

War on drugs and the economic cost of conflict in intervened Mexican States¹

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Abstract: This paper analyses and assesses the economic cost of conflict in intervened Mexican States within the war on drugs. We focus on the nine Mexican States treated by federal government's Joint Interventions (Operativos Conjuntos). The empirical analysis is done using two econometric techniques: a modified version of the interrupted time series approach and an univariate difference-in-differences (DD) method which allow to identify and separate the effects of the treatment. According to our results, the effects of the Joint Interventions on the level of the State Economic Activity Index (ITAE) growth rate were negative for the cases of Baja California, Chihuahua and Sinaloa while in the case of Michoacán the effect was positive. In addition, the effects on the ITAE trend were only negative for Nuevo Leon. Finally, when analyzing the treated States as a group, our results show that intervened States have had a significant decrease in average rate of growth of ITAE by 1.346 percentage points.

JEL Codes: K42, H77, C21

Keywords: War on drugs; cost of conflict; Mexico; economic growth

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1. Introduction

One of the first actions announced by the government of President Felipe Calderón was the so-called War on Drugs. Thus, on December 11, 2006, the Operación Conjunta Michoacán (Presidencia de la República, 11/Dec/2006) was announced simultaneously by the Secretaries of Government, Defense, Navy, Public Security and the General Attorney of the Republic. The announced goal of the war on drugs, as one of the three priorities of the Calderón government, was to strengthen the security of Mexican people in all the country regions.

An important part of the war on drugs was implemented through police-military interventions under the name of Operaciones Conjuntas (hereafter Joint Interventions). In the words of the former Secretary of the Government, Alejandro Poiré (2011), Joint Interventions are:

Mechanisms implemented by the Federal Government to combat organized crime which are based on the principle of subsidiarity of any federal system. This is, when a governor considers that it requires the support of the federal forces to guarantee the security in her territory, it is designed the way in which elements of the different corporations of the Federal Government will be deployed to attend this request.

Through Joint Interventions, nine Mexican States have been intervened since 2006 with the main objective of combating drug trafficking. The analysis below aims to study and measure the effect of intervention within the war on drugs through the so-called Joint Interventions. To do so, we analyze the effect of the intervention on the quarterly annualized growth rate of the State Economic Activity Index (ITAE, Índice de Actividad Económica Estatal) retrieved from the Instituto Nacional de Estadística, Geografía e Informática (INEGI).

The empirical analysis is based on two econometric techniques. The first approximation is done by implementing a modified version of the interrupted time series approach (Gardeazabal, 2012, Anderton and Carter, 2001). In addition, we use the univariate Difference-in-Differences (DD) method proposed by Ball and Sheridan (2005) where we used the intervened states through Joint Interventions as members of the treated group while the remaining Mexican states are used as a control group.

The article is structured as follows. In section two, we analyse some important features of the war on drugs in Mexico and we review the recent literature on the relationship between drug trafficking related crime and economic activity. In section three we analyse the effects of the Joint Interventions on economic activity through the interrupted time series approach and the univariate differences-in-difference. Finally, in section fourth we present some final remarks. According to our results, in regard of the interrupted time series, the effects of the Joint Interventions on the level of the ITAEE growth rate were negative for the cases of Baja California, Chihuahua and Sinaloa while in the case of Michoacán the effect was positive. In addition, the effects on the ITAEE trend were only negative for Nuevo Leon. Regarding to the univariate differences-in-difference approach, our results show that intervened States have had a significant decrease in average rate of growth of ITAEE by 1.346 percentage points.

2. War on Drugs and Economic Activity

In late 2006, the Mexican government announced the beginning of the so-called war on drugs as a part of the three priorities of the Calderon presidency. Strengthening the security of the Mexican people in all regions of the country was one of those priorities. In this regard, an important part of the war against drug trafficking was implemented through the so-called

Joint Interventions (Operaciones Conjuntas), where federal forces (army and navy) were deployed to different states aiming to warranty security.

