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The Rational Choice Theory and Mexican Drug Activity

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Abstract As violence has increased along the US-Mexico Border, politicians in both the United States and Mexico have executed a sustained anti-drug campaign aimed at seizing bulk amounts of narcotics and arresting known drug kingpins. While U.S. and Mexican law enforcement agencies have been successful in interdicting drug shipments and capturing drug traffickers, the violence has continued unabated and large amounts of drugs continue to be sold on the streets of American cities nationwide. Given the lucrative nature of the drug trade and relatively poor economic conditions in many border cities, some observers have speculated that a large percentage of inhabitants residing in these corridor cities actively support these drug trafficking organizations. Consistent with Edwin Sutherland's Rational Choice Theory, the author hypothesized that there would be a strong positive correlation between unemployment rates in Northern Mexican cities that traditionally serve as smuggling corridors, recorded homicides in these municipalities, and arrests for narcotics-related offenses. In addition, a strong inverse relationship will exist between Gross Domestic Product (GDP) per capita in these border cities and the cited crime indicators. A bivariate statistical analysis of available data produced mostly weak correlations between the selected economic indicators, homicides and arrests. While the study did not disprove the Rational Choice Theory as it applies to Mexican narco-violence, it didn't provide empirical evidence to support Sutherland's argument.

Keywords Drugs, Rational Choice Theory, Mexico, Edwin Sutherland

1. Introduction

From his inauguration in 2005 to the end of his presidency in 2012, Mexican President Felipe Calderon presided over one of the most violent periods in his country's history. Making good on one of his election promises, Calderon unleashed the country's military against drug trafficking organizations (DTO's) and other criminal gangs who usurped authority from local governments in the northern and western parts of the country. The result has been a brutal and sustained war between Mexico's security forces and the drug cartels. U.S. media outlets report daily violence from Northern Mexico, ranging from hit and run guerrilla strikes on police checkpoints to grenade attacks in shopping malls and beheadings in town squares[1]. Mexico's inability to curb drug-related violence has become so urgent that a recent report from the U.S. Joint Forces Command's 2008 Joint Operating Environment ranked America's neighbor to the south at the same level as Pakistan regarding the country's probability of becoming a failed state[2].

Along with the ongoing violence, Mexico has undergone a period of economic hardship over the last two decades. Shortly after the passage of the Northern American Free Trade Agreement (NAFTA) in 1994, Mexico experienced a dramatic devaluation of its currency over a relatively short period of time. Known as "El Error De Diciembre" or the Mexican Peso Crisis, the sudden crash of the peso was believed to be prompted by massive deficit spending and fraudulent lending practices on behalf of outgoing President Carlos Salinas de Gortari. In addition to President Gotari's questionable financial policies, the assassination of presidential candidate Louis Donaldo Colosio triggered a massive withdrawal of foreign currency reserves and resulted in general disinvestment from Mexico's fragile economy[3]. A wider crisis was eventually averted by a massive financial aid package on behalf of the U.S. Treasury, fellow NAFTA-signatory Canada, and the International Monetary Fund (IMF)[4].

While the Mexican economy eventually recovered and experienced a few years of growth, different economic sectors were significantly impacted by NAFTA and related legislation. Even before NAFTA was ratified, policymakers in Mexico anticipated a negative impact on domestic agriculture, which they felt would not be able to compete with the collectivized and industrialized farming sectors in the United States and Canada. Economists anticipated that "total farm employment in Mexico would decline by an estimated 800,000 workers" after the passage of NAFTA. While various Mexican presidential administrations promised assistance to farmers and ranchers to compete with duty-free imports, support was not ultimately granted due to austerity measures implemented by the Mexican Treasury shortly after the Peso Crisis. Through agriculture

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liberalization practices and farmland consolidation, many rural farmers found it hard to compete with large-scale and high-tech farming operations which specialized in "cash crops" intended for export. Researchers believe that Mexico's rural agricultural sector decreased from 8.1 million workers to 6.8 million workers from 1993 to 2003. Dwindling jobs prospects among Mexico's once strong agricultural sector prompted a period of massive urban migration during the late 1990's, with thousands, if not millions of people migrating to urban centers throughout the country. While many dispute NAFTA's role in the influx of urban migration, most agree that the treaty ushered in a period of industrialization; historically, most countries transitioning from an agricultural economy to a more industrialized economy experience a period of urban population growth[3].

Despite Mexico's economic woes, the country has enjoyed a very low unemployment rate. From 1991 to 1997, Mexico's average official unemployment rate was 3.7%. While the unemployment rate varies between different economic sectors and geographic areas, it's quite remarkable considering that the United States experienced 5.8% unemployment while Canada had 9.7% unemployment during a time of economic growth and stability[5]. Martin attributed the rosy unemployment figures to two phenomena that differentiate Mexico's economy from the post-industrial economies of its fellow NAFTA signatories. First, just as Mexico has experienced a period of internal resettlement and relocation, millions of Mexicans have fled unfavorable economic and social conditions through legal and illegal migration to other countries. Anywhere from twelve to fifteen million undocumented immigrants currently reside in the United States alone, the vast majority of them Mexican[6]. Individuals who may have otherwise remained unemployed in Mexico sought opportunities abroad and are not counted in the country's unemployment figures. Second, the figures produced by the Mexican Government do not account for participants in the country's "informal economy." Employment in the "informal economy" can range from legitimate part-time labor to wages earned by engaging in illegal activity. Those participating in the "informal economy" often do not seek government assistance, don't pay into the country's social security system, and don't declare their income to local or federal tax authorities. While it is unknown how many participate in the country's informal economy, economists believe that it is enough to have a significant impact on Mexico's overall unemployment figures[5].

Mexico's informal financial system has functioned as a nexus between the legitimate government-regulated economy and the underground economy. While many informal economy participants are involved in semi-legitimate business enterprises and part-time employment, a large portion take part in the drug trade. Killebrew estimates that as many as 450,000 Mexican citizens participate in the cultivation, production and trafficking of illegal substances. Drug sales are believed to account for as much as 5% of Mexico's Gross Domestic Product (GDP)[7]. While unemployment and poor economic conditions are just one of many variables that have impacted the growth of the drug trade, there is no denying that two decades of economic turbulence have greatly contributed to Mexico's current state of insecurity. And while many researchers have speculated about the impact of unemployment and poor economic performance on the drug trade and drug-related violence, few have attempted to analyze the correlation between the two phenomena.

