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An analysis of the contribution of public expenditure to economic growth and fiscal multipliers in Mexico, Central America and the Dominican Republic, 1990-2015

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Abstract

In this research, different complementary approaches are developed to determine the impact of public expenditure on economic growth in Mexico, Central America and the Dominican Republic. The evolution of the countries' fiscal performance is analyzed; the strong link between public spending and economic growth is verified; the long-run relationship between current and capital expenditure with GDP growth is identified, and it is shown that public spending has a significant multiplier effect in the short and long-term, highlighting its persistence over time.

The empirical evidence suggests five main results. i) The contribution of public spending to GDP growth in 2005-2014 in most countries is significant, but the contribution of investment to GDP growth has moderated; ii) the correlation coefficients show that there is a positive and strong relationship between economic growth and current expenditure in all countries in the sample, but it is weak between capital spending and economic growth; iii) cointegration tests for economic growth and public expenditure (current and capital) show the existence of a long-term relationship for all countries included in the study; iv) in terms of the multipliers: the cases of Mexico, Costa Rica and Panama stand out, as the sum of multiplier effects in the long-term for these three countries reach values of 2.9, 2.6 and 2.3, respectively. The Dominican Republic and Honduras register values of 2.2 and 2.1, respectively. Meanwhile, Guatemala and Nicaragua report values of 1.6 and 1.8, respectively, v) the analysis of the impulse-response functions confirms that current expenditure has a significant cumulative effect on economic growth and that capital expenditure has a small and even negative effect on GDP growth in most of the countries of the subregion, with the exception of Costa Rica and Panama. It is also noted that the effects of public expenditure on economic growth are persistent over time, so it is feasible to promote a budget reengineering to efficiently use scarce public resources in the long-term.

Introduction

Fiscal policy measures, including targeted government spending and taxation are one of the two main sets of macroeconomic tools at the disposal of governments to enhance growth, improve macroeconomic stability, and shape sustainable social outcomes. Along with the monetary policy measures often set by the central banks to ensure stability of prices and manage credit flows, fiscal policy is central for directing macroeconomic performance and enhancing opportunities for growth over the short, medium and long-term. In the wake of the 2008 to 2009 financial crisis, the use of fiscal policy measures to re-ignite growth and improve opportunities for citizens has become even more relevant in Mexico, Central America and the Dominican Republic, with a renewed interest in the possible use of government spending to mitigate the impacts of decelerating economic activity, trade and changing patterns of consumption.

One such macroeconomic methodology or policy analysis tool to aid in the planning of government initiatives and the design of fiscal policy is the fiscal multiplier, defined as the change in the expected overall economic activity or output for a given change in a fiscal policy instrument, such as government spending (total, current, or capital) and revenues. Calculating timely and accurate fiscal multipliers is essential for aiding policy decisions and in the design of targeted fiscal strategies, as it allows policy makers to visualize the expected benefits of a change in government spending. They are particularly useful in a context of limited fiscal space, and in the design of countercyclical policies.

Despite their practical use and theoretical benefits, empirically calculating the size and duration of fiscal multipliers remains a challenge, with great variation in the size, direction and duration of multipliers reported (Warmedinger, Checherita-Westphal and Hernández de Cos, 2015). Across the literature there is relatively little consensus on multipliers at the national level with estimations ranging from negative values to even a high of three or more depending on the size of the economy, the stimulus spending, and timing in relation to the business cycle (Alesina and Giavazzi, 2013; Batini, Eyraud and Weber, 2014). The effects of government spending appear to be rather heterogeneous both across countries and within countries over time. Despite their limitations, fiscal multipliers remain one of the key macroeconomic analysis tools for policy makers, and they have been increasingly sought-after calculations for assisting in policy-making decisions in developing and emerging economies.

This document explores the fiscal dynamics of Mexico, Central American countries and the Dominican Republic. These countries are under the purview of the United Nations, Economic Commission for Latin America and the Caribbean (ECLAC), Subregional Headquarters in Mexico. Moreover, these economies have some shared economic characteristics due to their geographical location (with the main trading partner of the United States) and their level of economic development. The objective of this study is to evaluate the characteristics of their fiscal portfolios, including patterns of

government spending and to analyze the seeming disconnect between GDP growth and public investment in the region.

ECLAC has advocated for the incorporation of prudent fiscal policies to generate countercyclical effects with an aim to stabilize macroeconomic fundamentals, create conditions for enhanced growth, and improve income redistribution (CEPAL, 2014; Martner, Podestá and González, 2015). The organization has highlighted the need or a fiscal compact to generate greater capacity within the State to introduce more progressive policies with an aim to reduce inequality and promote social development.

Following this brief introduction, the rest of the document is organized as follows. Chapter I provides an overview of the recent fiscal panorama in the countries under evaluation, focusing on the dynamics of public finances and debt sustainability in the region. The chapter also evaluates the distinction between capital and current expenditure. Given the pressing infrastructure and structural gaps faced by many economies, an impulse in long-term capital expenditure could be a means to transform productive capacities in the region, and close gaps in productivity.

Chapter II reviews the existing literature on fiscal multipliers and studies analyzing the impact of government spending on growth and macroeconomic outcomes. It also analyses the various methodologies that have been adapted to calculate fiscal multipliers in the case of developed and developing countries, including the limited studies that have been conducted for Latin America. In addition, this chapter presents the methodology applied in this study, adapting Blanchard and Perotti's (2002) concept of structural vector auto regression (SVAR) analysis for the study of fiscal multipliers in Mexico, Central America and the Dominican Republic. It also summarizes the relevant data sources utilized in the construction of each country's models, and explores some of the limitations in the available statistical information.

Chapter III provides an analysis of the empirical results of the models. It begins with a breakdown of the contribution of each salient type of government spending and investment to overall growth, noting the limited capacity that Central American countries and Mexico have had to induce changes in overall GDP growth through these means. It is followed by an analysis of the correlations and cointegrations of the relevant variables, as well as a breakdown of the fiscal multipliers and country level impulse response functions.

Chapter IV concludes the paper with a discussion of some relevant points for future research as well as public policy recommendations for the countries of Central America and Mexico in order to improve fiscal efficiency and promote sustained growth.

I. Fiscal panorama of Mexico, Central America and the Dominican Republic

A. Key macroeconomic characteristics

In general the economies of Mexico, Central America and the Dominican Republic have shown overall macroeconomic stability over the past 10 years, with some heterogeneity among them. Table I.1 presents a summary of the most recent key macroeconomic development indicators. Annual real GDP growth in 2014 ranged from 2% in El Salvador to 7.3% in the Dominican Republic, with strong performances in Panama, Nicaragua and Guatemala, all of whom grew above 4%.

Table I.1
Mexico, Central America and the Dominican Republic: key macroeconomic indicators, 2014

	Real GDP growth *(%)*	GDP per capita	Overall fiscal balance *(% of GDP)*	Current account balance *(% of GDP)*	Average annual CPI inflation *(%)*	Unemployment Rate *(%)*
Costa Rica	3.5	8 954.11	-5.6	-4.4	4.5	9.5
Dominican Republic	7.3	6 119.28	2.6	3.2	3.0	6.4
El Salvador	2.0	3 692.22	-1.6	-4.8	1.1	6.7
Guatemala	4.2	2 984.66	-1.9	-2.4	3.4	4.0
Honduras	3.1	2 278.30	-4.4	-7.4	6.1	7.5
Mexico	2.2	9 568.01	-2.9	-1.9	4.0	5.8
Nicaragua	4.7	1 775.16	-0.3	-7.1	6.0	6.8
Panama	6.1	10 326.80	-4.6	-10.7	2.6	5.4

Source: CEPALSTAT based on official national indicators. Unemployment rates for Mexico and Panama refer to urban areas. GDP per capita reflects constant dollars.

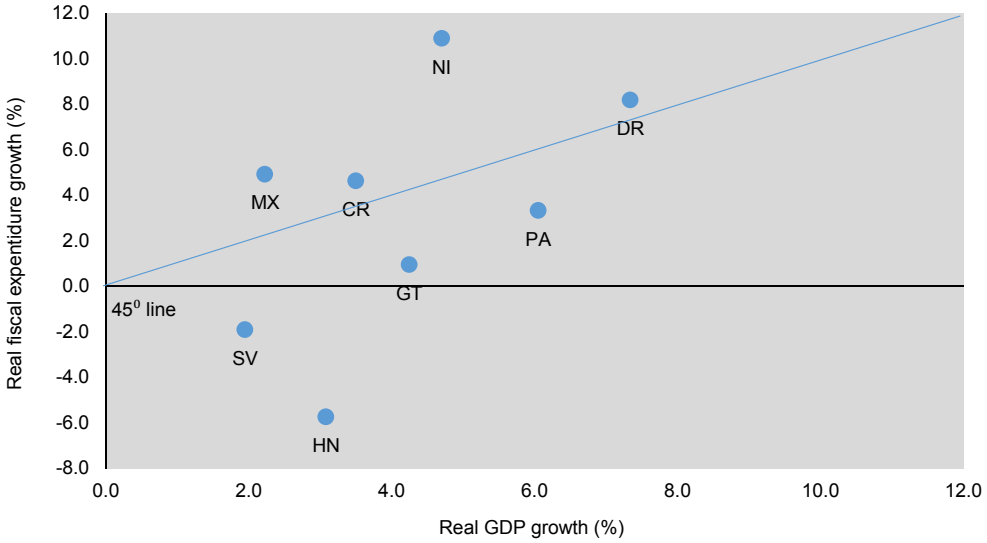
From a fiscal standpoint, the countries of the subregion tend to show moderate overall deficits, on average below 2.5% of GDP. Costa Rica, Panama and Honduras demonstrate the widest overall deficits for 2014, due to the expansion of capital spending in projects related to the Panama Canal expansion, and in the case of Costa Rica due to recent current spending budget pressures from stimulus programs to raise the wages and salaries of public sector workers (CEPAL, 2016). Preliminary estimates according to ECLAC for 2015 project growth in 2015 at 2.9% for the subregion, 4.4% excluding Mexico.

These countries also face limited fiscal revenues and in particular, limited space to close gaps in social and economic development. Mexico, Central America and the Dominican Republic are characterized by very high levels of rigidity in their operational budgets, thus leaving little margin for discretionary or countercyclical spending. For these countries it is important to increase public spending, and to direct it in an efficient and targeted manner, thus boosting economic growth and making progress to closing socio-economic development gaps and reducing inequality.

Investment and public spending behavior not only affect the rate of capital accumulation, but also directly influence productivity, a critical component of overall macroeconomic growth. Capital accumulation and targeted investments across industries are crucial for long-term growth and structural upgrading. Both public and private sector investment are key for stimulating productivity gains and fomenting economic expansion, thus generating a virtuous cycle of sustainable growth. Public investment can also enhance the availability of fiscal space, stimulating growth and thus enhancing future revenue streams (CEPAL, 2014).

Figure I.1 below highlights the relationship between recent growth in fiscal expenditure and overall GDP expansion. While there is a slight positive relationship between increases in fiscal spending and growth, the relationship across countries is far from homogeneous. El Salvador and Honduras, who showed reductions in their overall fiscal expenditure in 2014, also showed very modest growth in comparison with other countries in the region. Mexico, Costa Rica, Nicaragua and the Dominican Republic expanded fiscal spending in 2014, but their respective real GDP growth rates, while also positive, did not increase at the same pace. Panama and Guatemala demonstrate a contrasting tendency, where despite modest increments in real fiscal expenditure, real GDP growth was more robust at 4.2% and 6.1%, respectively.

Figure I.1
Real GDP and fiscal expenditure growth, 2014
(In percentages)



Source: Authors' own elaboration based on CEPALSTAT, 2016.

As the data from figure I.1 suggests, the relationships between fiscal expenditure and real GDP growth, while positive, is not always straightforward and opens further questions for economic research.

B. The magnitude of public expenditure as a share of GDP

In this section a brief overview of fiscal performance over the last 25 years in Mexico, Central America and the Dominican Republic is presented, with a view to analyze the relevant trends in fiscal performance, highlighting any significant shifts among countries and exploring the spending dynamics across countries.

As table I.2 shows, as a share of GDP fiscal income has increased only marginally over the last 25 years. Total income as a share of GDP ranged from just 10.5% of GDP in Guatemala during the 1990s, to 15.8% of GDP in Panama in the 1990s. From 2000 to 2008, Mexico, Central America and the Dominican Republic enjoyed a period of relatively strong economic growth and fiscal incomes, the latter mainly as a result of increased tax collections, including personal income and value added taxes, as well as increased earnings from trade. As a result total income increased as a share of GDP in all countries in the subregion. During the 2008 to 2009 global financial crisis only Guatemala reduced its fiscal income as a share of GDP.

Table I.2
Mexico, Central America and the Dominican Republic: average central government fiscal income and expenditure, 1990 to 2014
(As a percentage of GDP)

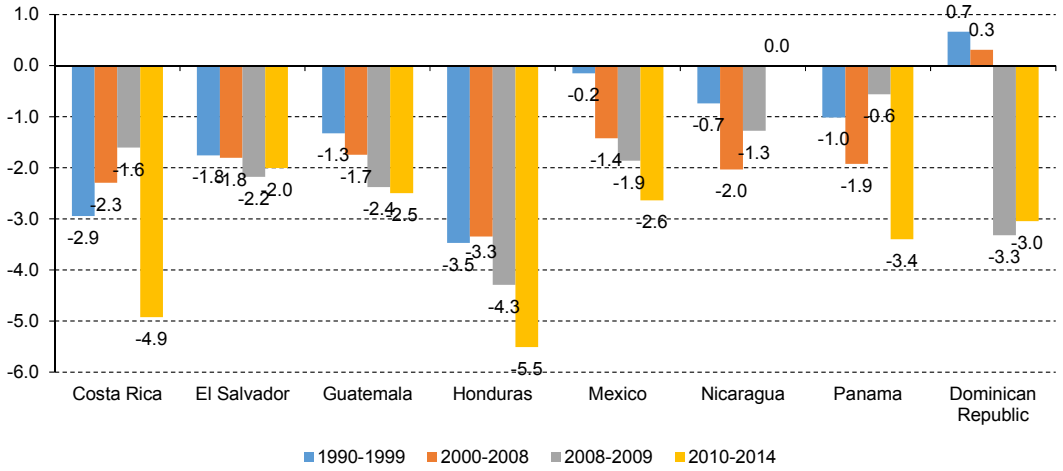
	1990 to 1999		2000 to 2008		2008 to 2009		2010 to 2014	
	Total income	Total expenditure	Total income	Total expenditure	Total income	Total expenditure	Total income	Total expenditure
Costa Rica	12.3	15.2	13.8	16.1	14.9	16.6	14.3	19.2
Dominican Republic	11.2	10.5	14.0	13.7	14.2	17.5	13.8	16.9
El Salvador	12.5	14.2	13.2	15.0	14.5	16.7	15.6	17.6
Guatemala	10.5	11.9	12.5	14.2	11.5	13.9	11.5	14.0
Honduras	15.4	18.9	17.2	20.5	18.4	22.7	17.3	22.8
Mexico	14.4	14.5	14.6	16.0	16.6	18.5	16.2	18.9
Nicaragua	13.4	14.3	15.5	17.5	16.1	17.4	17.2	17.2
Panama	15.8	16.8	15.9	17.8	17.8	18.3	16.5	19.9

Source: Authors' own elaboration based on CEPALSTAT, 2016. Note: According to CEPALSTAT classifications includes total revenue including grants and total expenditure and lending minus repayments.

