The Economic Burden of Crime: Evidence from Mexico

* Preliminary and Incomplete – Please do not quote *

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Abstract

The increased incidence of drug related crime and conflict between organized crime groups in Mexico has been amplified by the government effort to combat the activities of these groups. Evidence suggests that during periods of rising violence, innocent civilians pay a steep price for these disputes. This paper investigates the impact of this amplified environment of violence on individual labor outcomes and per capita expenditure at the household level. The Mexican Family Life Survey offers a unique opportunity to address this research question as the first follow-up was conducted between 2005 and 2006, a period of low levels of violence, and the second follow-up was performed from 2009 to 2012, during years of greatly elevated violence. This data allows us to compare the outcomes of the same individual in periods of varying degrees of violence, while controlling for a rich set of individual characteristics. Moreover, the longitudinal nature of the survey allows controlling for unobserved heterogeneity at the individual level. Preliminary results show that homicides rates negatively affect the labor market participation of men, decrease earnings for both men and women and the effect on earnings seems to be stronger for individuals living in rural areas. In particular, these effects are strongest for those were self-employed in 2005/06. Ongoing research examines the impact of crime on temporal migration, accumulation of assets, investments in human capital, as well as, physical and psycho-social health.

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1. INTRODUCTION

The increased incidence of drug related crime and conflict between organized crime groups (OCGs) during the last few years in Mexico has attracted a great deal of government and public attention. Since 2006, there has been an amplified effort to combat the activities of the OCGs, however, this has merely intensified the war between the army and the illegal groups. Even with heightened focus from the authorities, the economic and political power of the OCGs in Mexico has continued to grow[2].

This increasing strength is largely explained by the expansion of their illicit drug market power. The 1,952 miles of border Mexico shares with the United States constitutes a critical aspect of the Mexican geography that facilitates illegal activities such as contraband and traffic of illicit drugs. These illegal activities, though, are not recent phenomena. Since the 1960's Mexico has produced illicit narcotics that are transported to the United States. In fact, in the 1980's, Mexico was the main corridor of the Latin-American drug traffickers. With increased drug-related activities during this period, Mexican OCGs began to organize. Paramilitary groups were created in order to protect the interests of each group, which raised the frequency of confrontations between rivals. Growing terror from massacres and constant violence was the byproduct of these territorial battles.

Another reason for rising violence is that, the last decade has seen the death or incarceration of many previous bosses, which has caused the emergence of new leaders and increased division within the main "cartels"[3]. This serves to increase the number and intensity of battles over critical drug running corridors, as the control of these strategic regions is crucial for a cartels drug-trafficking market and, in conjunction, political and economic power.

A special concern with regards to organized crime is the dramatically increased trend observed from 2007 to 2010. According to a data source from the Presidential Office of Mexico, released in January of 2011, the organized crime rate in 2010 was 58% higher than in 2009 (the homicides related with organized crime increased from 9,614 in 2009 to 15,273 in 2010). This increasing trend is also observed when looking at the official data of homicides rates reported by the National Institute of Statistics and Geography (INEGI, its Spanish acronym), which includes

[2] "Around five years ago Mexico's drug-smuggling gangs overtook Colombia's in resources and manpower, (…) As well as expanding down the supply chain, running distribution networks in the United States, they have moved up it, buying cocaine directly in Colombia, Bolivia and Peru. They have become a bigger influence in politics at home" (The Economist, Oct 14th 2010)

[3] The term "drug cartel" is a colloquial term to refer to organized crime organizations but it does not imply any collusion to set prices. We will use the term Organized Crime Groups (OCGs) in this paper to avoid any misinterpretation.

non-organized crime related offenses. This strongly suggests that the increased incidence of organized crime has a direct effect on overall levels of violence. Intuitively, if the law enforcement institutions and justice system are pre-occupied and/or weakened by the elevated presence of organized crime, this may affect the overall rate of violence. In this sense, high incidence of organized crime in a particular area not only affects those involved in these activities but also the population living in these areas.

This paper is part of a broader research agenda which aim is to study the impact of the increased incidence of crime on various outcomes in Mexico such as migration, labor outcomes, wealth measures (assets and per capita expenditure), fertility and emotional and physical health status. This version of the paper investigates the impact of the increased incidence of violence on participation in the labor market and earnings at the individual level. We also show preliminary evidence of the impact of homicides rates on per capita expenditure (PCE) at the household level. We analyze the effects on the labor market for the entire sample as well as, samples stratified by whether the person worked as an employee or was self-employed before the period of increased violence. For the PCE results we explore the effect at the household level, disaggregating the consumption on food expenditures and non-food expenditures.

The identification of the impact of violence on individual outcomes imposes challenges related to omitted variables that affect both the levels of violence and the labor market outcomes, and with possible reverse causality. Our empirical specification exploits available information on homicides rates from the INEGI at the municipality level from 2005 (a period of low levels of violence) to 2009/10 (a period of high levels of violence). In order to analyze the impact of violence on the outcomes of interest we will match the INEGI homicide data to the Mexican Family Life Survey (MxFLS), a nationally representative longitudinal household survey.

The MxFLS is ideally suited to address the question of this paper. One important feature of the survey is that the first follow-up was conducted between 2005 and 2006, a period of low levels of violence, and the second follow-up was performed from 2009 to 2012, during years of elevated violence. This feature allow us to compare the outcomes of the same individual in periods of low and high violence, while controlling for a rich set of individual characteristics. Additionally, since the MxFLS is a longitudinal survey, it allows us to remove all time-invariant unobserved heterogeneity at the individual level.

Preliminary results show that homicides rates negatively affect male participation in the labor market, particularly those that were self-employed in 2005/06. These results are consistent with previous evidence that shows that the poorest individuals are the more likely to be extorted

by OCGs and/or the police (Diaz-Cayeros et al, 2011). Homicides rates also have a negative effect on the level of earnings, with males that were self-employed in the first follow-up seeing the largest decrease.

2. BACKGROUND

2.1 Crime in Mexico

Official homicides rates have increased in Mexico from 8.3 homicides per 100.000 inhabitants in 2007 to 20.6 in 2010. The rapid change in the dynamics of the conflict between rival organized crime groups (OCGs) and between OCGs and the Mexican government, as well as the increasing use of violence against citizens has draw the attention of governments, academics and NGOs to the Mexican "war on drugs". Due to the rapidly rising homicide rates and in order to improve the understanding of the rising trends in drug related crime, the office of the President released a data set on drug-crime related homicides registered monthly at the municipality level in January of 2011. The information is available from December 2006 to September 2011[4]. This dataset reveals that homicides rates related to OCGs have increased from 2.67 in 2007 to 12.6 in 2010 and 18 in 2011.

The rapid increase in violent homicides has led to a debate about its causes. One hypothesis is that the rapid and violent increase in homicides is a byproduct of the military strategy of increased confrontation against OCGs that took place since 2006 when Felipe Calderón became president (Molzahn, Rios and Shirk, 2012; Guerrero, 2011). The last report from the Trans-Border Institute[5] sustains that since President Felipe Calderón took office in December of 2006, organized crime related homicides have risen to 47,515, and their proportion relative to all intentional homicides doubled. Calderón's strategy has been to confront and fight against all the OCGs at the same time, independently of their location or size. Since the military strategy has not been geographically focused, this has created geographical dispersion of violence (Guerrero, 2011). A different interpretation of the rise in homicides is that the increasing trend started before Calderón took office and is independent of his military strategy (Rios, 2011).

Related to this debate Dell (2012) compares municipalities where a mayor from Calderon's party (Partido Acción Nacional –PAN) won the election by a margin of 5 percent or less to municipalities in which the PAN barely lost by the same margin. Comparing these

[4] The first data set was released in January of 2011 and included information on homicides "allegedly linked to organized crime" from December 2006 to December 2010. In January 2012 a new data set was released on homicides "allegedly caused by criminal rivalry" including information on homicides from January to September of 2011.
[5] The Trans-Border Institute (TBI) is based at the Joan B. Kroc School of Peace Studies at the University of San Diego.

municipalities 6 months before the election and 6 months after the election, the author finds a significant increase of drug related homicides in the municipalities where Calderón's party won, suggesting that PAN related policies may have triggered the massive increase in homicides.

Moreover, the changes in the military strategy during the last years have been accompanied by a change in the dynamics of crime. Many OCGs have fractured which has caused the number of OCGs to almost triple, from to 6 in 2006 to 16 in 2010 (Guerrero, 2011). The rising number of OCGs has increased the confrontations between groups to enhance their territorial control, and it has spread the use of violent means to build their reputation. In addition OCGs have diversified their financial sources. While drug trafficking activities still account for most of their economic resources, they have been relying more on criminal activities that directly affect the civil population, like extortions and car thefts.

In addition to extortions, strategies to enhance control over civil society are important for OCGs to increase their territorial power. Spreading fear across the citizens both diminishes the probability of individuals reporting criminal activities and increases the likelihood of cooperation when being extorted. Besides, the feeling of fear is exacerbated by the lack of trust in the State's institutions and the high levels of corruption and abuses from the police (Guerrero, 2011; Díaz-Cayeros et al, 2011). Díaz-Cayeros et al (2011) measure the strategies that the OCGs use against the civil society and measure how embedded they have become in the society. Their results show that both OCGs and police take advantage of citizens, particularly preying on the poor and less educated. Dell (2012) finds consistent results exploiting a network model of drug-trafficking routes and information from the National Survey of Occupation and Employment. Dell's results show no effects on male labor participation or wages in the formal sector but in contrast, significant negative results on wages in the informal sector and on female labor force participation.

2.2. Effects of Crime on Labor Outcomes

The literature on the causes and consequences of crime has grown in the last few decades. One branch of the literature has focused on exploring the determinants of crime. Seminal work by Becker (1974) created the foundation of the research in this field. Some of the findings in the literature show that lack of economic opportunities and weak enforcement might decrease the opportunity cost of engaging in criminal activities, and therefore, increase the levels of crime. Under this scenario, lack of economic opportunities may be one of the drivers of crime.

On the other hand, a branch of the literature has focused on analyzing the impact of violence on social and economic outcomes at the individual and household levels. In particular

there is a rich literature that has analyzed the impact of conflict in developing countries on education, health and migration. A more limited literature has studied the effects of any type of violence on labor markets, in particular at the micro-level (Bozzoli, Brück and Wald, 2011; Calderón and Ibáñez, 2009; Deininger, 2003; Fernández, Ibáñez and Peña, 2011; Kondylis, 2007; Shemyakina, 2011).

One of the main difficulties to estimating the impact of crime on labor outcomes is potential reverse causality and omitted variable bias. Even if there is a correlation between crime and labor market outcomes, it is not straightforward to determine causality. Identifying the effect of crime on labor outcomes is challenging because the level of violence and its change over time are not random across municipalities or independent of other factors that may affect labor outcomes. Reverse causality might be an issue, as well, if municipalities with better economic opportunities attract higher crime. There are important contributions in the literature that have measured the impact of crime on labor market outcomes.

Kondilys (2007) exploits data from a longitudinal study to explore the effects of displacement on labor market outcomes in post-war Bosnia and Herzegovina. Since the decision to migrate and where to migrate is not random, the author controls for municipality of destination fixed effects to control for the non-random sorting of displaced individuals. In addition, the author uses the local (in the municipality of origin) level of violence as an instrument for displacement. The results show that displaced Bosnians are less likely to be working relative to the people who did not migrate. Displaced men experience higher unemployment levels, and displaced women are more likely to drop out of the labor force.

In the same line of research, Calderón and Ibáñez (2009) estimates the effects of displacement on the labor markets of destination places. Massive migrations from rural to urban places due to violence in Colombia have increased the number of unskilled workers in urban settings. To overcome endogeneity issues the authors use an instrumental variable (IV) approach and find that a higher supply of unskilled labor increases the likelihood of informality and reduces wages in this sector. In this scenario, forced displacement has an effect on the direct victims of violence but also on informal workers in the labor market of the destination places.

Bozzoli, Brück and Wald (2011) studies the effects of the Colombian conflict on the probability of being self-employed in rural settings. The empirical identification relies on household fixed effects using a selected sample of household from beneficiaries of a conditional cash transfer program in Colombia (Familias en Acción). The authors find a decreasing share in self-employment in municipalities with higher rates of conflict.

2.2. Effects of Crime on Wealth

There is an extended literature analyzing the response of individuals and households to negative shocks. In particular, there has been a large set of studies that examine the ability of households to smooth consumption in times of crisis (see for example, Townsend, 1995; Morduch, 1995). If we consider exposure to violence as a negative shock to wealth, as, high levels of violence may alter labor market outcomes and thus decrease the level of income at the household level, there is potential for significant consumption smoothing. However, low socioeconomic status individuals may have very few insurance and credit mechanisms in order to smooth consumption. This suggests that the impact of violence on labor outcomes, PCE and wealth may have significant potential to create poverty traps for the most vulnerable population.

A second pathway, through which violence may affect consumption behavior directly, is through the fear of being targeted for conspicuous consumption. For example, individuals in the United States decreased the consumption of visible goods to reduce the probability of victimization from property crime (Mejia and Restrepo, 2010). We will show preliminary results of the effect of homicides rates on PCE, but in this version of the paper we will not test the mechanisms through which violence can affect measures of wealth.

The contribution of this paper is twofold. First, it will estimate the labor market outcomes of individuals living in a scenario of on-going high levels of violence. While, the recent increase of crime in Mexico has augmented the research on the topic, there are relatively few papers that have looked at the effect of crime on labor market outcomes (Cayeros et al (2011) and Dell (2012) are important examples in the recent literature). Additionally, we can exploit the unique characteristics and timing of the MxFLS in order to address these questions. Due to the fact that the MxFLS is a nationally representative survey that conducted waves before and during the massive increase in violence, we can exploit the temporal and geographical variation using official information of homicide rates at the municipality level. Furthermore, the longitudinal nature of the MxFLS allows us to control for time-invariant unobserved heterogeneity at the individual level that may be drivers of labor market outcomes. Second, by looking at the impact of crime on per capita expenditure this paper will add to the literature on consumption smoothing.

3. DATA

3.1. HOMICIDES DATA

One of the challenges when analyzing the impact of crime is the availability of the necessary and appropriate data. In this paper we will use the official reports on all intentional homicides from

the INEGI. The limitation of this data is that it relies only on registered homicides. This is an important limitation if we think that homicides related to organized crime are highly underreported. However, when comparing the trend on homicides rates reported in the INEGI and homicides rates related to organized crime reported by the President's Office we observe that the INEGI reports capture the same increasing trend. Moreover, the homicides reported in the INEGI are available from 1990 to 2010, which allows us to exploit the panel nature of the MxFLS. In addition, the intensity of organized crime may have an effect on other types of homicides that additionally affect the outcomes in which we are interested. In this section, we will describe the INEGI dataset and compare its trends to the ones reported in the available dataset on homicides related only to organized crime (available from 2007 to 2011) to establish whether the official figures on homicides follow the same trends as the homicides caused by organized crime.

