The economic effects of violence and corruption
A research and action agenda for Mexico

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Outline

1. Violence in Mexico
2. Corruption in Mexico
3. The Costs of Violence and Corruption in Mexico
4. Actionable measures
1. Mexico’s Violence

The extent of the problem
From 2007 to 2010, homicides in Mexico doubled.
Map shows the distribution of homicide rates per 100,000 inhabitants in 2003. Source: INEGI
Map shows the distribution of homicide rates per 100,000 inhabitants in 2003. Source: INEGI
Homicides per year, Mexico 1997-2016

Year 2016 includes only until September. Source: SNSP, Homcidios dolosos del fuero estatal.
Why is Mexico violent?

Sometimes (and sometimes not)
Why is Mexico violent?

Drug cartels

Mexico has extensive presence of criminal groups

Drug-trafficking routes from Mexico to USA. Source: Stratford 2013.
Why is Mexico violent?

Drug cartels fighting one another

Graph shows the number of municipalities where criminal organizations operate according to whether these are monopolistic (non-rivalry) or competitive (rivalry). See Coscia, Michele, and Viridiana Rios. "Knowing where and how criminal organizations operate using web content." Proceedings of the 21st ACM international conference on Information and knowledge management. ACM, 2012.
Why is Mexico violent?

Drug cartels fighting one another as a reaction to enforcement operations

PERIODISTA MARTÍN LOPEZ DEL 91
TE VAMOS A MOCAR LA CABEZA AMI Y AMI HERMANO
POR APOYAR AL PATAS CORRER
Homicides per year, Mexico 1997-2016

Year 2016 includes only until September. Source: SNSP, Homcidios dolosos del fuero estatal (1997-2016)
And most of this violence can be explained by drug-related homicides.
Why is Mexico violent?

Drug cartels fighting one another as a reaction to enforcement operations conducted in politically uncoordinated areas (Rios 2012)

Big-Data constructed independent variable
Patterns of expansion differ greatly between cartels.

Graph shows the number of municipalities where Zeta Cartel operated in 1993 according to whether these are monopolistic (non-rivalry) or competitive (rivalry). See Coscia, Michele, and Viridiana Rios. "Knowing where and how criminal organizations operate using web content." Proceedings of the 21st ACM international conference on Information and knowledge management. ACM, 2012.
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Violence diminished in states that managed to coordinate a security strategy with the federation.
2. Mexico’s Corruption

The extent of the problem
Corruption is pervasive

- 44% of Mexican firms pay bribes
- It is estimated that 200 million cases of corruption happen every year in Mexico
- $1.7B USD are paid in bribes in Mexico every year
- 4% of the average construction contract value is spent in bribes

14% of Mexicans’ income is spent in bribes.

Mexicans distrust authorities

Percentage who believe authorities are corrupt:

- Transite Police: 78%
- Investigative Police: 65%
- Local Police: 67%
- Judges: 66%
- General Attorneys: 65%

Source: ENVIPE 2015; slide designed by IMCO.
Mexicans distrust authorities

Do you think authorities follow the law?*

- Never: 4.6%
- Sometimes: 70.6%
- Often: 24.9%

*Do not consider 16% who did not answer the question.

Where is corruption more common?

<table>
<thead>
<tr>
<th>ACTION</th>
<th>CORRUPTION INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding a traffic ticket</td>
<td>68</td>
</tr>
<tr>
<td>Parking in a prohibited place</td>
<td>60.9</td>
</tr>
<tr>
<td>Avoiding seizure and impounding of motor vehicle</td>
<td>59.6</td>
</tr>
<tr>
<td>Introducing merchandise through customs</td>
<td>28.3</td>
</tr>
<tr>
<td>Recovering a stolen car</td>
<td>24.6</td>
</tr>
<tr>
<td>Avoiding criminal detention</td>
<td>23.2</td>
</tr>
<tr>
<td>Performing street vending</td>
<td>22.9</td>
</tr>
<tr>
<td>Getting trash collected</td>
<td>21.9</td>
</tr>
<tr>
<td>Getting water distributed</td>
<td>15.3</td>
</tr>
<tr>
<td>Initiating a judicial process</td>
<td>14.7</td>
</tr>
<tr>
<td>Obtaining construction permits</td>
<td>13</td>
</tr>
</tbody>
</table>

State level corruption

The incidence is calculated corruption acts by 100,000 inhabitants (18 years or older that had contact with a public official). Gray if no data.


