Labor Vulnerability and the Evolution of the Working Poor in Mexico

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Abstract

This paper addresses changes in labor poverty and labor income at the household level during a period of time characterized by a macroeconomic shock with higher unemployment and lower real wages. Using data from the employment surveys (ENOE) for 2005 and 2010, and with matching for time invariant characteristics, we create a group of comparable households for 2005 to overcome the lack of longer panel data. We applied a probabilistic model for labor poverty, a multinomial for changes in poverty between 2005-2010 and regression for labor income. Results show that social security in the job, increasing members with income, an education play a key role in preventing labor poverty and increasing labor earnings. In the time span households needed to increase their share of earners in order to prevent poverty and decreasing income. Education is mostly relevant for urban areas, but high school and college workers have seen falling their income relatively more.

Keywords: labor, poverty, income, shock, dynamics.

JEL: D13, D30, D63, I32, J24

Introduction

Inequality in Mexico has been consistently high relative to other countries. For example, according to the OECD (2011), Mexico has the higher income inequality growth since the 1980s to the last of the 2000 decade, and in this context the role of capital income is only more important for the richer quintiles, leaving to most of the households to be highly dependent on their labor supply.

Labor supply is then one of the main assets that households have. A large share of the total household income comes from labor earnings of the members. In this regard, how household perform in the labor market is related to their status on poverty and vulnerability, and the dynamic they experience within the labor market. Inchasute (2012) for example, while reviewing the literature finds no surprisingly that more and better jobs are needed to leave poverty. Macroeconomic shocks, however, introduces some mechanisms affecting vulnerability for those households relying more on their labor supply. According to Agenor (2004) this happens through wage freeze, layoff, and spending cuts.

The dynamics of labor in Mexico can be found mostly in the formal and informal sector. According to Rodríguez-Oreggia (2009) for example, the informal sector (uncovered by social security benefits in the job) plays one of the main role in adjusting movements in the labor market, since more movements are registered within informality and from formality to informality than the other way around. Besides, the financial crisis in 2008-2009 decreased jobs and reduced real wages, affecting the vulnerability of households to have a wage that not necessarily cover the minimum welfare required for the members for a normal living (see i.e. Freije et. al, 2011). In this context, it is relevant to analyze the characteristics and factors associated with poverty status, since policies aimed to decrease poverty in Mexico are not exactly linked with the labor market, and how the dynamic of poverty evolve on time.

One of the main barriers to the analysis of mobility is the existence of panel data. Previous studies (i.e. Cuesta, Ñopo and Pizzolito, 2011; Dang et. al, 2011; Antman and Mckenzie, 2007) have pointed the need to develop panel data for such analysis and take

some steps on constructing alternatives that consistently can shed some light on movements from poverty. Here, we are interested in studying micro-mobility, since we focus on determinants of labor income changes at the household (HH) level, and more specifically on positional movements provided changes in poverty status given a set of labor changes (Fields, 2005).

In this paper we will address labor vulnerability measuring the evolution of the working households and their probability to leave or to fall into labor poverty during a period of time. In doing so, we construct with an alternative methodology a panel of data for a longer period of time than the one available in the Mexican surveys. Using the National Employment Surveys (ENOE) for Mexico in a five years span of time, and then using some time invariant characteristics, we find households five years earlier that can be he similar of the original households, and this can be used for a panel of data. After that, we apply different models to relate several household characteristics to movement in and out of labor poverty, and to labor earnings evolution.

The paper is structured in the following way. First, we present some of the literature on poverty dynamics, mobility and how to tackle the lack of panel data. Then, there is an overview of the labor market and poverty in the last years in Mexico. In a following section we introduce the methodology to match individuals with similar characteristics with a span of time, followed by the models and results. Finally some conclusions are drawn.

Labor vulnerability, mobility, and poverty

Lack of research on the dynamics poverty is a characteristic in the Latin American countries, since most of the research in this aspect has been undertaken in developed countries, preventing the understanding in deep of how mobility takes place especially in poorer HH. According to Cuesta, Ñopo and Pizzolitto (2011), this happens because proper panel data for longer periods of time are not yet available in such countries. According to these authors, there are more effectiveness in public policies preventing HH from falling in the income ladder when they know better how mobility takes places and factors speeding up such process.

Previous research has tried to tackle the lack of panel data. For example, Dang et. al (2011) developed an alternative method that allows the use of microdata and analysis at such level. Based on the method of poverty maps, these authors use non-parametric, and parametric bounds for measuring mobility, where with two surveys, in different years, and calculating parameters for one of them with time invariant characteristics, which are applied to the second period characteristics.

Bane and Ellwood (1986) identified three main streams of research analyzing the dynamics of poverty. The first focuses on levels of income with lags on the structure of HH to capture the dynamics (i.e. Lillard and Willis, 1978). A second uses spell durations and exit rates of poverty, and a third is based on describing proportion of poor in determined cells during a time (i.e. Duncan, 1983). Bane and Ellwood used exit of poverty probabilities for HH in America, finding that the main mechanism for leaving poverty is increasing the earning of other members within the HH, with high heterogeneity in HH under that situation.

Following such line of research, for example Woolard and Klasen (2005), using a small sample with the structure of a 5 years panel from a region in South Africa, find that transitory income is one of the main determinants of HH welfare. In addition, poverty traps are more related to larger HH size, poor initial education, assets, and employment. In other studies (i.e. Jalan and Ravallion, 2002), geographical poverty traps have been detected, giving insight on the importance of localities for escaping poverty given a set of HH and personal characteristics, using a panel for rural farm HH in China.

In Devicienti et al (2010), they use a panel of households and analyze the dynamic of income poverty and a deprivation index in Italy during the 1990s and beginning of 2000s. They focused on the changes in poverty status between surveys, using a multivariate model for exit and re-entry spells of poverty, and finding a general transitory movement to poverty, with some groups in permanent poverty. For these groups the relevant characteristics are area of residence, labor status of household head, and the number of other (than HH head) members working. For the Netherlands, De Lange, Wolberts and Ultree (2012) also show that for young couples there is a relation between the head and partner in the employment situation, regarding the precariousness of those jobs.

Macro shocks such as an economic crisis also alters the dynamic of HH regarding their poverty status, making them more vulnerable to fall in such status, given the change in prices, and movement in aggregated employment. Since HH in lower income groups depend on their labor supply, movement in employment and labor earnings increase their vulnerability to poverty. Corbacho et al (2003) analyzed these aspects with panel data for urban Argentina during the crisis 1999-2002. They analyzed how several factors and characteristics of the HH have an incidence on the change in earnings in that period. They find HH with head more educated and working in the public sector are less vulnerable, while more vulnerability was detected from HH with higher ratio of elder members, and with children. These results also show that non-labor income served as coping mechanism for the crisis in HH, and also for on poor HH it was difficult to cope with the shock.

For other Latin American countries, Beccaria et al (2011) compared 5 countries in the continent (Argentina, Brazil, Costa Rica, Ecuador and Peru) using panel data. The authors analyze exit and entry rates into poverty and study what factors are associated with those movements. They find that although poor HH make use of increasing members with income, they cannot leave poverty because those additional earnings are still insufficient. They also find that precariousness of labor is not associated with more earnings, reinforcing the working poor phenomenon, being related the dynamic of poverty to the mobility of labor earnings.

For Mexico, Antmant and Mckenzie (2007) used a pseudo pane,l built with the employment surveys for the period 1987-2001, and measuring mobility for cohort groups. They find low absolute mobility in earnings, but high conditional mobility. In this last case, given a shock to labor earnings that decreases their income to lower levels than those determined by their characteristics, can fully recover within two years.

Mexico has experienced irregular periods of economic growth, and has been an unequal country with high levels on informality and low wage jobs. Not only about 66% of those with a job do not have access for social security benefits (a measure for informality), but low wages are correlated with the kind of such accessibility, being those in public jobs with higher wages, and those informal with the lower (see i.e.

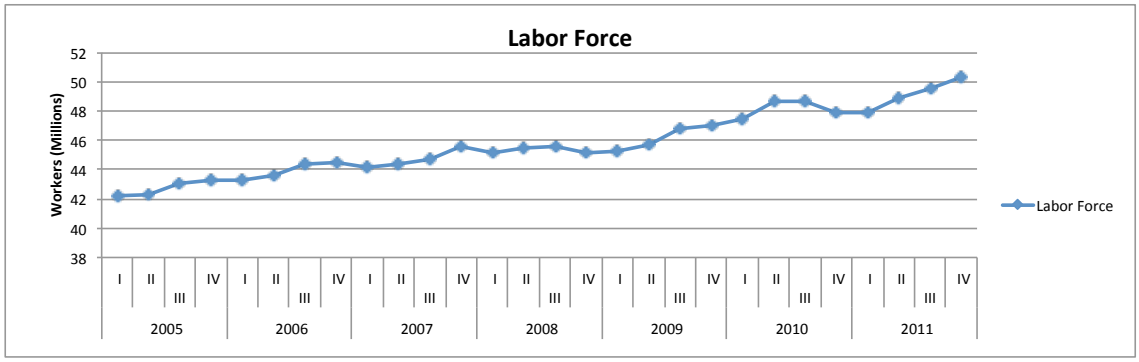
Rodríguez-Oreggia, 2010). In this context, the country has suffered from the same lack of long term panel data that allows for the study of dynamics at more micro level. This paper contributes to the literature in creating a panel with 5 years span using two different rounds of a survey, and creating synthetic households. In doing so, we will be able to analyze the evolution of HH characteristics, and link them with the change in poverty status.

Overview of the Mexican labor market and poverty evolution

Previous to the crisis 2008-09, the Mexican labor market was characterized by low unemployment rates together with high levels of informality, and also low average wages in an economic context of low growth. The economic crisis affected the labor market increasing the unemployment rate and informality, with a poor response from the public policy side to cope with the shock (see for example Freije et al, 2011).

