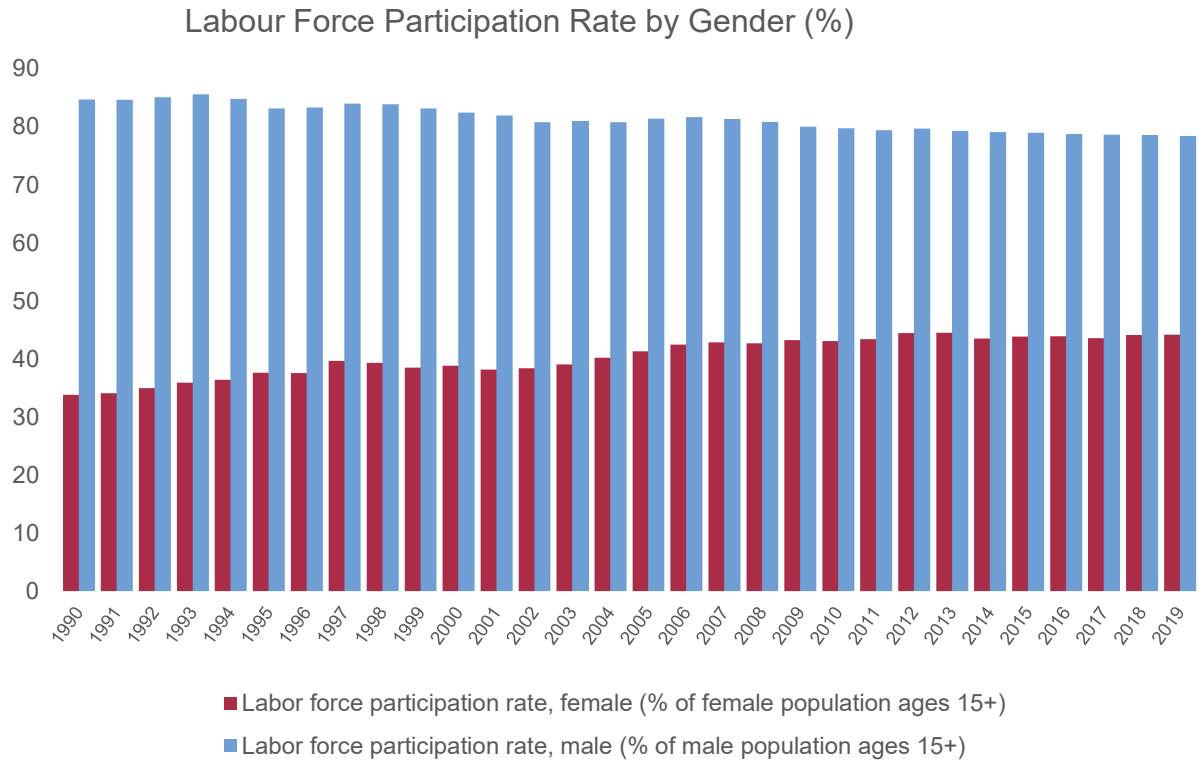

Figure 1. Source: World Bank Data, 2020

Today, Mexico has one of the lowest rates of FLFP in the OECD at 44%, compared to a 61% OECD average (OECD, 2019). During the period studied, FLFP in Mexico increased an average of 0.36 percentage points per year. Its greatest increase of 2 percentage points took place between 1995 and 1996. This was most likely due to the recent passage of the North American Free Trade Agreement (NAFTA) which restructured economic production and transformed the

composition of waged labour, making it younger, less educated, more mobile, and more female, particularly in the *maquiladora* or export manufacturing industry (Donato et al., 2008).

Many Mexican women (32.2%) work informally and thus are excluded from formal benefits, such as a pension and health insurance (OECD, 2020b). This is the third highest rate for OECD countries, averaging at 14.4% of total female employment. Further, time-use data shows that Mexican women spend on average 26.4 hours more per week performing unpaid domestic work than men; or over three times as much (Campaña et al., 2018). Similarly, women spend 2.9 times the hours that men do in childcare and other care work (ibid.).

Below, I discuss the labour-market effect on women left behind using findings from MMP data.

IX. FINDINGS AND DISCUSSION

a. Descriptive Statistics

General Migration Trends

On average, of all the men surveyed by the MMP every year, 41% were HoH. Of those, 37% on average were U.S. migrants at the time of survey.[4] This is a higher proportion than for all men, suggesting that male HoH are more likely to migrate than male non-heads of household. As Section VI suggests, this is expected, given that men are subject to social expectations around their role as breadwinners.

[4] The proportion of male migrants who had migrated at least once to Canada at the time of the survey was less than 0.01% at any given year. These observations are excluded from the analysis.

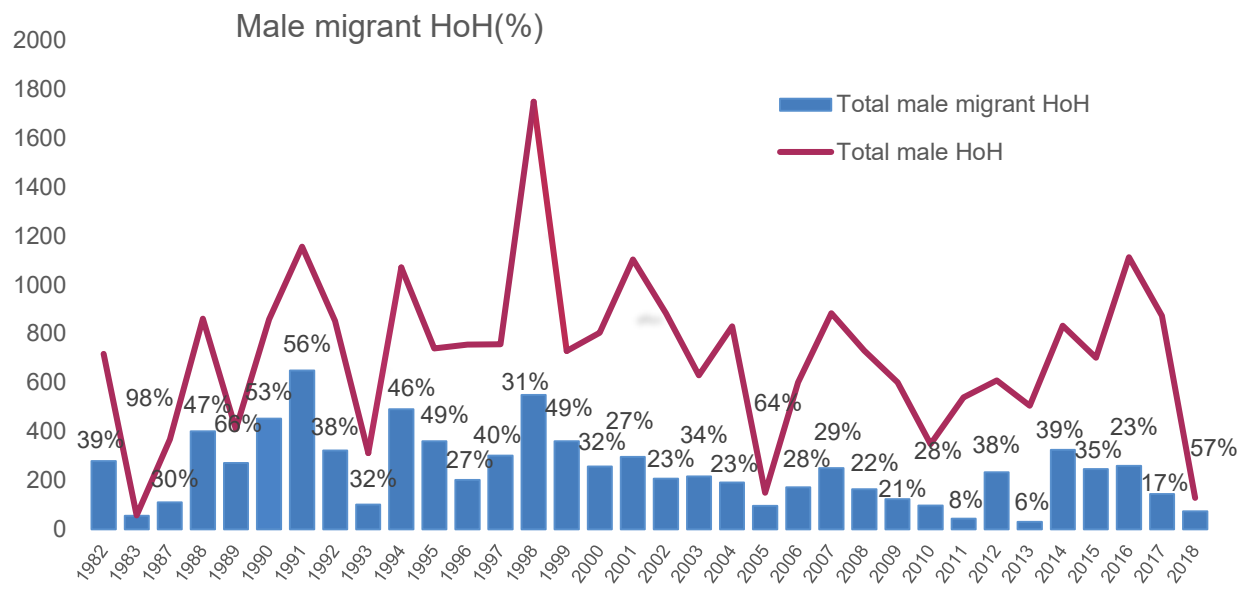

Figure 2

As the literature suggests, "Mexicans are selected into U.S. migration by a highly gendered process" (Cerrutti and Massey, 2001, p. 197). Between 1965 and 1989, only 11% of undocumented Mexican immigrants were women (ibid.). This percentage rose between 1990 and 1995 to about 28%. More generally, women who left the country mostly followed a husband or parents and only a tiny majority migrated independently, whereas half of men left for the U.S. alone. Additionally, access to documentation in the U.S. significantly impacted women's decision to migrate. In fact, family considerations had greater significance for migrating married women than labour considerations. On the contrary, unmarried daughters were mostly influenced by labour market opportunities (ibid.). This complements evidence presented from other developing countries; married women are more constrained by patriarchal expectations to perform domestic and care work (Gates, 2002).

Further, women migrating for family reasons is traditionally viewed as more morally acceptable than when migrating alone (Donato et al., 2008). As a result, "married women must accept their husbands' migration decisions, remain chaste, and stay behind to care for the children and the daily operation of the domestic sphere" (Hondagneu-Sotelo, 1992). Nonetheless, in recent decades more women, both married and unmarried, have embarked on the journey North, usually hiring smugglers or coyotes with the help of relatives or family friends. However, the proportion of female historical migration outside of Mexico continues to lag male migration rates. Between

2013 and 2018, 760, 779 Mexicans emigrated to the U.S., of whom 70.5% were men and 29.5% women (CONAPO, 2018). Of these, 81.2% of men and 35.4% of women did so for employment reasons.

Further, migrant women are mostly young women, leaving most left-behind women to be married and with children or elderly family-members. In fact, Mexican women may not migrate because they bear the responsibility of child and family care–a consideration not as prominent for men—or for fear of risks associated with lack of documentation (Broughton, 2008).

