SUBNATIONAL DEBTS AND THE ECONOMIC DEVELOPMENT IN MEXICO 2003-2014: REVIEW FROM THE THESES OF THE ECONOMIC-POLITICAL CYCLES (EPC)[1]

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ABSTRACT
In the last 15 years, debts of some subnational entities in Latin America and Mexico have increased their public debts up to slightly manageable levels, due to inherent causes of global economic, political and social transformations, which had a negative impact for the economic and political development. In this context, from the EPC's theses and the ambit of some entities of Mexico, an investigation took place to see the possible effect of the governmental debts in some economic variables not included in these investigations (*the electoral-economic effect*) that use these analysis perspectives. Therefore, the implications of these processes could have divergent balances in the progress of a given nation, in the medium and long term.

KEYWORDS: Public Debts, Economic-Political Cycles (EPC), Economic Development.

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CONTEXTUAL PERSPECTIVES

Establishment and consolidation of democratic processes, as well as the reforms to the public management in Latin America -*which began to be applied in the mid nineteen eighties*-, led subnational entities to acquire or be granted with faculties to manage their incomes and expenditures.

The consequent justification was the encouragement of its autonomous development and those faculties have been qualified by diverse authors as an ***opportunistic exploitation***,[4] since there are correlated political interests of governments, parties or social and private actors, in accordance with some researchers (Jordana, 2001, p. 2; Hutchcroft, 2001, p. 24; Borsani, 2002, pp. 14-18).

To explain these processes and its implications, some studies use the theses of the economic-political cycles (EPC), focusing on the management of three kinds of policies: fiscal, budget and public debt and its incidence both in the national governance and in subnational entities and municipalities (Squire, 2002, pp. 7-11; Gámez, 2004, pp. 3-5; Gámez and Ibarra, 2009, pp. 41-44). However, in Latin America, studies carried out on these public management processes have centered on analyzing and explaining the way in which the handling of the fiscal, budgetary and public debt variables influence or predetermine the permanence of the current political power.

It even favors to a certain public entity regardless its governmental nature: national, state, municipal or any organs of these, centralized or decentralized. This strategy incites to disregard to investigate on the feasible and positive economic aftermaths in some key developmental factors: GDP, GDP per capita and others, because the results can trigger divergent and opposite interpretations with the assumptions underlying these theories, specifically with the theses denominated *political-budgetary cycle (PBC)*.

In this context, the objective of the research is to analyze and explain the tendencies of the external debts of the previously mentioned entities in Mexico

4. This type of strategy is negative when the political actors achieve profits of diverse nature, which in many cases help them to gain the governmental power of a country through elections or to maintain it, indeterminately, according to the legal parameters of each nation.

and to demonstrate the existence of positive impacts on the economic development from some specific variables.

Based on that, the hypothesis of the study can be summarized as follows: Non-optimal levels of indebtedness of the subnational entities in Mexico, weighing up its electoral-political effect (EPC thesis/PBC), also stimulates positive increases in some variables of the macroeconomic progress, inducing a general improvement in a medium and long terms. The sources of such information are the reports from the Mexican Ministry of Finance and Public Credit (*SHCP) -Treasury Department-* and from the Central Bank of Mexico *(BM)* and statistical and econometric methods were used to calculate diverse inferences applicable to debt with the chosen variables.

To demonstrate the investigation assumption, the following four phases were developed:

1. In the first one, the EPC and PBC theses are explained, their main lines of analysis, applications and results in the Latin America and Mexico sphere and their implications in the political and economic development context.
2. In the second phase, it is explained the used methodology, its analytical processes and the presentation and justification of the chosen variables.
3. The third phase has two lines of analysis and the presentation of the results:

   a) In the first line, there are examined the tendencies of six states debts with debt percentages higher than 3% of its annual GDP. Those are Chiapas *(CHIS)*, Chihuahua *(CHI)*, Coahuila *(COA)*, State of Mexico *(EMEX)*, Nuevo Leon *(NL)* and Veracruz *(VER)* in the 2003 to 2014 period, in the context of the selected and correlated variables from the total public debt, State Gross Domestic Product *(SGDP)*, GDP per capita, employment and IDH.

   b) In the second line, an econometric analysis with panel data *-longitudinal data-* deducing the effects on each of the constants, as well as the development prospective of the studied entities.
4. In the fourth phase, other lines of research are proposed to verify more extensively the particular implications of the problems and finally, listing a series of public policies that increase the positive effects of the indebtedness of subnational entities in Mexico.

THEORETICAL AND CONTEXTUAL ANALYSES: EPC-PBC

The theses of the *Public Choice School* are the theoretical basis of the *EPC* and aim to investigate and to explain specific aspects of the cause and effect relations, particularly between politics and economy: altering the temporary distribution of some economic variables induced by the rules of performance of agents of the public sector (Alesina, 1987, pp. 653-657; Price, 1997, pp. 409-413).