The labor force experienced an increase during the second half of the past decade. At the beginning of 2005 there were about 42 million individuals in the labor force, while in 2001 this figure increased up to about 50 million, as shown in Figure 1. Even though the natural trend has been toward increasing the labor force, the crisis may have pushed several households to increase their labor supply in order to maintain consumption during this period.

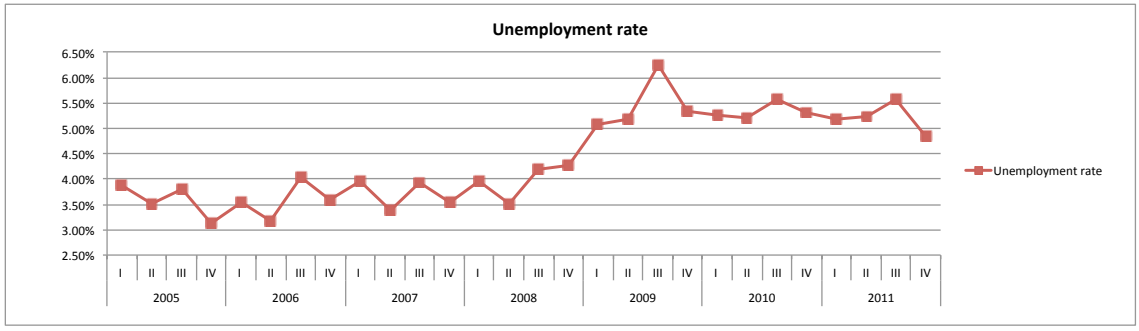
Figure 1



Source: own calculations using ENOE (several years)

The unemployment rate also increased in this period, as shown in Figure 2. From being constantly around 3.5% before the crisis, the unemployment rate increased to above 5%. Despite some recovery, this rate is still relatively high to previous the crisis.

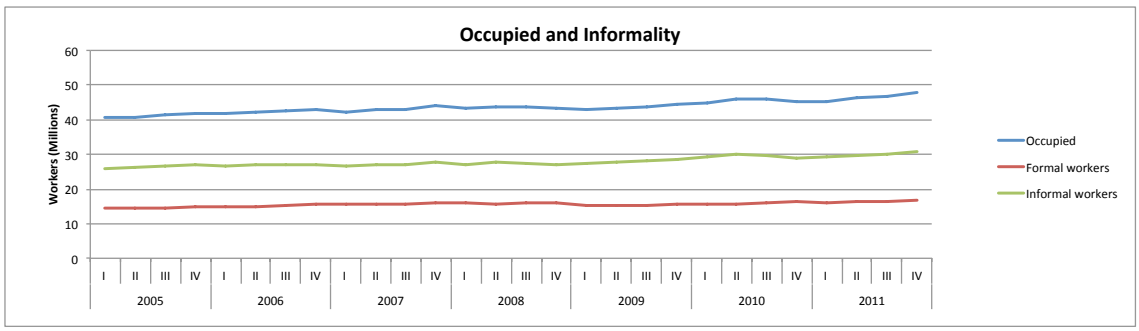
Figure 2



Source: own calculations using ENOE (several years)

In this context, jobs in the informal sector, measured as access to social security benefits for the job, remained high, being of about 65% of those in a job lack such benefits. At the end of 2011 from about 47 million with an occupation, almost 31 million lack such benefits for their job (see Figure 3). Even though in total numbers more individuals are in the informal sector, in percentage from the labor force is just slightly high than previous to the crisis. Probably, even the informal sector was not able to absorb new entrants to the labor force in this period, reflecting in the higher unemployment rate.

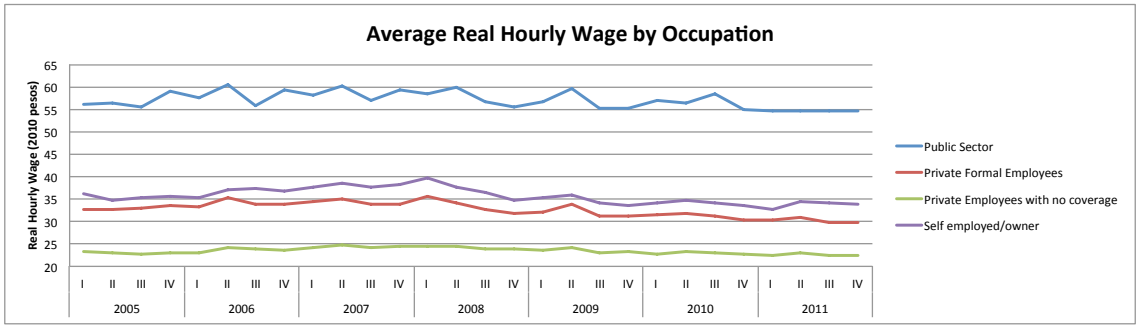
Figure 3



Source: own calculations using ENOE (several years)

Formality can also be segmented according to the system of benefits the workers are paying contributions, which may be related to their productivity, measured as wages. Figure 4 displays the real hourly wages in this period under analysis for each type of benefits, or lack of them.

Figure 4

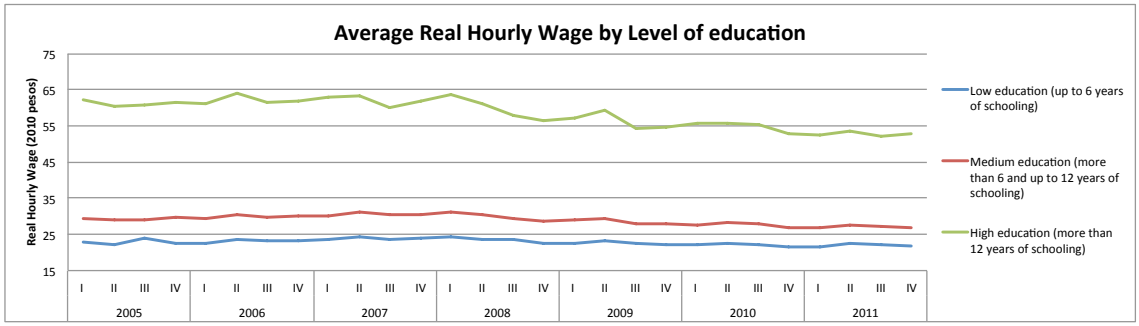


Source: own calculations using ENOE (several years)

According to Figure 4, worker in the public sector have the higher average real hourly wage. Although this group experienced a small decrease during the crisis, so the other groups did (although with a higher decrease). Self-employer/owners, and those employees covered by the private social security system (IMSS) have about similar average wages, but accounting for only about two thirds of those in the public sector. Those in the lower end of the wage scale are the employees with no coverage at all for their job. This group has an average hourly wage of about only 40% of the top group (public sector). If we account for the benefits received for formality, the difference would be even higher. Thus employees with no coverage and with lower wages are the more vulnerable group in the Mexican labor market.

Following with the wage distribution, we also calculated the average labor earnings for the different education levels, as presented in Figure 5. We divided education up to 6 year (low), more than 6 and up to 12 (medium), and more than 12 years of formal education (high). Workers with high education have a large differential with the next educational level (medium). At the lower bottom, low educated workers are on average with the lower real hourly wage. In this last case, the differential with medium educated is much lower than between medium and high educated workers. All groups experienced also a decrease in their real earnings, although the decrease is higher for the high educated than for the other groups.

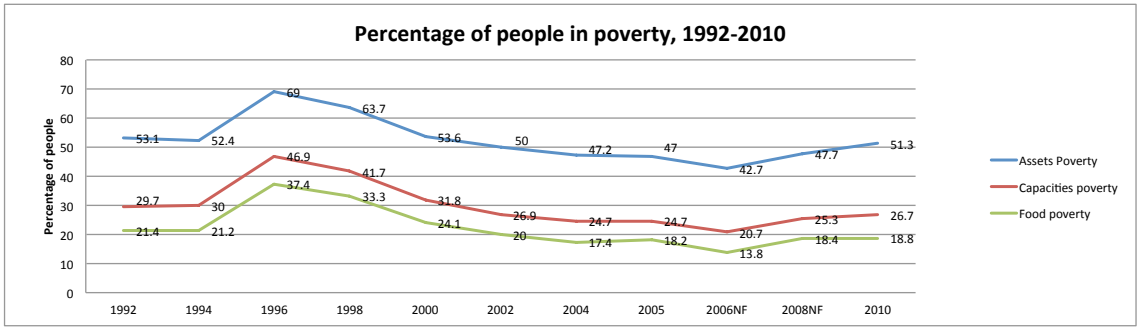
Figure 5



Source: own calculations using ENOE (several years)

Due to the increasing unemployment rate and decreasing wages for all groups, in a period characterized by the crisis in food prices and the financial crisis, poverty levels increased (Figure 6), assets poverty increased from 47.7% in 2005 to 51.3% in 2010, while capacities poverty increased from 24.7% to 26.7, and food poverty, or severe poverty, from 18.2 to 18.8% in the same period. The higher increase comes from the general poverty, while extreme poverty experienced a slight increase.