2. Literature Review

Given the massive growth of the drug trade and associated violence in the presence of declining economic conditions in Northern Mexico, how, if at all, are these phenomena related? In terms of a criminological framework, a number of criminal justice scholars have attempted to analyze the violence that has plagued Mexico through the Social Conflict Theory, a modified version of the Routine Activities Theory, and the Rational Choice Model. While each paradigm seeks to describe the conflict from the perspective of class warfare or a lack of civic guardianship, one theme that has been repeated throughout much of the available literature is the erosion of state institutions throughout Mexico. In some of the poorest parts of Mexico, local, state and federal government institutions are almost nonexistent. From social welfare services to local hospitals to city councilmen and politicians, many towns and cities throughout Mexico lack basic government services and political representation. Even Mexico's local police departments and security services, which are often the most visible symbol of government control, are noticeably absent.

In his analysis, Manwaring described how in these ungoverned spaces, a criminal insurgency has taken root and slowly evolved over the course of several decades. In northern Mexico, the so called "Big Four Gangs" (the Juarez, Gulf, Sinaloa, and Tijuana cartels) did not materialize in a vacuum; these groups represent "generational gangs" with a forty and fifty year legacy that includes the membership of grandfathers, fathers, sons and grandsons. Manwaring believes that gang violence has progressed from low level crime and protection rackets (first generation) to black market smuggling of illegal goods and services (second generation) to asserting control over ungoverned territories or areas affected by political corruption (third generation). According to Manwaring, present-day cartels represent "third generation" street gangs. While groups at each tier are motivated by an entrepreneurial mindset and the need to control commercial markets, what distinguishes a third generation criminal syndicate from first and second generation organizations is how it outwardly challenges the sovereign control of the State. Instead of conforming to their environment, third generation criminal syndicates aim,

(1) to neutralize, control, depose, or replace an incumbent

government, (2) to control parts of a targeted country or sub-regions within a country and create autonomous enclaves that are sometimes called criminal free-states or para-states, and (3) in doing so, radically change the authoritative allocation of values (governance) in a targeted society to those of criminal leaders[8].

These third generation groups have accomplished their mission by simultaneously eroding Mexico's state institutions and attacking the country's democratic process. In the cartel's concerted campaign to undermine the rule of law, Mexico's police force and judiciary has been totally and utterly demoralized. Faced with the cartel's policy of "plata o plomo," police officers, prosecutors and judges have the choice of accepting bribes and working in concert with these organizations or facing the prospect of having their loved ones murdered or being assassinated themselves [9]. Law enforcement officers are so marginalized and corrupted by the cartels that Manwaring cites a story from Sinola where local officers actually assisted cartels by providing protection for drug and human trafficking operations[8]. With Mexico's criminal justice system under constant assault, the country's democratic values are at risk of being destroyed as well. Any politician that endorses a policy or belief counter to that of the cartels risks a gruesome and often public death. Freedom of speech is severely limited, as journalists who publish stories critical of DTO's have been silenced or assassinated. Manwaring has characterized Mexico as an "Anocratic state" or "a state that has the procedural features of democracy but retains the characteristics of an autocracy"[8].

In an environment devoid of central or regional government control, criminal justice researchers have speculated about why so many Mexicans appear to accept the presence of organized criminal networks or participate in these networks themselves. Some researchers believe that the current struggle represents something akin to Karl Marx's concept of "Class Warfare" and the Social Conflict Theory, where "the disadvantaged of large cities will challenge the established urban social order violently"[10]. In her article comparing and contrasting Mexico and Colombia's drug wars, Scherlen observed a number of socioeconomic indicators that could lend credence to this argument. While Mexico's official unemployment rate has been hovering around 3.5% for the last two decades, Scherlen cited statistics from the 2007 and 2008 United Nations Human Development Report in an effort to illustrate the current state of inequality. According to the report, Mexico's top richest 10% of the country are responsible for 40% of consumption, while the lowest 10% are responsible for 1.6% of all domestic consumption. In addition, Scherlen pointed to Mexico's current Gini score, which is a coefficient representing a country's level of socioeconomic inequality in terms of access to education, healthcare services and employment. While Mexico's score of .461 out of 1.0 may seem high, the Gini score of the United States in 2009 was .468, on par with the People's Republic of China[12].

Though Scherlen doesn't articulate an irrefutable argument in support of the Social Conflict Theory, Acharya attempts to argue a similar point in her analysis of urbanization in the Northern Mexican state of Nuevo Leon. Partially as a byproduct of NAFTA and industrialization, Nuevo Leon has become increasingly urbanized over the last fifty years. In 1930, 40% of the population lived in urban areas. In 2005, the number climbed to 95%, with most of the population relocating to the Monterrey Metropolitan area and its surrounding suburbs. Sandwiched next to the US-Mexico Border, Nuevo Leon has become a major trafficking corridor for DTO's and human smuggling organizations attempting to ferry drugs and people into the United States. While her research primarily addresses the negative effects of urbanization, Acharya attempted to explain the current situation from the perspective of the Social Conflict Theory. With a large number of rural farmers leaving the agricultural sector for the factory jobs in Monterrey and other cities, people are constantly looking for opportunities in unskilled labor and manufacturing. In the cities, the gap between rich and poor is readily apparent, and is represented in the unequal access to employment, healthcare, and basic services. Acharya argues that the urban elite continue to amass wealth while failing to provide the urban poor a place in the legitimate economy. Destitute and hopeless, many of the urban poor find work in the city's informal and underground economies. Attempts by the urban elite to control the informal economy often result in violence, as represented by the hostilities which manifested shortly after President Calderon deployed troops to Nuevo Leon[10].

While the Social Conflict Theory would be a convenient explanation, Widner et al. took a different approach by viewing the current violence through the spectrum of the Rational Choice Model (and by extension, the Routine Activities Theory). According to this paradigm, criminal activity is driven by a cost-benefit analysis whereby an offender subconsciously calculates the benefits of committing a crime, the probability of getting caught, and the sanctions related to capture. As cited earlier, the probability of getting caught in many northern Mexican cities is low; the local security forces have been completely infiltrated by the drug cartels and most cities lack affective guardianship. In an area with poor guardianship, the opportunity cost of getting caught is also low. The opportunity cost is also affected such that if "[…] an individual is unemployed or employed in a low-paying job, the opportunity cost or sacrifice of spending time in jail is reduced"[9]. To test their theory, Widner et al. conducted a bivariate regression analysis that compared criminal arrests and different socioeconomic indicators. While murder and other violent crimes were not analyzed, researchers identified a strong correlation between arrests for various crimes and the Gross Domestic Product (GDP) per capita in the sampled city. They found a decrease of 26 and 21 arrests for rape and fraud respectively for every one million peso

increase of real per capita GDP. Strangely, a positive relationship was found between increases in GDP and arrests for theft. Widner et al. postulated that "as GDP increases and employment increases, fewer crimes in general will be committed and the probability of catching the remaining offenders increases (the effectiveness of law enforcement increases)"[9].

