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<http://dx.doi.org/10.1016/j.worlddev.2013.10.020>

Crime and Microenterprise Growth: Evidence from Mexico

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Summary.— 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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Key words — microenterprises, crime, Latin America, Mexico

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, & Woodruff, 2011), savings constraints, and self-control problems (Fafchamps, McKenzie, Quinn, & Woodruff, 2011), labor constraints (de Mel, McKenzie, & Woodruff, 2010; Emran, Morshed, & Stiglitz, 2011), and skill constraints (Bruhn, Karlan, & Schoar, 2010; Drexler, Fischer, & Schoar, in press; Karlan & Valdivia, 2011). 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 (de Soto, 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 (Clarke, 2011; Fjelstad, Kolsstad, & Nygaard, 2006; Francisco & Pontara, 2007; Hallward-Dreimeier, 2009; Safavian, Graham, & Gonzalez-Vega, 2001). 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. This average estimated loss—equal to 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 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 crime. 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

* We are grateful to Juan Trejo of INEGI for assistance with the ENAMIN, ENEU, and ENOE data and to Catalina Palmer of ICESI for assistance with the ENSI data. We are also grateful to Roger Betancourt, participants in the Mellon 23 Workshop on Economic History and Development, the Australasian Development Economics Workshop, Fordham University, Vassar College, Lafayette College, Colorado College, Hunter College, University of New South Wales, the America Latina Crime and Policy Network Meeting, University of Melbourne, University of Sydney and the Millennium Challenge Corporation for comments. All remaining errors are our own. Final revision accepted: October 14, 2013.

Table 1. *Urban microentrepreneurs 2008*

	All firms	More established firms		
		Has any employees	Has used credit	Enterprise formal
<i>Victim of given crime in past year</i>				
Fines/bribes	8.14%	10.66%	14.45%	11.42%
Robbery	9.58%	14.92%	16.99%	14.05%
Private extortion	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%
<i>Of victims of given crime, estimated loss/monthly profits</i>				
Fines/bribes	0.53 (2.19)	0.48 (2.36)	0.97 (3.17)	0.73 (3.06)
Robbery	1.72 (7.34)	1.07 (2.68)	4.18 (15.60)	2.43 (10.15)
Private extortion	0.56 (1.32)	0.89 (1.49)	0.47 (0.84)	0.47 (1.24)
Fraud	0.62 (4.50)	0.45 (1.42)	0.35 (0.87)	0.68 (6.15)
Natural causes/accident	0.90 (2.24)	0.89 (2.62)	0.93 (1.68)	0.88 (1.88)
<i>Of victims of given crime, % who reported to authorities</i>				
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	4339	1988	5959

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.

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 microenterprises will expand their operations. We also find that microenterprises in states with rising robbery rates are much less likely to experience income growth or move to fixed locations 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-specific crime, such as mugging, that do not reflect expropriation risks for enterprise assets but may constitute income shocks for customers.

We 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 institutional changes to simultaneously determine robbery rates and microenterprise behavior. We include numerous controls and find that our results are robust throughout. Overall, we view our results as providing strong evidence that property crimes likely 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

(a) *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 and Geographic Institute.¹ We restrict attention to the two most recent ENAMIN surveys, conducted in 2002 and 2008. We limit the 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 22% of enterprises in 2001 and 24% in 2008 had any employees other than the owner. 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.

To measure enterprise growth, ideally we would use changes in profits and investment in working and fixed capital.² This is not possible, however, because we do not have enterprise level

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