Insert Table 1: Joint Interventions

Table 1 shows the intervened Mexican States and the date of intervention. During this time, nine States have been intervened with the main objective of the fight against drug trafficking. In addition to these States, two other regions were intervened but with mixed objectives, i.e., in addition to combating drug trafficking, other objectives were considered, such as combating human trafficking in the Southern region.

As above mentioned, in this article we analyze the economic cost of the war on drugs with special focus on the nine intervened Mexican States. Recently, there has been an attempt to analyze the effect of the war on drugs and the crime associated with it in economic activity (Ríos, 2016; Verdugo-Yepes, Pedroni and Hu, 2015; Enamorado, López-Calva and Rodríguez-Castelán, 2014; Garduño-Rivera, 2014; Benyishay and Pearlman, 2013, 2014; Ashby and Ramos, 2013; Robles, Calderón and Magaloni, 2013). However, the effects of the Joint Interventions on economic activity have not been studied so far.

The impact of the war on drugs can be assessed from different perspectives: the decrease/increase in violence associated with the presence of cartels and their operations; the decrease/increase of drug trafficking in terms of volume and monetary value; the decrease/increase in drug production; the decrease/increase in health problems associated with addictions; or the decrease/increase of economic activity in States or regions with problems of violence related to drug trafficking.

Nonetheless, one of the main constraints to the evaluation of the effects of the drug policies is the unavailability of data in an span of time long enough to assess the change in the relevant variables at State and local level. In addition, Atuesta-Becerra (2014:13) points out that there

are three reasons why we cannot carry out a critical evaluation of the intervention programs:

1) there are no direct relationships between the implemented strategies and the established objectives; 2) no periodic modifications were made when negative results were found; and 3) in most of the cases there were insufficient specific actions linked to the implementation of the strategies and objectives. Therefore, without clear specific objectives, the evaluation of the interventions within the war against drug trafficking is only possible through the indirect analysis of its effects, which in our case focuses on assessing the costs in terms of the economic activity at State level.

Recently, the economic literature on the effects of the war on drug trafficking and associated crime on the Mexican economy has been increased, although it is still relatively scarce. At the aggregate level, Robles, Calderón and Magaloni (2013) point out that there is a threshold of violence related to drug trafficking from which the general economic activity is contracted. Therefore, in the presence of escalating violence, economic activity shrinks, as well as labor participation and employment. Enamorado, López-Calva and Rodríguez-Castelán (2014) study the effect of crime on income growth in Mexico, separating the effects of crime related to drug trafficking from other types of crime. Their results indicate that drug-related crime has a negative impact on income growth while for non-drug related crime the effect is not significant.

At the regional level, Verdugo-Yepes, Pedroni and Hu (2015) study the transmission of crime shocks to the economy in the 32 Mexican States. Their analysis points to the complexity of the relationship at State level, where there is a large range of responses to crime shocks among States with different magnitude and sign. In this regard, Garduño-Rivera (2014) studies the regional economic effect of illicit drugs in Mexico on population, economic units and gross census added value (VAB, which measures the size of the economy of each

municipality), as well as the effect on the determinants of GDP at State level. Their results point to the existence of migratory movements from the most violent municipalities to the relatively quieter ones, as well as higher growth rates of economic units in less violent municipalities. Additionally, in the more violent municipalities the VAB was reduced what is explained by the relocation of companies. Similarly, the States with the greatest decline in economic activity are those with the highest number of homicides related to drug trafficking. Regarding the labor market, BenYishay, A. and Pearlman, S. (2013) study the impact of violent crime associated with the war against drug trafficking on the participation of the adult labor force in Mexico. Their results show a negative effect of the change in homicide rates on hours spent working, with greater effects on self-employed workers.

