“Drug violence in Mexico and its impact on the fiscal realities of border cities in Texas: evidence from Rio Grande Valley counties”

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Drug violence in Mexico and its impact on the fiscal realities of border cities in Texas: evidence from Rio Grande Valley counties

Abstract

This study examines the potential spillover effects of the Mexican drug war and its associated violence on the fiscal realities of the U.S. border counties. Specifically, we study descriptively the data from the Rio Grande Valley (RGV) counties of the state of Texas, placing it within the broader context of all Texas counties, and find initial evidence of possible 'silver lining' spilling over from Mexican drug violence to the U.S. border counties' fiscal positions. Housing activities increase and property tax reliance decreases in RGV counties relative to other Texas counties (both border and non-border). We anticipate that the findings and the suggestive evidence advanced by this study will motivate additional research efforts that can be potentially value-relevant in the policy responses from relevant U.S. authorities.

Keywords: fiscal realities, property tax reliance, border counties, Rio Grande Valley.
JEL Classification: M41, H83.

Introduction

The growing incidence of drug violence in Mexico practically possesses real spillover effects on border counties in the U.S.[1] In part, these effects are generally pronounced in the economic activities and the fiscal realities of these border cities/counties. Therefore, this study examines a link between the fiscal position and migration (following the drug violence) into a major border region in Texas; i.e. The Rio Grande Valley (hereinafter referred to as RGV). Covering a period between 2000 and 2011, the empirical data and preliminary descriptive results provide initial evidence on the implications of the spillover effects of the drug violence on RGV's host counties' real estate landscape and revenue dynamics. To this end, we review the population dynamics of the border counties in the wake of the renewed drug violence in Mexico cities and the spillover effects on the housing, revenue profile and the fiscal realities of the U.S. border cities/counties. Beyond the common negativities widely popularized and associated with the violence, our initial evidence suggests that in border counties, there might be a 'silver lining' to the Mexico drug violence as some Mexicans' 'flight to safety' and 'flight to quality' bring with them economic prosperity and investible capital into the U.S. In other words, because of the drug violence, Mexico is inadvertently forfeiting economic prosperity to U.S. border counties.

Several motivations have been suggested in the literature driving households' moves and migration activities. These generally include job, income, or family changes (see Wheaton, 1990 and Stephen, 2009). In other words, the pursuit of better opportunities and economic prosperity is the chief driving force of migration. However, a situation where violence persists such as in the Mexico-U.S. borders, the urge to flee to security, economic safety and prosperity becomes more compelling and real. Unfortunately in some cases, violence is readily importable into the otherwise peaceful U.S. border cities/counties. Schaan (2009) notes that in the extreme scenarios, "…civil authorities cede entire geographic regions, and the lawless organizations develop enclaves of autonomy…", creating economic orphanage in the border cities and counties of the U.S. Therefore, embedded in the economic forces, we add that heinous violence in locations with close proximity to a prosperous country like the U.S. is another real motive for migration that can impact economic activities in the host country and in particular, the fiscal realities of its border counties. While the spillover effects of such violence are typically perceived in the negative, we argue that potentially, Mexico and its border communities cede both investment and human capital to U.S. border counties as a result of this culture of violence.

To the best of the authors' knowledge, the current study is one of the first attempts to explore Mexican drug violence, immigration and the implication for the fiscal realities of border counties in the U.S. Research efforts in this area are emerging and perhaps constrained by data availability. Therefore, it is anticipated that the current study's descriptive results will motivate additional inquiries and interests in this area of research.

The reminder of the paper proceeds as follows. The next section (Section 1) which presents the literature review and framework provides a brief background of RGV and its counties. We then review the literature specifically in the domains of housing, immigration and drug related crime and counties' revenue. In section 2, we present the data and discuss the initial evidence. Section 3 concludes the study.

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[1]Throughout this study, reference to border counties is limited to counties that share border with Mexico. We do not mean counties that share 'border' with other U.S. states. In essence, we mean Texas counties on the U.S. side of the international border with Mexico.

1. Literature review and framework

In this section, we present a brief background of the Rio Grande Valley (RGV) and its counties and then place it within the context of the study. Further, we provide the framework for the study by reviewing the interconnectedness among housing, immigration and drug related violence as well as counties revenue and fiscal conditions.

1.1. Rio Grande Valley: Brief history and background. The Rio Grande Valley (RGV) in southern Texas has developed from a largely agricultural community into one of the fastest growing Hispanic areas in the country. According to the 2012 U.S. Census Bureau estimates, the population of RGV is over 1.3 million with approximately 80% Hispanic. It is made up of four counties namely: Cameron, Hidalgo, Starr and Willacy counties. The region has benefited greatly from the adoption of the NAFTA accords with growth in many different areas including manufacturing, transportation, retail and construction. The Office of the U.S. Trade Representative estimates that the total trade between the U.S. and Mexico was just shy of 500 billion U.S. dollars in 2012 but noted that Mexico was the U.S.'s third largest trading partner.

