

GETTING BETTER?

Mapping changes in homicide, rape, extortion, and kidnappings in Mexico 2012 to 2015

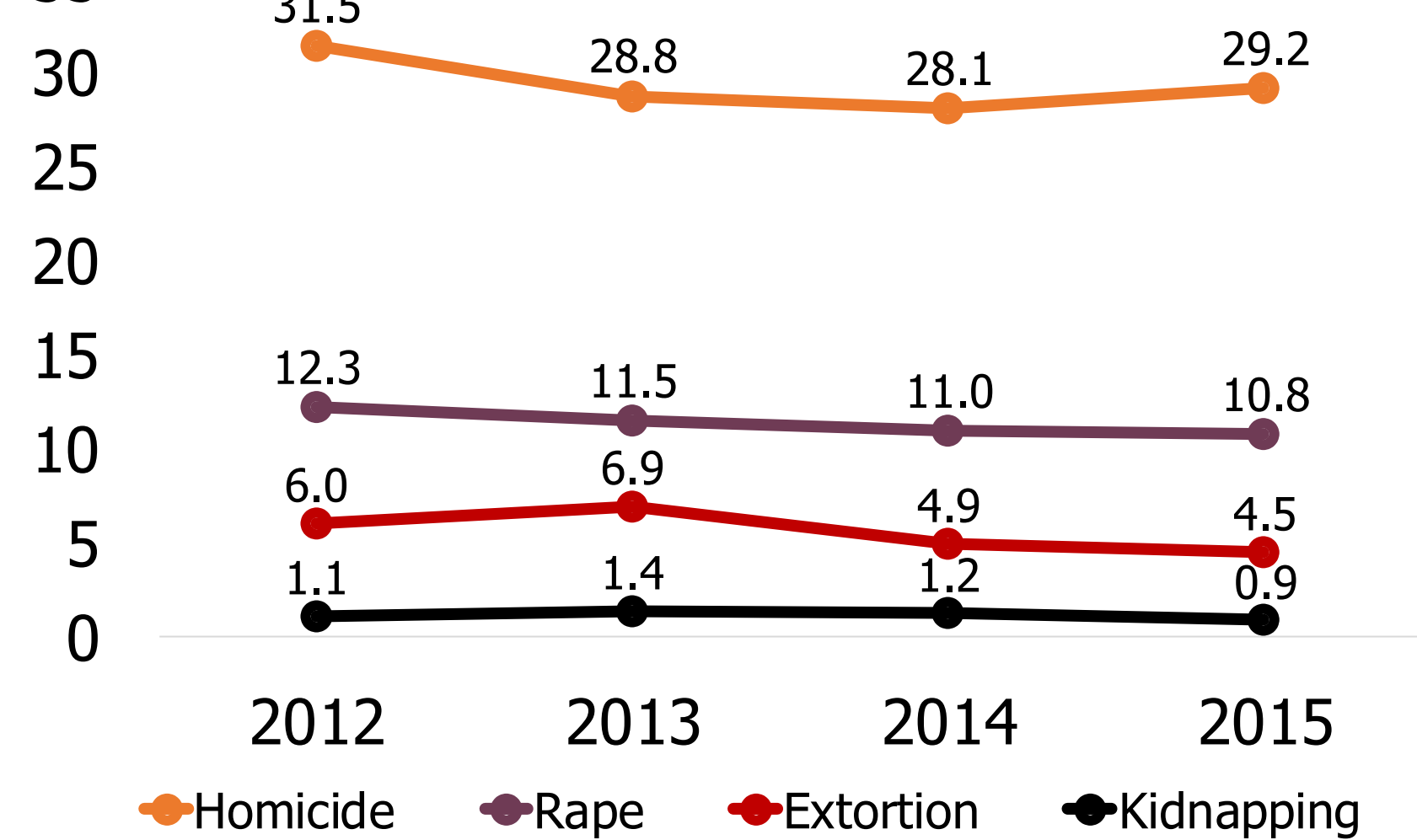
Introduction

Since 2006, Mexico has been immersed in a security crisis due to increased levels of drug-related crimes. Many things have changed since the beginning of the so-called War on Organized Crime. Some criminal organizations have lost power and others have gained it. Others might have splintered or coalesced.

Analyzing changes in certain crimes (especially those associated with drug-trafficking and criminal organizations) may hint to the underlying changes of power dynamics within the country.

Official data shows that crime is decreasing, but this is not true everywhere across Mexico.