Following the 2008 to 2009 crisis Costa Rica, Mexico, Honduras, Panama and the Dominican Republic all saw a reduction in their fiscal income as a share of GDP from 2010 to 2014, while Guatemala's fiscal income remained stable as a share of GDP, though it is the lowest among the countries in the region, at just 11.5% of GDP on average from 2008 to 2009 throughout 2010 to 2014. In fact only Nicaragua and El Salvador managed to increase central government revenues as a share of GDP post crisis.

From a fiscal expenditure perspective including adjustments for pension commitments, central governments balances have for the majority of countries been relatively healthy from 1990 to 2008, ranging from modest surpluses in some countries in the region to deficits less than 3% in the majority of cases (see the figure I.2). From 2003 to 2008, Latin America, and to a greater extent Central America, enjoyed a period of relatively high growth, influenced by rising global commodity prices and record levels of international trade flows. All countries in the region widened their overall fiscal deficits in response to the 2008 to 2009 financial crisis.

Figure I.2
Mexico, Central America, and the Dominican Republic: overall fiscal balance, 1990 to 2014
(As a percentage of GDP)

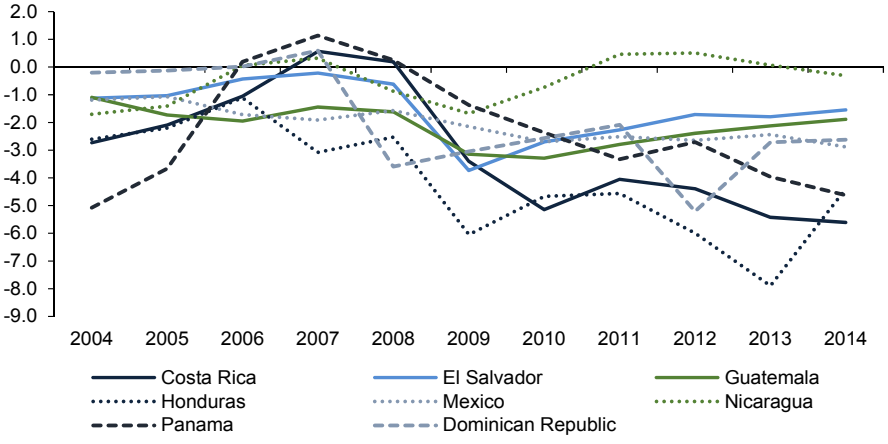


Source: Authors' own elaboration based on CEPALSTAT, 2016.

As figure I.3 below shows in more detail, in the immediate years post crisis, most governments begun to narrow their fiscal shortfalls, even if they have not yet reached precrisis levels. Notably Guatemala and El Salvador have made strides to reduce fiscal deficits over the last 5 years, with overall balances narrowing to almost -2% GDP.

Costa Rica has however continued its trend of relatively high levels of deficit spending, which widened the overall fiscal shortfall to nearly 5% on average from 2010 to 2014, and to more than 5.9% of GDP in 2014 alone. The country is facing significant fiscal pressure due to policies enacted post-crisis to adjust upwardly the wages and salaries of some public sector workers. Given the weight of this expense in overall spending, Costa Rica must be mindful of future challenges to the sustainability of public finances, particularly in a context of slower international growth, reduced trade and lower levels of internal demand. Panama has also continued to increase its deficit in overall terms, largely as a result of increased capital expenditure in preparation for the expansion of the Panama Canal. Honduras has also shown a similar increase in its fiscal deficit since 2010, expanding to 5.5% on average over the past five years.

Figure I.3
Mexico, Central America, and the Dominican Republic: overall fiscal balance, 2004 to 2014
(As a percentage of GDP)



Source: Authors' own elaboration based on CEPALSTAT, 2016.

After some countries such as Nicaragua, Mexico and Honduras experienced debt crisis in the eighties and nineties, they have largely managed to reduce their total public debt. Figure I.4 below shows the overall adjustments between primary and global fiscal balances, which largely reflect changes in government debt service and expenditure.

Figure I.4
Primary and overall fiscal balances, 2000 to 2014
(As a percentage of GDP)

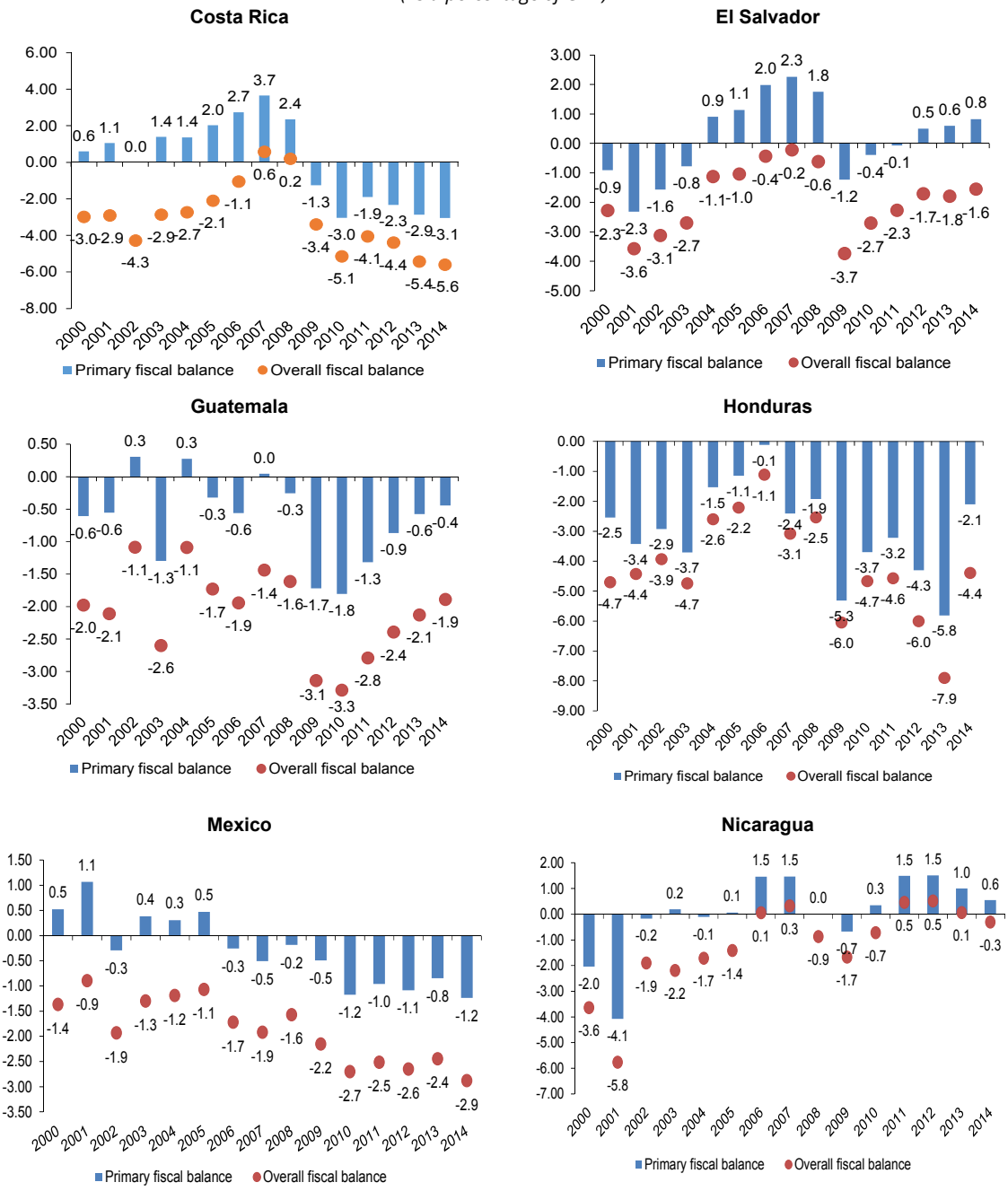
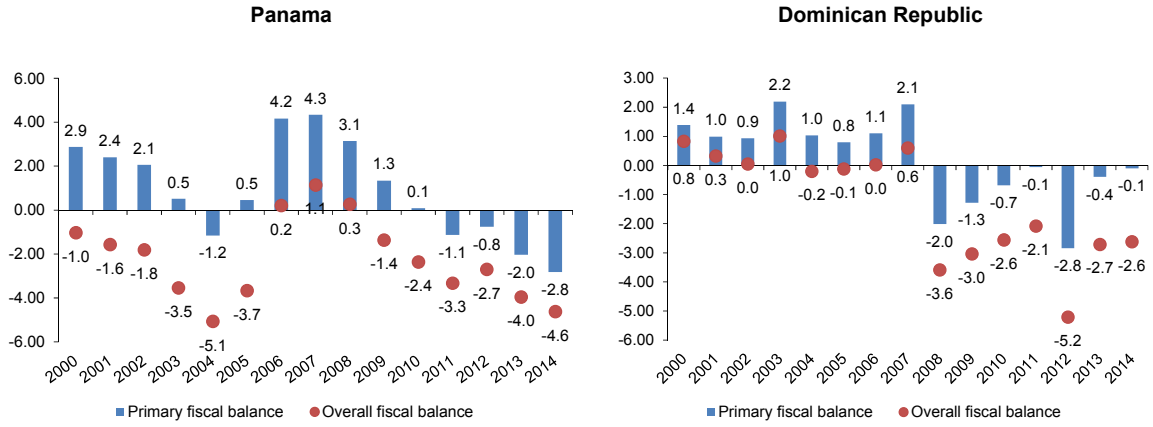


Figure I.4 (conclusion)



Source: Authors' own elaboration based on CEPALSTAT, 2016.

Mexico, Central America and the Dominican Republic have moderate debt levels overall (usually varying between 36% and 46% of GDP), with debt distributed across internal and external sources. After the impact of the international financial crisis in 2008 to 2009, the majority of Latin American countries maintained relatively stable debt levels. However, some Central American countries such as Costa Rica, Honduras, and the Dominican Republic, as well as Mexico, have shown a moderate increase in overall levels of indebtedness with respect to GDP. In recent years, the countries have increasingly turned to internal sources of financing.

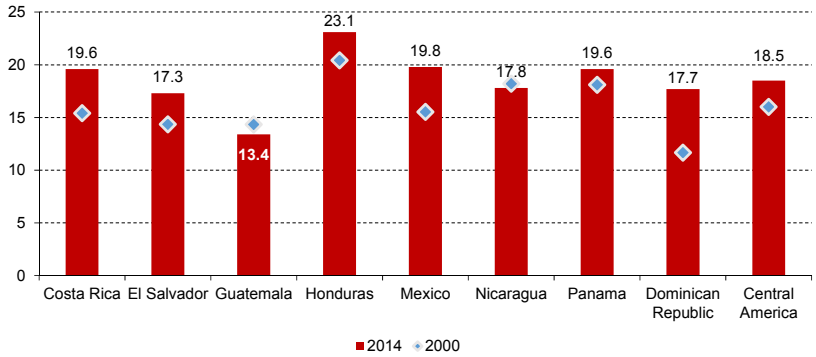
With regard to long-term debt sustainability, the region appears well situated to overcome potential shocks. Nicaragua, whose debt topped 220% of GDP in the early 1990, has reduced its overall total to less than 31% of GDP, while Panama also showed a significant reduction from nearly 65% of GDP in the early 2000 to 38% in recent years. With the exception of Honduras and El Salvador, all countries maintained their debt levels below 40% of GDP over the previous five years.

C. Distribution of current expenditure and capital expenditure

Given the focus of this paper on exploring the potential impacts of fiscal multipliers, in particular spending multipliers, it is important to first review the primary characteristics of central government expenditure.

As it has been highlighted previously, central government expenditure has moderately increased in the region over the past 15 years with the exception of Guatemala and Nicaragua, where it showed a slight decrease (as a percentage of GDP). Honduras presently has the highest level of government expenditure in terms of GDP, though it is important to note the relative size of the overall economy as compared to the larger regional economies of Mexico and the Dominican Republic. Overall for the countries under study, average fiscal expenditure increased to 18.5% of GDP in 2014, up from an average of 16% in 2000 (see the figure I.5).

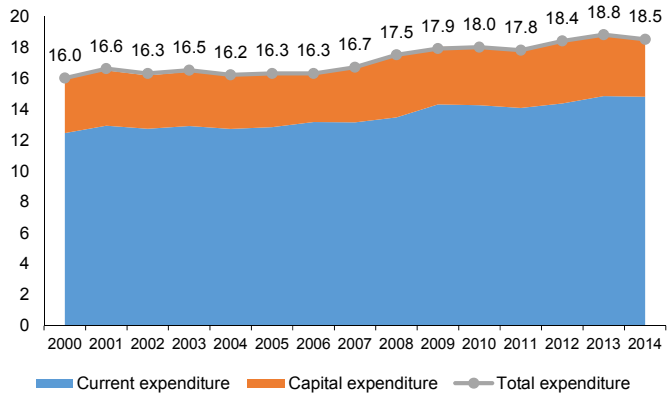
Figure I.5
Mexico, Central America, and the Dominican Republic: central government fiscal expenditure, 2000 to 2014
(As a percentage of GDP)



Source: Authors' own elaboration based on CEPALSTAT, 2016.

A particularly relevant feature for analyzing fiscal multipliers is the effect of capital spending compared to that of current spending on future output growth. As figure I.6 illustrates, across the subregion the majority of central government fiscal expenditure is devoted to current spending, with capital expenditure representing only around 4% of GDP. Despite the incremental growth of total expenditure as a share of GDP from 16% to 18.5% of GDP over the last 15 years, capital expenditure has only gone from 3.5% of GDP to 3.7% of GDP. That is to say, most of the increase in government spending in the region has been directed to current spending needs, and not to long-term investment in infrastructure or gross fixed capital formation.

Figure I.6
Mexico, Central America, and the Dominican Republic: fiscal expenditure, 2004 to 2014
(As a percentage of GDP)



Source: Authors' own elaboration based on CEPALSTAT, 2016.