In this sense, the *EPC* would be caused by the political incentives derived from the periodic election mechanism of the civil representatives, which in a democratic system, is cleared in elections with direct or indirect vote of the citizens, guaranteeing the free game for the power and, with it, the legality of the process. (Alesina; Magician and Roubini, 1993, pp. 3-5).

As Persson and Tabelline (1990, pp. 490-496) verified, the assumption of the *EPC* takes as a premise to guarantee the regularity and fairness of the electoral process. These two variables would oblige political representatives (both elected and in active duty) to contend in *-at least legal-* equal circumstances in periodic elections, essential characteristic of any democratic regime (Dahl, 1998, pp. 13-15).

Functionally, this endorses that the electoral process itself, implies three resulting scenarios for the political leaders and citizens:

1) Control the performance of the current government. If it is not the appropriate one, it will not be re-elected again.
2) Select the most competent government, and
3) Choose the government whose ideological preferences are closest to the majority of voters.

The feasibility of occurrence of these scenarios *"encourages the emergence of incentives for the political leaders and parties, whose target is to win the elections and to be re-elected"*[5] (Alesina, 1987, pp. 653-657; Price, 1997, pp. 409-413).

5. It is important to mention that in Mexico, by constitutional command, the holders of the President and Governors cannot be re-elected, but the political party or coalition in shift can repeat.

In order to analyze and to explain the effects of the incentives in the political processes there have been developed different *EPC* models, which allow diverse schematizations. The models are condensed in three types:

1) Irrational models: Opportunistic and partisan cycles.
2) Rational models: Opportunistic and partisan cycles.
3) Strategic model: Strategic debt cycles.

Generally, the opportunistic and partisan models are distinguished by two perceptions: In the first one, the political representatives tend to maximize their popularity or their probabilities of re-election by increasing public spending. In the second, political parties (*left wing-centrism - right wing*) represent the interests of different segments of the electorate.

Therefore when they are in power they arrange favorable policies to these political currents" (Alesina, 1987, pp. 653-657). In this context, every model has a specific development so its implementation causes differentiated effects. Irrational models were hegemonic in the 60's and 70's years of the last century (Gámez and Ibarra, 2009, pp. 41-44). The basis of the irrational models supposed that the voter (*citizen*) was unable to perceive the manipulation of the public expenditure because he does not have access to asymmetric information about the dynamics of public decisions.

In the opportunistic cycle, governments interested in maximizing the number of votes should adjust macroeconomic policy to improve the probability of being re-elected (Nordhaus, 1975, pp. 592-596). Therefore, this would induce to a high growth of the economy and a low unemployment by increasing inflation in the elections period and a post-electoral recession, and all this without bearing in mind the political orientation of the government on top.

And so on, the irrational partisan cycle, expresses an interpretation that combines the application of economic strategies (Hibbs, 1977, p. 1469). Under this perspective, the diverse political parties will tend to choose different combinations between inflation and unemployment, to prop their government project up. The left-wing parties prefer to control the unemployment at the expense of higher inflation as opposed to right-wing parties.

Nevertheless, it is necessary to point out, that the validity of these models came into a crisis in the 1980's decade, due to the postulation of theories of rational expectations (Cukierman and Meltzer, 1986, p. 199; Rogoff and Sibert, 1997, p. 409). These theses compel to restate the theoretical foundation of the cycles, because if the voters are rational it is assumed that they cannot make the same mistakes, since the systematical mani-

pulation of the budgets should become understood by the voters and annulled in a context of rational expectations.

It is necessary to indicate that in rational models, opportunistic and partisans, a greater manipulation is inferred: the existence of asymmetries of information between government, political parties and voters, the rational ignorance amongst voters and uncertainty about the results of the elections (Cukierman and Meltzer, 1986, p. 199; Rogoff and Sibert, 1997, p. 409; Alesina, 1987, pp. 953-957).

Being aware of the opportunistic model, it remains demonstrated that the concept of asymmetric information is not accurate, since regularly; the governments know the information before the voters. Therefore, the expectation centers on the perception of the electorate for the government's ability to compete and on its policy outcomes. When a government is perceived to be more competent, it is because it uses less income to provide high quality services to its citizens. The greater these appreciations increase the possibility of re-election or holding the political power by the party or coalition.

On the other hand, the partisan view of the *-rational-* model grounds the existence of two or more political parties that assign different estimations to the economic variables depending on the foreseen political effect (Alesina, 1987, pp. 409-413). As the electoral results are not predictable, every election can instigate political feuds that affect the real and transitory variables, where the voters' expectations can fit in a rational way. From the perspective of the winning party, the model infers effects in the following period afterwards elections; growth will be above its natural rate in a leftist government and below its rate in the case of a rightist government.

Nonetheless, for the later period, the growth will be in its natural expectable rate for both types of government. This way, the effects on the real variables are short-term in the case of a rational partisan theory, but inflation differs permanently, being higher in case of leftist governments.