One fundamental issue that was not addressed by Widner et al.'s research is how a criminological theory that outlines the decision making process of a single individual can explain membership in an organized criminal syndicate. In an extension of Widner et al.'s research, Arsovska & Kostakos referenced the Rational Choice Theory in an effort to explain illicit arms trafficking in the Balkans during the 1990's and 2000's[13]. Though not directly related to Mexican DTO's, Arsovska & Kostakos make some important points when considering individual motivations and behaviors in terms of organized crime. Rational Choice Theory is traditionally used to explain the decision-making process and behaviors of individual criminal actors. Under the theory, it is presumed that individuals engage in criminal activities for the purpose of economic gain. Arsovska & Kostakos note that organized criminal networks are the result of a convergence of individuals who share similar goals and cultural values. Influenced by different market factors and demand for an illicit good or service, the micro-level objective of achieving financial gain becomes a macro-level organizational goal for a criminal syndicate. Arosovka & Kostakos believe the Rational Choice Theory helps to explain how crime groups form and why individual actors seek membership in these groups. While their findings can't be generalized to explain every aspect of Mexico's drug war, it does provide a possible explanation as to the existence of DTO's and why their ranks have swelled over recent years.

While Widner et al. was looking to generate research in support of the Rational Actor Theory, many of his findings seem to affirm Acharya and Scherlen's assumptions about Social Conflict. As the per capita GDP in certain areas decreases and the level of unemployment or underemployment increases, the number of arrests for certain crimes also increases. While not an ironclad affirmation of the Social Conflict Theory, Widner et al.'s findings warrant further research and analysis. Especially in the case of Mexico, which has experienced increasing levels of urbanization and industrialization over the last two decades, it would be interesting to look at the relationship between the unemployment rates, GDP per capita and the level of violence present in the northern cities that make up the drug corridor.

3. Methodology

In order to establish a relationship between urban economic conditions and drug violence along the US-Mexico Border, a measurable independent and dependent variables must be identified. As an extension of Widner et al.'s analysis of the relationship between per capita GDP and arrests for theft, fraud, and rape, drug violence will be defined by both annual aggregate homicide totals and municipal drug arrests in sampled Northern Mexican city. While data is available from official sources, it is important to consider that drug laws in Mexico are dramatically different than those in the United States. Whereas the United States has strictly-enforced narcotics possession laws, Mexico relaxed their own domestic possession laws in 2009 through legislative action. According to the new amendment to their federal criminal code, "[…] a police search that turns up a half-gram of cocaine, the equivalent of about four lines, will not bring any jail time. The same applies for 5 grams of marijuana (about four cigarettes), 50 milligrams of heroin, 40 milligrams of methamphetamine or 0.015 milligrams of LSD"[14]. Mexican local and state police have been ordered to focus on arresting individuals who possess 1,000 times what is considered "personal consumption" levels. Former President Felipe Calderon's Administration hoped that the redefined legal parameters would help law enforcement agencies refocus their efforts in apprehending narcotics dealers and traffickers rather than recreational drug users. This is in stark contrast with the United States, which reported 800,000 arrests for marijuana possession alone in 2008[14]. As referenced in a fact sheet issued by the Mexican Embassy on August 20th, 2009, drugs covered by the amended legislation include opium, heroin, marijuana, cocaine, LSD, MDA, MDMA, and methamphetamine. Mexican state and federal authorities can still arrest those who "sell, distribute, supply and possess drugs with the intent of selling or distributing" or those who possess any other controlled substances outside the purview of the updated legislation[14].

Given Mexico's revised drug control laws, traditional arrest statistics, like those outlined by The Eighth United Nations Survey on Crime Trends and the Operations of Criminal Justice Systems, would not be helpful when comparing the number of drug arrests between the primary NAFTA signatories. A consistent metric for measuring drug-related activity between the Mexico and the United States would be arrests for possession with the intent to distribute and arrests for drug trafficking. Unfortunately, the Instituto Nacional De Estadistica Y Geografia Mexicana (INEGI-M) only provides drug arrest statistics under the nebulous title "en materia de narcoticos" or "narcotics matters." This encompasses the gamut of narcotics-related crimes, to include possession with intent to distribute, trafficking, possession of drug precursors, and other offenses (see Appendix, Table 5).

In addition to potential issues of concern with the dependent variables, the official unemployment statistics pose a number of limitations that are worth noting. In his own analysis, Martin noted discrepancies between the official unemployment figures in Mexico and unemployment rates in the United States and Canada[5]. Martin advised that large segments of Mexican society are involved in the

"informal economy;" few informal economy participants are entitled to federal government benefits and do not appear as part of official unemployment statistics. In addition to Martin's observations, Knickerbocker proposed that official unemployment statistics have always been comparatively low due to the exodus of unskilled labor during the 1990's and 2000's. As a result of migratory patterns over the last two decades, a huge portion of the Mexican work force that may have been counted as part of the country's unemployment rate left for economic opportunities in the United States and neighboring countries. While little is known about how this may have affected official unemployment statistics, Knickerbocker advised that anywhere from twelve to fifteen million undocumented immigrants of Mexican origin reside in the United States alone[6]. Considering that Mexico's total population is approximately 112 million people, introducing a large number of these undocumented workers into the Mexican economy could have an enormous impact on the country's official unemployment rate. Unfortunately few researchers have studied Mexico's informal economy and little information exists regarding the size and scope of this economic sector.

Instead of utilizing official unemployment rates, Widner et al. chose to observe the relationship between per capita GDP in different cities along the US-Mexico Border and specific violent and nonviolent crimes. While per capita GDP is not an adequate substitute for unemployment rates in different Mexican cities and does not take into consideration wealth disparity, Widner et al. showed that GDP is a good economic development indicator that is correlated with different criminal acts. In an extension of Widner et al.'s research, per capita GDP has been selected as one of the study's independent variables.

Despite the problems articulated by Martin and Knickerbocker, Mexico's official unemployment statistics cannot be completely discounted. Even in the presence of a largely unknown and undefined informal economy, official unemployment statistics will be utilized as a secondary independent variable. As a relative comparison, unemployment rates from similarly-sized cities in the United States will also be selected and compared to their respective homicide and drug arrest totals.