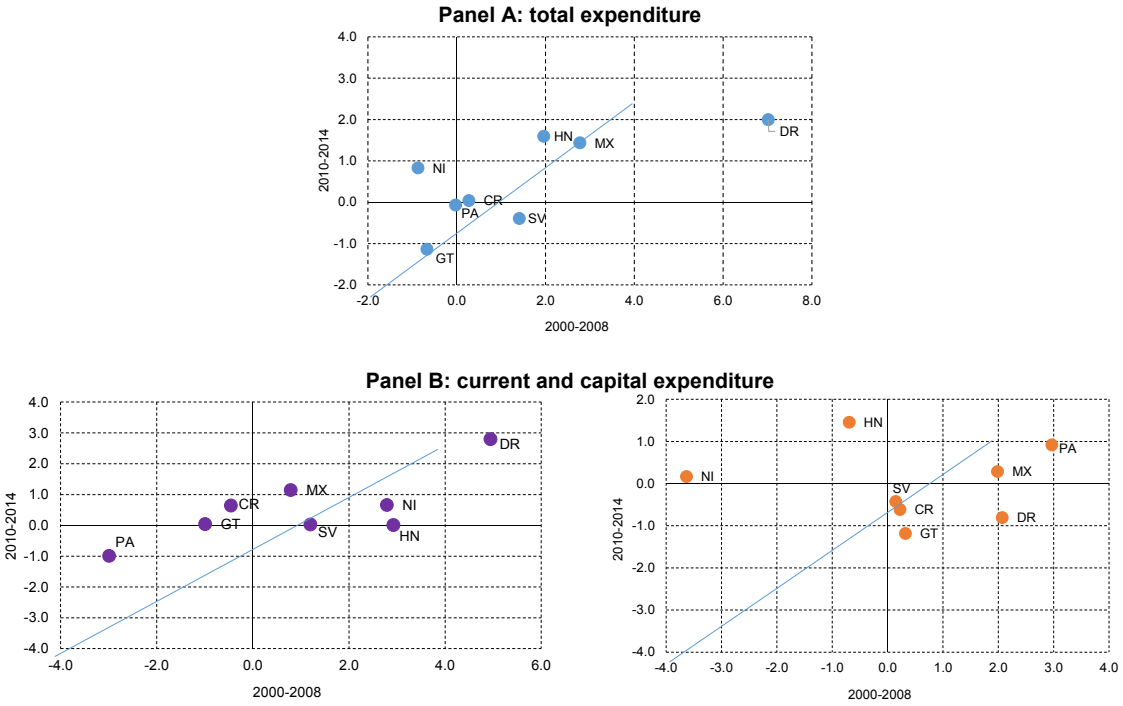
Figure I.7 below highlights the distinctive patterns of government spending that have emerged in the last two decades across countries. Along the x-axis the graphs display the average government expenditure (total, current or capital as a share of GDP) from 2000 to 2008, and along the y-axis, the average expenditure from 2010 to 2014, also as a share of GDP. The diagonal line at 45 degrees highlights the changes in spending over these two respective time periods. Care must be used in the interpretation of results as calculations are measuring the shifts in terms of a share of GDP and reductions (increases) may be small in terms of magnitude given the unit of measure.

In terms of overall expenditure, Guatemala is the only country to have reduced total expenditure as a share of GDP both from 2000 to 2008 and from 2010 to 2014. Only Nicaragua has increased its total expenditure more from 2010 to 2014, than during the growth years of 2000 to 2008. However, in absolute terms Mexico, Honduras and the Dominican Republic have made efforts to expand government spending throughout these two time periods.

Panel B of the same figure delves deeper into the changes in terms of capital and current budgetary spending. The increases in current spending have been of larger magnitudes across countries from 2000 to 2014. As the figure indicates, post crisis current expenditure rose in all countries as a share of GDP with the exception of Panama.

El Salvador, Guatemala, the Dominican Republic and Costa Rica have all reduced their capital spending in terms of GDP from 2010 to 2014. Only Panama and Honduras show a significant increase, while Mexico and Nicaragua have marginal increases in capital spending in terms of GDP.

Figure I.7
Mexico, Central America and the Dominican Republic: change in central government expenditure as a share of GDP
(In percentage points)



Source: Authors' own elaboration based on CEPALSTAT, 2016.

In most Central American countries investment has not recovered to the levels registered before the crisis of 2009. A decisive factor in the downward trend of gross capital formation in Central America has been the contraction in public investment (Cabrera, 2015). In Panama, the increase in investment is explained more by the push for large-scale public projects from 2008, while in Nicaragua investment spending has also increased thanks to a good management of the fiscal revenues (reduction of the fiscal deficit and control of the debt)

II. Literature review and methodologies for estimating fiscal multipliers

A. A review of the recent literature on fiscal multipliers

From a practical and policy standpoint, the estimation of fiscal multipliers might be useful to plan or forecast the anticipated effect of fiscal action. However, their estimation is complicated since there is a two-way relationship between variables, making it difficult to isolate the direct effect of fiscal measures on GDP growth. In this section the main consensus from the existing literature on the calculation of fiscal multipliers is summarized, including the factors that can influence the size, duration and direction of multipliers and the limitations inherent in the econometric models used to calculate these indicators.

The early literature suggested that first year multipliers lie between 0 and 1 for advanced economies without considering the state of the economy, and that spending multipliers are larger that revenue multipliers. However, recent literature has shown that for example, in a severe downturn or when monetary policy is impaired (interest rate close to zero), expending multipliers can exceed 1, or even be negative (Ilzetzki, Mendoza and Végh, 2011; Estevão and Samake, 2013).

Theoretically, the size of fiscal multipliers in emerging markets and low income countries is ambiguous since there are several factors that could increase or decrease the size of the multipliers in these countries. For example, liquidity constraints and agents less forward looking might increase (decrease) the size, but on the other hand a more uncertain environment might encourage precautionary saving, which increases the size of multipliers. Authors like Estevão and Samake (2013), Ilzetzki, Mendoza and Végh (2011) and IMF (2008) suggest that multipliers in EMEs and LIC are smaller than in Advanced Economies. Moreover, Ilzetzki, Mendoza and Végh (2011) finds that in developing countries, a fiscal stimulus has a negative short-run impact on output. For Central America, Estevão and Samake (2013) find that a decrease in expenditures has a negative impact on output growth. In a recent study for Brazil, Matheson and Pereira (2016) find that fiscal multipliers for aggregate spending, revenues and credit are moderate (0.5) in the short run. Spending multipliers approximate zero in the long-run, whereas multipliers for revenues and credit reach 2 and 3.8, respectively, over the long-term.

Broad consensus about the size of fiscal multipliers can be summarized as follows. Firstly, there is no single fiscal multiplier, or a unique value for fiscal multipliers. The value can be below or above unity. This depends on the country analyzed and the state of the economy. Secondly, fiscal multipliers tend to be materially larger during economic downturns than expansions. During a fiscal expansion, the crowding-out effects of government expending tend to offset the direct impact of fiscal stimulus on aggregate demand, while during economic downturns, government spending better utilizes idle resources (i.e., unemployed labor and capital), further augmenting private consumption and/or investment.

Multipliers tend to be larger if one does not control for the cycle and may even be larger than unity. This is due to the fact that during recessions, government spending is less likely to cause an increase in the interest rate and to crowd out private consumption. Government should implement economic stimulus when the economy has a large negative output gap, however sufficient fiscal space is needed to achieve this feat. In general, a temporary measure tends to have a stronger effect than a permanent measure.

In contrast when it comes to revenues, the multiplier is larger in expansions than recession (see Mineshima, Poplawski-Ribeiro and Weber, 2014). Spending multipliers are usually larger than revenue multipliers in the short run. The first has a direct impact on aggregate demand while the latter only has an indirect impact through consumption and investment.

Among the key factors influencing the size of the fiscal multipliers, the literature highlights automatic stabilizers which can tend to dampen the effect of a discretionary fiscal stimulus. Fiscal multipliers are generally negatively correlated with the size of government spending. Larger governments are associated with larger automatic stabilizers, which in turn tend to have a downward effect on the size of fiscal multipliers by containing the impact of discretionary fiscal spending (Mineshima, Poplawski-Ribeiro and Weber, 2014; IMF, 2008).

The level of trade openness of a country also can have significant impacts with smaller countries with a propensity to import, resulting in larger multipliers (Ilzetzki, Mendoza and Végh, 2011; IMF, 2008; Barrell, Holland and Hurts, 2012). Exchange rate regimes also tend to influence the size of multipliers across economies. Having a flexible exchange rate regime relates to small fiscal multipliers since the monetary policy response would not necessarily change in the presence of a fiscal expansion. According to Ilzetzki, Mendoza and Végh, (2011), a country with flexible exchange rate would have a negative multiplier and those countries with flexible exchange rate regimes would have multipliers of around zero in the long-run. Under a fixed exchange rate regime, the central bank would have to expand the money supply to mitigate appreciation pressures. Multipliers tend to be positive for countries with such a regime.

Debt levels also influence the size of multipliers as countries with high debt tend to have lower spending multipliers and even negative multipliers when compared to countries with low debt (Ilzetzki, Mendoza and Végh, 2011; Kirchner, Cimadomo and Hauptmeier, 2010).

The type of fiscal policy intervention also influences the size and direction of the multiplier. Ilzetzki (2011) finds that in developing countries, the multiplier on government investment is positive, close to 1 in the medium term, and statistically different from the multiplier on government consumption for forecast horizons of up to two years. In other words, developing countries receive greater benefits from government investment over government consumption. Using regime-switching models, Auerbach and Gorodnichenko (2011) also found that in estimating multipliers with more disaggregated spending variables, military spending has the largest multiplier.

B. Brief discussion of methodological approaches

Estimation techniques used for calculating fiscal multipliers have varied across the literature, due to the difficulty of isolating endogenous movements in fiscal variables. Most studies present results based on linear structural vector auto regressions (SVARs) (Blanchard and Perotti, 2002), linearized dynamic stochastic general equilibrium (DSGE) models which by construction rule out state dependent multipliers, and the narrative approach (Ramey and Shapiro, 1998; Romer and Romer, 2010) where they rely on published information on the nature of fiscal changes. Auerbach and Gorodnichenko (2012) use regime-switching (recession and expansion) STVAR models which allow for differential dynamic

responses and differential contemporaneous responses to structural shocks, among other techniques designed to address the structural limitations of these models.

Vector auto regressive (VAR) models show difficulty in isolating exogenous movements in fiscal variables (endogeneity problem). The starting point in the SVAR literature is the classic paper by Blanchard and Perotti (2002), which estimated multipliers for government purchases and taxes on quarterly US data. Since Blanchard and Perotti (2002) the common approach has been to use a structural identification approach (SVAR). This assumes that changes in fiscal variables could be due to three main factors: i) The automatic response of the fiscal balance to macroeconomic variables; ii) The discretionary response of fiscal policy to news of macroeconomic variables, and iii) Truly exogenous shifts in fiscal policy (shocks that need to be identified). These models typically employ quarterly data, assuming that discretionary adjustment to fiscal policy in response to unexpected events is unlikely to be implemented within the same quarter.

Criticisms of the VAR and SVAR approach to calculating multipliers note that these models can often fail to capture exogenous policy changes (see the table II.1). Therein also lies an inherent risk in omitting important variables from the model, due to the limited identifying information and elasticities that are used in the calculations. A significant challenge to constructing these models lies in the availability of appropriate data. Often quarterly time series of appropriate length and disaggregation are unavailable, and heterogeneity among countries and statistical definitions raises additional data challenges. When panel data are applied, there is often significant inter-country heterogeneity. The "narrative" and "action-based" approach which uses budget documents or forecasts) are used as alternatives to identify exogenous fiscal shocks.

Dynamic stochastic equilibrium (DSGE) models or New Keynesian macroeconomic models also present various methodological challenges; including the difficulty in modeling fiscal policy and incorporating nonlinearity (there is no widely accepted fiscal rule to be included in a DSGE). These models also demonstrate sensitivity to the size of parameters (e.g., degree of price and wage rigidities, habit persistence, investment adjustment cost), as well as structural features.

Batini, Eyraud and Weber (2014) alternatively propose to "guesstimate" multipliers with a method called the "bucket approach", which bunches countries into groups that are likely to have similar multiplier values based on their macroeconomic and/or development characteristics.

In summary, the empirical studies to calculate fiscal multipliers are varied and employ a variety of VAR, SVAR, DSGE and alternative models to estimate the magnitude and direction of multipliers. The results also have a range of values, depending on a wide array of endogenous and exogenous factors. There is scant empirical evidence on fiscal multipliers for Latin American multipliers, particularly calculations for Mexico and smaller Central American economies and the Dominican Republic. In the next section, the methodologies employed for calculating multipliers in the subregion are described in depth.

Table II.1
Comparison of strengths and limitations of estimation techniques for multipliers

	Structural VAR models	Dynamic and Stochastic General Equilibrium (DSGE) models
Summary	• Variables of interest (revenue, spending, output, interest rate and inflation) are interrelated and there are potential multiple causal relationships; • Employ output elasticities of expenditures and revenue to filter out automatic stabilizers. • Isolate exogenous fiscal shocks and estimate their impact on GDP using several identifying assumptions; • Mostly available for the US or advanced G20 economies;	• Based on current characteristics of the economy; • Describe the economic synthesis as a whole by analyzing many microeconomic decisions; • Sector coverage is the general government; • Most studies cover OECD countries;
Strengths	• Use country specific data for only few macroeconomic variables.	• Holistic description of the economy; • When the same model is used in different countries, the results are less disperse; • Reflect unusual conditions and conditions with few historical precedents.
Limitations	• Fail to measure purely exogenous fiscal shocks; • If there has been a structural change in a certain country, the average response of output to an exogenous fiscal shock will not capture today's effect as it uses past information; • SVAR are linear approximations and do not capture that multipliers are state-contingent. • Do not consider when the interest rate is at a zero lower bound.	• Little consensus about fiscal policy modeling (i.e. fiscal rules); • Linearized equations, so goodbye to state-dependent multipliers; • Multipliers depend on the modeling assumptions (calibrated versus estimated); • Results are sensitive to the choice of certain parameters.

Sources: Authors' own elaboration based on N. Batini, L. Eyraud and A. Weber, "A Simple Method to Compute Fiscal Multipliers", *IMF Working Paper*, WP/14/93, Washington D.C., 2013; A. Mineshima, M. Poplawski-Ribeiro and A. Weber, "Size of Fiscal Multipliers", in S. Abdelhak, P. R. Gerson, and C. Cottarelli, *Post-crisis Fiscal Policy*, Massachusetts, MIT Press., pp. 315-372, 2014.

C. Methodology applied for estimating fiscal multipliers in Mexico, Central America and the Dominican Republic

Empirical evidence shows a wide range of results for fiscal multiplier in the world. However, the reasons for this dispersion are not always clear. Are empirical results distinct because of the variety of different statistical methods used for estimate fiscal multipliers, or are the differences mainly due to the varieties in definitions, coverage and the precision of available methods? Here three different, though complementary, methodologies to determine the impact of government spending on economic growth, as applied to cases in Mexico, Central America and the Dominican Republic are developed.

To analyze the contribution of public expenditure to economic growth the following steps are taken. From the demand side or in terms of spending, GDP consists of: private consumption (C) investment (I), government spending (G), exports (X) and imports (M), as represented by the following equation:

$$Y = C + I + G + X - M$$

GDP growth in the period t is calculated as follows:

$$\dot{Y}_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}}$$

The rate of GDP growth can be broken down in order to see the contribution of each one of its components to overall growth according to the subsequent equation:

$$\frac{Y_t - Y_{t-1}}{Y_{t-1}} = \frac{C_t - C_{t-1}}{C_{t-1}} * \frac{C_{t-1}}{Y_{t-1}} + \frac{I_t - I_{t-1}}{I_{t-1}} * \frac{I_{t-1}}{Y_{t-1}} + \frac{G_t - G_{t-1}}{G_{t-1}} * \frac{G_{t-1}}{Y_{t-1}} + \frac{X_t - X_{t-1}}{X_{t-1}} * \frac{X_{t-1}}{Y_{t-1}} - \frac{M_t - M_{t-1}}{M_{t-1}} * \frac{M_{t-1}}{M_{t-1}}$$

The growth rate of GDP in period t is equal to the weighted sum of the rates growth rates of each of the composite components of GDP in period *t*.