Finally, at the sectoral level, Rios (2016) points out that increases in criminal presence and violent crime reduce economic diversification, increase sectoral concentration and reduce economic complexity. Likewise, Ashby and Ramos (2013) study the responses of FDI for different industries to organized crime in Mexico. Their results indicate that the presence of organized crime discourages foreign investment in financial services, commerce and agriculture. In the case of manufacturing the effects are not significant whereas in oil extraction and mining the effects are positive.

3. Measuring the economic cost of conflict

In the face of data unavailability problems and lack of clear objectives in the strategies to combat drug trafficking, the assessment of the war on drugs is done indirectly through the effects on relevant economic variables at State level.

Thus, a first empirical approximation is made by analyzing the effects on productivity before and after the war. The second Kaldor's law (1984) states that the growth of labor industrial

productivity growth is a function of industrial output (it can be manufacturing growth, the industrial GDP or the product of the secondary sector). Based on the postulates of the Kaldor-Verdoorn's law (see Verdoorn 1949, 1980), it is possible to analyze the effects in this relationship before and after the war, and demonstrate that the economy could be being affected by situations that wear out the economic system, such as the war against drug trafficking.

Using data of the secondary sector GDP at State level and permanent and temporary workers insured in the Mexican Institute of Social Security (IMSS) by states retrieved from the Instituto Nacional de Estadística, Geografía e Informática (INEGI) for the period 2003-2012, we estimate the labor productivity in the industrial sector. Figure 1 and 2 show the relationship between labor productivity and output growth of the secondary sector. We split the full period into two sub-period: before the beginning of the war on drugs (2003-2006) and after the beginning of the war (2006-2012). The pre-war period includes only a part of former President Vicente Fox presidency due data unavailability.

Insert Figure 1

Insert Figure 2

Figures 1 and 2 shows a stable and direct relationship according to Kaldor-Verdoorn's law. In fact, if the values of the Verdoorn's coefficients are compared in both sub-periods of time, it is clear that the relationship is consistent and stable according to the law.

According with this graphic analysis, the war on drugs has contracted the Mexican economy, with movements of all the Mexican states toward to the origin in Figure 2 (second sub-period). However, this sub-period overlaps with the burst of the global financial crisis, i.e., this movement toward the origin in Figure 2 could be related to the global financial crisis. Notwithstanding, the global financial crisis is not responsible all the movement of this sub-

period since the deterioration of the movements is not symmetric to all Mexican states but irregular among them.

To formally analyze the effects of the war on drugs on economic activity, we evaluate the economic cost of conflict of the war on drugs at State level measured through the quarterly annualized growth rate of the State Economic Activity Index (ITAEI, Índice de Actividad Económica Estatal) retrieved from INEGI. We focus on Mexican States that have undergone a police-military intervention because of the implementation of Joint Operations. The intervened States through Joint Interventions are nine: Baja California, Chihuahua, Durango, Guerrero, Michoacán, Nuevo León, Sinaloa, Tamaulipas and Veracruz.

Our analysis aims to measure the impact on State economic activity of the war against drug trafficking. In order to analyze the impact of the war on drugs, we implement a modified version of the interrupted time series approach (Gardeazabal, 2012, Anderton and Carter, 2001), as well as the difference-in-differences method of Ball and Sheridan (2005).

3.1 The Interrupted Time Series Approach

The interrupted time series approach is used to analyze the effect of an intervention on a relevant variable (Gardeazabal, 2012). Thus, Anderton and Carter (2001) implemented this approach to analyze the effect of war conflicts on trade between countries. In Anderton and Carter (2001), the estimated equation takes into account the periods before, during and after the armed conflict as Equation 1:

$$y_t = \beta_1 + \beta_2 Trend_t + \beta_3 WarLevel_t + \beta_4 WarTrend_t + \beta_5 PeaceLevel_t + \beta_6 PeaceTrend_t + u_t \quad (1)$$

Where y_t is the relevant variable in which the effect of the war conflict is analyzed. $Trend_t$ is a trend for each year in the series; $WarLevel_t$ is a dummy variable that takes the value of 0 before the war and 1 for the remaining years; $WarTrend_t$ takes the value of 0 before the war and 1, 2, 3 ... from the beginning of the war to the end of the series; $PeaceLevel_t$ takes the value of 1 after the war and zero otherwise; and $PeaceTrend_t$ takes the value of 0 before and during the war, and the value of 1, 2, 3 ... at the end of the war.