According to Blais and Nadeau (1992, p. 391) it is deduced a substantial difference between the first generation models and the most current ones. At the time of contrasting the existence of the electoral cycle, the first models centered on the results of the political action, analyzing variables as the *aggregate output* and unemployment *(EPC)*. The second ones are praised, for the most part, by the instruments such as expenditure or the level of government taxation and not by the results of the political action.

This is known as a *Political Budgetary Cycle (PBC)*. Apparently, it is easier to alter the expenses or the fiscal policy than the macroeconomic outcome such as the Gross National Product *(GNP)*, inflation or unemployment. According to Escudero (2002), this process is demons-

trated in the national sphere; which has been studied extensively, however it is feasible to find in the subnational or municipal areas probative evidences of these theories, for which it turns out to be important to perform relevant investigations in these government segments.

It is in strategic models, specifically in the *Debt Economic Cycles* (*DEC*), where this factor is the preponderant one. In these models, it is presupposed that the current governments try to create constraints for the future governments by using constant indebtedness producing a direct relation between the polarization of the preferences of the parties over the composition of public expenditure and the increase of the volume of indebtedness.

The result would be a difficult or even an improbable re-election of the current government (Escudero, 2002, pp. 7-11). The main difficulty in empirically verifying the assumptions lies in the fact that specific data are required on the expectations of governments to be defeated in the forthcoming elections; the internal studies on this matter are traditionally kept out of the public domain.

Aghion and Bolton (1990, pp. 53-56) raise a series of arguments that would help to understand the indicated uncertainty. In addition to a feasible influence on the policies of future governments, the public debt can be used as a political instrument tending to assure the re-election of the current government, depending on the existence risk of bankruptcy.

With this strategy, the government plays with the prospects of the creditors, promising the return of the capital and if this offering is not believable; when the opposition does it, then the regime in power has an incentive to accumulate excessive public debt. Therefore, it increases the number of guarantors -*these also are voters*-, who would be affected by a bankruptcy and consequently, they will vote for the ruling government and would pressure their subordinates to follow the same pattern.

Following Escudero's perspective (2002, pp. 7-11) public expenditure financed by public debt will concentrate the benefits of the spending on the current generation (groups of interest that can influence in the results of the next elections), while the tax burdens will be transferred to the future generations (who are not currently represented). Because of this circumstance, the incentives of politicians to use indebtedness rather than taxes to finance expenses varies inversely with the remaining time left until next elections.

The same author suggests, empirically, that there is evidence of increase in debt issuance levels in the electoral year and in the one before; also a reduction in the two years following the elections. These same variations are greater in those states where the political competition between parties is more intense and would indicate the use of these strategies to

keep themselves in power assessing the responsibility to inheritance if they do not continue ruling.

As it has been noted, the *EPC* theses, in their *rational* and *irrational* specific aspects, focus on investigating on the opportunistic or partisan use of resources for electoral purposes. In this context, the *EPC* and *PBC* models of analysis have direct approaches to study the way in which governments or political parties can in certain cases, manipulate the use of the budget, with the alleged intention of continuing in power.

Still today, in Mexico and other Latin American countries, these strategies apparently are carried out focusing on the irrationality of the electorate and minimally on its own rationality. As mentioned before, studies have concentrated on the national aspects and minimally on the subnational or local entities, mostly from the EPC models and its political effects (Borsani, 2002, pp. 12-14; Escudero, 2002, pp. 7-11; López and Rodríguez, 2008, pp. 139-137).

The investigations around the *PBC* theories, at least in Latin America and Mexico, have focused a little bit more on the subnational and local entities (Sandoval, Gutiérrez and Guzmán, 2000, pp. 10-13; Borsani, 2002, pp. 12-14; Gámez, 2004, pp. 3-5; Gámez and Ibarra, 2009, pp. 41-44, Ramírez and Erquizio, 2012, pp. 7-10). The studies have proven in all the cases the political opportunistic use of the expense with an electoral end, which in certain cases (not all of them) benefits the government in turn into achieving its permanence through the political party or coalition that nominated it in the first place.

In the case of Mexico, it is necessary to point out that there is no re-election of subnational leaders and the Mexican Constitution was reformed to allow, since 2018, reelection in the municipalities for one more period. The opportunistic use comes first, from the government in power and tends to coordinate with the strategies from the same party or coalition (*partisan opportunism*) that led it to rule, which informally and illegally end up syncretizing in its determination to perpetuate itself in public offices; from a basis in which prevails the irrationality aforementioned.[6]

According with this argument and based on the assumptions of the *DEC* and *PBC*, there is a hypothetical

6. With the target to avoid the political use of public debt of states and municipalities in Mexico, as well as to guide its efficient and effective use in the government activities and to make it contribute to the economic development, in the year 2016, the Congress of the Union unanimously promulgated the Law of Financial Discipline of the Federative Entities and the Municipalities (LDFEFM, March). This law was endorsed by the national government (Presidency of Enrique Peña Nieto, 2012-2018) and published in the Official Journal of the Federation on por in April 27, 2016.

justification framed on this study in its approach of the effects of the debt on some variables that affect development. Thus, the investigation extends the analytical reach of the assumptions, calculating the political influence of the public debt when trying to explain other collateral processes of the public indebtedness.

