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Labor Market Opportunities and Women's Decision Making Power within Households

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Abstract

Despite the perceived importance of labor market opportunities in shaping married women's outside option, and their bargaining power within households as a result, this link has received very little empirical attention. Using longitudinal data on who makes the decision on a wide range of issues within Mexican households and data from the administrative records of the Mexican Social Security Institute, this paper identifies the effects of relative changes in labor market opportunities for men and women on both working and non-working women's decision making power. I find that increases in labor market opportunities improve women's decision-making power as well as children's health. Using differential labor demand shocks across Mexican industries caused by China's admission to the WTO gives similar results.

Keywords: Labor Market Opportunities; Bargaining Power; Household Decisions; Trade Induced Shocks

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1 Introduction

There is an abundance of evidence showing that decision making within households does not follow a unitary model of intrahousehold allocation of resources and household decisions are the results of a bargaining process among the household members with different preferences (e.g. Lundberg, Pollak, and Wales 1997; Browning and Chiappori 1998; Bobonis 2009; Cherchye, De Rock, and Vermeulen 2009). Consistent with this evidence, the non-unitary models of household decision-making usually consider a bargaining power for each spouse that is determined by the factors that affect well-being at the threat point —their outside option.

It is essential to understand the determinants of women's bargaining power, not only because women's empowerment within households is considered an important development goal in itself, but also because of the changes in household outcomes as the balance of power shifts between men and women.

One of the most likely determinants of married women's outside option is the relative number of labor market opportunities for women compared to men.[1] Although the effect of being employed (sometimes in a specific sector), and having labor income as a result, on bargaining power or its outcomes has been studied in a few papers before (e.g. Dharmalingam and Morgan 1996; Anderson and Eswaran 2009; Atkin 2009; Heath 2014; Antman 2014), the direct link between labor market opportunities and women's bargaining power has received very little empirical attention.[2] The difference between these two lines of literature is important because a theory of household bargaining predicts that an increase in the relative number of jobs available for women improves women's outside option, regardless of whether

[1] In section II, I provide a short survey of other determinants of bargaining power that have been discussed in the literature.

[2] In a cross-section of 800 married women, Rahman and Rao (2004) examine the effect of female and male wage at the village level on women's power within households. Also, Aizer (2010) estimates the effect of relative changes in demand for female labor in California on a potential outcome of bargaining, violence against women. However, the study does not try to directly analyze bargaining power or any of its other outcomes. Using multiple rounds of a representative household survey in Mexico, Household Income and Expenditure Surveys (ENIGH), and the Mexican Population Census of 1990 and 2000, Aguayo et al. (2013) find that expenditures shifted from goods associated with male preference to those associated with female preference as women's relative earnings increased as the result of trade liberalization in Mexico during the 90s.

or not a woman decides to participate in the labor market while married (or in a cooperative relationship), and this will raise women's bargaining power within households.[3]

By investigating a direct consequence of bargaining power, the decisions made within households, this paper tries to shed light on the effects of labor market opportunities on women's bargaining power. Using data on who makes decisions in 12 different categories, that cover almost all aspects of decision making within households, and the differential changes in demand for female and male labor in the manufacturing sector across Mexican municipalities between 2002-2005, this paper identifies the effects of relative changes in labor market opportunities for men and women on women's relative decision making power.

In Mexico, like many other developing countries, the manufacturing sector is a major source of employment for women. On the other hand, manufacturing industries usually hire men and women in different proportions and the industrial composition differs across municipalities. As a result, one could use shocks to the manufacturing sector to empirically identify changes in the relative number of jobs available for women across municipalities. I follow Bartik (1991), Blanchard and Katz (1992), Bound and Holzer (2000), and Autor and Duggan (2003), using data from the Social Security Institute of Mexico (IMSS), to construct demand indices that capture exogenous shifts in local labor demand for men and women in different manufacturing industries. The local demand for female (male) labor in each industry is constructed based on the nationwide changes in employment, weighted by the share of the municipality workforce that are both female (male) and work in that industry. Constructed in this way, the measures of labor demand do not reflect the underlying worker characteristics in the local labor market which could be correlated with changes in women's bargaining power.

Using two panel waves of the Mexican Family Life Survey, I identify the effect of changes in demand for female and male labor on women's bargaining power within households, proxied by their relative power over different decisions. Analyz-

[3]The effect of labor market opportunities on young unmarried women has been studied in the literature before. Jensen (2012) looks at the effects of increases in women's labor force opportunities in rural India and finds that young women in treatment villages were significantly less likely to get married and more likely to enter the labor market or gain more schooling or training.

ing women's aggregate relative decision making power —the number of household decisions made by wife minus the number of decisions made by her husband —I find that a 1 percent increase in demand for female labor in the manufacturing sector translates into relatively 0.14 more decision made by wives within households.[4] Importantly, the effect is not limited to working women, consistent with the idea that married women's bargaining power is a function of their well-being at the threat point and not their earnings while married.[5]

A threat to the interpretation of results here is that a positive change in the total number of decisions made might not necessarily mean an increase in bargaining power, since there is variation in the importance of different decisions and women might give up power over important decisions to take control of less important ones. To address this, and also to analyze which decisions change hands between the two spouses, I provide the results for changes in power over individual decisions. Models of household decision-making usually consider three types of consumption goods; wife's private goods, husband's private goods, and public and collective goods, such as children.[6] Looking at the changes in spouses' power over decisions on private goods and services, I find that women respond to the relative increases in labor market opportunities for them to take control of the decisions over their private goods and services. Women's relative power particularly goes up over the decisions on whether the woman should participate in the labor market, and also the money that is given to the wife's parents.[7]

I also find that, spouses react to the changes in labor market to get involved in the decisions made on public goods. My results suggest that women are more likely to make the decisions on major expenditures, the use of contraception, and children's health and medicine as their relative chance of employment in the labor market goes up. However, I do not find any effect on decisions over children's

[4]Using two separately constructed dependent variables, one using the answers given by women and the other using the answers given by men, I show that the changes in labor demand do not only affect women's perception of their power but also their husbands' perception of their wives' power.

[5]To provide more support for this claim, I also do the analysis with and without labor income as an explaining variable.

[6]As first suggested by Weiss and Willis (1985), we can think of children as collective consumption goods from the parents' point of view.

[7]I am assuming money given to the wife's parents is her private good.

education, children's clothing, and the food that is eaten in the house.

Investigating the effect of labor market opportunities on married women's bargaining power is important, not only because labor market is one of the most likely determinants of women's outside option, but also since a large body of empirical work has pointed out to the changes in household outcomes as the balance of power shifts between men and women. An important example of these outcomes (especially in the context of developing countries) is children's health. Evidence from across developing countries suggests that mothers value children's health relatively more than fathers do. If that is the case in my sample of analysis, an outcome of my finding here, that women take control of the decision on children's health as the relative number of jobs for women goes up in the labor market, would be relatively more investment in children's health. I provide some evidence that children's health outcomes (especially that of girls) improve as the relative number of jobs for women goes up in the labor market.[8]

As it is not obvious how to best measure labor market demand shocks, I test the robustness of my results to the use of another methodology. Increases in Chinese exports to the US following China's entry into the WTO in 2001 had differential effects across industries in the Mexican manufacturing sector. I use this to estimate the effects of changes in the exposure of female and male labor to Chinese competition across municipalities on women's relative decision making power.

For estimation, I use a similar specification as previously described but replace the measures of changes in national employment in each industry with changes in the share of Chinese imports in total imports to the United States and use an instrumental variable strategy, similar to the one used in Utar and Torres Ruiz (2013), to instrument for the Chinese share of imports in the US by the share of Chinese imports in total world imports interacted with the 1999 Chinese import share in the corresponding US industry. Findings are consistent with the earlier results.

