

CENTRO DE INVESTIGACIÓN ECONÓMICA

Discussion Paper Series

**Are Informal Workers Compensated for the
Lack of Fringe Benefits?
Free Health Care as an Instrument for
Formality**

Laura Juárez

Instituto Tecnológico Autónomo de México

September 2008

Discussion Paper 08-04

Are Informal Workers Compensated for the Lack of Fringe Benefits?

Free Health Care as an Instrument for Formality

Laura Juarez*

September 18, 2008

Abstract

This paper estimates the effect of having a job covered by social security, on the wages of female salaried workers. I overcome the heterogeneity bias that typically contaminates estimates by using the exogenous availability of free health care and prescription drugs implemented in 2001 in the part of Mexico City that belongs to Distrito Federal (DF). This program provides valid instruments because health care is a substantial component of the benefits provided by social security, so the availability of alternative free health care should decrease the incentive to contribute to the system. In addition, eligibility for this program is not correlated with individual unobserved characteristics that affect either wages or the choice of sector. My results show that being a DF resident after free health care was implemented has a negative and significant effect on the probability that a female salaried worker has social security in her current job. Regarding wages, not controlling for the endogeneity of formality on the wage regression gives rise to a positive formal premium as in previous studies for both developed and developing countries. In contrast, my instrumental variables results show that female salaried workers in the formal sector earn between 16 to 23 percent less than female workers in informal jobs. These results show that workers who receive higher fringe benefits are paid a lower wage, which supports the compensating differential theory. In the Mexican context, it would also suggest that informal salaried workers are not necessarily worse off than their counterparts in the formal sector.

1 Introduction

In developing countries, a substantial fraction of workers have informal jobs, i. e., jobs not covered by health insurance or other fringe benefits mandated by law. The compensating differentials theory predicts that if workers value these benefits then informal workers should get a higher wage than workers in formal or covered jobs to compensate for the lack of benefits

*Centro de Investigacion Economica, Instituto Tecnologico Autonomo de Mexico, Camino Santa Teresa # 930, Heroes de Padierna, 10700 Mexico, D.F.. Phone: +52 (55) 5628-4000 ext. 2967. E-mail: ljuarez@itam.mx

(Rosen, 1986). In practice, estimating the tradeoff between wages and benefits typically suffers from endogeneity bias because unobservable worker characteristics are likely to be correlated with both the choice of sector and wages. A positive bias would arise if more able workers demand higher wages together with higher fringe benefits. In fact, many studies for the U.S. find positive or insignificant effects of health insurance coverage on wages using both cross section and panel data methods¹. For the same reason, the empirical literature on the wage differentials between formal and informal sectors in developing countries finds evidence of a positive formality premium (Funkhouser, 1999; Gong and Van Soest; 2002)², even if in some studies this premium is not significant (Pratap and Quintin, 2006)

A potential strategy for estimating the compensating differentials for fringe benefits consistently is to find valid instruments for having those benefits. Olson (2002) estimates the wages foregone for employer-provided health insurance using husband's firm size and union status as variables that influence whether wives working full-time accept or decline health insurance coverage through their own jobs. However, as the author discusses, assortative mating could still bias his results.

To overcome endogeneity, this paper estimates the effect of formality, i.e. of social security coverage, on the wages of female salaried workers using the exogenous availability of free health care and prescription drugs implemented in 2001 in the part of Mexico City that belongs to the state of Distrito Federal (DF). Mexican law requires employers in the private sector to register their employees with Mexican Institute of Social Security (IMSS). Both employer and employee are required to pay contributions to the system, and in return the employee gets access to public health care and retirement saving, among other benefits. Because health care is a substantial component of these benefits, the availability of state free health care should decrease the incentives to contribute to the system and should make informal or uncovered jobs more attractive to some workers, affecting their choice of sector. This policy provides valid instruments because the only requirements to participate are to be at least 18 years old, which is the legal working age in Mexico, to have at least 3 years of residence in the state and to lack health insurance coverage. Thus, eligibility for the program is not correlated with individual unobserved characteristics that affect both wages and the choice of sector.