In addition to the economic growth, many Mexican nationals continue to establish residence in RGV counties due to geographical proximity, economic opportunity, traditional and cultural ties as well as other demographic conveniences such as language. Many families in the area are divided on both sides of the Rio Grande River. Mexicans' immigration into RGV, both documented and undocumented, has also contributed to the economic growth of the area.

RGV counties are mostly Hispanic and incur specific financial attributions such as a low rate of banking residents and high rates of poverty. These issues coupled with heightened security tensions in Mexico make RGV a unique and fertile geographical region for research/studies like ours. It is a place of great opportunity and growth that has unique issues that must be addressed independently of national studies.

1.2. Housing. Flight to quality is a readily available option for many Mexicans in the violence ridden Mexico-U.S. borders. The U.S. is a quality haven for that purpose, and it is appropriate to assume that housing will be a leading quality investment product (either for residential or speculative investment purposes) especially in the era of depressed housing prices following the 'great recession' of 2008. Case and Shiller (2003) assert that individuals find real assets investment to be safe and of quality consideration. Engelhardt (1996) documents the link between housing wealth and homeowner consumption. Case et al., (2005) find that housing wealth effect is greater than financial wealth effect on homeowner consumption, as Campbell and Cocco (2004) add that such effects are more pronounced among older households.

If one considers the concept of buyer liquidity vis-à-vis the diminishing marginal utility for housing demand, it is imperative that liquidity flight to safety will be amplified by more rather than less buyers; a dynamic strengthened by more Mexicans' flight into the U.S. in the wake and continuation of the drug violence[1]. Typically, such a flight to safety action tends to mostly trend U.S. cities and counties along the borders relative to other parts of the U.S., partly due to family ties and other demographic conveniences such as language and cultural conformity as it is the case in RGV.

Some may contend that due to this 'export' demand argument, border counties ought to lead the nation in improved house prices as dictated by the demand and supply interplay. We find some evidence from RGV housing data supporting such an assumption. Therefore, due to the 'great recession of 2008', we will caution on a wholesale acceptance of Wheaton assertion that "the supply of housing reacts relatively slowly to changes in both market prices and vacancy…" because in a depressed market environment, supply is readily available in the housing market. Similar scenario characterized the subset of the period (2008-2011) examined in this study.

The buying capacity of migrants in the U.S.-Mexico border cities and counties in the real estate housing market is real. The massive increase in the number of migrants from Mexico, both documented and undocumented, coupled with their low propensity to leave the U.S. and return to Mexico explain the need for migrants to settle and buy homes sometimes through proxies (Dube et al., 2013). Stephen (2009) in her review notes that the likelihood of an undocumented migrant returning home dropped sharply from 20 percent in 1982 to less than 5 percent in 2004[2].

1.3. Immigration and drug related crime. Undocumented immigration is widely believed to be associated with violence in border cities and counties. For example, border crimes decline following 1986 amnesty but picked up again in the 1990s as undocumented immigration recommenced. Coronado and Orrenius (2005) suggest that US authorities' en-

[1] Employing Stein (1995) analogy, "one buyer with ten units of liquidity will probably not demand as much housing as ten buyers with one unit each…' due to decreasing marginal utility of home ownership.

[2] Some immigration researchers cite heightened militarization and border enforcements as reasons motivating undocumented immigrant continued stay in the US as those reasons lead to costlier and longer journey of the migrant into the U.S. in the first place.

forcement mechanisms (even where effective) actually heighten violence in the border as an unintended consequence of policy responses to undocumented immigration. The authors maintain that "current levels of enforcement and the extensiveness of human and drug smuggling are the most likely dynamics linking undocumented immigration flows to border crime"; and that "migrant flows adjust to enforcement crackdowns". This implies a possible positive relationship between enforcement crackdowns and undocumented immigration. Cornelius and Lewis (2006) claim that heightened border enforcements make undocumented migrants to rely on human smugglers in order to complete their border crossings. Specifically, Cornelius and Lewis write, "even if migrants are caught, they keep trying until they succeed. Our interviews with returned migrants revealed that 92 percent of them eventually succeeded on the same trip to the border without returning to their place of origin". Payan (2006) provides further evidence that recent U.S. immigration and drug policy responses as well as the free trade agreement of NAFTA inadvertently aid contemporary trend in immigration and drug smuggling[1]. Also, Bersin (1997) documents a link between undocumented immigration and drug violence (see also Dube et al., 2013). Citing border patrol authorities, he mentions that drug smugglers use migrants to transport some drugs as part of the smugglers fees for aiding migrants' crossings across the border. Andreas (2000) further corroborates the fact that human smugglers are increasingly linked to organized drug trafficking organizations, (see also Acuna, 2007). This is important given the role of drug trafficking as a key source of violent crime, more so that Coronado and Orrenius conclude that violent crime is consistently the main component of border crime. McCaffrey and Scales (2011) posit that since 2009, Texas has been progressively under siege from the increased activities of the Mexican drug trafficking cartel. This includes spillover violence and migration into Texas border counties.