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State level corruption

Incidence rate of corruption 2015
- x > 30,000
- 30,000 ≥ x > 20,000
- 20,000 ≥ x > 10,000
- x ≤ 10,000

The incidence is calculated corruption acts by 100,000 inhabitants (18 years or older that had contact with a public official). Gray if no data. Source: INEGI (2015) “Encuesta Nacional de Calidad e Impacto Gubernamental”. 
Share of policemen failing integrity testings

Source: Sistema Nacional de Seguridad Pública (SNSP)
Mexico is more corrupt than 57% of the world

95 of 168 countries

Mexico more corrupt than 57% of the world

Corruption Perception Index over time

Country's rank indicating its position relative to other countries in the corruption perception index

Why Is Mexico Corrupt?
THE “IT IS CONVENIENT” EXCUSE:

Red Tape
57%
Use “facilitators” to obtain information and privileged access

Opportunity
45%
Have given bribes in order to get a government contract

Advantage
34%
Argue it is impossible to have a successful business without political connections.

Source: Rodríguez Arregui, Emprendedurismo y Corrupción (2015); slide designed by IMCO
THE “IT IS BUSINESS AS USUAL” EXCUSE

63% of businessmen consider corruption to be “business as usual” in Mexico.

- Absolutely agree: 43%
- Agree: 18%
- Does not agree or disagree: 21%
- Disagree: 5%
- Absolutely disagree: 11%

Fuente: Rodríguez Arregui, Emprendedurismo y Corrupción (2015); slide designed by IMCO
THE “NOTHING WILL HAPPEN” EXCUSE

33,090,263

CRIMES

1,681,077

COMPLAINTS BROUGHT TO AUTHORITIES

5% OF CRIMES RAISED TO AUTHORITIES

163,446

FORMAL CHARGES FILED

108,216

CONVICTED CRIMINALS

99.7% IMPUNITY

Source: México Unido Contra la Delincuencia (2013) with data of ENVIPE 2013; Slide designed by IMCO
“NOTHING WILL HAPPEN” IS INDEED AN EXCUSE

In the last 16 years, Mexican press has reported 272 cases of corruption by Mexican governors.

- **Charges Not Filed**: 91.7% (251 cases)
- **Charges Filed**: 8.3% (21 cases)

Source: Montes (2915) Pesos sin contrapesos: corrupción y gobiernos locales; Slide designed by IMCO
3.

The Costs of Violence and Corruption
Most problematic factors for doing business

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inefficient Government Bureaucracy</td>
<td>12.1</td>
</tr>
<tr>
<td>Crime and Theft</td>
<td>12.7</td>
</tr>
<tr>
<td>Corruption</td>
<td>22.5</td>
</tr>
<tr>
<td>Inadequate supply of infrastructure</td>
<td>6.7</td>
</tr>
<tr>
<td>Access to financing</td>
<td>7</td>
</tr>
<tr>
<td>Tax regulations</td>
<td>8.6</td>
</tr>
<tr>
<td>Tax rates</td>
<td>9.4</td>
</tr>
<tr>
<td>Inadequately educated workforce</td>
<td>5.1</td>
</tr>
<tr>
<td>Restrictive labor regulations</td>
<td>4</td>
</tr>
<tr>
<td>Insufficient capacity to innovate</td>
<td>3.7</td>
</tr>
<tr>
<td>Policy instability</td>
<td>2.3</td>
</tr>
<tr>
<td>Inflation</td>
<td>1.7</td>
</tr>
<tr>
<td>Poor work ethic</td>
<td>1.6</td>
</tr>
<tr>
<td>Poor public health</td>
<td>1.2</td>
</tr>
<tr>
<td>Foreign currency regulations</td>
<td>0.7</td>
</tr>
<tr>
<td>Government instability</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Note: From the list of factors, respondents to the WEF’s Executive Opinions Survey were asked to select the five more problematic factors for doing business in their country and to rank them between 1 (most problematic) and 5. The score corresponds to the responses weighted according to their rankings. Source: The Global Competitiveness Report 2016-2017 (WEF)
Public security as an obstacle for growth

