Crime and Microenterprise Growth: Evidence from Mexico

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Abstract: We explore the relationship between property crime and growth among microenterprises in Mexico. We use data on microenterprises and crime incidence from victimization surveys. We find that higher rates of property crime are associated with a significantly lower probability an enterprise plans to expand or experiences income growth in the subsequent 12 months. These effects are unique to property crimes and are not due to preventative measures undertaken by more rapidly expanding firms or other sources of reverse causality. These conclusions also are robust to a number of controls for firm heterogeneity and for local institutional quality.

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1. Introduction

Microenterprises—firms that operate with 10 employees or less—are recognized as large generators of income and employment in the developing world, and there is increased interest among policy-makers and researchers in improving their productivity. The expanding literature on the subject has posited several possible barriers to this goal, including both microeconomic and macroeconomic factors. On the microeconomic side, potential factors include credit constraints (de Mel, McKenzie and Woodruff 2011), savings constraints and self-control problems (Fafchamps, McKenzie, Quinn and Woodruff 2011), labor constraints (Emran et. al. 2007, de Mel, McKenzie, and Woodruff 2010), and skill constraints (Karlan and Valdivia 2011, Drexler, Fischer, and Schoar 2011, Bruhn, Karlan and Schoar 2010). On the macroeconomic side, the most important factor arguably is weak institutions, specifically the potential for weak property rights to limit firm size (De Soto 1989). In the absence of formal and informal institutions which protect property, entrepreneurs have reduced incentives to invest in productive assets. In addition, weak institutions can significantly dampen overall growth in the microenterprise sector if the most productive firms are the most likely to be victims of expropriation.

In studying the institutional drivers of low microenterprise growth, the focus to date largely has been on the role of the state and corruption (DeSoto 1989). Over the past decade, many studies have examined the role of corruption and other forms of state rent-extraction in limiting the incentives for growth among microenterprises (Safavian et al 2001, Fjelstad et al 2006, Francisco and Pontara 2007, Hallward-Dreimler 2009, Clarke 2011). Almost no attention, however, has been paid to the role of private individuals or groups who can seize others' assets with impunity. Robbery poses a severe threat to firm owners and might provide a strong incentive for enterprises to limit their investment in productive but vulnerable moveable assets. For example, as shown in Table 1, a

2008 survey of microenterprises in Mexico finds that the incidence of robbery is higher than that of fines and bribes and the average loss three times as high. The average estimated loss - 1.7 months of profit- is large and shows that robbery can constitute a severe negative shock for some firms. In the face of such risks, entrepreneurs may reasonably limit their plans for investment in new capital or expanded operations. Furthermore, they may face reduced credit access if microfinance institutions are reluctant to accept as collateral assets that have a high probability of being stolen.

Despite the importance of robbery for many microenterprises, the issue has received little attention in the literature. To our knowledge, only one other paper has examined the impact of crime on microenterprise behavior. Krkoska and Robeck (2009) find cross-sectional evidence that enterprises in Eastern Europe and Central Asia suffer substantial losses from street crime, and that those enterprises that suffer the largest losses are the least likely to make new investments. We argue that robbery by private agents is an important new dimension of the costs of weak property rights, particularly in developing countries facing high degrees of property and personal violence.

We investigate the link between robbery and microenterprise growth using data from Mexico, a country with a large microenterprise sector and high rates of property-related crimes. We combine repeated cross-sectional surveys of microenterprises with repeated surveys of the general population on crime. By using repeated surveys we can control for time-invariant, state-level unobserved characteristics as well as control for a host of state-time varying effects that may jointly determine robbery and microenterprise decisions, such as local economic conditions, local institutional quality and demographic changes. Overall we find strong evidence that higher robbery rates significantly reduce the probability that microenterprises will expand their operations. We also find that these microenterprises are much less likely to experience income growth in the ensuing 12 months. This relationship holds after controlling for other types of crime, including homicides and

assaults, which may be related to underlying factors that determine both crime and microenterprise behavior but have little direct impact on microenterprises. The relationship also holds after we control for other types of property crime, such as mugging, that do not reflect expropriation risks for enterprise assets but may constitute income shocks both for an enterprise and its customers. Finally, we find that the effects of robbery of different types of capital vary by industry, with vehicle robbery rates only affecting expansion among enterprises in the transport sector. These results suggest that although Mexican microenterprises operate in an environment with widespread violent crimes, it is the threat of robbery of the specific assets used in their enterprise that limits their growth.

We also perform a large number of robustness checks to address concerns that factors other than expropriation risk drive the link between microenterprise expansion and robbery rates. These factors include: heterogeneity among microenterprises and the potential for low productivity firms to be differentially located in states with high robbery rates; the potential for reverse causation, in which crime rates themselves are affected by the growth experiences of microenterprises; the potential for groups of states that have been more affected by violence to drive the results; and the potential for unobserved institutional changes to simultaneously determine robbery rates and microenterprise behavior. We include numerous controls and find that our results are robust to their inclusion. Overall we view our results provide strong evidence that property crimes negatively affect microenterprise expansion.

The paper proceeds as follows. In Section 2, we describe the datasets that we use to conduct the analysis. Section 3 outlines our empirical strategy, while section 4 presents baseline results. In section 5, we consider alternative explanations for these results, while section 6 discusses causal channels. In Section 7, we conduct a series of robustness checks, and offer conclusions in Section 8.

2. Data

2A. Microenterprise Data

The data on microenterprises come from the ENAMIN, or National Survey of Microentrepreneurs, a cross-sectional, nationally representative survey conducted by INEGI, the National Statistical Institute. We restrict attention to the two most recent ENAMIN surveys, conducted in 2002 and 2008[i]. For comparability we limit the 2008 sample to urban microenterprises, defined as those operating in areas with a population of 100,000 or more. Our geographic area of focus therefore is urban areas of states. This is the finest level of geographic detail we can achieve, as none of the data are representative at the municipal level.

Summary statistics on the sample are provided in Table 2. The sample is largely male (64%), married (73%), and with a high level of education (24% have some tertiary education). In terms of size, as measured by employees, only 21.8% of enterprises in 2001 and 23.8% in 2008 had any employees other than the owner, with the average number falling from 1.9 in 2001 to 1.7 in 2008. Approximately 40% of these employees are unpaid. Average monthly profits were $571 in 2001 and $352 in 2008. These statistics confirm the "micro" size of many microenterprises.

Our primary measure of enterprise growth is entrepreneurs' responses to the question of how they plan to continue the enterprise in the future. We count entrepreneurs who say they plan to increase the number of products as having expansion plans, as this will necessitate an increase in capital, either fixed or working[ii]. We therefore view this response as one that is highly correlated with enterprise growth. As shown in Table 2, the overall percentage of enterprises with expansion plans falls across the two periods. In 2001, 14.4% of enterprises had plans to expand products/services or employees. This figure falls to 9% in 2008.

We perform several checks to ensure that the expansion measure captures enterprise growth. First we compare estimated working capital investment, measured as purchases of primary materials, packaging, products and merchandise for sale. Second, we consider measures of enterprise growth from the labor force surveys from which the ENAMIN are drawn. These surveys (ENEU/ENOE) are rotating panels that follow households for five quarters. Approximately twenty percent of the sample rotates out every period, such that we can follow eighty percent of the ENAMIN sample for one quarter, 60% for two quarters, etc. We consider variables that likely are closely related to enterprise growth. These include moving from a non-fixed to a fixed location (Fayzlnber et. al. 2009), changing from an enterprise with zero employees to an enterprise with any employees[iii], whether or not the individual reports exiting self-employment, and percent changes in income.