Notwithstanding, the strategic position of Mexican-U.S. border locales to strong economic expansion and financial prosperity is well documented. Understanding that Mexico and the U.S. share almost 2000 miles border locales, Adams (2006) sees Mexican-U.S. borders as "a window on the future of binational relations and interdependence". In fact, Payan calls for 'open recognition of U.S.-Mexico integration' leveraging on the 'unprecedented economic, cultural and political convergence of the two countries (Stephen, 2009). Schaan (2009) summarizes the significance of the two countries with a statement "…soon a choice must be made: either the two nations stand together in a common defense, or they withdraw into their own borders".

Thus, the insights espoused by authors like Payan, Stephen and Schaan suggest that it is almost impossible to untie the umbilical cord of cultural and economic dependence that both countries (U.S. and Mexico) share. It must however be stressed that border communities of both countries will be mostly impacted by activities, events or shocks (such as the drug violence in Mexico) along the respective borders. Therefore, it is a worthwhile research effort to examine the impact of the drug violence on the fiscal realities of border counties; of which the descriptive results from the current study preliminarily suggest a positive spillover effect.

1.4. Revenue. Generally, cities and counties face a unique portfolio of revenue sources (often subject to budgetary and statutory constraints) in order to generate the necessary revenue to meet their statutory public obligations which majorly involves provision of local public services. According to Waisanen (2010), 30 states (including Texas) have either tax or expenditure limit or both. Pagano and Johnston (2000) in their study of cities and counties revenue decisions note the constraining implications of 'state control over local revenue authority' on the revenue generation capacity of those cities and counties. They argue that the impact of such a control on cities/counties survival during economic downturns could be significant. Dye and McGuire (1997) submit that such statutory restraints through property 'tax cap' constrain (rather than 'facilitate') local governments fiscal behaviors and those of other 'local fiscal institutions'[2]. Property taxation appears to be a reliable and dependable source of local governments' revenue mix (see Sokolow, 1993) which among others depends largely on property values (much more on taxable values as opposed to market values) within their respective communities. However, in addition to state imposed constraints, there is an invisible interplay of interjurisdictionally imposed competitive constraint on the ability of cities or counties to expand tax revenue, since they are forced to pay attention to tax dynamics in neighboring cities/counties. In sum, taxing powers of local taxing jurisdictions are influenced by factors that include the health of the local economy, general state of the housing market, statutory constraints

[1] He also documents the consequences on forty-three border counties of Texas. He identifies four drug cartels: Tijuana cartel, Sinaloa-Sonora cartel, Juarez cartel and the Gulf cartel, claiming that "the large cartels now ride the formal NAFTA economy" with over $80 billion in profits. For more, see Stephen (2009).

[2] For more on the impact of State's imposition of fiscal restraints on local institutions, see Preston and Ichniowski (1991) and Poterba and Rueben (1995).

imposed by State constitutions, population, neighboring taxing jurisdictions and other fiscal variables.

There is a direct link between population growth and urbanization. Cities and counties are direct beneficiaries of the pros and cons of urbanization. At the least, local governments hope for neutral effect of urbanization, the opposite of which usually demands increased spending on local services. Since four decade ago, Tees (1971) blames state governments for failing to empower local authorities with the necessary powers to handle the challenges implicit in and associated with urbanization. This complex inter-governmental fiscal relationship between state and local governments no doubt still subsists today and it influences the revenue mix of local governments.

In this study, we examine population dynamics of the border counties in the wake of the renewed drug violence in Mexico cities and the spillover effects on the housing and revenue profile of the U.S. border counties. We argue that U.S. border counties face challenges of 'urbanization' driven by 'flight to safety' from the heinous drug-related violence in the Mexico border cities. Therefore, it is empirically important to examine how those counties fiscally cope with such challenges. Our findings provide evidence that the spillover effects of the violence possesses some 'silver linings' on U.S. border counties especially in the property tax and sales tax areas. This outcome should motivate additional research efforts that can potentially be value-relevant in the policy responses from relevant U.S. authorities.

The significance of, and the ability of local governments to impact quality of life of local residents cannot be underestimated (Gyourko and Tracy, 1991). In the hierarchy of authority and affinity, these governments are the closest to individuals and so their fiscal soundness is unquestionably relevant to their ability to meet local residents' service-demand priorities. These priorities include sound public school system, housing, security and other requisite infrastructure. Gyourko and Tracy find that cities fiscal soundness impacts their ability to provide quality amenities to their residents, which directly impact their quality of life.