Figure 6



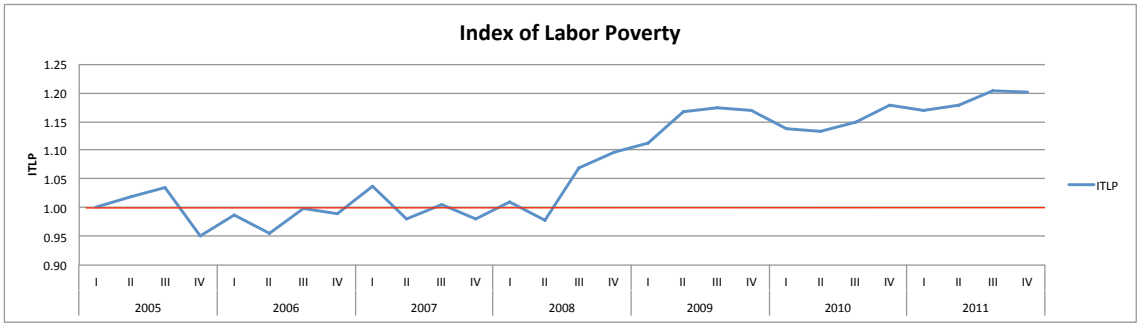
Source: CONEVAL (2012)

In order to figure out how labor earnings can cover a minimum of welfare for a given household, The National Council for Social Policy Evaluation (CONEVAL) has calculated a Labor Poverty Measure (and an index ITPL), which measures for each quarter, with ENOE information, indexing to the first quarter of 2005=100.[1], if a

[1] We will use this definition of labor poverty, identifying each HH in that situation in the rest of the paper. This definition also fits into the precarious labor definition presented above.

household only using the labor income can cover such minimum welfare. If a household labor income cannot cover such welfare line, then it is catalogued as labor poor. As shown in Figure 7, after a small rise of the index in 2005, there is a slight decrease in 2006 and 2007, then to start constantly rising since mid 2008. At the end of 2011, there are 20% more households than cannot cover the minimum welfare than at the beginning of 2005.

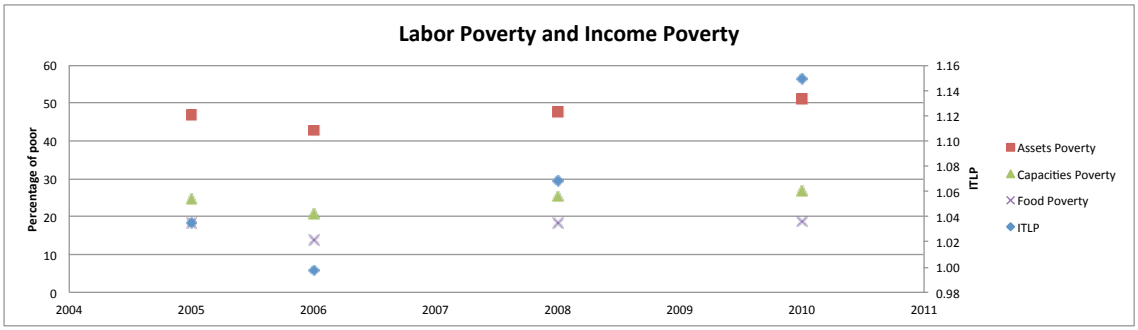
Figure 7



Source: CONEVAL (2012)

In Figure 8, we correlate the poverty labor index (ITPL) and the normal poverty measures, also measured by CONEVAL using earning expenditures surveys, for the years where coincident. From the figure seems that the ITPL is more sensitive to changes, since during the period of crisis increases faster than the poverty measures using total income.

Figure 8



Source: Own calculations using data from CONEVAL.

Data and Methodology

Data

The data comes from the Encuesta Nacional de Ocupaciones y Empleo (ENOE), a quarterly survey representative at the national and state level, also at the rural and urban, which includes socio demographic characteristics of the HH members, and their labor characteristics as well. This survey includes labor earnings, hours worked, access to social security benefits for the job, education levels, industrial sector of the job, among others.

The ENOE has a rotating panel design, following individuals and households for five consecutive quarters, and renewing 20% of the panel each quarter. Then, with this survey is not possible to analyze a medium or long term change in mobility regarding labor outcomes and poverty measured with labor income. In order to propose a solution to this problem, we put together the third quarter of 2005 and the third quarter of 2010, and using characteristics that not necessarily change in a HH we create a group of similar HH five years earlier as described in next subsection. The mean and standard deviations for each round are presented in Annex 1.

Method for Panel

Data comes from the same survey, although in two different rounds. The objective here is to find a household that we observe in 2010, and using time invariant characteristics, we can find a similar household but in 2005. This is, we aim to create a "synthetic panel" of households. In Dang et al (2001) they create with repeated cross section a panel of data for household using the error term in both periods, calculating bounds for income mobility in a span of time. This method is used by Perez and Soloaga (2013) to create such panel using income expenditure surveys. Here we explore an alternative measure using a more detailed matching with Mahalanobis distance on time invariant characteristics.

Mahalanobis distance has been used in several applications, for example in ecological modeling for the distribution of similar species in bioclimatic models (Farber and

Kadmon, 2003), or in calibrating and pattern recognition of data in chemometrics (Maesschalck, Jouan-Rimbaud and Massart, 2000). Following Clarck et al, 1993, and Farber and Kadmon, 2003, the Mahalanobis distance takes this form:

$$D^2 = (x-m)^T C^{-1}(x-m)$$

Where the Mahalanobis finds the distance between a vector x and a set of vectors S, with m as a mean vector, and C as the covariance matrix of S (the set of vectors of time invariant characteristics). Once the scores of distances are obtained then we proceed to match households with similar scores and restricted to find households with exactly same values of the characteristics.

We first restricted the data to account only for the head of the household. Then, to match the households we imposed a restriction on the matching process so that the measure of distance would be calculated only for the observations that completely agree on the value of five variables, which are: a dummy for urban households, state (32 states), year of birth, gender, and level of education (5 levels). After applying this restriction we measured the Mahalanobis distance between, the number of members of the household and the marital status of the HH head, in addition we condition to the rural/urban area variable, and that they have to be in the same state of residence.[2]

To verify the robustness of this "synthetic" panel, we used t-tests to assess if the mean of the variables used in the matching method changed between periods. As it can be seen in the Table 1, for most of the cases we do not reject the null hypothesis that the mean of the covariates did not change between periods. This means that on average, the characteristics of the HH remained the same between 2005 and 2010.

[2] It also complies with conditions set in Dand et al (2011): the underlying population in the both rounds is the same, since the sampling has not changed or suffering from big movements in sub populations, also restricting the sample to heads 25-65 years old.

Table 1. Mean sample test for matched observations

Variable	Observation	Period	Mean	P-value
Level of instruction				
Without instruction	69833	2005	0.0478714	1
	69833	2010	0.0478714	
Primary education	69833	2005	0.1098764	1
	69833	2010	0.1098764	
Secondary education	69833	2005	0.2246789	1
	69833	2010	0.2246789	
High school education	69833	2005	0.4154053	1
	69833	2010	0.4154053	
Profesional eduaction	69833	2005	0.202168	1
	69833	2010	0.202168	
Cohort	69833	2005	3.912663	1
	69833	2010	3.912663	
Rural/Urban	69833	2005	0.1317286	1
	69833	2010	0.1317286	
State	69833	2005	16.50483	1
	69833	2010	16.50483	
Male	69833	2005	0.7884095	1
	69833	2010	0.7884095	
Year of Birth	69833	2005	1964.457	1
	69833	2010	1964.457	
Marital status of head of household	69833	2005	4.340598	0.0000
	69833	2010	4.246388	
Number of HH members	69833	2005	4.037819	0.0000
	69833	2010	4.079676	

We also checked for the consistency of the panel within matched households. We further analyze the Kernel density estimate of the labor income of the HH. We compared the distribution of the income of the matched individuals of 2005, versus the income of the individuals that were not included in the matching process since this feature changes in time. We repeated the exercise for the individuals in 2010 and we arrived to the following results that further confirm the robustness of the "synthetic" panel.

Figure1. Distribution of the income in 2005

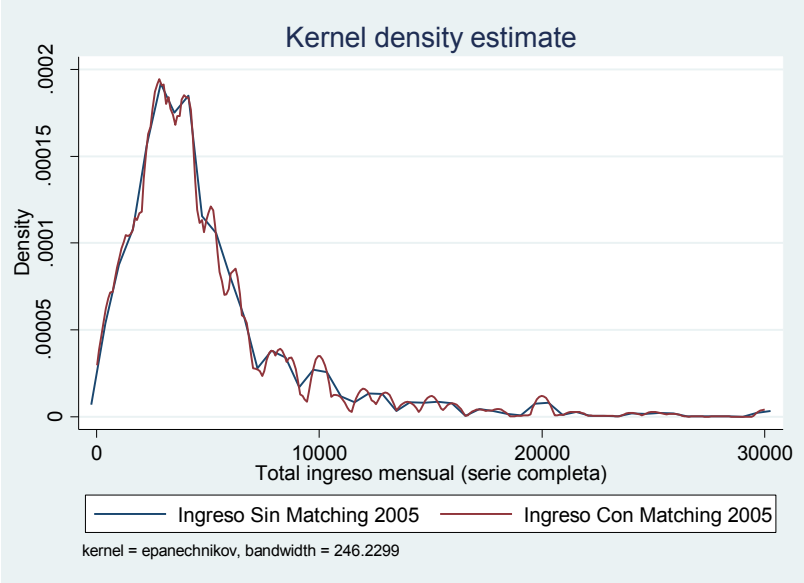
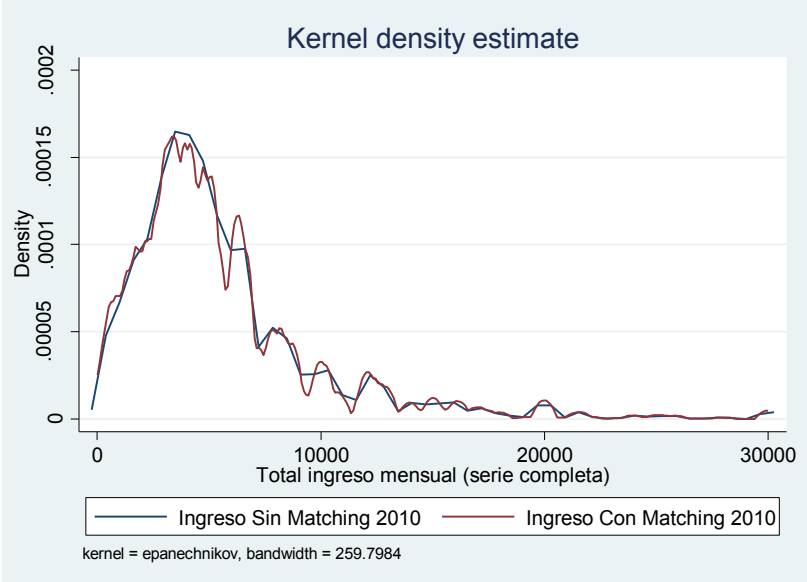


Figure2. Distribution of the income in 2010



Model

In this section we aim to analyze changes in labor income and labor poverty, given a set of characteristics of the HH. In a first model, we determine how HH characteristics have an incidence on the probability to fall into labor poverty (P):

$$\text{Prob}(\text{P} = 1) = \beta X_{it} + \varepsilon$$

Where X is a set of characteristics of the HH and the HH head i at time t, β is the vector of coefficients, and ε is the error term.