I use a sample of female salaried workers with at most high school education from the Mexican Urban Employment Survey (ENEU) for Mexico City, Guadalajara and Monterrey,

¹Currie and Madrian (1999) survey the literature on the tradeoff between employer-provided health insurance and wages.

²Studies that do find a negative formal premium usually compare self-employed workers with salaried workers or use a definition of informality based on firm size. These studies classify self-employed, family and domestic workers, as well as salaried workers in firms with five or fewer workers as informal. Independent professionals and salaried workers in firms with more than five employees are considered formal. (Marcoullier et al, 1997; Maloney, 1999). Comparing the earnings of the self-employed, classified as informal, with those of salaried workers is misleading because they could include returns to risk, capital and entrepreneurship. On the other hand, even though firm size and compliance are positively correlated, a definition of informality based on firm size might be picking up the effect of the firm size on wages rather than the effect of informality per se. The positive effect of firm size on wages is well documented in the works of Brown and Medoff (1989), Schmidt and Zimmerman (1991) and Rebitzer and Robinson (1991), among others.

which are the three largest cities in Mexico. The data covers the period 2000-2004, before and after the policy change. After 2001, free health care was available only to DF residents, and not to individuals living in Guadalajara, Monterrey or the part of Mexico City that belongs to the State of Mexico. Using interactions of DF residence with year dummies as instruments, I estimate a probit for the probability of having a formal job and then estimate the wage equation using two-stage least squares using the predicted probability as an instrument for formality. I also perform estimations for a subsample of female workers with at most secondary education and for those younger than 30.

My results show that being a DF resident after free health care was implemented has a negative and significant effect on the probability that a female salaried worker has social security coverage in her current job. A woman with at most high school education in DF is 4 to 9.6 percentage points less likely to have a formal job after the policy change. Regarding wages, not controlling for the endogeneity of social security coverage gives rise to a positive formal premium, as in other studies for both developed and developing countries. In contrast, my instrumental variables results show that female salaried workers in the formal sector earn between 16 and 23 percent less than similar workers in informal jobs. These effects are slightly larger, but comparable to those obtained by Olson (2002). However, I cannot separate the effect of health insurance from other benefits provided by the social security system, like retirement saving, disability insurance and child care services.

The main contribution of this paper is showing that properly controlling for the endogeneity of fringe benefits gives rise to a negative formal premium, which supports the compensating differentials theory. In the Mexican context, this implies that informal salaried workers with low education are not necessarily worse off than their counterparts in the formal sector, because they are being compensated for the lack of fringe benefits. This would contradict the view of the informal sector as a "waiting" or relatively disadvantaged sector. However, if individuals underestimate the probability of becoming disabled or if they are myopic when making intertemporal decisions, withdrawing from the social security system could have negative consequences on their welfare in the future. Finally, even though universal access to health care could have positive effects on health outcomes, especially for individuals not participating in the labor market, my findings also suggest that weakening the link between contributions and benefits could lead to more non-compliance with the labor and tax laws in Mexico.

This paper is organized as follows. Section 2 presents the empirical strategy for estimating the effect of formality on wages and the instrumental variables procedure used in this paper. Section 3 describes the program used to obtain valid instruments for the choice of sector. Section 4 describes the data and variables used in the estimation. Section 5 discusses the results. Section 6 presents some additional empirical checks and section 6 concludes.

2 Estimating the effect of formality on wages

To measure the effect of social social security coverage on the wages of salaried workers, one could estimate the following equation:

$$\log wage = \delta_1 + \alpha_1 formal + X\beta_1 + u_1 \quad (1)$$

where the dependent variable is the logarithm of the hourly wage, *formal* is a dummy variable equal to one if the worker has social security coverage in her current job and X is a vector of individual characteristics. By assumption, u_1 has zero mean and it is not correlated with X . However, estimating α_1 consistently with OLS is problematic because u_1 is potentially correlated with *formal*. Workers choose whether to have a formal job according to their unobservable characteristics, like ability. In fact, if ability is positively correlated with *formal*, i.e. more able workers earn higher wages and also choose jobs covered by social security, then OLS would tend to overestimate the effect of formality on wages. Most previous work, both on compensating differentials and on the effect of formality on wages, suffers from this endogeneity, especially because in most cases it is very difficult to find instruments that affect the choice of sector or benefits, but not wages directly. Suppose z contains valid instruments for *formal*, that is, z can be properly excluded from equation (1), it is partially correlated with having a formal job and it is not correlated with u_1 .