However, states (including Texas) have continually imposed fiscal constraints and shifted responsibilities to counties and local governments in the recent past. Pagano and Johnston (2000) argue that such constraining interference from the state places substantial fiscal burden on cities and counties thus inhibiting their ability to carry out their financing and development programs to their residents. In order to meet their priorities, these governments usually increase revenue demand from local taxpayers in the form of additional property taxation as other revenue/taxation sources (such as income taxes or sales taxes) usually face constitutional and statutory restrictions from the states authorities. In addition, placing such revenue burdens on local residents often produces political pushback from residents. Interestingly, border counties with active inter-border economic and transactional activities from non-residents may be able to enlarge the pool of potential taxpayers (usually through increased economic activities) and thus spread the revenue burden. It becomes more viable if border counties witness inflow of immigrants with decent economic purchasing abilities to acquire and own real properties within their jurisdictions, thus increasing property taxation base (without rate increase) and the revenue derivable therefrom. Employment level of local residents is important in that irrespective of the county mix of taxes, the ability of residents to help meet such fiscal obligations depends on their income level. Such a constraint could be relaxed for border counties as economic vibrancy (where applicable) could be fuelled by crossing immigrants' purchasing activities.

To further accentuate the importance of property taxes in the revenue mix of local governments, Pagano and Johnston (2000) note the fluctuation characteristics of sales and income taxes (relative to property taxes) during economic booms and downturns. It is therefore believed that property tax, relative to sales or income taxes, is a more dependable source with relatively less distortions to county revenue base across all economic cycles. The extent of property tax reliance by a county or local government can signal the extent of revenue diversification profile of such a government. As mentioned by Pagano and Johnston (2000), a high reliance on property tax suggests that such a government has lesser revenue diversification portfolio. Since property tax is the primary and dependable revenue source of many local/county governments, we will expect that county borders in Texas will have high property-tax-reliance. However, a better scenario will indicate otherwise in that a lesser property tax reliance could mean a more diversified revenue mix, especially from sales tax (where applicable), without a decline in property tax revenue. With such an outcome, it can be claimed that there is a positive spillover effect from the drug-induced violence in Mexico-U.S. borders on both the real estate and other economic activities generating sales tax income for the border counties. As earlier mentioned, these border counties need such increased revenue in order to meet the increased demand/pressure on public amenities/services by additional residents fleeing the violence from across the border. Similarly, since the county governments in our

sample possess state authority to levy and collect other non-property taxes, specifically sales tax, residents are subject to higher revenue burden. This thus constrains the ability of local governments to impose or increase property tax rate or revenue without facing political resistance from local taxpayers. Hence, the importance of broadened tax base (from both property and sales tax) advantage from Mexico nationals fleeing violence into the U.S. border counties.

2. Data, analysis and discussion of results

Data. The data for this study are obtained from the office of the Texas Comptroller of Public Accounts through a special request and arrangement[1]. In some instances, the data were hand-collected for meaningful analysis.

The sample period covers year 2000 through 2011. These periods are chosen mainly to (1) correspond to the timelines of significant events surrounding the Mexican Drug war (2006 to 2011); and (2) allow for comparison of the descriptive results (pre – 2000 to 2005; post – 2006 to 2011). It is believed that Mexican authorities renewed the fight against drug cartels resulting in the accompanying violence in 2006 with the election of President Felipe Calderón. The newly elected President's tough and aggressive stances against the drug cartel's violence heightened the violent adversarial collision between the Mexican drug cartels and the Mexican authorities resulting in many collateral deaths. Certainly, for those who can afford it, flight to safety becomes the option to escape the escalating mayhem.

Due to cultural consideration (family ties, language) as well as geographical proximities, border communities in the U.S. become the natural destinations and 'safe haven' for many migrants fleeing the violence[2]. Therefore, beyond the usual concerns of the negative impact of immigration (especially undocumented) on border counties, we examine the relevant Rio Grande Valley (RGV) data descriptively and find preliminary evidence that there could be 'silver lining' from the spillover effects of the Mexican drug violence on the U.S. border counties' fiscal positions.

To achieve this, we further examine, among others, the dynamics of changes in population as well as property values between border and non-border counties in the State of Texas. Hitherto, the results in the literature regarding the relationship between city size (population) and property taxes have been at best mixed. For example, while studies such as Dye and McGuire (1997) suggest positive relation, Song and Zenou (2003) find a negative relationship between property taxes and city population, thus creating urban sprawl. It remains an empirical question whether such migration leads to county sprawl as the recipient county may face increased flow of property tax revenue and also sales tax revenue thereby reducing counties property-tax-reliance[3].

The variables we examined include County Population (CP), Total County Market Value (TCMV), Total County Taxable Value (TCTV), Property Tax Revenue (PTR); and Sales Tax Revenue (STR). With the exception of STR, we classify and compute the above mentioned variables into three categories namely: (1) RGV (Rio Grande Valley data); (2) WRGV (Texas counties excluding RGV); and (3) NonBorder (non border counties in Texas). The main difference between (2) and (3) is that the former includes other border counties in Texas while the latter consist of only non-border Texas counties. One rationale for including (2) is that although the RGV counties are the case study, comparing it with (3) reveals that the descriptive results may be generalizable to other Texas border counties.