In a second step, we check the mobility in labor poverty status from 2005 to 2010, and categorize movements in four: (1) never poor, (2) from poor to no poor, (3) from no poor to poor, (4) always poor. Using these categories, we ran a multinomial logit model in order to identify what characteristics and labor features have an effect of such status.

The model is:

$$p_{ij} = \frac{\exp\left(X_i'\beta_j\right)}{\sum_l^m \exp\left(X_i'\beta_l\right)} + \varphi, \quad j = 1, \ldots, m.$$

Where X_i is a set of characteristics of the HH and the HH head for the options or categories from 1 to m.

In a third step of this analysis, we use labor income of the HH in total, and also divided by the number of members, to determine changes in labor income in time:

$$\log(y_{it}) = \beta X_{it} + \omega$$

Where $\log(y_{it})$ is the log of the labor income at HH or per member of HH i at time t.

We use the data from the matched data presented above. The variables to include are a dummy for 2010, another if the HH is in a rural area; a set of characteristics of the head, including: a dummy for male; age cohorts[3]; a dummy if married (or in cohabitation); dummies for education levels; dummies if working in industrial or services sector, and for self-employed.

We include characteristics of the HH such as: a dummy if the HH only has one income earner; percentage of labor force within the HH with labor income and percentage with

[3] The cohorts correspond to the individual that by 2005 had 48 to 59 years of age, 37 to 47, and younger than 37 up to 24.

social security for that job; number of kids (less than 14 years old), and number of older (more than 65 years old).

In addition we interact the dummy for the year 2010 with the characteristics, in order to know if the differential of characteristics in time has affected income or the probability to become labor poor. We will bootstrap standard errors with 200 repetitions. Also, for the income calculations we include HH fixed effects in separate estimations

Results

Using data from the matched panel, we calculated transition matrices for poor/no poor in labor income, which are presented in the annex for matter of space. In such matrices, low educated are more likely to move to labor poverty, the older also have more probability, and female and rural as well. For the whole sample, 54% never pass through poverty, 14% leaves poverty, 20% falls into poverty, and 12% is always labor poor. In addition, we as suggested by Dang et al (2011), we restrict the sample to HH heads between 25 to 65 years of age, in order to provide more consistency for HH structure and their labor market performance.

Poor / No Poor Results

The next Table presents results for the probit model for labor poverty. The Table displays the marginal effects and the standard errors are bootstrapped with 200 repetitions. The first two columns are for the national results with and without the interactions with the 2010 dummy. Then we present results for rural and urban HH also with interactions and without them.

Table 2. Probit = 1 for poor. Labor Income Only

	National		Rural		Urban	
Year (2010)	0.0345***	0.0421***	0.0171**	0.0784**	0.0354***	0.0288***
	(0.00223)	(0.00772)	(0.00831)	(0.0349)	(0.00204)	(0.00842)
Male	-0.0554***	-0.0654***	-0.217***	-0.234***	-0.0419***	-0.0496***
	(0.00403)	(0.00608)	(0.0201)	(0.0301)	(0.00374)	(0.00549)
Born 1958-1968	-0.0102***	0.000518	0.0210*	0.0302*	-0.0127***	-0.00352
	(0.00286)	(0.00420)	(0.0122)	(0.0163)	(0.00264)	(0.00376)
Born 1969-after	0.00557*	0.00840*	0.0617***	0.0716***	-0.00128	-0.00132
	(0.00304)	(0.00453)	(0.0142)	(0.0195)	(0.00313)	(0.00428)
Married	-0.000408	-0.00317	0.0590***	0.0672***	-0.00579*	-0.01000*
	(0.00343)	(0.00537)	(0.0155)	(0.0241)	(0.00334)	(0.00536)
Rural	-0.0641***	-0.0490***				
	(0.00259)	(0.00397)				
HH with one income	0.152***	0.127***	0.196***	0.142***	0.143***	0.124***
	(0.00236)	(0.00287)	(0.00864)	(0.00984)	(0.00254)	(0.00280)
% of members working with income in HH	-0.403***	-0.390***	-0.530***	-0.467***	-0.375***	-0.372***
	(0.00431)	(0.00601)	(0.0159)	(0.0203)	(0.00410)	(0.00584)
% of workers with Social Security in HH	-0.148***	-0.143***	-0.306***	-0.323***	-0.127***	-0.122***
	(0.00290)	(0.00421)	(0.0160)	(0.0221)	(0.00262)	(0.00374)
# children in HH	0.0785***	0.0815***	0.0941***	0.100***	0.0754***	0.0783***
	(0.00110)	(0.00165)	(0.00395)	(0.00554)	(0.00111)	(0.00149)
# of older in HH	0.0908***	0.0962***	0.117***	0.110***	0.0845***	0.0908***
	(0.00455)	(0.00681)	(0.0189)	(0.0287)	(0.00457)	(0.00646)
Secondary school	-0.0201***	-0.0230***	-0.0240**	-0.0253*	-0.0213***	-0.0255***
	(0.00295)	(0.00393)	(0.0100)	(0.0136)	(0.00343)	(0.00470)
High school	-0.0513***	-0.0554***	-0.0854***	-0.107***	-0.0485***	-0.0522***
	(0.00302)	(0.00394)	(0.0120)	(0.0157)	(0.00304)	(0.00444)
College school	-0.136***	-0.138***	-0.197***	-0.174***	-0.125***	-0.127***
	(0.00254)	(0.00341)	(0.0253)	(0.0335)	(0.00252)	(0.00331)
Self employed	-0.0174***	-0.0127***	-0.0257***	0.00171	-0.0131***	-0.0125***
	(0.00295)	(0.00366)	(0.00859)	(0.0117)	(0.00274)	(0.00375)
Industrial Sector	-0.154***	-0.149***	-0.265***	-0.249***	-0.138***	-0.132***
	(0.00205)	(0.00303)	(0.00817)	(0.0120)	(0.00239)	(0.00325)
Services Sector	-0.197***	-0.186***	-0.249***	-0.234***	-0.186***	-0.175***
	(0.00329)	(0.00464)	(0.00841)	(0.0123)	(0.00333)	(0.00484)
Year10-Male		0.0146**		0.0253		0.0115*
		(0.00662)		(0.0380)		(0.00632)
Year10-Born 1958-1968		-0.0200***		-0.0211		-0.0174***
		(0.00519)		(0.0227)		(0.00505)
Year10-Born 1969-after		-0.00572		-0.0265		-0.000227
		(0.00630)		(0.0254)		(0.00545)
Year10-Married		0.00782		-0.0146		0.00937
		(0.00669)		(0.0344)		(0.00717)
Year10-Rural		-0.0331***				
		(0.00553)				
Year10-% workers with income		-0.0255***		-0.132***		-0.00896
		(0.00756)		(0.0267)		(0.00781)
Year10-one income		0.0607***		0.172***		0.0414***
		(0.00434)		(0.0164)		(0.00394)
Year10 - % workers with Social security		-0.0111**		0.0285		-0.0110**
		(0.00565)		(0.0322)		(0.00552)
Year10 - # children		-0.00550**		-0.00877		-0.00531***
		(0.00216)		(0.00695)		(0.00192)
Year10-# older		-0.00856		0.0110		-0.0104
		(0.00922)		(0.0394)		(0.00839)
Year10-Secondary		0.00622		-0.00366		0.0100
		(0.00604)		(0.0200)		(0.00753)
Year10-Highschool		0.00896		0.0388*		0.00887
		(0.00639)		(0.0228)		(0.00688)
Year10-College		0.00744		-0.0655		0.00992
		(0.00829)		(0.0690)		(0.00839)
Year10-Self employed		-0.00741		-0.0385**		-0.000950
		(0.00529)		(0.0160)		(0.00547)
Year10-Services		-0.0183***		-0.0504**		-0.0169***
		(0.00529)		(0.0235)		(0.00553)
Year10-Industry		-0.0176***		-0.0549**		-0.0164***
		(0.00627)		(0.0245)		(0.00617)
N	139666	139666	18398	18398	121268	121268
Wald Chi2	17940.32	17870.2	2863.05	2863.57	14533.87	14499.69
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.

Base categories: Year 2005, Female, Born 1946-1957, Primary and less education, Primary Sector.

The dummy for 2010 is significant and positive, suggesting an increase in the probability of becoming labor poor of about 3-4 per cent. The likelihood is higher for urban than for rural HH, except when including the interaction with this dummy, becoming higher for rural. HHs with a male head are less likely to become labor poor than those HH with a female head, this is also for rural and urban areas. The younger cohorts are more likely to become poor than older cohorts in rural areas but not in the urban. HHs with a married head have more probability to become labor poor in rural areas, but with less probability in the urban areas. HH in rural areas are less probable to become labor poor than those in urban areas, this may happened since these HH depend more in self consumption and less in labor supply than their urban counterparts.