The weighting factor in each case is the weight of each variable relative to GDP in the initial period (t-1). Therefore, C_{t-1} / Y_{t-1} is the relative weight of private consumption to GDP in period t-1. Finally, the contribution to GDP growth is obtained by multiplying the relative weight of the variable C in period t-1 and its growth rate in the period t.

To study the contribution of total revenues, current expenditure and capital expenditure to economic growth, a structural vector auto regression (SVAR) model is designed. Following the methodology of Blanchard and Perotti (2002); Ilzetzki, Mendoza and Végh (2011); Estevaõ and Samake (2013), and Mineshima, Poplawski-Ribeiro and Weber (2014), a quarterly SVAR model per country using key variables such as GDP, government revenue, government current expenditure, government capital expenditure, the exchange rate, the interest rate and inflation is estimated. Following the standards expressed in the related literature other macroeconomic variables including debt, private investment and terms of trade were included in earlier iterations of the model, but were not found to be statistically significant, and therefore were removed from the final specification of the models. Consumption and the extent of economic openness (to trade/exports) were also not included in the model due to problems of multicollinearity.

In addition, the correlation and cointegration between the variables of study are analyzed to detect a statistically significant effect in the long-run. The limitations of this methodology described in previous chapters are known, however, this is appropriate given the availability of information and the specific treatment for each country in the sample. In addition, the SVAR methodology allows for the incorporation of other variables that provide relevant information on economic relationships in a country.

In its synthetic form the model used is as follows:

$$A_0 Y_t = A(L) Y_{t-1} + \beta \varepsilon_t$$

Where the vector of endogenous variables, $Y_t = (y_t, rev_t, gcor_t, gcap_t, re_t, i_t, inf_t)$, includes:

real economic growth (y_t);

net government revenue excluding interest receipts on government debt (rev_t);

government current spending ($gcor_t$);

government capital spending ($gcap_t$);

exchange rate (re_t);

interest rate (i_t), and

inflation (inf_t).

$\varepsilon_t = [\varepsilon_t^y, \varepsilon_t^{rev}, \varepsilon_t^{gcor}, \varepsilon_t^{gcap}, \varepsilon_t^{re}, \varepsilon_t^{i}, \varepsilon_t^{inf}]'$ is the vector of structural shocks to the endogenous variables and is the corresponding innovation[1].

$e_t = [e_t^y, e_t^{rev}, e_t^{gcor}, e_t^{gcap}, e_t^{re}, e_t^{i}, e_t^{inf}]'$ is the matrix of contemporaneous parameters;

L is the lag operator;

A is the matrix of VAR parameters, and

B is the structural matrix associated with innovations. Matrices A and β are assumed to be invariant across time and countries.

In order to test the sensitivity of the final model, various alternative specifications were designed and tested (not reported here). In these alternative specifications other variables and data frequencies (quarterly and annual) were included to evaluate statistical significance. In these models variability across

[1] Most of these variables are incorporated in other studies for the model that best explains the relationship between public spending and economic growth. See Blanchard and Perotti, 2002; Ilzetzki, Mendoza and Végh, 2011; Estevão and Samake, 2013.

countries was allowed to ensure that the results were robust in assuming heterogeneity in auto regressive processes across countries.

To determine if the impact of government current and capital expenditure on economic growth are transient or permanent, impulse-response functions are performed to identify their long-term trajectory, from a standard VAR model, which its matrix form and a bivariate case is as follows:

$$y_t = \mu + \Pi_1 L y_t + \Pi_2 L^2 y_t + e_t$$

Where: $y_t = (y_{1t}, y_{2t})' \; \mu = (\mu_1, \mu_2)' \; e_t = (e_{1t}, e_{2t})'$

$$H_1 L = \begin{bmatrix} \prod_{11.1} L & \prod_{12.1} L \\ \prod_{21.1} L & \prod_{22.1} L \end{bmatrix} \text{ y } H_2 L^2 = \begin{bmatrix} \prod_{11.2} L^2 & \prod_{12.2} L^2 \\ \prod_{21.2} L^2 & \prod_{22.2} L^2 \end{bmatrix}$$

Clearing and rearranging:

$$(I - \Pi_1 L - \Pi_2 L^2) y_t = \mu + e_t$$

$$A(L) y_t = \mu + e_t$$

Where: $A(L) = (I - \Pi_1 L - \Pi_2 L^2)$, which refers to backlogs matrix polynomials.

D. Data description and sources

For this investigation real economic growth rates were used, as well as net government revenue excluding interest receipts on government debt, the growth rate of government current spending, the growth rate of government capital spending, the US dollar exchange rate, the leading monetary policy interest rate and inflation Natural logarithms of all government expenditure and GDP data were taken. Coverage for quarterly government expenditure data refers to the central governments of respective countries, in order to maintain data consistency across countries.

The main specification includes real government consumption and GDP. Other specifications include real government investment, government debt, the exchange rate, the interest rate and inflation. Nominal data was deflated using the corresponding deflator, when available, and using the consumer price index (CPI) when such a deflator was not available; using a GDP deflator instead of CPI for those countries where both were available left the paper's results unchanged. The data show seasonal patterns. The selected method for seasonally adjusting the data was the TRAMO/SEATS algorithm.

The macroeconomic data used in this study come from the National Institute of Statistics and Informatics (INEGI for its acronym in Spanish), the Bank of Mexico, the central banks of respective Central American countries and the United Nations Economic Commission for Latin America and the Caribbean (ECLAC). All information refers to quarterly growth rates from 1993q1 to 2015q3 for almost all countries. Table II.2 below presents the relevant sources consulted for each country. Given the differences in reporting periods and the continuity of some series, periods of analysis may vary across countries.

Table II.2
Selected countries: Sources of economic data per country

Variable	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama
GDP (Nominal and real)	ECLAC: Dollars Annual 1990-2014 ECLAC: National Currency Quarterly 91Q1-15Q3 CB: Quarterly 1991-2015	ECLAC: Dollars Annual 1990-2014 ECLAC: National Currency Quarterly 91Q1-15Q3 CB: Quarterly 2007-2015	ECLAC: Dollars Annual 1990-2014 CB: Quarterly 1990-2015	ECLAC: Dollars Annual 1990-2014 ECLAC: National Currency Quarterly 01Q1-14Q2 CB: Quarterly 1991-2015	ECLAC: Dollars Annual 1990-2014 ECLAC: National Currency Quarterly 2000Q1-14Q4 CB: Quarterly 2000-2015	ECLAC: Dollars Annual 1990-2014 ECLAC: National Currency Quarterly 93Q1-15Q3 INEGI: Quarterly 1990-2015	ECLAC: Dollars Annual 1990-2014 CB: Quarterly 2006-2015	ECLAC: Dollars Annual 1990-2014 CB: Quarterly 1996-2015
Current expenditure	ECLAC: National Currency Annual 1990-2013 CB and Ministry of Finance: Monthly 2006-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1992-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1994-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1995-2015	ECLAC: National Currency Annual 1990-2013 CB: Quarterly 2002-2015	ECLAC: National Currency Annual 1990-2014 INEGI: Monthly 1990-2015	ECLAC: National Currency Annual 1990-2014 CB: Quarterly 1990-2015	ECLAC: National Currency Annual 1990-2014 INEC: Quarterly 2004-2013
Capital expenditure	ECLAC: National Currency Annual 1990-2013 CB and Ministry of Finance: Monthly 2006-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1992-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1994-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1995-2015	ECLAC: National Currency Annual 1990-2013 CB: Quarterly 2002-2015	ECLAC: National Currency Annual 1990-2014 INEGI: Monthly 1990-2015	ECLAC: National Currency Annual 1990-2014 CB: Quarterly 1990-2015	ECLAC: National Currency Annual 1990-2014 INEC: Quarterly 2004-2014
Government revenues	ECLAC: National Currency Annual 1990-2013 CB and Ministry of Finance: Monthly 2006-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1992-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1994-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1995-2015	ECLAC: National Currency Annual 1990-2013 CB: Quarterly 2002-2015	ECLAC: National Currency Annual 1990-2014 INEGI: Monthly 1990-2015	ECLAC: National Currency Annual 1990-2014 CB: Quarterly 1990-2015	ECLAC: National Currency Annual 1990-2014 INEC: Quarterly 2004-2015
Government debt	CB: Monthly 1988-2015	CB: Monthly 1992-2015	CB: Monthly 2002-2015	CB: Monthly 1995-2015	CB: Monthly 2002-2015	INEGI: Monthly 1990-2015	CB: Monthly 2002-2015	INEC: Monthly 2004-2016
Interest rates	ECLAC: National Currency Annual 1990-2013 CB and Ministry of finance: Monthly 2006-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1991-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 1995-2015	ECLAC: National Currency Annual 1990-2015	ECLAC: National Currency Annual 1990-2013	ECLAC: National Currency Annual 1990-2014 INEGI: Monthly 1990-2015	ECLAC: National Currency Annual 1990-2013 CB: Monthly 2005-2015 and Quarterly 1992-2015	ECLAC: National Currency 1990-2013 INEC: Quarterly 2006-2015
Exchange rate	CB: Quarterly 91Q1-2015Q4	CB: Daily 1991-2015		CB: Monthly 1990-2015	CB: Monthly 1990-2015	CB: Daily 1991-2015	CB: Monthly 1990-2015	
Inflation	CB: Quarterly 91Q1-2015Q4	CB: Monthly 1991-2015	CB: Monthly 1992-2015	CB: Monthly 1995-2015	CB: Monthly 2006-2017	INEGI: Monthly 1993-2015	CB: Monthly 2001-2015	INEC: Monthly 2006-2015

Source: Authors' own elaboration.
Note: CB: refers to the Central Bank of each country, respectively.

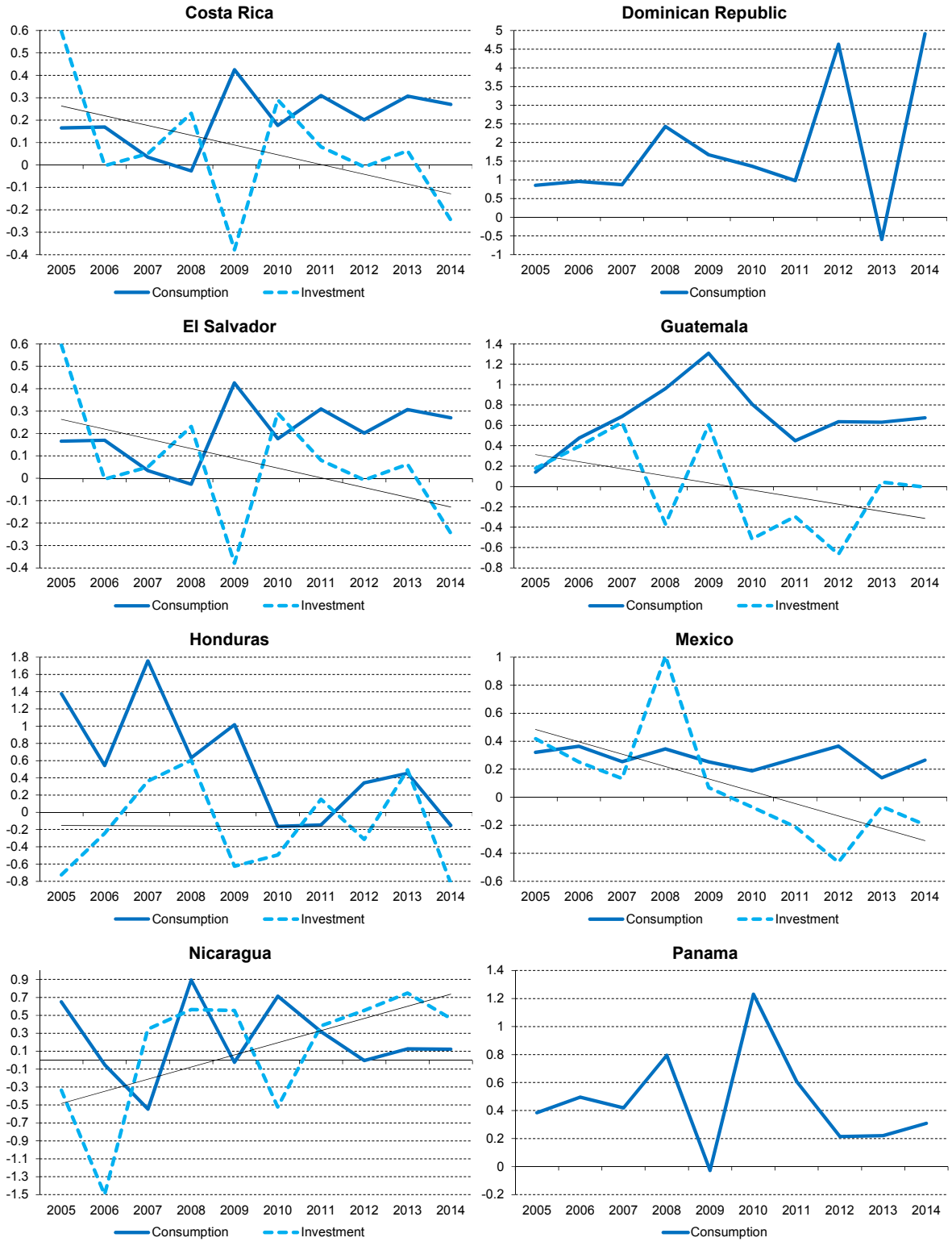
III. Contribution of public expenditure to economic growth and fiscal multipliers in Mexico, Central America and the Dominican Republic

A. Contribution of public expenditure to GDP growth

To analyze and compare the contribution of public spending and public investment to GDP growth the trajectories of their respective contributions to GDP over the past 10 years are presented (see the figure III.1).

The contribution of public spending to GDP growth from 2005 to 2014 in most countries has a clear tendency to reduce the importance of public investment in GDP growth over the observed period, particularly in Costa Rica, El Salvador, Guatemala and Mexico. In contrast, Nicaragua is the only country in which the trend is positive. In addition, public consumption in the majority of countries has a major contribution to economic growth. Especially in the Dominican Republic the contribution of public consumption to GDP growth is positive and large.

Figure III.1
Contribution of public expenditure and investment to GDP growth, 2005 to 2014
(In percentage points)



Source: Authors' own elaboration based on CEPALSTAT, 2016.
Note: For the Dominican Republic and Panama data on public investment are not available separately from total investment, and are thus excluded from their respective graphs. The narrow black trend line reflects investment.

The results presented in table III.1 are particularly interesting since they show that in the last 5 years the contribution of total public spending to GDP growth in most countries has been moderate. With the exception of the Dominican Republic (contribution of public spending has varied from 6.1 percentage points to 2.6 percentage points from 2010 to 2014), public spending on average has contributed less than one percentage point to overall growth. An even more troubling tendency is that the evolution of government consumption has even negatively impacted growth in some countries in four of the last five years, particularly Honduras. A statistical explanation for the negative contribution of public expenditure in some years could be related to the reduction in the proportion (weight) of expenditure in GDP or a reduction in the overall growth rate in these years.