Figure 1 shows the trend of the number of intentional homicides using the INEGI data from 2000 to 2010. During the beginning of the decade the number of homicides was stable in Mexico. This stable trend continued until 2004 when there was a slight increase until 2006. However, since 2007 there has been a significant increase in the number of homicides. To understand the magnitude of intentional homicides relative to the homicides caused by OCGs we compare the trends from the two data sources. The data that measured homicides related to organized crime, released by the Mexican government in December of 2010, provides monthly data, from December 2006 to December 2010, at the municipality level (*"*allegedly linked to organized crime*"*, for easiness of exposition we will refer to this data as homicides by Organized Crime Groups OCGs.).

Figure 2 illustrates that both sources provide the same increasing trend from 2007 to 2010. Since we will exploit the geographical variation of violence within Mexico, absolute values of homicides might be misleading if we do not consider the size of the population, thus Figure 3 shows the trend from both data sources when using the homicides rates. Figure 3 displays similar increasing trend, where the rate of homicides per 100.000 habitants reached 20.6 in 2010 according to the INEGI data and 12.6 according to the OCGs data set (the most recent data set from the OCG reports an overall homicide rate of 18 for 2011 (Molzahn, Rios and Shirk, 2012)).

Although compared to other countries with high level of violence[6] Mexico does not show the highest homicides rates, the fast increasing trend of homicides has no precedent in Mexico's history. Moreover, the number of homicides has not increased with the same intensity in each

[6] Honduras (82), El Salvador (66), Venezuela (49), Belize (41), and Guatemala (41), Colombia (33), the Bahamas (28), Brazil (22), and the U.S. territory of Puerto Rico (26) (Molzahn, Rios and Shirk, 2012).

area of the country[7]. Map 1 shows the change in homicide rates at the state level between 2007 and 2010 (white States are not included at baseline in MxFLS). This map shows an increasing trend in almost every state (included at baseline in MxFLS) of the country; all but 2 states (DF and Yucatan) suffered an increase in their homicide rates. Map 2 shows the same change when using the data released by the President's Office. Although there are differences between both data sources we can see that both sources show geographical variation and a non-trivial increase in homicides rates in the vast majority of the country.

It is important to note the potential measurement errors in our variable of violence: homicides rates measured by the INEGI. First, since the INEGI only captures registered homicides there is potential for the of homicide rates to be lower bounds when using this data set. However, as the figures and maps show the INEGI data captures the same increasing trend as the data on homicides related to organized crime. Second, the increasing trend of homicides might reflect a combination of actual homicides and a better administrative job of reporting during the registration process. Although this could be an important source of measurement error in other scenarios, the case of Mexico in the last 7 years has been very particular. The increasing violence has not been evident only by the official numbers (INEGI and the OCGs datasets). Academics, the national press and NGOs have collected information on homicides and the trend persists even when looking at these alternative data sources.

3.2. MxFLS

In order to study the impact of crime on economic outcomes at the individual and household level we will match the homicides data with the Mexican Family Life Survey (MxFLS). The MxFLS is an ongoing longitudinal, nationally representative survey of individuals, households who were living in Mexico in 2002 when the baseline was conducted. It includes information on approximately 8,440 households and 35,600 individuals among 150 communities and 16 states throughout Mexico.

The second wave, MxFLS2, was conducted in 2005-2006. MxFLS has kept low levels of attrition. Over 89% of the panel respondents were re-interviewed in MxFLS2. The third wave, MxFLS3, is currently in the field and we anticipate achieving the same re-contact rate as in MxFLS2.

[7] When comparing the geographic distribution of homicides between the two data sources the similarities are evident (Map A.1 in the Appendix shows the geographical dispersion at the State level using both data sources). In this paper we will use the INEGI data since it is available for a longer period and it captures both the increasing trends since 2007 and the geographical dispersion.

MxFLS has been characterized for keeping low attrition rates. Table 1 shows the re-contact rates in the third wave at this time (May 2012). We have achieved a re-contact rate of 81%, with 12% of the sample having not been located to be interviewed and 7% having refused to give the interview. In this paper we will focus on the sample of individual that were 25 or older in the second follow-up (2009-12). In this sample the re-contact rate is, at this time, almost 80%. We will stratify the sample by gender and by the rural/urban characteristics of the locality where they were living in the third wave.

The MxFLS is ideally suited for this paper for a number of reasons. First, MxFLS2 was conducted in 2005/06 (during a period of "normal" levels of homicide rates) and the second follow-up (MxFLS3) was performed during 2009 to 2012 (during a period of high levels of violence). Although the information at baseline gives us another measure of pre-violence status, we focus on the first and second follow-up because we are interested in the sample of individual of working age and we don't want to exclude the youngest cohort from our study, as their labor market information would not be available in 2002. By focusing on the first and second follow-up we can look at the impact of crime including the youngest working age individuals. Further, the timing of the MxFLS allows us to compare the outcomes of the same individual in periods of low and high levels of violence and the longitudinal nature of the data allows us to control for unobserved time-invariant characteristics.

Second, in MxFLS3 there has been a particular effort on following migrants within Mexico and to the U.S. This is particularly important for this study because migration may be a behavioral response to crime; if individuals, particularly affected by high levels of violence, migrate as a response to it and they are not tracked, the estimations of the impact of crime on economic outcomes would be underestimated. On average migration between the second and third follow-up (2005/06 and 2009/12) has been low at the municipality level. Only 5.21% of the respondents interviewed in the second follow-up moved to another municipality (this number is close to the 3.22% reported in the 2010 Census and when comparing by state the numbers continue to be very similar.) Although there is little migration between municipalities from the first to second follow-up, if migration is due to unobserved characteristics correlated with labor market outcomes and related to violence, it may still present a problem. By using a panel dataset, though, we are able to limit the potential bias, as we can control for any time-invariant unobserved characteristics of the respondent. This approach coupled with the limited amount of migration seen in the data gives us confidence that selective migration is not driving our results.

The MxFLS has a rich set of characteristics about its participants, including information about the economic, social and health status of each member of a surveyed household. The questionnaire for adults includes sections on education, labor supply, earnings, migration history, marriage history, fertility history, health status, and use of health care. In addition, one member is interviewed about information at the household level. This questionnaire includes a complete household roster including basic socio-demographic characteristics of each household member, information of household expenditure, and asset ownership.

In addition to surveys at the household level, the MxFLS conducts surveys at the community level through interviews with the community leaders (Rubalcava and Teruel, 2006). This information will permit future analysis of the correlation between the levels of crime measured by the INEGI and the MxFLS.

4. EMPIRICAL STRATEGY

The purpose of the paper is to quantify the effects of violent conflict on economic variables at the individual and household level. The longitudinal nature of the data used in the empirical strategy and the fact that individuals were interviewed in 2005 (period of low levels of violence) and in 2009-2011 (period of high levels of violence) allows estimation of a model that relates the change in the dependent variable of interest between the time of low and high violence to the change in our measure of violence: homicides rate.

For a number of reasons we expect to find negative effects of violence on these outcomes in Mexico over the last few years. OCGs have not only increased in number, but they have also started to use extortions of civilians as a financial resource and to increase the sense of fear in the community. An increasing sense of fear, lack of confidence in the police and an increasing probability of being a direct victim of OCGs can induce business owners to close, the extortions might diminish total income of the household, and the fear of being a direct victim of the conflict might decrease the time allocated to labor activities. Moreover, investment in certain regions can decrease as a consequence of high levels of violence affecting the supply of jobs, and labor opportunities in the formal sector.

In our empirical strategy **t**he municipality of residence and the year of the interview in the second and third wave of the MxFLS determines an individual's exposure to violence. The identification strategy exploits the variation over time of homicides rates between 2005 and 2009-10. One of the challenges to identify the effect of crime on labor outcome is potential reverse causality and omitted variable bias. For each of the outcomes of interest we will try two different

specifications. The first one will only use individual fixed effects with no regional controls. The second specification will add state and state and year of interview interactions to control for regional characteristics that could affect both crime and labor outcomes. Ideally we would like to include municipality characteristics available in the 2005 and 2010 Census but this set of variables is potentially endogenous to crime, therefore, we will not include them in our empirical specifications.

Our empirical strategy compares the same individual across time periods. By utilizing longitudinal data we are able to take advantage of individual fixed effects, which capture all unobserved, time invariant factors that affect the dependent variable. This is particularly useful if we believe that there are time-invariant characteristics of individuals, such as ability or risk preferences, that are correlated with both labor outcomes and the violence level of the municipality in which the individual chooses to live. Moreover, if homicides are reported with error, the individual fixed effect strategy differences out error that is constant over time. Our empirical strategy can be generalized in the following regression framework:

$$y_{ijt} = \delta V_{jt} + \varphi X_{ijt} + \theta_i + \alpha_{st} + \rho_s + \beta_t + u_{ijt} \quad (1)$$

Where *y* is the outcome of interest of individual *i* living in municipality *j* in year *t, V* includes our measure of violence: homicides rates at the municipality level in time *t* and δ is the coefficient of interest*, X is* a vector of individual and household characteristics (dummies for age, years of schooling, marital status, employment category, household size, number of kids in the household, and measures of risk and patience), θ_i captures individual fixed effects, α_{st} denotes state of residence interacted with year of interview fixed effects, ρ_s is a state of residence, and β_t is a quarter-year of interview fixed effect. The fixed effect model with only two periods can be interpreted as a differencing over time model. Differencing over time, the regression that we are interested in is:

$$\Delta y_{ij} = \delta \Delta V_j + \varphi \Delta X_{ij} + \alpha_{st} + \rho_s + \beta_t + \Delta u_{ij} \quad (2)$$

As a measure for homicides rates we will exploit different specifications: first, we will use the square root of homicides rates (level of homicides rates)[8]; second, we use as an independent

[8] Approximately 32 percent of the municipalities report zero homicides in 2005, 33 in 2006, 28 in 2009, 29 in 2010. In order to include the municipalities with zero homicides rates we use the square root transformation instead of the log transformation.

variable a categoric variable with the quartiles of homicides rates to capture non-linearity on the effect of homicides rates[9].

The difficulty in estimating the relationship between violence and economic outcomes could emerge from the fact that homicides rates have not increased in a random fashion over the time and might not be orthogonal to unobserved factors that affect economic performance in the municipality or at the individual level. If the change in the level of homicide rates is correlated with unobserved variables that affect the change in labor outcomes, the level of violence is endogenous and we face omitted variable bias. The correlation between the independent variables with unobserved factors could be explained by self-selection (Wooldridge, 2002). However, individual fixed effects allow us to control for unobserved heterogeneity at the individual level, these unobservables may determine both exposure to violence and labor outcomes. For example, if risk-averse individuals migrate from a high crime region to a low crime region, their selection to the new place of residence affects the exposure to violence and it may affect labor outcomes. Individual fixed effects strategy controls for these time-invariant unobserved characteristics.

The individual fixed effects strategy should solve for potential omitted variable bias; however, in order to have consistent estimates, the idiosyncratic error at each time has to be uncorrelated with the variable that measures crime in both periods (Wooldridge, 2002). It would be reasonable to think that u_{ijt} is correlated with V_{jt} because crime is not allocated in a random way and it might be higher in municipalities with a better economic performance, so the expected profit of the extortions to the civilians is larger. Second, we could think that u_{ijt} is correlated with $V_{ij,t+1}$ if unobserved variables in 2005 affect both labor outcome variables in 2005 and the level of crime in 2009. There are reasons to believe that increasing crime rates might be correlated with the error term in 2005: first, crime is more likely to happen in areas with better economic growth because it is more profitable to extort civilians in these places, or it might happen in places with a worse economic activity if that is a reflection of bad institutions and low state presence. In addition, individuals may select themselves into low or high crime municipalities based on unobservables that are not constant over time (marital status, number of kids, etc). Any of these forms of selection would bias our estimates.

In Table 4 we analyze characteristics at the individual and municipality level in 2005/06 as determinants of the growth in violence between the first and second follow-up. The results in column 1 show only the effects of individual characteristics measured in MxFLS2 and the second

[9] We also estimated a dummy model where the dependent variable has a value equal to one for municipalities with at least one homicide and the results were consistent with the other models.

column adds municipality characteristics measured in the 2005 Census. These estimations allow us to test whether the level of the increase of violence in a municipality was independent of individual characteristics in the low violence period. The first columns in Table 4 show that only the gender variable, cognitive score and migration by age 12 are significant determinants of the growth of homicides rates between the survey years. These results suggest that municipalities with on average more males, and individuals with higher cognitive score and that were more mobile might be more prone to suffer a higher increase in violence. In column 2, when we include characteristics at the municipality level the only variable at the individual level that remains significant is migration by age 12. A number of municipality characteristics in 2005 are significant but the results are ambiguous and it is not clear if municipalities with better education supply and public services are less or more targeted by OCGs. The main takeaway from Table 4 is that labor outcomes in the pre-high violence period are not significant determinants of the level of increasing violence at the municipality level.

In Table 5 we analyze migration between municipalities as a function of homicides rates, using the two same models of the empirical specification. In any of the models the level of violence seems to be a predictor of migration. These results make us feel more confident of non-selective migration.

An additional concern of the empirical strategy is non-random attrition[10]. At this stage attrition does not seem to be random relative to the labor market variables in 2005. To address this issue we conducted a multiple imputation specification and the results do not change. It is important to have in mind though, that a multiple imputation strategy only works if attrition is selected solely on observed characteristics. If attrition is explained by unobserved factors a multiple imputation strategy or any re-weighting method will not solve the potential bias. As attrition is an important concern for any longitudinal survey, surveyors are still conducting intensive tracking in the field in order to further reduce the number of missing individuals.

In the empirical analysis we will estimate two models. One will only include individual fixed effects and the second will include state and time interactions to control for regional fixed effects. However, the model could be mis-specified if the following assumptions do not hold. First, the model assumes that there are not time varying characteristics at the municipality level correlated with bot homicides rates and labor outcomes. If within the same state different municipalities followed different trends that affected in different manner both the dependent variables and the measure of conflict, the model may be biased. Second, there are not time

[10] It is important to have in mind that although we are in the final stages of fieldwork we are still doing intensive tracking of the most difficult cases.

varying characteristics at the individual level that affect both exposures to violence and labor outcomes. We add measures of risk and patience as potential time variant unobserved characteristics.

5. DESCRIPTIVE STATISTICS

Sample and labor characteristics

In this paper we focus on working age individuals (25 years and older in the third wave). Table 2 shows basic characteristics of the sample: on average an individual has close to 7 the years of education, 70% of the individuals are married and 57% report being employed (these figures change by gender, approximately 80 percent of males report working last week, in contrast with only 34 percent of women being employed the week before the interview.) Moreover, 39% of individuals work as employees and 16 percent as are self-employed.