In addition to offering a more direct way to understand the bargaining process, analyzing changes in who makes different decisions within households contributes

[8]Changes in girls' health outcomes could also be the effect of more investment in daughters as the prospect of labor market participation improves for them (e.g. Qian 2008). I will provide some suggestive evidence that the effect is (at least) partly driven by changes in mothers' relative decision making power.

to the literature on spousal bargaining in other ways as well. In case of data availability, one could analyze decisions that have important effects on household outcomes but it is difficult to find a good proxy for them in the usual household and expenditure surveys (e.g. if a husband has a say in whether or not his wife should work). Also, it provides the opportunity to analyze important household financial decisions, that could be indicative of spousal bargaining power, in a more proper way. One such decision is major expenditures. Relying on the expenditure share of durable goods could lead to misleading results about who makes the decision to spend on these goods. The reason is that these expenditures are lumpy and changes in decision making power are not necessarily reflected in spending on these goods in the specific month or year of the survey.

Recently, a few papers have used direct decisions as proxy for bargaining power (Friedberg and Webb 2006; Atkin 2009; Antman 2014). This paper improves this literature and adds to it in a number of ways. First, by using an individual fixed effect, this paper takes care of any fixed unobserved determinant of decision making power at the individual level. Also, by analyzing a range of decisions in 12 different categories, it gives a thorough picture of changes in decision making within households. Finally, it introduces an arguably exogenous shock to spouses' bargaining power and provides evidence that the observed changes in the labor market do not affect the outcomes of interest through changes in income.

The remainder of this paper proceeds as follows. Section II provides a discussion on spousal bargaining, challenges to measure that, and its determinants. Section III discusses the data, empirical strategy, and empirical specification. Section IV shows the results, and Section V concludes.

2 Bargaining Power and Its Determinants

When trying to measure changes in spouses' bargaining power within households or estimate the effect of changes in women's bargaining power on household decisions, researchers usually face two sorts of challenges. The first challenge is that one doesn't observe spouses' bargaining power directly. Because of that, the literature usually examines the changes in household outcomes over which spouses

might have different preferences. Examples of these outcomes are spending on men's, women's, and children's clothing (Lundberg et al. 1997; Phipps and Burton 1998; Bobonis 2009), on alcohol and tobacco (Phipps and Burton; Bobonis; Hoddinott and Haddad 1995, Wang 2014), and children's health and education (Thomas 1990, 1994; Haddad and Hoddinott; Duflo 2003; Duflo and Udry 2004).

The other challenge is to find an exogenous determinant of bargaining power. Using variables that could be correlated with unobserved household characteristics, that directly affect household outcomes over which spouses have different preferences, would lead to biased estimates. One of these variables is labor income. If a woman earns more because she has a certain type of job that requires more spending on clothing, that increases spending on women's clothing without really changing the woman's bargaining power.

Also, differences in earned (and sometimes unearned) income of spouses are likely to be correlated with differences in wage rates that affect the bargaining power of spouses. An example, relevant to the context of this paper, is the case of married women who do not work and have no earned income. If a woman does not participate in the labor market when married (or in a cooperative relationship), but she would work if that marriage dissolves, the fact that she has zero earnings at the cooperative equilibrium cannot predict her earnings if the equilibrium dissolves. In other words, the wage rate (which is partly determined by the number of jobs available) is exogenous, while earnings are endogenous; they are equal to the product of the exogenous wage rate and the endogenous, optimal choice of, hours worked. As a result, women's earnings while married are not good indicators of their bargaining power, because hours worked could change at the threat point (Pollak 2005, 2011).

On the other hand, the wage rate and employability are indicators of the bargaining power. A theory of household bargaining predicts that increases in a woman's relative (potential and not necessarily realized) wage rate and number of jobs available for her raise her bargaining power by improving her outside option (Aizer 2010). For women who do work when married, the wage rate is a determinant of their bargaining power, not because their earnings at the cooperative equilibrium

(marriage) go up, but because it affects their well-being at the threat point.[9]

In addition to the wage rate, different factors have been proposed as the exogenous determinants of bargaining power within households in the literature. To test the income pooling hypothesis, and because of the exogeneity of non-labor income (when it is randomly distributed among households that are similar otherwise), some studies have looked at the effects of increases in women's non-labor income on the allocation of resources within households (e.g. Lundberg et al. 1997; Attanasio and Lechene 2002; Bobonis 2009).

Among the extrahousehold environmental parameters, one that has been studied more than others in both the theoretical and empirical literature is the marriage market situation and the legal structure that surrounds it.[10] Some papers have looked at the effects of sex ratio in the marriage market on the decisions made within households, especially female labor force participation (e.g. Becker 1991; Grossbard-Shechtman 1993; Grossbard-Shechtman and Neideffer 1997; Angrist 2002; Chiappori et al. 2002). There are other papers that have looked at the effects of divorce laws and women's rights after divorce to analyze women's utility within marriage (e.g. Gray 1998; Chiappori et al. 2002; Rangel 2006; Stevenson and Wolfers 2006). Laws governing divorce influence spouses' well-being if and when the marriage ends and they should affect their bargaining power within marriage. The features of marriage contract have also been studied as determinants of the intrahousehold decision process (Lundberg and Pollak 1994).[11]

[9] Chiappori and Donni (2006) show that any efficient outcome of the collective approach to modeling decision making in households can be constructed as a bargaining solution and if some distribution factors are known to be positively correlated with a member's threat point, then her power in the collective model should be increasing in that distribution factor.

[10] In the wording of McElroy (1990), extrahousehold environmental parameters are variables that affect how well each family member could do in the next best alternative outside of the family. They change the distribution of power within marriage without affecting the preferences or the budget constraint.

[11] Another aspect of marriage that has been discussed as a determinant of bargaining in the literature is the resources brought to marriage by women. The argument is that, more resources women bring to marriage usually translate into more power within marriage (e.g. Quisumbing and Maluccio 2003; Brown 2009).

3 Empirical Implementation

3.1 Data

This paper combines two different datasets at the municipality level to examine how changes in demand for female and male labor within the Mexican manufacturing sector affect women's decision making power. The household level data come from the Mexican Family Life Survey (MxFLS). MxFLS is a longitudinal database that collects a wide range of information on socioeconomic, demographic and health indicators of the Mexican population. I use two waves of the data collected in 2002 and 2005. The dataset is nationally representative, covers more than 100 municipalities in Mexico, and gathers information from more than 8000 households.

A unique feature of MxFLS is that it asks the household respondents who makes the decision in 12 different categories. A decision could be made by one of the spouses, jointly, or someone else. Using these answers, I construct a direct measure of decision making power for each spouse within households. Some of the household characteristics in MxFLS are reported in Table 1.

Labor market (municipality-level) data come from the Mexican Social Security Institute (IMSS). It includes monthly employment data from all formal private-sector establishments and reports data on each employee's age, gender, and salary. It also reports the employer's id, the industry of activity (up to 4-digit), as well as the state and municipality of the firm.[12] The universal coverage of this dataset originates from the fact that all employees must register with IMSS since it provides health insurance and pension coverage.

The characteristics of the manufacturing sector in the IMSS data (for the municipalities represented in MxFLS and used in my analysis) are summarized in Table 2.

[12]The aggregations from the firm to industry-municipality level were carried out at the central office of IMSS in Mexico city where the data is held securely.

3.2 Empirical Strategy

As discussed in section II, researchers usually face different challenges when trying to measure changes in spouses' bargaining power within households or estimate the effect of increases in women's bargaining power on household decisions. In this paper, I am able to address these concerns in a variety of ways. First I use panel data at the individual level. This enables me to control for fixed household characteristics.

I also look at who makes different decisions on a range of issues within households, which is the most direct way to observe spouses' bargaining power. The 12 decisions that are asked from the respondents in MxFLS include who makes the decision about the food that is eaten in the house, your clothing, your spouse's clothing, your children's clothing, the education of your children, health services and medicine of your children, major expenditures for the house (refrigerator, car, furniture, etc.), money that is given to your parents/relatives, money that is given to the parents/relatives of your spouse, if you should work or not, if your spouse should work or not, and if you or your spouse use contraceptives.[13]

According to Table 1, out of 12 different categories of decisions available in MxFLS, wives made 7.94 decisions and husbands made 7.85 decisions on average in my sample of analysis in 2002. These numbers changed to 7.22 and 6.94 in 2005, respectively.