Such collateral processes are, for example, the economic and social effects provoked by these strategies in variables not calculated by the classic postulates of the theses, same ones that, in certain cases, encourage tendencies to increase of development in the medium or long term and thereby consolidate or improve the progress of a given entity. Having these arguments, in the next part there is explained the methodological process used and its reach.

METHODOLOGY AND ANALYTICAL IMPLICATIONS

In the context of the objective and the hypothesis of the study there were selected six subnational entities that registered, the last years of the analyzed period, a level of indebtedness equivalent to 3% of its annual GDP of the debt. The entities that gathered these parameters were: Chiapas *(CHIS)*, Chihuahua *(CHI)*, Coahuila *(COA)*, State of Mexico *(EMEX)*, Nuevo Leon *(NL)* and Veracruz *(VER)*[7] and there were used the variables of Total Public Debt, Public Debt Per Capita, GDP, GDP Per Capita, Debt and Employments and their interrelation with the Human Development Index *(HDI)* of the United Nations Development Program *(UNDP)*.

The selection of the variables, took as a fundamental groundwork the inference established by López-Calva and Vélez-Grajales (2003, pp. 4-11). The researchers warned that to measure development, the *HDI* is normally used, since political media and academics recognize this index. There is a broad consensus for which the economic growth is a necessary condition to explain the grade of advance of a country, but it does not constitute a sufficient condition by itself, and the actual economic growth, where the most used indicator is the GDP per capita.

7. Selecting the federative entities *(states)*, besides complying with the GDP percentage, was also justified because the chosen six states are those ones that during the period of the study have registered the biggest tendencies to indebtedness. Another reason is that the *non-transparent, preferential and factious* management stirred strong conflicts with every political actor, since it was adduced that the strategy turned into an electoral instrument an and would have negative effects in the the economic development in a short and mediumterm. In this argumentation, the results of the entities can be the base to analyze and to explain the perspectives and prospective of the remaining states, using this model, or any other tool that could broad the explanations on the economic consequences of the public debts.

Then growth and development are related concepts, so they were used both indices including the employment as dependent variables in the causal analysis. The independent variables to be used are the debt per capita that is the main variable of interest. The source was the Treasury Department of the federal government of Mexico *(SHCP)*, using information from every year of the study.

To avoid sidelines, the values of the Mexican peso fitted those in 2008 to have the same purchasing power and to allow eliminating the effect of the inflation. Moreover, they are presented in values per capita, using the population data reported by the National Council of Population (CONAPO) of Mexico.

In account of the type of information, it managed a *panel data* type so its handling adjusted to these methodologies. Generally, panel data is formed by economic agents or agents of interest when studying the entities over a certain period of time, in this case, 12 years *-from 2003 to 2014-* and combining both types of data: temporary and structural dimensions.

The main reason to apply and to study panel data was to capture the non-observable heterogeneity, between economic agents or study agents as well as in the timeline, since it is not possible to detect that kind of heterogeneity neither with temporary series studies nor with those of cross-sectional studies. The annual data was represented by a period of twelve years ***(T)*** and of six entities ***(N)***.

The introduction of this temporary data dimension increased the significance of the study, particularly in periods of big changes. Likewise, two aspects of extreme importance managed to be examined: i) the specific individual effects and ii) the temporary effects (Brooks, 2008, pp. 88-119). As for the specific individual effects, they affected unequally each of the agents of study contained in the sample, which are invariable through time and affect directly in the decision-making process taken, identifying this type of effects with several issues like business capacity, operational efficiency, capitalization of the experience, access to the technology, etc.

In this context, and to avoid correcting errors in the units of analysis, the fixed effects model was used (Brooks, 2008, pp. 226-257) which works when each unit has different error terms and the effect of all the variables is gathered in the error itself by its cross-sectional effect, but not by the effect of the time. For this, were used the dummy variables with which the units were identified, obtaining a value of the intercept for each unit, to understand the allocation of the units and their impact.

In the same order, the random effects model was also applied in some cases, known as the component error model (Brooks, 2008, pp. 226-257). Like in the fixed effects model, which proposes different terms of the

intercept, the random effects model propose a different intercept one for each entity and assume that they are constant in time.

All the information have been converted to per capita indicators and, to improve understanding, the change was done in those using variables like LOG *(logarithms)* that allowed to relate the data changes *(growths)* and to interpret the coefficients like percentage of change. For its application, there begins a regression, grouped with all the information. Then, the regressions are performed with fixed or random effects in the entities and in the periods. Finally, we verify if these regressions are better with effects by using the *fixed-effects* test and then we confirm which of the effects better reflects the behavior of the data. All the analyses are arranged in E-VIEWS.