The scope of the research sample encompasses cities in northern Mexico with a significant "Big Four" drug cartel presence, to include the Monterrey Metropolitan Region in Nuevo Leon, Ciudad Juarez in Chihuahua, Nogales in Sonora, and Nuevo Laredo in Coahuila. According to Manwaring, all four cities have seen a precipitous increase in cartel-related violence over the past two decades and have served as primary drug corridors into the United States. In addition, each city has gone through a period of accelerated urbanization, with large numbers of rural occupants migrating to the cities to take advantage of economic opportunities[8]. According to the 2010 Mexican Census, Monterrey has a population of approximately 1,130,960 people, Ciudad Juarez has a population of 1,321,004, Nogales has a population of 212,533, and Nuevo Laredo has a population of 373,725[15]. Four Southern U.S. cities were also chosen based on their relative population size, proximity to the border, and history as nexus points for drug traffickers. The selected cities include Phoenix, Arizona (population: 1,445,632), Tucson, Arizona (population: 520,116), El Paso, Texas (population: 649,121), and Laredo, Texas (population: 236,091)[16].

Consistent with Widner et al.'s collection methods, GDP per capita, official unemployment rates, annual homicide totals, and drug arrests for Monterrey, Ciudad Juarez, Nogales, and Nuevo Laredo were provided by the Instituto Nacional De Estadistica Y Geografia Mexicana (INEGI-M) or the Mexican National Institute of Statistics and Geography. Much like the U.S. Census Bureau, the INEGI releases annual reports that track national, state and municipal socioeconomic indicators. As the country's primary information repository, the INEGI also provides criminal justice statistics, to include reported crimes and arrests by different law enforcement agencies.

Unlike Mexico, statistical information concerning the four US border cities was gathered from a number of different official sources. Municipal drug arrest data was gathered from the Bureau of Justice Statistics, while municipal homicide statistics was collected utilizing the Federal Bureau of Investigation's annual Uniform Crime Report (UCR). Per capita GDP was found at the Department of Commerce's Bureau of Economic Analysis and unemployment figures were obtained from the Department of Labor's Bureau of Labor Statistics. As a time series study, independent and dependent variable data was collected to capture the period from 2000 to 2010. Raw data for the independent and dependent variables can be found in the Appendix.

The primary quantitative method is a trend analysis that compares the independent and dependent variables over the sampled time period. Specific relationships between the independent and dependent variables were analyzed utilizing a bivariate linear regression analysis characterized by the function $Y= \beta 0+ \beta 1X + \varepsilon$. The analysis was conducted utilizing the Excel 2010 Analytic Tool Package.

With the variables defined and the method of analysis selected, the following hypotheses can be stated:

Hypothesis 1. As annual gross domestic product per capita in each municipality decreases, the number of drug arrests and homicides will increase in both US and Mexican cities.

Hypothesis 2. As the unemployment rate increases in each municipality, the number of drug arrests and homicides will increase as well.

Hypothesis 3. The GPD per capita will maintain an inverse relationship with the dependent variables, such that an increased GPD per capita will predict lower drug arrests and homicides in US and Mexican cities over the sampled time period.

Hypothesis 4. The unemployment rate will maintain a strong positive relationship with the dependent variables, such that decreased unemployment will predict lower drug arrests and homicides in US and Mexican cities over the sampled time period.

3.1. Limitations

During the project conceptualization and data collection phase, a number of limitations and deficiencies were identified. Limitations were divided into data collection and operationalization concerns and uncontrolled third variable phenomena. It was understood early on that these issues could potentially affect the strength and significance of correlation coefficients in each of the regression models.

3.1.1. Data Collection & Operationalization

As referenced previously, there are fundamental problems when comparing and contrasting cross-cultural data. Each independent and dependent variable has its own operational definition that can hinder the comparison of US and Mexican statistics. Early on, it was understood that official unemployment statistics in the United States differed from unemployment statistics gathered in Mexico. In the United States, someone is characterized as unemployed if "they do not have a job, have actively looked for work in the prior 4 weeks, and are currently available for work." The unemployment rate is the "number of unemployed as a percent of the labor force." Participation in part-time employment or temporary jobs is not counted in the official statistics[17]. This is in stark contrast to the unemployment definition utilized by the INEGI, which includes employment in marginal jobs, part-time positions, and even unpaid jobs. According to Widner et al., the INEGI even counts individuals who engage in one hour per week of work as "gainfully employed"[9]. This helps to explain the artificially low Mexican municipal unemployment rates during the darkest days of the global economic recession.

There were numerous issues identified with the dependent variables as well. Though the author was eventually able to locate official municipal homicide statistics for both the United States and Mexico, these homicides represent aggregate totals in each city and not "drug-related" murders directly related to counterdrug efforts or organized crime-related turf battles. The FBI's Uniform Crime Report and the Mexican INEGI do not differentiate between homicides stemming from interpersonal violence and those related to third-party adversarial actions. Given the quality of the information provided and the fact that individual municipalities voluntarily provide this information to federal authorities, it is difficult to rule out the influence of a third variable or directly infer that an increase in homicides is related to drug activity. Though alternate unofficial sources exist, to include the University of San Diego's Trans-Border Institute (TBI), the statistics are often limited in scope and data collection methods are questionable; statistics are gathered from third party sources like newspapers and media outlets that are prone to sensationalizing drug murders. Even if unofficial statistics are available, the data may only encompass a two or three year period, which is not sufficient for the current study. Drug arrest statistics were no better. Though the UCR clearly compartmented drug violations into two categories, simple possession or possession with intent to distribute, the INEGI provided aggregate statistics generically referenced as "en materia de narcoticos" or "narcotics matters"[15]. A closer look at the operational definition shows that that the term applies to a relatively large range of different drug offenses, from simple possession, to production and refinement activities, to drug and precursor smuggling.

In addition to the quality of the data collected, there was a general lack of data available on the Mexican side of the border that necessitated the occasional calculation of predictive statistics. For example, municipal homicide totals were missing for Nuevo Laredo in 2002, 2004 and 2005. Utilizing available state and municipal statistics, an average percent representation was derived and used to calculate homicide totals for the years where data was unavailable (see Table 6 in Appendix for calculation). While statistical modeling was utilized when possible, some data was unavailable during critical years and could not be inferred using calculations. Drug arrest statistics were unavailable for each of the sampled Mexican cities in 2009 and 2010. Given increased tempo of counterdrug operations by the Calderon Administration in concert with the relaxation of simple possession violations referenced by Lacey, it was not feasible to produce predictive statistics that could potentially affect the results of the statistical analysis[14]. These years were ultimately omitted from the regression analysis.