In Table 3, we compare the changes in the aforementioned variables one, two and three quarters following the ENAMIN survey, as well as the information on working capital. We find that average and median working capital investments are significantly larger for firms that have expansion plans than for those that do not. We also find that entrepreneurs who say they plan to expand have significantly higher income growth two and three quarters after the ENAMIN survey, are significantly more likely to have moved their enterprise to a fixed location one or two quarters after, significantly more likely to have added at least one employee one or three quarters after, and significantly less likely to exit self-employment three quarters after. These comparisons provide evidence that responses on expansion plans are indeed linked with enterprise growth.

2.B. Crime Data

The data on crime come from the National Survey of Insecurity, or the ENSI. This nationally representative household survey generates dependable estimates of the incidence of common

offenses, including vehicle robbery, home robbery, physical assault and sexual assault, as well as reporting rates, economic losses, and perceptions of insecurity. As a household level survey the ENSI produces more reliable estimates of victimization rates than official crime statistics due to the low reporting rates for many of these crimes. For example, according to the ENSI, on average 32% of home robberies, 17% of partial vehicle robberies, 87% of full vehicle robbery and 47% of physical assaults are reported to the authorities. Since reporting rates and the degree of measurement error likely are linked with factors- such as institutional quality- that jointly determine crime rates and microenterprise outcomes, data from victimization surveys will be subject to significantly less bias than official statistics (Soares 2004).[iv]

Our interest is in property crime affecting the capital of microenterprises. The most appropriate measure of such crime in the ENSI data is the rate of burglaries, also called home robberies. Many microenterprises are operated out of the entrepreneur's home, with all assets stored and trade taking place in the home, while other entrepreneurs who work outside of their home may also store their equipment and other capital at home overnight. In such cases, our measure of home robbery captures the direct threat to these enterprises. In other cases, home robbery rates may be quite correlated with commercial robberies at the state-level, making home robbery rates an accurate measure of the property risks faced by microentrepeneurs.

The ENSI also includes two other types of property crimes: vehicle robberies and muggings. Vehicle robberies include "full" robberies, in which the entire vehicle is stolen, and "partial" robberies, in which parts and accessories are stolen. Muggings, on the other hand, typically involve theft of cash or other small valuables rather than primary enterprise assets. We also control for other types of crime that would not be expected to directly influence the investment decisions of microentrepreneurs but may reflect underlying local factors that affect them. These include physical

and sexual assault rates from the ENSI and official statistics on homicide rates, compiled by the Citizens' Institute for the Study of Insecurity (ICESI). To convert the crime rates from the ENSI into measures of incidence, we take the percentage of individuals age 18 or older in urban areas of the state who report being victims of a particular crime in the past year. It is important to note that two states are not included in the 2008 ENSI - Tamaulipas in the North and Tabasco in the South, Gulf region - restricting the overall sample to 30 out of 32 states.

Summary statistics on the incidence of different crimes and reporting rates are provided in Table 4. In 2004 the average home robbery rate of incidence was 2.8%, which means that, on average, 2.8% of adults age 18 or older in urban areas report being a victim of home robbery at least once in year 2004. This compares to 0.6% for full vehicle robbery, 1.9% for partial vehicle robbery, 0.2% for sexual assault and 1% for assault. In 2008 the home robbery rate falls slightly to 2.3%, while partial vehicle robbery shoots up to 5.2%, more than double the incidence of home robbery and close to five times the incidence of assault. These statistics establish that property crimes are a serious concern for many residents.

To show the distribution of crimes across states, Figures 1A and 1B map average incidence across states for home robbery, partial vehicle robbery, full vehicle robbery and mugging for the years 2004 and 2008. The maps show a high degree of dispersion in crime incidence across states, and an absence of geographic concentration. This suggests our results are not simply capturing regional phenomena with state level averages.

3. Empirical Strategy

Our starting point is a model in which robbery rates affect expansion:

$$y_{ijst} = \alpha + \beta_1 X_{ist} + \beta_2 Z_{st} + \beta_3 robbery_{st} + \beta_4 othercrime_{st} + \delta_t + \gamma_s + \eta_j + \varepsilon_{ijst} \quad (1)$$

where y_{ijst} is the outcome variable of individual *i* living in state *s* working in industry *j* interviewed at time *t*, X_{ist} is a vector of individual-level controls, Z_{st} is a vector of state time-varying controls, $robbery_{st}$ is the state and time-specific robbery rate, $othercrime_{st}$ is a vector of non-robbery crimes that vary by state and time, δ_t is a year fixed effect, γ_s is a state-level fixed effect, and η_j is an industry fixed effect. Our main outcome variable is a dummy variable that equals one if the firm plans to expand and zero otherwise. Our theory suggests that higher robbery rates are associated with reduced microenterprise expansion ($\beta_3 < 0$).

To identify the relationship between property crime and microenterprise outcomes we rely on differences in crime rates over time and across urban areas of states using repeated cross-section data. This allows us to control for state fixed effects as well as observable state and time varying factors which may jointly determine robbery and microenterprise expansion. We take this approach due to the absence of a viable instrumental variable for property crime. Key to identification is the inclusion of state-time controls, which we break into two categories: other crimes and other state-time varying factors. For other crimes we start with non-property related crimes, including homicide, physical assault, sexual assault, and mugging. These crimes help control for unobserved factors which vary across states and time and may jointly determine crime rates and enterprises' investment decisions. For example, the returns to criminal activity may differ in areas where enterprises are more visible and growing more rapidly. If criminals do not differentially locate based on crime type, the inclusion of non-property related crimes can help account for this reverse causality. Non-property related crimes also allow us to isolate the impact of property crimes from those of other types of crime, which is important as robbery rates may be correlated with demand

shocks for goods and services offered by microenterprises. Muggings, in particular, are likely to have a greater impact on microenterprise customers than microenterprises themselves (with the exception of street vendors). In some of the estimations, we also consider vehicle robbery to check if the effects of robbery indeed stem from expropriation risk. If expropriation risk is the primary factor driving our estimates, we should observe that transport enterprises respond differentially to vehicle robberies. Conversely, if demand factors indeed are driving our estimates, transport enterprises should not differentially respond to vehicle robberies. In this case changes in vehicle robberies reflect broader conditions and should have a similar impact on transport and non-transport industries.

For other state-time varying factors (Z_{st}), we include controls for economic conditions, demographic changes, and local institutional quality, all of which are potential sources of omitted variable bias. To capture economic conditions, we include state-year measures of unemployment and real GDP per capita (from INEGI). To capture demographic changes that may be correlated with the size of the low-skill microentrepreneur and criminal population, we include measures of average years of schooling for adults aged 15 or older and the percentage of the state population that is comprised of men between the ages of 16 and 19. These measures come from the 2000 and 2005 Mexican censuses.

Finally, to control for local institutional quality we include measures of local police and judicial effectiveness (Laeven and Woodruff 2007). The measures come from surveys of lawyers on the effectiveness of local courts in enforcing commercial code governing bank debt (for example, seizing collateral). The surveys are conducted every several years by the Consejo Coordinador Financiero under the direction of the Center for the Study of Law at the Instituto Tecnologico Automono de Mexico. The focus on a specific commercial code comes from the fact that while

bank debt laws are set at the national level, judicial proceedings must take place in courts where the debtor is located. Thus the implementation and enforcement of the laws varies at the state level. We use the 2002 and 2009 surveys to create two measures of local institutional quality. The first is a measure of judicial effectiveness, taken as an average of the questions relating to the quality of judges, the impartiality of judges, the adequacy of judicial resources, the efficiency of the execution of sentences, and the adequacy of local legislation related to contract enforcement. The second is a measure of the support of public forces (such as the police) in executing judicial sentences.

