Labor Market Opportunities and Sex-Specific Investment in Children's Health: The Role of Women's Decision Making Power

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Abstract

Using data from Mexico, I show that labor demand shocks that reduce women's employment opportunities relative to that of men negatively affect women's relative decision making power within households and, through this channel, decrease investment in the health of children, particularly girls. Importantly, these effects are not limited to working women. I present some evidence that the observed changes in girls' health outcomes are driven by worse nutrition. Using the differential effects of China's admission to the WTO across Mexican industries, I check the robustness of my results.

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1 Introduction

Household investment in children's human capital is of central importance to policy makers in developing countries; governments across the globe have designed and implemented policies to encourage parents to invest more in the health and education of their children.[1] However, there is little hope for designing the most effective policies without an understanding of what underlies the decisions made by parents.

There is a large literature on how parental characteristics and household environment affect investment in children's human capital.[2] However, much less is known about the role of the state of the labor market on parental investment decisions.[3] Using the geographic heterogeneity in the industrial composition of employment within the manufacturing sector in Mexico and the differential changes in labor demand in different industries across municipalities between 2002-2005, this paper identifies a mechanism through which changes in labor market opportunities could affect parental investment in children's health: changing women's relative decision making power within households.

A theory of household bargaining predicts that a decrease in women's bargaining power within households shifts household resources away from items that women value more. These items could be individual private goods or household public and collective goods, such as children.[4] Existing evidence suggests that women value family's health more than men do.[5] As a result, decreased bargaining power for women could lead to less investment in children's health.

[1] Numerous conditional cash transfer programs across countries (e.g., PROGRESA in Mexico, Bolsa Familia in Brazil, and Familias in Colombia) are some examples.

[2] A number of studies have focused on the relationship between parents' education and children's health or education (Behrman and Wolfe 1987; Thomas, Strauss, and Henriques 1991; Desai and Alva 1998), while other papers have looked into the role of parents' financial resources (Duflo 2003; De Carvalho Filho 2008). Household composition, including sibling composition and birth order, has also been studied as a determinant of investment in children (Parish and Willis 1993; Butcher and Case 1994; Morduch 2000; Sawada and Lokshin 2009; Vogl 2012).

[3] An exception is the relationship between higher economic value of women, as labor market opportunities for them expand, and survival rate of girls that has been mostly studied in the context of India and China (Rosenzweig and Shultz 1982; Agnihotri, Palmer-Jones, and Parikh 2002; Qian 2008).

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

[5] Thomas (1990), Strauss and Thomas (1995), and Behrman (1997) provide surveys.

Most of the literature on the determinants of women's bargaining power and its effects on household decisions focus on the causes of potential increase in women's bargaining power. In Mexico, like many other developing countries, the manufacturing sector is a major source of employment for women and different industries have different preferences for hiring female versus male workers. In the early years of the new millennium Mexico suffered from negative shocks to the manufacturing sector, mostly affecting industries with relatively large shares of female labor. I use this setting to empirically identify negative shocks to women's bargaining power. I argue that changes in labor demand that reduced women's chance of employment compared to men in the manufacturing sector lowered women's bargaining power within households, regardless of whether they participated in the labor market, and investment in children's health went down as a result.

There are a number of challenges to identifying changes in mothers' bargaining power, as labor market opportunities for women contract relative to that for men, and the link to investment in children' health. One of the contributions of this paper is to show directly that a change in relative demand for female labor, and therefore women's relative employability, is a determinant of women's bargaining power within households. To do this, 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 different manufacturing industries. The demand index for each industry-municipality cell is constructed based on the nationwide changes in employment, weighted by the local labor market-specific shares of employment for that industry.

Depending on the initial employment structure in different municipalities, a change in labor demand in a specific industry could strengthen women's relative chance of employment in one municipality and weaken it in another. If, initially, a municipality is specialized in manufacturing industries with primarily male workers, a decrease in labor demand in an industry with some female workers decreases women's relative chance of employment. If a woman's bargaining power within household is affected by her relative chance of employment, decreases (increases) in labor demand in this industry lower (raise) women's bargaining power in this

municipality. The exact change in labor demand would have opposite effects on women's relative chance of employment, and their bargaining power, in a municipality specialized in industries with primarily female workers. In each municipality, a manufacturing industry is categorized as female-intensive if a decrease in labor demand in that industry lowers women's chance of employment compared to that of men. Otherwise, the industry would be categorized as male-intensive.

Finally, using two panel waves of the Mexican Family Life Survey, I identify the effect of changes in demand in female and male-intensive industries on women's bargaining power within the household as proxied by a direct measure of women's relative decision making power —the number of household decisions made by wife minus the number of decisions made by her husband. The results show that changes in labor demand in female-intensive industries affect women's relative decision making power. The magnitudes I find suggest that, for married women younger than 45 in the year 2002, a 1 percent decrease in labor demand in female-intensive industries in the manufacturing sector translates into relatively 0.1 less decision made within households. Importantly, the effect is not limited to working women, confirming 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. I also provide additional evidence on the effect of changes in labor demand on women's bargaining power, using the expenditure share of goods that are assumed to be favored more (less) by women as outcome variables.

This paper next shows that a relative decrease in demand for female labor results in worse health outcomes for girls in terms of their reported health conditions and their likelihood of being recently sick (controlling for their reported health conditions), without any significant effect on boy's health.

One challenge with attempting to isolate the effect of mothers' bargaining power, as generated by changes in labor demand for women, on investment in daughters is that the changes in labor demand for women may influence investment in girls through another avenue as well. Families may invest less in girls because the returns to that investment, in terms of longer-run labor market success, have decreased. I address this by using the changes in labor demand in female and male-intensive industries as instruments for mothers' relative decision making power and showing

that most of the observed effect of changes in labor demand in female-intensive industries on girls' health outcomes could be explained by the changes in mothers' relative decision making power. Using data on doctor visits (controlling for being sick) and children's hemoglobin level (indicating the level of iron in their blood), I argue that the observed changes in daughters' health outcomes are more likely to be driven by worse nutrition rather than using less preventive and medical care.

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 U.S. following China's entry into the WTO in 2001 had a differential effect across industries in Mexican export manufacturing sector and mostly affected industries with relatively large shares of female labor. I use this differential effect to estimate the effect of changes in demand for labor in female-intensive industries in each municipality, brought about by China joining the WTO, on women's relative decision making power. Findings are consistent with the earlier results.