3.1.2. Third Variable Phenomena

When initially glancing at the data sets, it is clear that other third variables exist that could potentially affect the outcome of an empirical analysis. Many of the Mexican cities considered to be the "frontline" of the drug war experienced an enormous influx of reported murders from the mid to late 2000's. While some of the increases are due to improved reporting and record keeping on the behalf of local governments and security services, many of the homicides are attributed to the influx of soldiers into areas traditionally controlled by DTO's and organized crime. Consistent with Manwaring's analysis, recent violence can be characterized as a struggle between the legitimate government and the self-serving institutions created by the cartels that have been allowed to operate with relative impunity over the last few decades[8]. In cities like Ciudad Juarez, homicides skyrocketed from 401 in 2007 to 1,372 in 2008. Though less dramatic, Nogales experienced a similar increase in homicides, with 78 recorded in 2007 to 138 recorded in 2008 (see Table 6 in Appendix). With homicides doubling and tripling during the same year that President Calderon ordered 20,000 troops into many of these border cities, it is difficult to attribute an increase in homicides solely to disparate

economic conditions[1].

4. Results & Discussion

Tables 1 through 4 detail the statistical output of the bivariate regression model for Mexican and US cities. Tables 1 and 3 capture descriptive statistics describing the relationship between GDP per capita, homicides and drug arrests from 2000 to 2010. Tables 2 and 4 provide descriptive statistics detailing the relationship between unemployment rates, homicides and drug arrests during the same period. The author specifically chose to capture and record the Adjusted R Square correlation coefficient, which is a more conservative estimate of the relationship between the dependent and independent variables; the T-Statistic to compare the ratio of the Adjusted R Square and the Standard Error; the P-Value at a 95% confidence interval to determine if the output was produced by chance; and the Standard Error to capture the degree of statistical variance.

4.1. Mexican Descriptive Statistics – GDP Per Capita

The results of the regression analysis varied. When analyzing the relationship between municipal GDP per capita and homicides, the correlation coefficient ranged from -.13 to .68. In Ciudad Juarez and Nogales, there was a moderate to strong positive relationship between the independent and dependent variable comfortably within the 95% confidence interval. Monterrey represented a weak statistical relationship with a higher P-Value outside of the confidence interval. Albeit weak and not statistically significant, Nuevo Laredo was the only city to have a negative correlation between GDP per capita and homicides with a P-Value outside the confidence interval.

Comparisons between GDP per capita and drug arrests was a little more consistent across the sampled cities. Monterrey and Nogales possessed a moderate to strong positive relationship between the independent and dependent variables with an acceptable level of statistical probability. Ciudad Juarez represented a weak to moderate positive statistical relationship with a P-Value just inside of the confidence interval. Again, Nuevo Laredo was the only city to have a negative correlation between GDP per capita and homicides with a P-Value well outside the confidence interval (See Table 1 for statistics).

Table 1. Relationship between GDP per capita and dependent variables for sampled Mexican cities

	Adjusted R Square	T-Stat	P-Value (<.05)	Standard Error
Ciudad Juarez				
Homicides	0.544476694	3.428920563	0.008969112	0.201404296
Drug Arrests	0.35986242	-2.344635039	0.051492456	0.196298428
Monterrey				
Homicides	0.141138748	1.62583031	0.138430435	0.956333002
Drug Arrests	0.579699783	-3.469007567	0.010419856	0.340978899
Nogales				
Homicides	0.684643319	4.765514209	0.001021756	1.965061441
Drug Arrests	0.661769322	4.080747074	0.00468527	1.070454034
Nuevo Laredo				
Homicides	-0.13123078	-0.433532507	0.67978108	8.767413742
Drug Arrests	-0.030386475	0.890824017	0.407323506	0.669702762

Table 2. Relationship between unemployment rates and dependent variables for sampled Mexican cities

	Adjusted R Square	T-Stat	P-Value (<.05)	Standard Error
Ciudad Juarez				
Homicides	0.629461281	4.241194756	0.002170463	0.000407756
Drug Arrests	0.161580691	-1.594291371	0.154900041	0.000503877
Monterrey				
Homicides	-0.102671624	0.262455809	0.798878843	0.001747341
Drug Arrests	-0.011692969	-0.952647581	0.372497005	0.00060256
Nogales				
Homicides	-0.050294589	0.721899068	0.488686839	0.007018901
Drug Arrests	0.255086742	-1.933780095	0.094395555	0.003449755
Nuevo Laredo				
Homicides	-0.047665658	0.738261384	0.479163163	0.008965468
Drug Arrests	0.612666802	3.695138966	0.007704203	0.000288154

4.2. Mexican Descriptive Statistics – Unemployment Rates

Like the relationship between GDP and drug indicators, the results of this regression analysis varied as well. When analyzing the relationship between municipal unemployment rates and homicides, the only city to have a moderate to strong positive relationship between the two variables was Ciudad Juarez. Monterrey, Nogales, and Nuevo Laredo all possessed relatively weak negative correlations outside of the confidence interval.

When analyzing the relationship between unemployment rates and drug arrests in the sampled cities, the correlation coefficient ranged from -.01 to .61. In general, the relationship between the independent and dependent variables was weak and not statistically significant. However, Nuevo Laredo did possess a moderate to strong positive correlation well within the confidence interval (See Table 2 for statistics).

4.3. US Descriptive Statistics – GDP Per Capita

The correlation between GDP per capita and homicides within the sampled US cities was not statistically significant. Tucson had a weak positive relationship outside of the 95% confidence interval. El Paso and Laredo both had very weak negative relationships outside of the confidence interval. Phoenix was the only city to have a weak to moderate positive correlation with an acceptable P-Value. The relationship between GDP per capita and drug arrests was a little more promising. While Tucson, El Paso and Laredo possessed statistically insignificant correlations with high P-Values, Phoenix did have a moderate positive correlation within the confidence interval (See Table 3 for statistics).