An instrumental variables procedure that exploits the binary nature of the endogenous explanatory variable consists in estimating the probability of having a formal job with a probit ³:

$$\text{Pr } ob(formal = 1|X, z) = \Phi(\delta_2 + X\beta_2 + z\gamma) \quad (2)$$

and then estimating equation (1) by two-stage least squares (2SLS) using the fitted probabilities from (2) as an instrument for *formal*. This IV estimator is consistent and asymptotically normal, and it does not require the probit to be the correct specification for equation (2). The 2SLS standard errors and test statistics are asymptotically valid, and they can be corrected for heteroskedasticity and serial correlation. Without valid instruments that are actually excluded from equation (1), identification would rest entirely on the nonlinearity of the probit model. In this paper, I use the exogenous availability of free health care in DF after 2001, described in the next section, to generate instruments for *formal*.

³The description of the procedure is taken from Wooldridge (2002).

3 Description of the Free Health Care and Prescription Drugs Program

According to Mexican labor law, employers in the private sector must register their employees with Mexican Institute of Social Security (IMSS)⁴. Both employer and employee are required to pay contributions to the system, and in return the employee gets access to public health care and retirement saving, among other benefits. Federal employees are covered by a similar but separate system called Health and Social Security Institute for Government Employees (ISSSTE). Finally, a small proportion of salaried workers in the private sector get private health insurance through their jobs. As a large literature on informality documents, an important fraction of workers is not covered by any kind of public or private health insurance through their jobs (40 percent in my data).

The "Free Health Care and Prescription Drugs Program" (PSMMG) is a state program that provides free health care and medications to the population not covered by any type of health insurance living in the DF part of Mexico City. The program was created in June 2001. To qualify for the program, an individual must be at least 18 years old, must have at least 3 years of residence in DF, and must not be covered by IMSS, ISSSTE or any other type of health insurance. Individuals must enroll voluntarily to receive benefits and they can do so in any state hospital. No fee is paid for either enrollment or any of the medical services, regardless of the applicant's individual or household income. The program covers also the beneficiary's dependents, like her spouse or partner and her children. The only ways of losing the benefits from the program are by providing false information or getting a job covered by either IMSS or ISSSTE.

The benefits from this program are quite generous. The health services provided for free include vaccines, doctor visits, mental health services, lab services, dental and vision care, among others, and they must be provided in hospitals under the administration of the DF government. The program also provides the prescription drugs required by treatment at no cost to the beneficiary and explicitly includes those for the treatment of HIV⁵.

In 2001, the federal government started Seguro Popular, a program that provides low-cost health insurance access to the population not insured through their jobs. However, this federal program charges an annual family fee or premium that increases with household income⁶, and some copayment fees for each service. For this program to be implemented in a given state, the local government must explicitly request it. By 2004, Seguro Popular had not started operating in DF, because the state government had rejected it⁷, even though that would

⁴Unpaid family workers and non-salaried workers, like independent professionals, are not legally forced to register with the Social Security system.

⁵Before this program, some free health services were provided by the state hospitals, but they were restricted to emergency care and other 14 basic medical procedures. The patients would pay for medications and for any additional care.

⁶Households in the first two income deciles are not required to pay. The premiums paid by households in higher income deciles range from 64 to 1000 USD per year.

⁷The DF government rejected Seguro Popular because the PSMMG was already operating and also because

allow covering some of the health expenses with additional federal money⁸ and providing services in federal hospitals as well.

4 Data and empirical specification

This paper uses quarterly data from Mexico's National Urban Employment Survey (ENEU), which is a panel that covers 38 cities in the country. Each individual is followed for a maximum of five quarters and the information collected refers to the previous week. I use a sample of female salaried workers 18 to 60 years old in the three largest cities in Mexico: Mexico City, Guadalajara and Monterrey. Government workers are excluded from the analysis. My data covers the period 2000-2004. After the second semester of 2001, individuals not covered by social security in DF were eligible for free health care and prescriptions drugs, whereas individuals Guadalajara, Monterrey and the part of Mexico City that belongs to State of Mexico were not. Observations in Guadalajara and Monterrey act as controls because they are in cities similar to DF, but in the northern part of Mexico, and observations in State of Mexico, but still within the metro area of Mexico City, further control for any specific regional effects.