HH with one income earner only are more likely to become labor poor. HH with higher share of members working with income and also with social security benefits, the less likely that HH will fall into poverty. Those HH with higher number of children and older are more likely to become labor poor. The higher the level of education of the HH head, the less likely the HH becomes labor poor. Also, there is more likelihood for those heads working as self-employed than other occupations. Those HH with head working in industry or services sectors are less likely to become poor than those working for primary sector.

As we want to know also the differential effect of time with the economic crisis in the middle, we interact the characteristics with the dummy for the year 2010, and we find a positive effect for male only at the aggregate level and for the urban, but no significant effect for the younger cohorts and the married. For those rural the probability has decreased about 3 per cent compared to urban in the five years span of time. The interaction with percentage of income earners is negative and significant only at the national level and for rural HH, i.e. for urban areas is becoming for difficult o leave labor poverty even if more members are working with income. One income earner is significant in the interaction, hinting that only one income is not enough for leaving the labor poverty condition. The share of members with social security interacted decreases poverty likelihood at the aggregate and for urban HH. Number of children is only significant for urban areas but with very little magnitude, while number of older is not

significant in any. There is also no significant differential effect from education, but there is from the sectorial activities.

Mobility in Poor/No Poor Categories

In the next table are shown the marginal effects for the multinomial logit on the four ctaegories of mobility regarding the labor poverty status (see the first transition matrix in Annex 2). The marginal effects are compared with the base category which is never poor. Standard errors are bootstrapped with 200 repetitons. Results are also presented for the national sample, and dividing by rural and urban populations. In this case, we differentiated the variables and keep those time invariant. In the Annex we present the results only with time differentiated variables, and the results are similar to those presented in Table 3.

Table 3. Marginal effects after mlogit

	National			Rural			Urban		
	Pr(catching up)	**Pr(falling into poverty)**	**Pr(always in poverty)**	**Pr(catching up)**	**Pr(falling into poverty)**	**Pr(always in poverty)**	**Pr(catching up)**	**Pr(falling into poverty)**	**Pr(always in poverty)**
Male	-0.0394***	-0.0416***	-0.110***	-0.00428	0.0153	-0.349***	-0.0357***	-0.0419***	-0.0852***
	(0.00438)	(0.00475)	(0.00512)	(0.01974)	(0.01938)	(0.03154)	(0.00428)	(0.00533)	(0.00486)
Born 1958-1968	0.0104**	-0.0181***	0.00554***	0.0162	-0.0108	0.0614***	0.00863***	-0.0178***	-0.000555
	(0.00319)	(0.00335)	(0.00212)	(0.01183)	(0.01193)	(0.01287)	(0.00269)	(0.00350)	(0.00206)
Born 1969-after	0.0277***	0.0158***	0.0435***	0.0316***	-0.0107	0.123***	0.0239***	0.0189***	0.0351***
	(0.00336)	(0.00336)	(0.00244)	(0.01158)	(0.01229)	(0.01577)	(0.00325)	(0.00396)	(0.00239)
Married	0.00927**	0.0281***	0.0239***	0.0339**	0.0205	0.100***	0.00624*	0.0273***	0.0174***
	(0.00385)	(0.00378)	(0.00179)	(0.01591)	(0.01833)	(0.01264)	(0.00351)	(0.00386)	(0.00178)
Rural	0.0315***	-0.00897**	0.0329***						
	(0.00380)	(0.00370)	(0.00267)						
HH with one income	0.00378	0.0394***	0.0345***	-0.00625	0.0294***	0.0961***	0.00288	0.0399***	0.0277***
	(0.00263)	(0.00352)	(0.00190)	(0.00876)	(0.01082)	(0.01057)	(0.00263)	(0.00387)	(0.00199)
Diff(% members working with income in HH)	0.215***	-0.306***	-0.00718**	0.248***	-0.288***	-0.0453***	0.209***	-0.304***	-0.00263
	(0.00312)	(0.00396)	(0.00302)	(0.01192)	(0.01243)	(0.01200)	(0.00335)	(0.00385)	(0.00327)
Diff(% of workers with Social Security in HH)	0.0555***	-0.0729***	0.000135	0.146***	-0.127***	0.00165	0.0448***	-0.0649***	0.000631
	(0.00212)	(0.00258)	(0.00121)	(0.01035)	(0.00973)	(0.00803)	(0.00212)	(0.00266)	(0.00111)
Diff(# of children HH)	-0.0354***	0.0415***	-0.000762	-0.0459***	0.0434***	0.00244	-0.0343***	0.0418***	-0.00107*
	(0.00102)	(0.00111)	(0.00061)	(0.00288)	(0.00295)	(0.00281)	(0.00101)	(0.00126)	(0.00063)
Diff(# of older HH)	-0.0365***	0.0445***	0.00580*	-0.0539***	0.0331**	0.0312**	-0.0339***	0.0446***	0.00342
	(0.00370)	(0.00490)	(0.00302)	(0.01626)	(0.01549)	(0.01301)	(0.00404)	(0.00473)	(0.00274)
Secondary school	-0.0145***	-0.0179***	-0.0241***	-0.0106	-0.00688	-0.0602***	-0.0135***	-0.0186***	-0.0204***
	(0.00305)	(0.00405)	(0.00139)	(0.01032)	(0.01025)	(0.00933)	(0.00313)	(0.00421)	(0.00166)
High school	-0.0382***	-0.0452***	-0.0547***	-0.0510***	-0.0105	-0.156***	-0.0343***	-0.0470***	-0.0442***
	(0.00294)	(0.00383)	(0.00178)	(0.01149)	(0.01231)	(0.01334)	(0.00333)	(0.00373)	(0.00202)
College school	-0.0832***	-0.107***	-0.0779***	-0.0964***	-0.127***	-0.160***	-0.0770***	-0.104***	-0.0698***
	(0.00252)	(0.00271)	(0.00164)	(0.02064)	(0.02249)	(0.03947)	(0.00254)	(0.00276)	(0.00175)
Self employed	0.00687**	0.0355***	0.0168***	0.0204**	-0.00457	0.0852***	0.002871***	0.0411***	0.00586***
	(0.00289)	(0.00384)	(0.00187)	(0.00871)	(0.00930)	(0.01078)	(0.00290)	(0.00408)	(0.00207)
Industrial Sector	-0.0357***	-0.0570***	-0.0338***	-0.0907***	-0.0849***	-0.146***	-0.0277***	-0.0513***	-0.0256***
	(0.00335)	(0.00371)	(0.00168)	(0.01694)	(0.01666)	(0.01532)	(0.00334)	(0.00393)	(0.00155)
Services Sector	-0.0367***	-0.0640***	-0.0503***	-0.0626***	-0.0703***	-0.133***	-0.0314***	-0.0598***	-0.0429***
	(0.00218)	(0.00272)	(0.00164)	(0.01440)	(0.01635)	(0.01465)	(0.00237)	(0.00278)	(0.00174)
N	69833	69833	69833	9199	9199	9199	60634	60634	60634
Pseudo R2	0.2047	0.2047	0.2047	0.1422	0.1422	0.1422	0.207	0.207	0.207
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.

Base outcome: never poor.

Base categories: Year 2005, Female, Born 1946-1957, Primary and less education, Primary Sector.

HHs with a male head are less likely to pass into any labor poverty status than HHs with a female head for aggregated and urban areas, but in rural only is determinant for preventing permanent poverty but not for passing into other transitory poverty. A younger age is relevant mostly for urban areas for falling into any category involving poverty. HHs keeping with one income earner in the period increase the probability of being always in poverty or falling into poverty but is not determinat in leaving poverty, while increasing the number of members with earnings reduces the probability of being always poor or falling into poverty, while speeding the probability to leave poverty. Increasing the HH members with social security by the job also reduces the probability of falling into poverty and increases the probabilty of leaving poverty. HH with increasing number of children have more probability to fall into poverty and less of catching up. An increasing number of older in the HH leads to more probability to fall into poverty and being always poor, but less for catching up; in rural areas is determinant for being always poor. School leves reduce the probability to fall into any poor category sometime. Also, keeping a job in the industrial or services sectors reduces the probabilityt to fall into any category involving labor poverty at some moment.

Labor Income Results

Next table displays results for log of per member labor income in a HH, conditional to the same set of variables as in the probit. The table presents results for the national sample, then dividing for rural and urban. Standard errors are bootstrapped with 200 repetitions. The dummy for 2010 has a negative effect on per member labor income, for all samples and for urban without interactions. For urban, there is a decrease about 6 per cent. A male head has a positive and significant effect, ranging for an increase above 20 per cent more than for a female. Younger cohorts have negative effect. HH with a married head have a decrease in labor income.

HH with one income earner decrease income. With an increase in both the share of working individuals with income, and those with social security, the HH increases labor income more for rural than for urban. With a higher number of children and older there is a decrese in labor income per member.