To specify the regression for the interrupted time series approach we consider two relevant factors. First, since the years of intervention coincide with the outbreak of the global financial crisis, we introduce as an independent variable the quarterly annualized growth rate of industrial production in the United States (US); With this, we aim to control by the effect that the crisis could have on the growth rates of the State economic activity. Second, in our case it is difficult to define the end date of the intervention, i.e., the end of the increased violence associated with the intervention. One possible way to identify the end of the conflict associated with the implementation of Joint Interventions is to identify the period in which homicide deaths return and remain at or below the average number of homicide deaths recorded by each State prior to the interventions. Under this criterion, in none of the States is there evidence of the end of the violence escalation associated with the implementation of the Joint Interventions. Therefore, after considering both factors, we specify the interrupted time series approach as follows:

$$y_t = \beta_1 + \beta_2 USA_t + \beta_3 Trend_t + \beta_4 InterventionLevel_t + \beta_5 InterventionTrend_t + u_t \quad (2)$$

Where y_t is the ITAEE; USA_t is the quarterly annualized growth rate of industrial production in the United States which controls for the international financial crisis; $Trend_t$ takes the value of 1, 2, 3... for each year in the series; $InterventionLevel_t$ takes the value of 0 before the implementation of the Joint Interventions and 1 in the remaining years; and $InterventionTrend_t$ which takes the value of zero before the Joint Interventions and 1, 2, 3... otherwise.

Insert Table 2

Estimation results of Eq. 2 are presented in Table 2. As can be seen, in all cases the control variable USA_t is statistically significant with positive sign, reflecting the close relationship between the Mexican economy and the US economy. This variable absorbs the effect of the global financial crisis —originated in the United States— and whose consequences were evident in the Mexican economy. In addition, the effects of the Joint Interventions on the level of the ITAEE growth rate were negative for the cases of Baja California, Chihuahua and Sinaloa while in the case of Michoacán the effect was positive with a statistical significance of 10%. Finally, the effects on the ITAEE trend were only negative for Nuevo Leon at 10% of statistical significance.

Although the individual analysis shows evidence of negative effects on the ITAEE level in three States (Baja California, Chihuahua and Sinaloa) and the ITAEE trend in the case of Nuevo Leon, it is possible to identify the effects of the intervention by controlling for States that did not were intervened through Joint Interventions.

3.2 The Difference-in-Differences Approach

The difference-in-differences (DD) models aim to analyze the differences between two groups of individuals where one of these groups has received a public policy intervention. DD models consider two periods. In the first period, none of the groups received a public policy intervention whereas in the second period a group was intervened. The DD method allows to identify the effects of the treatment. In addition, DD models allows the removal of bias in the second period in comparisons between the two groups, resulting from permanent differences between both groups, and the bias resulting from the existing trends (Imbens and Wooldridge, 2007).

To analyze the effects of Joint Interventions on ITAEE, we used the univariate DD method proposed by Ball and Sheridan (2005) as a benchmark model.

Our benchmark DD estimations are based on Ball and Sheridan (2005). In a two way fixed-effects panel model, the ITAEE of State i in time t is given by:

$$y_{i,t} = \alpha_1 + \alpha_2 E_{i,t} + \theta_i + \varphi_t + \varepsilon_{i,t} \quad (3)$$

Where θ_i is the individual effect, φ_t is the time effect, $\varepsilon_{i,t}$ is an error term for country i in time t and $E_{i,t}$ is a dummy variable taking the value of 1 if the country i has been intervened in t and 0 otherwise. There are only two periods, pre-intervention and post-intervention.