Table 3. Relationship between GDP per capita and dependent variables for sampled US cities

		Adjusted R Square	T-Stat	P-Value (<.05)	Standard Error
Phoenix					
	Homicides	0.380319137	2.671579822	0.025556215	12.97783895
	Drug Arrests	0.437617519	2.963358355	0.015872699	0.929542853
Tucson					
	Homicides	0.07757121	1.35681437	0.207891911	46.9854012
	Drug Arrests	-0.034829979	0.766905574	0.814507936	0.436375048
El Paso					
	Homicides	-0.099513979	0.308103175	0.765015353	36.13363105
	Drug Arrests	0.093131692	-1.423713237	0.188260502	0.254950273
Laredo					
	Homicides	-0.101800105	0.275783417	0.788942071	26.22775372
	Drug Arrests	0.22336426	-1.968768449	0.080501433	1.365757051

Table 4. Relationship between unemployment rates and dependent variables for sampled US cities

		Adjusted R Square	T-Stat	P-Value (< .05)	Standard Error
Phoenix					
	Homicides	0.50914101	-3.372306262	0.008226809	1.581220162
	Drug Arrests	-0.026934339	2.287100805	-0.858906818	0.412682922
Tucson					
	Homicides	0.056170372	1.946327032	-1.262985565	0.238332688
	Drug Arrests	-0.103320966	2.104359558	0.252082732	0.806639447
El Paso					
	Homicides	0.371013407	0.956498609	0.02751535	2.626516717
	Drug Arrests	-0.062416638	1.243114352	0.642264118	0.536716579
Laredo					
	Homicides	-0.10942067	1.363668125	0.117104385	0.909348985
	Drug Arrests	-0.103900739	1.360271424	-0.242457204	0.813860846

4.4. US Descriptive Statistics – Unemployment Rates

The results of this regression analysis varied for US cities as well. In regards to unemployment and aggregate homicide statistics, Phoenix and El Paso both possessed a weak to moderate positive correlation with a low probability that the results were influenced by a third variable. On the other hand, Tucson and Laredo had very weak correlation coefficients with a P-Value outside of the confidence interval. With correlation coefficients ranging from -.02 to -.10 with P-Values as high as -.85, the relationship between unemployment and drug arrests was not found to be statistically significant across the four sampled cities (See Table 4 for statistics).

4.5. Analysis

Though the data points to a weak or nonexistent relationship between selected economic indicators, homicides and drug arrests in both Mexico and the United States, a few moderate to strong correlations were identified that warrant further analysis. In Mexico, the regression model found a positive relationship between GDP per capita, municipal homicides and drug arrests in both Ciudad Juarez and Nogales. The data seemingly disproves H1, which predicted a decrease in homicides and drug arrests as GDP per capita increased in the sampled cities. However, it's worth noting that both Ciudad Juarez and Nogales recorded a precipitous increase in homicides starting in 2008. Despite steady year-to-year increases in GDP per capita in Ciudad Juarez and Nogales from 2000 to 2010, murders held steady or decreased from 2000 to 2007 (see Tables 6 & 7 for data). This dramatic increase in homicides closely coincides with Mexican President Felipe Calderon's deployment of troops to Northern Mexican states as part of "Operation Michoacana," coined after both the Mexican state and the organized crime family. Both residents and human rights groups have directly attributed the increase in violence to confrontations between government troops and cartel enforcers, who routinely engage in running gun battles throughout the urban centers of cities like Juarez and Nogales[17]. When the data sets are analyzed excluding the 2008, 2009 and 2010 statistics, the results were drastically different for Ciudad Juarez. The Adjusted R Square was -.073 with a P-Value slightly outside of the 95% confidence interval as opposed to .544 cited in Table 1. Unfortunately, excluding the outlier statistics still does not explain the relationship between GDP per capita and homicides in Nogales; the Adjusted R Square is still .585 and slightly outside of the confidence interval.

The relationship between GDP per capita and drug arrests in Ciudad Juarez and Nogales is more complex and not as easily understood. As opposed to GDP per capita and homicides, there doesn't appear to be an obvious third variable influence that could affect the strength of the relationship between the input and outcome variables. A cursory glance at the data sets reveal a relatively steady increase in GDP per capita in the sampled cities, while drug arrests seemed to vary on an annual basis. There are two issues that are readily apparent; first and foremost, the regression analysis was limited to drug arrest data available from 2000 to 2008. Given the lack of available data, it is unknown how President Calderon's policies may have affected drug arrest statistics in the years after he surged Mexican security forces into areas controlled by the cartels. In addition, 2008 drug arrest data for Ciudad Juarez represents somewhat of an outlier; as cited by the INEGI, only partial data was available for that year. An updated regression analysis excluding 2008 data reveals an Adjusted R Square of -.057with a P-Value well outside of the confidence interval. By eliminating the outlier, the relationship has become statistically insignificant.

While the act of eliminating outliers may explain the unusual relationship between GDP per capita and drug arrests in Ciudad Juarez, Nogales still possesses a moderate correlation even after excluding 2008 data. Despite the moderate statistical relationship, it is possible that the correlation has been established purely by chance. As the GDP of Nogales has increased in lockstep with the Mexican economy, so have the number of annual drug arrests within the city. While both variables seem to increase incrementally over the course of the observation period, correlation doesn't necessarily translate to causality. The increase in drug arrests is consistent with President Calderon's pre-2010 "Law and Order" policy that advocated increased drug enforcement activities in Northern Mexico. In a controversial reversal of existing Mexican national security policy, Calderon embraced aspects of the multilateral Merida Initiative that were outright rejected by his predecessors. In addition to increased training and logistical assistance from the United States, the Administration placed an increased emphasis on extraditing cartel "kingpins" and disrupting the existing supply chain. As a result, both the United States and Mexico heralded a large number of arrests for illicit transportation, production and distribution activities beginning in 2006. Scherlen noted an increase in annual drug arrests in Northern Mexican cities until 2010, when internal and external pressure forced Calderon to soften his position in favor of a demand-side solution to the drug problem[1]. While it is entirely possible that some sort of correlation exists between GDP per capita and drug arrests, available empirical evidence is lacking and it is likely that domestic enforcement policies directly contributed to the increased arrests.

The same can be said about the moderate to strong correlation between unemployment rates, homicides and drug arrests in Ciudad Juarez and Nuevo Laredo. On the surface, some of the data seems to affirm H2, which predicted a positive relationship between unemployment rates, homicides and drug arrests. Consistent with the unemployment rates of other industrialized countries that were affected by the global economic recession, Ciudad Juarez and Nuevo Laredo saw a gradual increase in their respective jobless rates beginning in 2008. As most of

Mexico experienced a period of economic decline, President Calderon implemented his aggressive anti-drug policy, which resulted in increased arrests and homicides in select areas controlled by the cartels. While any relationship between unemployment, drug arrests and homicides appears coincidental, further research will need to be conducted to study the effects of Mexican drug policy on arrest rates and homicides in Mexican border cities that form the drug corridor. Due to the political sensitivities surrounding the drug war, the Mexican government has released very little information about security operations in Northern Mexico. Groups like the Transborder Institute based out of the University of San Diego have begun to track drug arrests and drug-related violence through media outlets and open source materials. However, most of these nongovernmental organizations have only recently begun to standardize their data collection methods and the statistics required to initiate a time series study is not currently available.