Describing Migrant Households

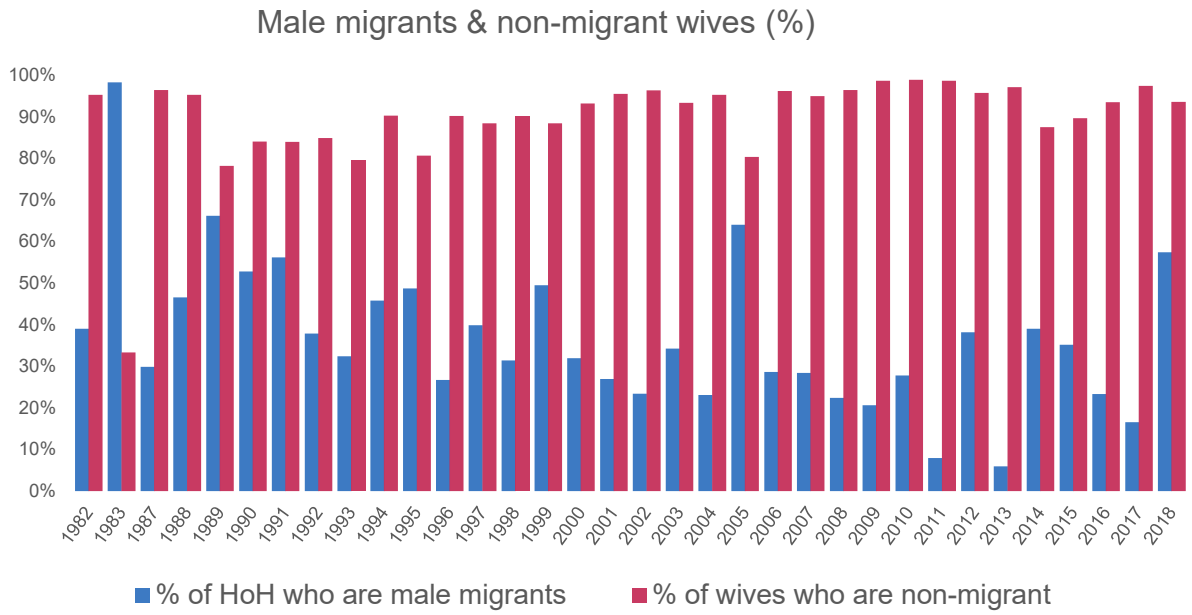

Figure 3

Figure 3 shows the percentage of wives who are non-migrants does not match the percentage of male HoH who are migrants, evidencing that 1) male migration out of Mexico continues to be predominantly dominated by unmarried men and 2) most women spouses never migrate (see *Figure 4)*. Otherwise, we would see a closer proportion of left-behind wives as we do male migrants. The lowest levels of male migration took place after 2007, following the U.S. Great Recession, with the lowest percentage of male migrants in 2013. In fact, by 2015, more Mexican immigrants were leaving the country than entering. Between 1995 and 2000, the number of net Mexican immigrants in the U.S. was 2,270,000, compared to -20,000 between 2000 and 2010, and -140,000 between 2009 and 2014 (Gonzalez-Barrera, 2015).

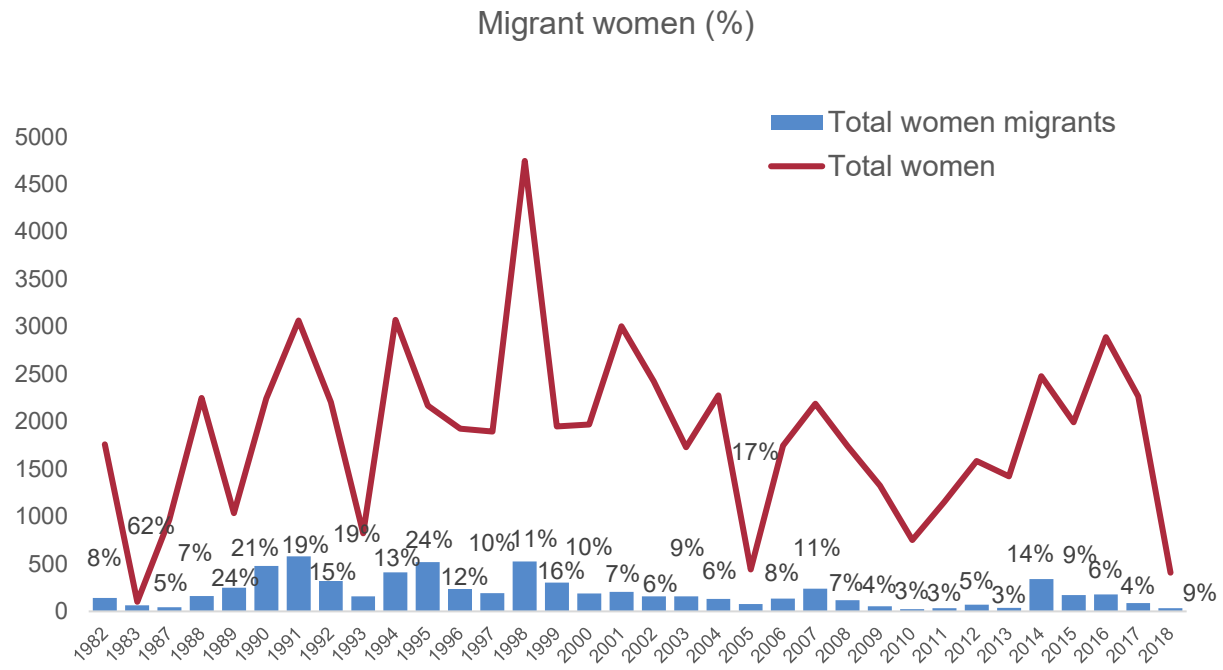

Figure 4

While there is evidence more women and families have recently migrated from Mexico to the U.S., on average, of 88% of all surveyed women and 90% of surveyed wives were not migrants in any given year. *Figure 4* shows that about 12% of all surveyed women (or 10% when dropping the 1983 outlier of 62%) were migrants each year.

General Female Employment Trends

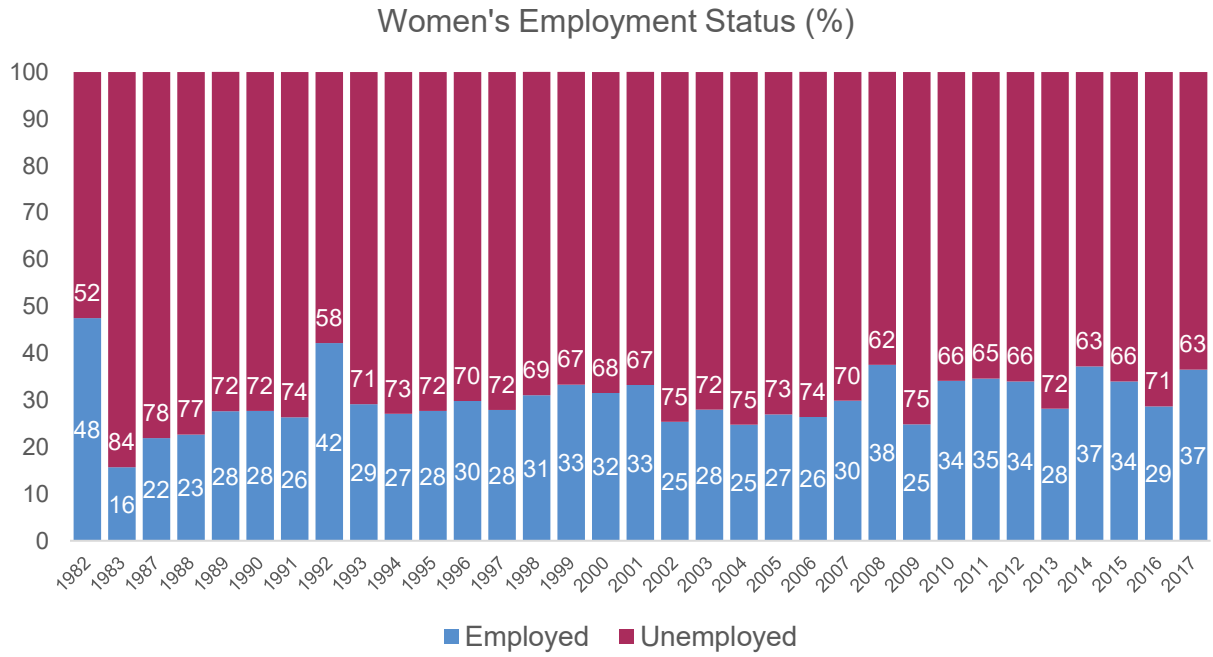

Figure 5

The employment rate for all adult women grew at an average 8% per year during the years surveyed and averaged 30%. This is below the expected World Bank values for Mexico at a yearly 40% (*Figure 1).* Below, I disaggregate unemployment into unpaid domestic work and unemployment considering most women selected the former as main occupation.