Differentiating Equation 3, we have:

$$y_{i,Post} - y_{i,Pre} = (\varphi_{Post} - \varphi_{Pre}) + \alpha_2 (E_{i,Post} - E_{i,Pre}) + (\varepsilon_{i,Post} - \varepsilon_{i,Pre}) \quad (4)$$

Being $D_i = (E_{i,Post} - E_{i,Pre})$ then, we have:

$$y_{i,Post} - y_{i,Pre} = (\varphi_{Post} - \varphi_{Pre}) + \alpha_2 D_i + (\varepsilon_{i,Post} - \varepsilon_{i,Pre}) \quad (5)$$

Following Ball and Sheridan (2005), we can interpret Equation 6 as the cross-country estimator of Equation 5 plus the added $y_{i,Pre}$ regressor in order to avoid a regression to the mean problem.

$$y_{i,Post} - y_{i,Pre} = \alpha_1 + \alpha_2 D_i + \alpha_3 y_{i,Pre} + \mu_i \quad (6)$$

Insert Table 3. Data for benchmark DD model

Table 3 shows data used for estimating Equation 6. As showed in Table 3, we use 3-year-period average for our estimations for pre- and post-intervention periods. We select a 3-year-period average due to data availability restrictions. Selecting a 3-year-period average allows us to maximize the number of cross-country terms included in our estimations. For non-intervened Mexican States, period average were selected according to the average period of intervention as in Ball and Sheridan (2005), i.e., for non-intervened States the pre-intervention period is 2005/2-2008/1 and the post-intervention period 2008/2-2011/1.

Insert Table 4. Benchmark Difference-in-Differences Estimations

Table 4 show results of our DD benchmark model. Our results show that intervened States have had a significant decrease in average rate of growth of ITAEE by 1.346 percentage points. Additionally, a 1% higher average rate of growth in the pre-intervention period implies a decrease of 0.741 percentage points. Summarizing, accordingly to our benchmark model, the rate of growth for the second period decline in 1.346 percentage points for the intervened Mexican States.

4. Final remarks

In December 2006, the Mexican president Felipe Calderon announced the beginning of the so-called war against illegal drug trafficking. An important part of the war on drugs was

instrumented through Joint Interventions where nine Mexican States were treated with the main aim to lessen illegal drug trafficking related violence.

However, the war on drugs was implemented without clear objectives serving as a benchmark for evaluating its effectiveness. Therefore, assessing the impact of the war on drug is done by evaluating the impact of the war on some relevant economic variables. Thus, in this article we analyse the effect of the Joint Operations on the State level economic activity.

According to our results, the effects of the Joint Interventions on the level of the ITAEE growth rate were negative for the cases of Baja California, Chihuahua and Sinaloa while in the case of Michoacán the effect was positive. In addition, the effects on the ITAEE trend were only negative for Nuevo Leon. When analyzing the treated States as a group, our results show that intervened States have had a significant decrease in average rate of growth of ITAEE by 1.346 percentage points.

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Table 1. Joint interventions - War on Drugs in Mexico		
Intervention date (MM/YYYY)	Intervention region	Mexican States involved in the intervention
12/11/2006	Michoacán	Michoacán
01/02/2007	Tijuana	Baja California
01/15/2007	Guerrero I	Guerrero
01/22/2007	Triángulo Dorado	Chihuahua
		Sinaloa
		Durango
01/01/2008	Noreste	Nuevo León
		Tamaulipas
03/28/2008	Ciudad Juárez	Chihuahua
05/14/2008	Sinaloa	Sinaloa
10/04/2011	Veracruz	Veracruz
10/06/2011	Guerrero Seguro	Guerrero
Other interventions		
08/24/2009	Frontera Sur	Chiapas
05/09/2012	Morelos	Morelos