Table III.1
Contribution of total public expenditure to GDP growth, 2010 to 2014
(Growth in percentages and percentage points, P.P.)

		2010	2011	2012	2013	2014
Costa Rica	GDP [a]	5.0	4.5	5.2	3.4	3.5
	Contribution [b]	0.5	-0.1	0.1	0.4	0.2
Dominican Republic	GDP [a]	8.3	2.8	2.6	4.8	7.3
	Contribution [c]	6.1	2.3	2.3	1.7	2.6
El Salvador	GDP [a]	1.4	2.2	1.9	1.8	2.0
	Contribution [b]	0.5	0.4	0.2	0.4	0.0
Guatemala	GDP [a]	2.9	4.2	3.0	3.7	4.2
	Contribution [b]	0.3	0.2	0.0	0.7	0.7
Honduras	GDP [a]	3.7	3.8	4.1	2.8	3.1
	Contribution [b]	-0.7	0.0	0.0	0.9	-1.0
Mexico	GDP [a]	5.2	3.9	4.0	1.4	2.2
	Contribution [b]	0.1	0.1	-0.1	0.1	0.1
Nicaragua	GDP [a]	3.2	6.2	5.1	4.5	4.7
	Contribution [b]	0.2	0.7	0.6	0.9	0.6
Panama	GDP [a]	5.8	11.8	9.2	6.6	6.1
	Contribution [c]	1.2	0.6	0.2	0.2	0.3

Source: Authors' own elaboration based on CEPALSTAT, 2016.
[a] Growth rate.
[b] Percentage points (contribution to overall growth rate).
[c] Percentage points only for public consumption.

One of the reasons for the moderate contribution of public spending to GDP growth is the rigidity of those expenses. Due to the fixed structure of public expenses in Mexico and Central America countries, year after year the government can only marginally change the budget. In countries such as Guatemala more than 90% of the governments overall budget structure is fixed to required spending, leaving just a marginal 10% of public resources for discretionary spending. The countries cannot introduce counter-cyclical policy for government spending to support economic growth, due to budgetary rigidities, such as pensions, subsidies and debt service, which limit their fiscal space. Other factors such as government inefficiencies in budget or programme execution, crowding out effect, or a high component of imports in public procurement, may also influence the impact of public spending in GDP.

In the following section further details of the particular contribution of two major fiscal components, current expenditure and capital expenditure, to economic growth are presented.

B. Impact of public expenditure on economic growth

Before developing the SVAR model, the correlations and cointegrations between the variables of study were analyzed to detect statistically significant effects in the long-term.

Table III.2 shows the correlation coefficients between GDP growth and current and capital expenditure made by the central governments of the countries analyzed for the period from 1990 to 2015. The evidence shows that there is a strong and positive relationship between economic growth and current

spending in all countries in the sample. In contrast, there is a small or in some cases even negative correlation (in Nicaragua and Panama) between economic growth and capital spending. That is, changes in capital expenditure show no causality, but association with economic growth. This result may be related to the relatively low level of public resources allocated to capital investment. The exceptions to this trend are Panama and Nicaragua, where public investment probably displaces private investment.

Table III.2
Correlation coefficients between GDP growth and current and capital expenditure, 1990 to 2015 [a]
(Coefficients by country)

	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama
Current expenditure	0.94	0.91	0.96	0.90	0.44	0.98	0.94	0.76
Capital expenditure	0.24	0.17	0.07	0.20	0.03	0.03	-0.11	-0.08

Source: Authors' own elaboration.
[a] Spearman rank correlations shows similar results.

The cointegration test for economic growth and public spending (current and capital expending) shows the existence of cointegration vectors for all countries for at least one linear combination of the variables included in the study. This proves that there is a long-term relationship between the economic growth and public spending. Costa Rica and Guatemala stand out as in their cases the cointegration vectors are limited to only a few combinations (see the table III.3).

Table III.3
Cointegration test between GDP growth and current and capital expenditures
(Number of cointegrating relationships by model selected [a] —0.05 Level — (with trace statistic [b])

Data trend:	None	None	Linear	Linear	Quadratic
Test type:	No intercept	Intercept	Intercept	Intercept	Intercept
	No trend	No trend	No trend	Trend	Trend
Costa Rica	2	1	0	1	1
Dominican Republic	2	3	1	1	3
El Salvador	2	3	1	1	1
Guatemala	2	1	0	0	0
Honduras	3	2	2	2	3
Mexico	1	3	2	2	3
Nicaragua	2	3	2	1	3
Panama	3	2	2	1	3

Source: Authors' own elaboration.
[a] Critical values based on MacKinnon-Haug-Michelis (1999).
[b] Max-Eigen values show similar results.

Since the long-term relationship between economic growth and current and capital expenditure has been established, the results of the SVAR models developed for each country are presented. The multipliers shown are short term multipliers (up to 3 quarters in the future to see the impact of an increase (decrease in public expenditure).

The results presented in table III.4 indicate that for every percentage point increase (decrease) in current expenditure and capital expenditure, GDP increases (decreases) between -0.01 and 0.1 percentage points, depending on each country. For example, if there is an increase in public spending by 10% in Cost Rica, then there will be an increase in GDP by 1.3 percentage points. In the Costa Rican case, GDP

grew by 3.5% in 2015; however, with an increase in government spending of 10%, real annual GDP growth would have reached 4.8%, which represents a significant rise in economic activity. One possible explanation for this result is linked to the fact that in Costa Rica, as compared to other countries, there is a high indexing of important economic variables, i.e., if wages increase, then there is a subsequent rise in education bonds, in economic activity in general and in prices of goods and services in the economy, all of which feed back into the system. In contrast, if spending is increased in El Salvador by the same proportion (10%), the GDP will only increase by 0.1 percentage points. That is in 2015, GDP in El Salvador grew by 2.4%, and with an increase in public expenditure of 10%, growth would have reached 2.5%.

Overall, the models show three groups of results. In the first group are Costa Rica and Honduras with multipliers of 0.1 and 0.05, respectively. Spending multipliers for both current and capital expenditure are small and in some cases zero or negative, yet with greater emphasis on the related investment. In the second group are Mexico, the Dominican Republic and El Salvador with multipliers of 0.02, 0.02 and 0.01, respectively. Finally, in the third group are Guatemala and Nicaragua with coefficients of zero or -0.01, in that order. Additionally, the multipliers for some countries resulting from the SVAR models are not statistically significant. In the case of current expenditure, only Panama's multiplier is not statistically significant. However, for capital expenditure, the Dominican Republic, Mexico and Panama also show non-statistically significant results. This indicates, among other things, that there may be other variables which may explain better and have a greater impact on the economic performance of their respective countries. In addition, specifically for Panama, it should be noted that there is very little comparable quarterly statistical information (only from 2004 to 2014 in national sources), which possibly biases the results or complicates the estimation of the model.

Table III.4
Fiscal multipliers (short-term) of GDP growth and current and capital expenditures
(In percentage points)

High-Impact Multipliers:	Medium-Impact Multipliers:	Low-Impact Multipliers:	Indeterminate Multipliers:
Costa Rica Honduras	Dominican Republic El Salvador Mexico	Guatemala Nicaragua	Panama

	Costa Rica	Dom. Rep.	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama
Current expenditure	0.13	0.02	0.01	0.00	0.05	0.02	0.00	-0.01 [a]
Capital expenditure	-0.01	0.00 [a]	0.00	0.00	0.00	0.00 [a]	-0.01	0.00 [a]

Source: authors' own elaboration.
[a] Not statistically significant.

These results are similar to those reported previously when calculating contributions to overall growth of these two components of public sector expenditure for some years. Additionally, the multipliers are similar to the results of Ilzetzki, Mendoza and Végh (2011) for high-income and developing countries. They also follow a similar performance trend as multipliers reported by Batini, Eyraud and Weber (2014), but in different direction than that found in Estevão and Samake (2013). This may be related to the issue that in Estevão and Samake (2013) the data is annual and the model is a SVECM.

In Iltzetzki, Mendoza and Végh (2011) the government spending multipliers for high-income economies reach a coefficient of 0.08, similar to Costa Rica (coefficient of 0.1) and Honduras (coefficient of 0.05). In this sense, including for high-income economies, in the long-run, over 90% of the increase in

government consumption is crowded out by some other component of GDP (investment, other components of public consumption, private consumption, or net exports).

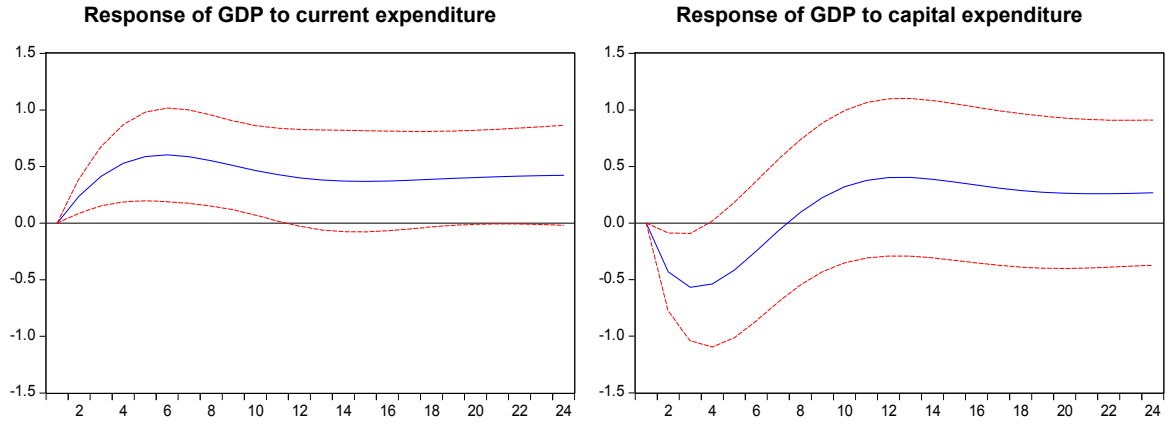
The small and even negative fiscal multipliers that are calculated for some countries may be related to the rigidities of government commitments and existing laws imposed on public spending; inefficient spending; spending quality; sub-execution of the budged; low levels of public investment; crowding out effects, or government purchases with high import content. In this sense, it is convenient to review national budget plans and fiscal programs, which could lead to a re-engineering of public expenditures. It is essential to effectively and efficiently leverage scarce economic resources available in Mexico, Central America and the Dominican Republic.

C. Results of the impulse-response functions

In this section C, following Contreras and Battelle (2014), VAR models are developed and analyzed to determine if the impulse response functions for GDP show a negative or positive accumulative (long-term) effect in response to a shock (between one standard deviation) in current spending and/or capital spending. The results are shown in figure III.2.

Figure III.2
Impulse-response impact on economic growth to a shock caused by change in current or capital expenditure
(Units, accumulated responses, 1-standard deviation)

Costa Rica



Dominican Republic

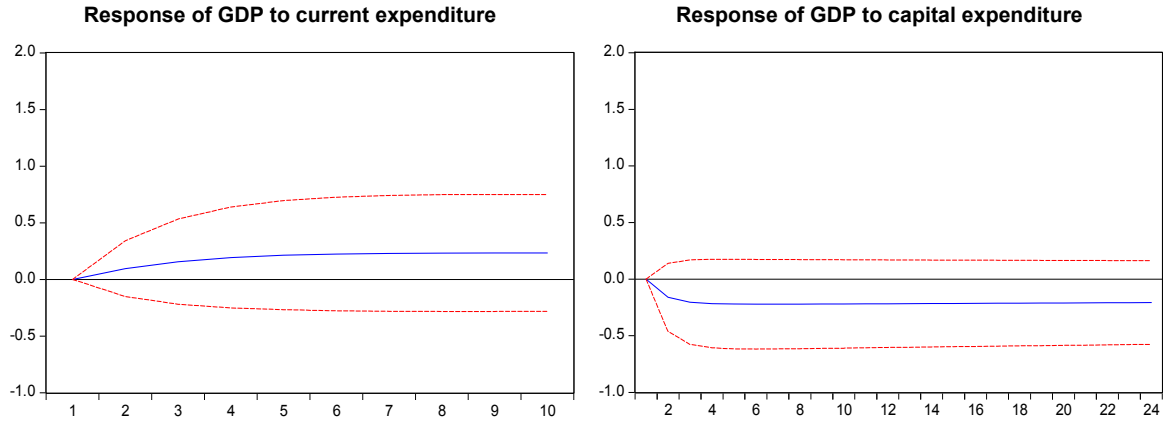
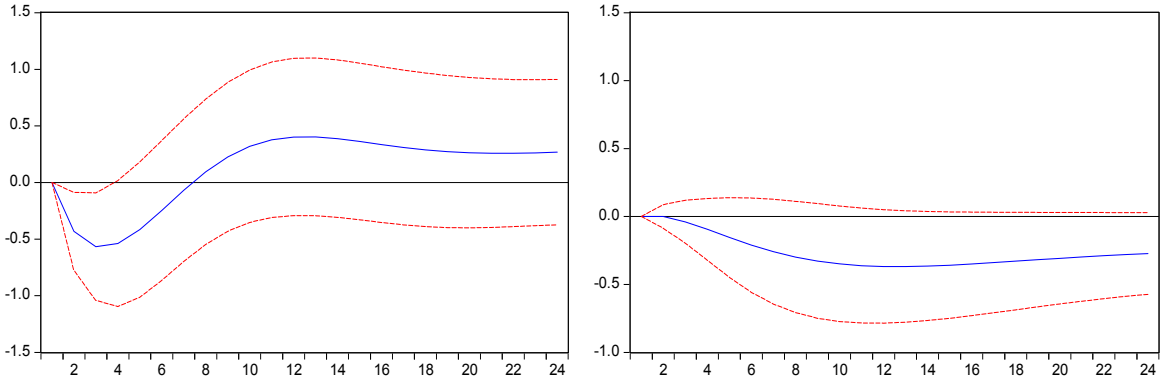
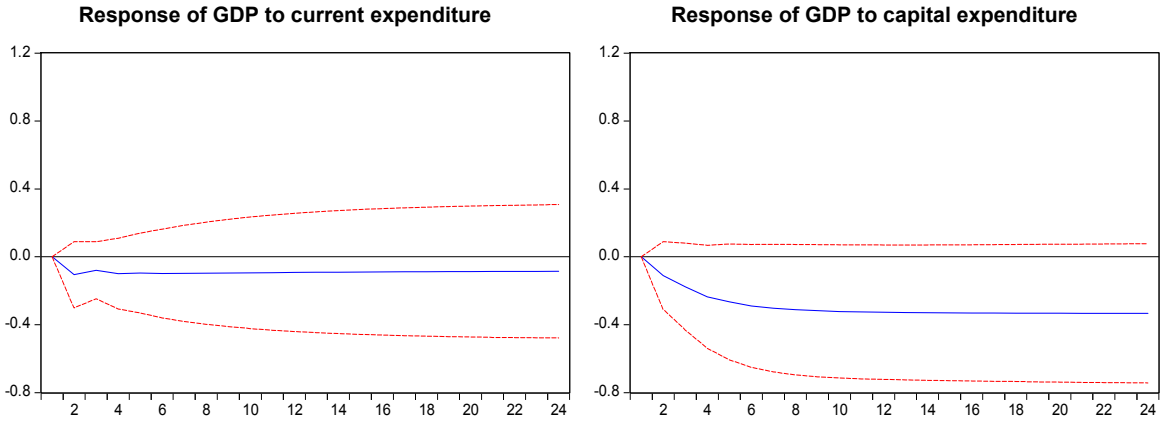