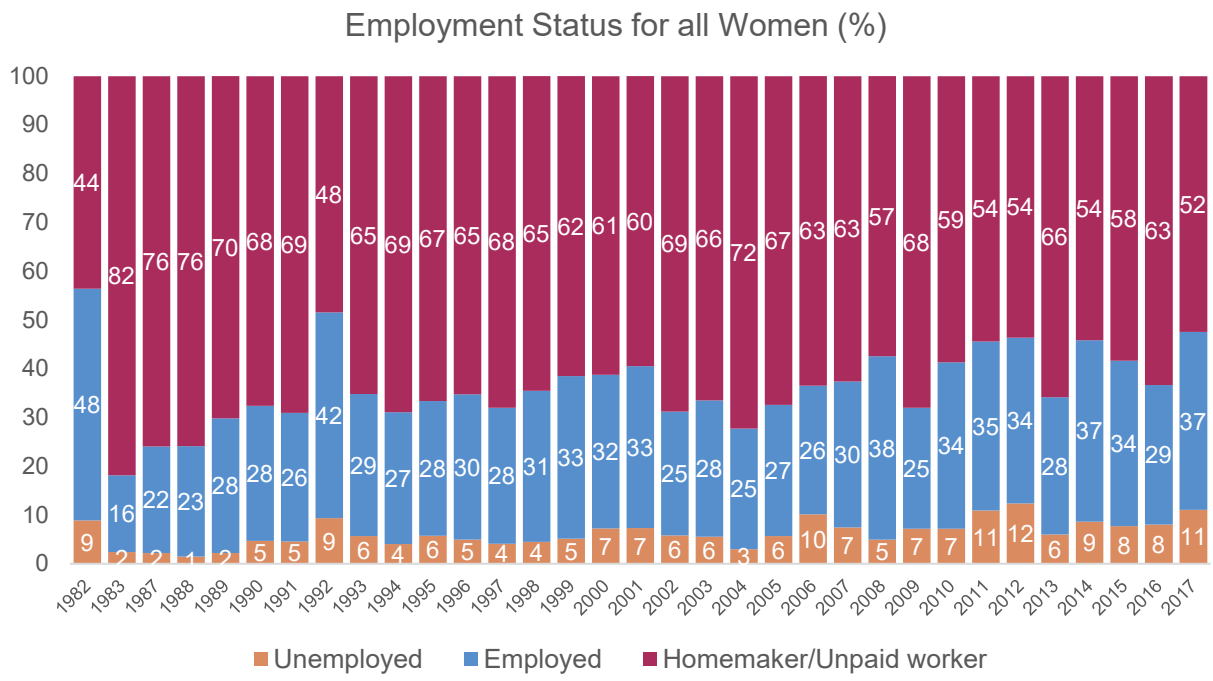

Figure 6

When unemployment is further disaggregated into unemployment and unpaid domestic work, most women surveyed throughout the years land in the latter category. The proportion of all women taking unpaid work reached an average 64% rate per year and grew at an average yearly rate of 1% between 1982 and 2018.

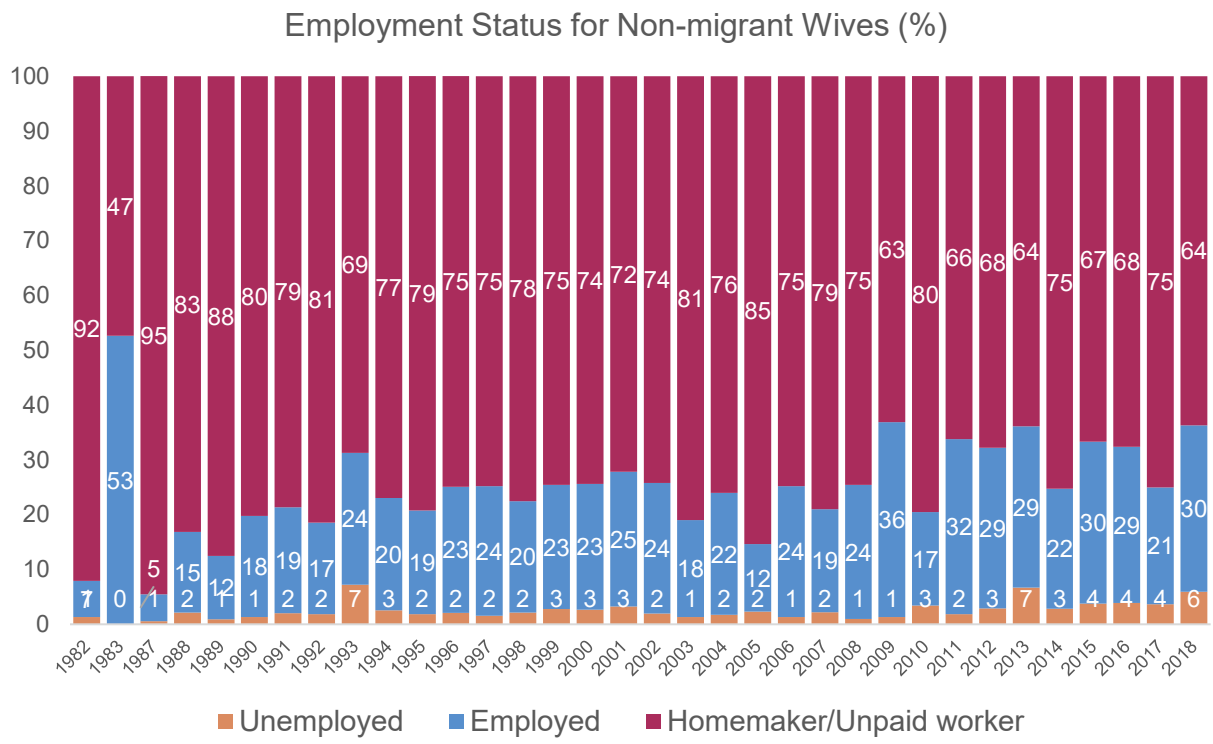

Figure 7

Non-migrant wives surveyed have a higher chance of being homemakers (75%) than all women surveyed (64%). They are also less likely to be employed, at a 22% average rate. As the literature points out, non-migrant wives may face additional domestic workloads caused by the migrant's absence. To compare the proportion of HH with a male migrant, *Figure 8* below shows the proportion of male migrant HoH and employed non-migrant wives.

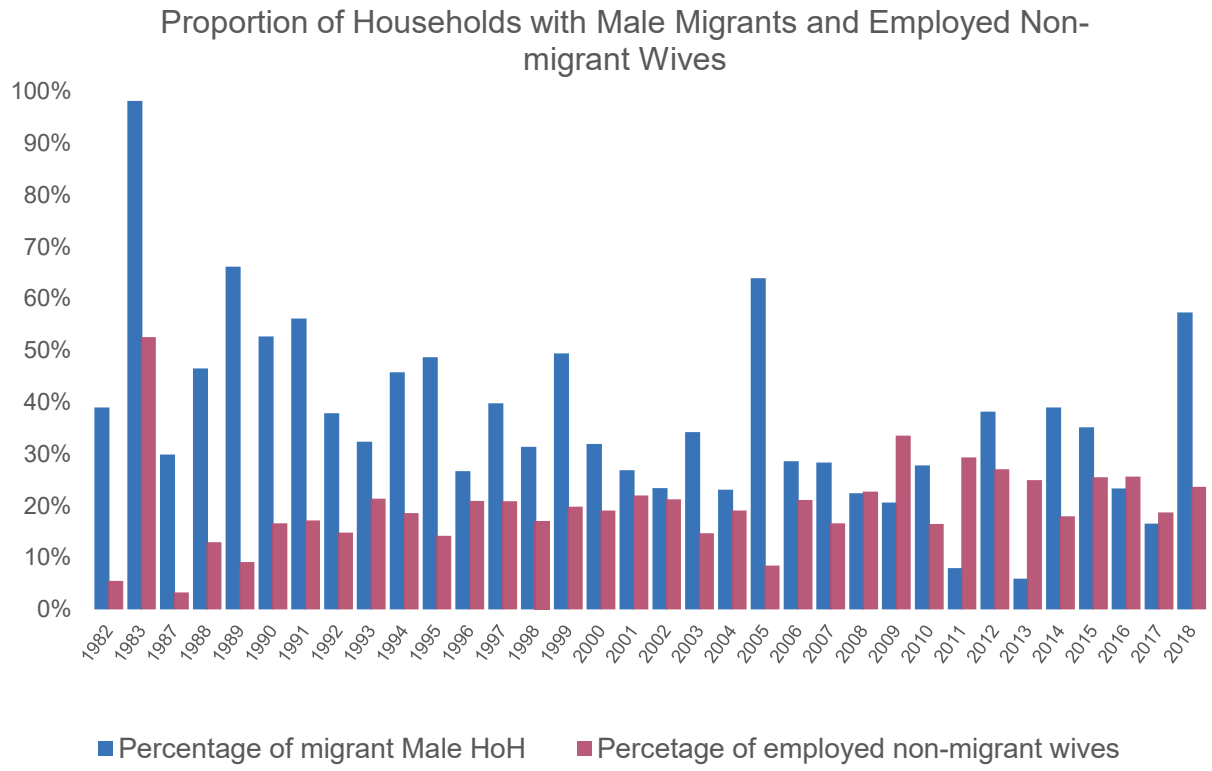

Figure 8

The percentage of employed non-migrant wives does not seemingly follow the percentage of migrant male HoH. This suggests that the years that exhibited a higher proportion of employed non-migrant wives did not necessarily exhibit a higher proportion of migrant male HoH. Overall, the proportion of households with employed non-migrant wives is lower than the proportion of migrant male HoH. The literature suggests this is likely since married women face higher social costs when making decisions regarding their entry into the labour market compared to unmarried women. This could also be because the survey does not follow the same households over the years; so while the proportions of each variable could point to aggregate trends, individual observations cannot be tracked over time.

Migrant Male HoH	**Non-migrant wife's employment status**			
	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
No	3%	74%	23%	100
Yes	0.88%	80.4	18.3%	100
Total	2.4%	75.7%	21.9%	100

Table 1

The proportion of employed non-migrant wives in households with migrant male heads throughout the years was 18.3%, compared to 23% of non-migrant wives in households with no migrant male HoH. Wives of migrant men are more likely to perform unpaid domestic work instead. This aligns with the theory, suggesting that migration leaves an increased burden of domestic labour on the wife. Performing a Chi-square test of the employment status of non-migrant wife and whether the HoH is a male migrant results in a p-value of $p < 0.001$ which is lower than $p = 0.05$. There is a significant association between the presence of a migrant male HoH and the employment status of left-behind wives.