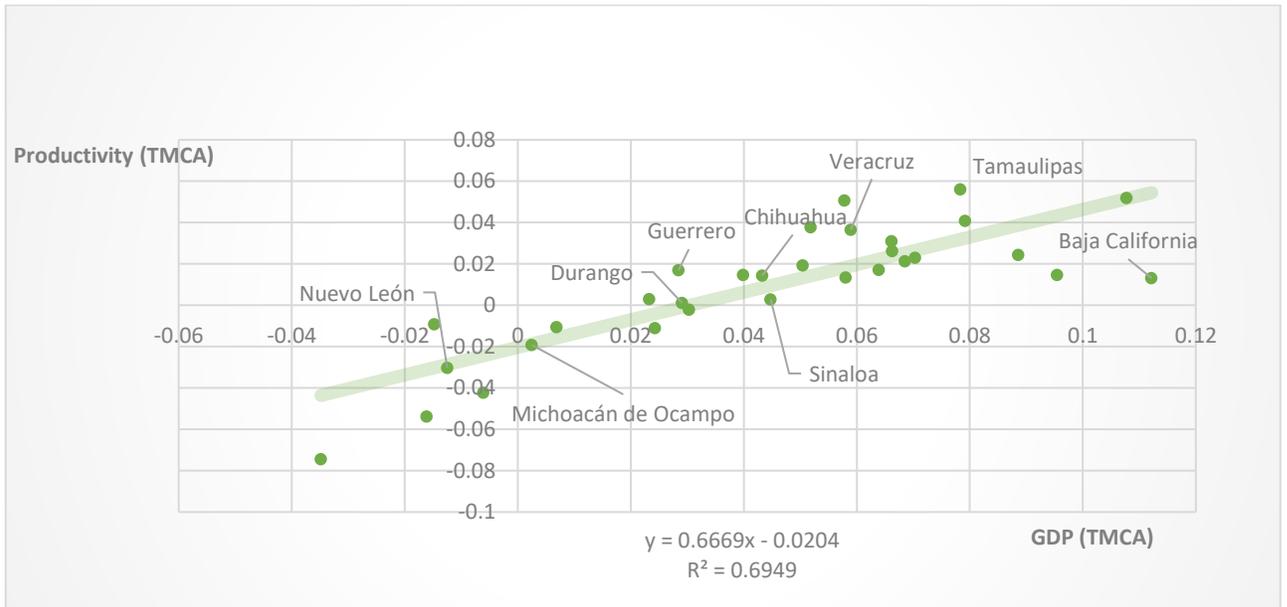
Table 2. Measuring the economic cost of conflict by the Interrupted Time Series Approach							
Dependent variable: ITAEE (quarterly data; period 2004/1-2015/4)							
	Intervention onset	Constant	USA	Trend	Intervention Level	Intervention Trend	R-squared
Baja California	2007/1	3.83**	0.51***	0.02	-3.60**	0.02	0.49
Standard errors		1.691	0.093	0.185	1.374	0.193	
Chihuahua	2008/1	4.63***	0.42***	-0.06	-3.81**	0.19	0.49
Standard errors		1.530	0.121	0.143	1.798	0.155	
Durango	2007/1	0.95	0.38***	0.16	-1.10	-0.17	0.43
Standard errors		1.509	0.056	0.196	1.332	0.197	
Guerrero	2007/1	4.99***	0.38***	-0.35	0.80	0.34	0.38
Standard errors		1.665	0.113	0.273	2.135	0.277	
Michoacan	2006/4	1.08	0.63***	-0.03	2.33*	-0.04	0.49
Standard errors		1.354	0.090	0.193	1.353	0.200	
Nuevo Leon	2008/1	3.25***	0.79***	0.17*	-2.13	-0.20*	0.74
Standard errors		0.701	0.081	0.087	1.439	0.108	
Sinaloa	2008/2	4.21***	0.23**	-0.04	-3.18*	0.12	0.27
Standard errors		1.130	0.110	0.092	1.784	0.114	
Tamaulipas	2008/1	3.83***	0.42***	-0.10	-0.11	0.06	0.53
Standard errors		1.030	0.085	0.135	1.806	0.145	
Veracruz	2011/4	4.97***	0.29***	-0.13***	2.10	-0.16	0.52
Standard errors		0.801	0.031	0.036	1.279	0.113	