ANALYSIS OF RESULTS AND CONTRADICTIONS

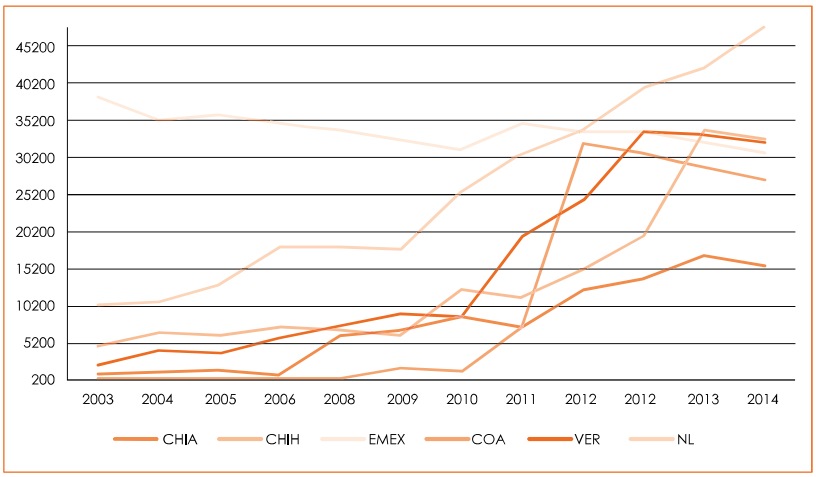
In the context of the research objective and hypothesis, tabulations were carried out sequentially, from the total public debt of the sub-national entities to the correlations and regressions of the rest of the variables. The first was subordinated to the tendencies in total public debt.

EVOLUTION OF THE DEBT AND ITS IMPACT IN THE DEVELOPMENT

As it turned out, according to the data presented in Figure 1, the selected entities increased their public debts, between 2008 and 2009. Of those who increased their debts, stand out Nuevo Leon, Coahuila, Chihuahua and Veracruz, in parameters that range between 30 to more than 50 billion pesos. Others, Chiapas, in less quantity and an atypical one, the State of Mexico, which tended to reduce its loans, although maintaining high levels of indebtedness.

These propensities would indicate that the federal government probably distended the financial pretensions of the governors and preferred to focus on the fight against the drug trafficking than monitoring the efficiency of the expense. Likewise, prospects for 2012, in the presidential elections, were likely to influence the flexibility of the rules so; in the end, their forecast of sustaining power was maintained. This strategy did not achieve the objective because the Institutional Revolutionary Party *(PRI)* returned to the presidency in that year and apparently continued with the non-monitoring of the states' debt:

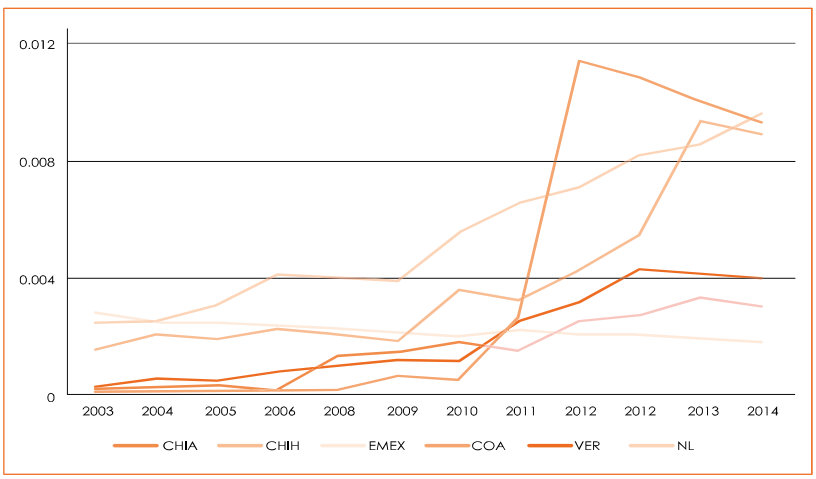
FIGURE 1
EVOLUTION OF THE SUBNATIONAL PUBLIC DEBT
(MILLION OF PESOS - 2008 VALUES)



Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

Meanwhile, the analysis of the per capita debt tendencies showed that, in relative terms, increases in state debt led to a rise in these parameters, mainly from 2011. Coahuila is the entity with the highest per capita debt growth in 2011 with 0.0114 million per capita ($11,400 per person), followed by Nuevo Leon with $0.0096, Chihuahua with $0.008945 and Veracruz, while the rest remained between 2 and 4 thousands pesos:

FIGURE 2
TENDENCIES OF PER CAPITA DEBT
(THOUSANDS OF PESOS – 2008 VALUES)



Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

The examination of the SGDP[8] of subnational entities demonstrated that despite the high levels of debt this parameter continued to strengthen. Firstly, in Table 1 *(weighted calculations)*, the data indicated an increase except for the impact of the 2008 crisis of some entities, such as Nuevo Leon and Chihuahua, and minor registrations in Chiapas and Veracruz.