Although, under normal circumstances, girls do not suffer from lower investment in their human capital compared to boys in Mexico, this paper contributes to our understanding of the gender gap in human capital, that has been of considerable concern in many developing countries, and investment in girls' health. Depending on whether a country specializes in male or female-intensive industries, labor demand shocks could have different effects on children's health outcomes through changing mothers' decision making power within households.

This paper also contributes to the very recent literature on how the provision of jobs in the export and manufacturing sectors changes the incentives to invest in human capital.[6] In recent decades many developing countries have relied on manufacturing for growth and, since human capital is considered a major determinant of long run growth, it is important to understand how investment in human capital responds to the changes in this sector.

The remainder of this paper proceeds as follows. Section II provides the theoretical framework. Section III discusses the data, empirical strategy, and empirical specification. Section IV shows the results, and Section V concludes.

[6] Atkin 2012 (Mexico); Heath and Mobarak 2012 (Bangladesh); Jensen 2012 (India); Oster and Millet 2010 (India); and Shastry 2012 (India)

2 Theoretical Framework

Appendix A presents a household decision model in which parents make decisions about their private expenditures as well as public consumption. The model is based on collective models of the household proposed by Blundell, Chiappori, and Meghir (2005) and Bourguignon, Browning, and Chiappori (2009). These models allow for each parent to care differently about the private and public goods and cover all cooperative bargaining models that take Pareto efficiency as an axiom. Because of that, their empirical predictions are consistent with all possible consumption externalities between household members, and all types of individual preferences.

The solution to the household decision making problem implies that households will have demand functions for private and public goods as functions of total resources, individual and household characteristics, and women's bargaining power within the household.

In the literature, different factors have been proposed as determinants of women's bargaining power. Examples of these include, but are not limited to, women's non-earned income and their wage rate in the labor market. There are other factors in the household's environment that may influence women's bargaining power as well. Some examples are employability (number of jobs available for women), sex ratios in the marriage market, parental wealth, and the legal structure.[7] Because of data availability on non-labor income (as an exogenous source of variation in women's bargaining power) in household surveys, many studies have looked at the effect of an increase in women's non-labor income on the allocation of resources, despite its small effect on total household budget.

As discussed by Pollak (2005, 2011), the well-being of a household member at the threat point, and therefore her bargaining power within the household that affects her utility in marriage, is (partially) determined by her "wage rate" and not "earnings".[8] Thinking of earnings as an indicator of bargaining power is a mistake,

[7] In the wording of McElroy (1990) these are called extrahousehold environmental parameters and include every variable that affects how well each family member could do in the next best alternative outside of the family. These are variables that change the distribution of power within marriage without affecting the preferences or the budget constraint.

[8] Chiappori and Donni (2006) shows that any efficient outcome of the collective approach to modeling decision making in households can be constructed as a bargaining solution and if some

since the observed earnings at the cooperative equilibrium (marriage) is not necessarily a good proxy for earnings at the threat point. An example, relevant to the context of this paper, is the case of wives who do not work and have no earned income. If a wife 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 is exogenous and is a parameter of the model, 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. However, the wage rate and employability are indicators of the bargaining power. 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.

In this paper I focus on relative demand for female labor, which affects women's employability compared to men, as a potential determinant of married women's bargaining power. As the relative demand for women in the labor market goes up (down), women's well-being at the threat point and, as a result, their bargaining power within the household 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 households as well.

The theoretical model predicts that spending on a public consumption good is positively associated with women's bargaining power if and only if women's marginal willingness to pay for that public good is larger than that of men. 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

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.

value girls relatively more than men do.[9] In this case, a relative decrease in demand for female labor will decrease women's bargaining power within households and could lead to less investment in daughters' health.

3 Empirical Implementation

3.1 Data

This paper combines two different datasets at the municipality level to examine how changes in demand for different industries within the Mexican manufacturing sector affect women's bargaining power and households' investment in children's health. 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. Examples are the food that is eaten in the house, children's clothing, children's education, health services and medicine of children, strong expenditures, etc. A decision could be made by one of the spouses, jointly, or someone else. Using these answers, I am able to construct a direct measure of decision making power for each spouse within households.

MxFLS also reports individual data on children's health condition, whether they have been recently sick, doctor visits, their hemoglobin level, etc. I use these observations to separately analyze the changes in health outcomes for boys and girls and the mechanisms through which parents invest in their children's health. Table 1 and 2 summarize some of the household characteristics in MxFLS. The focus of Table 1 is on the adult members of households and the decisions they make and Table 2 reports on children's characteristics.[10]

[9] Duflo (2012) provides a survey.

[10] MxFLS defines a child as someone younger than 15 years of age. Because of that some of the

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 2-digit, 3-digit, and 4-digit industry of activity, as well as the state and municipality of the firm.[11] 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 3.

3.2 Empirical Strategy

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. A change in this ratio could change women's bargaining power, as a result.

A feature of many manufacturing industries across developing countries, including Mexico, has been the employment of female labor. My empirical strategy takes advantage of the fact that different industries have different preferences for hiring female versus male labor and the industrial composition of employment within manufacturing sector in Mexico, and therefore the initial job opportunities available for women relative to men, differ across municipalities. Hence, depending on where a woman lives, changes in labor demand in a specific industry could strengthen or weaken her relative chance of employment and her bargaining power within household.[12]

observations I use in this study are only available for children younger than 15. Hence, "children" in this study are limited to the children of the 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.

[11] 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.

[12] 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.

To clarify this, let's compare two municipalities in Mexico; Lerdo and San Juan Bautista Tuxtepec. In Lerdo, out of 6144 manufacturing jobs in July 2002, 5009 belonged to the clothing industry that is dominated by female labor. In this municipality, an increase (decrease) in labor demand in the chemical industry, in which 27 percent of the labor force is women, weakens (strengthens) women's opportunities to get employed in the manufacturing sector compared to men, although the magnitude of the demand change would be small, given the small share of this industry in the initial industrial composition of the municipality. Theoretically, it should decrease (increase) women's bargaining power within households. On the other hand, in San Juan Bautista Tuxtepec, in which out of 4244 manufacturing jobs 2376 belonged to the beverage industry, an increase in labor demand in the chemical industry strengthens (weakens) women's opportunities to get employed in the manufacturing sector compared to men (almost 90 percent of the workers in the beverage industry are men).