White heteroskedasticity-consistent standard errors in parentheses. Significance level: *** at 1%, ** at 5%, * at 10%

Table 3. Economic activity by State for Benchmark Difference-in-Difference Estimation					
Intervened States					
	Periods		Period Average		
	Before Intervention	After Intervention	Before	After	Change
Baja California	2004/1-2006/4	2007/1-2009/4	5.357	-1.297	-6.654
Chihuahua 1	2004/1-2006/4	2007/1-2009/4	5.999	-0.757	-6.756
Chihuahua 2	2005/1-2007/4	2008/1-2010/4	5.349	-1.125	-6.474
Durango	2004/1-2006/4	2007/1-2009/4	2.899	-0.116	-3.015
Guerrero 1	2004/1-2006/4	2007/1-2009/4	4.089	0.549	-3.540
Guerrero 2	2008/4-2011/3	2011/4-2014/3	1.607	1.873	0.266
Michoacán	2004/1-2006/3	2006/4-2009/3	2.712	0.638	-2.074
Nuevo Leon	2005/1-2007/4	2008/1-2010/4	6.844	1.249	-5.594
Sinaloa 1	2004/1-2006/4	2007/1-2009/4	4.436	1.223	-3.213
Sinaloa 2	2005/2-2008/1	2008/2-2011/1	4.027	-0.184	-4.211
Tamaulipas	2005/1-2007/4	2008/1-2010/4	4.103	0.457	-3.646
Veracruz	2008/4-2011/3	2011/4-2014/3	1.439	1.622	0.183
Non-intervened States					
	Periods		Period Average		
	Before Intervention	After Intervention	Before	After	Change
Agascalientes	2005/2-2008/1	2008/2-2011/1	6.148	1.648	-4.500
Baja California Sur	2005/2-2008/1	2008/2-2011/1	7.574	1.011	-6.563
Campeche	2005/2-2008/1	2008/2-2011/1	-3.829	-6.159	-2.330
Coahuila	2005/2-2008/1	2008/2-2011/1	4.148	1.573	-2.575
Colima	2005/2-2008/1	2008/2-2011/1	4.370	1.260	-3.110
Chiapas	2005/2-2008/1	2008/2-2011/1	0.829	4.458	3.629
Ciudad de Mexico	2005/2-2008/1	2008/2-2011/1	3.802	0.820	-2.983
Guanajuato	2005/2-2008/1	2008/2-2011/1	2.871	1.879	-0.992
Hidalgo	2005/2-2008/1	2008/2-2011/1	3.057	1.155	-1.902
Jalisco	2005/2-2008/1	2008/2-2011/1	4.969	0.279	-4.689
México	2005/2-2008/1	2008/2-2011/1	4.639	2.019	-2.619
Morelos	2005/2-2008/1	2008/2-2011/1	3.469	1.272	-2.198
Nayarit	2005/2-2008/1	2008/2-2011/1	3.117	2.134	-0.983
Oaxaca	2005/2-2008/1	2008/2-2011/1	1.514	1.038	-0.476
Puebla	2005/2-2008/1	2008/2-2011/1	4.511	1.574	-2.937
Querétaro	2005/2-2008/1	2008/2-2011/1	6.192	3.020	-3.171
Quintana Roo	2005/2-2008/1	2008/2-2011/1	7.048	1.018	-6.030
San Luis Potosi	2005/2-2008/1	2008/2-2011/1	3.726	2.047	-1.679
Sonora	2005/2-2008/1	2008/2-2011/1	5.405	1.407	-3.998
Tabasco	2005/2-2008/1	2008/2-2011/1	5.903	4.538	-1.364
Tlaxcala	2005/2-2008/1	2008/2-2011/1	1.507	1.638	0.131
Yucatán	2005/2-2008/1	2008/2-2011/1	5.344	1.138	-4.207
Zacatecas	2005/2-2008/1	2008/2-2011/1	3.188	7.030	3.842
Three year periods average before and after intervention. The only exception is Michoacán where there is not data available for 12 quarters before intervention but 11 quarters.					