4. Results

We begin by estimating equation (1) using a probit model, using the ENAMIN survey sampling weights and clustering standard errors at the state level. Table 5 presents these results, with average marginal effects reported. We start with only individual controls, which include gender, education, experience, as measured by the number of years working in the enterprise or similar activity, experience squared, industry, state and year fixed effects. The results, presented in column (1), show a significant, negative correlation between home robbery and microenterprise expansion plans. We next add homicides and physical assault rates as measures of non-property crimes, as well as the full set of state-level time-varying controls outlined above. These results are shown in column (2) of Table 5. We find that the average marginal effect of home robbery rates remains negative, significant and relatively unchanged in size. In column (3), we include sexual assaults and in column (4) we include mugging. In both cases we find that the estimated effect of robberies remains little changed. We next consider vehicle robbery. As shown in Column (5), we find that home robberies continue to dominate our results. The effects of vehicle robberies are negative but not significant. This is not entirely surprising, as we expect that if expropriation risk is the primary channel through which robberies affect microenterprise growth, the effect of vehicle robberies should be

concentrated in a small number of enterprises in the transport industry. We thus estimate the differential effects that vehicle robberies, home robbery and homicides have on firms in the transportation industry. The results of this estimation, which includes crime-industry interaction term, are shown in Column (6). While the home robbery interaction term is negative for both types of firms, it is only significant for non-transport firms. Meanwhile, the effect of vehicle robbery is much larger for transport enterprises, although this coefficient is not significant.

Overall, the estimated effects of robbery are non-trivial. The coefficient on home robbery in column (2) of Table 5 suggests that a 1 percentage point increase in home robbery incidence (half of the standard deviation) is associated with a 1 percentage point decline in the probability the average microentrepreneur plans to expand his/her business (20% of the standard deviation). Given that the average percentage of entrepreneurs who plan to expand their operations in the next 12 months is only 11.6%, the associated decline in average expansion plans is large and potentially can help explain why many microenterprises do not grow.

We next see if the higher rates of expansion in states with lower crime rates lead to faster income growth for these enterprises using the subsequent labor force surveys. In Table 6, we focus on the changes in income among enterprises which we observe in the labor force surveys at least 3 quarters after their ENAMIN interview. In columns (1) and (2) we estimate an OLS model of income changes on home robberies and our full vector of controls and fixed effects. We find that home robberies negatively affect income growth, although this effect is not significant when vehicle robberies are included.

Because the measure of income growth is likely to be quite noisy for a variety of reasons, we transform it into a dummy variable equaling 1 when this income growth is in the top 50% of

enterprises in a given year and 0 when not. Columns (3) and (4) present the results of a probit model estimated using this measure. We find that the effects of home robbery on the probability of being above the median continue to be negative and significant when vehicle robberies are not included. A one percentage point increase in home robbery rates is associated with between a 1.9 to 3.9 percentage point reduction in the probability that a enterprise will rank above the median in its subsequent income growth.

We also test whether home robberies affect fast growing enterprises in the same way as they do slower growing ones. In columns (5)-(7), we estimate these specifications using as our dependent variables a dummy indicating that an enterprise's income growth was in the top 5% for that year. We find that home robberies significantly reduce an enterprise's probability of being in this top 5%, with a marginal effect of 4.8 to 7.1. This effect is large, given that a one standard deviation rise in home robbery rates (2%) would lead to a 20-30% drop in the probability of being in the top 5%.

In column (7) of Table 6, we estimate the effects of robberies on this measure of income growth when these crimes are interacted with dummies for the enterprise being in the transport and non-transport sectors. We find that the effect of vehicle robberies is negative and significant among transport enterprises but not significant among non-transport ones. These results indicate that the effects of these crimes are specific to the types of enterprises whose assets are more likely at risk.

Finally, we consider other outcome measures that may capture growth trajectories of microenterprises using data from the labor force surveys. To capture the longest time horizon possible while still maintaining a sufficiently large sample size, we choose outcome measures three quarters after the ENAMIN survey. We consider (1) whether an enterprise has moved to a fixed location, and (2) whether the entrepreneur has exited self-employment (although this may not fully

capture the extensive margin insofar as we lack panel data on these outcomes across the robbery survey waves). The results are shown in columns (8) and (9) in Table 6. We find that home robbery is associated with a significantly lower probability that firms have moved to a fixed location and a higher probability that an entrepreneur has exited self-employment (although this coefficient is not significant). These results highlight the real costs of burglaries to microenterprise growth.

5. Alternative Explanations

5.A. Microentrepreneur Selection

The state-level composition of microenterprises may vary in response to crime, as migration or the decision to enter or exit entrepreneurship may be based on the security of operating in a given location. To ensure we are not simply capturing the sorting of enterprises with different growth potentials across states, we compare the effects of robberies on microenterprises with different skill characteristics and entrepreneur migration histories. To determine whether our results are driven by sorting by skill, we limit our sample to "high-tier" enterprises- defined as those that are more likely to survive and grow. Following other authors we consider several classifications of "high-tier" entrepreneurs (Cunningham and Malone 2001, Fajnzylber et. al. 2009). The first are entrepreneurs with a secondary education or above. The second are those who entered self-employment from a salaried position and did so voluntarily. The third are entrepreneurs with at least a secondary education whose currently monthly income is higher than the average for salaried workers with the same gender, education level, age bracket, industry and state[v]. The fourth are entrepreneurs who, when asked why they entered entrepreneurship, said they did so to increase their earnings or due to family tradition (in contrast to entrepreneurs who said they entered due to lack of alternative employment). The fifth is enterprises that have any employees, as these are more likely to be

established firms with greater survival and growth potential[vi]. The results are shown in Table 7. In all cases, the coefficient on home robbery remains negative and significant, showing that the results are not being driven exclusively by firms with lower growth potential.

The composition of entrepreneurs also may change across states and time due to migration. In column (6) of Table 7, we thus limit our sample to entrepreneurs who were born in the same city in which they currently reside. The results are remarkably similar to those in the full sample, indicating that selection through migration is not likely to be driving our primary results.

5.B. Reverse Causality

There are several possible channels through which microenterprise growth may affect observed property crime rates, including both positive and negative mechanisms. On the former, it is possible that growing microenterprises are better able to dedicate resources to theft prevention and thus suffer lower losses as a result. Thus, microenterprise expansion and income growth could lead to reductions in state-level robbery rates, and our results may over-state the true effect of robberies on these enterprises. On the latter higher-growth enterprises may also attract additional robberies, thereby inducing increases in robberies and causing our estimates to under-state the effect of robberies on enterprises. While in the absence of an experiment, we cannot conclude that no such bias exists, we can test the extent to which these specific reverse causality channels are present in our setting.

First, to investigate evidence of a positive mechanism, we consider whether high-growth enterprises can better afford to take additional precautionary measures against robberies than can low-growth enterprises. We note that this should be particularly true for credit-constrained enterprises—that is, high-growth enterprises with access to adequate credit should be particularly

likely to take precautionary measures. We test this relationship using the ENSI surveys containing information on both crimes and household employment and educational characteristics. While the ENSI does not contain information on microenterprise outcomes, it does ask whether the respondent or any other individual is self-employed. It also contains information indicating whether the household has taken a number of different precautions, including installing a security system, hiring private security for his home or neighborhood, or increasing the insurance policy coverage for his home, car, or business. As a proxy for the growth prospects of the enterprise, we use the education level of the respondent. As the ENSI does not include data on the use of credit by the self-employed, we use the state-level shares of enterprises who report having ever used credit in their operation as a measure of the probability that a given enterprise faces credit constraints. We thus estimate the following specification:

$$precautions_{ist} = \alpha selfemp_{ist} + \beta_1 selfemp_{ist} * education_{ist} + \beta_2 selfemp_{ist} * education_{ist} * credconstrained_{st} + \beta_3 selfemp_{ist} * credconstrained_{st} + \beta_4 education_{ist} + X_{ist}\Gamma + \delta_s + \delta_t + \delta_s * \delta_t + \varepsilon_{ist}$$

Where $precautions_{ist}$ is an indicator of whether the household has undertaken any of the aforementioned major preventative measures.