In each municipality, a three-digit manufacturing industry is categorized as female-intensive if, in the year 2002, the share of female workers at the national level in that industry was larger than the share of female workers within the manufacturing sector in that municipality. In theory, changes in demand in such an industry would be positively associated with the relative number of jobs available for women and women's bargaining power within households. Other three-digit manufacturing industries would be categorized as male-intensive. I exploit the geographic heterogeneity of labor demand in female and male-intensive industries across municipalities between 2002-2005 to measure the effect of changes in labor demand in different industries on women's bargaining power and children's health outcomes.[13]

In this section, I first explain how I measure women's decision making power and investment in children's health. Then, I discuss the general econometric model used to do the empirical analysis. Finally, I introduce the two different methodologies I use to estimate changes in labor demand in different industries across municipalities.

[13] An implied assumption is that the preference for hiring female versus male workers in an industry is more or less the same across municipalities.

3.2.1 Change in Women's Bargaining Power

When trying to measure changes in women's bargaining power within households or estimate the effect of increases in the bargaining power of women 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), and children's health and education (Thomas 1990, 1994; Haddad and Hoddinott; Duflo 2003; Duflo and Udry 2004).

The other challenge is that the variables used as the determinants of women's bargaining power, such as the relative earned or un-earned income, could be correlated with unobserved household characteristics that directly affect household outcomes over which spouses have different preferences. Using these household outcomes as indicative of women's bargaining power would lead to biased estimates. For example, 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, as has been argued in Lundberg et al. (1997), differences in earned or unearned income of spouses are likely to be correlated with differences in wage rates and differences in preferences that are not observable and affect the bargaining power of spouses.

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 the different decisions within households, which is the most direct way to observe spouses' bargaining power. The literature has not looked at this measure of bargaining power though, since household surveys rarely ask these kinds of questions.[14] According to Table 1, out of 12 different categories of

[14] An exception is Friedberg and Webb (2006) which looks at the data on whether a husband or wife in the Health and Retirement Study has the final say when making major decisions in a household.

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.[15]

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. 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.

Finally, as explained before, I utilize the fact that women are more likely to be employed in some industries compared to others to construct an exogenous determinant of the bargaining power of women within households.

3.2.2 Investment in Children's Health

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 labor demand in female and male-intensive industries 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 (Table 2). 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, ear infection, among others. In the empirical analysis I control for the reported health condition of the child when analyzing this outcome. In other words, controlling for their general health condition, I investigate whether children are more likely to get sick as a result of changes in labor demand in different industries. In 2002, the likelihood of having had some sort of sickness in the recent past was 0.55

[15] I assume a decision is made by one of the partners if it is made either solely by that partner or is made jointly.

for both girls and boys (Table 2). In 2005, this likelihood (for the same sample of children) changed to 0.42 for girls and 0.38 for boys.

As mentioned earlier, 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 (returns to investment story). By looking at the effect of changes in women's relative decision making power, instrumented by changes in labor demand in different industries, on children's health outcomes I will investigate how much of the changes in daughters' health outcomes are explained by the changes in their mothers' relative decision making power.

Changes in children's health outcomes could be achieved through a number of mechanisms namely utilizing more or less preventive and medical care and better or worse nutrition. In this paper I investigate these two mechanisms by looking at the number of doctor visits and the level of hemoglobin in their blood.

To make sure that the probability of doctor visits has not changed because children are more (less) likely to be sick, I control for whether the child has recently been sick. In other words, I investigate the likelihood of visiting a doctor, conditional on a child being sick (the use of medical care) and also conditional on a child not being sick (the use of preventive care).

MxFLS reports how well-nourished the respondents are but, unfortunately, does not report the same for children. Children's hemoglobin level conveys information about the level of iron in their blood as a very important nutrient and could be a measure of how well-nourished they are. A lack of iron in the blood can lead to iron-deficiency anemia, defined as having a blood hemoglobin level below standard. Iron-deficiency anemia is a very common nutritional deficiency in children and could result in tiredness, feeling faint, and becoming breathless. It has also been argued that Iron deficiency is associated with greater susceptibility to disease and reduced child development (Thomas et al. 2003). The biological basis for these symptoms includes the role of hemoglobin that moves oxygen from the lungs to the muscles, brain, and other tissues of the body (Horton and Ross 2003). Iron-deficiency anemia is often caused by insufficient iron intake in child-

hood and the hemoglobin test is primarily used to detect various types of anemia. Iron-supplements to raise the hemoglobin levels are usually used as an intervention to cure anemia and raise the productivity level of both children and adults (Thomas et al. 2003; Bobonis, Miguel, and Puri-Sharma 2006).

3.2.3 Empirical Specification

As discussed before, first, I investigate the effect of changes in demand in different industries on married women's relative decision making power, the basic regression specification is:

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

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 in female and male-intensive industries 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.

By including labor income in the specification above, I 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 above for the full sample of married women and women who do not work (and generate no earned income as a result).

In the next step, I estimate the empirical model above with dependent variable being children's health outcomes. 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. To investigate how much of this effect could be explained through changes in mother's relative bargaining power, by instrumenting it with changes in labor demand in different industries (as explained in 3.2.2), the first stage would be very similar to regression (1). In the second stage, I estimate the following empirical model:

$$p_{imt} = Motherdec_{i,t} + + \alpha_w y^w_{i,t} + \alpha_h y^h_{i,t} + \zeta_w h^w_{i,t} + \zeta_h h^h_{i,t} + \gamma_{i,t} + \delta_i + \varepsilon_{imt} \quad (2)$$

Where p represents a variable capturing child i's health outcomes. $Motherdec_i$ is child i's mother's relative decision making power. Other variables are defined as in equation (1).

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) and (2).

3.2.4 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 labor demand in different industries within each municipality:

Methodology I: Nationwide changes in employment weighted by the local labor market shares of employment

The first methodology was originally developed by Bartik (1991) and was 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 industry-municipality cell based on the nationwide changes in employment of that industry, weighted by the local labor market-specific share of employment.