Table 4. Benchmark Difference-in-Differences Estimations	
Dependent variable: Change in Economic Activity by State (Period Average)	
	Benchmark Model
Constant (Standard Errors)	0.637 (1.544)
Before Intervention Average (Standard Errors)	-0.741** (0.316)
Intervention Dummy (Standard Errors)	-1.346** (0.565)
R-squared	0.48
White heteroskedasticity-consistent standard errors in parentheses. Significance level: *** at 1%, ** at 5%, * at 10%	

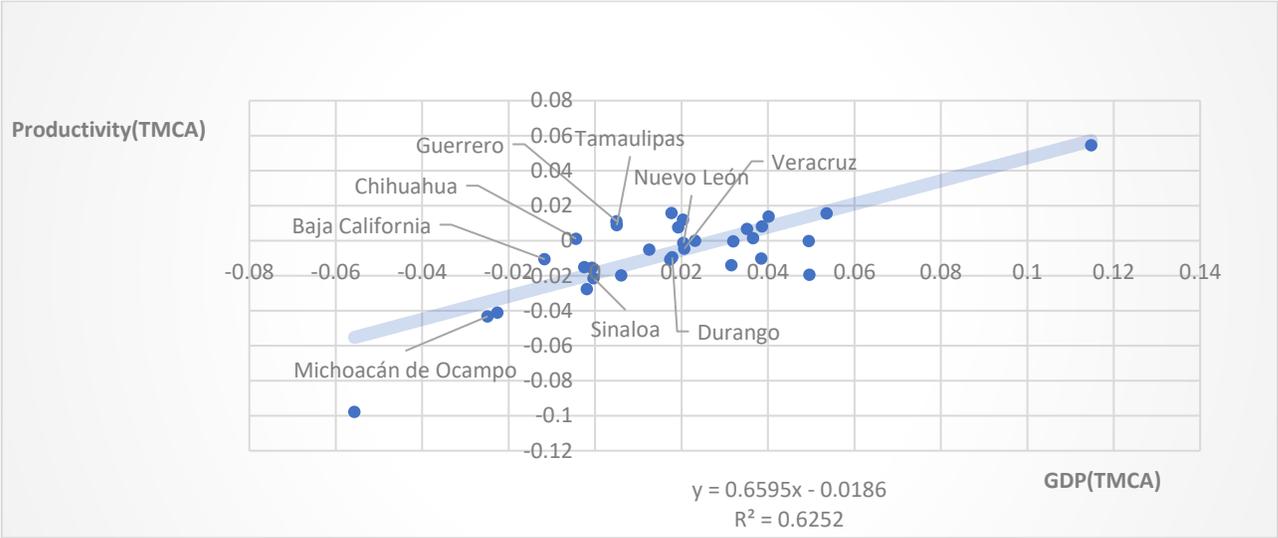
Figure 1. Output growth and productivity growth, 2003-2006



Source: Own calculations based on INEGI

Note: GDP (TMCA) is the average annual GDP growth rate; Productivity (TMCA) is the average annual productivity growth rate.

Figure 2: Output growth and productivity growth, 2007-2012



Source: Own calculations based on INEGI

Note: GDP (TMCA) is the average annual GDP growth rate; Productivity (TMCA) is the average annual productivity growth rate.