Communities in Mexico are reporting higher levels of stress and lower academic performance among students due to high levels of violence in their localities. Armed groups interfere with educational activities. For example, in a recent confrontation, gang members obstructed the administration of the national standardized ENLACE exam along the border between Jalisco and Michoacán. Current research by the Program on Poverty and Governance (PovGov) goes beyond the headlines to measure the impact that the violence in Mexico is having on human capital, particularly through education.

Mexico is experiencing its most violent period since the Mexican Revolution nearly 100 years ago: between December 2006 and December 2011, the country endured an estimated 50,000 drug-trafficking related homicides. Although the violence is still highly concentrated – over fifty percent of these homicides occurred in just one percent of Mexico’s municipalities – it is also spreading fast. The escalating violence in the country looks to have severe economic and social impacts in both the short and long term. In terms of education, violence leads to lower academic performance by increasing students’ stress levels, lowering attendance rates and causing students and teachers to migrate away from dangerous communities and sometimes out of the country. As a consequence, Mexican citizens will be less educated and less economically productive, which negatively affects the country’s productivity growth, innovation and ultimately economic development.

The purpose of PovGov’s research is to disentangle the effects of drug-related violence on the cognitive achievement of Mexican students. The program further seeks to understand the relationship between school drop-outs and violence as many of the perpetrators of drug and gang-related violence are teenagers, it is logical to connect drop-outs to drug cartel recruitment. Finally, we are investigating whether current policies targeting violence in schools are effective.
Initial Results

Human capital is a latent variable that is indirectly observable. To remedy this, PovGov uses student achievement via standardized test scores as an indirect measurement of human capital. So far, our research has shown that the effects of violence on human capital are substantial.

- Using panel data at the school level from 2007-2011, preliminary results show that a school in a municipality with high rates of drug-related violence may show national standardized test results in math of one standard deviation lower than the national average. These results are statistically significant for middle schools. To have a better perspective of the magnitude of these results we should consider that the difference between the average Mexican student and the rest of the OECD is about one standard deviation.

- Drug-related violence is spreading, which will likely increase the size of the harmed population. Figure 1 shows that organized-crime-related murders are increasing in number in each municipality and spreading to new ones. Children are most vulnerable when their municipality suffers from high levels of violence. These children do not perform as well in school, and we are investigating whether they are more likely to drop out and join organized crime.

- Another interesting result is the overlap between gang activity in the surroundings of the school and drug-related violence. Using data from contextual ENLACE questionnaires applied to school principals, we are able to map the municipalities with higher incidence of gang activity in the schools. There is a correlation between high gang activity near schools and high levels of violence, and we are collecting data to better understand the relationship and causality between the two.

Other short- and long-term effects can be experienced in ways that are not directly measured but can also be investigated using survey and qualitative techniques. For example, social cohesion might be disrupted because of violence thus reducing the capacity of a community to increase their social capital, interpersonal and institutional trust. Also, non-cognitive skills, like perseverance and consistency, might be affected. Recent research (Heckman and Krueger 2003) suggest that those skills

Figure 1: Increase in Drug Related Deaths, 2007-2010

Alarming Trends

In 2008, 34 percent of the schools in Mexico reported gang activities near their buildings. That number increased to 40 percent in 2010.

About 25 percent of the homicide registered in 2010 involved men between 14 and 24 years of age.
might be as important as cognitive skills captured by traditional tests for future success.\(^5\) In order to diagnose these other non-cognitive skills we plan to conduct extensive interviews and fieldwork across the most affected schools.

Violence is not only a threat to academic achievement. Over the last couple of years, there has been an increasing involvement of young men in organized crime. Large drug trafficking organizations utilize local gangs as local mercenaries and distributors. The increasing presence of gangs around schools is alarming, yet the growth of gangs is a consequence of a larger social problem. One of the main reasons why young people get involved with gangs is insufficient parental attention and the lack of a support network in their communities. Still worse is the fact that once an individual joins a gang, he or she is often neglected from further education and job opportunities. Identifying the most vulnerable schools and engaging their whole communities is key to preventing dropouts and reducing violence.

**Research Agenda**

Our initial findings lead us to conclude that policies targeting schools (and particularly middle schools) may have great effects on reducing organized crime and violence.

**Evaluate current programs targeting schools and the community**

The Mexican government has established several programs to target at-risk youth through schools (see inset). As far as we know, these sister programs have not yet been evaluated. Assessing their effectiveness will be essential for determining whether the government should expand, change, or eliminate the programs. One of the next steps in our research is to evaluate *Escuela Segura*, a program supporting parental and community involvement in schools.

Through proper statistical methods, we plan to evaluate whether *Escuela Segura* is having an impact by keeping

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*Students lie on the floor for protection during a shootout drill.*  
*Photo credit: Reuters*
kids in school, improving their educational attainment and test scores, discouraging the formation of gangs near schools, and ultimately helping them find jobs over joining criminal organizations. The data we have collected thus far allows us to answer all these questions. We also plan to use GIS mapping techniques to study the impact the program Espacios Recuperados has had on the dynamics of violence, focusing on several cities for which crime data at the neighborhood level can be found.

Policies oriented towards keeping students from violent municipalities in school can benefit both children and community. Keeping students in school could reduce violence in the mid- and long-term by keeping them occupied in safe activities and reducing their likelihood to join gangs and criminal groups. The focus of the research will remain on middle school students as there is as yet no observed significant effects on the test scores of primary school students. Theory and extensive empirical evidence also show that family and the community environment are very important for student achievement. Given that students who remain in school are negatively affected by violence, we are also interested in involving parents and the community to help secure that there is no drug-related activity inside the school.

Sources:

About the Program on Poverty and Governance

The Program on Poverty and Governance was established at Stanford University in 2010 to study the factors that affect good governance and poverty alleviation in developing countries. Poverty relief requires active government involvement in the provision of public services such as drinking water, healthcare, sanitation, education, roads, electricity, and public safety. Defective governance and failure to deliver public services constitute major impediments to the alleviation of poverty.

The program conducts empirical research and joins together experts from across the disciplines of political science, economics, law, medicine and education as they seek to understand the complex causal linkages between political institutions, the quality of governance, and developing societies’ capacities to meet basic human needs. It serves as a critical training ground for doctoral students, undergraduates and postdoctoral scholars, with an active outreach program of conferences and workshops in the U.S. and abroad.

Conceived in a broadly comparative international perspective, the Program is engaged in cross-national and field-based research projects, with a particular focus on Latin America and Mexico.

Led by Professor Beatriz Magaloni, with key collaborators from across Stanford, the University of California, San Diego and the Instituto Tecnológico Autónomo de México, the program’s studies are based on a multi-method research strategy that combines statistical and Geographic Information Systems (GIS) analyses using observational data, surveys, experimental designs, and in-depth ethnographic fieldwork.