If this reverse causality is present, we should find $\beta_1 > 0, \beta_2 < 0$ or $\beta_3 < 0$. That is, better educated self-employed individuals should be more likely to take precautions than lesser educated individuals, and constrained individuals should be less likely to do so (with this effect intensifying for better-educated individuals). We do not focus on β_4 because our baseline results control for state-level educational income as well as entrepreneur-level education.[vii] Our results are presented in columns (1) and (2) of Table 8. The effects we find do not offer strong evidence of this reverse

causality. While the coefficients on self-employment interacted with secondary and tertiary education dummies are indeed positive-, neither is significant – and the two coefficients are themselves quite similar, suggesting that the most educated entrepreneurs are no more likely to take precautions than those with a secondary school education. Moreover, when we introduce interactions with credit constraints in column (2), we find that the only interaction that is significant is the one with primary education or less, and that this effect is—surprisingly—positive. In other words, entrepreneurs with a primary education most likely to face credit constraints are actually *more* likely to take expensive precautions against robberies. Meanwhile, the interaction of credit constraints with higher levels of education and self-employment does yield negative coefficients, though these are not significant. While these results cannot conclusively rule out this channel of reverse causality, taken together, they offer little evidence that this channel is prominent enough to generate our large and statistically significant baseline results.

It is possible that entrepreneurs adjust across other margins or make other costly investments to prevent robbery losses, which may be why we see only weak effects on the precautions outcome variable. We therefore check whether these effects are consistent for other types of precautions that entrepreneurs might take. We use outcome variables indicating whether the respondent has changed his or her nighttime behavior in response to crime (i.e., go out at night less frequently), visits family and friends less frequently due to crime, and uses public transportation less frequently due to fears about crime. All of these changes in behavior involve implicit costs borne by an entrepreneur (with the latter possibly including explicit costs in terms of lost enterprise profits if the entrepreneur uses public transportation to go to or conduct her work). So higher profit growth among enterprises may still enable entrepreneurs to take these precautions—meaning better-educated entrepreneurs should still take these precautions to a greater degree than less-

educated ones. On the other hand, the credit constraint may not be as relevant for these precautions, since they involve a greater share of implicit costs than does purchasing and installing security equipment, for example.

In columns (3)-(5) of Table 8, we find little evidence of these effects. The interaction of education levels and self-employment status are now negative although not significant. The effects of credit constraints are now *positive* and insignificant. Thus, while the most constrained entrepreneurs might make these behavioral rather than capital-intensive changes in response to crime, this effect appears relatively muted in our context.

Finally, we test whether higher-growth enterprises are themselves more likely to be targets of property crime than slower-growth ones (and thus that enterprise growth raises state-level property crime rates). In column (6) we take as our outcome variable an indicator of whether the household has experienced a home robbery in the past year (the same variable we use to calculate the state-level incidence variable for our baseline regressions). While both self-employment and educational levels have strong effects on this robbery, their interaction is weakly positive and insignificant. In column (7) we further interact these variables with a state-level credit constraint measure, again finding only insignificant effects. This is not true for vehicle robberies (column (8)), which better-educated entrepreneurs are *less* likely to suffer than less educated ones, nor for the respondents' overall perceptions of crime in their area (column (10)). Again, taken together, these results offer little evidence that the most plausible channels for reverse causality play major roles in our setting.

6. Causal Channels

It is possible that burglaries among microenterprises could limit these firms' expansion through several distinct mechanisms. We argue that main channel of impact is through the entrepreneur's

perceived expropriation risk. Another possibility, however, is that burglaries involve an income or wealth shock, and that if the robbed enterprises are credit constrained, they may lack the resources to make profitable investments. We conduct several tests to disentangle the expropriation risk story from the income shock one. First, we check whether expansion plans are more limited among those entrepreneurs who experienced a robbery in the preceding year. To do so, we remove entrepreneurs in the 2008 sample who report being robbed in the past year (question not in 2001 survey). The results from the estimation that excludes this sample are shown in column (1) of Table 9. The coefficient on home robbery is slightly smaller than that from the full sample, but remains negative and significant. These results suggest that entrepreneurs who were robbed do not drive the results.

Next we compare income growth for entrepreneurs in the 2008 ENAMIN who report being robbed and those who do not. If the coefficients capture a pure income shock story we should see different income trajectories for the two groups. In particular, if expropriation risk is not the main channel, entrepreneurs who were robbed should show less robust income growth than those who were. To test this we regress income growth one, two and three quarters after the ENAMIN sample on a dummy variable that equals one if an entrepreneur was robbed in 2008. In each case we estimate the model with and without controls. The results are shown in columns (2)-(7) in Table 9. Overall they do not support the story of reduced income growth for robbed entrepreneurs, as none of the coefficient is significant. This further suggests that our results do not purely capture an income shock effect.

Finally, we assess whether our results are driven by the sub-sample of entrepreneurs who are most credit-constrained. For the income or wealth shock effect to play a major role these entrepreneurs must lack the ability to finance profitable investments externally (i.e., through borrowing). We thus return to our baseline specification and add an interaction between burglary

rates and a variable indicating whether the entrepreneur has ever used credit in the operation of the firm—an admittedly imperfect measure but one that nonetheless reflects the most important differences in access to and use of credit. If the income shock channel is important, we expect that this interaction term should be positive, i.e., that access to credit for these entrepreneurs should mitigate the negative effects of burglaries. The results, presented in column (8) of Table 9, show the opposite is true, as the coefficient on the interaction term is negative. This means that entrepreneurs who use credit are even less likely to expand in the face of higher robbery rates than their potentially more credit constrained counterparts. This further suggests that income and wealth shocks are not the main channel through which robbery rates impact microenterprise expansion plans.

7. Robustness Checks

7.A. Sensitivity to Dropping States

Our identification strategy relies on state- and time-level variation in crime rates and other observed factors. There may be concerns, however, that our results are driven by other differential trends in particular states, like changes in drug market activity and violence or economic changes along the US-Mexico border. We consider the robustness of our estimates to these phenomena by sequentially dropping groups of states from our analysis.

We first consider the sensitivity of our results to removing Mexico City, a potential outlier due to size and crime incidence. To ensure that our results are not driven by a "Mexico City" effect, we re-estimate the model on a sample that excludes Mexico City. Results are shown in Column (1) of Table 10. The results are robust to the exclusion of Mexico City, as the size of the coefficient is relatively unchanged, and remains significant. We also note that we repeat this exercise for all states,

removing one at a time from the estimation. In all cases the results are robust, confirming that our finding of a robbery effect is not driven by one particular state. Results are available upon request.