Due to data availability, data on STR used to examine property tax reliance is only computed for RGV counties and for the period of 2008 through 2011. For the current study, property-tax-reliance is viewed as the ratio of property tax to sales tax (refer to earlier discussions on property-tax-reliance).

Results and discussion. Recall that our study covers Texas counties with emphasis on the Rio Grande Valley border counties. Averages for CP, TCVMV, TCTV and PTR are computed over the sample period for each of the three categories stated above. Table 1 and 2 contain the averages and the percentage of change in county information respectively for year 2000 through 2011. However, Table 2 splits the data into Pre (2000 – 2005) and Post (2006 – 2011) analysis period (refer to the rationale for setting up the Pre and Post analysis period above). Figures 1 through 4 accompany Table 1. It is also worthy to note that all the variables in WRGV are slight higher compared to non-border. For example with respect to CP, it suggests that border counties in Texas are experiencing higher population growth relative to non-border counties. Overall, it could imply that the preliminary findings of our study may be generalizable to other border counties in Texas.

[1] Due to the fact that the data are not readily available in the public domain, we initiated a written request to the Texas Comptroller of Public Accounts and after some procedural steps and arrangements, we were given access. Copy of the approval and the data are available upon request from the authors.

[2] We do not distinguish between documented and undocumented immigration in this study because we do not see the compelling need for such an arbitrary distinction to our study.

[3] We use county sprawl to mean inter-county movements.

Table 1 – County population

Year	RGV	WRGV	Non-border
2000	245,926.50	79,849.03	79,191.45
2001	251,294.50	81,310.68	80,674.43
2002	258,169.50	82,712.44	84,465.67
2003	265,358.80	83,985.46	83,370.72
2004	272,387.80	85,315.07	84,698.48
2005	278,948.00	86,744.51	86,138.19
2006	285,304.80	88,911.22	88,322.83
2007	291,465.20	90,687.36	90,120.26
2008	298,093.20	92,447.67	91,886.60
2009	305,147.20	94,246.85	93,679.58
2010	317,841.50	95,928.40	95,162.14
2011	323,935.80	97,515.75	96,723.51

Notes: *This table shows the averages of the county population for Texas counties. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; *Non-border = Texas counties that do not share border with Mexico. *Original data obtained from the office of Texas Comptroller of Public Accounts, Austin, TX.

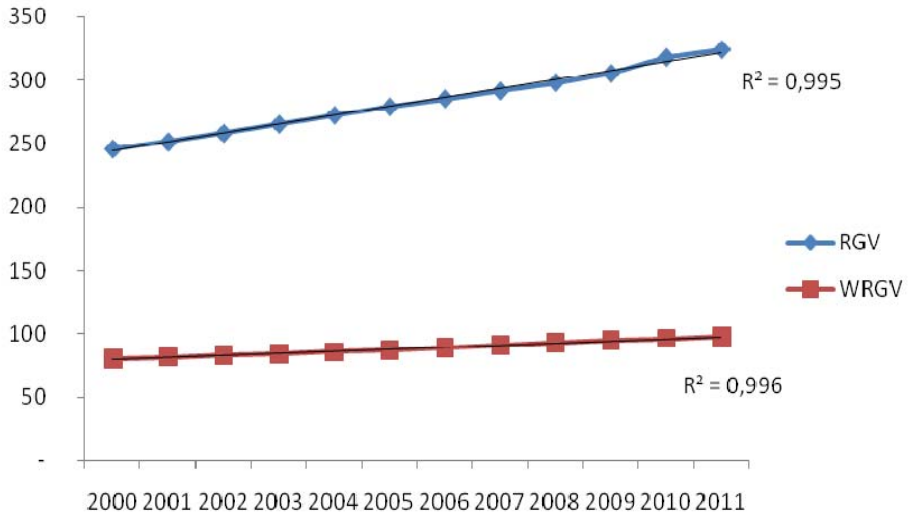
On average, county population (CP) for RGV Pre (Post) period grows by approximately 262,000 (304,000) representing 16% growth. During the same period, CP for WRGV and non-border each increases by nearly 12% (i.e. 11.97% and 11.50% respectively). It is therefore safe to say that on average, the population of the RGV counties grows faster in 2006 and beyond relative to other counties in the state of Texas. Similar trend occurs for other variables examined in this study (see Table 2).