In this study, I make use of this data to construct a measure of women's relative decision making power (as a proxy for women's bargaining power); the number of decisions made by wife minus the number of decisions made by her husband.[14] I use this to reveal whose preferences are reflected to a greater degree in household decisions and interpret a change in this variable as a change in women's relative decision making power.

[13] In almost 80 percent of households both wife and husband separately answer these questions. However, the dataset does not make it clear whether the answers are given in front of the other spouse. This could be important if household decision-making is characterized by moral hazard and the possibility of hidden action (Ashraf et al. 2013).

[14] I assume a decision is made by one of the partners if it is made either solely by that partner or is made jointly. However, the results that are presented here go through if I give different weights to the sole decisions versus those that are made jointly.

One might argue that a positive change in the number of decisions made does not necessarily mean an increase in bargaining power since there is variation in the importance of different decisions. To address this, and also to investigate which decisions change hands between the two spouses as the relative chance of employment for men and women changes in the labor market, I also provide the results for changes in decision making power over individual decisions.

Finally, I construct an exogenous determinant of the bargaining power of women within households. In this paper, controlling for employment opportunities in other sectors of the economy, the number of jobs available for women relative to those available for men in the manufacturing sector is considered to be a potential determinant of women's bargaining power within households. As the relative demand for women in the labor market goes up (down), women's outside option and, as a result, their bargaining power within marriage improves (worsens). For working women, as the relative employability of women goes up (down), their relative chance of staying employed at the threat point increases (decreases) and it positively (negatively) affects their bargaining power. Non-working women will also have more (less) opportunities to participate in the labor market compared to men at their threat point. This raises (lowers) their bargaining power within marriage.

A feature of many manufacturing industries across developing countries, including Mexico, has been the employment of female labor. However, different manufacturing industries usually hire men and women in different proportions and the industrial composition differs across municipalities. My empirical strategy takes advantage of these features to construct demand indexes for female and male labor within the manufacturing sector across municipalities.[15]

I exploit the geographic heterogeneity of changes in demand for female and male labor within the manufacturing sector across municipalities between 2002-2005 and measure the effect of changes in labor demand on women's relative deci-

[15]The sample of households I use for the analysis in this paper are limited to those that stay in the same municipality in both rounds of MxFLS data. This includes families that one of the spouses migrates temporarily between the two rounds of interviews but lives in the same municipality in both rounds. Families that migrate permanently between the two rounds are not included in the analysis since as demand shocks could be a cause of migration that might affect spouses' bargaining power itself. These families constitute less than 5 percent of my sample.

sion making power within households.

As the first-stage analysis, I also show the effect of changes in labor demand on women's and men's chance of being employed. Everything else being fixed, I would expect a positive demand shock for female (male) labor within manufacturing industries to have a positive effect on women's (men's) chance of being employed.

Next, I discuss the general econometric model used to do the empirical analysis and introduce the two different methodologies I use to estimate changes in labor demand for female and male labor across municipalities.

3.3 Empirical Specification

To investigate the effect of changes in demand for female and male labor on married women's relative decision making power, I use the following basic regression specification:

$$q_{imt} = \beta_{fem} D_{fem,m,t} + \beta_{male} D_{male,m,t} + \beta D_{m,t} + \alpha_w y^w_{i,t} + \alpha_h y^h_{i,t} + \zeta_w h^w_{i,t} + \zeta_h h^h_{i,t} + \gamma_{i,t} + \delta_i + \varepsilon_{imt} \tag{1}$$

where q_{imt} represents woman i's relative decision making power; the number of household decisions made by woman i minus the number of household decisions made by her husband. $D_{fem,m,t}$ and $D_{male,m,t}$ are the aggregate labor demand for female and male labor within the manufacturing sector in municipality m, and $D_{m,t}$ is demand for labor in all other sectors of the economy in municipality m. $y^w_{i,t}$ and $y^h_{i,t}$ represent the wife's and husband's non-labor income, and $h^w_{i,t}$ and $h^h_{i,t}$ represent the wife's and husband's labor income. $\gamma_{i,t}$ is a set of controls for individual and household characteristics, including the number of children, and education and age polynomials. δ_i represents the individual fixed effect. ε_{imt} are unobservable determinants of the outcome variables.

I estimate the equation above both with and without including labor incomes. By including labor income, I (partially) address the concern that changes in labor demand for women might affect the dependent variable through changes in earned income. However, I will address this concern by separately showing the results for non-working women as well. In other words, I estimate the model for the full sample of married women and women who do not work (and generate no earned

income as a result).

Given the panel nature of my dataset and the fact that there are two rounds of data available, the empirical specification that is estimated is the difference version of equations (1).

To analyze the effects of changes in demand for female and male labor on women's relative power over individual decisions, I run a similar regression with the dependent variable being the wife's relative power over a single decision.

3.4 Demand Estimation

As it is not obvious how to best measure labor market demand shocks, and to check the robustness of my results, I use two different methodologies to estimate changes in demand for female and male labor in different industries within each municipality:

Methodology I: Nationwide changes in employment weighted by the local labor market employment share of each gender

The first methodology is based on the index of labor demand originally proposed by Bartik (1991) and used by Blanchard and Katz (1992), Bound and Holzer (2000), and Autor and Duggan (2003), among others. It involves creating a demand index for each gender-industry-municipality cell based on the nationwide changes in employment of that industry, weighted by the local labor market-specific employment share of each gender.

Predicted growth of employment (caused by changes in demand) for group g (g=female or male) of workers within the manufacturing sector in municipality m, in the period 2002-2005 is given by:

$$\begin{aligned} \hat{D}_{g,m} &= (D_{g,m,2005} - D_{g,m,2002}) \\ &= \sum_{k=1}^{K} \gamma_{g,k,m} \eta_{-m,k} \end{aligned} \tag{2}$$

K is the number of four-digit industries within the manufacturing sector and $\gamma_{g,k,m}$ is the fraction of female or male labor, working in industry k in municipality m in year 2002. $\eta_{-m,k}$ is the log change in national employment of industry k between 2002 and 2005. The subscript $-m$ in $\eta_{-m,k}$ indicates that each municipality's industry k employment is excluded in calculating the national employment change.[16]

This index is built to capture exogenous shifts in local labor demand for each gender that are predicted by the municipality-specific industry mix, while avoiding the endogeneity associated with local employment changes. In other words, this methodology predicts what each municipality's change in employment for a gender-industry cell would be if municipality-level industrial composition was fixed in the short term and changes in industry-level employment happened uniformly across municipalities.

In demand index (2), the second term, the log change in national employment of industry k between 2002 and 2005, excludes employment in municipality m to avoid the endogeneity associated with local employment growth rates. This addresses the concern that the observed change in national employment is driven by the concentration of an industry in a specific municipality. Of course, if a large share of workers employed in an industry live in a specific municipality, one might think that the employment change in other municipalities does not predict the change in demand in the local labor market. Looking at the share of each municipality in the employment mix of different industries in 2002 reveals that, excluding Mexico City, no municipality has a share bigger than 11 percent (followed by 8 percent) in the employment of any four-digit manufacturing industry.[17]

Similarly, the predicted growth of demand for labor in non-manufacturing sectors of the economy in municipality m in the period 2002-2005, is given by:

$$\begin{aligned} \hat{D}_m &= (D_{m,2005} - D_{m,2002}) \\ &= \sum_{l=1}^{L} \gamma_{l,m} \eta_{-m,l} \end{aligned} \tag{3}$$

[16] This is similar to the measures of sex-specific demand for labor used in Aizer (2010).

[17] Even including Mexico City gives us a maximum of 19 percent. The results in this paper are not sensitive to including data from Mexico City.

L is the number of all four-digit industries of the economy outside manufacturing sector, $\gamma_{l,m}$ is the fraction of workers in municipality m in year 2002 employed in industry l, and $\eta_{-m,l}$ is the log change in national employment in industry l.

Methodology II: China's entry into the WTO as a source of labor demand shocks

As a robustness check, I test the sensitivity of my results on the effects of changes in demand for female and male labor on women's relative decision making power to an alternative measure of labor market shocks; the effects of increases in Chinese exports to the US, following China's admission to the WTO in 2001, on Mexican manufacturing industries.