We next consider the sensitivity of our results to removing states that have been most affected by drug violence, a natural concern given that the time frame of our study coincides with the dramatic rise in drug-related crime in Mexico. We exclude states most affected by drug-related violence using three specifications. First, we exclude all Northern border states (6 states). Second, we exclude states with the highest degree of drug entry, determined by the Washington Post's Mexico at War series (7 states). Third, we remove states with the highest number of drug related deaths over the 2006-2008 period, using data from the Crime Indicator Database for the Justice in Mexico Project at the Trans-Border Institute (6 states). Results are shown in columns (2)-(4) of Table 10. The results are robust to removing border, drug entry and high drug death states, as the coefficient on home robbery remains negative and significant in all cases. We take this as evidence that our results are not driven by changes in drug related violence.

7.B. Alternative Measures of Local Institutional Quality

We consider three alternative measures of institutional quality. The first is average reporting rates for home robbery. This variable comes from the ENSI and is the average percentage of the last home robbery that was reported to the authorities. We expect that in states in which police forces, court proceedings, or other institutions have improved, households may be more likely to report crimes to the authorities (Soares 2004). The second measure is perceptions about insecurity. This measure, also taken from the ENSI, takes the average number of adults in urban areas of the state who responded that they consider living in the state to be "insecure". Public perceptions of insecurity are likely to reflect risks associated with a broader set of institutions and thus would

capture local institutional variation over time. Finally, since the time period between the two ENAMIN surveys include notable reforms of the business registration process, we consider a measure of institutions that comes from these reforms. In 2002 the federal government enacted legislation that reduced the federal requirements for registering some businesses and encouraged the reduction of registration requirements at the municipal level. To inform the public about the reforms and promote similar steps by municipalities, the agency charged with enacting the reforms, COFEMER (Federal Commission for Improving Regulation), began opening business registration centers, known as SAREs (Rapid Business Opening System), in major municipalities (Bruhn 2011). Any variation in registration requirements, if linked with local institutional quality, and specifically the promotion of microenterprises, could capture underlying institutional factors that jointly impact enterprise expansion and crime rates. We therefore test whether the introduction and timing of the SARE program affect our results using the change in the number of SARE offices by state from year end 2001 to November 2008 and the maximum number of months any SARE office in the state had been open as of November 2008 (COFEMER).

The results of estimations incorporating these alternative controls are shown in Columns (5)-(8) of Table 10. In all cases the size and significance of the coefficient on home robbery is unchanged. To the extent that the judicial quality, crime reporting, security perception, and registration reform variables effectively control for local institutional features, these results indicate that the robbery effect we find is not simply a reflection of broader institutional changes.

7.C. Alternate Expansion Measures

Finally we consider the sub-sample of entrepreneurs who say they plan to continue their existing enterprise going forward (as opposed to closing it or opening a new one)[viii]. Among this

sub-sample we re-estimate our original outcome variable of expansion plans and, as a check, we estimate an alternative outcome variable; having no plans to change the enterprise. These entrepreneurs plan to continue business in the same way, and therefore to neither grow nor shrink their enterprise going forward. This is the largest category of entrepreneurs, comprising 64% of those who plan to continue the existing firm. The results from these estimations are shown in columns (9) and (10) of Table 10. With respect to expansion plans, we find no change in the coefficient on home robbery among the sub-sample that plans to continue the existing enterprises. Alternatively, we find a positive but insignificant coefficient for home robbery when "no plans" is the outcome variable. Thus home robbery is weakly associated with an increased likelihood that firms plan to do nothing, or stagnate.

8. Conclusions

This paper highlights a new dimension of the costs of weak property rights. Most of the focus in assessing these costs has been on the threats posed by the state itself and on the insecurity of land and real estate. There has been much less focus on the threat of robbery by private citizens or groups against moveable assets, particularly on the effects of this threat on microenterprises. One reason this dimension has been largely uninvestigated is the difficulty of identifying credible, disaggregated data on both crime and microenterprises collected over time. We overcome this hurdle by linking datasets on these two distinct issues that jointly provide a rich information set in which to test hypotheses about the nature of the effects of property crime on microenterprise decisions. Our strategy relies on variation in property crimes across states and over time in Mexico, controlling for state and year fixed effects and a variety of observable time-varying factors. Admittedly, we cannot eliminate the possibility that other unobserved factors which vary across states and time could be correlated with property crimes and microentrepreneur expansion

decisions. As such, we view our results as a strong indication, rather than proof of, of a causal relationship between property crimes and microenterprise expansion.

Our results are particularly notable because they suggest that robberies against moveable assets have important distortionary effects, and likely lead to real inefficiencies. Although robberies of microenterprises represent wealth shocks to these enterprises, the most prevalent impact of these robberies is their reduction of otherwise profitable investment by entrepreneurs concerned about losing these assets. This paper thus extends the evidence on limited investment by other agents in developing country settings facing limited property security, most notably farmers.

Our findings have a number of implications for policymakers. Microenterprise growth is dependent on the social context in which these enterprises operate, and entrepreneurs clearly respond to risks in this environment. Growth among these enterprises may thus remain limited in settings with high crime, even when public programs offer these enterprises training on business practices, improved access to credit, or other services aimed at enterprise expansion. In such settings, investing in protections of private property rights—particularly protection for individuals in lower socioeconomic categories—may prove more effective in raising microenterprise growth trajectories than would investment in the aforementioned programs.

Finally, while we identify an important link between property crime rates and microenterprise behavior, linking changing crime rates to explicit features of the local institutional environments remains a useful area for further research. For example, it would be useful to determine which dimensions of the local settings have most directly influenced variations in property crime rates over the past decade, and the degree to which these dimensions are actionable by public entities.

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[i] The 2002 ENAMIN survey was conducted from October 2001 to January 2002. The 2008 ENAMIN survey was conducted between October 2008 and February 2009. We take the 4th quarter of 2001 and 2008 as the relevant period. Due to a change in the sample framework for the ENAMIN between 2001 and 2008 (2001 was drawn from a survey of urban unemployment), we use only the urban portion of the 2008 ENAMIN.

[ii] Responses include: increase the number of products, increase the number of workers, reduce the number of products, reduce the number of workers, or not enact changes. Meanwhile, we cannot use enterprise assets to measure enterprise growth, because the survey module changed in 2008, generating a high non-response rate (over 20%) and values with a likely high degree of measurement error.

[iii] We cannot use the total change in employees as the ENEU includes bins for different ranges of employees.

[iv] We use the ENSI-3 (year 2004) and the ENSI-6 (year 2008). We address the time gap by projecting 2001 crime rates using a linear time trend. For robustness, we consider two alternatives. The first is using 2004 crime rates as a proxy for 2001 crime rates- a strategy that assumes no change in crime incidence across the three year period. The second is projecting 2001 crime rates using an exponential time trend- a strategy that assumes a constant percentage change in crime rates. We do not show the results from the two alternative specifications, but they are similar to those produced by the linear time trend and are available upon request.

[v] This information comes from the ENEU and ENOE.

[vi] We recognize that the growth potential of established firms depends upon where they are in their life cycle. To explore if robbery effects are concentrated in firms at different stages of their growth cycles, we separately estimate expansion plans on "new" (less than 2 years in operation) and "established" firms (more than two years). The results, available upon request, find that the robbery effect is negative and significant for both groups.

[vii] As a result, changes in the crime rate due to changes in education levels of entrepreneurs or to changes in overall income levels in the state should be suitably controlled for and thus not responsible for major reverse causality bias.

[viii] We do not remove entrepreneurs who say they do not plan to continue from the baseline estimates, as it is not clear that all of them leave entrepreneurship (some say they plan to open a new enterprise after closing the existing one).