Table 2 – Percentage change in county information

Panel A				
Post Change	RGV	WRGV	On-border	
CP	15.88%	11.97%	11.50%	
TCVMV	62.78%	56.67%	56.35%	
TCTV	62.47%	54.57%	54.19%	
PTR	60.29%	50.70%	50.67%	
Panel B				
	P	CMV	CTV	PTR
RGV/WRGV	3.92%	6.12%	7.90%	9.59%
WRGV/NonBorder	0.46%	0.31%	0.38%	0.03%

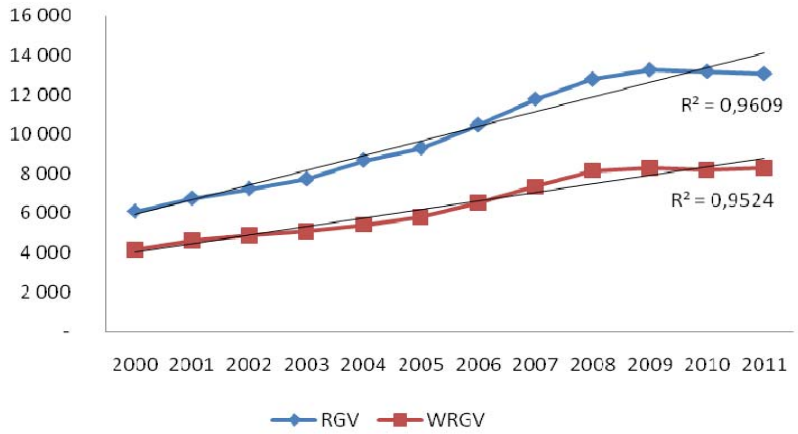
Notes: *This table shows the percentage changes in county information. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; Non-border = Texas counties that do not share border with Mexico. *CP is the County Population; TCVMV is the Total County Housing Market Value; TCTV is the Total County Taxable Value; PTR is the Property Tax Revenue. *Panel A shows percentage changes in each variable between the Pre (2000-2005) and Post (2006-2011) periods. *Panel B shows the percentage changes reported in Panel A across the counties. *Original data obtained from the office of Texas Comptroller of Public Accounts, Austin, TX.

The data also shows that in RGV counties, the market value of housing (TCMV) during the Post period is approximately 6% greater than Texas counties outside RGV (i.e. WRGV). In the same vein, there is 8% difference for taxable value of housing between RGV counties and other counties. On average, the property tax revenue of RGV counties is approximately 10% higher than non-RGV counties in the post period.



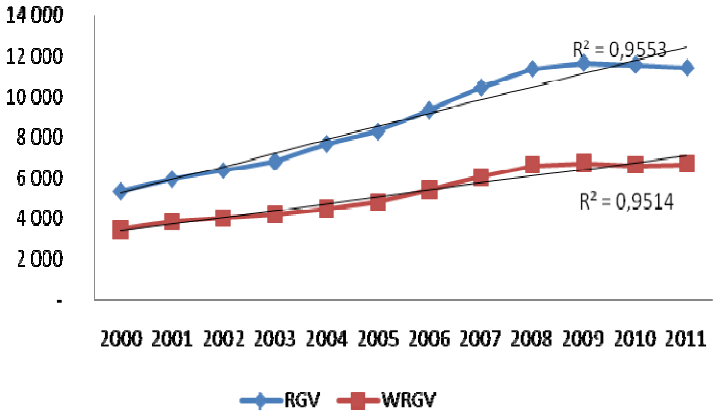
Notes: *This figure shows the graph of the county population in Texas counties between 2000 and 2011. *The graph for RGV vs. Non-border looks substantially the same. Therefore, it is not shown for expositional convenience. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; Non-border =Texas counties that do not share border with Mexico.

Fig. 1. County population (CP) (2000 – 2001)



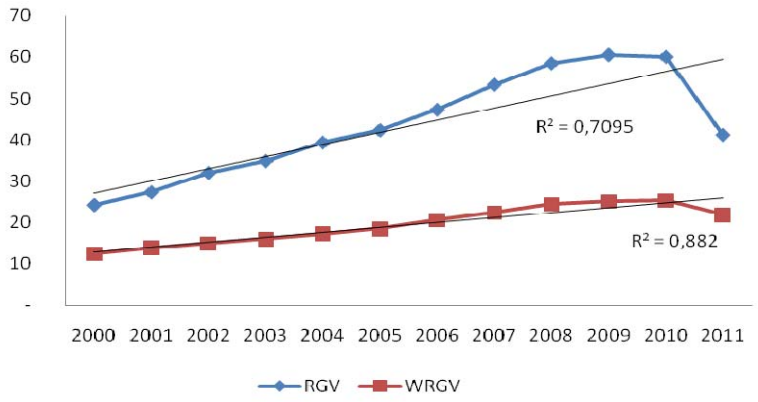
Notes: *This Figure shows the graph of the market value of the housing stock in Texas counties between 2000 and 2011. *The graph for RGV vs. Non-border looks substantially the same. Therefore, it is not shown for expositional convenience. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; Non-border = Texas counties that do not share border with Mexico.

Fig. 2. Total county market value (TCMV) (2000-2001)



Notes: *This figure shows the graph of the taxable value of the housing stock in Texas counties between 2000 and 2011. *The graph for RGV vs. Non-border looks substantially the same. Therefore, it is shown for expositional convenience. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; Non-border = Texas counties that do not share border with Mexico.