Source: México ¿Cómo vamos? from “Encuesta sobre las expectativas de los especialistas en economía en el sector privado” BANXICO
Empirical specifications

**Independent Variable** Regression

\[ D_{ij} = \beta_o + \sum_{k}^{\infty} \beta_k \ln(V_{ijk}) + \sum_{l}^{\infty} \beta_l C_{ijl} + \ldots + e_{ij} \]

\[ \ln(V_{ijk}) = \alpha_o + \sum_{k}^{\infty} \alpha_k I_{ijk} + \sum_{l}^{\infty} \alpha_l K_{ijl} + \ldots + u_{ij} \]

Following related literature, we instrument with the log of lagged homicides. Robustness tests were conducted having a dummy for drug-producing states as instrument.
Results

Table 5: Instrumental Variables, Several Dependent Variables, Homicidios

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Concentration A (1)</th>
<th>Concentration B (2)</th>
<th>Diversity A (3)</th>
<th>Diversity B (4)</th>
<th>Complexity A (5)</th>
<th>Complexity B (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homicide Rate</td>
<td>605.835***</td>
<td>249.560***</td>
<td>-0.914***</td>
<td>-0.549***</td>
<td>-0.242***</td>
<td>-0.220***</td>
</tr>
<tr>
<td></td>
<td>(11.927)</td>
<td>(12.844)</td>
<td>(0.017)</td>
<td>(0.018)</td>
<td>(0.007)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Added Value</td>
<td>-11.567***</td>
<td>-5.301**</td>
<td>0.001</td>
<td>0.005</td>
<td>0.002*</td>
<td>0.0001</td>
</tr>
<tr>
<td></td>
<td>(2.268)</td>
<td>(2.443)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Worked Hours</td>
<td>3.638</td>
<td>-12.115</td>
<td>-0.067***</td>
<td>-0.029**</td>
<td>0.006</td>
<td>-0.0003</td>
</tr>
<tr>
<td></td>
<td>(7.561)</td>
<td>(8.142)</td>
<td>(0.011)</td>
<td>(0.011)</td>
<td>(0.004)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Employment</td>
<td>-89.326***</td>
<td>-47.959***</td>
<td>0.302***</td>
<td>0.196***</td>
<td>0.031***</td>
<td>0.043***</td>
</tr>
<tr>
<td></td>
<td>(8.978)</td>
<td>(9.668)</td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.005)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Border Distance</td>
<td>-0.336***</td>
<td>-0.107**</td>
<td>0.001***</td>
<td>0.001***</td>
<td>-0.0004***</td>
<td>-0.00004</td>
</tr>
<tr>
<td></td>
<td>(0.048)</td>
<td>(0.052)</td>
<td>(0.0001)</td>
<td>(0.0001)</td>
<td>(0.00003)</td>
<td>(0.00003)</td>
</tr>
<tr>
<td>Constant</td>
<td>2,727.058***</td>
<td>3,482.636***</td>
<td>6.118***</td>
<td>5.899***</td>
<td>1.317***</td>
<td>0.941***</td>
</tr>
<tr>
<td></td>
<td>(82.162)</td>
<td>(88.479)</td>
<td>(0.117)</td>
<td>(0.123)</td>
<td>(0.046)</td>
<td>(0.049)</td>
</tr>
<tr>
<td>Observations</td>
<td>109,641</td>
<td>109,641</td>
<td>109,641</td>
<td>109,641</td>
<td>109,641</td>
<td>109,641</td>
</tr>
</tbody>
</table>