Predicted growth of labor employment in group g (g=fem or male) of industries within the manufacturing sector in municipality m, in the period 2002-2005 is given by:

$$\begin{aligned} \hat{D}_{g,m,t} &= (D_{g,m,2005} - D_{g,m,2002}) \\ &= \sum_{k=1}^{K_{g,m}} \gamma_{k,m} \eta_{-m,k} \end{aligned} \quad (3)$$

$K_{g,m}$ is the number of three-digit industries within group g of manufacturing industries in municipality m and $\gamma_{k,m}$ is the fraction of workers in municipality m in

year 2002 employed in industry k. $\eta_{-m,k}$ 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.

This index is a weighted average of the growth in employment for each category of manufacturing industries in a municipality, where the weights represent the distribution of employment across industries in the municipality. This is built to capture exogenous shifts in local labor demand 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 an industry 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 (3), 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 change in employment 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 reveals that, excluding Mexico City, no municipality has a share bigger than 11 percent (followed by 8 percent) in the employment of any three-digit manufacturing industry.[16]

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:

$$\begin{aligned} \hat{D}_{m,t} &= (D_{m,2005} - D_{m,2002}) \\ &= \sum_{l=1}^{L} \gamma_{l,m} \eta_{-m,l} \end{aligned} \tag{4}$$

[16]Even including Mexico City gives us a maximum of 19 percent.

L is the number of all three-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 labor demand in female-intensive industries on women's relative decision making power to an alternative measure of labor market demand shocks: the effects of increases in Chinese exports to the U.S., following China's admission to the WTO in 2001, on Mexican manufacturing industries. More than 80 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 U.S. market at the beginning of the millennium, meaning that the increases in Chinese exports to the U.S. had a significant negative effect on demand for manufacturing exports from Mexico (Shafaeddin 2004).[17] Increases in Chinese exports, however, had differential effects across industries.[18]

For estimation, I use a similar specification as previously described but make few changes. First, I replace the measures of demand in different industries with measures of employment. However, the problem with using the changes in total employment as a proxy for demand shift is that the employment growth in a local labor market can be driven by shifts in local labor supply (through population growth, migration, etc.) as well as demand. Because of that, within female-intensive industries (that are identified as before), I use the initial share of employment in industries

[17] In addition, Hanson and Robertson (2010) explores 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) finds 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.

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

negatively affected by China joining the WTO as an instrument for the changes in employment between 2002-2005. The idea is that, within female-intensive industries in each municipality, the more concentrated the initial employment is in industries negatively affected by China's entry into WTO the bigger is the negative demand shock to female-intensive industries.

In the second stage, I estimate the effect of changes in demand in female-intensive industries, generated by negative shocks from China joining the WTO, on women's relative decision making power within households. The instrument 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.

Industries are classified as "negatively affected" by China as follows. I examine two time periods: 1995-2000 and 2000-2005. If the growth in exports from Mexico to the U.S. in a particular industry was smaller in the second period compared to the growth in the earlier period while the growth in exports from China to the U.S. increased relative to the earlier period, that industry is classified as "negatively affected". I end up with five three-digit export manufacturing industries being classified as negatively affected by the Chinese competition; textile, machinery, basic metals, clothing, and other manufacturing. While this is clearly a noisy measure of the industries affected by China's increased exports, it is comforting to see that the industries I find to be affected are almost the same industries classified as such in earlier research.[19]

An important feature of industries negatively affected by China is that they are dominated by industries with relatively large shares of female labor (the only industry among these five industries with very low share of female labor is basic metals). As a result, one could expect that China joining the WTO had larger effects on demand for female labor compared to male labor within the Mexican manufacturing sector.

[19]Lopez-Cordova et al. (2008) shows 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 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.

In the second stage, I run the difference version of the following model:

$$q_{imt} = \beta_{fem} E_{fem,m,t} + \beta_{male} E_{male,m,t} + \beta E_{m,t} + \alpha_w y^w_{i,t} + \alpha_h y^h_{i,t} + \zeta_w h^w_{i,t} + \zeta_h h^h_{i,t} + \gamma_{i,t} + \delta_i + \varepsilon_{imt} \tag{5}$$

where $E_{fem,m,t}$ and $E_{male,m,t}$ represent employment in female and male-intensive industries and $E_{m,t}$ is employment in other sectors of the economy in municipality m.

The instrument for $\Delta E_{fem,m,t}$ is constructed as:

$$D^C{}_{fem,m} = \left(\frac{C_{fem,m,2002}}{E_{fem,m,2002}}\right) \tag{6}$$

where $E_{fem,m,2002}$ is the number of employees within female-intensive manufacturing industries in 2002 and $C_{fem,m,2002}$ is a subset of those employees working in negatively affected industries. Across 91 municipalities featured in the analysis in this section, the average value for $D^C{}_{fem,m}$ is 0.48 with the standard deviation being 0.41 (Table 3).

4 Results

In this section, first, I present the effects of changes in labor demand in different industries on women's bargaining power within households and children's health outcomes. Next, I estimate the effect of women's relative decision making power on children's health, using the changes in labor demand in different industries as instruments. Finally, I test the robustness of my results, using China joining the WTO as a source of variation in labor demand in female-intensive industries across Mexican municipalities.

4.1 Changes in Labor Demand and Women's Bargaining Power

Table 4 shows the results of 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 response.

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 labor demand in female-intensive industries implies that a 1 percent decrease in labor demand in female-intensive industries lowers women's relative decision making power by 0.075, all else fixed.[20] The coefficient estimate is statistically significant at the 10 percent level. Consistent with the hypothesis in this paper, the estimates suggest that increases (decreases) in labor demand in male-intensive industries lower (raise) women's relative decision making power, however the coefficient estimate is not statistically significant.

In the second column of Table 4 the sample of analysis is limited to married women who do not participate in the formal 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.[21]

To make sure that the observed results are not driven by the effects of labor demand on labor income, in columns (3) and (4) I include labor incomes 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 of labor demands and the coefficient estimates of labor incomes are not statistically significant.[22]

[20] As shown in Table 3, female-intensive industries experienced only negtive labor demand shocks between 2002-2005. Because of that, I interpret all the coefficient estimates for female-intensive industries based on negative demand shocks. The average change in labor demand in female-intensive industries across Mexican municipalities between 2002-2005 was -0.01.