Figure III.2 (continued)

El Salvador



Guatemala



Honduras

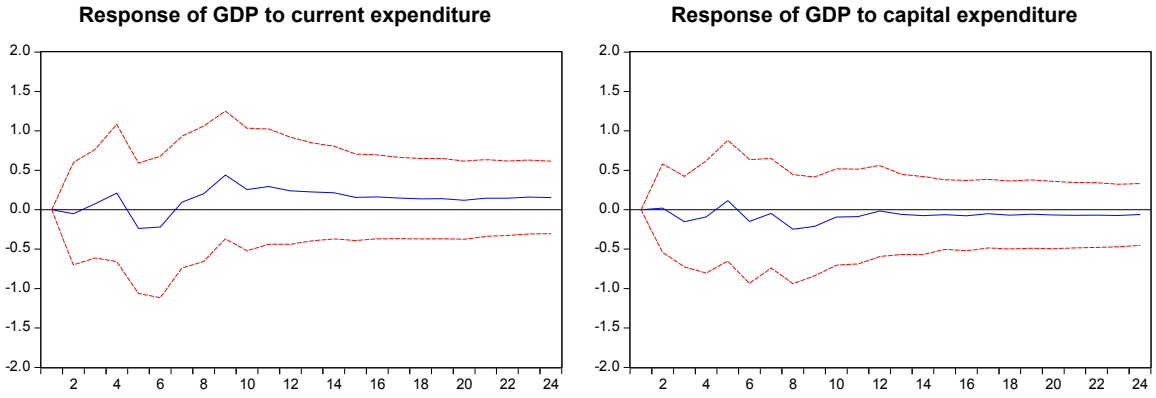
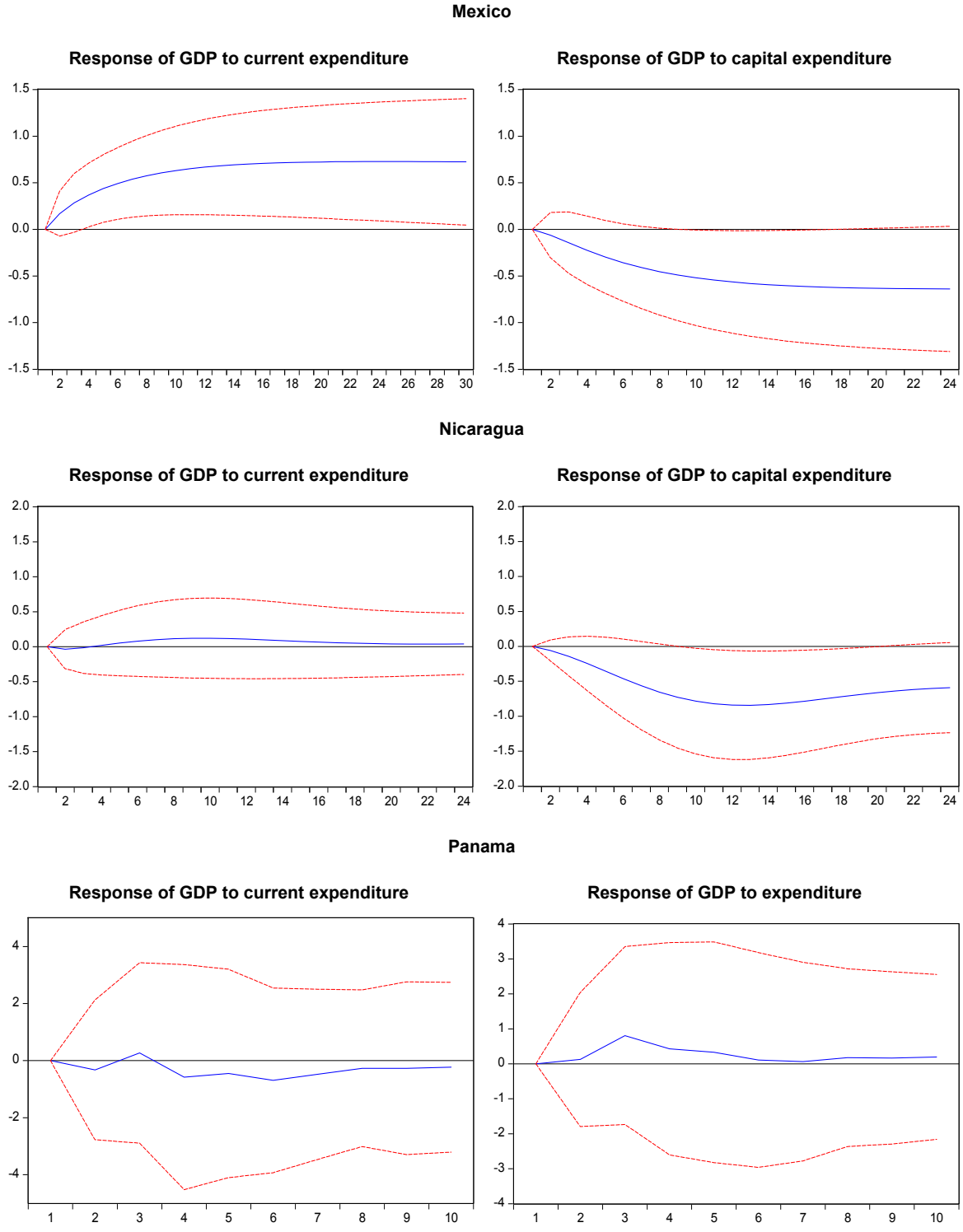


Figure III.2 (conclusion)



Source: authors' own elaboration.

In the case of Costa Rica it is clear that an increase in current expenditure is statistically significant and would have an immediate positive impact on economic growth. This accumulative impact increases up to 0.51 percentage points in the first three quarters after the shock and then stabilizes at around 0.28 percentage points. Regarding capital spending, as indicated by the fiscal multipliers, a shock to this variable has a negative effect on GDP, but only in the first two years. In the medium to long run, its impact on GDP is positive and reaches about 0.18 percentage points. In the case of the Dominican Republic, an increase in current expenditure has a positive impact on economic growth (0.21 percentage points). Meanwhile, capital spending has negative effects on GDP growth (-0.14 percentage points), but only marginally so throughout the period considered (see the table III.5).

Meanwhile, in El Salvador an increase in current expenditure would have an immediate negative impact on economic growth, with the maximum negative effect of around 0.52 percentage points in the first four quarters after the shock. Its accumulative impact would remain negative throughout the first two years, before stabilizing at around 0.24 percentage points with a positive impact in the long term. A shock to capital spending has a negative long-term effect on GDP and reaches a maximum negative impact of about 0.22 percentage points.

In Guatemala, government current and capital expenditure have a negative impact on economic growth. The accumulative impact of the first is small and close to zero (-0.09 percentage points), and the second has a negative effect and reaches about 0.38 percentage points. In Honduras, an increase in current expenditure has a small, positive impact on economic growth (0.10 percentage points). Meanwhile, capital spending has negative effects on GDP growth (-0.05 percentage points).

In the case of Mexico, the impact of current spending mirrors capital expenditure's impact. That is, while current spending has a positive impact on economic growth (0.55 percentage points), capital expenditure has a negative effect of almost the same magnitude over the long run (-0.49 percentage points). While the impact of current expending on economic growth in Nicaragua is positive (0.10 percentage points), the effect of capital spending on GDP growth is negative and significant (-0.48 percentage points). Finally, in Panama the impact of current spending on economic growth is negative (-0.18 percentage points) and the impact of capital expenditure is positive (0.30 percentage points). This result may be linked with the fact that as has been previously analyzed, the multipliers calculated are small and not statistically significant.

Table III.5
Fiscal multipliers (long-term) of GDP growth and current and capital expenditures
(In percentage points)

	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama
Current expenditure	0.28	0.21	0.24	-0.09	0.10	0.55	0.10	-0.18
Capital expenditure	0.18	-0.14	-0.22	-0.38	-0.05	-0.49	-0.48	0.30

Source: authors' own elaboration.

In other words, both current expenditure (by its magnitude) and capital expenditure (by its social benefits in the long term) have an important contribution to the trajectory of GDP. For each dollar spent by the government on a long-term horizon for each component, 1.1 dollars are generated on average in the production of all the countries of the subregion. In the cases of Mexico, Costa Rica and Panama, the sum of multiplier effects in the long term reach values of 2.9, 2.6 and 2.3, respectively (see the table III.6). That is, for each dollar spent for each component in Mexico about 3 dollars will be generated in the long run. The Dominican Republic and Honduras with values respectively of 2.2 and 2.1, would generate 2 dollars in the long run, for each dollar spent for each component of public expenditure. Nicaragua and Guatemala are the two countries in the sample who would contribute less to the generation of GDP in the long run for every dollar spent, since the sum of its values are 1.8 and 1.6, respectively.

Table III.6
Fiscal multipliers (long-term) of GDP growth and current and capital expenditures
(Expenditure multiples)

	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Mexico	Nicaragua	Panama
Current expenditure	1.4	1.3	1.3	0.9	1.1	2.2	1.1	0.8
Capital expenditure	1.2	0.9	0.8	0.7	1.0	0.7	0.7	1.4

Source: Authors' own elaboration.

Overall, the analysis of impulse-response functions confirms that the accumulative impact of current spending on GDP growth in Mexico, Central America and the Dominican Republic is important in the long-term. The results also confirm that capital spending negatively impacts GDP growth in most countries in the subregion, with the exception of Costa Rica and Panama. This result is explained by the generally low proportion of capital expenditure in the total expenditure of the sample countries (around 4% of GDP over the last decades). It also highlights that, although the effects of public spending on economic growth are variety in the long-term, they are persistent over time.[2] This result suggests that a fiscal policy focused on spending cuts will not lead to positive economic growth outcomes in the long-term.

[2] These results are also consistent with those reported by Ilzetzki, Mendoza and Végh, 2011; Shen, Yang and Zanna, 2015.

IV. Conclusions

From 1990 to 2015 economic growth in Mexico, Central America and the Dominican Republic in general can be characterized as relatively dynamic. With some exceptions, such as Panama and the Dominican Republic, who have shown real GDP growth around 6% to 8% in recent periods, and El Salvador and Mexico, whose performance has been more modest (around 2% annual growth in the case of El Salvador and 3% in the case of Mexico), the countries of the subregion have consistently expanded at around 4%, save the fall during the 2008 to 2009 financial crisis. There are a multitude of factors behind this macroeconomic performance. One factor that has gained prominence in economic policy debates in recent years concerns the role of the state and state actions in driving economic growth and reducing volatility. In this sense, this research has aimed to contribute to the explanation of the impact and contribution of public spending on economic growth, and more specifically to identify the size of fiscal multipliers in Mexico, Central America and the Dominican Republic.

Empirical evidence shows a wide range of results for fiscal multipliers in the world. However, the reasons for this dispersion are not always clear. Are empirical results distinct because of the variety of different statistical methods used for estimating fiscal multipliers, or are the differences mainly due to the varieties in definitions, coverage and the precision of available methods? In this research three different, though complementary, methodologies to determine the impact of government spending on economic growth have been developed, as applied to cases in Mexico, Central America and the Dominican Republic.

The empirical evidence suggests five main results. The first is that the contribution of public spending to GDP growth from 2005 to 2014 in most countries is very small or even null. Particularly, in Costa Rica, El Salvador, Guatemala and Mexico there has been a clear tendency to reduce the importance of public investment in GDP growth, despite increases in actual levels of public spending (in some cases). Meanwhile, in Nicaragua the trend is positive. Also, public consumption, in the majority of countries, has a very small contribution to overall economic growth. Only in the Dominican Republic is the contribution of consumption to GDP growth both positive and high. There may be statistical effects to consider, given the weight of public expenditure in overall economic growth.

Second, the correlation coefficients between GDP growth and current and capital expenditure made by the central government of the countries analyzed for the period 1990 to 2015 show that there is a positive and high relationship between economic growth and current spending in all countries in the sample.

Third, the cointegration tests for economic growth and public spending (current and capital expending) show the existence of cointegration vectors for all countries for at least one linear combination of the variables included in the study. This proves that there is a long-term relationship between economic growth and public spending.

Fourth, the SVAR models indicate that for every percentage point increase (decrease) in current expenditure and capital expenditure, GDP increases (decreases) between -0.01 and 0.1 percentage points, depending on the case of each country. For example, if there is an increase in public spending by 10% in Costa Rica, then there will be an increase in GDP by 1.3 percentage points. In the Costa Rican case, GDP grew by 3.5% in 2015, however, with an increase in spending of 10%, real annual GDP growth could reach 4.8%, a significant rise in economic activity. One possible explanation for this result is linked to the fact that in Costa Rica, as compared to other countries, there is a high indexing of important economic variables, i.e., if wages increase, then there is a subsequent rise in education bonds, in economic activity in general and in prices of goods and services in the economy, all of which feed back into the system. In contrast, if spending is increased in El Salvador by the same proportion (10%), the GDP only will increase by 0.1 percentage points. That is in 2015, GDP in El Salvador grew by 2.4%, and with an increase in public expenditure of 10%, and growth could reach 2.5%. In addition, this result suggests that a fiscal stabilization focused on spending cuts will not have positive economic growth outcomes in the long-term.

Overall, the models show three groups or results. In the first group are Costa Rica and Honduras with multipliers of 0.1 and 0.05, respectively. The other results indicate that spending multipliers related with government capital expenditure are small and in some cases zero or negative. In the second group are Mexico, the Dominican Republic and El Salvador with multipliers of 0.02, 0.02 and 0.01, respectively. The third group are Guatemala and Nicaragua with coefficients of zero or -0.01, in that order. The multipliers are similar to the results of Ilzetzki, Mendoza and Végh (2011) for high-income and developing countries. Fiscal multipliers that are small and even negative for some countries may be related to the rigidities of government commitments and existing laws imposed on public spending; inefficient spending; spending quality; sub-execution; low levels of public investment; crowding out effects, or government purchases with high import content. In this sense, it is urgent to review government programs, which could lead to a reengineering of public expenditures and a more efficient use of resources. It is essential to effectively and efficiently leverage the scarce economic resources available in Mexico, Central America and the Dominican Republic.

Fifth, the analysis of impulse-response functions confirms that current spending has an important accumulative impact on economic growth and that capital spending negatively impacts GDP growth in most countries in the subregion, with the exception of Costa Rica and Panama. These results are explained by the generally low proportion of capital expenditure in the total expenditure of the sample countries. It also highlights that, although the effects of public spending on economic growth are variety in the long-term, they are persistent over time, making it feasible to promote a re-engineering of the budget to efficiently use the scarce public resources that the governments of this sub region have. This situation imposes heavy restrictions on long-term economic growth, as the further increase in current expenditure decreases the margin of governments to strengthen the productive sectors by promoting investment, competitiveness and productivity.