Table 3 shows participation in the labor market during the first and second follow-up in municipalities with high and low levels of violence during those years. The numbers show that before the increasing trend of homicides rates the participation in the labor market was not significantly different in regions with homicides rates above or below the national median. Men participated more than women and they participated more as employees relative to self-employment. In the second follow-up, however, the results show significant differences in participation in the labor market between high and low violence municipalities. Self-employment for both male and female respondents is higher in high crime municipalities but formal employment is lower in high crime places for males. .

5.1. DEPENDENT VARIABLES

In this version of the paper we will focus on the impact of crime on two main outcomes: the probability of participating in the labor force (either as a self-employed or as an employee), and earnings (total earnings, and for self-employed and employees). We will also describe very preliminary results of the impact on per capita expenditure.

Participation in the labor market: In our empirical specification this is measured as the probability of being employed in the second-follow up conditional on being employed in the first follow-up (we disaggregate this by self-employed: probability of being employed[11] in 2009 conditional on being self-employed in 2005; and by employee: probability of being employed in 2009 conditional on working as an employee in 2005). However, other kinds of changes are important to explore as well. For example, since there are also a few municipalities with negative changes in their homicides rates, it may be interesting to explore the impact of violence on the

[11] Either as a self-employed or employee.

change from unemployment to employment. In the next stage of this research we will explore these dynamics and stratify the sample by education of the respondent and age, in order to identify whether crime affects younger and uneducated individuals differently.

Earnings: Our measure of earnings in the empirical section is the quartic root of earnings. Since there are values of zero for earnings and PCE, we use the quartic root which is a very close approximation to the log transformation for positive values[12]. In these models we are interested in looking at the effect of violence on the level of earnings for all the individuals that were working in 2005/06, and additionally looking at the impact on stratified samples of the self-employed and employee groups in 2005/06.

Per Capita Expenditure: We measure consumption as per capita expenditure at the household level. We stratify the results by food consumption and non-food consumption. In the empirical specification we use household fixed effects.

6. PRELIMINARY RESULTS

In this section we will discuss the results for the outcomes of interest: participation in the labor force, the quartic root of earnings, and the quartic root of per capita expenditure. Since the effects of violence have been different in rural and urban places, we will explore the effects of homicides on average for the whole population and then stratify the sample by gender and by the rural and urban characteristics of the localities where individuals lived when they were interviewed in the third wave of the MxFLS.

In addition, we will explore two different estimations: first, we estimate the average effect of the violence on the outcomes of interest using as a dependent variable the square root of homicides rates; second, we use as a dependent variable indicator variables representing the quartiles of homicides rates to capture non-linearities in the effect of homicides rates, using as the omitted category the lowest quartile. Moreover, as we discussed in the identification strategy section, controlling by the right geographic characteristics helps to solve for potential endogeneity issues. To this end we will estimate two different models: first, a model only with individual fixed effects with no regional fixed effects (Model 1); second, we will add to the individual fixed effects interactions of state and year of interview (Model 2). Ideally we would like to control for municipality fixed effects but since our measure of crime is at the municipality level we need to use a regional effect at a higher level. The drawback of using state instead of municipality controls is that we are assigning the same regional characteristics to within state

[12] We use this measure instead of the logarithm transformation because near 4 percent of individuals in 2005 and 2009 report zero earnings.

movers that face different levels of homicides in the first and second follow-up of the MxFLS. Although this is a limitation, this is our preferred specification since it controls for some regional characteristics. Without controls at the region level the bias on homicides rates is ambiguous. If we expect a negative effect of crime on labor outcomes, ignoring regional characteristics could bias the effect of crime towards zero if the incidence of crime is higher in states with better economic opportunities. On the other hand, the effects of crime could be overestimated if the incidence of crime is higher in places with lower economic opportunities.

Participation in the labor market

The purpose of this section is to measure the effects of crime on the probability of participating in the labor force. Additionally we will look separately at the impact of crime on employees and the self-employed, as it is important to establish whether the increasing levels of violence has differential affects on these two sectors of the labor market. This distinction is particularly important in the context of the violence in Mexico.

As mentioned in previous sections, evidence from studies in Mexico suggests that organized crime groups have diversified their criminal activities. Although drug trafficking activities remain their main financial source, the organized crime groups have become more involved in activities that directly affect the citizens, such as kidnapping and extortions (Molzahn, Rios and Shirk, 2012). In this scenario, one hypothesis is that self-employed individuals are easier to target and to extort. If this is the case, high levels of violence might have a direct effect on the employment choices of general population. Victims of extortions or knowledge about a high probability of potential victimization might create a fear of working as a self-employed and, as a consequence, decrease the average probability of working as a self-employed. On the other hand, increasing cases and news about kidnappings, extortions and fuel and oil thefts might diminish levels of investment in a region, and the closing down of firms, which would have a negative impact on the probability of working as an employee.

Tables 6.A to 6.E show the results of the estimation using as a measure of violence the municipality-level square root of homicides rates and disaggregating by gender and the rural/urban designation of the locality of residence. Additionally, to explore non-linearities the next model uses as explanatory variable dummy categories for the quartiles of the homicides rates, using as an omitted outcome the lowest quartile. Tables 7.A to 7.E show the results of the quartile estimations.

The results in Table 6.A show the results for all individuals. The results of the model 1, controlling only for individual fixed effects, show a negative effect of lagged crime on the

probability of participation in the labor market conditional on being self-employed in 2005. In this model contemporaneous homicides rates do not have a significant effect on the probability of participation in the labor force. The negative effect of the homicide rate in the previous year persists when including state and year interactions and more importantly, the contemporaneous homicide rate is negative and becomes significant for individuals that were self-employed in the first follow-up. In Model 2, there is an interesting dynamic between the effect of homicides rates in *t*, *t-1* and *t-2*. The effects in *t-1* and *t-2* have opposite sign and show very similar magnitudes but the contemporaneous effect of crime is negative. Table 7.A shows the results for the entire sample for the quartile regressions. The negative effects for the probability of being employed in 2009/10 conditional on being self-employed in 2005/06 persist in the quartile model and as expected the effect is largest in the highest quartiles (*i.e.* in the most violent municipalities).

The results in Table 6.B for males show similar effects. Significant effects are observed only when adding state and year interactions, but only for the contemporaneous homicide rate and as in the previous results, the effect of crime is significant only for individuals that were self-employed in 2005/06. Disaggregating the measure of crime by quartiles, the results of the model 1 (Table 7.B) are consistent with those in Table 6. For our preferred specification (model 2) the disaggregated model by quartiles does not show significant effects for males that were self-employed in 2005 (this could be because of lack of power); however, we observe a negative effect in the highest quartile for those that worked as employees. The results from Tables 6.B and 7.B show that the average effect of homicides rates is negative for males that worked as self-employed in 2005, and for those experiencing the highest homicides rates there is a negative effect for males that worked as employees.

In contrast, the results in Table 6.C for females show a significant negative effect of homicides rates in *t-1* for both employment categories. However, when adding state and year interactions the negative sign persists but the results are no longer significant. Even though on average the level of homicides rates does not show a significant effect for females, the results by quartiles show that the effect of crime in municipalities in the middle of the distribution was negative and significant relative to the effect in municipalities in the lowest quartile.

Tables 6.D and 6.E show the impact of violence on those living in urban and rural places, respectively. In urban places there is a positive effect of homicides rates in *t-2* on labor market participation, which suggests some positive time lag between violence and labor outcomes. This positive effect persists in model 2 but in this specification the contemporaneous effect of crime is also significant and the effect is negative. The negative effect maintains it significance when not

controlling for lagged crime. Furthermore, the effects in Table 7.D are qualitatively consistent with what is observed in Table 6.D and the effects are larger for the highest quartiles.

In rural places, we can also observe on average a negative effect of homicides rates on the participation in the labor market for individuals that were self-employed in 2005 when controlling for state-time characteristics. However, the effect does not seem to be significantly different depending on the intensity of crime (Table 7.D).

The results of this section show evidence of negative effects on the probability of participation in the labor market for males that were self-employed before the increasing trend of crime and in urban places. On average the effect is not significant for females but when disaggregating by quartiles there is a significant and negative effect on municipalities in the middle of the distribution relative to those in the lowest quartile.

Earnings

The purpose of this section is to measure the effects of crime on an individual's level of earnings (wages and earnings for self-employed). The hypothesis follows the one stated in the previous section. However, even if the probability of being employed is not affected by the level of violence, the level of earnings could decrease if individuals are working less hours as a mechanism to protect themselves from violence or if the demand of labor decreases because firms close due to violence or invest less as a response to potential threats and extortions. Tables 8 and 9 show the results for the levels and quartiles models for each of the samples described in the previous section.

The results in Table 8.A for the entire sample show that on average contemporaneous homicide rates have a significant negative effect on the level of earnings and the results only rise in magnitude when controlling by state-time fixed effects. The results show that a 10% increase in the homicides rates would decrease earnings by 2.4 percent for individuals that worked as self-employed in 2005/06. The findings in the quartile regression (Table 9.A) support these findings. Our preferred specification, model 2, shows negative effects for earnings, especially for those that worked as self-employed in 2005/06 and the effects are larger in the highest quartiles.

These results hold for the sample of males (Table 8.B), and there are also significant effects for individuals that worked as employees in 2005 although only at the 10% level of significance. The results of the quartile estimations (Table 9.B) show negative effects for contemporaneous homicide rates in the highest quartile but only when estimating the effect on both employment categories. The effect is not significantly different by quartiles when looking only at self-employed or employees. Moreover, there are positive effects in the third quartile in *t*-

1, which suggests there is an interesting heterogeneity in the timing and location of effects that requires further exploration.

For females, the results are negative only in the model 2 and only at the 10% of confidence and only for those that were self-employed before the increasing trend on crime. The quartile estimation in Table 9C, not only support this results but shows that the effect is significantly higher in municipalities in the higher distributions (Table 9C).

The results by place of residence show that in urban places (Table 8.D) there are negative effects when looking at both employment categories together, but when disaggregating by self-employed or employee there are only effects at the 10% level of confidence for individuals that were self-employed in 2005/06. The quartile estimations in Table 9D support these results, showing that the highest quartile is the most significant and the one with the bigger magnitude. In rural places (Table 8E), on the other hand, the impact is significant only for those that were self-employed and the coefficient shows that a 10% increase in the homicides rates would decrease earnings by 5.4 percent.

The results of this section show that contemporaneous violence has negative effects on the level of earnings for both males and females. Moreover, those individuals that worked as self-employed in 2005/06 are the group that experienced by far the most adverse relationship with rising violence. Analyzing these results with the effects for the probability of being employed, we can conclude that the effects of both contemporaneous and lagged levels of violence affect male participation in the labor market, and both females and males levels of earnings. The negative effects in the labor market for both males and females may have important consequences for the level of wealth of the households if the male is the main breadwinner and even more if the female participation in the labor market diminishes as well.

Per Capita Expenditure

The purpose of this section is to measure the effects of crime on levels of wealth at the household level, in particular consumption. The effect on consumption could be a response of lower levels of earnings, but it could also be a direct effect of high levels of violence. We cannot disentangle the mechanism but following the same empirical specification we can measure the impact. We analyze the impact on PCE for all households and by households' residence in urban or rural localities in the third wave.

The results by homicides rates levels in Table 10 do not show any significant result on PCE. However, the results of the quartile regressions (Table 11) show that the impact of crime on consumption of non-food items in municipalities in the second quartile of the distribution are

negative and significant relative to the impact on municipalities in the lowest quartile. These results are significant only for households living in urban localities in the third wave.

7. DISCUSSION AND FUTURE WORK

High levels of crime may modify the context in which individuals operate, affecting behaviors at the individual and household level (Gáfaro, Ibáñez and Calderón, 2011). In particular, they can have an effect on the labor markets available to individuals. The effects of crime might be negative if the fear of being victims of crime increases the cost of participating in the labor market or if investment decreases in a region, which in turn diminishes job opportunities.

Measuring the impact of crime on labor market outcomes in Mexico is critical given the high incidence of crime observed since 2007 and the change in the dynamics of crime in the last few years. In addition OCGs have diversified their financial sources, and even if drug trafficking activities account for most of their economic resources they have been relying more on criminal activities that directly affect the civil population, like extortions and car thefts.

Exploiting information from the MxFLS in a period of low levels of homicides rates and in a period of high levels of homicides we can estimate and individual fixed effect model that helps to control for any time-invariant unobserved heterogeneity that could affect both exposure to violence and labor outcomes. However, if there are time-variant characteristics both at the municipality level and at the individual level affecting both municipalities' crime and economic opportunities our empirical results could be biased. As a complementary strategy to solve for potential endogeneity issues we can complement the fixed effect estimation with an instrumental variable (IV) model. A valid IV needs to predict the increasing trend of crime at the municipality level and affect the change in labor outcomes only through the change in violence. Future research will work on this strategy.

Preliminary results of the individual fixed effect strategy shows that the increasing violence trend in Mexico had a negative effect on labor market participation of men that were self-employed in 2005/06, and on earnings of both male and women that were self-employed in 2005/06. These results are consistent with Dell (2012) that finds negative effects of drug related homicides on earnings of individuals working in the informal sector.

Increasing violence in Mexico might not only affect the direct participants but also innocent civilians. If this is the case the government needs to respond to the negative shocks violence may cause on individual's wealth.