[21] The results suggest that limiting the analysis to the sample of households in which women do not work during the period of analysis generates larger coefficient estimate for labor demand in female-intensive industries. However, I cannot reject the hypothesis that the two coefficient estimates are equal.

[22] 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

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'. The results in Table (4) suggest that women's relative decision making power mostly reacts to the changes in demand in female-intensive industries and not male-intensive industries.

If women's relative decision making power is a function of the relative number of jobs available for them in the labor market, one expects to see a larger effect on women who are more "employable". In other words, the relative decision making power of women whose chance of getting employed improves (deteriorates) more in response to the new jobs available (lost) should react more strongly to the changes in labor demand. For most of the women in my sample of households work experience does not seem to be a determinant of their employability in the manufacturing sector, since most of them do not participate in the labor market and a bigger share of them, naturally, do not work in the manufacturing sector. Under these circumstances, and given the fact that most of the jobs in the Mexican manufacturing sector are low-skill jobs (Atkin 2012), younger cohorts are most probably more employable because of their higher physical abilities (and usually more flexibility), and they should be more likely to think of the jobs available as a determinant of their well-being at the threat point. As a result, one should observe larger effects of the changes in labor demand in female-intensive industries on younger cohorts.

Table (5) summarizes the results of doing the analysis separately for women under the age of 55, 45, and 35. As before, in each sample, I show the results for the full sample of women in column (1) and non-working women in column (2). Consistent with the hypothesis above, the coefficient estimates suggest that the relative decision making power of younger women respond more strongly to the changes in labor demand in female-intensive industries and the coefficient estimates are more statistically significant. The coefficient estimates for male-intensive industries are also bigger in absolute value, although still not statistically significant. The magnitude of coefficient estimate on labor demand in female-intensive industries for married women under the age of 45 suggests that a 1 percent decrease in labor

non-labor income here.

demand in female-intensive industries lowers women's relative decision making power by 0.106, all else fixed. The coefficient estimate is statistically significant at the 5 percent level.

In the literature, the expenditure share of goods that are assumed to be favored more (less) by women has been used to identify changes in women's bargaining power within households. Although those expenditure shares are not the focus of this paper (since I use a much more direct proxy for measuring women's bargaining power), next I present the effects of changes in labor demand on the expenditure share of six consumption goods in my sample of analysis that have been discussed in the literature as indicative of women's (men's) bargaining power within households. To do this, in equation (1), I replace wife's relative decision making power with the expenditure share of these six items. These consumption goods are women's clothing, men's clothing, children's clothing, women's personal items, men's personal items, and tobacco and gambling. Table 1 reports the statistics for the expenditure share of these items in my sample of analysis.

The coefficient estimates in Table 6 are consistent with what the literature suggests. Increases in labor demand in female-intensive industries raise the expenditure shares of women's clothing and children's clothing and the coefficient estimates are statistically significant. Also, an increase in labor demand in male-intensive industries increases the expenditure share of tobacco and gambling.[23] The sign of other coefficient estimates are also in agreement with what the literature suggests, but the coefficients are not statistically significant.

4.2 Changes in Labor Demand and Children's Health Outcomes

In this section I investigate how changes in labor demand in different categories of industries affect two of the children's health outcomes; the reported health condition of the child, and whether a child has recently been sick. Table 7 summarizes the results.

The estimates indicate that decreases in labor demand in female-intensive industries lower the reported health condition of children and increase the likelihood

[23] It is usually assumed that tobacco and gambling are commodities favored more by men.

of them being sick, even after controlling for the child's reported health condition. However, dividing the sample of children into boys and girls shows that the observed effects are driven by the effects on girls.

The magnitude of coefficient estimates suggest that, all else being fixed, a 1 percent decrease in labor demand in female-intensive industries lowers girls' reported health condition by 0.023 and raises the probability of girls recently have been sick by 2.7 percentage points. These results suggest that decreases in labor demand in female-intensive industries, that lower women's relative decision making power within households, also worsen girls' health outcomes.

4.3 Mothers' Power and Investment in Children's Health

As I showed before, labor demand in female-intensive industries affects women's decision making power within households. This effect is bigger for the younger cohorts of women, who are more likely to be the mothers of children less than 15 years of age. In this section, I use this link to distinguish the effect of mothers' relative decision making power from other mechanisms when the changes in labor demand affect children's health outcomes, as in Table 7. In particular, I estimate the effect of changes in mother's relative decision making power on children's health outcomes, using changes in labor demand in female-intensive industries, male-intensive industries, and other sectors of the economy as instruments.

The top panel of Table 8 summarizes the results using Two Stage Least Squares methodology. The results are consistent with the previous findings that changes in labor demand only affects girls' outcomes. The second stage results suggest that a decrease in mothers' relative decision making power worsens girls' health outcomes with no significant effect on boys. More specifically, a one unit of decrease in mothers' relative decision making power, generated by a decrease in labor demand in female-intensive industries, lowers girls' reported health condition by 0.21 and raises the probability that girls have recently been sick by 9 percentage points.[24]

Focusing on the effects of changes in labor demand on women younger than 45 in Table 5 (mother's age for 90 percent of the children less than 15 years of age

[24]The first stage results are very similar to the results already presented in Table 5.

in 2005 is less than 45), it seems like almost all of the effect of changes in labor demand on girls' reported health condition in Table 8 could be explained through the changes in mothers' relative decision making power; a 1 percent decrease in labor demand in female-intensive industries lowers women's relative decision making power by 0.106 unit (Table 5) and that, in effect, lowers girls' reported health condition by 0.022 (this number was 0.023 in Table 7). However, mothers' decision making power seems to have less explanatory power for the changes in the probability that girls have recently been sick, controlling for their health condition. A 1 percent decrease in labor demand in female-intensive industries (and the consequential decrease in women's relative decision making power by 0.106 unit), translates into the probability of girls being sick going up by 0.9 percentage points (instead of 2.7 in Table 7).

Since 2SLS is known to have biases when more than one instrument is used, I present the results using the limited information maximum likelihood (LIML) in the bottom panel. The coefficient estimates are very similar in the two panels.

Although these results do not let me rule out other mechanisms, including households investing less in their daughters' health as the prospect of labor market participation for them deteriorates, they confirm that the changes in mothers' say in the household is an important mechanism through which changes in labor market opportunities affect their daughters' health outcomes.