Note: *p<0.1; **p<0.05; ***p<0.01

2SLS specification, fixed effects by state, year and sector. Dependent variable is the rate of homicides loged. Instrument is average homicide rate during the nineties (logged). Dependent variable is (1) herfindahl-hirschman index (HH) of added value, (2) HH of total gross production, (3) diversity as calculated by Haussam & Hidalgo (2014) using added value, (4) diversity using gross production, (5) complexity as calculated by Haussam & Hidalgo (2014) using added value, and (6) complexity using gross production. An increase of 9.3% in the rates of homicides reduces concentration by 57.7, diversity by 0.87 and complexity by 0.23.
Results

Table 6: Instrumental Variables, Several Dependent Variables, Cartels

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Concentration A</th>
<th>Concentration B</th>
<th>Diversity A</th>
<th>Diversity B</th>
<th>Complexity A</th>
<th>Complexity B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>Criminal Org</td>
<td>8,551.101***</td>
<td>4,366.805***</td>
<td>-10.707***</td>
<td>-7.883***</td>
<td>-1.876***</td>
<td>-1.646***</td>
</tr>
<tr>
<td></td>
<td>(652.076)</td>
<td>(338.406)</td>
<td>(0.770)</td>
<td>(0.586)</td>
<td>(0.151)</td>
<td>(0.140)</td>
</tr>
<tr>
<td>Added Value</td>
<td>76.372***</td>
<td>37.542***</td>
<td>-0.104***</td>
<td>-0.071***</td>
<td>-0.017***</td>
<td>-0.017***</td>
</tr>
<tr>
<td></td>
<td>(11.785)</td>
<td>(6.406)</td>
<td>(0.015)</td>
<td>(0.011)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Worked Hours</td>
<td>-373.105***</td>
<td>-224.217***</td>
<td>0.469***</td>
<td>0.375***</td>
<td>0.113***</td>
<td>0.099***</td>
</tr>
<tr>
<td></td>
<td>(38.814)</td>
<td>(21.445)</td>
<td>(0.049)</td>
<td>(0.037)</td>
<td>(0.010)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Employment</td>
<td>-1,264.921***</td>
<td>-627.952***</td>
<td>1.769***</td>
<td>1.254***</td>
<td>0.285***</td>
<td>0.266***</td>
</tr>
<tr>
<td></td>
<td>(100.398)</td>
<td>(53.009)</td>
<td>(0.121)</td>
<td>(0.092)</td>
<td>(0.024)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Border Distance</td>
<td>0.649***</td>
<td>-0.001***</td>
<td>-0.001***</td>
<td>-0.001***</td>
<td>-0.001***</td>
<td>-0.0004***</td>
</tr>
<tr>
<td></td>
<td>(0.120)</td>
<td>(0.0003)</td>
<td>(0.0002)</td>
<td>(0.0001)</td>
<td>(0.0005)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4,931.417***</td>
<td>3,964.683***</td>
<td>4.222***</td>
<td>4.791***</td>
<td>0.691***</td>
<td>0.428***</td>
</tr>
<tr>
<td></td>
<td>(308.487)</td>
<td>(181.283)</td>
<td>(0.412)</td>
<td>(0.314)</td>
<td>(0.081)</td>
<td>(0.075)</td>
</tr>
<tr>
<td>Observations</td>
<td>145,820</td>
<td>145,820</td>
<td>145,820</td>
<td>145,820</td>
<td>145,820</td>
<td>145,820</td>
</tr>
</tbody>
</table>

Note: *p<0.1; **p<0.05; ***p<0.01

2SLS specification, fixed effects by state, year and sector. Dependent variable is number of criminal organizations operating in a municipality. Instrument is average homicide rate during the nineties (logged). Dependent variable is (1) herfindahl-hirschman index (HH) of added value, (2) HH of total gross production, (3) diversity as calculated by Haussam & Hidalgo (2014) using added value, (4) diversity using gross production, (5) complexity as calculated by Haussam & Hidalgo (2014) using added value, and (6) complexity using gross production.
Source: Author based on Rios (2015). The highest the value, the least such sector in affected by violence.
What we learned?