On the US side of the border, the only statistically significant relationship identified was a moderate positive correlation between GDP per capita and drug arrests in Phoenix. Again, a review of scholarly literature does not point to a strong positive association between GDP per capita and drug arrests (or many other criminal offenses for that matter). Though this correlation does seem to counter H2, it is likely that the relationship was affected by a third variable akin to correlation identified in Nogales. After almost fifteen years of steady growth, a quarterly economic review issued by the University of Arizona reported a massive contraction of the state's economy beginning in the summer of 2008. Vest stated that as a percent representation of the aggregate national GDP per capita, Arizona's major municipal centers slipped from 85% to 78% of the national average as the recession began to affect commerce, home sales, and employment[18]. By 2010, that percentage decreased again, but stabilized at 77%[19]. As the recession began affecting the GDP per capita of major cities in Arizona, Phoenix reported the lowest crime rates since 2004. From homicides and violent crime to drug arrests, the Phoenix Police Department credited "hot spotting" and other intelligence-oriented policing strategies for disrupting criminal networks and focusing resources on crime prone areas[20]. Again, while it is possible that there is a connection between GDP per capita and drug arrests, the likelihood is that the association identified in this study is spurious.

5. Summary, Conclusions and Recommendations

This study sought to determine the relationship between selected economic indicators, homicides and drug arrests in cities that constitute the drug corridor. Through the spectrum of Edwin Sutherland's Rational Choice Theory, the author predicted a strong inverse correlation between GDP per capita and homicides and drug arrests in border cities as well as a positive correlation between unemployment rates and the identified drug indicators in these selected cities. A bivariate regression analysis of ten years worth of statistical data from 2000 to 2010 yielded mostly weak correlations or moderate correlations that could readily be explained by the existence of third variables. Overall, that data does not support a relationship between the municipal economic indicators and the drug statistics.

The results of this study present a number of different questions that must be addressed. First and foremost, are the selected dependent and independent variables truly representative of municipal-level socioeconomic indicators and drug activity? Though Widner et al. utilized GDP per capita and unemployment rates to great effect in their analysis of the Rational Choice Theory, the current study yielded a lack of empirical evidence linking these two variables with drug arrests and homicides. While factors like high unemployment and a relatively low average household income may ultimately impact an individual's decision to engage in illicit criminal behavior, they represent a small portion of the sociological factors that can influence individual criminal behavior. In his review of studies examining the Rational Choice Theory, Matsueda (2013) identified a number of "life course transitions" that can have an impact on an individual's ultimate decision to engage in illicit behavior, to include "[…] developing a committed marriage, serving in the military, becoming a mother, and successfully entering the labor force," just to name a few[22]. In other words, an individual's decision to engage in illegal activity is guided by an entire self-inventory of life experiences, needs and desires that can't be explained by a simple cost-benefit analysis.

And while drug arrests and homicides serve as affective metrics for measuring law enforcement's response to criminal activity and gauging the stability of the drug market in a defined jurisdiction, these statistics may not accurately represent individual and aggregate-level criminal behavior. As represented in President Calderon's decision to surge troops into Northern Mexican cities known for trafficking, arrest statistics can be greatly impacted by public policy decisions. Arrests represent the number of people "caught" committing a crime and known to the authorities, which is different from the number of individual actively participating in criminal activity. While Acharya alluded to this method in her case study of Nuevo Leon, a better approach to gathering information about the participatory behaviors of city dwellers in drug-related activities could be a qualitative survey. The survey could address recent and past involvement in all aspects of drug activity, ranging from production to sales and distribution, as well a personal inventory of interpersonal factors that could have contributed to the individual's involvement in narcotics-related activity[10].

Despite these recommendations, let's assume that these findings are accurate and the tenants of the Rational Choice Theory have no bearing on an individual's decision to

engage in criminal behavior. How do these findings impact both US foreign policy and Mexican domestic policy in terms of countering the influence of narcotics traffickers along the US-Mexico Border? Aside from the obvious human toll exacted by the drug war, the United States and various nongovernmental organizations have contributed billions of dollars with the hope of revitalizing different sectors of the Mexican economy. The US Agency for International Development alone contributed over $400 million for development projects in different parts of Mexico in 2011. That doesn't include the $20 billion of private remittances granted by US-based companies and NGO's annually[23]. If the Merida Initiative is the proverbially "stick" being used to train Mexico's military to fight the drug cartels on their own turf, aid packages and remittances represent the expensive "carrot" that will hopefully employ those who would otherwise turn to the DTO's for work.

If it is true that socioeconomic indicators (taken by themselves) have little impact on an individual's propensity to engage in illicit criminal activity, then it is also true that all of the resources funneled into the Mexican economy have been squandered due to the false belief that improving the economic conditions along the US-Mexico border is inversely correlated with DTO participation. Beyond Mexico, the United States has used a similar model to incentivize involvement in legitimate business enterprises in Central America, South America and Central Asia. While further research must be conducted to further study the economic factors associated with DTO participation, it is the responsibility of policymakers and law enforcement officials to review the existing drug enforcement doctrine and ensure that it is rooted in empirical evidence rather than supposition and pseudo-science.

Appendix

Table 5. Arrests for drug-related offenses by municipality in Mexico from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ciudad Juarez	3029	2727	2717	2886	2587	2851	2824	2595	936	*	*
Monterrey	2226	2525	2713	2642	2109	1709	1448	1529	1438	*	*
Nogales	610	625	447	460	608	592	615	743	862	*	*
Nuevo Laredo	491	437	314	310	1190	1458	1305	1398	1381	*	*

Statistics gathered from the Instituto Nacional de Estadística y Geografía (INEGI) at www.inegi.org.mx. Per the INEGI, drug arrests are listed under the blanket arrest "en material de narcoticos," which includes a large number of different drugs offenses, including but not limited to illicit drug consumption, possession with intent to distribute narcotics, and drug smuggling activities.
* = Statistics unavailable for the listed year.