An implied assumption in estimating labor demand shocks using the methodology proposed by Bartik is that the measure of labor demand is exogenous to the supply of labor in the local markets after subtracting changes in employment in the local labor market from the one that happens at the national level. However, if the changes in employment at the national level is a reflection of supply shocks across municipalities and these supply shocks are correlated with each other, then by simply subtracting changes in employment at the local labor market one cannot make sure to avoid local supply shocks in the construction of the Bartik demand measures. I argue that the measure of demand constructed using China's entry into the WTO does not suffer from this potential identification threat.

At the time, more than 85 percent of Mexican manufacturing exports went to the United States and evidence suggests that, among Latin American countries, Mexico had the largest number of common products with China in the US market at the beginning of the millennium. Consequently, the increases in Chinese exports to the US had a significant negative effect on demand for manufacturing exports from Mexico (Lall and Weiss 2004; Shafaeddin 2004; Devlin et al. 2006; Gallagher and Porzecanski 2007; Gallagher et al. 2008; Hanson and Robertson 2008 among others).[18] Increases in Chinese exports, however, had differential effects across

[18]In addition, Lopez-Cordova et al. (2008) show that during the 2000-2003 period, Chinese exports of apparel and textiles to US grew at 7.3 percent annual rate, while Mexican exports declined

industries.[19]

For estimation, I use a similar specification as previously described but replace the measures of changes in national employment in each manufacturing industry with changes in the share of Chinese imports in total imports in the US market. The idea here is that manufacturing industries in which China experienced a higher growth in its import share in the US market were affected more negatively, and demand for labor went down more, compared to other industries.[20] This is similar to what has recently been used in Utar and Torres Ruiz (2013), Iacovone, Rauch, and Winters (2013), and Bloom, Draca, and Van Reenen (2011).

Assuming that China's entry into the WTO, and the following surge in China's exports to the US, is exogenous to the supply of labor force in Mexico, this methodology can address the potential identification threat with the Bartik measure discussed above. However, as discussed in other papers that have used similar measures as a proxy for Chinese competition, the problem with using changes in Chinese import shares in the US market is that if there is an increase in demand for specific Chinese goods in the US, which induces an increase in Chinese imports, it is likely that this will have the same effect on Mexican industries as Mexican and Chinese industries are expected to react the same way to such a shock. This will have an opposite implication for Mexican industries compared to the one that assumes increases in Chinese exports happened at the expense of cutting demand for Mexican firms.

8 percent a year. In machinery and equipment, while China's exports grew by 15 percent a year, exports from Central America went down at almost 18 percent per year. Hanson and Robertson (2010) explore the impact of China's increased export capacity on Latin American countries' exports of the top manufacturing industries and finds that without the increase in Chinese supply of these products, export growth in these products could have been 3 percentage points higher in Mexico. Gallagher et al. (2008) find that, after China's entry into the WTO and as a new trend, Mexico's main non-oil exports' relative share in the US market was either declining or growing slower than China's.

[19] Bloom, Draca, and Van Reenen (2011) argue that increases in Chinese exports following joining the WTO had differential effects by industry in the destination market depending on whether the industry is one in which China has a comparative advantage.

[20] Analyzing the labor market outcomes in the US in response to the Chinese competition, Autor et al. (2013) quantify significant employment loss in the manufacturing sector. Also, Utar and Torres Ruiz (2013) find that competition from China had a negative and significant effect on employment among Mexican maquiladoras.

To get around this problem, I use an instrumental variable strategy that exploits exogenous changes in Chinese imports in the world. More specifically, I use the same strategy as in Utar and Torres Ruiz (2013) and instrument for the Chinese share of imports in the US by the share of Chinese imports in total world imports interacted with the 1999 Chinese import penetration rate in the corresponding US industry.[21] The worldwide Chinese import share is assumed to be exogenous to Mexican industries as it is expected to be driven by the supply shocks in China. By interacting it with the Chinese import penetration rate in the US before China's accession to the WTO, I get China's comparative advantage across industries.[22]

A feature of Mexican industries that were negatively affected by China (e.g. textile and clothing) is that they are dominated by industries with relatively large shares of female labor. As a result, one could expect that China joining the WTO had an important effect on demand for female labor within the Mexican manufacturing sector.

In essence, in this section, I estimate the effects of changes in the exposure of female and male labor within the manufacturing sector to Chinese competition, followed by China's entry into the WTO, on women's relative decision making power within households. The methodology that I use here is similar in spirit to the earlier measure of demand shocks, except in this case I focus on the variation induced by China's entry into the WTO.

I use the following regression specification:

$$q_{imt} = \beta_{fem} Ch_{fem,m,t} + \beta_{male} Ch_{male,m,t} + \beta Emp_{m,t} + \alpha_w y^w_{i,t} + \alpha_h y^h_{i,t} + \zeta_w h^w_{i,t} + \zeta_h h^h_{i,t} + \gamma_{i,t} + \delta_i + \varepsilon_{imt} \tag{4}$$

$Ch_{g,m,t}$ measures the exposure of group g of workers (g=female or male) in municipality m to Chinese competition in the US market within the manufacturing sector. The predicted change in this measure of exposure in the period 2002-2005 is given by:

[21] To calculate the import shares in the US market, I use data from the Center for International Data at UC Davis. The industry categories used by IMSS and the SIC classification were matched by hand. The worldwide import shares come from the UN publications using Comtrade data: `http://comtrade.un.org/pb/FileFetch.aspx?docID=3101&type=special`

[22] Other papers like Autor et al. (2013) and Iacovone et al. (2013) have instrumented the Chinese share of import in the US with the Chinese import shares in other high-income countries.

$$\begin{aligned}\hat{Ch}_{g,m} &= (Ch_{g,m,2005} - Ch_{g,m,2002}) \\ &= \sum_{k=1}^{K} \gamma_{g,k,m}(CHIMP_{US,k,2005} - CHIMP_{US,k,2002}) \end{aligned} \tag{5}$$

where $CHIMP_{US,k,t}$ is the import share of China in the total imports of the four-digit industry k in year t in the US market. $Emp_{m,t}$ is employment in other sectors.[23] Other variables in (4) are defined as before.

The instrument for $CHIMP_{US,k,t}$ is constructed as $CHIMP_{US,k,1999} * \left(\frac{CHIMP_t}{WIMP_t}\right)$, where $CHIMP_{US,k,1999}$ is the import share of China in the total imports of the 4-digit industry k in year 1999 in the US market. $CHIMP_t$ represents the total exports from China to the whole world and $WIMP_t$ is the total world merchandise imports.

4 Results

In this section, first, I present the effects of changes in demand for female and male labor on women's and men's chance of being employed and women's relative decision making power within households. Next, I estimate the effects of changes in labor demand on women's relative power over individual decisions. Finally, I test the robustness of my results using China joining the WTO as a source of variation in demand for female and male labor across Mexican municipalities.

4.1 Changes in Labor Demand and Women's Relative Decision Making Power

Before analyzing the effects of changes in labor demand on women's relative decision making power within households, as the first-stage analysis, I show some evidence that women's and men's chance of being employed is associated with changes in labor demand. Column (1) in Table 3 shows the results from running a regression in which the dependent variable is the change in the employment status

[23] One should note that employment in other sectors (non-manufacturing) cannot be instrumented with exposure to China and is endogenous in this model.

of a married woman between 2002 and 2005. The results indicate that a 1 percent increase in demand for female labor in a woman's municipality of residence is associated with 1.6 percentage point increase in her chance of being employed. Changes in demand for male labor are not significantly associated with women's chance of employment. In the second column I include a state-specific time trend to control for any other trend that might affect the outcomes. The results do not change. Columns (3) and (4) report the results when the dependent variable is the change in the employment status of a married man between 2002 and 2005. The results suggest that changes in demand for male labor in the manufacturing sector affect men's chance of employment, although the coefficient estimates are smaller than the ones in Columns (1) and (2).[24]

Next I show the effect of changes in labor demand on women's relative decision making power within households. Table 4 shows the results from estimating the difference version of equation (1), when the dependent variable is women's relative decision making power. In the first four columns the dependent variable is constructed using women's responses to the questions about who makes the different decisions. In the last column, to check the robustness of my results, I construct the same dependent variable using men's responses.