Both current expenditure (by its magnitude) and capital expenditure (by its social benefits in the long-term) make an important contribution in the trajectory of GDP. Per each peso (or dollar) spent by the government on a long-term horizon, 1.1 pesos (dollars) are generated in the production of all the countries of the subregion. The cases of Mexico, Costa Rica and Panama stand out, because the sum of multiplier effects in the long term reach values of 2.9, 2.6 and 2.3, respectively. That is, each peso spent on the components of government expenditure in Mexico, will generate about 3 pesos in the long-run. Guatemala and Nicaragua are the two countries in the sample who would contribute less to the generation of GDP in the long-run for every peso spent, since the sum of its values are 1.6 and 1.8, respectively.

It is important to note that the evaluation of fiscal multipliers is sensitive to any form of treatment, i.e., the model or the estimation methodology used to calculate multipliers and the data available matters and can have significant impacts on the magnitude and direction of results. Despite this limitation, the fact

that government spending has an effect, though marginal, on economic growth in the countries analyzed is clear and statistically significant.

Also, the importance of improving the availability of fiscal figures in the countries of the subregion must be emphasized. There is a great heterogeneity in the fiscal information in terms of their availability, frequency, amplitude and coverage between countries. Given the heterogeneity of statistical data available for these countries, strengthening the institutional capacity of Central Banks and other national statistical agencies would be paramount. Repeating these calculations with updated, or more disaggregated information could also lead to more nuanced policy recommendations for the respective countries.

In 2017, there is a risk that tax revenues may decrease due to several adverse factors. One of them is a deceleration in private consumption. Therefore central governments may have to cope with lower levels of fiscal resources due to declines in levels of tax collection. On the positive side, despite the limited fiscal space in these countries to implement countercyclical policy, as many enacted in response to the global crisis of 2008 to 2009, overall fiscal accounts have generally strengthened over the last two years.

In a context of scarce state resources and in order to reverse the negative trend of public expenditure contribution to overall growth, it is urgent for the governments in Mexico, Central America and the Dominican Republic to enact policies to ensure an efficient and effective use of limited resources. Investment in social programs, social security benefits, and projects to enhance productive development and natural infrastructure bases are imperative, particularly given the acute social inequalities that persist in the region. Pressing fiscal policy reforms include projects to reduce budgetary rigidities; restructure public pensions and decrease subsidies. This research can contribute to the design of public policy that seeks greater economic growth in the mid and long-term.

Further research on fiscal multipliers will provide additional evidence for promoting the re-engineering of national budgets to more efficiently use scarce public resources in Mexico, Central America, and the Dominican Republic. This situation imposes heavy restrictions on long-term economic growth, as the further increase in current expenditure decreases the margin of governments to strengthen the productive sectors by promoting investment, competitiveness and productivity.

What is clear in fiscal policy is that no approach will induce a significant change in output over the short to medium term. A combination of effective and efficient spending, increases in government capital investment as well as reductions in current deficit spending and improvements in tax structure efficiencies all form part of an overall approach to macroeconomic stability and growth in Mexico, Central America and the Dominican Republic.

Future work could include exercises to calculate the levels in fiscal spending that would need to be achieved in order to induce a certain level of growth, though at present in some countries they are too small to have significant effects. Conducting hypothetical exercises to calculate the actual level of public capital and current spending that would need to be achieved to induce a certain level of growth in the region could help governments know the exact size and magnitude of fiscal gaps, and would enable them to prioritize different policy initiatives in an effort to improve overall socio-economic outcomes in the subregion. Other related lines of investigation could consider analyzing the asymmetries related to the response of cyclical spending patterns, particularly in light of economic shocks or periods of crisis.

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Statistical annexes

Annex 1
Fiscal income and expenditure

Costa Rica: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	12.3	13.8	14.9	14.3	14.4	14.5	14.4	14.4	13.9
Current income	12.2	13.7	14.9	14.3	14.4	14.5	14.4	14.4	13.9
Capital income	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	15.2	16.1	16.6	19.2	19.5	18.6	18.8	19.8	19.6
Current expenditure	13.7	14.9	14.6	17.5	17.2	17.1	17.3	18.2	17.8
Capital expenditure	1.5	1.2	1.8	1.7	2.3	1.5	1.5	1.6	1.7

Dominican Republic: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	11.2	14.0	14.2	13.8	13.1	12.9	13.6	14.6	15.1
Current income	10.9	13.7	14.0	13.6	12.9	12.6	13.4	14.4	14.9
Capital income	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total expenditure	10.5	13.7	17.5	16.9	15.7	15.0	18.8	17.3	17.7
Current expenditure	6.1	10.4	13.3	13.2	12.1	11.9	13.2	14.0	14.9
Capital expenditure	4.4	3.2	4.2	3.7	3.6	3.1	5.6	3.3	2.7

El Salvador: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	12.5	13.2	14.5	15.6	15.0	15.4	15.8	16.3	15.8
Current income	11.3	12.9	14.2	15.1	14.3	14.4	15.1	16.0	15.6
Capital income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	14.2	15.0	16.7	17.6	17.7	17.6	17.5	18.1	17.3
Current expenditure	11.2	12.0	13.8	14.6	14.5	14.6	14.2	15.0	14.6
Capital expenditure	2.9	3.1	2.9	3.1	3.2	3.1	3.3	3.0	2.8

Guatemala: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	10.5	12.5	11.5	11.5	11.2	11.6	11.6	11.6	11.5
Current income	10.5	12.5	11.5	11.5	11.2	11.6	11.6	11.6	11.5
Capital income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	11.9	14.2	13.9	14.0	14.5	14.4	14.0	13.8	13.4
Current expenditure	8.4	9.7	9.6	10.6	10.4	10.5	10.7	10.8	10.5
Capital expenditure	3.5	4.6	4.3	3.5	4.1	4.0	3.3	3.0	2.9

Honduras: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	15.4	17.2	18.4	17.3	16.9	17.0	16.7	17.0	18.7
Current income	14.6	16.0	16.5	16.3	15.5	15.9	15.7	16.3	18.0
Capital income	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	18.9	20.5	22.7	22.8	21.5	21.6	22.7	24.9	23.1
Current expenditure	13.5	15.6	18.1	18.1	17.9	16.9	17.9	19.8	17.9
Capital expenditure	4.9	4.6	5.0	4.7	3.7	4.6	4.6	5.2	5.2

Mexico: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	14.4	14.6	16.6	16.2	15.7	16.0	15.7	16.8	16.9
Current income	14.4	14.6	16.6	16.2	15.7	16.0	15.7	16.8	16.9
Capital income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	14.5	16.0	18.5	18.9	18.4	18.5	18.4	19.3	19.8
Current expenditure	12.8	14.0	15.5	16.1	15.7	15.8	15.9	16.1	16.9
Capital expenditure	1.7	2.1	3.0	2.8	2.6	2.7	2.5	3.1	2.9

Nicaragua: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	13.4	15.5	16.1	17.2	16.3	17.2	17.8	17.4	17.5
Current income	10.3	12.9	14.1	16.0	14.8	15.8	16.5	16.4	16.5
Capital income	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total expenditure	14.3	17.5	17.4	17.2	17.0	16.8	17.2	17.3	17.8
Current expenditure	9.7	11.2	13.3	13.4	13.1	13.3	13.5	13.5	13.8
Capital expenditure	4.4	6.3	4.1	3.8	3.9	3.5	3.7	3.8	4.0

Panama: Central government fiscal income and expenditure, 1990-2014

(As a percentage of GDP)

	1990-1999	2000-2008	2008-2009	2010-2014	2010	2011	2012	2013	2014
Total income	15.8	15.9	17.8	16.5	17.3	16.7	17.1	16.2	15.0
Current income	15.7	15.6	16.9	16.3	16.8	16.6	17.1	15.9	14.9
Capital income	0.0	0.2	0.6	0.2	0.5	0.0	0.0	0.3	0.1
Total expenditure	16.8	17.8	18.3	19.9	19.7	20.1	19.8	20.2	19.6
Current expenditure	14.6	15.1	12.8	12.1	12.8	12.5	12.0	11.3	11.8
Capital expenditure	2.3	2.7	5.6	7.8	6.9	7.6	7.8	8.9	7.8

Source: Own elaboration.

Annex 2
Fiscal multipliers per country

Costa Rica: vector auto regression estimates

Sample (adjusted): 2007Q2 2015Q3; 34 observations included after adjustments

	LPIB	LGCAP	LGCOR	INF
LPIB(-1)	0 772071	-0 695168	0 013644	0 193545
	(-0 05614)	(-1 86157)	(-0 11759)	(-0 08451)
	[13 7521]	[-0 37343]	[0 11603]	[2 29012]
LGCAP(-1)	-0 011821	0 141962	-0 014798	0 016463
	(-0 0055)	(-0 18239)	(-0 01152)	(-0 00828)
	[-2 14900]	[0 77834]	[-1 28441]	[1 98826]
LGCOR(-1)	0 128445	0 892496	0 929536	-0 071957
	(-0 02966)	(-0 98333)	(-0 06212)	(-0 04464)
	[4 33121]	[0 90762]	[14 9646]	[-1 61186]
INF(-1)	-0 208359	-2 221265	0 497728	0 922956
	(-0 07661)	(-2 54041)	(-0 16047)	(-0 11533)
	[-2 71957]	[-0 87437]	[3 10161]	[8 00265]
C	-120 9594	333 9717	-82 87299	153 6717
	(-39 5572)	(-1311 6)5	(-82 855)	(-59 547)
	[-3 05784]	[0 25462]	[-1 00022]	[2 58068]
Notes: Standard errors in ( ) & t-statistics in [ ].				
R-squared	0 991	0 102	0 992	0 873
Adj. R-squared	0 989	-0 022	0 991	0 855

Source: Own elaboration.

Dominican Republic: vector auto regression estimates

Sample (adjusted): 1993Q2 2015Q3; 90 observations included after adjustments

	LPIB	LGCAP	LGCOR	INF	TC
LPIB(-1)	0 935351	1 46396	0 992851	0 121354	-0 04089
	(-0 03445)	(-1 11384)	(-0 21868)	(-0 11981)	(-0 05047)
	[27 1532]	[1 31434]	[4 54027]	[1 01286]	[-0 81012]
LGCAP(-1)	-0 002795	0 258754	-0 023273	-0 018687	-0 005736
	(-0 00324)	(-0 10488)	(-0 02059)	(-0 01128)	(-0 00475)
	[-0 86180]	[2 46709]	[-1 13026]	[-1 65641]	[-1 20696]
LGCOR(-1)	0 018445	-0 470868	0 532176	-0 044218	0 003327
	(-0 01407)	(-0 45501)	(-0 08933)	(-0 04894)	(-0 02062)
	[1 31080]	[-1 03485]	[5 95735]	[-0 90343]	[0 16133]
INF(-1)	0 057145	-0 414974	-0 076827	0 86687	-0 008406
	(-0 01941)	(-0 62759)	(-0 12321)	(-0 06751)	(-0 02844)
	[2 94422]	[-0 66122]	[-0 62353]	[12 8410]	[-0 29557]
TC(-1)	-0 063465	1 542856	0 27318	0 074177	0 909115
	(-0 04144)	(-1 33999)	(-0 26308)	(-0 14414)	(-0 06072)
	[-1 53143]	[1 15139]	[1 03840]	[0 51462]	[14 9718]
C	-61 73869	1306 598	751 1191	105 2817	-44 56701
	(-29 9713)	(-969 115)	(-190 263)	(-104 245)	(-43 9155)
	[-2 05993]	[1 34824]	[3 94779]	[1 00994]	[-1 01484]
Notes: Standard errors in ( ) & t-statistics in [ ].					
R-squared	0 998	0 090	0 980	0 820	0 972
Adj. R-squared	0 998	0 036	0 979	0 809	0 970

Source: Own elaboration.

El Salvador: vector auto regression estimates

Sample (adjusted): 1996Q3 2015Q4; 78 observations included after adjustments

	LPIB	LGCOR	LGCAP	TI	INF	LINGTOT
LPIB(-1)	1 634228	-0 461153	-1 765885	-0 216131	-0 530483	5 716783
	(-0 09323)	(-1 61173)	(-3 87131)	(-0 10173)	(-0 36047)	(-1 28874)
	[17 5281]	[-0 28612]	[-0 45615]	[-2 12445]	[-1 47165]	[4 43594]
LPIB(-2)	-0 665088	1 197374	0 677458	0 197182	0.404474	-4.882348
	(-0 09394)	(-1 62385)	(-3 90042)	(-0 1025)	(-0.36318)	(-1.29843)
	[-7 08023]	[0 73737]	[0 17369]	[1 92372]	[1.11370]	[-3.76018]
LGCOR(-1)	0 014539	0 27028	-0 020976	0 001132	0.008991	0.442886
	(-0 00734)	(-0 12686)	(-0 30471)	(-0 00801)	(-0.02837)	(-0.10144)
	[1 98112]	[2 13054]	[-0 06884]	[0 14136]	[0.31691]	[4.36610]
LGCOR(-2)	-0 000702	0 143637	-0 451245	0 008966	-0.002701	-0.219714
	(-0 00742)	(-0 12829)	(-0 30815)	(-0 0081)	(-0.02869)	(-0.10258)
	[-0 09465]	[1 11961]	[-1 46436]	[1 10718]	[-0.09413]	[-2.14183]
LGCAP(-1)	5 50E-05	-0 019838	0 742003	-0 004022	-0.007072	0.039586
	(-0 00295)	(-0 05099)	(-0 12247)	(-0 00322)	(-0.0114)	(-0.04077)
	[0 01866]	[-0 38906]	[6 05853]	[-1 24980]	[-0.62013]	[0.97094]
LGCAP(-2)	-0 003096	-0 008057	-0 151281	6 49E-05	-0.005569	-0.014232
	(-0 00283)	(-0 04885)	-0 11734)	-0 00308)	-0.01093)	-0.03906)
	[-1 09556]	[-0 16493]	[-1 28927]	[0 02104]	[-0.50967]	[-0.36435]
TI(-1)	-0 18468	3 283873	4 402943	1 142717	-0.88804	2.197463
	(-0 11659)	(-2 01551)	(-4 84117)	(-0 12722)	(-0.45078)	(-1.61161)
	[-1 58397]	[1 62930]	[0 90948]	[8 98206]	[-1.97003]	[1.36352]
TI(-2)	0 256183	-3 219954	-0 967262	-0 181928	0.938235	-2.412157
	(-0 1177)	(-2 03464)	(-4 88714)	(-0 12843)	(-0.45506)	(-1.62691)
	[2 17659]	[-1 58256]	[-0 19792]	[-1 41655]	[2.06180]	[-1.48267]
INF(-1)	-0 075272	0 021333	1 079007	0 034241	0.970928	0.043318
	(-0 03153)	(-0 5451)	(-1 30931)	(-0 03441)	(-0.12191)	(-0.43586)
	[-2 38711]	[0 03914]	[0 82411]	[0 99516]	[7.96408]	[0.09938]
INF(-2)	0 064992	0 022591	-0 107684	-0 021227	-0.128304	-0.742324
	(-0 03306)	(-0 57156)	(-1 37286)	(-0 03608)	(-0.12783)	(-0.45702)
	[1 96569]	[0 03953]	[-0 07844]	[-0 58838]	[-1.00370]	[-1.62428]
LINGTOT(-1)	-0 019126	0 141439	0 906432	-0 000185	0.032961	0.09168
	(-0 00762)	(-0 13164)	(-0 3162)	(-0 00831)	(-0.02944)	(-0.10526)
	[-2 51159]	[1 07441]	[2 86662]	[-0 02228]	[1.11952]	[0.87097]
LINGTOT(-2)	0 014609	0 020581	-0 026423	-0 000704	0.027265	0.2771
	(-0 0073)	(-0 12615)	(-0 303)	(-0 00796)	(-0.02821)	(-0.10087)
	[2 00198]	[0 16315]	[-0 08720]	[-0 08837]	[0.96636]	[2.74714]
C	-18 19214	286 4554	-585 571	-8 378289	-52.78198	371.947
	(-7 98138)	(-137 972)	(-331 404)	(-8 70903)	(-30.858)	(-110.323)
	[-2 27932]	[2 07618]	[-1 76694]	[-0 96202]	[-1.71048]	[3.37144]
Notes: Standard errors in ( ) & t-statistics in [ ].						
R-squared	0 999	0 943	0 610	0 969	0 770	0 962
Adj. R-squared	0 999	0 932	0 538	0 963	0 728	0 955

Source: Own elaboration.