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9. TABLES AND FIGURES

FIGURE 1. NUMBER OF HOMICIDES – INEGI

FIGURE 2. NUMBER OF HOMICIDES – INEGI AND DATA FROM PRESIDENT'S OFFICE (OCGS)

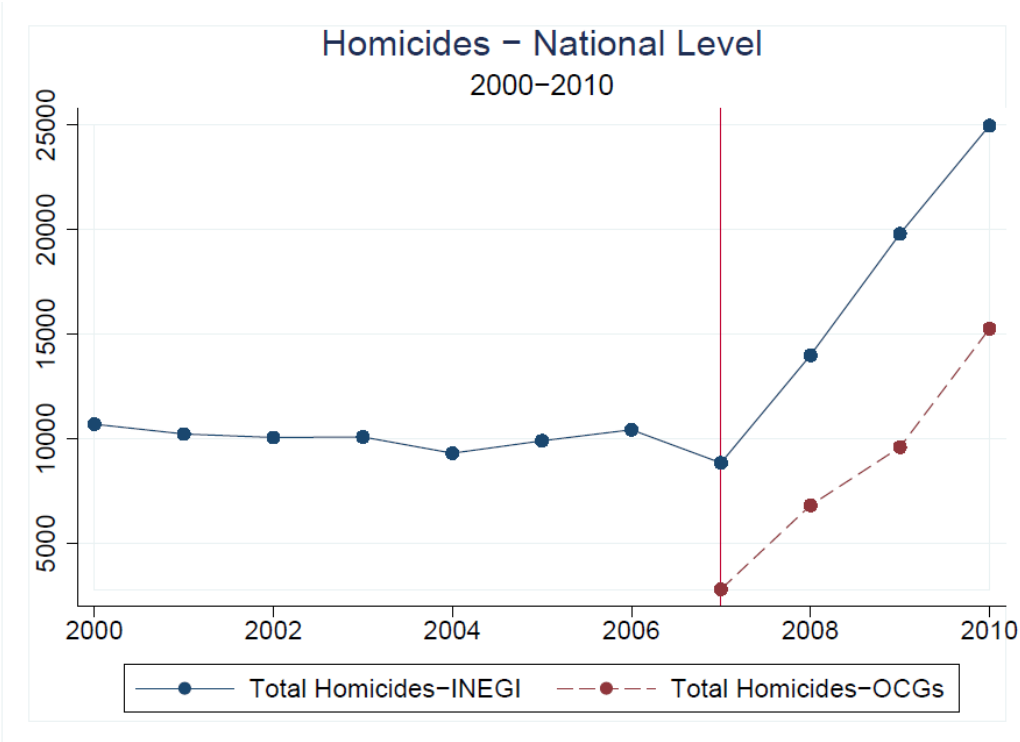
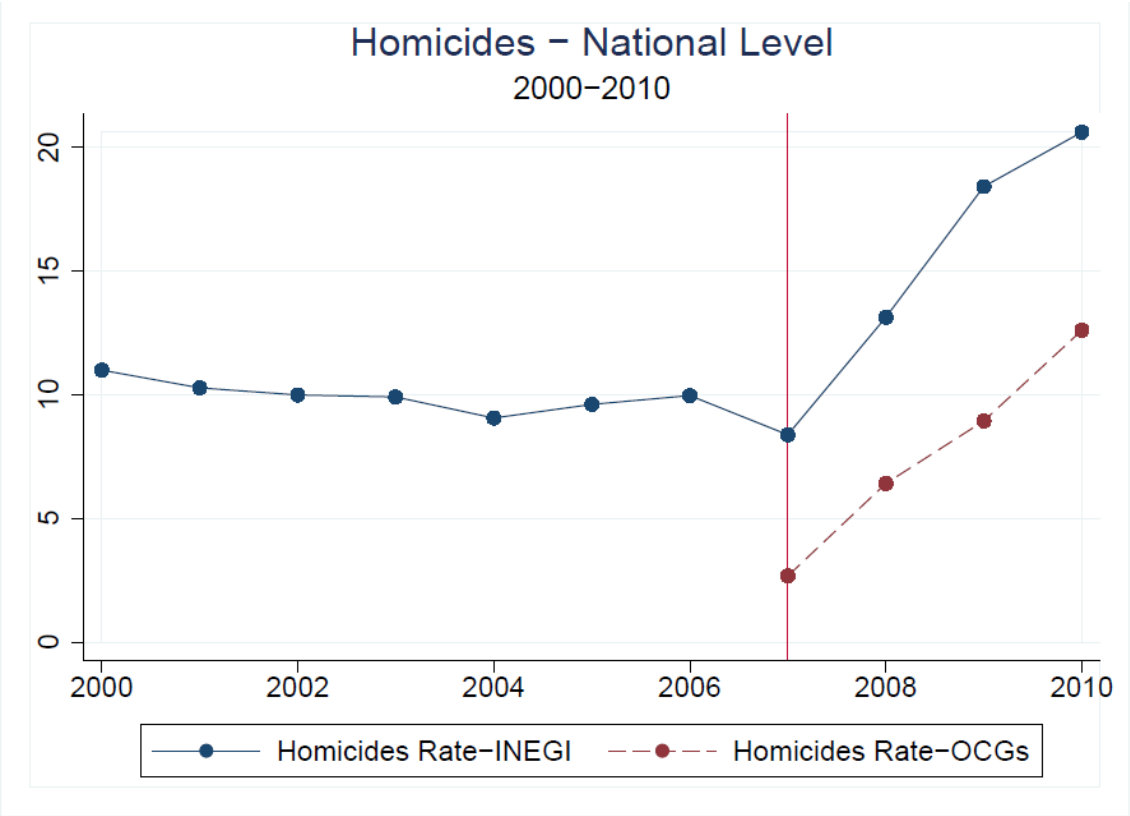
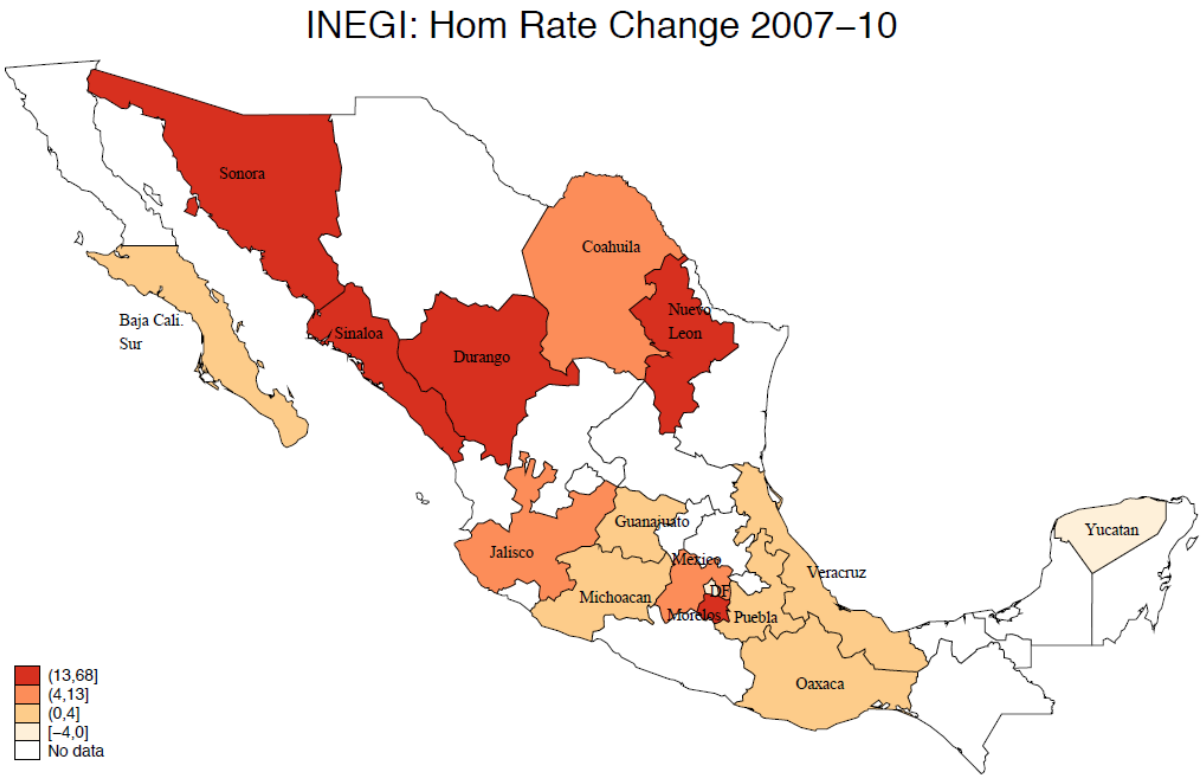


FIGURE 3. HOMICIDES RATES– INEGI AND DATA FROM PRESIDENT'S OFFICE (OCGS)

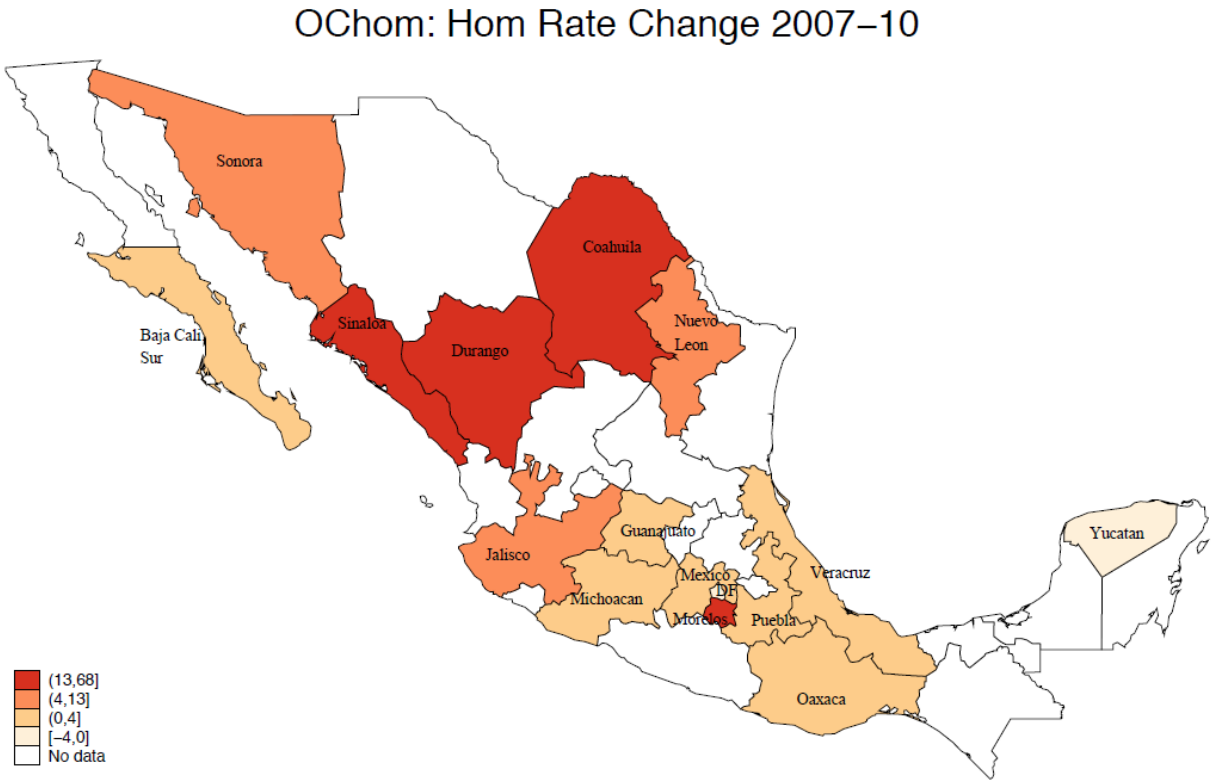


MAP 1. CHANGE IN HOMICIDES RATE 2007-2010 – INEGI



Note: White States are not included at baseline in MxFLS

MAP 2. CHANGE IN HOMICIDES RATE 2007-2010 – OCG (DATA FROM PRESIDENT'S OFFICE)



Note: White States are not included at baseline in MxFLS

Table 1. Third Wave Contact Rates

	All		Age in 2002>=15	
TRACKING 2009	#	%	#	%
Eligible for survey (total sample 2002)	35,677		23,747	
Died between Waves	1,291		1,227	
Child of Panel 2005	2,070			
Eligible to be tracked, of whom:	36,456		22,520	
Total Interviewed	29,443	80.76	17,842	79.23
Not interviewed	6,846	18.78	4,678	20.77
Refusals	*2,552*	*7.00*	*1,619*	*7.19*
Not Found	*4,494*	*12.33*	*3,059*	*13.58*

Source: MxFLS

Table 2. Sample Characteristics – 2005

	2005	
Variables	mean	sd
Age	42.37	15.61
(1) Female	53.46	49.88
Years educ	6.82	4.63
(1) Married	71.71	45.04
(1) Worked last week	57.09	49.50
(1) Employee	38.35	48.62
(1) Self-employed	15.61	36.30
Household size	4.89	2.36
# kids	1.38	1.43
(1) Moved by age 12	23.30	42.28
(1) Thought about mig in the future	11.55	31.96
(1) Rural	41.18	49.22
Obs	16800	

Source: MxFLS2

Table 3. Labor participation in first and second follow-up relative to violence levels

All

	High 05	Low 05	p-value diff	High 09	Low 09	p-value diff
Worked last week	56.49	57.66	0.13	58.07	57.6	0.55
Self	15.18	16.03	0.13	18.94	16.77	0.00
Employee	37.63	39.05	0.06	37.87	40.69	0.00

Male

	High 05	Low 05	p-value diff	High 09	Low 09	p-value diff
Worked last week	83.3	84.62	0.12	82.34	83.68	0.12
Self	22.67	23.2	0.58	26.68	23.71	0.00
Employee	56.43	58.26	0.11	55.02	59.83	0.00

Female

	High 05	Low 05	p-value diff	High 09	Low 09	p-value diff
Worked last week	33.54	34.02	0.64	37.58	34.98	0.01
Self	8.75	9.69	0.13	12.39	10.63	0.01
Employee	21.54	22.05	0.56	23.34	23.76	0.65

Source: Author's calculations based on MxFLS2 and MxFLS3

Note: We define a municipality with a high level of homicides if above national median

Table 4. Probability of growth on homicides rates > national median

VARIABLES	Homicides rate growth > national median (1)	(2)
Age	0.053	-0.029
	[0.039]	[0.028]
(1) female	-2.276*	-0.05
	[1.039]	[0.557]
Years education	-0.061	-0.227
	[0.167]	[0.140]
(1) married	-0.15	-0.36
	[0.574]	[0.547]
hhsize	-0.154	-0.024
	[0.410]	[0.278]
# kids in hh	0.135	0.112
	[0.689]	[0.496]
(1) Worked last week	-0.573	2.051
	[3.663]	[2.513]
(1) employee	1.12	0.002
	[1.212]	[1.193]
Quartic root: earnings	0.157	0.021
	[0.096]	[0.070]
Hours worked/week	-0.016	-0.023
	[0.025]	[0.017]
(1) HH business	0.742	1.895
	[2.045]	[1.159]
Quartic Root: PCE	1.076	0.72
	[0.652]	[0.470]
Cognitive Score	0.576*	0.24
	[0.250]	[0.174]
(1) Moved by 12	4.611**	2.403**
	[1.208]	[0.791]
(1) rural	-0.15	-4.86
	[4.646]	[5.800]
% children 6-11 no school attendance		3.352
		[3.653]
% children 12-14 no school attendance		0.232
		[0.978]
% children 15-24 with school attendance		1.111*
		[0.479]
% older than 15: incomplete elementary school		1.353+
		[0.761]
% older than 15: no read or write		-1.452
		[0.918]
% dwelling with water service		-1.619**
		[0.487]
% dwelling: toilette		-0.658+
		[0.348]
% dwelling: TV		-0.464
		[0.443]
% dwelling: sewage		-2.371**
		[0.700]
% dwelling: refrigerator		0.487
		[0.331]
% dwelling: pc		-0.799
		[0.598]
% dwelling: washer		0.171
		[0.305]
% dwelling: electricity		2.279+
		[1.232]
% dwelling: all services		2.779**
		[0.823]
d2006	4.539	2.619
	[2.813]	[2.212]
d2007	-2.014	0.162
	[2.200]	[2.175]
Constant	0.303	-111.843
	[7.145]	[105.846]
Observations	15,679	15,675
r2	0.0249	0.298