In addition to the impacts that crime has for the demand/supply of production factors, crime affects the composition of the economy. It reduced the number of sectors that remain on business, the diversity of subnational economies, and its complexity.

How much crime does it takes to make a sector disappear?
▷ 22.5% increase in homicide rates
▷ 9.8% increase in the number of operating criminal organizations.

Impact is larger if
▷ Homicides are caused by organized crime, rather than regular crime.
▷ Homicides affect rural areas.
The economic costs of corruption

- 5% less investment (FMI)
- Capital is 2% less productive per each point decrease in Corruption Index (IMCO)
- 5% less annual sales (Ernst & Young)
- 480,000 less jobs per year (CEESP)
- 9.7% less informal labor sector jobs per each point decrease in Corruption Index (Saracho-ICRG 2015)

THE ECONOMIC COSTS OF CORRUPTION

Estimated GDP losses: 2-10%

GDP 2015 = $18,136 billion pesos*

5% of GDP = $907 billion pesos

= 5X the benefits of fiscal reform
= 2.5X the expected benefits of the energy reform
= 7X the Federal Budget cut**

*Original serie, GDP at current prices (4Q-2015). If $17.81 MXN = $1 USD, Mexico’s GDP is $1,018 billion USD.

**Federal Budget cuts announced in 2016 were equivalent to 132 billion pesos (SHCP 2015, Press Release).

Source: Banco de Información Económica, INEGI (2015), World Bank & SHCP; slide designed by IMCO.
Corruption favors big, well-connected firms.

Patents per one million economically active individuals:

- 0-20: 139
- 20-40: 136
- 40-60: 547
- 60-80: 1,056
- 80-100: 1,555

Source: Saracho (2015); slide designed by IMCO
4. Actionable Measures
Actionable Measures

1. Communicate Strategically
**CREATE WELL-ENDOWED INSTITUTIONS**

<table>
<thead>
<tr>
<th>- HONG KONG -</th>
<th>- SINGAPORE -</th>
<th>- MEXICO -</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Commission Against Corruption (ICAC)</strong></td>
<td><strong>Corrupt Practices Investigation Bureau (CPIB)</strong></td>
<td><strong>Unidad Especializada en Investigación de Delitos Cometidos por Servidores Públicos y contra Administración de Justicia (PGR)</strong></td>
</tr>
<tr>
<td><strong>1,415 employees</strong></td>
<td><strong>88 employees</strong></td>
<td><strong>12 employees</strong></td>
</tr>
<tr>
<td><strong>2,006 million MXD</strong></td>
<td><strong>$406 million MXD</strong></td>
<td><strong>$26 million MXD</strong></td>
</tr>
<tr>
<td><strong>$120 MXD</strong></td>
<td><strong>$60 MXD</strong></td>
<td><strong>$0.05 MXD</strong></td>
</tr>
</tbody>
</table>

Source: Grandet y Jaury (2015) Lecciones internacionales del combate a la corrupción; slide designed by IMCO
Actionable Measures

1. Communicate Strategically
2. Establish Legal Frameworks
Civil society took over
#Ley3de3 is Mexico’s civil society war against corruption

10 types of corruption, following United Nations best practices

Protections for whistle blowers and incentives for confessors

Coordinates 96 official authorities that currently exist to fight corruption in Mexico.

Officials must declare assets and conflicts of interest, and make tax records public.
Actionable Measures

1. Communicate Strategically
2. Establish Legal Framework
3. Create Institutions
Committee of Citizen Participation

- *Government Accountability Office (ASF)
- *Anti-Corruption General Attorney Office
- *Federal Tribunal of Administrative Justice (TFJA)
- *Ministry of Public Administration (SFP)
- National Institute of Access to Public Information (INAI)
- Judiciary Council (Consejo de la Judicatura)
Thanks!

Questions?

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