Given that health care is a substantial component of the benefits linked to the employee's and employer's contributions to IMSS, the availability of free health care in DF should decrease the incentives to contribute to the social security system, thus decreasing the probability that a given worker has a formal job. Female workers with relatively low education are more likely to respond to this policy for several reasons. First, women are more likely to be the household secondary earners. Second, workers with high education might not respond to the policy change because for them it is difficult to find suitable jobs in the informal sector, whereas workers with lower educational levels might actually find jobs with similar characteristics in both sectors. In addition, workers with high education can also afford private health insurance, and they might not be willing to substitute between private and public care. I also perform estimations for a subsample of female salaried workers with at most secondary education and for those who are at most 30 years old. Younger workers are relatively healthy, so they might value health benefits less, and they might also value wages today more than pension benefits tomorrow, because retirement seems farther away for them.

Figure 1 shows the fraction of female salaried workers in my sample who have jobs covered by social security in DF and outside of DF (Guadalajara, Monterrey and the State of Mexico part of Mexico City) during the period 2000-2004. The group of workers living outside of DF has formal participation rates that stayed more or less constant around 60 percent during this period. The fraction of female salaried workers covered by Social Security in DF oscillates

it did not agree on charging any premiums or fees for the provision of health services.

⁸The PSMMG is financed with the resources from Branch 33 (Ramo 33) of the Federal Budget, which are resources that the federal government transfers to the state governments to finance expenditures on education, health, infrastructure and public safety.

between 55 and 60 percent until the end of 2002. After that, one and a half years after free health care was first announced in DF, the proportion of formal workers in DF falls sharply. This preliminary evidence suggests that free health care availability in DF might have decreased the fraction of female workers with social security coverage. Figure 1 also suggests that the response to the program was not immediate, probably because individuals wait to see how the program actually works before deciding to switch sectors⁹.

For my estimations, I calculate real hourly wages in 2002 pesos as monthly labor earnings, divided by the monthly hours worked and the average consumer price index for the corresponding quarter. The independent variables included in the probit and logwage equations are age, years of schooling, number of children younger than 3 years old, children 3-5 years old, and children 5-12 years old, number of adults age 18 and older and number of adults age 70 and older in the household; dummies for married, head of household, firm size, occupation, industry, year, and city. The key independent variable in the logwage regression is *formal*, a dummy equal to one if the individual has IMSS coverage. The instruments are the interactions of the DF dummy with the year dummies (for instance, $DF \times 2001$), Monterrey is the excluded category and I also control for Guadalajara-year and State of Mexico-year interactions. Standard errors are clustered at the individual level.

Table 1 shows the mean and standard errors of the variables used in the estimation for female salaried workers in DF, State of Mexico, Guadalajara and Monterrey, before the policy change. In DF, about 57 percent of female salaried workers have IMSS coverage before 2001. Both Guadalajara and Monterrey have a higher fraction of similar workers in covered jobs, but the difference is the largest between Monterrey and DF. The mean hourly wage in DF is 15.96 pesos, which is higher than in State of Mexico, very similar compared to Guadalajara, but lower than in Monterrey (18.15 pesos). Female workers seem to be a little bit older, more likely to be married and to be heads of household in DF than in Guadalajara and Monterrey. Women in DF and State of Mexico seem to be quite similar in those characteristics. About 37 percent of female salaried workers in DF are in firms with 5 employees or less, which is higher than in State of Mexico or Monterrey, but similar that in Guadalajara. Women in the three cities have on average about 9 years of schooling which corresponds to having completed secondary education.

Table 2 shows the results of tests of differences in means between female workers in DF and outside of DF before the policy change. Although most of the differences are significant, except for the real hourly wage, they are small.