In the first column, the sample includes all married women who live with their husbands in the same municipality in 2002 and 2005 and labor income is excluded from the regression. The magnitude of coefficient estimate on demand for female labor implies that a 1 percent increase in demand for female labor raises women's relative decision making power by 0.14, all else fixed. The coefficient estimate is statistically significant at the 5 percent level. Table 2 shows that the maximum increase in the demand for female labor in the manufacturing sector in the data between two time periods is 1.3 percent. From Table 1 one can see that, on average, in 2002 women's relative decision making power was 0.72 (7.94-7.22). Combining these two summary statistics and estimation result, one could roughly conclude that, at maximum, Mexican women's relative decision making power improved by 0.14*1.3/0.72=25 percent due to the changes in labor demand in the manufacturing

[24]One reason for getting smaller effects in columns (3) and (4) might be that men's employment status hardly changes and a much higher percentage of them work in the first place.

sector between 2002 and 2005.

Consistent with the hypothesis in this paper, the estimates suggest that increases (decreases) in demand for male labor lower (raise) women's relative decision making power - a 1 percent increase in demand for male labor lowers women's relative decision making power by 0.13, all else fixed.[25]

In the second column of Table 4 the sample of analysis is limited to married women who do not participate in the labor market through the period of analysis. In 2002, 27 percent of married women in my sample of analysis worked in the labor market. This number dropped to 24 in 2005 (Table 1). For women who do not work during the period of analysis, similar to women who do work, bargaining power should go up as the value of their outside option increases. The coefficient estimates in the second column confirm this hypothesis. The results suggest that limiting the analysis to the sample of households in which women do not work during the period of analysis generates slightly larger coefficient estimate for demand for female labor and the coefficient for demand for male labor is not significant any more. However, I cannot reject the hypothesis that the two coefficient estimates on demand for female labor are equal.

To provide more evidence in support of the hypothesis that the observed results are not driven by the effects of labor demand on labor income, in columns (3) and (4) I include spouses' labor income as control variables and redo the analysis using the samples in columns (1) and (2). This change has almost no effect on the coefficient estimates for labor demand.[26]

Although as discussed in section 2, according to the theories of bargaining power, actual labor income should not affect bargaining power, an implied assumption in those models is that labor market experience, that could be reflected in labor market income, is not a determinant of outside option. However, if that is the case, and more experience (and potentially higher labor income) improves outside op-

[25] As shown in Table 2, demand for labor in the manufacturing sector mostly experienced negative shocks between 2002-2005. Because of that, one can interpret all the coefficient estimates for demand for female and male labor based on negative demand shocks. The average change in demand for female and male labor across Mexican municipalities between 2002-2005 was -0.01.

[26] If income effects are not linear, as specified here, labor market demands may capture curvatures. However, the results are not sensitive to using non-linear functions of income.

tion, labor income itself could be correlated with bargaining power and one might expect to see a positive coefficient for own labor income and a negative coefficient for the spouse's labor income in column (3) of Table 4 and the reverse in column (5). Although the coefficient estimates for labor income in columns (3) and (5) are not significant, they all have a sign consistent with this hypothesis. It should be mentioned though, that labor income is endogenous to this model and the estimates cannot be interpreted as causal effects.[27]

Another threat to the identification here is that controlling for current earned income does not deal with the issue in a permanent income hypothesis framework where the labor demand shocks persist and spouses change their decision making as they expect more (or less) income in the future. Although I do not have a perfect proxy for shocks to the permanent income here, I believe changes in current income is correlated with changes in permanent income. Consequently, if changes in permanent income drive my results, controlling for current income should partially pick up the effect of changes in permanent income as a result of demand shocks in the manufacturing sector, but it doesnt change the coefficient estimates for labor demand shocks. This makes me more confident that permanent income hypothesis is not the main driver of the results here and the bargaining power story holds.

Using the dependent variable constructed by the answers given by men in column (5) generates very similar coefficient estimates to the ones in columns (1) and (3). This suggests that the changes in labor demand do not only affect women's perception of their power but also their husbands' perception of their wives' power.[28]

If women's relative decision making power is a function of the relative number of jobs available for them and their husbands in the labor market, one expects to see a larger effect on women and men who are more likely to get employed in the manufacturing sector. In other words, the relative decision making power of women

[27]Note that households who receive some kind of non-labor income constitute only about one-eighth of my sample and I cannot get any significant coefficient estimate for wife's and husband's non-labor income here.

[28]In Table A2 in the Appendix, I look at the changes in the raw (not net) number of decisions made by wife and answered by herself and the raw number of decision by husband and answered by himself over time in order to check the consistency of results (the sample has been limited to the households that both husband and wife answer questions). The estimations with both spouses perspective give an almost symmetric picture, which, strengthens the bargaining power argument.

whose chance of employment (or their husband's chance of employment) improves (deteriorates) more in response to the new jobs available (lost) should react more strongly to the changes in labor demand.

One of the features of the Mexican manufacturing sector is the employment of low-skill people. In fact, as reported in Atkin (2015), according to the 2000 Census, around 80 percent of manufacturing sector employees have less than high school education. Given that, low-skill people should be affected more by the changes in labor demand in the manufacturing sector.

I divide both women and men in my sample of analysis into two equally-sized groups based on their level of education and call them low-skill and high-skill (the last level of school attended for the median person is elementary school). Table 5 summarizes the results when I redo the analysis before but with an interaction of demand variables for female and male labor with a dummy variable indicating whether the wife or the husband is low-skill added to the regression. Consistent with the observation that manufacturing jobs mostly affect the employability of low-skill people, the coefficient estimates suggest that all the effects of changes in demand for female and male labor observed before are explained by changes in decision making power for low-skill men and women. The magnitude of coefficient estimates on labor demand suggest that a 1 percent increase in demand for female labor raises a low-skill women's relative decision making power by 0.18, all else fixed. Also, a 1 percent increase in demand for male labor lowers a women's relative decision making power with a low-skill husband by 0.16.

4.2 Which Decisions Are More Likely To Change Hands?

In this section I investigate which decisions change hands between the two spouses as relative demand for female and male labor changes in the labor market.

Models of household decision making usually consider three types of consumption goods; wife's private goods, husband's private goods, and public goods. Corresponding to these different types of goods, I divide the 12 decisions into three categories and analyze the effects of changes in demand for female and male labor on women's relative power over these categories of decisions as well as individual

decisions. For a woman, I categorize the decisions about her clothing, the money that is given to her parents and relatives, and whether she should work or not under decisions about her private goods and services. Similarly, decisions about her spouse's clothing, whether her spouse should work or not, and the money that is given to his parents under decisions about the husband's private goods and services. The rest of the decisions are categorized as decisions over public goods.[29]

In Table 6 the dependent variables are wives' relative power over each of the 12 decisions made at the households and reported in the data. If relatively more labor market opportunities is a positive determinant of women's relative power over a specific decision within households, one expects the coefficient estimate on demand for female labor in the manufacturing sector to be positive and the coefficient estimate for male labor to be negative. In the top panel, I report the effects on decisions that I categorize as wife's or husband's "private" decisions and in the bottom panel I report the effects on decision making over public goods.[30]

The results suggest that women's relative power over their personal decisions react to the changes in relative labor market opportunities. Relatively more opportunities to participate in the labor market for women strongly affects the decisions over whether a woman should work or not, and also the money that is given to the wife's parents. When the dependent variable concerns the decision over wife's clothing, the coefficient estimates have the expected signs but they are not statistically significant. Unlike the decisions over wife's personal goods and services, I do not find any significant effect on the decisions over husband's personal goods and services.

The bottom panel shows that among the decisions over children, the only decision that changes hand, as the relative number of labor market opportunities for

[29] 27 percent of couples made positive transfers to husband's and/or wife's parents in 2002.