In second place, in absolute terms, positions were modified. Among those states that had an increment, like Nuevo Leon and the State of Mexico, the lowest was Chihuahua (Figure 3).

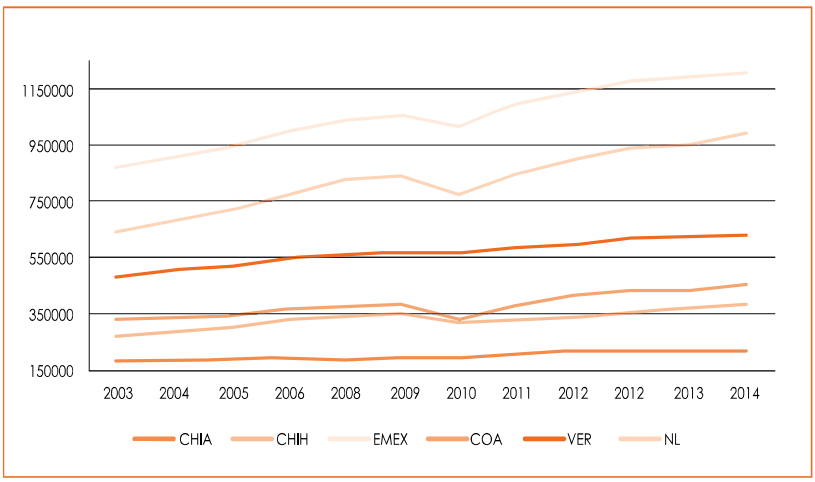
8. It does not consider the impact of mining and oil to eliminate bias, where revenues are actually administrated by the Federation with a slight interference of the states.

TABLE 1
WEIGHTED GROWTH STATE GDP 2014-2003

CHIA	CHIH	COA	EMEX	NL	VER
1.780%	2.823%	2.758%	2.729%	3.800%	2.240%

Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

FIGURE 3
STATE GDP EVOLUTION 2003-2014
(BILLION OF PESOS - 2008 VALUES)



Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

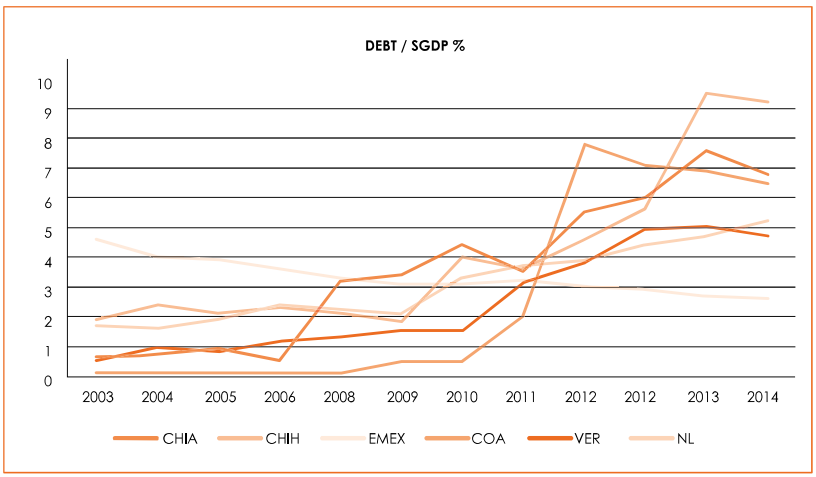
Finally, in the context of the correlation between public debt and state GDP, the parameter used to select the cases of study, most exceeded the 3% limit. It should be noted that the increases were verified mainly since 2008 and the states with the highest indices were Chihuahua, Coahuila, Chiapas, Nuevo Leon and Veracruz showing between 9% and 4.5% and 9. An atypical case is the State of Mexico that lowered its percentage to slightly more than 2% (Figure 4).

As it has been shown, since the review of the state public debt, GDP per capita, GDP and its correlation, the results indicated divergent effects in each of the entities, both positive and negative in the medium and long term for the economic development.

In this sense, and even with the high growth rates of the debt and its per capita range, both weighted and absolute tabulations of state GDP indicate probable atypical effects, which favored states such as Nuevo Leon, State of Mexico and Chihuahua, and in much less range to Coahuila and Veracruz and negatively to Chiapas.