Table 3 reports the probit marginal effects of the DF-year interactions on the probability of having a formal job, calculated at the mean of independent variables. These interactions are all negative and significant at conventional levels after 2001, and they seem to be larger in later years. The first column shows that for female workers with at most high school

⁹Switching between a formal and informal job not necessarily means changing employer. An individual could continue working in her same job, but just drop out of the Social Security system. In my data, I can identify whether workers changed their coverage but not whether they changed jobs.

education being a DF resident in 2001, very shortly after free health care was made available decreases the probability of having a formal job by 2.9 percentage points, but being a DF resident in 2002, 2003 and 2004 decreases the probability of having a formal job by 4.2, 10 and 9.6 percentage points, respectively. For 2004, the decrease amounts to 16 percent of the probability of having a formal job. A similar pattern is observed for the subsample of women with at most secondary education and women younger than 30 in the other columns, but some effects are larger in absolute value, especially in 2003 and 2004, as would be expected for working women who are relatively young and have lower education levels. Female salaried workers with at most secondary education (9 years of schooling) are between 20 and 27 percent less likely to have a formal job if they are in DF in 2003 and 2004. Finally, working women who are younger than 30 are 11 percent less likely to have a formal job in 2003 and 20 percent in 2004. So, the availability of free health care in DF seems to have effectively decreased the probability of having a job covered by social security. Most of the Guadalajara-year and State-of-Mexico-year interactions (not shown) are small in magnitude and not significant, which implies that in the years following the policy change in DF, workers in Guadalajara and State of Mexico did not experience a significant city-specific change in the probability of having a formal job compared to those in Monterrey, the excluded category.

Table 4 shows the effect of formality on wages estimated by pooled OLS, first-differences and by instrumental variables. The first two rows do not control for the endogeneity of sector choice and show that, as obtained by previous work, workers in jobs covered by social security earn about 10 percent more than workers in uncovered jobs. This would contradict the compensating differentials theory because it implies that formal workers receive both higher fringe benefits and higher wages. The third row shows the results from a 2SLS estimation, using the predicted probability of having a formal job for each observation as an instrument for formality. In contrast to the results using pooled OLS or first-differences, the effects of formality on wages estimated by this IV procedure are negative and significant. Social security coverage decreases wages by 22 percent for female salaried workers with at most high school education; by 23 percent for women with at most secondary education and by 16 percent for women younger than 30. Olson (2002) estimates that married women in the U.S. forego approximately between 10 and 20 percent of wages in exchange for health insurance. My IV estimates imply a similar trade off between wages and benefits, however, I cannot separate the effect of health insurance from other benefits that formal workers receive by contributing to the Social Security system, like retirement saving, disability insurance and child care, among others. The last row in Table 3 shows the first-stage coefficient for the instrument \hat{P} , the predicted probability of having a formal job obtained from the probit estimation. As expected, this fitted probability has a positive partial correlation with the endogenous variable and it is significant at 1 percent in all cases.

My findings show that pooled OLS and first-differences suffer from positive endogeneity bias, as would be expected if ability is positively correlated with wages and social security

coverage. Once the endogeneity is controlled for, I find that female salaried workers in formal jobs earn less than women in uncovered or informal jobs, as the compensating differentials theory predicts. This implies that female salaried workers with relatively low education are not necessarily worse off in the informal sector than their counterparts in the formal sector, because they are being compensated for the lack of fringe benefits. However, if individuals underestimate the probability of becoming disabled or if they are myopic when making intertemporal decisions, withdrawing from the Social Security system could have negative consequences on their welfare in the future. In addition, an increase in informality due to the weakening of the link between benefits and contributions, might not be desirable because it implies also lower tax compliance.

5 Additional Empirical Checks

To perform some additional checks, I use the Employment and Social Security Supplement (ENESS) to the ENEU data, collected in 2000 and 2004, which has a few more detailed questions on social security coverage and health care use during the previous year.

First, I separately estimate the probability of having social security coverage in her current job for female salaried workers who are already covered by IMSS as dependents, either as spouse or child of an IMSS holder, and those who are not. In my main estimations in section 4, I do not distinguish between these two groups because I did not want to introduce sample selection biases, but intuitively one would expect that women who are already covered by IMSS as dependents would respond less to the policy. In fact, I find that living in DF in 2004 has a small and not significant effect on the probability that female salaried workers who are already covered as dependents have IMSS coverage through their own jobs, and a negative and significant effect for those who are not covered as dependents.