Below, I discuss other variables that may impact this effect. All test results are included in Appendix A.

Remittances

Section VI suggests that the effect of male emigration on women's LFP can be influenced by the flow of remittances.

Hypothesis 1: non-migrant women whose husbands send remittances are more likely to experience a higher unpaid workload than paid workload.

Below is the tabulation of remittances and remittances size after combining U.S. and CA sources. I treat the seven households recorded to have received remittances from Canada as HH receiving remittances from the U.S., since the income effect of remittances is the same regardless of their origin. No actual amounts were recorded during surveys. Rather, respondents were asked to categorize their remittances as as "small" ,"intermediate", or "substantial" compared to their own salary.

HH receives remittances

	Freq.	Percent
No	8764	30.87
Yes	2307	8.13
Missing data	17319	61.00

Remittances size

	Freq.	Percent
N/A	8764	30.87
Small	672	2.37
Intermediate	198	0.70
Substantial	404	1.42
Missing data	18352	64.64

Tables 2 and 3

The frequency of households with remittance records is small. This makes any analysis difficult and inconclusive. This is most likely because remittance data was not collected in MMP surveys until 1999. Additionally, respondents may choose not to disclose income data. Since households are randomly selected every year, it is unlikely that households with remittance data are similar to each other or different from households with no remittance data. Further, while remittances are a significant proportion of the country's GDP—3% in 2018 (OECD, 2020c), there is evidence that women left behind may receive less from their husbands than when entire (nuclear) families migrate and send remittances to extended family members in Mexico (Hondagneu-Sotelo, 1992). Nonetheless, literature suggests remittance data is an important consideration when evaluating the effect of male out-migration on the employment status of left-behind women (see section VI.g).

HH receives remittances	**Non-migrant wife's employment status**			
	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
No	2.99%	69.96%	27.05%	100.00
Yes	2.03%	80.07%	17.90%	100.00
Total	2.81%	71.85%	25.34%	100.00

Left-behind wives are more likely to be homemakers in HH that receive remittances and less likely to be employed. Since the calculated p-value from the Chi-Square test is $p < 0.001$, we conclude there is a significant association between receiving remittances and the employment status of left-behind wives. I perform a similar test for the *size* of remittances.

Size of remittances	**Non-migrant wife's employment status**			
	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
N/A	2.97	69.96	27.05	100.00
Small	3.40	79.40	17.20	100.00
Intermediate	1.38	80.00	18.62	
Substantial	2.36	81.42	16.22	
Total	2.95	71.09	25.96	100.00

In this case, the higher the amount of remittances received, the higher the frequency of homemaker non-migrant wives, and the lower the proportion of employed wives. Since the calculated p-value is $p < 0.001$, we conclude there is a significant association between the size of remittances and the employment status of left-behind wives.

Education Levels

Hypothesis 2: non-migrant women left behind are more likely to enter the labour market if they are more educated.

As the literature points out, the effect of male migration may be further influenced by women's education levels. Below, I tabulate average yearly proportions of women and non-migrant wives by level of education.

Education Levels	**Total averages**			
	Primary education	Secondary education	Tertiary education	University and beyond
All adult women	72%	43%	22%	5%
Non-migrant wives	63%	34%	15%	3%

Table 2

On average, education levels for non-migrant wives are lower than for all adult women, which could explain why a higher proportion of non-migrant wives perform unpaid work every year compared to all women surveyed. This may be because women in Mexico may marry before completing a college education. Once married, the burden of having children and a household to look after may further decrease their likelihood of pursuing higher education.

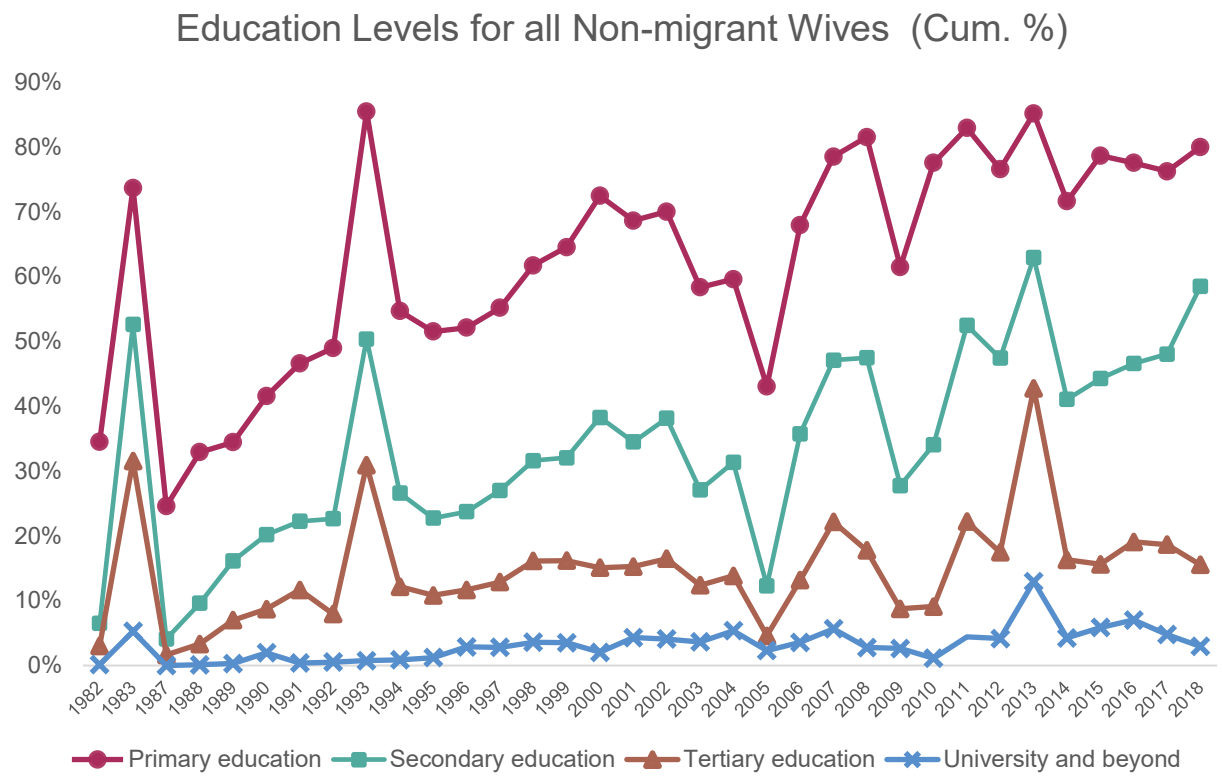

Figure 9

As illustrated by *Figure 9*, while the proportion of surveyed non-migrant wives with at least primary, secondary, tertiary and university education increased over time. Both primary and secondary education attainment increased at a higher rate than tertiary and university education.

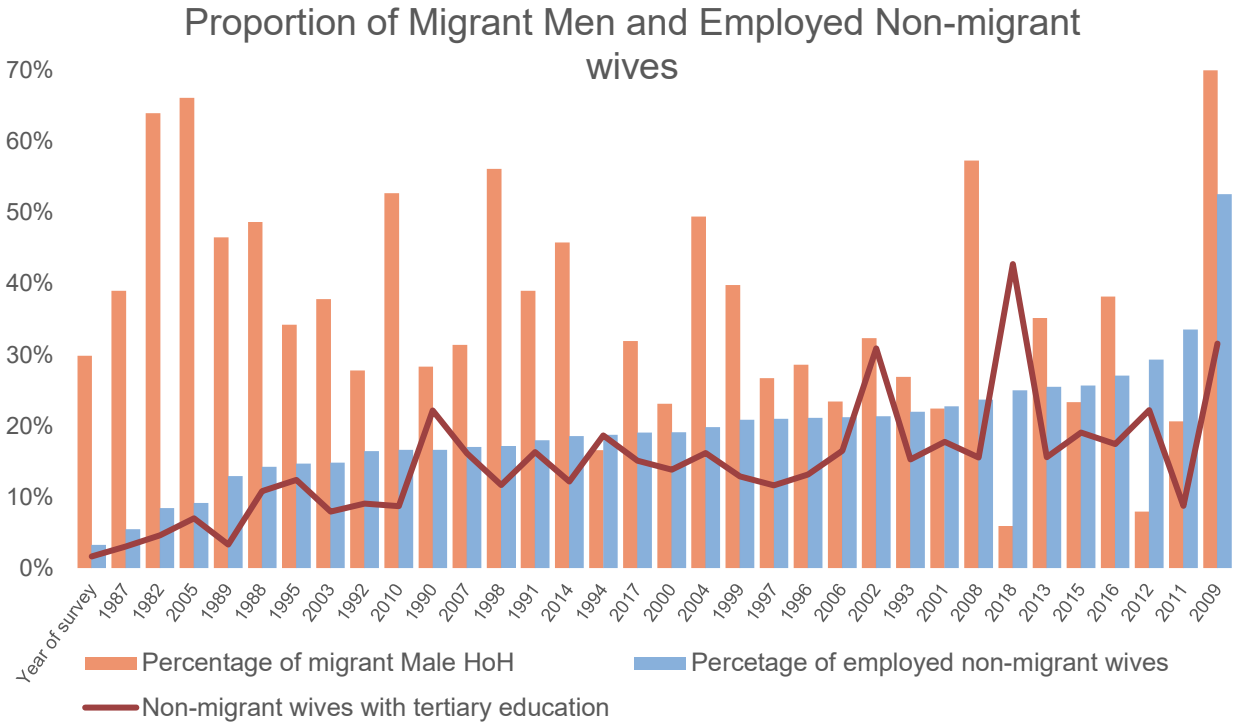

Figure 10

When including the proportion of non-migrant wives with at least tertiary education, ranked by yearly percentage of employed non-migrant wives, we observe the trend for employment status more closely resembles education levels than the percentage of migrant male HoH. The year that exhibited both the higher proportion of male migrants and employed non-migrant wives, exhibited the second higher proportion of wives with at least a high school education. This suggests that a yearly comparison is not enough to extract the effect of both male migration on the employment status of non-migrant wives.