[30] As Behrman and Rosenzweig (2006) and Ham and Song (2014) argue, it is important to observe private consumption for investigating bargaining power within the family. That is, rather than arguing that one spouse cares more about a certain type of consumption, (e.g. childrens consumption or ones clothing) and that expenditure on this type of consumption will increase if one gains more bargaining power, it is better to observe expenditure on consumption that benefits only one spouse directly. Although the analysis in this paper does not deal with direct consumption of different good and services, it sheds light on the changes in decision making over decisions that benefit one of the spouses such as money given to the wife's or husband's parents.

women changes, is the one over children's health and medicine. The coefficient estimates suggest that a 1 percent increase in labor demand for women in the manufacturing sector raises mothers' relative decision making power over her children's health by almost 0.015. A reverse effect is found when demand for male labor goes up in the municipality. I also find that women are more likely to make a decision over using contraceptives as demand for female labor goes up.

Importantly, the results here show that one of the decisions that men and women try to control as demand for labor changes in the labor market is the one over major expenditures. Because of its importance in the household expenditures, making this decision is usually thought as an important indicator of bargaining power. The results here suggest that women are more likely to make this decision as that demand for female labor increases.[31] In Table A3 in the Appendix, I report these results for dependent variables constructed using the answers given by men by men.

Table 7 provides the results of a more aggregate analysis, in which the dependent variables in columns (1) to (3) are women's relative power over all the decisions made on women's private goods and services, husband's private goods and services, and public goods, respectively. By doing this exercise, I try to understand which type of decisions are most likely to change hands, as a result of labor market shocks.

Consistent with the findings in Table 6, column (1) indicates that, all else being fixed, a relative increase in labor market opportunities for women translates into women having relatively more power over decisions about their private goods and services. In column (2), although I do not find a significant effect for changes in demand for female labor, the coefficient estimate for demand for male labor suggests that women are less likely to make decisions about their husbands' private

[31] Another threat to the identification here that changes in bargaining power is the reason behind changes in decision making, is that one could observe these changes an outcome of the reinforcement of division of labor within households. As labor opportunities for men or women get better, a household can expect more household income in the future. If the division of labor is efficiently performed and a wife has comparative advantage in making decisions for her areas, both husband and wife may agree that wife would make more decisions on her clothing, childrens health, household food consumption, using contraceptives, and so on. However, if that is the case, we should observe the same changes happening when labor opportunities for men improve, which is not consistent with the results presented in Table 6.

goods and services as demand for male labor goes up. In column (3), the coefficient estimates are significant suggesting that, in aggregate, relative labor market opportunities affect who makes the decisions about public goods within households.

In the last column of Table 7 I specifically focus on all the decisions made on children. The literature suggests that money controlled by mothers is spent more on children. The results I find suggest that although a positive shock to mothers' bargaining power is positively associated with mothers having more say in their children's affairs, these effects are not statistically significant (except for the decision over health and medicine that was discussed before). This could be because mothers are heavily involved in those decisions in the first place and those decisions are not necessarily something that fathers want to take over as they experience a positive shock to their power within households.

4.3 Labor Demand Shocks and Children's Health

In the previous section I showed that women are more likely to decide about their children's health as the relative number of labor market opportunities for female labor goes up. Evidence from across developing countries suggests that women are more willing to allocate resources to health services than men are. There is also some evidence that women value girls relatively more than men do.[32] In this case, a relative increase (decrease) in mothers' power over her children's health could lead to more (less) investment in children's health, and especially that of daughters. In this section, I provide some suggestive evidence that it actually happened in Mexico.

To do this, I estimate a similar empirical model as used before with dependent variable being children's health outcomes.[33] The idea is to investigate whether the variables that affect women's relative decision making power within households affect investment in children's health the same way.

[32] Duflo (2012) provides a survey.

[33] MxFLS defines a child as someone younger than 15 years of age. Because of that, some of the observations are only available for children younger than 15. Hence, "children" in this study are limited to the children of parents in the household who are younger than 15 years of age in year 2005. Also, all the children in the analysis sample were born in the year 2002 or before so that there are two rounds of data available for them.

I separately look at two health outcomes for children. The first is "health condition of the child". The questionnaire in MxFLS asks about the health condition of each child and the answer could be very bad, bad, regular, good, and very good (I assign numbers 1 to 5 to these answers, 5 being very good). Based on these categories, I investigate the effect of changes in demand for female and male labor on the reported health condition of children. In the year 2002, the average reported health condition in my sample of analysis was 3.82 for girls and 3.81 for boys. These numbers were 3.95 and 4.01 in 2005.

The second health outcome that I use to proxy for investment in children's health is a binary variable indicating whether the child has recently been sick. The type of sickness could be having diarrhea, shortness of breath, stomachache, swollen eyes, and ear infection, among others. I investigate whether children are more likely to get sick as a result of changes in labor demand. In 2002, the likelihood of having had some sort of sickness in the recent past was 0.55 for both girls and boys. In 2005, this likelihood (for the same sample of children) changed to 0.42 for girls and 0.38 for boys.

Table 8 summarizes the results. The estimates indicate that increases in demand for female labor raise the reported health condition of children and decrease the likelihood of them being sick. Also, increases in demand for male labor lower the reported health condition of children and increase the likelihood of them being sick, although the effect on sickness is significant. Dividing the sample of children into boys and girls shows that the observed effects on children's reported health condition are driven by the effects on girls. Both boys and girls, however, are less likely to be reported sick as the relative number of jobs for women goes up.

The magnitude of coefficient estimates suggest that, all else being fixed, a 1 percent increase in demand for female labor raises girls' reported health condition by 0.013. Consistently, a 1 percent increase in demand for male labor lowers girls' reported health condition by 0.027. Also, a 1 percent increase in demand for female labor lowers the probability of girls recently have been sick by 1.9 percentage points and that of boys by 2.3 percentage points.

The results suggest that increases in demand for female labor, that raise women's relative decision making power within households, also improve children's health

outcomes, but the effects are more significant for girls. If girls' health outcomes change as a result of changes in labor market opportunities for women, a threat to the validity of interpretation that it is mothers' bargaining power that drives changes in girls' health outcomes is that investment in girls' health might react to the prospect of labor market participation for them. Although I will not be able to address this identification threat in this paper, in columns (4) and (8) I include the measure of mothers' relative decision making power over children's health as an explaining variable and do the analysis for girls once more. If the effect of labor market opportunities runs through the bargaining power channel, presumably it will load on to that measure rather than the demand shocks. The results on girls' health condition support this argument. When the dependent variable is "Child Reported Being Sick", although the coefficient on mothers' relative bargaining power is significant, the coefficient on demand for female labor turns out to become significant as well. It makes it difficult to argue that all the effect on girls' health goes through mothers' decision making power within households.

4.4 Demand Estimation Methodology II

Finally, as a robustness check, I present the effects of increases in the exposure of female and male labor to Chinese competition, following China's entry into the WTO, on women's relative decision making power.[34]

Table 9 shows the results when the dependent variables are as in Table 4 and the labor market shocks are constructed according to equation (5). If increases in exposure to Chinese competition led to negative labor demand in the Mexican manufacturing sector, one would expect the coefficient estimate for the exposure of female labor to be negative and the one for the exposure of male labor to be positive. As in Table 4, columns (1) and (3) in Table 9 report the results for the full sample of married women and columns (2) and (4) report the results for non-working women.

The coefficient estimates in column (1) suggest that in a typical Mexican municipality in my sample of analysis, in which female labor in the manufacturing sector represents almost 10 percent of the total employment, a 10 percentage increase in

[34]In Table A1, in the appendix, I report the equivalent of Table 3 for the labor demand shocks using Chinas entry into the WTO.

the import share of China in the US market (1 percent change in the exposure of female labor to the Chinese competition) results in a 0.107 decrease in women's relative decision making power within Mexican households. The coefficient estimate on male labor's exposure to Chinese competition is positive, as expected, but not statistically significant. The coefficient estimates in column (2) through (4) show similar effects.

Column (5) reports the results when the dependent variable is constructed using answers given by men. The estimates suggest that a 1 percent increase in the exposure of female labor to the Chinese competition, increases women's relative decision making power by 0.106.