Table 1: Urban Microentrepreneurs 2008

	All Firms	More Established Firms		
Formal Credit		Has Any Employees	Has Used Credit	Enterprise Formal
Victim of given crime in past year:				
Fines/ Bribes	8.14%	10.66%	14.45%	11.42%
Robbery	9.58%	14.92%	16.99%	14.05%
Private Extorsion	1.19%	1.46%	2.34%	2.12%
Fraud	8.79%	13.27%	16.78%	13.15%
Natural Causes/ Accident	2.53%	3.29%	5.73%	4.64%
Of victims of given crime, Estimated loss/monthly profits				
Fines/ Bribes	0.53	0.48	0.97	0.73
	(2.19)	(2.36)	(3.17)	(3.06)
Robbery	1.72	1.07	4.18	2.43
	(7.34)	(2.68)	(15.60)	(10.15)
Private Extortion	0.56	0.89	0.47	0.47
	(1.32)	(1.49)	(0.84)	(1.24)
Fraud	0.62	0.45	0.35	0.68
	(4.50)	(1.42)	(0.87)	(6.15)
Natural Causes/ Accident	0.90	0.89	0.93	0.88
	(2.24)	(2.62)	(1.68)	(1.88)
Of victims of given crime, % who reported to authorities				
Robbery	22.0%	24.9%	27.8%	27.5%
Private Extortion	24.9%	28.3%	28.0%	27.8%
Fraud	3.4%	4.1%	2.8%	5.3%
Observations	16,398	4,339	1,988	5,959

Coefficients are weighted averages. Standard deviations are in parentheses

We restrict the 2008 ENAMIN sample to urban microentrepreneurs, defined as those living in areas with 100,000 inhabitants or more or in one of 43 cities. This population is comparable to earlier ENAMIN samples

Table 2: Summary Statistics, ENAMIN

Urban Microentrepreneurs	Total Sample	By Survey Year	
		2001	2008
Entrepreneur a woman	36.5%	31.8%	40.9%
Entrepreneur married	72.9%	73.6%	72.3%
Average Age (in years)	44.1	43.2	44.9
	(13.0)	(12.8)	(13.1)
Primary Education or Less	38.8%	42.4%	35.5%
Secondary Education	36.9%	36.2%	37.5%
College Education	24.3%	21.4%	27.0%
Experience (in years)	9.84	9.70	9.96
	(9.27)	(9.09)	(9.43)
Monthly Profits (USD)	461.7	571.3	351.7
	(769.7)	(903.8)	(585.8)
Has any employees	22.8%	21.8%	23.8%
Employees, total	0.41	0.41	0.41
	(1.00)	(1.10)	(0.90)
Employees, paid	0.26	0.27	0.25
	(0.87)	(0.97)	(0.77)
Employees, unpaid	0.14	0.14	0.15
	(0.49)	(0.49)	(0.48)
Enterprise has a fixed location	34.7%	35.9%	33.2%
Enterprise located in individual's home	18.5%	15.9%	21.6%
Keeps Accounts	43.8%	49.3%	37.1%
Enterprise Informal	66.1%	65.9%	66.2%
Industry:			
Manufacturing/Production	11.2%	11.4%	10.9%
Construction	7.4%	6.6%	8.2%
Commerce	36.2%	34.8%	38.0%
Services	39.9%	42.0%	37.3%
Transportation & Communications	5.4%	5.2%	5.5%
Plan to Expand	11.9%	14.4%	9.0%
Observations	25,558	15,558	10,000

All values converted to December 2001 Mexican pesos using the CPI and converted to US dollars using the December 30, 2001 exchange rate of 9.16 pesos per US$.

Table 3: Expansion and Other Variables

Population weighted averages	Expansion Plans	No Expansion Plans	Significance of Expansion Plans Coefficient
Working Capital Investment [1]			
Average	3,570	2,434	***
Moved to a Fixed Location			
One quarter after	23.17%	20.90%	**
Two quarters after	27.02%	23.60%	***
Three quarters after	22.37%	24.10%	
Change in employees			
One quarter after	8.50%	6.60%	***
Two quarters after	8.10%	7.30%	
Three quarters after	10.20%	6.50%	***
Exits self-employment			
One quarter after	23.08%	22.70%	
Two quarters after	23.17%	24.70%	
Three quarters after	19.87%	26.20%	***
Income growth (%change)			
One quarter after	2.39%	2.15%	
Two quarters after	29.08%	3.08%	***
Three quarters after	26.73%	-3.27%	***
Observations			
One quarter after	2044	17998	
Two quarters after	1532	13253	
Three quarters after	995	8617	

***, **, *; Difference significant at the 1%, 5%, or 10% level

[1] Working capital investment includes investment in primary materials, packaging, merchandise and products for sale. Values in December 2001 Mexican pesos using the CPI and converted to US dollars using the December 30, 2001 exchange rate of 9.16 pesos per US$.

Table 4: Crime Rates

Population weighted state level averages, for urban areas	2004	2008
Home Robbery	2.75%	2.33%
Min	0.54%	1.06%
Max	7.63%	4.37%
Partial Vehicle Robbery	1.89%	5.18%
Min	0.47%	0.91%
Max	4.47%	10.54%
Full Vehicle Robbery	0.57%	0.83%
Min	0.00%	0.00%
Max	3.71%	3.38%
Physical Assault	1.08%	0.41%
Min	0.04%	0.05%
Max	2.50%	1.77%
Sexual Assault	0.25%	0.11%
Min	0.00%	0.00%
Max	0.97%	0.33%
Homicide (per 100,000)	28.5	28.0
Min	9.0	14.0
Max	56.0	70.0
Mugging	3.77%	3.35%
Min	1.03%	0.59%
Max	12.1%	9.49%
Last home robbery reported	30.4%	33.6%
Min	4.14%	1.02%
Max	53.93%	68.55%

Correlations	Home Rob	PartVehRob	Full VehRob	PhyAssault	SexAssault
Home Robbery	1.0000				
Partial Vehicle Robbery	0.1055	1.000			
Full Vehicle Robbery	0.3328	0.3479	1.000		
Physical Assault	0.2022	-0.3339	-0.0676	1.000	
Sexual Assault	0.0465	-0.0987	-0.1367	0.3236	1.000

Population weighted averages by state. Source for home robbery, partial vehicle robbery, full vehicle robbery, physical assault, and sexual assult, ENSI. Values are percent of adults age 18 or older living in urban areas of the state who report were victims of a specific crime at least once last year. Source of homicide data, ICESI.

Table 5: Expansion Plans

	Full Sample					
EXPANSION	(1)	(2)	(3)	(4)	(5)	(6)
Home Robbery	-0.984***	-1.010***	-0.958**	-0.956***	-1.057***	
	(0.296)	(0.314)	(0.381)	(0.291)	(0.336)	
Homicide		0.002	0.001	0.005	0.002	
		(0.004)	(0.004)	(0.004)	(0.004)	
Physical Assault		-0.319				
		(0.986)				
Sexual Assault			-2.039			
			(2.140)			
Mugging				-0.762**		
				(0.309)		
Vehide Robbery					-0.037	
					(0.288)	
Transport x Home Robbery						-2.460
						(2.037)
Non-transport x Home Robbery						-0.960***
						(0.360)
Transport x Vehide Robbery						-1.197
						(0.828)
Non-transport x VehideRob						-0.063
						(0.294)
Transport x Homicide						-0.038**
						(0.015)
Non-transport x Homicide						0.003
						(0.005)
Real GDP per capita		0.001	0.001	0.001	0.001	0.001
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment in Q4 of year		-0.000	0.001	-0.005	-0.001	-0.001
		(0.009)	(0.007)	(0.009)	(0.009)	(0.010)
Average years education, adults		0.016	0.043	0.129	0.003	0.026
		(0.089)	(0.086)	(0.088)	(0.087)	(0.099)
% population, men age 16-19		12.648	12.528	19.003	11.785	13.565
		(10.383)	(9.979)	(12.556)	(10.284)	(10.574)
Judicial efficiency		-0.013	-0.009	-0.010	-0.013	-0.012
		(0.030)	(0.027)	(0.029)	(0.028)	(0.028)
Support of public forces		-0.002	0.003	-0.018	-0.001	-0.003
		(0.013)	(0.016)	(0.012)	(0.014)	(0.014)
Observations	25,527	25,520	25,520	25,520	25,520	25,527