Table 4. Regression for household per member labor income, with random effects

	National		Rural		Urban	
	(1)	(2)	(3)	(4)	(5)	(6)
Year (2010)	-0.0525***	0.0425	-0.00942	0.0545	-0.0610***	0.0460
	(0.00359)	(0.0285)	(0.0127)	(0.0946)	(0.00417)	(0.0320)
Male	0.245***	0.239***	0.407***	0.422***	0.239***	0.234***
	(0.00890)	(0.0114)	(0.0377)	(0.0521)	(0.00790)	(0.0116)
Born 1958-1968	-0.0457***	-0.0466***	-0.0765***	-0.0880***	-0.0377***	-0.0372***
	(0.00505)	(0.00748)	(0.0217)	(0.0262)	(0.00578)	(0.00722)
Born1969-after	-0.0186***	-0.0299***	-0.0827***	-0.0815***	-0.00337	-0.0166**
	(0.00612)	(0.00887)	(0.0230)	(0.0290)	(0.00614)	(0.00833)
Married	-0.255***	-0.204***	-0.370***	-0.317***	-0.245***	-0.195***
	(0.00822)	(0.0107)	(0.0304)	(0.0462)	(0.00745)	(0.0118)
Rural	-0.246***	-0.285***				
	(0.00687)	(0.00939)				
HH with one income	-0.400***	-0.327***	-0.474***	-0.362***	-0.390***	-0.322***
	(0.00415)	(0.00511)	(0.0124)	(0.0166)	(0.00388)	(0.00497)
% of members working with income in HH	0.457***	0.430***	0.459***	0.355***	0.455***	0.448***
	(0.0130)	(0.0194)	(0.0400)	(0.0570)	(0.0142)	(0.0222)
% of workers with Social Security in HH	0.232***	0.200***	0.329***	0.338***	0.227***	0.191***
	(0.00450)	(0.00680)	(0.0141)	(0.0204)	(0.00534)	(0.00780)
# of children in HH	-0.250***	-0.257***	-0.222***	-0.240***	-0.255***	-0.260***
	(0.00191)	(0.00289)	(0.00586)	(0.00854)	(0.00192)	(0.00269)
# of older in HH	-0.278***	-0.288***	-0.232***	-0.226***	-0.284***	-0.297***
	(0.0102)	(0.0147)	(0.0303)	(0.0446)	(0.00925)	(0.0128)
Secondary school	0.0937***	0.110***	0.0800***	0.105***	0.0976***	0.110***
	(0.00704)	(0.00948)	(0.0186)	(0.0223)	(0.00646)	(0.00936)
High school	0.249***	0.284***	0.198***	0.235***	0.256***	0.288***
	(0.00661)	(0.00919)	(0.0190)	(0.0245)	(0.00681)	(0.00950)
College school	0.778***	0.829***	0.718***	0.787***	0.788***	0.837***
	(0.00709)	(0.00957)	(0.0509)	(0.0684)	(0.00686)	(0.00889)
Self employed	-0.0954***	-0.101***	-0.161***	-0.184***	-0.0705***	-0.0714***
	(0.00614)	(0.00830)	(0.0152)	(0.0222)	(0.00615)	(0.00873)
Industrial Sector	0.355***	0.338***	0.418***	0.410***	0.313***	0.281***
	(0.00706)	(0.0101)	(0.0141)	(0.0208)	(0.00890)	(0.0136)
Services Sector	0.342***	0.322***	0.434***	0.408***	0.300***	0.268***
	(0.00703)	(0.0104)	(0.0164)	(0.0214)	(0.00878)	(0.0128)
Year10-Male		0.00698		-0.0329		0.00647
		(0.0158)		(0.0695)		(0.0156)
Year10-Born 1958-1968		-0.00143		0.0262		-0.00502
		(0.00924)		(0.0309)		(0.00982)
Year10-Born 1969-after		0.0252**		0.00576		0.0287**
		(0.0113)		(0.0349)		(0.0112)
Year10-Married		-0.103***		-0.0938		-0.0998***
		(0.0144)		(0.0643)		(0.0166)
Year10-Rural		0.0716***				
		(0.0129)				
Year10-% members with income		0.0430*		0.194**		0.00783
		(0.0254)		(0.0784)		(0.0288)
Year10-one income		-0.181***		-0.301***		-0.166***
		(0.00653)		(0.0225)		(0.00759)
Year10 - % workers with Social Security		0.0662***		-0.0181		0.0739***
		(0.00899)		(0.0329)		(0.0101)
Year10 - # children		0.0111***		0.0310***		0.00670*
		(0.00377)		(0.0109)		(0.00376)
Year10-# older		0.0164		-0.00489		0.0209
		(0.0175)		(0.0657)		(0.0188)
Year10-Secondary		-0.0325***		-0.0419		-0.0268**
		(0.0124)		(0.0315)		(0.0134)
Year10-Highschool		-0.0713***		-0.0641*		-0.0689***
		(0.0125)		(0.0336)		(0.0144)
Year10-College		-0.106***		-0.145		-0.104***
		(0.0138)		(0.0899)		(0.0137)
Year10-Self employed		0.00512		0.0152		0.000360
		(0.0104)		(0.0294)		(0.0113)
Year10-Services		0.0324**		0.0627**		0.0507***
		(0.0130)		(0.0314)		(0.0155)
Year10-Industry		0.0291**		0.0219		0.0508***
		(0.0134)		(0.0298)		(0.0160)
Constant	7.072***	7.042***	6.786***	6.773***	7.095***	7.061***
	(0.0153)	(0.0209)	(0.0543)	(0.0728)	(0.0161)	(0.0242)
N	131162	131162	17239	17239	113923	113923
R-sq (overall)	0.4652	0.4691	0.3476	0.3568	0.4169	0.4208
Wald Chi2	11627		3154.57		13258.88	
p-value	0.0000		0.0000		0.0000	

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.
Base categories: Year 2005, Female, Born 1946-1957, Primary and less education, Primary Sector.

The higher the educational level, the better the increase in labor income. Self-employed traduces into a decrease in labor earnings. If the head works in industry and services leads to an increase in per member labor earnngs compared to a head in the primary sector.

The interaction of 2010 with characteristics are mostly significant for more members with income in rural areas, and negative for one income only for both urban and rural. Members with social security of positive for urban HHs. For urban areas there seems that HH with workers with high secondary, school and college experience a decrease in labor earning per member during this period of time, compared with those with lower education, something already hinted in Figure 5 above, suggestinrg those groups suffered the higher fall in labor income in the period. Resuts with HH fixed effect are mostly similar to those described here and the tables are in the Annexes.

We have also run the regressions using as dependent variable the log of total labor income in a HH, instead of per member. Results are presented in the next table also using bootstrapped standard errors with 200 repetitons. Results are similar to the per member labor income. HH fixed effects are also presented in the annexes.

Table 5. Regression for household labor income, with random effects

	National		Rural		Urban	
	(1)	(2)	(3)	(4)	(5)	(6)
Year (2010)	-0.0297***	0.155***	0.0113	0.174*	-0.0387***	0.153***
	(0.00351)	(0.0277)	(0.0123)	(0.0932)	(0.00396)	(0.0316)
Male	0.139***	0.167***	0.243***	0.274***	0.143***	0.174***
	(0.00816)	(0.0108)	(0.0373)	(0.0501)	(0.00741)	(0.0108)
Born 1958-1968	-0.0393***	-0.0659***	-0.0485**	-0.0810***	-0.0335***	-0.0598***
	(0.00485)	(0.00720)	(0.0216)	(0.0260)	(0.00560)	(0.00710)
Born 1969-after	-0.160***	-0.201***	-0.176***	-0.204***	-0.152***	-0.195***
	(0.00558)	(0.00836)	(0.0224)	(0.0281)	(0.00587)	(0.00775)
Married	0.105***	0.116***	0.0921***	0.119***	0.103***	0.111***
	(0.00733)	(0.0103)	(0.0272)	(0.0421)	(0.00671)	(0.0107)
Rural	-0.263***	-0.301***				
	(0.00663)	(0.00904)				
HH with one income	-0.655***	-0.552***	-0.701***	-0.568***	-0.650***	-0.551***
	(0.00389)	(0.00484)	(0.0123)	(0.0160)	(0.00358)	(0.00482)
% of members working with income in HH	0.0438***	0.0928***	0.0665*	0.0439	0.0339**	0.0992***
	(0.0131)	(0.0193)	(0.0387)	(0.0561)	(0.0137)	(0.0220)
% of workers with Social Security in HH	0.263***	0.226***	0.359***	0.350***	0.260***	0.220***
	(0.00435)	(0.00619)	(0.0140)	(0.0198)	(0.00479)	(0.00706)
# of children in HH	-0.0127***	-0.0257***	-0.00838	-0.0302***	-0.0127***	-0.0239***
	(0.00177)	(0.00277)	(0.00554)	(0.00775)	(0.00182)	(0.00262)
# of older in HH	-0.0459***	-0.0649***	-0.0270	-0.0400	-0.0485***	-0.0686***
	(0.00963)	(0.0142)	(0.0295)	(0.0427)	(0.00854)	(0.0121)
Secondary school	0.110***	0.123***	0.0835***	0.0982***	0.113***	0.124***
	(0.00732)	(0.00952)	(0.0183)	(0.0230)	(0.00642)	(0.00930)
High school	0.244***	0.263***	0.183***	0.210***	0.251***	0.266***
	(0.00671)	(0.00944)	(0.0183)	(0.0241)	(0.00619)	(0.00878)
College school	0.714***	0.749***	0.607***	0.670***	0.726***	0.759***
	(0.00681)	(0.00946)	(0.0496)	(0.0715)	(0.00638)	(0.00836)
Self employed	-0.123***	-0.122***	-0.188***	-0.202***	-0.0928***	-0.0877***
	(0.00584)	(0.00782)	(0.0149)	(0.0215)	(0.00596)	(0.00850)
Industrial Sector	0.296***	0.286***	0.404***	0.402***	0.234***	0.207***
	(0.00688)	(0.0101)	(0.0133)	(0.0204)	(0.00851)	(0.0134)
Services Sector	0.262***	0.257***	0.397***	0.386***	0.202***	0.182***
	(0.00682)	(0.0101)	(0.0162)	(0.0218)	(0.00835)	(0.0127)
Year10-Male		-0.0451***		-0.0662		-0.0481***
		(0.0143)		(0.0652)		(0.0142)
Year10-Born 1958-1968		0.0508***		0.0670**		0.0498***
		(0.00921)		(0.0294)		(0.00978)
Year10-Born 1969-after		0.0831***		0.0612*		0.0885***
		(0.0108)		(0.0341)		(0.0108)
Year10-Married		-0.0413***		-0.0505		-0.0368**
		(0.0132)		(0.0607)		(0.0147)
Year10-Rural		0.0669***				
		(0.0125)				
Year10-% members with income		-0.0866***		0.0482		-0.117***
		(0.0253)		(0.0777)		(0.0280)
Year10-one income		-0.250***		-0.357***		-0.239***
		(0.00623)		(0.0227)		(0.00718)
Year10 - % workers with Social Security		0.0747***		0.0196		0.0803***
		(0.00821)		(0.0300)		(0.00940)
Year10 - # children		0.0233***		0.0390***		0.0199***
		(0.00355)		(0.0102)		(0.00365)
Year10-# older		0.0296*		0.0264		0.0316*
		(0.0168)		(0.0629)		(0.0178)
Year10-Secondary		-0.0275**		-0.0235		-0.0255*
		(0.0125)		(0.0316)		(0.0133)
Year10-Highschool		-0.0391***		-0.0455		-0.0358***
		(0.0129)		(0.0338)		(0.0137)
Year10-College		-0.0751***		-0.130		-0.0725***
		(0.0138)		(0.0942)		(0.0132)
Year10-Self employed		-0.00926		-0.00745		-0.0110
		(0.0104)		(0.0291)		(0.0103)
Year10-Services		0.00251		0.0353		0.0222
		(0.0125)		(0.0310)		(0.0152)
Year10-Industry		0.0146		0.0132		0.0368**
		(0.0133)		(0.0297)		(0.0160)
Constant	8.511***	8.430***	8.136***	8.073***	8.559***	8.477***
	(0.0154)	(0.0210)	(0.0536)	(0.0711)	(0.0154)	(0.0239)
N	131162	131162	17239	17239	113923	113923
R-sq (overall)	0.4193	0.427	0.3007	0.3142	0.3824	0.3907
Wald Chi2	21691.4		2296.49		22494.24	
p-value	0.0000		0.0000		0.0000	