Standard errors in brackets clustered at locality level

** p<0.01, * p<0.05, + p<0.1

Table 5. Probability of Municipality Migration

	All			
	Model 1: Only Ind FE		Model 2: Ind FE + StateXyear	
	(1)	(2)	(3)	(4)
Variable	mover	mover	mover	mover
Square Root	-0.002	-0.002	-0.001	-0.001
of Hom: t	[0.002]	[0.002]	[0.002]	[0.002]
Square Root		-0.001		0.001
of Hom: t-1		[0.003]		[0.002]
Square Root		0		0.001
of Hom: t-2		[0.002]		[0.002]
Square Root		-0.001		0
of Hom: t-3		[0.002]		[0.002]
age_2534	0.009*	0.009*	0.007+	0.007+
	[0.005]	[0.005]	[0.004]	[0.004]
age_3554	0.012*	0.012*	0.011*	0.011*
	[0.006]	[0.006]	[0.005]	[0.005]
age_5574	0.005	0.005	0.004	0.004
	[0.005]	[0.005]	[0.005]	[0.005]
married	0.001	0.001	0.001	0.001
	[0.004]	[0.004]	[0.004]	[0.004]
hhsize	-0.007**	-0.007**	-0.008**	-0.008**
	[0.002]	[0.002]	[0.002]	[0.002]
kids	0.005*	0.005*	0.005*	0.005*
	[0.002]	[0.002]	[0.002]	[0.002]
impatient	-0.005	-0.005	-0.003	-0.004
	[0.003]	[0.003]	[0.002]	[0.002]
risk	0.001	0.001	0.001	0.001
	[0.001]	[0.001]	[0.001]	[0.001]
rural	-0.013	-0.013+	-0.012	-0.012
	[0.008]	[0.008]	[0.009]	[0.009]
Constant	0.043**	-0.939**	0.039	1.399**
	[0.016]	[0.020]	[0.525]	[0.482]
Number of individuals	16,306	16,306	16,306	16,306
Adjusted R-squared	0.0873	0.0874	0.183	0.183

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

Note: , and stateXyear of interview

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 6.A. Participation in the labor market - All individuals

	All						All					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	0.001	0.003	-0.002	0.001	0.002	0.002	-0.003	-0.003	-0.010**	-0.009**	0	-0.001
	[0.003]	[0.004]	[0.003]	[0.003]	[0.003]	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]	[0.004]	[0.005]
Square Root of Hom: t-1		-0.005		-0.014**		-0.001		-0.002		-0.012*		0.003
		[0.004]		[0.005]		[0.005]		[0.004]		[0.006]		[0.005]
Square Root of Hom: t-2		0.004		0.009		0.001		0.006+		0.011*		0.003
		[0.003]		[0.006]		[0.004]		[0.003]		[0.005]		[0.004]
Constant	0.758**	0.757**	1.100**	1.102**	0.676**	0.677**	1.382**	0.713**	1.736**	1.494**	0.825**	0.665**
	[0.121]	[0.122]	[0.066]	[0.068]	[0.135]	[0.135]	[0.191]	[0.168]	[0.139]	[0.140]	[0.110]	[0.210]
Number of individuals	9,035	9,035	2,506	2,506	5,943	5,943	8351	8351	2376	2376	5430	5430
Adjusted R-squared	0.19	0.191	0.252	0.255	0.156	0.155	0.207	0.207	0.277	0.279	0.174	0.174

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 6.B. Participation in the labor market - Males

	Male						Male					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.001 [0.002]	-0.001 [0.002]	-0.003 [0.003]	-0.001 [0.003]	0 [0.002]	-0.003 [0.003]	-0.004 [0.003]	-0.005 [0.003]	-0.011** [0.003]	-0.010** [0.004]	-0.002 [0.004]	-0.005 [0.005]
Square Root of Hom: t-1		0.002 [0.003]		-0.006 [0.005]		0.008* [0.004]		0.002 [0.003]		-0.006 [0.005]		0.009+ [0.005]
Square Root of Hom: t-2		0.001 [0.003]		0.003 [0.006]		0 [0.003]		0.004 [0.003]		0.005 [0.006]		0.003 [0.004]
Constant	0.823** [0.186]	0.818** [0.185]	1.017** [0.061]	1.019** [0.063]	0.736** [0.229]	0.728** [0.226]	0.805** [0.129]	0.869** [0.147]	0.312 [0.247]	0.124 [0.285]	0.989** [0.103]	0.864** [0.234]
Number of individuals	6,154	6,154	1,718	1,718	4,137	4,137	5,638	5,638	1,620	1,620	3,745	3,745
Adjusted R-squared	0.132	0.131	0.175	0.175	0.109	0.11	0.143	0.143	0.202	0.202	0.124	0.125

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 6.C. Participation in the labor market - Females

	Female						Female					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	0.006 [0.007]	0.01 [0.007]	0 [0.010]	0.007 [0.011]	0.007 [0.006]	0.013+ [0.007]	-0.004 [0.010]	-0.003 [0.010]	-0.008 [0.011]	-0.009 [0.012]	0.004 [0.009]	0.004 [0.009]
Square Root of Hom: t-1		-0.020* [0.009]		-0.037* [0.015]		-0.019+ [0.010]		-0.012 [0.009]		-0.015 [0.018]		-0.011 [0.011]
Square Root of Hom: t-2		0.012+ [0.007]		0.014 [0.012]		0.012 [0.009]		0.011 [0.008]		0.022 [0.014]		0.013 [0.010]
Constant	0.638** [0.227]	0.650** [0.231]	0.583** [0.138]	0.641** [0.140]	0.635** [0.188]	0.645** [0.191]	2.206** [0.331]	1.954** [0.315]	0.222 [0.326]	0.408* [0.203]	1.347** [0.259]	0.315 [0.375]
Number of individuals	2,881	2,881	788	788	1,806	1,806	2,713	2,713	756	756	1,685	1,685
Adjusted R-squared	0.361	0.364	0.463	0.471	0.313	0.316	0.387	0.388	0.507	0.509	0.35	0.35

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 6.D. Participation in the labor market - Urban

	Urban						Urban					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.001	-0.002	-0.003	-0.002	0	-0.001	-0.011**	-0.013**	-0.013*	-0.015**	-0.005	-0.008
	[0.002]	[0.003]	[0.004]	[0.005]	[0.002]	[0.004]	[0.003]	[0.003]	[0.005]	[0.005]	[0.004]	[0.005]
Square Root of Hom: t-1		0		-0.004		0.003		0.002		0.004		0.004
		[0.004]		[0.007]		[0.006]		[0.004]		[0.007]		[0.007]
Square Root of Hom: t-2		0.008*		0.020*		0.003		0.012**		0.021**		0.007
		[0.004]		[0.008]		[0.005]		[0.004]		[0.006]		[0.005]
Constant	0.770**	0.751**	1.088**	1.051**	0.688**	0.678**	1.286**	1.371**	1.153**	0.906**	0.680**	0.893**
	[0.128]	[0.128]	[0.087]	[0.089]	[0.139]	[0.139]	[0.146]	[0.172]	[0.233]	[0.236]	[0.103]	[0.111]
Number of individuals	6,170	6,170	1,631	1,631	4,127	4,127	5,720	5,720	1,552	1,552	3,785	3,785
Adjusted R-squared	0.189	0.189	0.253	0.256	0.156	0.156	0.214	0.215	0.285	0.288	0.183	0.184

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 6.E. Participation in the labor market - Rural

	Rural						Rural					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	0.006 [0.005]	0.008 [0.005]	-0.001 [0.006]	0.002 [0.005]	0.006 [0.006]	0.007 [0.006]	-0.006 [0.005]	-0.006 [0.005]	-0.017* [0.008]	-0.020* [0.009]	-0.001 [0.007]	-0.003 [0.008]
Square Root of Hom: t-1		-0.009+ [0.005]		-0.027** [0.006]		-0.004 [0.007]		-0.002 [0.004]		-0.040** [0.009]		0.008 [0.007]
Square Root of Hom: t-2		-0.004 [0.004]		-0.006 [0.008]		-0.004 [0.006]		0 [0.005]		0.004 [0.007]		0.001 [0.008]
Constant	0.740** [0.059]	0.868** [0.066]	1.766** [0.115]	1.913** [0.121]	0.824** [0.071]	0.917** [0.075]	0.687** [0.163]	1.325** [0.197]	1.920** [0.227]	1.956** [0.329]	0.716** [0.136]	1.034** [0.157]
Number of individuals	2,860	2,860	875	875	1,811	1,811	2626	2626	824	824	1640	1640
Adjusted R-squared	0.202	0.203	0.259	0.267	0.162	0.162	0.219	0.218	0.284	0.293	0.189	0.189

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 7.A. Participation in the labor market - All individuals

	All						All					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(7) emp	(8) emp	(9) self	(10) self	(11) employee	(12) employee
Sqr hom.	-0.001	-0.003	-0.016	-0.02	0.003	0.003	-0.005	-0.006	-0.031	-0.031	0.001	-0.001
quartile 2: t	[0.015]	[0.015]	[0.023]	[0.021]	[0.014]	[0.015]	[0.015]	[0.015]	[0.020]	[0.020]	[0.015]	[0.016]
	-0.007	-0.008	-0.040+	-0.042*	0.006	0.004	-0.018	-0.022	-0.049*	-0.049*	-0.007	-0.017
quartile 3: t	[0.012]	[0.013]	[0.020]	[0.020]	[0.012]	[0.012]	[0.014]	[0.014]	[0.022]	[0.022]	[0.014]	[0.014]
	-0.001	0	-0.02	-0.008	0.008	-0.004	-0.015	-0.029	-0.051*	-0.051+	-0.003	-0.033+
quartile 4: t	[0.017]	[0.018]	[0.026]	[0.024]	[0.015]	[0.018]	[0.017]	[0.019]	[0.026]	[0.026]	[0.018]	[0.019]
		-0.019		-0.014		-0.021+		-0.017		-0.018		-0.023+
quartile 2: t-1		[0.012]		[0.021]		[0.011]		[0.011]		[0.020]		[0.012]
		-0.01		-0.045*		0.007		0.008		-0.029		0.026+
quartile 3: t-1		[0.012]		[0.022]		[0.013]		[0.012]		[0.023]		[0.014]
		-0.025		-0.081**		0.011		0.005		-0.056+		0.041*
quartile 4: t-1		[0.015]		[0.027]		[0.018]		[0.016]		[0.028]		[0.020]
		0.001		-0.005		0.001		0.005		-0.002		0.009
quartile 2: t-2		[0.014]		[0.022]		[0.016]		[0.012]		[0.019]		[0.013]
		0.013		0.018		0.01		0.016		0.025		0.016
quartile 3: t-2		[0.013]		[0.023]		[0.014]		[0.011]		[0.021]		[0.012]
		0.026+		0.052*		0.013		0.038**		0.068*		0.028+
quartile 4: t-2		[0.014]		[0.026]		[0.016]		[0.014]		[0.026]		[0.017]
Constant	0.762**	0.771**	1.113**	1.137**	0.678**	0.683**	0.788	0.749	1.754**	2.027**	0.891**	0.778**
	[0.122]	[0.122]	[0.068]	[0.071]	[0.135]	[0.137]	[0.687]	[0.745]	[0.143]	[0.174]	[0.091]	[0.146]
Number of individuals	9,035	9,035	2,506	2,506	5,943	5,943	8,351	8,351	2,376	2,376	5,430	5,430
Adjusted R-squared	0.19	0.191	0.253	0.257	0.155	0.157	0.207	0.208	0.277	0.279	0.174	0.177

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 7.B. Participation in the labor market - Males

	Male						Male					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(7) emp	(8) emp	(9) self	(10) self	(11) employee	(12) employee
Sqr hom.	0.006	0.003	-0.004	-0.009	0.004	0.001	0.008	0.005	-0.007	-0.011	0.009	0.004
quartile 2: t	[0.010]	[0.010]	[0.021]	[0.022]	[0.012]	[0.012]	[0.011]	[0.012]	[0.020]	[0.020]	[0.013]	[0.014]
	0.002	-0.001	-0.012	-0.016	0.002	-0.001	-0.001	-0.006	-0.01	-0.012	-0.001	-0.009
quartile 3: t	[0.011]	[0.012]	[0.021]	[0.022]	[0.011]	[0.012]	[0.012]	[0.012]	[0.023]	[0.023]	[0.013]	[0.013]
	-0.006	-0.012	-0.011	-0.005	-0.005	-0.025+	-0.018	-0.031*	-0.039	-0.04	-0.012	-0.038*
quartile 4: t	[0.011]	[0.013]	[0.022]	[0.022]	[0.012]	[0.014]	[0.014]	[0.015]	[0.027]	[0.029]	[0.015]	[0.018]
		-0.001		0.01		0		-0.006		-0.008		-0.006
quartile 2: t-1		[0.010]		[0.024]		[0.010]		[0.011]		[0.024]		[0.012]
		0.003		-0.019		0.019		0.004		-0.021		0.021
quartile 3: t-1		[0.010]		[0.023]		[0.012]		[0.012]		[0.025]		[0.015]
		0.008		-0.034		0.045**		0.015		-0.035		0.050*
quartile 4: t-1		[0.013]		[0.027]		[0.016]		[0.015]		[0.029]		[0.020]
		0.007		-0.001		0.007		0.008		0.014		0.008
quartile 2: t-2		[0.011]		[0.026]		[0.012]		[0.011]		[0.024]		[0.013]
		0.017		0.019		0.011		0.021+		0.027		0.016
quartile 3: t-2		[0.011]		[0.022]		[0.012]		[0.011]		[0.024]		[0.013]
		0.017		0.034		0.008		0.023+		0.04		0.018
quartile 4: t-2		[0.013]		[0.027]		[0.015]		[0.014]		[0.028]		[0.018]
Constant	0.820**	0.817**	1.018**	1.025**	0.735**	0.723**	1.482**	1.532**	0.929**	0.429*	1.058**	0.847**
	[0.185]	[0.185]	[0.063]	[0.068]	[0.228]	[0.228]	[0.171]	[0.137]	[0.229]	[0.196]	[0.158]	[0.123]
Number of individuals	6,154	6,154	1,718	1,718	4,137	4,137	5,638	5,638	1,620	1,620	3,745	3,745
Adjusted R-squared	0.132	0.132	0.174	0.176	0.109	0.111	0.143	0.143	0.199	0.2	0.124	0.126