Below is the cross-tabulation of education levels and employment status of non-migrant wives.

Education level	**Non-migrant wife's employment status**			
	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
Less than primary education	4.49	79.04	16.47	100.00
Primary education	0.33	83.27	16.40	100.00
Secondary education	0.33	76.00	23.66	100.00
Tertiary education	2.13	51.84	46.02	100.00

University and beyond	4.00	29.76	66.24	100.00
Total	2.42	75.73	21.85	100.00

Table 3

The table indicates that women with high school and university education are more likely to be unemployed than women with primary and secondary education. This may indicate that more educated women may not consider their main occupation to be 'homemakers' since they perhaps expect to join the labour force. Conversely, more educated women may come from higher income groups, in which case they may choose not to work for wages. However, given most men migrants who leave alone traditionally work as seasonal agricultural workers, this is unlikely. Most left-behind wives perform unpaid domestic work regardless of their occupation, except for those with university completion and beyond.

Since the calculated p-value is $p < 0.001$, we conclude there is a significant association between education completion of non-migrant wives and their employment status. Chi-sq. test results are in Appendix A.

Household Composition

Hypothesis 3: non-migrant women living with extended family members are less likely to participate in the labour force than women who live independently, especially if relatives are female.

Hypothesis 4: Non-migrant women who have daughters are more likely to enter the labour force.

Below, I tabulate the proportion of households with at least one relative, one female relative, one daughter, and the non-migrant wife's employment status.

At least one relative in the HH	**Non-migrant wife's employment status (%)**			
	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
No	2.25	75.96	21.79	100.00
Yes	3.44	74.29	22.28	100.00

At least one female relative in the HH	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
No	2.23	75.91	21.85	100.00
Yes	3.95	74.18	21.87	100.00
At least one daughter in the HH	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed	Total
No	1.19	74.80	24.02	100.00
Yes	2.68	75.92	21.40	100.00
All HH Totals	2.42	75.73	21.85	21.85

Table 4

In both households with no relatives and at least one relative, most non-migrant wives are homemakers. As expected, the proportion of employed wives is smaller for households with at least one relative. The calculated p- value is $p < 0.001$ so we conclude there is a significant association between whether at least one relative lives in the household and the employment status of the non-migrant wife. Test results are in Appendix A.

Section VI suggests that having other women in the household to perform unpaid domestic labour may allow wives to pursue a career or paid employment. Again, the association between having at least one female relative and the employment status of non-migrant wives is significant, with a p-value of $p < 0.001$. However, the tabulated percentages do not change significantly when disaggregating relatives by gender.

Similarly, having at least one daughter in the HH is significantly associated with the non-migrant wife's employment status, with a p-value of $p < 0.001$. However, having at least one daughter is associated with a lower employment rate for non-migrant wives than having no daughters. Instead, they are more likely to be homemakers or unemployed. Research suggests that women in Mexico who do not have a spouse or children are treated like men more so than married women and are more likely to take on high-paying jobs, "bringing into question whether or not employers discriminate based on sex or on household structure" (Cunningham, 2001, p. 29)

Regional Distributions

Mexico is an ethnically diverse country, with 65 indigenous ethnolinguistic groups (Navarrete, 2010). Consequently, beliefs around women's empowerment differ greatly across regions (Gaytán and Cantú, 2019). For example, Gates (2002) evaluates the various social responses to women in the Northern border region. She shows that women who entered the *maquiladora* industry experienced "new rights and extend[ed] the limits of respect accorded them by male companions and parents", but *only* when accompanying their work with increased domestic work and financial contributions to the household (p. 507). Additionally, she finds that married women face more challenges than unmarried ones when expressing their interest in formal employment (ibid.).

Region	**Non-Migrant Wives' Employment Status**		
	Unemployed/Not in the labour force	Homemaker/Unpaid domestic worker	Employed
Border Region	3.40%	72.29%	24.32%
Northern Region	2.81%	78.02%	19.18%
Central Region	1.93%	78.07%	20.00%
Mexico City/Valley Region	3.33%	68.11%	28.56%
Southern Region	2.62%	71.82%	25.56%
Total	2.42%	75.73%	21.85%

Table 7

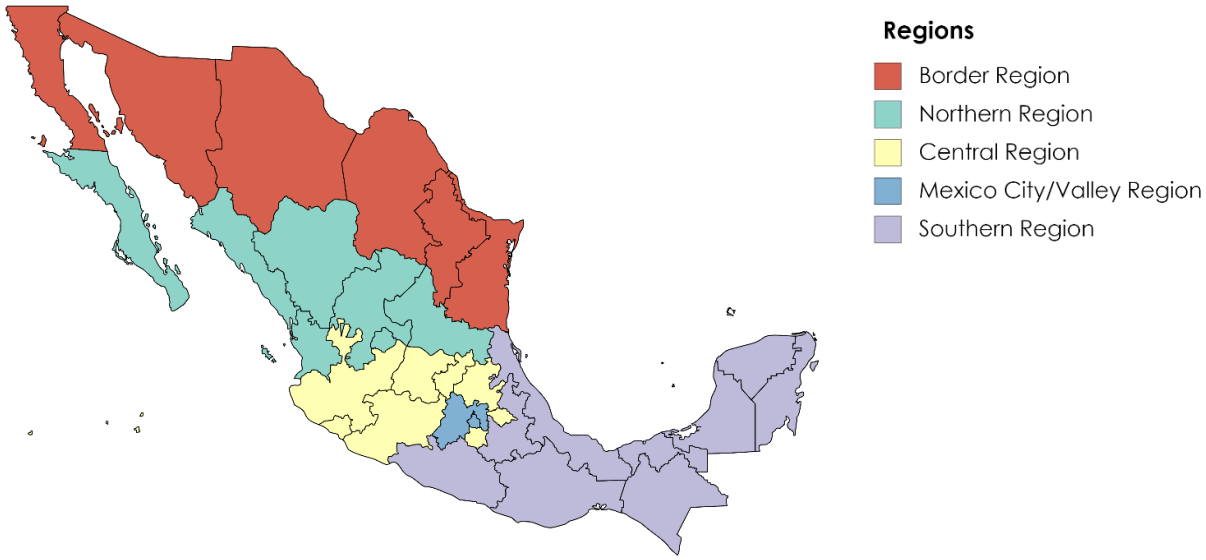

Table 7 shows that the employment status of left-behind women varies by region. Particularly, women in this category are more likely to be employed if they live in the Mexico City area, followed by the Southern and Border regions. They are thus more likely to perform

unpaid domestic work in the Central and Northern regions, and more likely to consider themselves unemployed in the Border region followed by the Mexico City/Valley region. The association between regional location and employment status of non-migrant wives is significant, with a calculated p-value of $p < 0.001$.

b. Regression Results

Complete Case Analysis: Including Remittance Data

The below results are in log-odds. Complete regression results in both log-odds and relative risk ratios are included in Appendix B.

Multinomial Logistic Regression: base outcome (Homemaker/Unpaid worker)

VARIABLES	(1) Unemployed/Not in the labour force	(3) Employed
Migrant male head	-0.88***	0.11*
	(0.25)	(0.07)
At least one relative (Yes/No)	-1.49**	0.08
	(0.60)	(0.15)
At least one female relative (Yes/No)	1.70***	-0.04
	(0.61)	(0.17)
At least one daughter (Yes/No)	0.57**	0.17**
	(0.25)	(0.07)
At least one son (Yes/No)	-1.38***	-0.07
	(0.14)	(0.07)
Non-migrant wife's education level: base outcome (No education/less than primary education)		
Primary education	-3.50***	-0.15**
	(0.42)	(0.07)
Secondary education	-3.82***	0.13*
	(0.51)	(0.07)
Tertiary education	-0.94***	0.96***
	(0.23)	(0.08)
University and beyond	0.29	2.11***
	(0.30)	(0.13)
Region: base outcome (Border region)		
Central region	-1.14***	-0.14
	(0.25)	(0.12)
Mexico City/Valley region	-0.85***	0.14
	(0.29)	(0.14)
Southern region	-1.07***	0.14
	(0.26)	(0.12)

Remittances: base outcome (no remittances received by HH)		
HH received remittances (Yes/No)	-7.92***	-0.16
	(1.61)	(1.83)
Remittances size: small	7.85***	-0.19
	(1.63)	(1.83)
Remittances size: intermediate	6.90***	-0.16
	(1.77)	(1.84)
Remittances size: substantial	7.46***	-0.40
	(1.56)	(1.83)
Constant	-0.62*	-1.30***
	(0.35)	(0.15)
Observations	8,471	8,471

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The first column allows us to determine which of the independent variables significantly predict the chances of a household to have a left-behind spouse fall under the 'unemployed' category (i.e., the comparison group) versus the 'homemaker' (i.e., baseline) category. The second column allows us to determine which of the independent variables significantly predict the chances of a household to have a left-behind spouse under the 'employed' category versus the 'homemaker' category.