Coefficients are average marginal effects from a probit model. Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1 Estimated using survey weights, standard errors clustered by state
Other controls include gender, education, experience, experience squared, industry, year and state fixed effects
Linear projection for 2001 crime rates. Homicides rescaled to # per 1million inhabitants

Table 6: Income Growth

Dependent Variable	Income growth Q1-Q4		Income growth in top 50%		Income growth in top 5%			Move to Fixed Location (by Q4)	Exit Self-Employment (by Q4)
Model	OLS		Probit		Probit			Probit	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Home Robbery	-3.898**	-0.740	-3.934**	-1.884	-7.067**	-4.812		-1.272**	0.470
	(1.668)	(2.941)	(1.603)	(2.457)	(2.864)	(3.103)		(0.535)	(0.819)
Vehide Robbery		1.623		-0.542		2.271			
		(1.110)		(1.034)		(1.583)			
Transport x Home Robbery							-0.235		
							(0.726)		
Non-transport x Home Robbery							-0.483		
							(0.323)		
Transport x Vehide Robbery							-0.718**		
							(0.342)		
Non-transport x VehideRob							0.263		
							(0.171)		
Transport x Homicide							0.009		
							(0.012)		
Non-transport x Homicide							0.014***		
							(0.005)		
Observations	7,211	7,211	7,207	7,207	7,176	7,176	7,211	9,596	8,288

Coefficients are average marginal effects from a probit model. Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1 Estimated using survey weights, standard errors dustered by state

Controls indude gender, education, experience, experience squared, state-year unemployment, real GDP per capita, average adult education, percent male age 16-19, ITAM local institutions measures, homicides, physical assaults, state, year and industry fixed effects. Linear project for 2001 crme rates. Homicides rescales to # per 1 million inhabitants

Table 7: Selection Effects

Expansion Plans	Secondary Education or Above	Entered Entrepreneurship from Salaried work	Monthly Income higher than mean salaried	Entered entrepreneurship to increase income or family tradition	Enterprise has Any Employees	Born in Same City (Non-migrants)
	(1)	(2)	(3)	(4)	(5)	(6)
Home robbery	-1.336***	-1.131***	-0.940***	-1.428***	-1.941***	-0.974***
	(0.413)	(0.371)	(0.276)	(0.432)	(0.379)	(0.324)
Observations	15,513	11,994	10,331	6,878	6,295	10,576

Coefficients are average marginal effects from a probit model.
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Estimated using survey weights, standard errors clustered by state
Controls include gender, education, experience, experience squared, state-year unemployment, real GDP per capita, average adult education, percentage male age 16-19, ITAM local institutions measures, homicides, physical assaults, state, year and industry fixed effects.
Linear project for 2001 crime rates. Homicides rescales to # per 1 million inhabitants

Table 8: Reverse causality channels

Dependent variable	Taken precautions		Changed night behavior	Changed visit behavior	Changed public transport use	Home Robbery		Vehicle Robbery	Assault	Perceptions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Informant is self employed	0.023***	-0.014	0.019	0.028	0.006	0.010***	0.023**	0.023***	0.001	0.008
	(0.005)	(0.018)	(0.020)	(0.016)	(0.018)	(0.003)	(0.007)	(0.005)	(0.001)	(0.008)
Informant has secondary education	0.127***	0.128***	0.022***	-0.008	0.011**	0.010***	0.010***	0.039***	-0.000	0.016**
	(0.004)	(0.004)	(0.006)	(0.006)	(0.004)	(0.002)	(0.002)	(0.002)	(0.001)	(0.006)
Informant has tertiary education	0.295***	0.296***	0.032***	-0.015	0.021*	0.018***	0.018***	0.077***	-0.001	0.000
	(0.006)	(0.006)	(0.010)	(0.008)	(0.010)	(0.002)	(0.002)	(0.004)	(0.001)	(0.010)
Self employed X secondary education	0.017	0.050	-0.033	-0.006	-0.001	0.001	-0.007	0.002	0.002	-0.007
	(0.009)	(0.032)	(0.029)	(0.025)	(0.027)	(0.003)	(0.005)	(0.005)	(0.002)	(0.011)
Self employed X tertiary education	0.020	0.051	-0.050	-0.040	-0.024	0.003	-0.009	-0.010**	0.002	-0.022*
	(0.010)	(0.026)	(0.034)	(0.023)	(0.024)	(0.004)	(0.006)	(0.004)	(0.002)	(0.011)
Self employed X credit constrained		0.284*	-0.269	-0.202	-0.040		-0.088			
		(0.127)	(0.140)	(0.115)	(0.115)		(0.048)			
Self employed X sec. ed. X credit constrained		-0.232	0.341	0.126	0.062		0.072			
		(0.189)	(0.186)	(0.175)	(0.167)		(0.048)			
Self employed X ter. ed. X credit constrained		-0.215	0.397	0.283	0.129		0.112			
		(0.143)	(0.276)	(0.190)	(0.184)		(0.064)			
Observations	87,404	84,331	84,331	84,331	84,331	87,404	84,331	84,331	84,331	84,331

Standard errors in parentheses clustered by state
*** p<0.001, ** p<0.01, * p<0.05

Table 9: Channels

EXPANSION	Entrepreneurs Robbed	Income Growth						Credit
	in 2008 Removed	One Quarter Later		Two Quarters Later		Three Quarters Later		Constraints
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Home robbery	-0.955***							-0.995***
	(0.316)							(0.314)
Entrepreneur robbed		-0.003	-0.034	-0.096	-0.131	0.082	0.030	
		(0.077)	(0.076)	(0.104)	(0.126)	(0.207)	(0.191)	
Use Credit								0.045**
								(0.019)
Home robbery*								-0.432
Use Credit								(0.726)
Controls	Yes	No	Yes	No	Yes	No	Yes	Yes
Observations	24,123	8,060	8,058	5,795	5,793	3,729	3,727	25,520

Coefficients are average marginal effects from a probit model *** p<0.01, ** p<0.05, * p<0.1
Estimated using survey weights, standard errors clustered by state in parentheses
Controls include gender, education, experience, state-year unemployment, real GDP per capita, average adult education, percentage male age 16-19, ITAM local institutions measures, homicides, physical assault incidence, state, year and industry fixed effects.
Linear projection for 2001 crime rates. Homicides rescaled to # per 1 million inhabitants

Table 10: Robustness Checks

EXPANSION	Removing States				Alternative Measures of Institutions				Plan to Continue	
	Mexico City	Border	Drug entry	Drug death[1]	Report	Perception	SARE offices	SAREmonths	Expansion	No Plans
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Home robbery	-0.828***	-1.010**	-1.376***	-0.808*	-0.972***	-0.995***	-0.955**	-0.914**	-1.154***	1.138
	(0.252)	(0.420)	(0.313)	(0.431)	(0.258)	(0.362)	(0.388)	(0.420)	(0.358)	(0.852)
Robbery reporting rate					-0.039					
					(0.040)					
Perception state insecure						-0.003				
						(0.057)				
SARE, # offices							0.001			
							(0.002)			
SARE, months open								0.000		
								(0.000)		
Observations	24,621	20,920	19,450	20,997	25,520	25,520	25,520	25,520	23,526	23,532