4.4 Preventive Care or Nutrition?

A decrease in mothers' relative decision making power, as the result of less labor market opportunities for them, could negatively affect their daughters' health outcomes through a variety of channels, including using less preventive and medical care or providing worse nutrition. As explained before, using two observations in the MxFLS dataset about children's health, next I try to investigate these two channels.

To analyze the preventive and medical care channel I use data on whether the child has recently visited a doctor, controlling for whether the child has recently been sick. The methodology here is exactly the same as the one used in the pre-

vious section. The first three columns of Table 9 summarize the results. Mothers' relative decision making power does not seem to have any effect on the probability of visiting a doctor. The coefficient estimates suggest that mothers' relative decision making power does not affect the use of preventive and medical care through doctor visits.

Columns (4) through (6) present the results when the dependent variable is the level of hemoglobin in a child's blood. The coefficient estimates imply that the effect is limited to the girls and a unit of decrease in mother's relative decision making power translates into 0.32 grams per deciliter decrease (0.21 standard deviation) in the level of hemoglobin for daughters. This result suggests that girls' deteriorated health outcomes could be (at least partly) the result of worse nutrition.

4.5 Demand Estimation Methodology II

Finally, as a robustness check, I present the effects of changes in labor demand in female-intensive industries on women's relative decision making power, using the demand estimation methodology that utilizes China's entry into the WTO as an exogenous shock to different Mexican export industries.

Columns (1) through (3) in Table 10 report the results for the full sample of married women and columns (4) through (6) report the results for non-working women. Columns (1) and (4) present the OLS results. Although the coefficient estimates have the expected signs, they are potentially biased since the changes in employment reflect both supply and demand shocks. The first-stage results for the two groups of women have been summarized in columns (2) and (5). The sign of the coefficient estimate for the share of employment in industries negatively affected by Chinese competition is negative, as expected, meaning that, within female-intensive industries, the bigger is the share of employment in industries negatively affected by Chinese competition, the larger is the negative shock to labor demand.

The results of the second stage imply that 1000 less jobs in female-intensive industries, lost because of Chinese competition, translate into relatively 4.37 less decisions made by wives within households. The results follow the pattern observed using the other demand estimation methodology.

5 Conclusion

This paper finds that labor demand shocks that reduce women's chance of employment compared to men in the Mexican manufacturing sector lower women's bargaining power within households as proxied by the number of decisions made by wife minus the number of decisions made by her husband. Importantly, consistent with the theory of bargaining power, this effect is not limited to working women. Decreases in women's relative chance of employment also negatively affect girls' health outcomes without affecting that of boys.

Although I cannot rule out the possibility that households invest less in their daughters as the prospect of labor market participation for them deteriorates, using changes in labor demand in different industries as instruments, I show that the effect of changes in labor demand on girls' health outcomes mostly goes through changes in mothers' relative decision making power. Using data on doctor visits and children's hemoglobin level, I also argue that the observed changes in daughters' health outcomes are more likely to be driven by worse nutrition rather than using less preventive and medical care.

My results suggest that different patterns of a country's job market opportunities could have different effects on women's status within households and investment in children's health. When the gender gap in health is a concern, negative labor demand shocks to industries in which women have comparative advantage could lower investment in girls' health even more not only by reducing girls' economic value, but also by negatively affecting mothers' status and decision making power within households.

I also show that labor market opportunities have larger effects on younger women's relative decision making power within households. Since they are more likely to have younger children, and the literature suggests that health investment during very young ages could have major effects throughout life, the results in this paper suggest that it is especially important to facilitate labor market access for younger cohorts of mothers.

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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
The Expenditure Share of Different Household Items			
Women's clothing 2002	0.015	0.025	4428
Women's clothing 2005	0.015	0.027	4428
Men's clothing 2002	0.015	0.029	4396
Men's clothing 2005	0.014	0.027	4396
Children' clothing 2002	0.020	0.031	3024
Children' clothing 2005	0.023	0.031	3024
Women's personal items 2002	0.017	0.022	4423
Women's personal items 2005	0.018	0.026	4423
Men's personal items 2002	0.013	0.025	4405
Men's personal items 2005	0.012	0.017	4405
Tobacco and gambling 2002	0.009	0.033	4385
Tobacco and gambling 2005	0.007	0.027	4385

* 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.

Note: Children are those younger than 15 years old.

Table 2: Children's Characteristics in MxFLS*

	mean	sd	observations
Girls' age in 2002	6.62	3.56	2496
Boys' age in 2002	6.55	3.44	2470
Girls' reported health condition 2002	3.82	0.60	2496
Girls' reported health condition 2005	3.95	0.59	2496
Boys' reported health condition 2002	3.81	0.63	2470
Boys' reported health condition 2005	4.01	0.58	2470
Girls reporting sick 2002	0.55	0.50	2496
Girls reporting sick 2005	0.42	0.49	2496
Boys reporting sick 2002	0.55	0.50	2471
Boys reporting sick 2005	0.38	0.48	2471
Girls' doctor visit 2002**	0.17	0.37	2173
Girls' doctor visit 2005	0.06	0.24	2173
Boys' doctor visit 2002	0.17	0.37	2151
Boys' doctor visit 2005	0.06	0.24	2151
Girls' hemoglobin level 2002***	12.82	1.67	1807
Girls' hemoglobin level 2005	13.46	1.51	1807
Boys' hemoglobin level 2002	12.73	1.69	1752
Boys' hemoglobin level 2005	13.68	1.66	1752

* These characteristics are only provided for the sample of analysis in this paper.
** Doctor visit is 1 if the child has recently visited a doctor.
*** Hemoglobin level is measured in grams per deciliter.
Note: Children here are those younger than 15 in 2005 who are represented in data both in 2002 and 2005.