The first predictor, 'migrant male head', is negative and significant for the 'unemployed' category and positive and insignificant for the 'employed' category. Households with a migrant male head are at a lower chance (-0.88 log-odds units) of having an unemployed left-behind wife and at a higher chance (0.11 log-odds units) of having an employed wife compared to households with no migrant male head. Further, households with a migrant male head are more likely to have an employed non-migrant wife.

The next predictors, 'at least one relative' and 'at least one female relative', are significant for the first column but insignificant for the second column. Wives who live with extended family are more likely to be homemakers than to be unemployed. Conversely, wives that live with at least one *female* relative are more likely to be unemployed than homemakers. This is significant and it supports the premise that women relatives are more likely to share the wife's domestic workload.

In households with at least one daughter, non-migrant wives are more likely to be unemployed than to be homemakers, compared to households with no daughters. Likewise, for the second column, households with at least one daughter are more likely to be employed than to be homemakers, compared to households with no daughters. This suggests that daughters,

like other female relatives, absorb part of the burden of domestic work, since wives in HH with at least one daughter are less likely to be homemakers.

The next variable controls for the sex of the children in the house using 'at least one son' as the predictor. Households with at least one son are more likely to have a homemaker wife than an unemployed wife. Perhaps, having a son in the HH is a closer substitute for the male migrant's absence. The regression coefficient for this predictor in the second column is negative but insignificant.

The next set of predictors pertain to the wife's education levels. In the first column, the first three level-predictors are negative and significant. This suggests that women with primary, secondary, or high school education are less likely to be unemployed than to be homemakers, compared to women with less than primary education. Perhaps, more educated wives consider homemaking their principal occupation even when actively searching for a job. The effect of having completed university education does not significantly impact the first column. For the second column, wives with primary education are surprisingly less likely to be employed than homemakers, compared to women with less than primary education. In this column, the effect of having completed secondary or high school education compared to no education is positive and significant; non-migrant wives are more likely to be employed than to be homemakers when having completed secondary and high school education. The same is the case for having completed university education and beyond, but in this case the log-odds increase by 2.1 units; non-migrant wives are more likely to be employed if they have at least university education than to be homemakers, compared to women with no education.

The effect of receiving remittances is negative and significant for the first column, but negative and insignificant for the second one. This means that wives in households that receive remittances are less likely to be unemployed and more likely to be homemakers than those in households that do not receive remittances. The log-odds of having an unemployed wife versus a homemaker are 7.92 units lower for HH that receive remittances.

When considering the size of remittances, the coefficient slope becomes positive and significant for all three levels (small, intermediate, substantial) in the first column compared to households who receive no remittances. This means that households who receive small, intermediate, or substantial remittances are more likely to have an unemployed wife than a wife that is a homemaker, compared with households who receive no remittances. This supports evidence that left-behind wives receive less remittances when the HoH migrates alone, calling for a search of additional income sources (*Section IX.a)*. Alternatively, households who receive remittances may hire domestic workers. Yet, this does not mean that wives are more likely to

be employed. In fact, the effect of all three remittance levels for the second column are negative but insignificant. Some studies provide evidence that receiving a small proportion of remittances forces women to find income sources that are compatible with their child-rearing and household responsibilities. In a study of 26 Mexican families in the Bay Area in California, Hondagneu-Sotelo (1992) found that "the most common solution was informal sector employment, usually vending or the provision of personal services, such as washing and ironing, which they performed in their homes" (p. 401). In fact, the increased work burden in this case prompted women to migrate too (ibid.).

The last set of predictors relates to the household's location. Due to limited observations with remittance data, none fall under the Northern region. In this group, HH who live in the Central, Mexico City, and Southern regions are less likely to have an unemployed wife versus a homemaker wife. The fact that women consider their main occupation to be homemaker as opposed to unemployed may signal normative constraints for those living in the Central, Mexico City, and Southern regions compared to those living along the U.S.-Mexico border. Non-coincidentally, the log-odds are higher for the Mexico City region where we can expect gender norms to be more equal. Regional location does not have a significant effect on whether wives are employed versus homemakers.

It is important to note that the results from the regression analysis are to be taken conservatively, given their methodological limitations. Nonetheless, they suggest a significant relationship: the effect of having a migrant male HoH remains significant after including all other variables and controls. Non-migrant wives are not only more likely to perform unpaid domestic work than wives of non-migrant men, but they do so even when living with a son, a relative, being more educated (except for university education), receiving remittances, and living in different regions. Further, when left-behind wives live with female relatives, they are less likely to be homemakers than unemployed and less likely to be homemakers than unemployed or employed when having at least one daughter.

X. CONCLUSIONS AND RESEARCH AGENDA

This paper evaluates the effect of male emigration from Mexico on the left-behind wives' labour-market behaviour. It points to the scarcity of Mexican migration studies focusing on women left behind and on the importance of theorizing women as active economic actors in household-decision models. Data from the MMP shows that Mexican women's labour-market behaviour may face normative constraints—apart or in conjunction with economic ones—that limit their ability to undertake paid work. Living in a household where the main

provider is a migrant, results in an increased burden of unpaid domestic labour on his non-migrant spouse. This workload is likely to be shared with other women in the household.

Given Mexico's ethnic and cultural diversity, framing gender relations in a patriarchal context disregards the unique experiences of both households and individuals (Hondagneu-Sotelo, 1992). Further research should expand on the aggregate analysis presented in this paper to evaluate the decision-making process of left-behind wives as informed by regional differences in gender norms. While evidence supports the assumption that male migration from Mexico to the U.S. during the period studied was mostly temporary, this study does not disaggregate the data based on the trip duration and only considers whether the husband migrated or not. Future research should evaluate the effects of duration.

This paper contributes to a growing literature on gender differentials in labour markets as impacted by migration patterns. While male emigration could be both a source of income and bargaining power for women left behind, the predominance of female unpaid labour in the case of Mexico signals the cultural importance women assign to household responsibilities. Further disentangling the concept of 'left behind' in the context of women's empowerment can help better design policies that aim to close the gender gap across labour markets.

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XII. APPENDICES

a. Appendix A: Tests of Association

Association Test for Male Migration and Female Employment

H_0: Non-migrant wives' employment status is independent of male migrant HoH

Key
frequency *row percentage*

(sum) mighead	Non-migrant wife's employment status Unemploye	Homemaker	Employed/	Total
0	114 0.76	11,663 77.25	3,320 21.99	15,097 100.00
1	30 0.49	4,956 80.78	1,149 18.73	6,135 100.00
Total	144 0.68	16,619 78.27	4,469 21.05	21,232 100.00

Pearson chi2(2) = 33.5541 Pr = 0.000

Table 5. Pearson Chi Sq. Test for migrant male HoH and Left-behind Wives' Employment Status

Association Test for Remittances and Employment of Non-migrant Wives

H_0: non-migrant wife's employment status is independent of receiving remittances

Key
frequency *row percentage*

HH receives remittances	Non-migrant wife's employment status Unemploye	Homemaker	Employed	Total
No	225 2.99	5,269 69.96	2,037 27.05	7,531 100.00
Yes	35 2.03	1,382 80.07	309 17.90	1,726 100.00
Total	260 2.81	6,651 71.85	2,346 25.34	9,257 100.00

Pearson chi2(2) = 70.9066 Pr = 0.000

Table 6. Pearson Chi Sq. Test for HH Remittances and Left-behind Wives' Employment Status

H_0: non-migrant wife's employment status is independent of the size of remittances

Key
frequency *row percentage*

Size of remittances	Non-migrant wife's employment status			
	Unemploye	Homemaker	Employed	Total
N/A	224 2.97	5,269 69.96	2,038 27.06	7,531 100.00
Small	17 3.40	397 79.40	86 17.20	500 100.00
Intermediate	2 1.38	116 80.00	27 18.62	145 100.00
Substantial	7 2.36	241 81.42	48 16.22	296 100.00
Total	250 2.95	6,023 71.09	2,199 25.96	8,472 100.00

Pearson chi2(6) = 46.3130 Pr = 0.000

Table 7. Pearson Chi Sq. Test for HH Remittances Size and Left-behind Wives' Employment Status

Association Test for Female Education and Employment of Non-migrant Wives

H0: Non-migrant wife's employment status is independent of their education level

Key
frequency *row percentage*

Non-migrant wife's education level	Non-migrant wife's employment status			
	Unemploye	Homemaker	Employed	Total
0	456 4.49	8,020 79.04	1,671 16.47	10,147 100.00
At least primary educ	21 0.33	5,276 83.27	1,039 16.40	6,336 100.00
At least secondary ed	13 0.33	2,974 76.00	926 23.66	3,913 100.00
At least tertiary edu	48 2.13	1,167 51.84	1,036 46.02	2,251 100.00
University and beyond	25 4.00	186 29.76	414 66.24	625 100.00
Total	563 2.42	17,623 75.73	5,086 21.85	23,272 100.00

Pearson chi2(8) = 2.2e+03 Pr = 0.000

Association Test for Relatives and Employment of Non-Migrant Wives

Table 8. Pearson Chi Sq. Education levels and employment status for left-behind wives (Source: MMP, 2020).