Fig. 3. Total county taxable value (TCTV) (2000-2011)



Notes: *This figure shows the graph of the property tax revenue in Texas counties between 2000 and 2011. *The graph for RGV vs. Non-border looks substantially the same. Therefore, it is not shown for expositional convenience. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; Non-border = Texas counties that do not share border with Mexico.

Fig. 4. Property tax revenue (PTR) (2000-2001)

A careful look at the graphs in Figures 1 through 4 reveals that there is a break in virtually all the graphs sometimes around 2007. Therefore, a further analysis is conducted to statistically test the slope of the graphs for each of the variables around the years of break (specifically for 2005, 2006, 2007 and 2008). The results are presented in Table 3. The following equations representing the tests of the breaks in those spe-

cific years help contextualize the numbers and the respective Figures (i.e. Figures 1-4).

$$Y_t = \beta_1 t * RGV_t + \beta_2 t * WRGV_t + \beta_3 RGV_t + \\ + \beta_4 WRGV_t + \beta_5 T_t + \beta_6 t * T_t + \varepsilon_t \quad (1)$$

where: $Y = CP, TCMV, TCTV, PTR$ individually.

$t = 2000, 2001, \ldots, 2011.$

$T = 1$, if $t \geq T$; $T = 0$, if $t < T$.

T is the dummy variable that defines the year of break; T *is the year of break, (i.e.* T *= 2005, 2006, 2007, 2008 individually).*

RGV and *WRGV* are as described above.

The slope when $T = 0$ ($T = 1$) are individually presented for *RGV* and *WRGV* equations 2 (3) below:

$$\frac{\delta Y}{\delta t} = \beta_1, \quad (2a)$$

$$\frac{\delta Y}{\delta t} = \beta_2. \quad (2b)$$

Where β_3 *and* β_4 *are the intercepts respectively.*

$$\frac{\delta Y}{\delta t} = \beta_1 + \beta_6 \quad .(3a)$$

$$\frac{\delta Y}{\delta t} = \beta_2 + \beta_6 \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3b)$$

Where $(\beta_3 + \beta_5)$ *and* $(\beta_4 + \beta_5)$ *are the intercepts respectively.*

With the exception of CP, the test of breaks in the linear trend forecast for all the variables are significant from year 2007. The slope of CP is significant from year 2006. In all variables, year 2005 is not significant at the conventional threshold (i.e. 95% confidence interval) and they are not reported for expositional convenience. Recall that the Mexico war on drug was renewed in 2006, it takes at least one year for the effects (measured by variables listed above) to manifest. Though, the pattern of significance in the trend line slope for CP interestingly implies that the population growth is immediately captured in 2006 at the start of the renewed Mexican drug war; it is realistic to expect that even if people flee the violence in 2006, it will take time before certain decisions on home ownership or related investments can be implemented[1].

Table 3. Test of slope analysis

Panel A								
Year (Break)	CP		TCMV		TCTV		PTR	
	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value
2006	807.751	0.010	-59748273.086	0.519	-95088737.071	0.253	-2326936.314	0.049
2007	1014.260	0.003	-288804694.504	0.001	-292270373.618	0.000	-3687383.104	0.003
2008	1275.134	0.002	-550133958.910	0.000	-515189943.094	0.000	-5696851.132	0.000
Panel B								
Year (Break)								
	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value
2006	813.890	0.016	-60042978.614	0.519	-95663094.657	0.252	-2323106.414	0.050
2007	1019.029	0.005	-289656279.504	0.001	-293469603.157	0.000	-3689572.400	0.003
2008	1267.461	0.005	-553172661.113	0.000	-517824104.758	0.000	-5708907.388	0.000

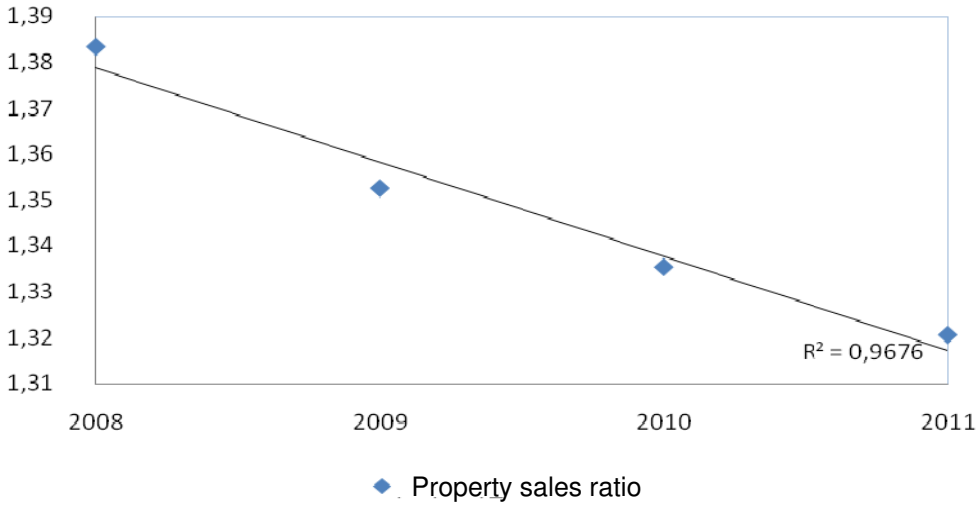
Note: *This table shows the econometric test of slope. *RGV = Rio Grande Valley counties; WRGV = Without Rio Grande Valley counties; non-border = Texas counties that do not share border with Mexico. *CP is the County Population; TCVMV is the Total County Housing Market Value; TCTV is the Total County Taxable Value; PTR is the Property Tax Revenue. *Panel A shows the test results with border counties. *Panel B shows the test results without border counties. *Original data obtained from the office of Texas Comptroller of Public Accounts, Austin, TX.