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 7.C. Participation in the labor market - Females

	Female						Female					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(7) emp	(8) emp	(9) self	(10) self	(11) employee	(12) employee
Sqr hom.	-0.007	-0.006	-0.024	-0.026	0.012	0.017	-0.036	-0.029	-0.088+	-0.085+	-0.004	-0.001
quartile 2: t	[0.035]	[0.032]	[0.060]	[0.048]	[0.031]	[0.031]	[0.033]	[0.032]	[0.045]	[0.048]	[0.035]	[0.034]
	-0.021	-0.016	-0.088+	-0.092+	0.017	0.023	-0.059+	-0.061+	-0.153**	-0.149**	-0.012	-0.023
quartile 3: t	[0.026]	[0.027]	[0.049]	[0.048]	[0.025]	[0.025]	[0.031]	[0.031]	[0.051]	[0.053]	[0.035]	[0.034]
	0.018	0.026	-0.033	-0.023	0.046	0.052	-0.03	-0.046	-0.09	-0.105	0.011	-0.025
quartile 4: t	[0.037]	[0.040]	[0.062]	[0.062]	[0.036]	[0.040]	[0.041]	[0.044]	[0.066]	[0.069]	[0.047]	[0.048]
		-0.059*		-0.115*		-0.066*		-0.048+		-0.048		-0.063*
quartile 2: t-1		[0.029]		[0.052]		[0.027]		[0.026]		[0.049]		[0.032]
		-0.037		-0.081		-0.019		0.015		-0.025		0.033
quartile 3: t-1		[0.030]		[0.053]		[0.029]		[0.027]		[0.056]		[0.029]
		-0.072+		-0.128+		-0.054		-0.011		-0.039		0.01
quartile 4: t-1		[0.039]		[0.070]		[0.044]		[0.038]		[0.075]		[0.046]
		0.009		0.016		0.017		0.011		0.003		0.036
quartile 2: t-2		[0.031]		[0.047]		[0.036]		[0.027]		[0.048]		[0.034]
		0.022		0.045		0.029		0.016		0.026		0.041
quartile 3: t-2		[0.031]		[0.050]		[0.037]		[0.029]		[0.055]		[0.036]
		0.054		0.053		0.055		0.063+		0.114		0.084+
quartile 4: t-2		[0.035]		[0.058]		[0.043]		[0.036]		[0.070]		[0.045]
Constant	0.649**	0.689**	0.525**	0.451**	0.633**	0.674**	2.065**	1.151*	1.615**	0.536*	1.412**	1.216**
	[0.227]	[0.235]	[0.147]	[0.146]	[0.187]	[0.200]	[0.288]	[0.457]	[0.559]	[0.213]	[0.276]	[0.273]
Number of individuals	2,881	2,881	788	788	1,806	1,806	2,713	2,713	756	756	1,685	1,685
Adjusted R-squared	0.361	0.364	0.466	0.473	0.313	0.317	0.388	0.391	0.512	0.514	0.35	0.355

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 7.D. Participation in the labor market - Urban

	Urban						Urban					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(7) emp	(8) emp	(9) self	(10) self	(11) employee	(12) employee
Sqr hom.	-0.004	-0.007	-0.007	-0.019	-0.001	-0.001	-0.022	-0.022	-0.026	-0.03	-0.021	-0.02
quartile 2: t	[0.016]	[0.016]	[0.029]	[0.024]	[0.016]	[0.018]	[0.017]	[0.018]	[0.030]	[0.030]	[0.018]	[0.019]
	-0.020+	-0.021+	-0.050*	-0.051*	-0.003	-0.005	-0.046**	-0.047**	-0.062*	-0.055+	-0.032+	-0.038*
quartile 3: t	[0.012]	[0.012]	[0.024]	[0.022]	[0.013]	[0.014]	[0.016]	[0.016]	[0.031]	[0.032]	[0.016]	[0.017]
	-0.017	-0.023	-0.015	-0.011	-0.005	-0.022	-0.046*	-0.066**	-0.047	-0.061+	-0.035+	-0.065**
quartile 4: t	[0.015]	[0.016]	[0.032]	[0.030]	[0.016]	[0.019]	[0.018]	[0.018]	[0.037]	[0.033]	[0.019]	[0.020]
		-0.023+		-0.017		-0.021		-0.019		-0.015		-0.026
quartile 2: t-1		[0.013]		[0.025]		[0.013]		[0.014]		[0.026]		[0.016]
		-0.015		-0.045		0.01		0.013		0.006		0.027
quartile 3: t-1		[0.016]		[0.030]		[0.016]		[0.018]		[0.031]		[0.023]
		-0.014		-0.062+		0.021		0.023		0.008		0.042
quartile 4: t-1		[0.017]		[0.034]		[0.021]		[0.020]		[0.037]		[0.029]
		0.008		0		0.009		0.021		0.01		0.025
quartile 2: t-2		[0.017]		[0.025]		[0.019]		[0.015]		[0.028]		[0.017]
		0.034+		0.062*		0.023		0.040*		0.078**		0.022
quartile 3: t-2		[0.017]		[0.028]		[0.019]		[0.016]		[0.026]		[0.018]
		0.050**		0.087**		0.032		0.067**		0.115**		0.044+
quartile 4: t-2		[0.019]		[0.033]		[0.021]		[0.018]		[0.035]		[0.024]
Constant	0.774**	0.770**	1.098**	1.118**	0.691**	0.683**	0.707**	1.275**	1.610**	2.302**	0.979**	0.859**
	[0.129]	[0.128]	[0.086]	[0.085]	[0.140]	[0.141]	[0.129]	[0.145]	[0.295]	[0.231]	[0.125]	[0.095]
Number of individuals	6,170	6,170	1,631	1,631	4,127	4,127	5,720	5,720	1,552	1,552	3,785	3,785
Adjusted R-squared	0.189	0.191	0.255	0.26	0.156	0.158	0.213	0.215	0.285	0.289	0.184	0.187

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 7.E. Participation in the labor market - Rural

	Rural						Rural					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) emp	(2) emp	(3) self	(4) self	(5) employee	(6) employee	(7) emp	(8) emp	(9) self	(10) self	(11) employee	(12) employee
Sqr hom.	-0.004	0.003	-0.042	-0.037	0.01	0.01	-0.01	-0.007	-0.014	-0.006	0	0.001
quartile 2: t	[0.025]	[0.025]	[0.040]	[0.039]	[0.024]	[0.025]	[0.024]	[0.025]	[0.039]	[0.043]	[0.028]	[0.028]
	0.015	0.02	-0.047	-0.044	0.029	0.026	0.016	0.016	-0.014	-0.006	0.025	0.015
quartile 3: t	[0.022]	[0.023]	[0.040]	[0.043]	[0.023]	[0.024]	[0.022]	[0.024]	[0.043]	[0.047]	[0.024]	[0.026]
	0.038	0.052	-0.024	0.002	0.04	0.035	-0.011	-0.016	-0.037	-0.022	-0.001	-0.023
quartile 4: t	[0.033]	[0.036]	[0.044]	[0.049]	[0.032]	[0.038]	[0.029]	[0.032]	[0.067]	[0.069]	[0.039]	[0.038]
		-0.016		-0.038		-0.023		-0.01		-0.07		-0.012
quartile 2: t-1		[0.021]		[0.043]		[0.020]		[0.021]		[0.047]		[0.022]
		-0.01		-0.047		-0.007		-0.007		-0.105**		0.004
quartile 3: t-1		[0.018]		[0.034]		[0.022]		[0.018]		[0.039]		[0.022]
		-0.033		-0.107*		-0.005		-0.002		-0.157**		0.036
quartile 4: t-1		[0.023]		[0.041]		[0.029]		[0.020]		[0.050]		[0.025]
		-0.014		0.022		-0.018		-0.017		0.018		-0.042
quartile 2: t-2		[0.022]		[0.035]		[0.027]		[0.023]		[0.043]		[0.028]
		-0.013		-0.026		-0.003		-0.003		-0.034		0.001
quartile 3: t-2		[0.019]		[0.037]		[0.020]		[0.022]		[0.039]		[0.026]
		-0.02		0.022		-0.037		0.002		0.021		-0.009
quartile 4: t-2		[0.021]		[0.036]		[0.027]		[0.025]		[0.048]		[0.030]
Constant	0.765**	0.853**	1.759**	1.889**	0.843**	0.903**	0.592**	0.788**	1.947**	2.108**	0.697**	0.737**
	[0.059]	[0.072]	[0.120]	[0.129]	[0.071]	[0.079]	[0.165]	[0.288]	[0.173]	[0.285]	[0.103]	[0.124]
Number of individuals	2,860	2,860	875	875	1,811	1,811	2,626	2,626	824	824	1,640	1,640
Adjusted R-squared	0.202	0.202	0.26	0.264	0.162	0.163	0.219	0.218	0.282	0.288	0.189	0.19

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 8A. Quartic Root of Earnings - All individuals

	All						All					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.087*	-0.104*	-0.242**	-0.228**	-0.01	-0.042	-0.119*	-0.149**	-0.238**	-0.241**	-0.045	-0.059
	[0.038]	[0.044]	[0.058]	[0.063]	[0.047]	[0.056]	[0.048]	[0.055]	[0.061]	[0.071]	[0.070]	[0.077]
Square Root of Hom: t-1		0.043		-0.068		0.097		0.071		-0.026		0.044
		[0.056]		[0.120]		[0.068]		[0.077]		[0.137]		[0.089]
Square Root of Hom: t-2		0.042		0.077		-0.032		0.087		0.077		0.014
		[0.057]		[0.111]		[0.060]		[0.064]		[0.119]		[0.067]
Constant	8.766**	8.632**	15.539**	15.649**	9.525**	9.458**	11.984	13.507**	19.028*	19.585**	-4.049	-1.502
	[2.605]	[2.595]	[5.525]	[1.447]	[2.536]	[2.516]	[8.009]	[4.682]	[7.612]	[6.454]	[9.309]	[8.994]
Number of individuals	8,932	8,932	2,449	2,449	5,880	5,880	8,256	8,256	2,322	2,322	5,373	5,373
Adjusted R-squared	0.0345	0.0345	0.0999	0.0999	0.088	0.0883	0.0518	0.052	0.14	0.14	0.114	0.114

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 8B. Quartic Root of Earnings - Males

	Male						Male					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.100**	-0.149**	-0.254**	-0.244**	-0.047	-0.115+	-0.150**	-0.195**	-0.216**	-0.210*	-0.11	-0.150+
	[0.036]	[0.045]	[0.070]	[0.076]	[0.044]	[0.059]	[0.054]	[0.061]	[0.081]	[0.087]	[0.077]	[0.088]
Square Root of Hom: t-1		0.144*		-0.039		0.197**		0.12		-0.05		0.112
		[0.065]		[0.137]		[0.070]		[0.085]		[0.144]		[0.095]
Square Root of Hom: t-2		0.064		0.119		0		0.118		0.068		0.064
		[0.063]		[0.121]		[0.065]		[0.072]		[0.133]		[0.068]
Constant	9.690*	9.410*	8.012**	17.367**	10.385**	10.187**	15.243**	6.365*	14.284**	3.681	23.302**	11.645**
	[3.896]	[3.842]	[1.559]	[1.677]	[3.777]	[3.710]	[2.925]	[2.648]	[2.610]	[5.712]	[3.597]	[4.268]
Number of individuals	6,073	6,073	1,671	1,671	4,091	4,091	10,194	10,194	2,795	2,795	6,872	6,872
Adjusted R-squared	0.0236	0.0245	0.0559	0.056	0.0593	0.061	0.0406	0.0415	0.0954	0.095	0.0864	0.0868

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 8C. Quartic Root of Earnings - Females

	Female						Female					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.064	-0.01	-0.157	-0.116	0.088	0.111	-0.107	-0.099	-0.203+	-0.237+	0.104	0.131
	[0.077]	[0.077]	[0.145]	[0.159]	[0.089]	[0.093]	[0.092]	[0.093]	[0.116]	[0.129]	[0.142]	[0.139]
Square Root of Hom: t-1		-0.177+		-0.162		-0.063		-0.057		0.159		-0.089
		[0.107]		[0.204]		[0.135]		[0.132]		[0.204]		[0.173]
Square Root of Hom: t-2		0.01		-0.09		0.003		0.023		0.094		-0.037
		[0.103]		[0.207]		[0.121]		[0.121]		[0.192]		[0.151]
Constant	6.692	7.013	-0.221	0.434	7.871	7.981	34.298**	33.928**	-40.783**	0.875	30.169**	28.852**
	[5.645]	[5.758]	[2.349]	[2.320]	[4.816]	[4.857]	[5.373]	[5.559]	[8.208]	[3.175]	[9.661]	[9.617]
Number of individuals	2,859	2,859	778	778	1,789	1,789	2,692	2,692	746	746	1,669	1,669
Adjusted R-squared	0.113	0.113	0.255	0.255	0.22	0.22	0.145	0.145	0.353	0.353	0.264	0.263

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

Note: Controls for quarter-year of interview, and stateXyear of interview

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE and StateXyear FE

Table 8D. Quartic Root of Earnings - Urban

	Urban						Urban					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.122**	-0.171**	-0.224*	-0.252*	-0.041	-0.096	-0.149*	-0.211**	-0.114	-0.201+	-0.125	-0.14
	[0.044]	[0.051]	[0.087]	[0.099]	[0.047]	[0.061]	[0.059]	[0.069]	[0.099]	[0.104]	[0.085]	[0.093]
Square Root of Hom: t-1		0.125*		0.073		0.137		0.154+		0.203		0.021
		[0.062]		[0.135]		[0.086]		[0.092]		[0.135]		[0.115]
Square Root of Hom: t-2		0.031		0.205		-0.029		0.123+		0.241+		0.054
		[0.068]		[0.139]		[0.070]		[0.071]		[0.129]		[0.074]
Constant	9.067**	8.859**	16.112**	14.559**	9.611**	9.520**	19.112*	19.375*	22.043**	22.820**	2.999	4.925
	[2.697]	[2.661]	[1.646]	[5.560]	[2.639]	[2.617]	[8.488]	[8.564]	[6.932]	[6.559]	[3.830]	[4.104]
Number of individuals	6,097	6,097	1,594	1,594	4,082	4,082	5,650	5,650	1,516	1,516	3,743	3,743
Adjusted R-squared	0.0317	0.0321	0.0896	0.0907	0.0869	0.0873	0.0589	0.0598	0.148	0.149	0.124	0.124