H_o: non-migrant wife's employment status is independent of having at least one relative in the household

Key
frequency *row percentage*

At least one relative	Non-migrant wife's employment status			
	Unemploye	Homemaker	Employed	Total
0	451	15,202	4,360	20,013
	2.25	75.96	21.79	100.00
1	112	2,421	726	3,259
	3.44	74.29	22.28	100.00
Total	563	17,623	5,086	23,272
	2.42	75.73	21.85	100.00

Pearson chi2(2) = 17.5618 Pr = 0.000

Table 9. Pearson Chi Sq. Test for relatives in the household and employment status for left-behind wives, (Source: MMP, 2020).

Association Test for Female Relatives and Employment of Non-Migrant Wives

H_0: non-migrant wife's employment status is independent of having at least one female relative in the household

Key
frequency *row percentage*

At least one female relative	Non-migrant wife's employment status			
	Unemploye	Homemaker	Employed	Total
0	464	15,764	4,538	20,766
	2.23	75.91	21.85	100.00
1	99	1,859	548	2,506
	3.95	74.18	21.87	100.00
Total	563	17,623	5,086	23,272
	2.42	75.73	21.85	100.00

Pearson chi2(2) = 28.1059 Pr = 0.000

Table 10. Pearson Chi Sq. Test for female relatives in the household and employment status for left-behind wives, (Source: MMP, 2020).

Association Test for Daughters and Employment of Non-Migrant Wives

H_0: non-migrant wife's employment status is independent of having at least one daughter in the household

Key
frequency *row percentage*

At least one daughter	(sum) nonmigwifeempstat			
	Unemploye	Homemaker	Employed	Total
0	48	3,024	971	4,043
	1.19	74.80	24.02	100.00
1	515	14,599	4,115	19,229
	2.68	75.92	21.40	100.00
Total	563	17,623	5,086	23,272
	2.42	75.73	21.85	100.00

Pearson chi2(2) = 41.7248 Pr = 0.000

Association Test for Regional Location and Employment of Non-Migrant Wives

H_0: non-migrant wife's employment status is independent of the region in which they live

Key
frequency *row percentage*

Region	Non-migrant wife's employment status			Total
	Unemploye	Homemaker	Employed	
Border Region	62	1,320	444	1,826
	3.40	72.29	24.32	100.00
Northern Region	115	3,198	786	4,099
	2.81	78.02	19.18	100.00
Central Region	212	8,590	2,201	11,003
	1.93	78.07	20.00	100.00
Mexico City/Valley Re	37	756	317	1,110
	3.33	68.11	28.56	100.00
Southern Region	137	3,759	1,338	5,234
	2.62	71.82	25.56	100.00
Total	563	17,623	5,086	23,272
	2.42	75.73	21.85	100.00

Pearson chi2(8) = 149.7144 Pr = 0.000

b. Appendix B: Complete Regression Results

Regression Results: Complete Case Analysis

Multinomial logistic regression — Number of obs = 8,471
LR chi2(32) = 1040.82
Prob > chi2 = 0.0000
Log likelihood = -5379.8725 — Pseudo R2 = 0.0882

nonmigwifeempstat	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Unemployed_Not_in_the_labour_for						
mighead	-.8757663	.2545096	-3.44	0.001	-1.374596	-.3769366
relcount	-1.488964	.5956247	-2.50	0.012	-2.656367	-.3215613
femrelcount	1.701249	.6137111	2.77	0.006	.4983969	2.9041
daughtercount	.5681348	.2468796	2.30	0.021	.0842596	1.05201
soncount	-1.375003	.1417633	-9.70	0.000	-1.652854	-1.097152
nonmigwifeed						
At least primary education	-3.498588	.4176781	-8.38	0.000	-4.317222	-2.679954
At least secondary education	-3.817471	.5090207	-7.50	0.000	-4.815134	-2.819809
At least tertiary education	-.9449126	.2255332	-4.19	0.000	-1.38695	-.5028756
University and beyond	.2942142	.2958875	0.99	0.320	-.2857145	.874143
remit	-7.9169	1.610521	-4.92	0.000	-11.07346	-4.760336
remitsiz						
Small	7.849936	1.633938	4.80	0.000	4.647476	11.0524
Intermediate	6.903862	1.767609	3.91	0.000	3.439412	10.36831
Substantial	7.464511	1.558583	4.79	0.000	4.409745	10.51928
region						
3	-1.137782	.2545228	-4.47	0.000	-1.636637	-.6389261
4	-.8483757	.2924156	-2.90	0.004	-1.4215	-.2752517
5	-1.068372	.2583999	-4.13	0.000	-1.574826	-.5619176
_cons	-.6232987	.3483672	-1.79	0.074	-1.306086	.0594884
Homemaker_Unpaid_domestic_worker	(base outcome)					
Employed						
mighead	.11297	.0655813	1.72	0.085	-.0155669	.2415068
relcount	.0803861	.1515245	0.53	0.596	-.2165965	.3773686
femrelcount	-.0367753	.1717918	-0.21	0.830	-.3734811	.2999305
daughtercount	.1661854	.0684415	2.43	0.015	.0320425	.3003283
soncount	-.0669337	.0671048	-1.00	0.319	-.1984566	.0645892
nonmigwifeed						
At least primary education	-.1512512	.0712022	-2.12	0.034	-.2908051	-.0116974
At least secondary education	.1347206	.0724784	1.86	0.063	-.0073345	.2767757
At least tertiary education	.9578578	.0841665	11.38	0.000	.7928945	1.122821
University and beyond	2.106806	.1324688	15.90	0.000	1.847172	2.36644
remit	-.1625301	1.827828	-0.09	0.929	-3.745006	3.419946
remitsiz						
Small	-.1937308	1.831508	-0.11	0.916	-3.78342	3.395959
Intermediate	-.1606538	1.840422	-0.09	0.930	-3.767815	3.446507
Substantial	-.4048902	1.827693	-0.22	0.825	-3.987103	3.177322
region						
3	-.1357321	.1215037	-1.12	0.264	-.373875	.1024108
4	.1354068	.1350514	1.00	0.316	-.129289	.4001026
5	.1079423	.1234129	0.87	0.382	-.1339426	.3498272
_cons	-1.295884	.1545719	-8.38	0.000	-1.598839	-.9929288

Multinomial logistic regression — Number of obs = 8,471
LR chi2(32) = 1040.82
Prob > chi2 = 0.0000
Log likelihood = -5379.8725 — Pseudo R2 = 0.0882

nonmigwifeempstat	RRR	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Unemployed_Not_in_the_labour_for						
mighead	.4165427	.1060141	-3.44	0.001	.2529418	.6859596
relcount	.2256062	.1343766	-2.50	0.012	.0702028	.7250162
femrelcount	5.480786	3.363619	2.77	0.006	1.64608	18.24881
daughtercount	1.764972	.4357356	2.30	0.021	1.087911	2.863401
soncount	.2528389	.0358433	-9.70	0.000	.1915026	.3338205
nonmigwifeed						
At least primary education	.0302401	.0126306	-8.38	0.000	.0133369	.0685663
At least secondary education	.0219833	.01119	-7.50	0.000	.0081061	.0596173
At least tertiary education	.3887135	.0876678	-4.19	0.000	.2498362	.604789
University and beyond	1.342071	.3971021	0.99	0.320	.7514771	2.39682
remit	.0003645	.0005871	-4.92	0.000	.0000155	.0085627
remitsiz						
Small	2565.569	4191.981	4.80	0.000	104.3213	63094.91
Intermediate	996.1143	1760.74	3.91	0.000	31.16864	31834.68
Substantial	1745.003	2719.732	4.79	0.000	82.24849	37022.38
region						
3	.3205293	.081582	-4.47	0.000	.1946335	.527859
4	.4281097	.125186	-2.90	0.004	.2413518	.759381
5	.3435674	.0887778	-4.13	0.000	.2070435	.5701148
_cons	.5361729	.186785	-1.79	0.074	.2708783	1.061293
Homemaker_Unpaid_domestic_worker	(base outcome)					
Employed						
mighead	1.119598	.0734247	1.72	0.085	.9845536	1.273166
relcount	1.083705	.1642079	0.53	0.596	.8052548	1.458442
femrelcount	.9638927	.1655889	-0.21	0.830	.688334	1.349765
daughtercount	1.180792	.0808152	2.43	0.015	1.032561	1.350302
soncount	.9352572	.0627602	-1.00	0.319	.8199953	1.066721
nonmigwifeed						
At least primary education	.8596317	.0612077	-2.12	0.034	.7476614	.9883707
At least secondary education	1.144217	.082931	1.86	0.063	.9926924	1.318871
At least tertiary education	2.606108	.219347	11.38	0.000	2.209783	3.073513
University and beyond	8.22194	1.08915	15.90	0.000	6.34186	10.65938
remit	.8499905	1.553636	-0.09	0.929	.0236355	30.56777
remitsiz						
Small	.8238797	1.508942	-0.11	0.916	.0227448	29.84326
Intermediate	.8515868	1.567279	-0.09	0.930	.0231025	31.39056
Substantial	.66705	1.219163	-0.22	0.825	.0185534	23.98245
region						
3	.8730765	.106082	-1.12	0.264	.6880629	1.107838
4	1.145002	.1546341	1.00	0.316	.87872	1.491978
5	1.113983	.13748	0.87	0.382	.8746403	1.418822
_cons	.2736558	.0422995	-8.38	0.000	.202131	.37049

Note: _cons estimates baseline relative risk for each outcome.