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.
Base categories: Year 2005, Female, Born 1946-1957, Primary and less education, Primary Sector.

Conclusions

In this paper, we addressed factors related to the change in labor income and poverty mobility of HHs in a period characterized by a macro shock, as it was the 2008-09 economic crisis. In this period, the Mexican labor market was characterized by a decrease in real labor income, an increase in informality, and also by an increase in poverty levels (both using labor income and total HH income). The relevance of the paper is on constructing a virtual panel of data with a distance matching, then focusing on the dynamics of the working poor, a subject less analyzed in Mexico and Latin America in general.

We use data from the ENOE third quarters both in 2005 and 2010, with a group of characteristics of the HH head and some other of the HH structure in 2010, we created a group of similar HH five years earlier using a matching process with Mahalanobis distance. The matched panel was made with time invariant characteristics and it can be used as a substitute for a real panel data. We then study the dynamics in terms of labor poverty status, labor income per member, and total labor income, given a set of HH and its head charcateristics in labor and sociodemographic terms. In general findings go in same line as in Inchauste (2012), more and better jobs are needed to leave poverty.

In addition, there are important lessons from the analysis presented here and that can be translated into public policies fo coping with crisis with more focused labor programs, or for improving labor programs for taking HH out of poverty. In the span of five year, there is an increase in the probability to fall into any category involving labor poverty, while more educated experienced a higher fall in real wages, and being female brings more vulnerability to fall into any category with poverty. HH keeping with one income are more likely to fall into poverty, while increasing members with income and members with social security benefits increase the probability to leave poverty or not falling into poverty. Jobs in industry and services sectors also prevent falling into poverty compared to other jobs. For urban HHs having more members working not necessarily takes them out of labor poverty in this period.

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Annex 1

Summary table of panel with matching

Variable		Period	Mean
Male	69833	2005	0.78841
	69833	2010	0.78841
Born 1958-1968	69833	2005	0.359143
	69833	2010	0.359143
Born 1969-after	69833	2005	0.374379
	69833	2010	0.374379
Married	69833	2005	0.810663
	69833	2010	0.773445
Rural	69833	2005	0.131729
	69833	2010	0.131729
HH with one income	69833	2005	0.50774
	69833	2010	0.456317
% of members working with income	69833	2005	0.890535
	69833	2010	0.852596
% of workers with Social Security in HH	69833	2005	0.436372
	69833	2010	0.400654
# children in HH	69833	2005	1.303137
	69833	2010	1.098249
# older in HH	69833	2005	0.038678
	69833	2010	0.048387
Secondary school	69833	2005	0.224679
	69833	2010	0.224679
High school	69833	2005	0.415405
	69833	2010	0.415405
College	69833	2005	0.202168
	69833	2010	0.202168
Self employed	69833	2005	0.21086
	69833	2010	0.201327
Industrial Sector	69833	2005	0.25213
	69833	2010	0.225338
Services Sector	69833	2005	0.549081
	69833	2010	0.523162
Labor Poverty	69833	2005	0.21202
	69833	2010	0.253691
Ln (HH income per capita)	66310	2005	7.540912
	64852	2010	7.526503
Ln (HH total income)	66310	2005	8.870043
	64852	2010	8.847385

Annex 2

General

	No Poor	Poor	
No Poor	77.55	22.45	100
Poor	63.79	36.21	100
	74.63	25.37	

By Educational Level

Primary education

	No Poor	Poor	
No Poor	64.26	35.74	100
Poor	52.72	47.28	100
	60.14	39.86	100

Middle school

	No Poor	Poor	
No Poor	70.06	29.94	100
Poor	60.67	39.33	100
	67.5	32.5	100

High school

	No Poor	Poor	
No Poor	78	22	100
Poor	69.74	30.26	100
	76.39	23.61	100

College

	No Poor	Poor	
No Poor	90.41	9.59	100
Poor	87.93	12.07	100
	90.24	9.76	100

By Gender

Male

	No Poor	Poor	
No Poor	79.3	20.7	100
Poor	65.17	34.83	100
	76.65	23.35	100

Female

	No Poor	Poor	
No Poor	69.93	30.07	100
Poor	60.6	39.4	100
	67.11	32.89	100

Rural - Urban

Rural

	No Poor	Poor	
No Poor	66.58	33.42	100
Poor	52.02	47.98	100
	61.03	38.97	100

Urban

	No Poor	Poor	
No Poor	78.81	21.19	100
Poor	67.45	32.55	100
	76.69	23.31	100

By Birth Cohort

Cohort 1

	No Poor	Poor	
No Poor	72.89	27.11	100
Poor	64.45	35.55	100
	71.18	28.82	100

Cohort 2

	No Poor	Poor	
No Poor	81.63	18.37	100
Poor	69.53	30.47	100
	79.29	20.71	100

Cohort 3

	No Poor	Poor	
No Poor	76.87	23.13	100
Poor	58.89	41.11	100
	72.62	27.38	100

Annex 3

Table A3.1 Marginal effects after mlogit without time invariant variables

	National			Rural			Urban		
	Pr(catching up)	**Pr(falling into poverty)**	**Pr(always in poverty)**	**Pr(catching up)**	**Pr(falling into poverty)**	**Pr(always in poverty)**	**Pr(catching up)**	**Pr(falling into poverty)**	**Pr(always in poverty)**
Married	-0.0196***	-0.00662**	-0.0236***	-0.00464	-0.0129	-0.0169	-0.0235***	-0.00421	-0.0332***
	(0.00326)	(0.00315)	(0.00276)	(0.01457)	(0.01562)	(0.01675)	(0.00308)	(0.00307)	(0.00285)
HH with one income	0.00493*	0.0367***	0.0537***	-0.00580	0.0258***	0.0984***	0.00110	0.0392***	0.0372***
	(0.00261)	(0.00329)	(0.00242)	(0.00795)	(0.00984)	(0.00866)	(0.00261)	(0.00387)	(0.00247)
Diff(% of members working with income in HH)	0.219***	-0.300***	-0.00463	0.2428***	-0.271***	-0.0469***	0.213***	-0.301***	0.00232
	(0.00296)	(0.00364)	(0.00435)	(0.01103)	(0.01022)	(0.01331)	(0.00318)	(0.00364)	(0.00466)
Diff(% of workers with Social Security in HH)	0.0496***	-0.0719***	-0.00155	0.136***	-0.119***	0.00302	0.0415***	-0.0653***	0.000833
	(0.00209)	(0.00257)	(0.00144)	(0.00961)	(0.00905)	(0.00754)	(0.00211)	(0.00262)	(0.00143)
Diff(# children HH)	-0.0380***	0.0428***	-0.00230**	-0.0440***	0.0415***	-0.000029	-0.0369***	0.0440***	-0.00283***
	(0.00101)	(0.00110)	(0.00095)	(0.00263)	(0.00262)	(0.00299)	(0.00102)	(0.00125)	(0.00102)
Diff(# children HH)	-0.0375***	0.0440***	0.00885**	-0.0508***	0.0316**	0.0307**	-0.0351***	0.0450***	0.00519
	(0.00362)	(0.00473)	(0.00393)	(0.01549)	(0.01490)	(0.01489)	(0.00402)	(0.00470)	(0.00356)
Self employed	0.0175***	0.0433***	0.0404***	0.0199**	-0.00426	0.0860***	0.00888***	0.0529***	0.0122***
	(0.00291)	(0.00384)	(0.00284)	(0.00809)	(0.00846)	(0.00864)	(0.00297)	(0.00416)	(0.00294)
Industrial Sector	-0.0319***	-0.0490***	-0.0494***	-0.0862***	-0.0828***	-0.169***	-0.0201***	-0.0426***	-0.0340***
	(0.00345)	(0.00394)	(0.00213)	(0.01620)	(0.01561)	(0.00886)	(0.00363)	(0.00422)	(0.00216)
Services Sector	-0.0519***	-0.0754***	-0.0902***	-0.0728***	-0.0772***	-0.158***	-0.0405***	-0.0718***	-0.0715***
	(0.00199)	(0.00250)	(0.00180)	(0.01217)	(0.01402)	(0.00900)	(0.00228)	(0.00271)	(0.00199)
N	69833	69833	69833	9199	9199	9199	60634	60634	60634
Pseudo R2	0.1615	0.1615	0.1615	0.1109	0.1109	0.1109	0.1669	0.1669	0.1669
p-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.