Table 3: 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
Share of employment in female-intensive industries within manufacturing sector across municipalities 2002	0.44	0.00	1.00	0.34	113 municipalities
Share of employment in industries negatively affected by China joining the WTO within female-intensive industries in 2002	0.48	0.00	1.00	0.41	91 municipalities
National Share of female labor across three-digit manufacturing industries 2002	0.28	0.11	0.59	0.13	20 industries
National share of female labor across three-digit manufacturing industries 2005	0.28	0.11	0.59	0.13	20 industries
Growth in labor Demand in Different Categories of Industries					
Change in labor demand in female-intensive manufacturing industries	-0.01	-0.07	0.00	0.02	113 municipalities
Change in labor demand in male-intensive industries manufacturing industries	-0.01	-0.10	0.02	0.02	113 municipalities
Change in labor demand in other sectors of the economy	0.04	0.00	0.06	0.02	113 municipalities

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

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

Dependent Variable:	Wife's Relative Decision Making Power				
	Reported by the Wife				Reported by the Husband
	(1)	(2)	(3)	(4)	(5)
Labor demand in female-intensive industries	7.46*	9.13**	7.46*	9.20**	7.41*
	(3.95)	(4.66)	(3.95)	(4.67)	(4.51)
Labor demand in male-intensive industries	-2.34	-1.42	-2.41	-1.45	-0.70
	(4.28)	(5.53)	(4.29)	(5.53)	(4.87)
Labor demand in other sectors	1.73	3.18	1.69	3.28	2.12
	(4.85)	(5.83)	(4.85)	(5.83)	(5.18)
Own labor income			0.01		-0.01
			(0.02)		(0.01)
Spouse's labor income			0.00	0.00	-0.01
			(0.00)	(0.00)	(0.01)
Own non-labor income	0.04	0.04	0.04	0.03	-0.01
	(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: Clustered standard errors are 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 for Women in Different Age Categories

Dependent Variable:	Wife's Relative Decision Making Power (Reported by the Wife)					
	Age<55		Age<45		Age<35	
	(1)	(2)	(1)	(2)	(1)	(2)
Labor demand in female-intensive industries	9.56**	11.67**	10.62**	14.00**	12.34*	15.06**
	(4.40)	(5.21)	(5.15)	(6.17)	(6.32)	(7.66)
Labor demand in male-intensive industries	-4.61	-3.84	-7.55	-8.10	-6.51	-6.12
	(5.15)	(4.83)	(5.53)	(7.36)	(5.14)	(6.32)
Labor demand in other sectors	1.93	4.32	1.21	2.65	-3.58	0.07
	(5.44)	(6.50)	(6.43)	(8.59)	(7.56)	(9.38)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3536	2776	2175	1681	1622	1050

Notes: Clustered standard errors are 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 The Expenditure Share of Items That Could be Indicative of Women's (Men's) Bargaining Power

	Explanatory variable: Labor demand in...				
	Female-intensive industries	Male-intensive industries	Other sectors	other controls	Observations
Dependent Variable: Expenditure share of...					
Women's clothing	0.11*	-0.05	0.02	Yes	4428
	(0.06)	(0.05)	(0.08)		
Men's clothing	0.06	-0.01	-0.11**	Yes	4396
	(0.04)	(0.04)	(0.05)		
Children's clothing	0.17***	0.03	-0.15**	Yes	3024
	(0.06)	(0.08)	(0.08)		
Women's personal items	0.11	0.02	0.08	Yes	4423
	(0.08)	(0.03)	(0.05)		
Men's personal items	-0.04	-0.01	0.01	Yes	4405
	(0.03)	(0.03)	(0.03)		
Tobacco and gambling	0.05	0.08*	-0.05	Yes	4385
	(0.06)	(0.05)	(0.05)		

Notes: Clustered standard errors are 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 children's clothing 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 Children's Health

Dependent Variable:	Child's Reported Health Condition*			Child Reported Being Sick					
	All Children	Girls	Boys	All Children	Girls	Boys	All Children	Girls	Boys
Labor demand in female-intensive industries	1.51*	2.29**	0.70	-1.56*	-2.31**	-0.58	-1.79**	-2.67**	-0.77
	(0.89)	(1.16)	(1.35)	(0.80)	(1.13)	(1.13)	(0.80)	(1.12)	(1.12)
Labor demand in male-intensive industries	-1.63*	-1.98*	-1.26	-0.90	-0.74	-1.14	-0.64	-0.43	-0.97
	(0.83)	(1.13)	(1.24)	(0.77)	(1.02)	(1.19)	(0.76)	(1.00)	(1.19)
Labor demand in other sectors	-1.52	-1.99	-0.97	0.75	1.99	-0.62	1.00	2.31*	-0.37
	(0.95)	(1.29)	(1.40)	(0.86)	(1.21)	(1.23)	(0.84)	(1.19)	(1.20)
Control for Child's Health Condition				No	No	No	Yes	Yes	Yes
Observations	4966	2496	2470	4967	2496	2471	4966	2496	2470

Notes: Clustered standard errors are 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 8: The Effect of Mother's Relative Decision Making Power on Children's Health Outcomes, Using Changes in Labor Demand as Instruments

Dependent Variable:	Child's Reported Health Condition			Reported Being Sick		
	All Children	Girls	Boys	All Children	Girls	Boys
2SLS						
Mothers' Relative Decision-Making Power	0.17***	0.21***	0.01	-0.06	-0.09*	0.01
	(0.06)	(0.07)	(0.06)	(0.05)	(0.05)	(0.05)
F (Excluded Instruments)	10.43	9.93	9.16	10.68	10.76	9.08
P-value of the overidentification test	0.37	0.78	0.25	0.14	0.10	0.34
LIML						
Mothers' Relative Decision-Making Power	0.18***	0.21***	0.02	-0.07	-0.11*	0.01
	(0.07)	(0.08)	(0.07)	(0.05)	(0.06)	(0.06)
Observations	4323	2173	2150	4324	2173	2151

Notes: Clustered standard errors are reported in parentheses. Controls include child's age polynomial, number of sibilngs, 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.
* 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 Mother's Relative Decision Making Power on Children's Doctor Visits and Hemoglobin Level, Using Changes in Labor Demand as Instruments

Dependent Variable:	Doctor Visit			Hemoglobin Level		
	All Children	Girls	Boys	All Children	Girls	Boys
2SLS						
Mothers' Relative Decision-Making Power	0.04 (0.03)	0.04 (0.03)	-0.01 (0.04)	0.24* (0.14)	0.32** (0.14)	-0.10 (0.19)
F (Excluded Instruments)	10.35	10.65	9.07	11.55	13.65	10.20
P-value of the overidentification test	0.68	0.67	0.05	0.40	0.67	0.77
LIML						
Mothers' Relative Decision-Making Power	0.04 (0.03)	0.04 (0.04)	-0.02 (0.06)	0.26 (0.16)	0.33** (0.14)	-0.10 (0.20)
Control for being sick	Yes	Yes	Yes			
Observations	4324	2173	2151	3559	1807	1752

Notes: Clustered standard errors are 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.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level. *** Significance at the 99 percent confidence level.