Measures of Fit for mlogit of non-migrant's wife employment status

Log-Lik Intercept Only:	-5900.282	Log-Lik Full Model:	-5379.873
D(8411):	10759.745	LR(32):	1040.819
		Prob > LR:	0.000
McFadden's R2:	0.088	McFadden's Adj R2:	0.078
Maximum Likelihood R2:	0.116	Cragg & Uhler's R2:	0.154
Count R2:	0.711	Adj Count R2:	0.000
AIC:	1.284	AIC*n:	10879.745
BIC:	-65312.736	BIC':	-751.398

Regression Results: Excluding Remittance Data

Multinomial logistic regression — Number of obs = 23,272
LR chi2(26) = 2536.25
Prob > chi2 = 0.0000
Log likelihood = -13461.793 — Pseudo R2 = 0.0861

nonmigwifeempstat	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Unemployed_Not_in_the_labour_for						
mighead	-1.166676	.1460054	-7.99	0.000	-1.452842	-.8805111
relcount	-.8606936	.2908937	-2.96	0.003	-1.430835	-.2905523
femrelcount	.9829659	.3055652	3.22	0.001	.384069	1.581863
daughtercount	.908781	.1598564	5.68	0.000	.5954683	1.222094
soncount	-1.573802	.0917477	-17.15	0.000	-1.753624	-1.39398
nonmigwifeed						
At least primary education	-2.684716	.2253089	-11.92	0.000	-3.126313	-2.243119
At least secondary education	-2.766718	.284199	-9.74	0.000	-3.323737	-2.209698
At least tertiary education	-.5510256	.1600504	-3.44	0.001	-.8647187	-.2373325
University and beyond	.6037737	.2247222	2.69	0.007	.1633263	1.044221
region						
2	-.2555394	.1687277	-1.51	0.130	-.5862396	.0751608
3	-.6596449	.1546751	-4.26	0.000	-.9628026	-.3564872
4	.0949106	.2223878	0.43	0.670	-.3409615	.5307826
5	-.4416201	.1631254	-2.71	0.007	-.7613399	-.1219002
_cons	-1.867801	.2070056	-9.02	0.000	-2.273524	-1.462077
Homemaker_Unpaid_domestic_worker	(base outcome)					
Employed						
mighead	-.1512786	.0392317	-3.86	0.000	-.2281714	-.0743859
relcount	.2331325	.0907561	2.57	0.010	.0552538	.4110112
femrelcount	-.0998501	.1017522	-0.98	0.326	-.2992807	.0995804
daughtercount	.1087573	.0439331	2.48	0.013	.0226501	.1948645
soncount	-.1858364	.0421883	-4.40	0.000	-.2685241	-.1031488
nonmigwifeed						
At least primary education	-.0494249	.0438841	-1.13	0.260	-.1354362	.0365863
At least secondary education	.3899923	.0474504	8.22	0.000	.2969913	.4829933
At least tertiary education	1.448643	.0521251	27.79	0.000	1.34648	1.550806
University and beyond	2.328747	.0933818	24.94	0.000	2.145722	2.511772
region						
2	-.1498489	.0713417	-2.10	0.036	-.2896761	-.0100216
3	-.1012593	.0630902	-1.60	0.108	-.2249138	.0223951
4	.2744715	.0909081	3.02	0.003	.0962949	.4526482
5	.1216194	.0667251	1.82	0.068	-.0091594	.2523983
_cons	-1.458803	.0830208	-17.57	0.000	-1.621521	-1.296086

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Multinomial logistic regression — Number of obs = 23,272
LR chi2(26) = 2536.25
Prob > chi2 = 0.0000
Log likelihood = -13461.793 — Pseudo R2 = 0.0861

nonmigwifeempstat	RRR	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Unemployed_Not_in_the_labour_for						
mighead	.3114002	.0454661	-7.99	0.000	.2339047	.414571
relcount	.4228687	.1230099	-2.96	0.003	.2391092	.7478504
femrelcount	2.67237	.8165835	3.22	0.001	1.468247	4.864008
daughtercount	2.481296	.396651	5.68	0.000	1.81388	3.394287
soncount	.2072557	.0190152	-17.15	0.000	.1731453	.248086
nonmigwifeed						
At least primary education	.0682406	.0153752	-11.92	0.000	.0438793	.106127
At least secondary education	.062868	.017867	-9.74	0.000	.036018	.1097338
At least tertiary education	.5763584	.0922464	-3.44	0.001	.42117	.788729
University and beyond	1.829008	.4110187	2.69	0.007	1.177421	2.841185
region						
2	.7744986	.1306794	-1.51	0.130	.5564157	1.078057
3	.5170349	.0799724	-4.26	0.000	.3818213	.7001314
4	1.09956	.2445288	0.43	0.670	.7110863	1.700262
5	.6429939	.1048886	-2.71	0.007	.4670402	.8852367
_cons	.154463	.0319747	-9.02	0.000	.1029487	.2317544
Homemaker_Unpaid_domestic_worker	(base outcome)					
Employed						
mighead	.8596082	.0337239	-3.86	0.000	.7959878	.9283134
relcount	1.262549	.114584	2.57	0.010	1.056809	1.508342
femrelcount	.904973	.092083	-0.98	0.326	.7413513	1.104707
daughtercount	1.114892	.0489806	2.48	0.013	1.022909	1.215146
soncount	.8304094	.0350336	-4.40	0.000	.764507	.9019927
nonmigwifeed						
At least primary education	.9517766	.0417679	-1.13	0.260	.8733348	1.037264
At least secondary education	1.476969	.0700827	8.22	0.000	1.345804	1.620919
At least tertiary education	4.257334	.221914	27.79	0.000	3.84387	4.715271
University and beyond	10.26507	.9585712	24.94	0.000	8.548212	12.32676
region						
2	.8608381	.0614137	-2.10	0.036	.748506	.9900284
3	.9036986	.0570145	-1.60	0.108	.798585	1.022648
4	1.315835	.1196201	3.02	0.003	1.101084	1.572471
5	1.129324	.0753543	1.82	0.068	.9908824	1.287109
_cons	.2325144	.0193035	-17.57	0.000	.1975979	.2736007

Note: _cons estimates baseline relative risk for each outcome.

c. Appendix C: List of States and Regions

State	Region	Socio-cultural characteristic
Baja California Norte Chihuahua Nuevo León	Border	Mutant
Aguascalientes Durango Nayarit San Luis Potosí Sinaloa Zacatecas	Northern	Combative
Colima Guanajuato Hidalgo Jalisco Michoacán Morelos Querétaro Tlaxcala	Central	Critical
México	Mexico City/Valley	Meritocratic
Guerrero Oaxaca Puebla Tabasco Veracruz Yucatán	Southern	Contemplative

d. Appendix D: U-shape relationship between female employment and GDP per capita

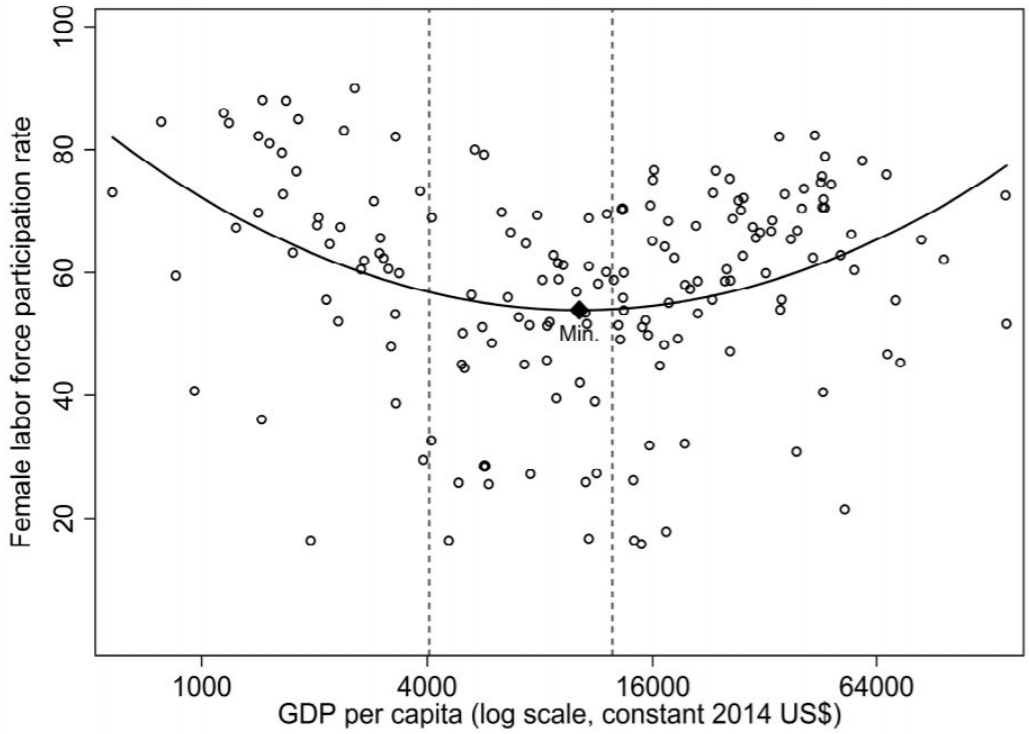

Figure 11. U-shape relationship between female employment and GDP per capita. (Source: Jayachandran, 2020).