I also estimate a probit for having used health care at least once in the previous year, and a multinomial logit for the type of health care used most frequently, conditional on having used health services at least once. The availability of free health care in DF hospitals should have a positive effect on the probability that a given woman uses health care services at least once during the previous year and, if the program effectively decreased the probability of having IMSS, as shown in the previous section, it should also decrease the probability of IMSS being the type of health most frequently used. The first column of Table 5 shows that female salaried workers in DF in 2004, 3 years after the policy started, have a 30 percent (0.199/0.665) higher probability of having used health care services at least once in the last 12 months, whereas the effect for similar workers in Guadalajara and State of Mexico is small and not significant. The last 3 columns of Table 5 show the marginal effects for the multinomial logit on the type of health care used most frequently. Being a DF resident in 2004 has a negative but not significant effect on using private health care. The effects of being in Guadalajara and State of Mexico in 2004 on private health care use are larger, but only significant for Guadalajara,

so the program does not seem to have decreased private health care use significantly in DF. As would be expected, being a DF resident in 2004 has a negative effect, significant at 10 percent, on using IMSS services, which is at least 1.6 times the negative, but not significant, effects obtained for Guadalajara and State of Mexico. Finally, being in DF in 2004 has a positive effect, significant at 10 percent, on using other public health care, which excludes ISSSTE, but includes Pemex, military and state health services. The program should increase the use of state health services in DF, because they are for free. However, in these data, I cannot separate the use of state health services from the other public health services that are grouped together under this category. The evidence is modest, but it suggests that the policy indeed decreased the use of IMSS and increased the use of other public health care in DF, as would be expected.

6 Conclusions

This paper estimates the effect of formality, that is, of having social security coverage on the wages of female salaried workers. I overcome the endogeneity bias that typically contaminates estimates by using the exogenous availability of free health care and prescription drugs implemented in 2001 in DF. My results show that being a DF resident after free health care was made available has a negative and significant effect on the probability that a female salaried worker has Social Security in her current job. A woman with at most high school education in DF is about 17 percent less likely to have a formal job after the policy change. Regarding wages, not controlling for the endogeneity of social security coverage gives rise to a positive formal premium as in other studies for both developed and developing countries. In contrast, my instrumental variables results show that female salaried workers in the formal sector earn between 16 to 23 percent less than female workers in jobs not covered by Social Security.

The main contribution of this paper is showing that workers who receive higher fringe benefits are paid a lower wage, which supports the compensating differential theory. In the Mexican context, it would also mean that informal salaried workers are not necessarily worse off than their counterparts in the formal sector. Informal workers get less benefits, but they also get higher wages to compensate for them. However, if workers underestimate the probability of becoming disabled or if they fail to optimize their retirement savings, opting out of the social security system could make informal workers worse off in the future, because the system provides disability insurance and retirement savings, among other benefits. Another implication of my results is that weakening the link between contributions and benefits could go against the efforts of increasing labor law and tax compliance in Mexico.