Base outcome: never poor.

Base categories: Born between 1946 and 1957, Low level of instruction, Primary Sector.

Table A3.2 Regression for household per member labor income, with fixed effects

	National		Rural		Urban	
	(1)	(2)	(3)	(4)	(5)	(6)
Year (2010)	-0.0389***	0.115***	-0.000868	0.152	-0.0453***	0.109***
	(0.00381)	(0.0383)	(0.0127)	(0.127)	(0.00446)	(0.0393)
Married	-0.139***	-0.0973***	-0.341***	-0.244***	-0.117***	-0.0804***
	(0.0118)	(0.0160)	(0.0447)	(0.0632)	(0.0133)	(0.0184)
HH with one income	-0.448***	-0.373***	-0.469***	-0.371***	-0.447***	-0.376***
	(0.00550)	(0.00628)	(0.0172)	(0.0216)	(0.00590)	(0.00724)
% of members working with income in HH	0.347***	0.334***	0.402***	0.319***	0.332***	0.330***
	(0.0178)	(0.0283)	(0.0532)	(0.0799)	(0.0190)	(0.0291)
% of workers with Social Security in HH	0.202***	0.173***	0.260***	0.254***	0.199***	0.170***
	(0.00662)	(0.00929)	(0.0228)	(0.0333)	(0.00716)	(0.0102)
# of children in HH	-0.185***	-0.175***	-0.201***	-0.209***	-0.179***	-0.165***
	(0.00305)	(0.00385)	(0.00860)	(0.0118)	(0.00332)	(0.00386)
# of older in HH	-0.217***	-0.222***	-0.249***	-0.228***	-0.211***	-0.218***
	(0.0140)	(0.0201)	(0.0426)	(0.0626)	(0.0122)	(0.0190)
Self employed	-0.0822***	-0.0841***	-0.105***	-0.132***	-0.0705***	-0.0665***
	(0.00837)	(0.0111)	(0.0218)	(0.0299)	(0.00782)	(0.0114)
Industrial Sector	0.344***	0.349***	0.395***	0.411***	0.313***	0.305***
	(0.00997)	(0.0141)	(0.0221)	(0.0302)	(0.0116)	(0.0163)
Services Sector	0.328***	0.324***	0.420***	0.397***	0.297***	0.282***
	(0.00918)	(0.0139)	(0.0249)	(0.0323)	(0.0116)	(0.0164)
Year10-Male		0.0139		-0.00572		0.0113
		(0.0186)		(0.0810)		(0.0187)
Year10-Born 1958-1968		0.0329***		0.0424		0.0336***
		(0.00971)		(0.0322)		(0.0105)
Year10-Born 1969-after		0.0683***		0.0289		0.0763***
		(0.0125)		(0.0376)		(0.0118)
Year10-Married		-0.0812***		-0.163*		-0.0711***
		(0.0180)		(0.0881)		(0.0211)
Year10-Rural		0.0696***				
		(0.0138)				
Year10-% members with income		0.00939		0.142		-0.0117
		(0.0362)		(0.102)		(0.0354)
Year10-one income		-0.190***		-0.272***		-0.178***
		(0.00773)		(0.0277)		(0.0101)
Year10 - % workers with Social Security		0.0566***		0.0123		0.0591***
		(0.0117)		(0.0484)		(0.0137)
Year10 - # children		-0.0208***		0.0155		-0.0280***
		(0.00441)		(0.0132)		(0.00415)
Year10-# older		0.00785		-0.0211		0.0122
		(0.0249)		(0.0908)		(0.0257)
Year10-Secondary		-0.0375***		-0.0407		-0.0322**
		(0.0131)		(0.0328)		(0.0136)
Year10-Highschool		-0.0695***		-0.0792**		-0.0633***
		(0.0132)		(0.0378)		(0.0156)
Year10-College		-0.114***		-0.159*		-0.111***
		(0.0138)		(0.0959)		(0.0144)
Year10-Self employed		-0.00154		0.0226		-0.00924
		(0.0138)		(0.0394)		(0.0148)
Year10-Services		0.00241		0.0489		0.0175
		(0.0185)		(0.0415)		(0.0203)
Year10-Industry		-0.0127		-0.0294		0.00830
		(0.0190)		(0.0394)		(0.0213)
Constant	7.463***	7.401***	7.178***	7.124***	7.543***	7.487***
	(0.0228)	(0.0340)	(0.0726)	(0.103)	(0.0229)	(0.0350)
N	131162	131162	17239	17239	113923	113923
R-sq (overall)	0.3544	0.3388	0.3241	0.3285	0.2892	0.2776
F	777.64	1709.09	196.56	345.16	963.95	3508.39
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.
Base categories: Born between 1946 and 1957, Low level of instruction, Primary Sector.

Table A3.3cRegression for household labor income, with fixed effects

	National		Rural		Urban	
	(1)	(2)	(3)	(4)	(5)	(6)
Year (2010)	-0.0305***	0.181***	0.0152	0.251**	-0.0395***	0.177***
	(0.00372)	(0.0383)	(0.0125)	(0.123)	(0.00429)	(0.0388)
Married	0.127***	0.131***	0.115***	0.167***	0.125***	0.123***
	(0.0114)	(0.0155)	(0.0420)	(0.0573)	(0.0117)	(0.0169)
HH with one income	-0.604***	-0.501***	-0.656***	-0.536***	-0.597***	-0.496***
	(0.00560)	(0.00642)	(0.0176)	(0.0212)	(0.00564)	(0.00688)
% of members working with income in HH	0.0992***	0.151***	0.0913*	0.0881	0.106***	0.170***
	(0.0176)	(0.0279)	(0.0506)	(0.0779)	(0.0190)	(0.0287)
% of workers with Social Security in HH	0.220***	0.187***	0.279***	0.262***	0.217***	0.183***
	(0.00646)	(0.00880)	(0.0220)	(0.0317)	(0.00687)	(0.00946)
# of children in HH	-0.0403***	-0.0501***	-0.0185**	-0.0375***	-0.0460***	-0.0543***
	(0.00313)	(0.00411)	(0.00819)	(0.0110)	(0.00323)	(0.00367)
# of older in HH	-0.0744***	-0.103***	-0.0781*	-0.0881	-0.0750***	-0.105***
	(0.0136)	(0.0201)	(0.0415)	(0.0639)	(0.0118)	(0.0188)
Self employed	-0.0972***	-0.0914***	-0.129***	-0.137***	-0.0816***	-0.0728***
	(0.00800)	(0.0105)	(0.0214)	(0.0295)	(0.00780)	(0.0113)
Industrial Sector	0.300***	0.310***	0.385***	0.411***	0.257***	0.254***
	(0.0101)	(0.0141)	(0.0220)	(0.0300)	(0.0115)	(0.0167)
Services Sector	0.275***	0.283***	0.395***	0.391***	0.233***	0.230***
	(0.00897)	(0.0137)	(0.0244)	(0.0310)	(0.0115)	(0.0170)
Year10-Male		-0.0477***		-0.0654		-0.0528***
		(0.0171)		(0.0784)		(0.0170)
Year10-Born 1958-1968		0.0483***		0.0645**		0.0460***
		(0.00979)		(0.0304)		(0.0103)
Year10-Born 1969-after		0.0911***		0.0701*		0.0943***
		(0.0121)		(0.0363)		(0.0118)
Year10-Married		-0.0381**		-0.0914		-0.0300
		(0.0173)		(0.0812)		(0.0195)
Year10-Rural		0.0608***				
		(0.0135)				
Year10-% members with income		-0.0893**		0.00970		-0.112***
		(0.0363)		(0.101)		(0.0352)
Year10-one income		-0.245***		-0.320***		-0.236***
		(0.00761)		(0.0273)		(0.00939)
Year10 - % workers with Social Security		0.0648***		0.0362		0.0675***
		(0.0110)		(0.0460)		(0.0127)
Year10 - # children		0.0182***		0.0353***		0.0151***
		(0.00448)		(0.0125)		(0.00423)
Year10-# older		0.0477*		0.0295		0.0512**
		(0.0245)		(0.0904)		(0.0246)
Year10-Secondary		-0.0223*		-0.0197		-0.0194
		(0.0131)		(0.0331)		(0.0138)
Year10-Highschool		-0.0297**		-0.0496		-0.0241
		(0.0134)		(0.0377)		(0.0150)
Year10-College		-0.0676***		-0.140		-0.0626***
		(0.0135)		(0.0963)		(0.0142)
Year10-Self employed		-0.0170		-0.0189		-0.0182
		(0.0136)		(0.0395)		(0.0137)
Year10-Services		-0.0227		0.0149		-0.00938
		(0.0183)		(0.0412)		(0.0210)
Year10-Industry		-0.0237		-0.0440		-0.00578
		(0.0193)		(0.0388)		(0.0214)
Constant	8.731***	8.645***	8.301***	8.212***	8.828***	8.746***
	(0.0226)	(0.0338)	(0.0687)	(0.0951)	(0.0228)	(0.0351)
N	131162	131162	17239	17239	113923	113923
R-sq (overall)	0.3206	0.3111	0.2847	0.2936	0.2794	0.2736
F	647.01	1988.68	174.61	208.68	759.18	1843.55
P-value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Bootstraped standard errors. Standard errors in parentheses. * p<.10 ** p<.05 *** p<.01.

Base categories: Born between 1946 and 1957, Low level of instruction, Primary Sector.