These effects were the key to broadening the state debts analyses and to relate them with the perspectives that should have shown imbalances during these years. Therefore, in the following part, econometric analyses were used to keep on verifying the view of the study:

FIGURE 4
INDEX OF PUBLIC DEBT AND STATE GDP (%)



Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

ECONOMETRIC ANALYSIS AND IMPLICATIONS

In this section, the econometric analyses were applied in three aspects: effect and implications on state GDP, job creation and the HDI. In the first, to determine the correlation between the subnational debts and the state GDP per capita, multiple regressions were made and the results showed auto correspondence; it should be noted that the independent variable was used with a lag, where GDP was affected by what happened in the previous period (Table 2).

The value of the '*R-Squared*', as an adjustment measure between the model and the data, is high, with a value of 99.4. The significant variable at 1% is the lag of the state GDP per capita. The significant variables at 5% are the per capita debt and the expenditures on public invest-

ment per capita. The variables of the federal contributions and shares are not significant as are the expenses for the payment of the debt, represented null value for the relation.

As for its effect and sign, the debt has a positive impact on GDP growth with a value of 0.6122. This would indicate that, due to an increase of 1 million per capita debt, the state GDP per capita increased by 0.6122 million, therefore the increase in debt had a positive rise in this parameter. The variable of disbursement on investment impact 1.293 times the state GDP per capita, for each increase of one million of public investment; indicating that public investment in SGDP is more relevant, confirming the regulation of using debt only for public investment (as mentioned in the Financial Discipline Law enacted in 2016 and explained in a section earlier).

The lag of GDP for a period is significant and reflects the self-correlation to a period with a high impact of 1.000. The variable of disbursements for the payment of debt with a value of 0.043 positive, which does not correspond to expectations, possibly due to errors in the registration of these items, since some of the entities neither report payment in some years nor financial expenses, however it is not significant. It is possible to indicate that the debt has a positive impact to GDP growth, having to watch that it is properly used for the public investment.

Overall for the growth of the GDP is more relevant the increase of the public investment, confirming the proposal to only use public debt for the public investment. On the other hand, it is not possible to conclude that the shares and federal contributions have relation to the state GDP, in the same aspect the expenditures were to the debt. Nevertheless, the calculation is not possible, since there were errors in the public account report and impact on the quality of accounting information.

TABLE 2
REGRESSIONS WITH RANDOM EFFECTS IN THE PERIODS SGDP

Variable	Coefficient	Error std	T-estad	P-value
C	0.003155	0.004051	0.778741	0.4392
PIBE_SPETR_PC(-1)	1.000227	0.012837	77.92002	**0.0000**
DEUDA_MILL/POB(-1)	0.612172	0.254224	2.408005	**0.0191**
EGDEUMILL/POB	0.042328	0.812246	0.052112	0.9586
PARTAPORFEDMILL/POB	-0.578126	0.463753	-1.246625	0.2174
EGINVPMILL/POB(-1)	1.293112	0.576542	2.242873	**0.0286**
R- Squared	0.994851	Dependent mean		0.035913
R- Squared Adjusted	0.994422	Standard deviation		0.047305
Sum of errors	0.003533	Durbin-Watson		2.149081
F- Statistic	2318.508	Prob F statistic		0.0000

Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

Regarding the second slope, the correlations of the state debt and the change in the employment rate were calculated (Table 3). In this sense, and to confirm if the public debt has an impact on the creation of jobs, the regression was performed after the process and, in the tests, it is obtained that the best model is the one of random effects over time.

The values the tests threw were the *'R-Squared'*, as a measure of fit between the model and the data, of 25.3. Only the variable of the lag of occupational change data is significant at 10%, with a negative coefficient of 0.00004. All other variables are not significant. Therefore, it is possible to conclude that there is no relation of the debt to the generation of employment, as other variables.

TABLE 3
REGRESSION WITH RANDOM EFFECTS IN THE TIME OF EMPLOYMENT

Variable	Coefficient	Error std	T-estad	P-value
C	-4.62E-05	3.47E-02	-0.001333	0.9989
CAMB_OCUP(-1)	2.06E-01	1.27E-01	1.628786	**0.1096**
DEUDA_MILL/POB(-1)	3.10E-01	1.85E+00	0.168029	0.8672
INGPROMILL/POB	6.07E+00	8.44E+00	0.719033	0.4755
PARTAPORFEDMILL/POB(-1)	8.72E-01	3.98E+00	0.218998	0.8275
EGINVPMILL/POB(-1)	3.654058	4.655674	0.784861	0.4362
R- Squared	0.424985	Dependent mean		0.022779
R- Squared adjusted	0.252481	Standard deviation		0.033671
Sum of errors	0.029112	Durbin-Watson		1.67064
F- Statistic	2.463619	Prob F - Statistic		0.00876

Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

Finally, in the third aspect, the effect of the public debts of the selected entities in the HDI (Table 4) was tabulated. Among the measurements of development, one of the most used is the HDI, which includes health, education and economic opportunities.

The regression used is that of fixed effects on the entities, the values that it throws with the *'R-Squared'* as a measure of fit between the model and the data is of 99.1. The significant variables at 1% are the debt to SGDP per capita, the investment variable in public investment per capita and the dependent variable with a lag. The significant variable at 5% is the intercept. The variable of *'self-income'* is not significant.