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

Note: Controls for quarter-year of interview, and stateXyear of interview

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE and StateXyear FE

Table 8E. Quartic Root of Earnings - Rural

	Rural						Rural					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Square Root of Hom: t	-0.046	-0.047	-0.280**	-0.233**	0.056	0.05	-0.021	-0.082	-0.526**	-0.540**	0.024	-0.052
	[0.054]	[0.057]	[0.083]	[0.083]	[0.083]	[0.091]	[0.117]	[0.117]	[0.119]	[0.121]	[0.141]	[0.148]
Square Root of Hom: t-1		-0.032		-0.311		0.045		0.168		-0.204		0.254*
		[0.107]		[0.235]		[0.117]		[0.107]		[0.323]		[0.127]
Square Root of Hom: t-2		0.083		-0.025		-0.048		0.153		0.084		0.087
		[0.103]		[0.230]		[0.113]		[0.123]		[0.230]		[0.157]
Constant	9.274**	8.994**	21.051**	14.830**	8.968**	10.602**	9.611+	6.9	18.653**	19.866**	25.795**	9.195**
	[1.101]	[1.178]	[1.817]	[2.035]	[1.417]	[1.315]	[4.861]	[5.257]	[3.016]	[3.553]	[3.435]	[2.272]
Number of individuals	2,830	2,830	855	855	1,793	1,793	2,601	2,601	806	806	1,625	1,625
Adjusted R-squared	0.0507	0.0507	0.137	0.14	0.105	0.105	0.0717	0.0727	0.194	0.194	0.146	0.147

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

Note: Controls for quarter-year of interview, and stateXyear of interview

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE and StateXyear FE

Table 9A. Quartic Root of Earnings - All individuals

	All						All					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Sqr hom.	0.052	-0.037	-0.492	-0.449	0.26	0.198	0.032	-0.078	-0.502	-0.364	0.36	0.28
quartile 2: t	[0.212]	[0.217]	[0.418]	[0.410]	[0.220]	[0.233]	[0.238]	[0.235]	[0.378]	[0.377]	[0.277]	[0.281]
	0.138	0.037	-0.831*	-0.809*	0.411*	0.307	0.014	-0.116	-0.527	-0.443	0.261	0.119
quartile 3: t	[0.213]	[0.209]	[0.409]	[0.402]	[0.199]	[0.206]	[0.254]	[0.256]	[0.451]	[0.451]	[0.270]	[0.291]
	-0.476+	-0.542*	-1.482**	-1.134*	0.079	-0.112	-0.550+	-0.710*	-1.287**	-1.052*	-0.052	-0.23
quartile 4: t	[0.262]	[0.268]	[0.439]	[0.462]	[0.262]	[0.293]	[0.293]	[0.300]	[0.462]	[0.455]	[0.340]	[0.357]
		0.144		-0.011		0.15		0.23		-0.225		0.023
quartile 2: t-1		[0.184]		[0.420]		[0.188]		[0.249]		[0.486]		[0.240]
		0.414+		-0.413		0.521*		0.688*		0.034		0.606+
quartile 3: t-1		[0.247]		[0.571]		[0.239]		[0.284]		[0.562]		[0.309]
		0.111		-1.311*		0.549+		0.429		-0.738		0.429
quartile 4: t-1		[0.290]		[0.617]		[0.324]		[0.360]		[0.597]		[0.375]
		-0.273		-0.494		-0.239		-0.104		-0.331		0.004
quartile 2: t-2		[0.225]		[0.449]		[0.324]		[0.239]		[0.396]		[0.275]
		0.201		-0.275		0.074		0.363		-0.167		0.3
quartile 3: t-2		[0.241]		[0.419]		[0.274]		[0.266]		[0.419]		[0.256]
		0.36		0.198		-0.102		0.405		0.124		0.084
quartile 4: t-2		[0.326]		[0.583]		[0.336]		[0.330]		[0.597]		[0.319]
Constant	8.665**	8.902**	15.433**	15.424**	9.401**	9.508**	14.236**	11.192	26.147**	40.537**	0.055	-0.673
	[2.626]	[2.588]	[5.815]	[1.483]	[2.522]	[2.488]	[4.680]	[8.004]	[3.414]	[4.322]	[8.668]	[7.897]
Number of individuals	8,932	8,932	2,449	2,449	5,880	5,880	8,256	8,256	2,322	2,322	5,373	5,373
Adjusted R-squared	0.0352	0.0364	0.0987	0.102	0.0889	0.09	0.0519	0.0534	0.139	0.139	0.114	0.115

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 9B. Quartic Root of Earnings - Males

	Male						Male					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Sqr hom.	0.081	-0.079	-0.378	-0.394	0.188	0.025	0.174	0.007	-0.16	-0.028	0.351	0.207
quartile 2: t	[0.233]	[0.233]	[0.547]	[0.568]	[0.263]	[0.254]	[0.268]	[0.266]	[0.501]	[0.511]	[0.301]	[0.319]
	0.172	0.014	-0.546	-0.53	0.352	0.188	0.152	-0.023	-0.078	0.037	0.337	0.169
quartile 3: t	[0.240]	[0.238]	[0.494]	[0.500]	[0.245]	[0.247]	[0.303]	[0.310]	[0.590]	[0.600]	[0.278]	[0.310]
	-0.552*	-0.667*	-1.508**	-1.154*	-0.117	-0.374	-0.662*	-0.796*	-1.128+	-0.874	-0.246	-0.375
quartile 4: t	[0.268]	[0.265]	[0.533]	[0.571]	[0.277]	[0.293]	[0.329]	[0.329]	[0.624]	[0.642]	[0.344]	[0.371]
		0.444*		0.054		0.551**		0.387		-0.326		0.265
quartile 2: t-1		[0.225]		[0.529]		[0.205]		[0.287]		[0.594]		[0.253]
		0.747**		-0.189		0.823**		0.817**		-0.007		0.724*
quartile 3: t-1		[0.266]		[0.679]		[0.253]		[0.306]		[0.724]		[0.315]
		0.489+		-1.086		0.916**		0.465		-0.676		0.448
quartile 4: t-1		[0.289]		[0.712]		[0.312]		[0.378]		[0.717]		[0.388]
		0.012		0.134		-0.039		0.025		-0.074		0.136
quartile 2: t-2		[0.242]		[0.551]		[0.304]		[0.275]		[0.524]		[0.295]
		0.404+		-0.219		0.355		0.506+		-0.258		0.476+
quartile 3: t-2		[0.239]		[0.487]		[0.253]		[0.284]		[0.513]		[0.268]
		0.359		0.379		0.055		0.313		0.148		0.099
quartile 4: t-2		[0.327]		[0.649]		[0.347]		[0.366]		[0.725]		[0.338]
Constant	9.511*	9.569*	7.514**	16.623**	10.225**	10.260**	14.455**	14.687**	16.803**	30.057**	23.673**	12.334**
	[3.872]	[3.810]	[1.590]	[1.430]	[3.751]	[3.691]	[3.335]	[4.082]	[4.610]	[6.481]	[4.119]	[4.680]
Number of individuals	6,073	6,073	1,671	1,671	4,091	4,091	5,564	5,564	1,576	1,576	3,704	3,704
Adjusted R-squared	0.0248	0.0268	0.0542	0.0565	0.0604	0.0638	0.0415	0.0437	0.095	0.0945	0.0874	0.0895

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 9C. Quartic Root of Earnings - Females

	Female						Female					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear Fe					
VARIABLES	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Sqr hom.	0.02	0.047	-0.846	-0.911	0.492	0.668	-0.394	-0.355	-1.443*	-1.341*	0.36	0.48
quartile 2: t	[0.383]	[0.377]	[0.695]	[0.665]	[0.446]	[0.462]	[0.448]	[0.452]	[0.570]	[0.654]	[0.558]	[0.544]
	-0.004	0.028	-1.491+	-1.720*	0.468	0.583	-0.521	-0.565	-1.656*	-1.671*	0.166	0.103
quartile 3: t	[0.356]	[0.356]	[0.829]	[0.857]	[0.393]	[0.394]	[0.481]	[0.489]	[0.825]	[0.819]	[0.589]	[0.579]
	-0.297	-0.29	-1.246	-1.281	0.594	0.542	-0.576	-0.785	-1.299	-1.428+	0.346	0.062
quartile 4: t	[0.463]	[0.511]	[0.834]	[0.835]	[0.548]	[0.627]	[0.566]	[0.616]	[0.807]	[0.792]	[0.755]	[0.775]
		-0.591*		-0.839		-0.745+		-0.393		-0.376		-0.828
quartile 2: t-1		[0.295]		[0.828]		[0.380]		[0.382]		[0.836]		[0.528]
		-0.363		-0.606		-0.293		0.253		0.381		0.013
quartile 3: t-1		[0.412]		[0.870]		[0.449]		[0.482]		[0.843]		[0.575]
		-0.655		-1.25		-0.202		0.072		0.022		-0.074
quartile 4: t-1		[0.599]		[1.032]		[0.738]		[0.714]		[1.181]		[0.813]
		-0.613+		-1.407+		-0.345		-0.289		-0.645		0.023
quartile 2: t-2		[0.355]		[0.739]		[0.529]		[0.415]		[0.793]		[0.482]
		-0.115		0.095		-0.319		0.056		0.09		0.017
quartile 3: t-2		[0.423]		[0.873]		[0.525]		[0.482]		[0.955]		[0.560]
		0.265		-0.32		-0.257		0.4		0.245		0.259
quartile 4: t-2		[0.563]		[1.069]		[0.646]		[0.585]		[1.008]		[0.739]
Constant	6.688	7.618	-1.226	-1.171	7.744	8.302+	16.917*	16.145*	-36.519**	-46.013**	29.668**	27.818**
	[5.702]	[5.604]	[2.396]	[2.394]	[4.854]	[4.882]	[8.440]	[8.124]	[6.496]	[9.451]	[9.675]	[9.156]
Number of individuals	2,859	2,859	778	778	1,789	1,789	2,692	2,692	746	746	1,669	1,669
Adjusted R-squared	0.112	0.114	0.258	0.265	0.22	0.221	0.145	0.146	0.356	0.355	0.263	0.264

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 9D. Quartic Root of Earnings - Urban

	Urban						Urban					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear Fe					
VARIABLES	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Sqr hom.	0.113	-0.057	-0.162	-0.371	0.229	0.111	0.075	-0.084	-0.014	-0.01	0.16	0.149
quartile 2: t	[0.254]	[0.262]	[0.509]	[0.508]	[0.272]	[0.297]	[0.310]	[0.311]	[0.454]	[0.469]	[0.379]	[0.379]
	-0.068	-0.22	-0.724	-0.833+	0.288	0.168	-0.255	-0.372	0.021	0.186	-0.111	-0.171
quartile 3: t	[0.249]	[0.243]	[0.505]	[0.468]	[0.231]	[0.250]	[0.307]	[0.319]	[0.548]	[0.607]	[0.347]	[0.377]
	-0.740*	-0.869**	-1.388*	-1.157+	-0.192	-0.39	-0.620+	-0.843*	-0.394	-0.51	-0.517	-0.588
quartile 4: t	[0.322]	[0.332]	[0.616]	[0.653]	[0.287]	[0.322]	[0.339]	[0.326]	[0.620]	[0.592]	[0.421]	[0.427]
		0.327		0.499		0.264		0.462		0.164		-0.123
quartile 2: t-1		[0.209]		[0.517]		[0.202]		[0.282]		[0.620]		[0.282]
		0.573+		0.289		0.454		0.982**		1.291*		0.305
quartile 3: t-1		[0.320]		[0.693]		[0.313]		[0.372]		[0.629]		[0.484]
		0.229		-0.805		0.551		0.784+		0.563		0.158
quartile 4: t-1		[0.357]		[0.823]		[0.381]		[0.472]		[0.666]		[0.556]
		-0.184		-0.104		0.1		0.301		0.505		0.635+
quartile 2: t-2		[0.272]		[0.604]		[0.361]		[0.304]		[0.541]		[0.366]
		0.224		0.218		0.351		0.585+		0.634		0.713*
quartile 3: t-2		[0.322]		[0.546]		[0.362]		[0.311]		[0.582]		[0.318]
		0.615		1.003		0.287		0.786*		1.534*		0.577
quartile 4: t-2		[0.391]		[0.689]		[0.425]		[0.363]		[0.759]		[0.389]
Constant	9.019**	9.045**	15.039*	14.673*	9.528**	9.358**	0.212	13.223*	1.935	4.053	0.93	1.091
	[2.716]	[2.667]	[5.926]	[6.424]	[2.631]	[2.567]	[2.631]	[5.317]	[4.235]	[5.376]	[4.246]	[4.714]
Number of individuals	6,097	6,097	1,594	1,594	4,082	4,082	5,650	5,650	1,516	1,516	3,743	3,743
Adjusted R-squared	0.0328	0.0343	0.0901	0.0933	0.0878	0.0881	0.0589	0.061	0.147	0.152	0.124	0.125

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 9E. Quartic Root of Earnings - Rural

	Rural						Rural					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear Fe					
VARIABLES	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee	(1) total	(2) total	(3) self	(4) self	(5) employee	(6) employee
Sqr hom.	-0.164	-0.081	-1.081	-0.288	0.182	0.341	-0.037	0.014	-0.964	0.7	-0.023	-0.008
quartile 2: t	[0.364]	[0.336]	[0.666]	[0.797]	[0.384]	[0.376]	[0.492]	[0.397]	[0.813]	[1.022]	[0.472]	[0.421]
	0.438	0.431	-1.151+	-0.6	0.699+	0.746+	0.651	0.523	-1.415	-0.814	0.842+	0.759+
quartile 3: t	[0.346]	[0.349]	[0.690]	[0.794]	[0.373]	[0.378]	[0.409]	[0.431]	[0.911]	[1.023]	[0.435]	[0.439]
	-0.05	-0.034	-1.945**	-0.949	0.684	0.66	0.129	-0.052	-1.323	0.397	0.463	0.061
quartile 4: t	[0.370]	[0.383]	[0.697]	[0.707]	[0.436]	[0.520]	[0.704]	[0.638]	[1.512]	[1.561]	[0.748]	[0.700]
		-0.202		-1.403+		-0.371		-0.006		-3.296**		0.078
quartile 2: t-1		[0.339]		[0.841]		[0.335]		[0.422]		[0.941]		[0.444]
		0.107		-1.845*		0.346		0.188		-3.565**		0.674+
quartile 3: t-1		[0.365]		[0.889]		[0.381]		[0.424]		[0.896]		[0.379]
		-0.357		-3.142**		0.157		-0.111		-4.908**		0.703
quartile 4: t-1		[0.471]		[0.905]		[0.557]		[0.491]		[0.961]		[0.428]
		-0.604		-1.17		-0.837		-1.038*		-2.696**		-1.060*
quartile 2: t-2		[0.385]		[0.885]		[0.540]		[0.454]		[0.902]		[0.501]
		0.186		-1.179+		-0.339		0.276		-1.556*		0.086
quartile 3: t-2		[0.352]		[0.697]		[0.367]		[0.395]		[0.690]		[0.440]
		-0.423		-1.791+		-0.868		-0.594		-3.779**		-0.187
quartile 4: t-2		[0.515]		[1.021]		[0.587]		[0.449]		[0.928]		[0.568]
Constant	9.099**	9.250**	13.996**	24.940**	10.706**	11.593**	10.470*	10.138*	13.792**	23.730**	25.425**	14.602**
	[1.107]	[1.071]	[2.739]	[2.045]	[1.223]	[1.326]	[4.869]	[4.541]	[3.349]	[3.510]	[4.158]	[1.892]
Number of individuals	2,830	2,830	855	855	1,793	1,793	2,601	2,601	806	806	1,625	1,625
Adjusted R-squared	0.0522	0.0551	0.136	0.149	0.106	0.111	0.0729	0.0772	0.188	0.213	0.148	0.153