Table 6. Municipal homicides of sampled Mexican cities from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ciudad Juarez	385	371	399	318	338	320	315	401	1372	2000	2545
Monterrey	497	568	533	524	510	619	658	784	732	704	1287
Nogales	31	52	32	42	43	60	58	78	138	174	226
Nuevo Laredo	115	71	79*	106	97*	154*	199	116	119	119	155

Municipal statistics gathered from the Instituto Nacional de Estadística y Geografía (INEGI) at www.inegi.org.mx. State-level statistics were gathered from the Transborder Institute at http://justiceinmexico.org/data-portal/2480-2/. For the missing years, a percent representation was derived by dividing the municipal homicides by state level homicides. The percentages were averaged together to calculate an average percent representation. The average percent was multiplied by state level statistics for the years where data is unavailable to generate a predictive statistic.
Formula:
City 2000 / State 2000 + City 2001 / State 2001 + City 2003 / State 2003 + City 2006 / State 2006 + City 2007 / State 2007 + City 2008 / State 2008 + City 2009 / State 2009 + City 2010 / State 2010 = Average Percent Representation (APR)
APR x State Homicides = Number of Homicides for No Year Data
* = Homicide statistics were unavailable for the listed year.

Table 7. Gross Domestic Product (GDP) per capita of sampled Mexican cities from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ciudad Juarez	1330	1294	1434	1560	1656	1796	2250	2174	2507	2782	715*
Monterrey	1541	1704	2118	2207	3356	2955	3476	3078	3516	3253	3272
Nogales	1464	1455	1562	1706	1864	1712	1963	2820	3376	2916	3077
Nuevo Laredo	***	4524	3656	4460	5349	3514	4177	5096	6248	8832	6581

Statistics gathered from the Instituto Nacional de Estadística y Geografía (INEGI) at www.inegi.org.mx. GDP is measured in Mexican pesos.
* = Based on partial-year data
*** = Data unavailable for that year

Table 8. Unemployment rates of sampled Mexican cities from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ciudad Juarez	1.7	2.6	4.2	3.8	1.8	2.1	2.7	2.6	4.2	7.2	5.4
Monterrey	2.9	2.9	4.4	4.3	5.7	4.7	4.7	4.5	4.3	7.2	4.3
Nogales	2.7	3.9	6.7	5.8	5.4	3.4	2.9	2.9	4	5.6	5.6
Nuevo Laredo	2.7	3.1	3.6	3.2	4.7	4.1	4	4.1	4.5	6.4	4.8

Statistics gathered from the Instituto Nacional de Estadística y Geografía (INEGI) at www.inegi.org.mx. This data represents the statistical average over a twelve month reporting period.

Table 9. Annual drug arrest totals of sampled US cities from 2000 – 2010

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Phoenix	Sale & Distribution	2,100	2,053	2,421	2,623	1,929	1,218	1,678	1,399	1,258	1,281	1,242
	Possession	3,736	3,453	3,268	3,615	5,147	5,763	5,053	5,546	5,113	5,266	4,467
	Total	5,836	5,506	5,689	6,238	7,076	6,981	6,731	6,945	6,371	6,547	5,709
Tucson	Sale & Distribution	576	648	678	674	803	826	708	853	869	973	753
	Possession	5,597	5,599	5,730	6,132	6,555	7,018	6,365	5,970	5,681	6,474	5,774
	Total	6,173	6,247	6,408	6,806	7,358	7,844	7,073	6,823	6,550	7,447	6,527
El Paso	Sale & Distribution	149	74	17	94	28	109	183	109	180	195	263
	Possession	3,355	3,862	3,398	3,516	3,364	2,930	2,685	3,902	4,561	4,473	4,028
	Total	3,504	3,936	3,415	3,610	3,392	3,039	2,868	4,011	4,741	4,668	4,291
Laredo	Sale & Distribution	*	4	2	*	*	*	*	*	3	12	13
	Possession	797	769	742	752	871	833	1,002	1,031	864	1,029	928
	Total	797	773	744	752	871	833	1,002	1,031	867	1,041	941

Data obtained from the Bureau of Justice Statistics. Statistics gathered through the Arrest Analysis Tool found at http://bjs.ojp.usdoj.gov/index.cfm?ty=datool&surl=/arrests/index.cfm#. This data represents total arrest tallies recorded by major municipal police departments in each city. Statistics are voluntarily provided by each department annually.
The statistics have been subdivided into two categories: arrests for the sale or manufacturing of illicit substances and arrests for the possession substances for personal use. Drug violation totals in each of the four cities have been captured.
*= Denotes a lack of available statistics in that given year

Table 10. Municipal homicides of sampled US cities from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Phoenix	152	209	177	241	202	220	235	212	167	122	116
Tucson	60	42	47	47	55	55	51	49	65	35	51
El Paso (SD)	5	4	3	0	6	4	8	3	2	4	2
El Paso (PD)	20	20	14	21	11	14	13	17	17	12	5
El Paso (Total)	25	24	17	21	17	18	21	20	19	16	7
Laredo	10	8	7	29	15	18	22	10	10	17	9

Data obtained from the Federal Bureau of Investigation, Uniform Crime Report. Statistics gathered through the UCR Table Building tool found at http://www.ucrdatatool.gov/. This data represents homicide totals recorded by major municipal police departments in each city. Statistics are voluntarily provided by each department annually.
* = Individual homicide statistics are collected and distributed to the FBI by the El Paso County Sheriff's Department and the El Paso City Police Department. Statistics are listed separately (SD for Sheriff's Department and PD for the City Police Department) and together (SD and PD added to represent the total number of homicides).

Table 11. Gross Domestic Product (GDP) per capita of sampled US cities from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Phoenix	41050	41107	41264	42494	43006	44658	46290	46112	44499	40182	40375
Tucson	29240	29222	28326	29508	29589	30605	31365	31975	31442	28870	28387
El Paso	29500	29535	30272	30062	29846	30029	30854	30505	30323	28984	29759
Laredo	22050	22119	22559	22558	22266	22521	22295	22188	22920	20991	21440

Data obtained from the US Department of Commerce, Bureau of Economic Analysis. Statistics gathered through the BEA's Interactive Data Service tool at http://www.bea.gov/itable/. This data represents the statistical average over a twelve month reporting period. GDP is measured in US dollars.

Table 12. Unemployment rates of sampled US cities from 2000 – 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Phoenix	3.3	4.2	5.6	5.2	4.5	4.1	3.6	3.2	5.3	9.3	9.8
Tucson	3.7	4.3	5.7	5.3	4.6	4.5	3.9	3.6	5.6	9	9.4
El Paso	6.8	7.3	8.2	8.8	7.6	7	6.7	5.9	6.3	8.8	9.8
Laredo	6.1	6.6	7.3	7.4	6.7	6	5.4	4.7	5.4	8.4	8.9

Data obtained from the US Department of Labor, Bureau of Labor Statistics. Statistics gathered through the BLS Tools application at http://data.bls.gov/cgi-bin/surveymost?la. This data represents the statistical average over a twelve month reporting period.

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