As for its influence and sign, the debt has a positive impact to the growth of the HDI. In other words, that a 1% rise in the debt to SGDP will increase the HDI by 0.41336. Public investment variable is positive with a value of 3.498 so each increment of one million per capita investment

will influence the HDI in 3.49 points and, in the lag variable, the HDI is positive in 0.6480 showing that all what was achieved in previous periods is the basis for the future.

It is suitable to mention that the index has a decrease in the life expectancy due to the violence of the last years. This confirmed that the HDI is mainly influenced by the public investment, followed by the achieved in previous years and finally by the boost in debt to GDP, as well as it was shown in the regression of the state GDP that public investment is relevant, followed by the public debt:

TABLE 4
REGRESSION WITH FIXED EFFECTS ON ENTITIES IN HDR

Variable	Coefficient	Error std	T-estad	P-value
C	0.210071	0.084033	2.499846	0.0177
IDH(-1)	0.647996	0.123455	5.248844	0.0000
DEU_PI_PC	0.41336	0.140527	2.941509	0.006
INGPROMILL/POB	1.165177	3.701756	0.314763	0.755
EGINVPMILL/POB	3.498007	0.842025	4.154278	0.0002
R- Squared	0.993335	Dependent mean		0.718366
R- Squared adjusted	0.99146	Standard deviation		0.043932
Sum of errors	0.00406	Durbin-Watson		1.497206
F- Statistic	529.881	Prob F-Statistic		0.0000

Source: SHCP-*Department of Treasury*. Indicators of the Mexican states in 2015.

CONCLUSIONS AND CONTRADICTIONS

In the context of the objectives and hypotheses of the investigation and in contradiction of the PCE and PBC, the results can be interpreted integrally from three correlated aspects:

1. It was stated and found that the theoretical empirical assumptions of *EPC* and *PBC* (especially the *DEC*) are irrational, rational and strategic models, as well as the opportunistic and partisan order, have analyzed and broadly explained the political economic strategies used by different governments to stay in power and partly the effects on development.
   However as it is also explained, specifically in regard of public debts for the subnational case of Mexico. The investigations have not extended the implications of debt management on other variables, such as those handled in this study, which the explanatory lines are relevant to address, and with it, to contribute to the better understanding of the problems in any field.

2. In the context of the objectives, the exposition of the tendencies of the public debts of the chosen entities indicate a clear opportunistic maneuver that began between 2008 and 2009 on the part of these national entities and that has caused the uncontrolled increase of this factor and thus, negative prospective. On the other hand, when verifying the possible implications in the state GDP, there are indications -in weighted and absolute terms- of positive consequences revealed, since the increase of this economic variable seems to have a certain correlation with the increase of the debts. Empirically, the data indicate this and the econometric analyses support the affirmation.
3. In this argument and to respond to the raised hypothesis and to complement the objective, the econometric calculations showed some inferences that modify positively and affect less the tendencies of the variables. As for SGDP, the connection is direct, since increases in debt represent increases in this specific economic factor. Coincidently, the HDI of each entity registers considerable highs in its annual indices, in the case that the loans are used for investment rather than current expenditure (Dahl, 2004). In the field of employment, the results reveal, up to the scope of the analysis, non-significance; therefore, the loans do not influence the occupational dynamics.

In perspective, it is possible to affirm that the research has partially demonstrated the raised assumption, since the used variables allowed to identify stray parameters in this type of issues and left a wide range of options to keep on investigating all the sides of this problematic. In this sense, the lines of investigation that must be explored in the short-term are, without being exhaustive, the following ones:

1. To investigate, from the theses of the opportunistic exploitation, the causes that encouraged the indebtedness of the subnational entities in Mexico.
2. To analyze in a disaggregated form the impact of the indebtedness on social policy and its effect in the areas of education and health: national and subnational.
3. To explain how the public debts encourage the increase of corruption and locate the sectors with higher rates.
4. To examine the effect of the public debt –*national and subnational*– on expenditure on public dissemination and publicity, as well as its impact on political preferences.
5. To study, with more variables and from a comparative perspective –*formal and informal economy*–, the effect of debt on the promotion of the employment.

6. To carry out an exploratory and explanatory analysis of the national legislations that have tried to control the process of subnational indebtedness and to project scenarios of success or failure of the *LDFEFM* recently promulgated by the Federal Congress of Mexico on April 27, 2016.

Finally, it is possible that the inadequate management of the public debt affected the electoral processes of some of the studied entities; for be investigating more integrally. In 2015, in Nuevo Leon an atypical alternation took place, since an independent candidate managed to reach the governorship: the debt issue was one of his political speeches. In 2016, both Veracruz and Chihuahua, also had alternations; their high indebtedness were used extensively to insult the current governments in power and the candidates of the regime parties.

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