Table 10: The Effect of Changes in Labor Demand in Female-Intensive Industries, Generated by China's Entry into the WTO, on Women's Relative Decision Making Power within Households

Dependent Variable:	Wife's Relative Decision Making Power (Reported by the Wife)					
	(Full sample)			(Non-working women)		
	OLS	Fisrt Stage	IV	OLS	Fisrt Stage	IV
Share of female labor negatively affected by Chinese competition in female-intensive industries		-0.10*** (0.03)			-0.13*** (0.04)	
Employment in female-intensive industries	0.14*** (0.050)		4.37*** (1.45)	0.14** (0.07)		3.07** (1.16)
Employment in male-intensive industries	-0.12** (0.06)	0.45*** (0.03)	-2.05*** (0.71)	-0.03 (0.08)	0.45*** (0.04)	-0.12** (0.51)
Employment in other sectors	-0.02 (0.02)	0.02 (0.01)	-0.06 (0.06)	-0.01 (0.02)	0.03* (0.01)	-0.07 (0.06)
F Fisrt stage			14.626			18.942
Observations			3549			2244

Notes: Clustered standard errors are reported in parentheses. Controls include number of children, wife's and husband's age and education polynomials, and wife's and husband's labor and non-labor income. Employment is reported in 1000 employees.
* Significance at the 90 percent confidence level. ** Significance at the 95 percent confidence level.
*** Significance at the 99 percent confidence level.

Appendix A: Household Decision Making Model

The household solves the following static maximization problem:

$$\begin{aligned}
&\max_{c^w,l^w,c^h,l^h,H_g,H_b,E} \lambda U^w(c^w,l^w,H_g,H_b;\mu,\Theta)+(1-\lambda)U^h(c^h,l^h,H_g,H_b;\mu,\Theta)\\
&\text{s.t.}\quad c^w+c^h+w^w l^w+w^h l^h+H_g+H_b=w^w+w^h+y^w+y^h\\
&\lambda=\lambda(z,y^w,y^h,w^w,w^h;\mu,\Theta)
\end{aligned} \tag{7}$$

In which, superscripts w and h represent wife and husband respectively. c is the private good, l represents the fraction of time spent on leisure and H is a public good. Here, H_g and H_b represent investment in girls and boys, accordingly. w^w and w^h are the wage rates in the labor market and y^w and y^h are wife and husband's non-labor income. Extrahousehold environmental parameters have been denoted by z. The vectors μ and Θ represent, respectively, observed and unobserved heterogeneity in individual and household characteristics and preferences that affect utilities. λ is the weight assigned to wife's utility in the household.

The solution to the household problem can be thought of as a two stage process. In the first stage, parents agree on public expenditures, as well as on the distribution of the residual non-labor income between them. At stage two, each parent chooses his/her level of consumption and labor supply, conditional on the level of public expenditures and budget constraint resulting from the decision made at stage one.

Let c^{i*} and l^{i*}, $i=w,h$, be the solution to (7), and define ρ^i as

$$\rho^i(w^w,w^h,y^w,y^h,\overline{E}^w;\mu,\Theta)=c^{i*}(w^w,w^h,y^w,y^h,\overline{E}^w;\mu,\Theta)+w^i l^{i*}(w^w,w^h,y^w,y^h,\overline{E}^w;\mu,\Theta)-w^i$$

ρ^i is the fraction of residual non-labor income allocated to member i to spend on private consumption and leisure after purchasing the public goods. Therefore,

$$\rho^w+\rho^h=y^w+y^h-H_g^*(w^w,w^h,y^w,y^h,\overline{E}^w;\mu,\Theta)-H_b^*(w^w,w^h,y^w,y^h,\overline{E}^w;\mu,\Theta)$$

Assuming that $V^i(w^i, \rho^i, H_g, H_b)$ is the attained level of utility of individual i when the level of the public goods are fixed at H_g and H_b, then in the first stage of households problem (7) the family chooses the level of H_g and H_b, and ρ^i:

$$\begin{aligned} &\max_{\rho^w, \rho^h, H_g, H_b} \lambda V^w(w^w, \rho^w, H_g, H_b; \mu, \Theta) + (1-\lambda) V^h(w^h, \rho^h, H_g, H_b; \mu, \Theta) \\ &\text{s.t.} \quad \rho^w + \rho^h + H_g + H_b = y^w + y^h \\ &\lambda = \lambda(\overline{E}^w, y^w, y^h, w^w, w^h; \mu, \Theta) \end{aligned} \tag{8}$$

Assuming an interior solution, the first order conditions result in

$$\lambda \frac{\partial V^w}{\rho^w} = (1-\lambda)\frac{\partial V^h}{\partial \rho^h} = \lambda \frac{\partial V^w}{\partial H_g} + (1-\lambda)\frac{\partial V^h}{\partial H_g} = \lambda \frac{\partial V^w}{\partial H_b} + (1-\lambda)\frac{\partial V^h}{\partial H_b}$$

and therefore,

$$\begin{aligned} \frac{\partial V^w/\partial H_g}{\partial V^w/\partial \rho^w} + \frac{\partial V^h/\partial H_g}{\partial V^h/\partial \rho^h} &= 1 \\ \frac{\partial V^w/\partial H_b}{\partial V^w/\partial \rho^w} + \frac{\partial V^h/\partial H_b}{\partial V^h/\partial \rho^h} &= 1 \end{aligned} \tag{9}$$

$\frac{\partial V^i/\partial H}{\partial V^i/\partial \rho^i}$ is marginal willingness of partner i to pay for the public good and condition (9) states that the individuals'marginal willingness to pay must add up to the price of the public good. Using these conditions, Blundell, Chiappori, and Meghir (2005) shows that H is increasing in λ if and only if

$$\frac{\partial V^w/\partial H}{\partial V^w/\partial \rho^w} > \frac{\partial V^h/\partial H}{\partial V^h/\partial \rho^h} \tag{10}$$

Which means that expenditure on the public good is increasing in λ if and only if the wife's marginal willingness to pay for H is bigger than that of husband.