7 References

References

- [1] Brown, C. and Medoff, J., 1989, "The employer size-wage effect", *Journal of Political Economy*, v97, 5: 1027-1059.
- [2] Currie, J. and Madrian, B., 1999, "Health, Health Insurance and the Labor Market," in *Handbook of Labor Economics*, vol. 3C, ed. by O. Ashenfelter and D. Card, Elsevier, pp. 3309-3406.
- [3] Funkhouser, E., 1996, "The urban informal sector in Central America: household survey evidence", *World Development*, v24, 11:1737-1751.
- [4] Gong, X. and Van Soest, A., 2002, "Wage differentials and mobility in the urban labour market: a panel data analysis for Mexico", *Labour Economics*, v9: 513-529
- [5] Maloney, W., 1997, "Are LDC labor markets dualistic?", World Bank, mimeo.
- [6] Maloney, W., 1999, "Does informality imply segmentation in urban labor markets? Evidence from sectoral transitions in Mexico", *The World Bank Review*, v13, n2: 273-302.
- [7] Marcoullier, D., Ruiz de Castilla, V. and Woodruff, C., 1997, "Formal measures of the informal sector wage gap in Mexico, El Salvador and Peru", *Economic Development and Cultural Change*:367-392
- [8] Olson, C., 2002, "Do Workers Accept Lower Wages in Exchange for Health Benefits?", *Journal of Labor Economics*, vol. 20, no. 2 pp. S91-S114.
- [9] Pratap, S. and Quintin, E. "Are labor markets segmented in developing countries? A semiparametric approach". *European Economic Review*, 2006, 7, pp. 1817-1841
- [10] Rebitzer, J. and Robinson, M., 1991, "Employer size and dual labor markets", *Review of Economics and Statistics*, v73, 4: 710-715
- [11] Rosen, S. 1986, "The Theory of Equalizing Differences" in *Handbook of Labor Economics*, O. Ashenfelter & R. Layard (ed.), vol. 1, chapter 12, pp. 641-692
- [12] Schmidt, C. and Zimmermann, K., 1991, "Work characteristics, firm size and wages", *Review of Economics and Statistics*: 705-710.

Table 1: Descriptive Statistics for Female Salaried Workers Before the Program

	All	Metro Area of Mexico City		Other cities	
		DF	State of Mexico	Guadalajara	Monterrey
Formal	0.599 (0.004)	0.566 (0.009)	0.508 (0.010)	0.584 (0.007)	0.682 (0.007)
Real hourly wage	16.305 (0.163)	15.968 (0.265)	13.930 (0.282)	15.921 (0.203)	18.149 (0.418)
Age	30.423 (0.089)	32.553 (0.205)	31.086 (0.223)	29.695 (0.153)	29.625 (0.158)
Years of education	8.996 (0.022)	9.092 (0.053)	8.834 (0.061)	8.814 (0.037)	9.225 (0.034)
Married	0.434 (0.004)	0.444 (0.009)	0.455 (0.010)	0.433 (0.007)	0.419 (0.007)
Head	0.133 (0.003)	0.173 (0.007)	0.171 (0.008)	0.122 (0.004)	0.104 (0.004)
Household size	4.471 (0.019)	4.552 (0.036)	4.819 (0.040)	3.740 (0.039)	5.090 (0.029)
Children 0-3 years old in the hh	0.224 (0.004)	0.178 (0.008)	0.191 (0.009)	0.255 (0.007)	0.232 (0.007)
Children 4-5 years old in the hh	0.241 (0.004)	0.215 (0.009)	0.217 (0.010)	0.274 (0.007)	0.232 (0.007)
Children 6-12 years old in the hh	0.560 (0.006)	0.477 (0.013)	0.552 (0.016)	0.671 (0.012)	0.486 (0.010)
Individuals 70+ years old in the hh	0.089 (0.003)	0.115 (0.007)	0.076 (0.006)	0.059 (0.003)	0.113 (0.005)
In firms with less than 5 employees	0.315 (0.004)	0.365 (0.009)	0.303 (0.006)	0.377 (0.010)	0.268 (0.006)
Number of observations	15,835	2,985	2,398	5,594	4,862

Standard errors in parentheses. Sample: Female salaried workers with at most high school education (12 years of schooling). The period before the implementation of free health care in DF is from the 2nd quarter of 2000 to the 2nd quarter of 2001. A woman is considered a formal worker if her job is covered by social security.

Table 2: Tests for Differences in Means Before the Program

	Not DF	DF	Difference
Formal	0.607 (0.004)	0.566 (0.008)	0.041*** (0.009)
Hourly wage	16.390 (0.192)	15.970 (0.265)	0.422 (0.406)
Age	29.928 (0.099)	32.553 (0.205)	-2.625*** (0.228)
Years of schooling	8.973 (0.024)	9.092 (0.053)	-0.119** (0.056)
Firm less than 5 employees	0.304 (0.004)	0.363 (0.008)	-0.061*** (0.009)
Number of observations	12,854	2,985	

Standard errors in parentheses. Sample: Female salaried workers with at most high school education (12 years of schooling). The period before the implementation of free health care in DF is from the 2nd quarter of 2000 to the 2nd quarter of 2001. Women in Guadalajara, Monterrey and the part of Mexico City that belongs to State of Mexico are grouped together in the "Not DF" category. A woman is considered a formal worker if her job is covered by social security.