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 10.A Quartic Root PCE

	All						All					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
Variable	(1) total	(2) total	(3) non food	(4) non food	(5) food	(6) food	(1) total	(2) total	(3) non food	(4) non food	(5) food	(6) food
Square Root of Hom: t	-0.005 [0.010]	-0.013 [0.012]	0.004 [0.012]	-0.008 [0.012]	-0.011 [0.009]	-0.016 [0.010]	-0.013 [0.011]	-0.017 [0.013]	-0.006 [0.014]	-0.013 [0.015]	-0.016 [0.010]	-0.018 [0.011]
Square Root of Hom: t-1		0.026 [0.020]		0.040* [0.017]		0.013 [0.017]		0.002 [0.018]		0.019 [0.015]		-0.002 [0.016]
Square Root of Hom: t-2		0.027 [0.020]		0.01 [0.014]		0.023 [0.018]		0.032+ [0.018]		0.023 [0.015]		0.022 [0.017]
Constant	6.780** [0.306]	6.691** [0.307]	4.868** [0.306]	4.783** [0.310]	5.952** [0.231]	5.890** [0.233]	9.777** [0.911]	9.849** [0.933]	8.200** [1.051]	8.178** [1.081]	7.310** [0.802]	4.739** [0.449]
Number of households	8,024	8,024	8,023	8,023	8,024	8,024	7,712	7,712	7,711	7,711	7,712	7,712
Adjusted R-squared	0.063	0.0647	0.0314	0.033	0.0635	0.0645	0.1	0.102	0.0648	0.0654	0.099	0.0996

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 10.B Quartic Root PCE - Urban

	Urban						Urban					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Variable	total	total	non food	non food	food	food	total	total	non food	non food	food	food
Square Root	-0.01	-0.017	0.003	-0.013	-0.016	-0.019	-0.001	0.002	0.005	0.002	-0.011	-0.008
of Hom: t	[0.011]	[0.016]	[0.015]	[0.017]	[0.010]	[0.014]	[0.017]	[0.018]	[0.022]	[0.022]	[0.014]	[0.015]
Square Root		0.018		0.042+		0.007		-0.007		0.017		-0.005
of Hom: t-1		[0.024]		[0.024]		[0.019]		[0.018]		[0.018]		[0.014]
Square Root		0.009		-0.006		0.005		-0.003		-0.015		-0.01
of Hom: t-2		[0.020]		[0.018]		[0.016]		[0.019]		[0.018]		[0.017]
Constant	6.994**	6.952**	5.076**	5.030**	6.124**	6.105**	10.409**	10.597**	9.097**	8.735**	4.749**	8.005**
	[0.311]	[0.315]	[0.373]	[0.374]	[0.218]	[0.223]	[0.764]	[0.813]	[0.964]	[0.863]	[0.382]	[0.746]
Number of households	5,217	5,217	5,216	5,216	5,217	5,217	5,014	5,014	5,013	5,013	5,014	5,014
Adjusted R-squared	0.0655	0.0657	0.0363	0.0376	0.0701	0.07	0.107	0.107	0.0746	0.0747	0.115	0.115

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 10.C Quartic Root PCE - Rural

	Rural						Rural					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Variable	total	total	non food	non food	food	food	total	total	non food	non food	food	food
Square Root	0.001	-0.008	0.011	0.002	-0.009	-0.015	-0.02	-0.034	0.001	-0.01	-0.008	-0.018
of Hom: t	[0.020]	[0.017]	[0.022]	[0.019]	[0.018]	[0.016]	[0.031]	[0.033]	[0.037]	[0.032]	[0.032]	[0.035]
Square Root		0.049		0.053+		0.032		0.025		0.034		0.013
of Hom: t-1		[0.031]		[0.027]		[0.029]		[0.038]		[0.032]		[0.034]
Square Root		0.051		0.022		0.054+		0.065+		0.047+		0.052
of Hom: t-2		[0.034]		[0.028]		[0.032]		[0.037]		[0.028]		[0.036]
Constant	5.998**	5.817**	4.773**	4.601**	5.158**	5.023**	8.011**	3.995**	6.634**	6.137**	6.011**	3.730**
	[0.575]	[0.517]	[0.494]	[0.484]	[0.527]	[0.465]	[0.550]	[0.590]	[0.518]	[0.519]	[0.602]	[0.616]
Number of households	2,806	2,806	2,806	2,806	2,806	2,806	2,696	2,696	2,696	2,696	2,696	2,696
Adjusted R-squared	0.0744	0.0819	0.0381	0.0417	0.0655	0.0721	0.133	0.139	0.0885	0.0912	0.116	0.12

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural

Model 1: Individual FE and StateXyear FE

Model 2: Individual FE and Municipality of Origin FE

Table 11.A Quartic Root PCE

	All						All					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1) total	(2) total	(3) non food	(4) non food	(5) food	(6) food	(1) total	(2) total	(3) non food	(4) non food	(5) food	(6) food
Sqr hom.	-0.114+	-0.137*	-0.156*	-0.161*	-0.064	-0.087	-0.105*	-0.117*	-0.114*	-0.115*	-0.076	-0.088+
quartile 2: t	[0.060]	[0.067]	[0.065]	[0.070]	[0.055]	[0.061]	[0.044]	[0.052]	[0.050]	[0.056]	[0.047]	[0.052]
	-0.065	-0.073	-0.046	-0.043	-0.063	-0.074	-0.064	-0.076	-0.006	-0.011	-0.087+	-0.099+
quartile 3: t	[0.059]	[0.062]	[0.070]	[0.071]	[0.055]	[0.057]	[0.058]	[0.057]	[0.067]	[0.069]	[0.052]	[0.051]
	-0.053	-0.132+	-0.088	-0.175*	-0.049	-0.097	-0.056	-0.147	-0.056	-0.161	-0.073	-0.127+
quartile 4: t	[0.071]	[0.075]	[0.084]	[0.083]	[0.065]	[0.067]	[0.081]	[0.089]	[0.098]	[0.107]	[0.068]	[0.072]
		0.029		-0.02		0.044		-0.059		-0.096		-0.022
quartile 2: t-1		[0.065]		[0.067]		[0.057]		[0.073]		[0.063]		[0.068]
		0.005		-0.03		0.001		-0.061		-0.082		-0.054
quartile 3: t-1		[0.062]		[0.058]		[0.057]		[0.064]		[0.053]		[0.061]
		0.166		0.164+		0.096		0.07		0.073		0.027
quartile 4: t-1		[0.101]		[0.092]		[0.089]		[0.109]		[0.087]		[0.098]
		0.018		-0.061		0.011		-0.018		-0.06		-0.038
quartile 2: t-2		[0.050]		[0.050]		[0.042]		[0.043]		[0.049]		[0.040]
		0.07		0.013		0.073		0.074		0.035		0.07
quartile 3: t-2		[0.057]		[0.049]		[0.053]		[0.051]		[0.044]		[0.051]
		0.171+		0.111		0.136		0.209*		0.227**		0.119
quartile 4: t-2		[0.092]		[0.069]		[0.083]		[0.089]		[0.070]		[0.084]
Constant	6.818**	6.738**	4.944**	4.914**	5.962**	5.919**	7.617**	7.695**	8.198**	5.281**	4.099**	4.566**
	[0.306]	[0.312]	[0.312]	[0.318]	[0.233]	[0.237]	[0.749]	[1.036]	[1.106]	[1.238]	[0.729]	[0.655]
Number of individuals	8,024	8,024	8,023	8,023	8,024	8,024	7,712	7,712	7,711	7,711	7,712	7,712
Adjusted R-squared	0.0641	0.0679	0.0335	0.0374	0.0635	0.0655	0.101	0.105	0.066	0.0717	0.0991	0.101

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 11.B Quartic Root PCE - Urban

	Urban						Urban					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Variable	total	total	non food	non food	food	food	total	total	non food	non food	food	food
Sqr hom.	-0.047	-0.044	-0.135	-0.121	0.016	0.015	-0.08	-0.056	-0.159*	-0.129+	-0.017	-0.005
quartile 2: t	[0.077]	[0.088]	[0.090]	[0.094]	[0.064]	[0.073]	[0.051]	[0.058]	[0.065]	[0.071]	[0.046]	[0.050]
	-0.085	-0.066	-0.077	-0.053	-0.072	-0.06	-0.096	-0.072	-0.114	-0.084	-0.078	-0.069
quartile 3: t	[0.073]	[0.081]	[0.093]	[0.097]	[0.065]	[0.071]	[0.072]	[0.066]	[0.083]	[0.081]	[0.061]	[0.057]
	-0.093	-0.139+	-0.151	-0.216*	-0.072	-0.091	-0.081	-0.114	-0.137	-0.188	-0.083	-0.095
quartile 4: t	[0.081]	[0.084]	[0.103]	[0.107]	[0.071]	[0.072]	[0.093]	[0.094]	[0.117]	[0.126]	[0.073]	[0.071]
		-0.01		-0.056		0.018		-0.115		-0.144+		-0.053
quartile 2: t-1		[0.095]		[0.099]		[0.078]		[0.081]		[0.081]		[0.072]
		-0.051		-0.05		-0.045		-0.136+		-0.128		-0.086
quartile 3: t-1		[0.084]		[0.090]		[0.070]		[0.074]		[0.079]		[0.061]
		0.1		0.116		0.051		-0.001		-0.006		-0.004
quartile 4: t-1		[0.104]		[0.113]		[0.079]		[0.093]		[0.092]		[0.077]
		-0.006		-0.057		-0.009		-0.013		-0.059		-0.054
quartile 2: t-2		[0.068]		[0.074]		[0.056]		[0.054]		[0.060]		[0.050]
		-0.023		-0.079		-0.02		-0.014		-0.103+		-0.018
quartile 3: t-2		[0.079]		[0.081]		[0.070]		[0.064]		[0.060]		[0.062]
		0.059		0.032		0.033		0.042		0.062		-0.038
quartile 4: t-2		[0.088]		[0.084]		[0.079]		[0.098]		[0.088]		[0.090]
Constant	7.020**	6.979**	5.166**	5.147**	6.107**	6.089**	10.538**	8.410**	9.424**	9.523**	3.341**	7.958**
	[0.315]	[0.322]	[0.383]	[0.387]	[0.222]	[0.228]	[0.752]	[0.489]	[0.983]	[0.965]	[0.670]	[0.801]
Number of individuals	5,217	5,217	5,216	5,216	5,217	5,217	5,014	5,014	5,013	5,013	5,014	5,014
Adjusted R-squared	0.0658	0.0676	0.038	0.0407	0.0703	0.0712	0.107	0.109	0.0757	0.0789	0.115	0.116

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE

Model 2: Individual FE and StateXyear FE

Table 11.C Quartic Root PCE - Rural

	Rural						Rural					
	Model 1: Only Ind FE						Model 2: Ind FE + StateXyear					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Variable	total	total	non food	non food	food	food	total	total	non food	non food	food	food
Sqr hom.	-0.285**	-0.374**	-0.256**	-0.287**	-0.231*	-0.315**	-0.165+	-0.203	-0.048	-0.049	-0.139	-0.17
quartile 2: t	[0.102]	[0.114]	[0.083]	[0.100]	[0.111]	[0.119]	[0.094]	[0.135]	[0.103]	[0.093]	[0.102]	[0.147]
	-0.067	-0.154	-0.025	-0.065	-0.075	-0.158	0.024	-0.036	0.093	0.01	0.029	-0.003
quartile 3: t	[0.102]	[0.101]	[0.101]	[0.100]	[0.094]	[0.097]	[0.109]	[0.115]	[0.109]	[0.089]	[0.101]	[0.120]
	0.106	-0.024	0.109	-0.046	0.063	-0.034	0.123	-0.107	0.232	-0.02	0.197	0.043
quartile 4: t	[0.131]	[0.119]	[0.133]	[0.115]	[0.119]	[0.117]	[0.171]	[0.210]	[0.155]	[0.140]	[0.158]	[0.213]
		0.032		-0.011		0.045		-0.062		-0.214*		0.022
quartile 2: t-1		[0.083]		[0.085]		[0.089]		[0.136]		[0.086]		[0.144]
		0.131		-0.022		0.134		0.078		-0.168*		0.107
quartile 3: t-1		[0.091]		[0.074]		[0.094]		[0.125]		[0.073]		[0.136]
		0.322*		0.328**		0.197		0.267		0.165		0.178
quartile 4: t-1		[0.144]		[0.122]		[0.149]		[0.200]		[0.107]		[0.209]
		0.156		-0.079		0.155		-0.094		-0.336**		-0.053
quartile 2: t-2		[0.100]		[0.094]		[0.100]		[0.112]		[0.092]		[0.122]
		0.183*		0.062		0.213*		0.085		0.013		0.087
quartile 3: t-2		[0.088]		[0.076]		[0.088]		[0.112]		[0.078]		[0.118]
		0.415*		0.21		0.364*		0.397+		0.161		0.314
quartile 4: t-2		[0.170]		[0.140]		[0.169]		[0.215]		[0.106]		[0.229]
Constant	5.908**	5.590**	4.711**	4.715**	5.067**	4.851**	3.676**	5.299**	3.220**	3.779**	3.708**	4.767**
	[0.535]	[0.484]	[0.444]	[0.478]	[0.507]	[0.443]	[0.580]	[0.427]	[0.529]	[0.422]	[0.603]	[0.441]
Number of individuals	2,806	2,806	2,806	2,806	2,806	2,806	2,696	2,696	2,696	2,696	2,696	2,696
Adjusted R-squared	0.0888	0.104	0.0474	0.0588	0.0742	0.084	0.137	0.152	0.0903	0.109	0.121	0.127

Individual Fixed Effects

Standard errors in brackets (adjusted for clusters at locality level)

** p<0.01, * p<0.05, + p<0.1

All Models include: individual time-variant characteritics: age dummy, marital status, years of education, hhsize, # kids, rural and controls for quarter-year of interview

Model 1: Individual FE and StateXyear FE

Model 2: Individual FE and Municipality of Origin FE