5 Conclusion

Using data on who makes the decision on a wide range of issues within households, this paper tries to gain a better understanding of the spousal bargaining and the effect of changes in labor market opportunities for men and women on that. I find that labor demand shocks that change the relative number of jobs available for women in the Mexican manufacturing sector affect women's relative decision making power within households. Importantly, consistent with the theory of bargaining power, this effect is not limited to working women.

Investigating individual decisions reveals that, as relative demand for female labor goes up, women gain power over decisions regarding their own private goods and services, such as their work status and the money that is given to their parents, as well as some of the decisions made on public goods. I find that women are more likely to make the decision about major expenditures as the relative number of jobs available for them increases. This is important since decision-making on major expenditures is usually considered an indication of more bargaining power within household. The other decisions about public goods that are likely to change hand are the ones over contraceptive use and children's health and medicine. I do not find any effect on the decisions made on children's education and clothing.

I also show some evidence that labor demand shocks that alter women's labor market opportunities compared to men affect children's health outcomes, and es-

pecially that of girls, the same way they affect women's relative decision making power. Although I cannot rule out the possibility that girls' health outcomes change because of changes in the prospect of labor market participation for them, I provide some suggestive evidence that the effect is (at least) partly driven by changes in mothers' relative decision making power. These results are consistent with the evidence from across developing countries that women care more about children's health than men do.

My results suggest that different job market opportunities, depending on whether women or men are more likely to get them, could have different effects on women's power within households. This is important, not only because women's empowerment has been considered a goal in the development literature in its own right, but also because creating labor market opportunities for women could lead to different household outcomes. If, for example, more decision making power for women results in more investment in children's health, there is an additional reason for creating opportunities for women to participate in the labor market.

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Table 1: Household Characteristics in MxFLS*

	mean	sd	observations
Wife's education**	3.65	1.74	4181
Husband's education	3.93	2.05	4133
Wife's age in 2002	40.18	13.15	4188
Husband's age in 2002	43.54	14.12	4143
Wife working in 2002***	0.27	0.44	4188
Wife working in 2005	0.24	0.43	4188
Husband working 2002	0.77	0.42	4152
Husband working 2005	0.71	0.45	4131
Number of Children 2002****	1.88	1.61	4188
Number of Children 2005	1.75	1.52	4188
Number of decisions made by wife 2002	7.94	2.55	4188
Number of decisions made by wife 2005	7.85	2.51	4188
Number of decisions made by husband 2002	7.22	2.57	4188
Number of decisions made by husband 2005	6.94	2.68	4188

* These characteristics are only provided for the sample of analysis in this paper.
** Education data is divided into 10 categories. 1. No education, 2. Preschool, 3. Elementary, 4. Secondary, 5. Open secondary, 6. High school, 7. Open high school, 8. Normal Basic, 9. College, and 10. Graduate.
*** This variable is 1 if the person participates in the labor market and 0 otherwise.
**** Children are those younger than 15 years old.

Table 2: Mexican Manufacturing Sector Characteristics in IMSS

	mean	min	max	sd	observations
Share of manufacturing sector in municipalities' composition of employment 2002	0.32	0.01	0.95	0.22	113 municipalities
Share of manufacturing sector in municipalities' composition of employment 2005	0.29	0.00	0.91	0.22	113 municipalities
Share of female labor within manufacturing sector across municipalities 2002	0.35	0.05	0.73	0.15	113 municipalities
Share of female labor within manufacturing sector across municipalities 2005	0.32	0.03	0.76	0.13	113 municipalities
National Share of female labor across four-digit manufacturing industries 2002	0.29	0.05	0.66	0.13	129 industries
National share of female labor across four-digit manufacturing industries 2005	0.29	0.05	0.65	0.13	129 industries
Changes in labor Demand					
Changes in demand for female labor in the manufacturing sector	-0.006	-0.066	0.013	0.013	113 municipalities
Changes in demand for male labor in the manufacturing sector	-0.007	-0.058	0.006	0.010	113 municipalities
Changes in labor demand in other sectors of the economy	0.044	0.000	0.064	0.015	113 municipalities

Note: This table only covers the municipalities that are represented in the MxFLS and featured in my sample of analysis.

Table 3: The Effect of Labor Demand on Married Women's and Men's Chance of Being Employed

Dependent variable	Wife's Employment Status		Husband's Employment Status	
	(1)	(2)	(3)	(4)
Demand for female labor in the manufacturing sector	1.59**	1.58**	0.50	0.88
	(0.80)	(0.80)	(0.76)	(0.77)
Demand for male labor in the manufacturing sector	0.52	0.47	0.97*	0.96*
	(1.34)	(1.32)	(0.54)	(0.54)
Labor demand in other sectors	-0.52	-0.45	0.10	0.09
	(0.80)	(0.76)	(1.25)	(1.20)
State-specific time trend	No	Yes	No	Yes
Observations	4188	4188	4188	4188

Notes: Standard errors are clustered at the municipality level and reported in parentheses.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level.
*** Significance at the 99 percent confidence level.

Table 4: The Effect of Labor Demand on Women's Relative Decision Making Power

Dependent Variable:	Wife's Relative Decision Making Power				
	Reported by the Wife				Reported by the Husband
		Non-Working Women		Non-Working Women	
	(1)	(2)	(3)	(4)	(5)
Demand for female labor in the manufacturing sector	14.27**	15.44**	14.12**	15.48**	13.12*
	(6.67)	(7.16)	(6.68)	(7.15)	(7.28)
Demand for male labor in the manufacturing sector	-13.38*	-11.93	-13.26	-11.84	-6.22
	(8.06)	(8.93)	(8.12)	(8.98)	(6.08)
Labor demand in other sectors	3.40	5.41	3.43	5.48	10.12
	(5.49)	(7.22)	(5.49)	(7.21)	(8.20)
Own labor income			0.01		-0.01
			(0.01)		(0.01)
Spouse's labor income			0.00	-0.01	0.02
			(0.00)	(0.01)	(0.02)
Own non-labor income	0.04	0.04	0.04	0.02	0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.02)
Spouse's non-labor income	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	4188	2670	4188	2670	3286

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children and wife's and husband's age and education polynomials. Monetary values are reported in thousands of pesos.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level.
*** Significance at the 99 percent confidence level.

Table 5: The Effect of Labor Demand on Women's Relative Decision Making Power

Dependent Variable:	Wife's Relative Decision Making Power				
	Reported by the Wife				Reported by the Husband
	(1)	(2)	(3)	(4)	(5)
Demand for female labor	0.77	-1.31	0.83	0.66	-0.96
in the manufacturing sector	(8.34)	(10.41)	(8.34)	(10.02)	(8.58)
D_{fem}*Low Education dummy	18.54**	20.83*	18.02**	20.51*	15.74*
	(7.52)	(10.79)	(7.50)	(10.71)	(9.31)
Demand for male labor	-2.44	4.05	-2.45	4.07	1.18
in the manufacturing sector	(7.50)	(11.12)	(7.47)	(11.13)	(9.04)
D_{male}*Low Education dummy	-16.09**	-21.90*	-16.01**	-21.93*	- 8.11
	(7.69)	(11.96)	(7.70)	(11.96)	(11.99)
Labor demand in other sectors	3.55	5.49	3.47	5.47	
	(5.49)	(7.22)	(5.50)	(7.21)	
Own labor income			0.01		-0.01
			(0.01)		(0.01)
Spouse's labor income			0.00	-0.01	0.02
			(0.00)	(0.01)	(0.02)
Own non-labor income	0.04	0.04	0.04	0.02	0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.02)
Spouse's non-labor income	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	4188	2670	4188	2670	3286

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children, wife's and husband's age and education polynomials, and wife and husband's labor and non-labor income.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level.
*** Significance at the 99 percent confidence level.