Table 3: Effect of Free Health Care Access on the Probability of Having a Formal Job

	At Most High School	At Most Secondary	Younger than 30
DF	-0.053*** (0.018)	0.014 (0.023)	-0.076 (0.021)
DF x Year			
2001	-0.029 (0.026)	-0.036 (0.032)	-0.016 (0.027)
2002	-0.042* (0.024)	-0.067** (0.030)	-0.049* (0.030)
2003	-0.100*** (0.025)	-0.143*** (0.031)	-0.072** (0.030)
2004	-0.096*** (0.029)	-0.107*** (0.036)	-0.128*** (0.036)
Proportion in formal job	0.587	0.524	0.643
Number of observations	51,858	35,608	27,651

Probit marginal effects calculated at the mean of independent variables. Standard errors clustered at the individual level are reported in parentheses. Sample: Female salaried workers with at most high school education (12 years of schooling). A woman is considered a formal worker if her job is covered by social security. All estimations control for age education, number of children of different ages in the household, number of individuals at least 12 years old in the household, number of individuals at least 70 years old in the household and dummies for married, firm size, head of the household, occupation, industry and years. The omitted category for city is Monterrey and the base year is 2000.

Table 4: Effect of Formality on Log Wages

	At Most High School	At Most Secondary	Younger than 30
Pooled OLS			
Formal	0.109*** (0.008)	0.114*** (0.009)	0.091*** (0.009)
First-Differences			
Formal	0.100*** (0.010)	0.093*** (0.011)	0.099*** (0.011)
Instrumental Variables			
Formal	-0.222*** (0.084)	-0.228* (0.132)	-0.159** (0.075)
First-stage coefficient on fitted probability	0.908*** (0.049)	0.744*** (0.066)	1.046*** (0.049)

Standard errors clustered at the individual level are reported in parentheses. Sample: Female salaried workers with at most high school education (12 years of schooling). Secondary education is equivalent to 9 years of schooling. Formal is a dummy variable equal to 1 if the woman has a job covered by social security. All estimations control for age education, number of children of different ages in the household, number of individuals at least 12 years old in the household, number of individuals at least 70 years old in the household and dummies for married, firm size, head of the household, occupation, industry and years. For the IV estimation, fitted probabilities from a probit on the probability of having a formal job are used as an instrument for formal in a 2SLS procedure.

Table 5: Use of health care services

	Probit for health care use	Multinomial Logit for type of health care most frequently used in last 12 months		
	At least once in last 12 months	Private	IMSS	Other public health care
2004	-0.116* (0.067)	0.033 (0.085)	0.063 (0.087)	-0.096 (0.067)
Guadalajara	-0.011 (0.044)	0.130** (0.054)	-0.081 (0.053)	-0.049 (0.034)
Guadalajara x 2004	0.049 (0.067)	-0.186** (0.079)	-0.088 (0.122)	0.204 (0.161)
State of Mexico	-0.110** (0.050)	0.016 (0.064)	-0.057 (0.062)	0.041 (0.048)
State of Mexico x 2004	0.097 (0.074)	-0.129 (0.108)	-0.103 (0.130)	0.212 (0.177)
DF	-0.125*** (0.046)	0.051 (0.059)	-0.095 (0.058)	0.044 (0.042)
DF x 2004	0.199*** (0.058)	-0.104 (0.103)	-0.165* (0.091)	0.270* (0.154)
Sample probability Y=1	0.665	0.371	0.487	0.142

Probit and multinomial logit marginal effects are calculated at the mean of the independent variables. Standard errors clustered at the individual level are reported in parentheses. Sample: Female salaried workers with at most high school education from ENESS supplement for 2000 and 2004. All estimations control for age education, number of children of different ages in the household, number of individuals at least 12 years old in the household, number of individuals at least 70 years old in the household and dummies for married, firm size, head of the household, occupation, industry and years.

Figure 1