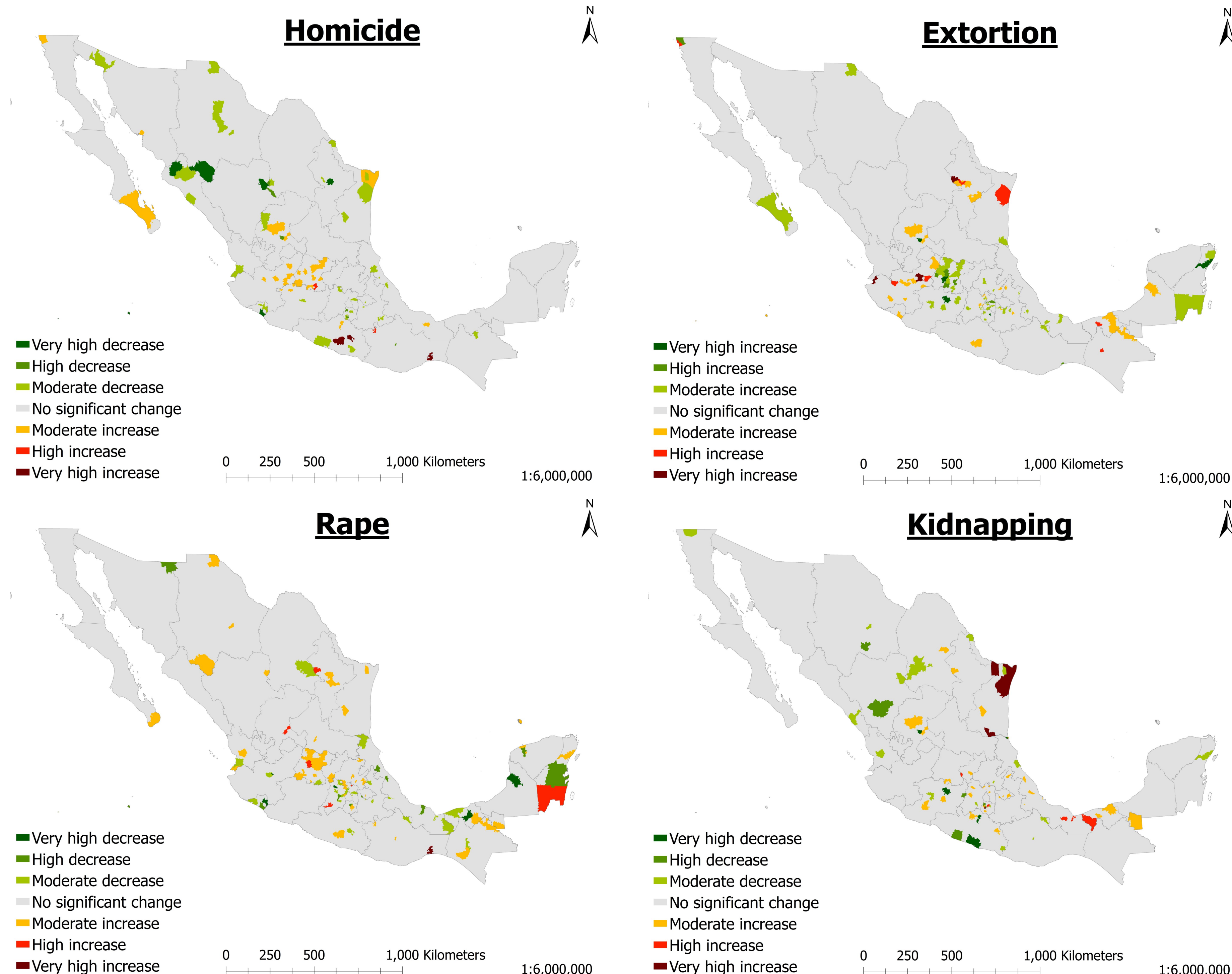
**Crime rates by 100,00 inhabitants
2012-2015**



Mapping Crime

This project examines the changes in rates of reported crimes by county, between 2012 and 2015. It focuses on four different crimes: **homicide**, **rape**, **extortion**, and **kidnapping**, which are used as an approximation of the safety that inhabitants of a particular county may feel.

Change in rates by 100,000 inhabitants 2012 - 2015



Methodology

This project calculated the change between homicides, rapes, extortions, and kidnappings reported in 2015 and those reported in 2012. This dataset was then merged with geo-spatial data from the National Institute of Statistic and Geography (INEGI)'s 2010 census. Rate was calculated by dividing the number by 100,000 inhabitants.

Analysis

The significance of change was determined based on its deviation from the mean: within 1 standard deviation (SD), changes were considered to be **Not significant**; between 1 and 2 SDs, **Moderate**; within 2 and 3 SDs, **High**; and any change over 3 SDs away from the mean was considered **Very high**.

Limitations

The most concerning limitation for this project is data quality and reliability. Since it is based on police reports, it does not account for unreported crimes. Kidnapping, rape, and extortion are likely to be severely under-reported. Moreover, there are *many* missing values in the data, likely attributable to the fact that this information is gathered by municipal police forces. Bias in which counties have missing values for which crimes cannot be ruled out.

Results

Despite the overall decrease in all four crimes, several counties have experienced moderate to very high increases in rape, kidnapping, extortion, and homicide. These maps also highlight the spatial patterns of increases and decreases in crime and in-security across the country.

Change in rates 2012-2015

Crime	Mean	Standard Deviation (SD)
Homicide	-3.71624236	21.3363708
Rape	-1.39270611	8.05233682
Extortion	-0.965560321	5.42697384
Kidnapping	-0.125155223	2.0592214

**THE FLETCHER SCHOOL
OF LAW AND DIPLOMACY**

TUFTS UNIVERSITY

Cartographer: Hector Antonio Portillo, MALD '16.

Date: May 9, 2016

Projection: NAD 1983 UTM Zone 13N (Traverse Mercator)

Sources: INEGI, SESNSP, Diego Valle-Jones' blog

Course: DHP P207 GIS for International Applications