Coefficients are average marginal effects from a probit model *** p<0.01, ** p<0.05, * p<0.1

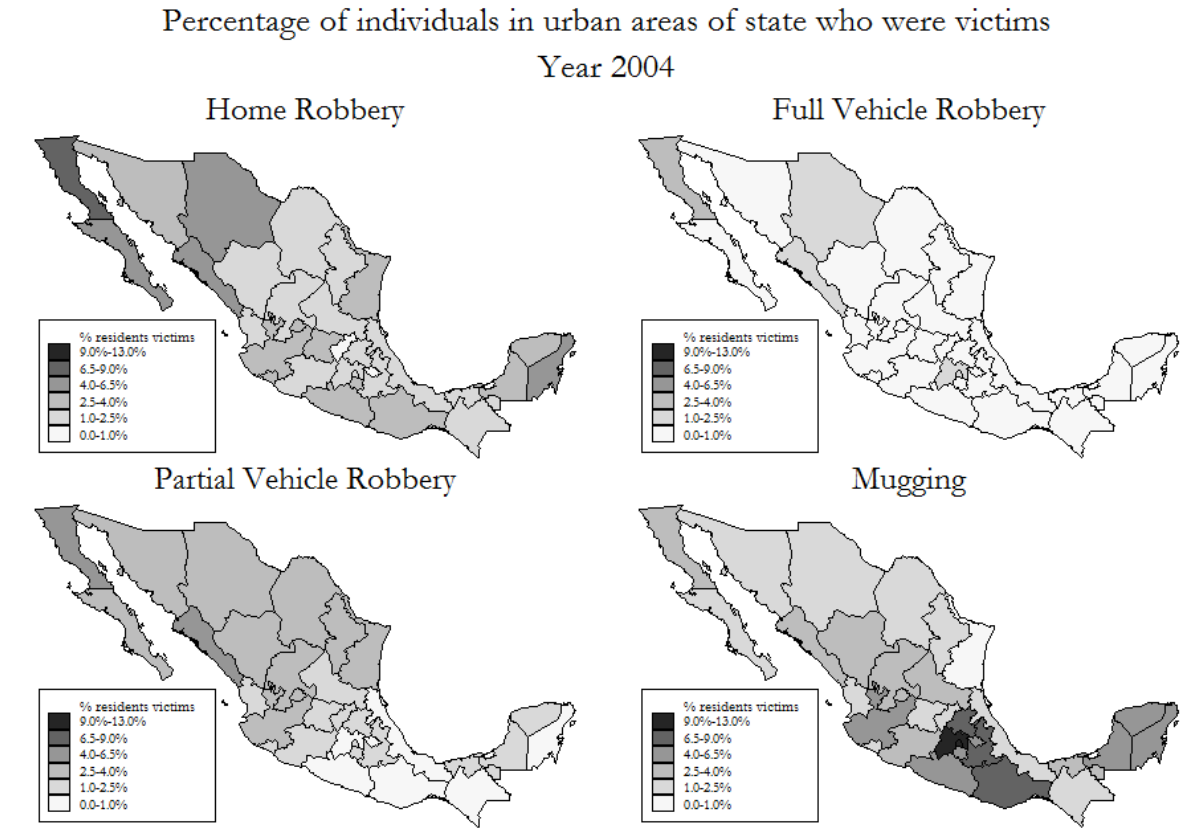
Estimated using survey weights, standard errors clustered by state in parentheses

Controls include gender, education, experience, state-year unemployment, real GDP per capita, average adult education, percentage male age 16-19, ITAM local institutions measures, homicides, physical assault incidence, state, year and industry fixed effects.

Linear projection for 2001 crime rates. Homicides rescaled to # per 1 million inhabitants

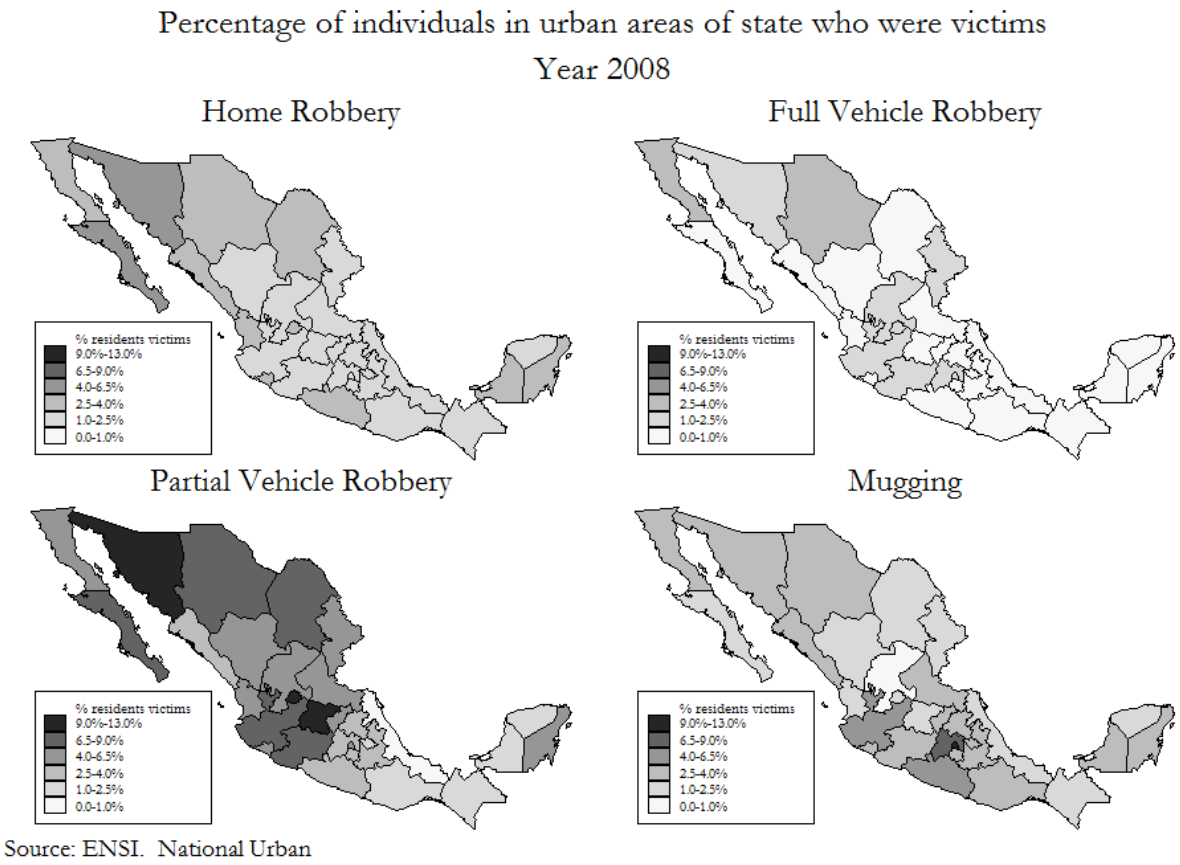
[1] Drug death states are those with highest drug-related deaths in 2009: Baja California, Chihuahua, Durango, Guerrero, Michoacan and Sinaloa, Data from the Crime Indicator Database for the Justice in Mexico Project at the Trans-Border Institute.

Figure 1A: Percentage of individuals in urban areas of state who were victimized, by crime type



Source: ENSI. National Urban

Figure 1B: Percentage of individuals in urban areas of state who were victimized, by crime type



Source: ENSI. National Urban