Figure 5 presents the property tax reliance graph. Recall that for the current study, property-tax-reliance is described as the ratio of property taxrevenue (PTR) to sales tax revenue (STR)[2]. For reasons earlier mentioned, the graph covers period of 2008 through 2011. It can be observed from the diagram that the trend line is negatively sloped. This implies that during those years, RGV counties consistently have lower property tax reliance (a higher increase in STR), notwithstanding the increase in property tax

[1] It will be observed from Table 3 that β_6 in all variables (i.e. TCVMV, TCTV and PTR) are negative with the exception of CP. Econometrically, it means that in variables with negative β_6, the slope is flatter but steeper in CP with positive coefficient. Practically, this could be interpreted that while RGV counties encounter higher population growth relative to other Texas counties (border or non-border); it is not everyone that participates in home buying or related investments.

[2] During the sample period, the tax rates for both property tax and sales tax are substantially stable. Therefore, a change in tax rates is ruled out as a cause for movements in PTR or STR.

revenue relative to other Texas counties. A potentially confounding explanation for the increase in STR is that many Mexican nationals/residents frequent on a daily basis (with temporary visa) Texas border counties (including RGV) and make purchases that are subject to sales tax. These migrant visitors are generally referred to as 'Cross-Border Mexican Shoppers'. However, this is not of first-order concern to this study because those 'visitors' are entitled to the sales tax rebate (called '*manifiesto*' by the Mexicans) that refunds the amount of sales taxes paid[1]. In fact, Mogab et al. (2005) in their survey of 'Cross-Border Mexican Shoppers', report that nearly 7 out of 10 respondents claimed that the sales tax rebate "was important" to their decisions to shop in the U.S. and that only 1 in 10 considered it "unimportant".



Note: *This Figure shows the graph of the property- tax-reliance in RGV counties between 2008 and 2011.

Fig. 5. Property-tax-reliance (2008– 2011)

Conclusion

This study examines the potential spillover effects of the Mexican drug war and its associated violence on the fiscal realities of the U.S. border counties. Specifically, we study descriptively the data from the Rio Grande Valley (RGV) counties of the state of Texas and find initial evidence of possible 'silver lining' spilling over from Mexican drug violence to the U.S. border counties' fiscal positions. During the sample period, we find that housing activities increase and property-tax-reliance decreases in RGV counties relative to other Texas counties (both border and non-border).

The renewed fight against the Mexican drug cartels following the election of President Felipe Calderón in late 2006 brought about unimaginable violence on the people of Mexico and for those who could afford it, fleeing to safety at safe havens in the U.S. becomes the readily available option. Typically, such a flight to safety action tends to mostly trend U.S. cities and counties along the borders relative to other parts of the U.S., partly due to geographical proximities, family ties and other demographic conveniences such as language and cultural conformity (as it is the case in RGV). Therefore, beyond the common negativities widely popularized, our initial evidence suggests that in border counties, there might be a 'silver lining' to the Mexico drug violence as some Mexicans' 'flight to safety' and 'flight to quality' bring with them economic prosperity and investible capital into the U.S. In other words, because of the continued drug violence, Mexico is inadvertently forfeiting economic prosperity to U.S. border counties. This in turn improves the revenue side of the fiscal positions of U.S. border counties.

We must acknowledge that the population growth in RGV may not only be attributed to flight to safety activities from violence; it could be because of growing economic opportunities in the RGV area. Also, this study focuses on the revenue side of counties fiscal profile. Looking at the expenditure side is equally important. We anticipate that the findings and evidence advanced by our study will motivate additional interests and research agenda in this important area of counties' and local governments' public and municipal finance.

[1] One rationale for sales tax rebate is that the U.S. constitution forbids state authorities from levying tax on exported goods outside the U.S. borders. Therefore, sales to Mexican nationals that visit U.S. on temporary basis for shopping are deemed exports. For more on '*manifiesto*, see Mogab et al (2005).

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