Table 6: The Effect of Labor Demand on Women's Relative Power over Individual Decisions (Reported by Women)

Dependent Variable:	Wife's Relative Power over The Decisions Made on ...					
	Her clothing	Money given to her parents	If she should work	Money given to her spouse's parents	Her spouse's clothing	If her spouse should work
Demand for female labor in the manufacturing sector	1.94	4.22***	3.90**	-1.04	-1.46	-0.76
	(1.94)	(1.60)	(1.92)	(1.51)	(2.35)	(1.86)
Demand for male labor in the manufacturing sector	-0.90	-2.84	1.32	2.26	-2.78	-1.36
	(2.75)	(1.75)	(2.35)	(1.67)	(2.41)	(2.42)
Observations	4188	4188	4188	4188	4188	4188
	Food	Children's clothing	Children's education	Children's health and medicine	Major expenditures	Using contraceptives
Demand for female labor in the manufacturing sector	0.89	0.67	0.36	1.48*	2.04*	1.57**
	(1.85)	(1.50)	(0.79)	(0.82)	(1.08)	(0.67)
Demand for male labor in the manufacturing sector	-0.01	-1.26	-0.09	-2.67***	-3.48*	-0.78
	(1.81)	(1.54)	(0.92)	(1.02)	(2.05)	(0.73)
Observations	4188	2940	2940	2940	4188	4188

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children, wife's and husband's age and education polynomials, and wife and husband's labor and non-labor income. Sample in the regression with the dependent variable being decisions made on children is composed of all couples in union with children less than 15 years old in 2002 and 2005. In other regressions the sample includes all couples in union. * Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.

Table 7: The Effect of Labor Demand on Women's Power over Different Sets of Decisions Made within Households

Dependent Variable:	Wife's Relative Power over The Decisions Made on ...			
	The Wife's Personal Goods and Services	The Husband's Personal Goods and Services	Public Goods and Services (including children)	Children
	(1)	(2)	(3)	(4)
Demand for female labor in the manufacturing sector	10.70***	-3.37	7.52*	2.61
	(1.73)	(4.14)	(3.98)	(2.58)
Demand for male labor in the manufacturing sector	-2.66	-4.29*	-9.05**	-4.28
	(5.77)	(4.78)	(4.25)	(2.98)
Observations	4188	4188	4188	2940

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children, wife's and husband's age and education polynomials, and wife and husband's labor and non-labor income. Sample in the regression with the dependent variable being decisions made on children is composed of all couples in union with children less than 15 years old in 2002 and 2005. In other regressions the sample includes all couples in union.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.

Table 8: The Effect of Labor Demand on Children's Health

Dependent Variable:	Child's Reported Health Condition*				Child Reported Being Sick			
	All Children (1)	Girls (2)	Boys (3)	Girls (4)	All Children (5)	Girls (6)	Boys (7)	Girls (8)
Demand for female labor in the manufacturing sector	1.52*	1.34*	1.73	2.59	-2.21***	-1.88*	-2.28**	-1.68**
	(0.88)	(0.73)	(1.87)	(2.09)	(0.70)	(0.00)	(1.00)	(0.75)
Demand for male labor in the manufacturing sector	-2.40*	-2.73*	-1.92	-1.87	1.79	1.24	2.34	1.13
	(1.40)	(2.30)	(2.41)	(2.68)	(1.11)	(1.57)	(1.55)	(1.38)
Mother's relative power over children's health and medicine				0.02**				-0.01*
				(0.01)				(0.06)
Observations	4966	2496	2470	2496	4966	2496	2470	2496

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include child's age polynomial, number of siblings, mother's and father's age and education polynomials, and mother's and father's labor and non-labor income. Sample in the regression is composed of all children who were younger than 15 in 2005, who live with their mother and father, and have data for both 2002 and 2005.
$*$ A child's reported health condition could take a value between 1 and 5.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.

Table 9: The Effect of Changes in The Exposure of Female and Male Labor to Chinese Competition, Following China's Entry into the WTO, on Women's Relative Decision Making Power

Dependent Variable:	Wife's Relative Decision Making Power				
	Reported by the Wife				Reported by the Husband
	(1)	(2)	(3)	(4)	(5)
Exposure of female labor in the manufacturing sector	-10.74*	-9.46*	-10.88*	-9.46*	-10.64***
	(5.71)	(5.59)	(5.71)	(5.61)	(4.15)
Exposure of male labor in the manufacturing sector	6.08	6.24	6.00	6.29	10.43
	(3.83)	(4.78)	(3.84)	(4.78)	(10.96)
Employment in other sectors	-4.44	-4.089	-5.04	-5.48	-5.88
	(6.34)	(6.01)	(6.36)	(7.21)	(8.01)
Own labor income			0.01		-0.01
			(0.01)		(0.01)
Spouse's labor income			0.00	-0.01	0.02
			(0.00)	(0.01)	(0.02)
Own non-labor income	0.04	0.04	0.04	0.02	0.00
	(0.05)	(0.05)	(0.05)	(0.05)	(0.02)
Spouse's non-labor income	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	4188	2670	4188	2670	3286

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children and wife's and husband's age and education polynomials. Monetary values are reported in thousands of pesos.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.

Appendix A

Table A1: The Effect of Changes in The Exposure of Female and Male Labor to Chinese Competition, Following China's Entry into the WTO, on Married Women's and Men's Chance of Being Employed

Dependent variable	Wife's Employment Status		Husband's Employment Status	
	(1)	(2)	(3)	(4)
Exposure of female labor in the manufacturing sector	-1.36**	-1.32**	-0.84	-0.88*
	(0.65)	(0.66)	(0.56)	(0.51)
Exposure of male labor in the manufacturing sector	-0.67	-0.61	-1.06*	-1.01*
	(1.16)	(1.19)	(0.56)	(0.57)
State-specific time trend	No	Yes	No	Yes
Observations	4188	4188	4188	4188

Notes: Standard errors are clustered at the municipality level and reported in parentheses.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level.
*** Significance at the 99 percent confidence level.

Table A2: The Effect of Labor Demand on The Absolute Number of Decisions Made by Men and Women

Dependent Variable:	Number of Decisions Made by			
	Women and reported by women		Men and reported by men	
	(1)	(2)	(3)	(4)
Demand for female labor in the manufacturing sector	9.28*	9.21*	-3.21*	-3.32*
	(5.00)	(5.01)	(1.88)	(1.89)
Demand for male labor in the manufacturing sector	1.08	1.10	7.61*	7.63*
	(3.05)	(3.05)	(3.96)	(3.97)
Control for labor income	No	Yes	No	Yes
Observations	4188	4188	3286	3286

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children and wife's and husband's age and education polynomials. Monetary values are reported in thousands of pesos.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.

Table A3: The Effect of Labor Demand on Women's Relative Power over Individual Decisions (Reported by Men)

Dependent Variable:	Wife's Relative Power over The Decisions Made on ...					
	Her clothing	Money given to her parents	If she should work	Money given to her spouse's parents	Her spouse's clothing	If her spouse should work
Demand for female labor in the manufacturing sector	0.87	2.33**	0.41*	-0.50	-1.00	1.21*
	(1.32)	(1.13)	(0.22)	(1.05)	(1.29)	(0.65)
Demand for male labor in the manufacturing sector	-3.18***	-1.25	-2.86	-2.01*	-3.51***	-1.05
	(1.18)	(2.14)	(1.76)	(1.18)	(1.23)	(1.06)
Observations	3286	3286	3286	3286	3286	3286
	Food	Children's clothing	Children's education	Children's health and medicine	Major expenditures	Using contraceptives
Demand for female labor in the manufacturing sector	0.37	1.59	0.17	1.06	1.58	0.56
	(1.12)	(2.49)	(0.78)	(0.86)	(1.28)	(0.56)
Demand for male labor in the manufacturing sector	-0.01	-1.83	0.93	-1.91**	-1.51*	-0.23
	(1.81)	(2.70)	(0.90)	(0.94)	(0.85)	(0.71)
Observations	3286	2231	2231	2231	3286	3286

Notes: Standard errors are clustered at the municipality level and reported in parentheses. Controls include number of children, wife's and husband's age and education polynomials, and wife and husband's labor and non-labor income. Sample in the regression with the dependent variable being decisions made on children is composed of all couples in union with children less than 15 years old in 2002 and 2005. In other regressions the sample includes all couples in union. * Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.