Guatemala: vector auto regression estimates

Sample (adjusted): 1996Q3 2015Q4; 78 observations included after adjustments

	LPIB	LGCOR	LGCAP	INF
LPIB(-1)	0 841682	-0 299702	7 294854	-1 216541
	(-0 11775)	(-1 35915)	(-4 20942)	(-1 08687)
	[7 14819]	[-0 22051]	[1 73298]	[-1 11931]
LPIB(-2)	0 156662	0 363968	-7 38493	1 370251
	(-0 11783)	(-1 36007)	(-4 21229)	(-1 08761)
	[1 32959]	[0 26761]	[-1 75319]	[1 25988]
LGCOR(-1)	-0 015316	0 594015	-0 103313	0 091089
	(-0 01142)	(-0 13184)	(-0 40833)	(-0 10543)
	[-1 34094]	[4 50547]	[-0 25301]	[0 86397]
LGCOR(-2)	0 017161	0 33916	0 212898	-0 116235
	(-0 01125)	(-0 12983)	(-0 40211)	(-0 10382)
	[1 52566]	[2 61227]	[0 52945]	[-1 11954]
LGCAP(-1)	-0 006223	0 039002	0 329563	-0 053103
	(-0 00375)	(-0 0433)	(-0 1341)	(-0 03463)
	[-1 65901]	[0 90073]	[2 45751]	[-1 53362]
LGCAP(-2)	-0 001454	0 017069	0 253922	-0 009694
	(-0 00367)	(-0 04241)	(-0 13136)	(-0 03392)
	[-0 39566]	[0 40243]	[1 93298]	[-0 28580]
INF(-1)	-0 029256	0 049843	-0 036534	0 774883
	(-0 01535)	(-0 17715)	(-0 54864)	(-0 14166)
	[-1 90634]	[0 28137]	[-0 06659]	[5 47011]
INF(-2)	0 0293	0 478778	0 335473	-0 188378
	(-0 01565)	(-0 1806)	(-0 55934)	(-0 14442)
	[1 87266]	[2 65101]	[0 59976]	[-1 30436]
C	-1 204385	7 495205	0 357414	142 1505
	(-9 38065)	(-108 28)	(-335 354)	(-86 588)
	[-0 12839]	[0 06922]	[0 00107]	[1 64169]
Notes: Standard errors in ( ) & t-statistics in [ ].				
R-squared	0 998	0 967	0 254	0 618
Adj. R-squared	0 998	0 963	0 168	0 573

Source: Own elaboration.

Honduras: vector auto regression estimates

Sample (adjusted): 2008Q4 2015Q3; 28 observations included after adjustments

	LPIB	LGCOR	LGCAP	INF	LINGTOT
LPIB(-1)	0 483276	-0 042084	1 268196	-0 015052	0 327622
	(-0 25818)	(-5 5099)	(-6 55632)	(-0 16637)	(-5 61837)
	[1 87188]	[-0 00764]	[0 19343]	[-0 09047]	[0 05831]
LPIB(-2)	0 529525	-1 597014	-8 202325	-0 187413	-6 914829
	(-0 27818)	(-5 93686)	(-7 06437)	(-0 17927)	(-6 05375)
	[1 90351]	[-0 26900]	[-1 16108]	[-1 04544]	[-1 14224]
LPIB(-3)	-0 091862	6 489934	8 586628	0 162674	11 59608
	(-0 2742)	(-5 85182)	(-6 96318)	(-0 1767)	(-5 96703)
	[-0 33502]	[1 10905]	[1 23315]	[0 92063]	[1 94336]
LGCOR(-1)	0 024591	-0 45875	-1 223504	0 033604	-0 267416
	(-0 03177)	(-0 67792)	(-0 80667)	(-0 02047)	(-0 69127)
	[0 77414]	[-0 67670]	[-1 51673]	[1 64161]	[-0 38685]
LGCOR(-2)	0 069779	-1 140549	-2 21005	0 002291	-1 377801
	(-0 02794)	(-0 59619)	(-0 70942)	(-0 018)	(-0 60793)
	[2 49784]	[-1 91305]	[-3 11528]	[0 12724]	[-2 26637]
LGCOR(-3)	0 041969	-0 533811	-1 411169	0 053682	-0 68998
	(-0 03222)	(-0 68761)	(-0 81819)	(-0 02076)	(-0 70114)
	[1 30260]	[-0 77633]	[-1 72474]	[2 58552]	[-0 98408]
LGCAP(-1)	0 001652	-0 164918	-0 610356	-0 000942	-0 25696
	(-0 00993)	(-0 21187)	(-0 25211)	(-0 0064)	(-0 21604)
	[0 16639]	[-0 77838]	[-2 42097]	[-0 14718]	[-1 18938]
LGCAP(-2)	-0 004608	-0 266313	-0 392801	-0 001137	-0 471869
	(-0 00898)	(-0 19156)	(-0 22794)	(-0 00578)	(-0 19533)
	[-0 51338]	[-1 39024]	[-1 72327]	[-0 19650]	[-2 41574]
LGCAP(-3)	-0 011538	0 184594	0 259172	0 00844	0 173861
	(-0 00885)	(-0 18893)	(-0 22481)	(-0 0057)	(-0 19265)
	[-1 30331]	[0 97705]	[1 15284]	[1 47949]	[0 90247]
INF(-1)	-0 385496	-5 51475	16 35636	0 663489	-2 233164
	(-0 2470)	(-5 27129)	(-6 2724)	(-0 15917)	(-5 37507)
	[-1 56073]	[-1 04619]	[2 60767]	[4 16845]	[-0 41547]
INF(-2)	-0 096711	5 496575	-7 117142	0 191481	6 402978
	(-0 42712	(-9 1154)	(-10 8466)	(-0 27524)	(-9 29487)
	[-0 22643]	[0 60300]	[-0 65616]	[0 69567]	[0 68887]
INF(-3)	0 31179	-6 877807	-2 043721	-0 422271	-11 22604
	(-0 25322)	(-5 40418)	(-6 43052)	(-0 16318)	(-5 51057)
	[1 23129]	[-1 27268]	[-0 31782]	[-2 58773]	[-2 03718]
LINGTOT(-1)	-0 025582	0 379413	1 214797	-0 01636	0 203512
	(-0 02588	-0 55239)	(-0 6573)	(-0 01668)	(-0 56327)
	[-0 98836]	[0 68686]	[1 84816]	[-0 98085]	[0 36131]
LINGTOT(-2)	-0 057181	0 831036	2 445895	0 00318	1 061814
	(-0 02354)	(-0 50233)	(-0 59774)	(-0 01517)	(-0 51222)
	[-2 42930]	[1 65435]	[4 09194]	[0 20967]	[2 07295]
LINGTOT(-3)	-0 022717	0 296789	0 986305	-0 040764	0 45969
	(-0 02949)	(-0 62927)	(-0 74878)	(-0 019)	(-0 64166)
	[-0 77044]	[0 47164]	[1 31722]	[-2 14533]	[0 71641]
C	-55 49258	3725 287	1484 003	-7 708863	3914 239
	(-74 6588)	(-1593 33)	(-1895 94)	(-48 1116)	(-1624 7)
	[-0 74328]	[2 33804]	[0 78273]	[-0 16023]	[2 40920]
Notes: Standard errors in ( ) & t-statistics in [ ].					
R-squared	0 984	0 622	0 749	0 937	0 704
Adj. R-squared	0 964	0 150	0 435	0 859	0 334

Source: Own elaboration.

Mexico: vector auto regression estimates

Sample (adjusted): 1994Q2-2015Q3; 86 observations included after adjustments

	LPIB	LGCAPCTESA	LGCORCTESA	INF
LPIB(-1)	0 9256	0 1472	0 9627	-0 1209
	(-0 0378)	(-0 76972)	(-0 17772)	(-0 09124)
	[24 4857]	[0 19125]	[5 41675]	[-1 2540]
LGCAPCTESA(-1)	-0 0024	0 4415	-0 0056	-0 0339
	(-0 00486)	(-0 0989)	(-0 02283)	(-0 01172)
	[-0 50099]	[4 46433]	[-0 24351]	[-2 88865]
LGCORCTESA(-1)	0 0235	-0 1481	0 4248	0 1010
	(-0 02113)	(-0 43024)	(-0 09934)	(-0 051)
	[1 11267]	[-0 34429]	[4 27601]	[1 98048]
INF(-1)	0 0628	0 1856	0 1043	0 8758
	(-0 01836)	(-0 3739)	(-0 08633)	(-0 04432)
	[3 41808]	[0 49625]	[1 20812]	[19 7610]
C	-93 0838	65 2414	873 9455	-75 4563
	(-37 9759)	(-773 235)	(-178 536)	(-91 6545)
	[-2 45113]	[0 08437]	[4 89507]	[-0 82327]
Notes: Standard errors in ( ) & t-statistics in [ ].				
R-squared	0 994	0 198	0 963	0 920
Adj. R-squared	0 994	0 158	0 961	0 916

Source: Own elaboration.

Nicaragua: vector auto regression estimates

Sample (adjusted): 2002Q4 2015Q2; 51 observations included after adjustments

	LPIB	LGCOR	LGCAP	INF	LINGTOT	TC
LPIB(-1)	1 062185	0 754566	-0 004661	0 289181	1 229846	-0 298712
	(-0 17707)	(-1 34927)	(-1 07882)	(-0 3586)	(-0 49275)	(-0 32208)
	[5 99869]	[0 55924]	[-0 00432]	[0 80642]	[2 49590]	[-0 92744]
LPIB(-2)	-0 42003	-2 095732	-2 189889	-0 005825	-0 984187	0 67666
	(-0 24379)	(-1 85764)	(-1 4853)	(-0 49371)	(-0 6784)	(-0 44344)
	[-1 72295]	[-1 12817]	[-1 47437]	[-0 01180]	[-1 45074]	[1 52594]
LPIB(-3)	0 284422	1 378737	1 771643	0 435121	-0 099403	-0 266735
	(-0 17203)	(-1 3109)	(-1 04815)	(-0 3484)	(-0 47874)	(-0 31292)
	[1 65328]	[1 05175]	[1 69026]	[1 24891]	[-0 20764]	[-0 85239]
LGCOR(-1)	-0 008426	0 118964	-0 2146	0 050837	-0 067067	-0 128918
	(-0 02319)	(-0 17672)	(-0 1413)	(-0 04697)	(-0 06454)	(-0 042190
	[-0 36333]	[0 67317]	[-1 51876]	[1 08237]	[-1 03919]	[-3 05601]
LGCOR(-2)	-0 016913	0 018026	-0 065952	-0 066409	-0 088545	0 032021
	(-0 02359)	9-	(-0 14371)	(-0 04777)	(-0 06564)	(-0 04291)
	[-0 71700]	[0 10029]	[-0 45891]	[-1 39018]	[-1 34895]	[0 74632]
LGCOR(-3)	0 0292	0 480868	0 095436	-0 004316	0 078998	0 000188
	(-0 02036)	(-0 15512)	(-0 12403)	(-0 04123)	(-0 05665)	(-0 03703)
	[1 43439]	[3 09997]	[0 76947]	[-0 10469]	[1 39452]	[0 00507]
LGCAP(-1)	-0 058689	-0 180782	1 083193	0 073607	-0 280631	-0 007742
	(-0 0271)	(-0 20647)	(-0 16509)	(-0 05487)	(-0 0754)	(-0 04929)
	[-2 16597]	[-0 87558]	[6 56134]	[1 34137]	[-3 72176]	[-0 15708]
LGCAP(-2)	0 076548	0 342825	-0 284277	-0 043035	0 390029	-0 069175
	(-0 04123)	(-0 3142)	(-0 25122)	(-0 08351)	(-0 11475)	(-0 075)
	[1 85642]	[1 09110]	[-1 13157]	[-0 51536]	[3 39909]	[-0 92230]
LGCAP(-3)	-0 035228	-0 137874	-0 119225	0 012963	-0 157835	0 07142
	(-0 02648)	-0 20175)	(-0 16131)	(-0 05362)	(-0 07368)	(-0 04816)
	[-1 33055]	[-0 68340]	[-0 73911]	[0 24176]	[-2 14224]	[1 48299]
INF(-1)	-0 016624	0 347567	-0 994832	1 054814	-0 439796	-0 508995
	(-0 08458)	(-0 64453)	(-0 51534)	(-0 1713)	(-0 23538)	(-0.15386)
	[-0 19653]	[0 53926]	[-1 93043]	[6 15777]	[-1 86846]	[-3 30827]
INF(-2)	-0 17393	0 04197	0 902239	-0 177894	0 152339	0 341045
	(-0 12625)	(-0 96201)	(-0 76919)	(-0 25568)	(-0 35132)	(-0 22964)
	[-1 37768]	[0 04363]	[1 17297]	[-0 69578]	[0 43361]	[1 48512]
INF(-3)	0 154446	-0 291723	-0 320402	-0 266959	0 26748	-0 01609
	(-0 08683)	(-0 66163)	(-0 52902)	(-0 17584)	(-0 24163)	(-0 15794)
	[1 77874]	[-0 44091]	[-0 60565]	[-1 51816]	[1 10700]	[-0 10188]
LINGTOT(-1)	0 00149	-0 364416	-0 403011	-0 08086	0 365782	-0 079819
	(-0 04951	(-0 37726)	(-0 30164)	(-0 10027)	(-0 13777)	(-0 09006)
	[0 03010]	[-0 96595]	[-1 33605]	[-0 80646]	[2 65494]	[-0 88633]
LINGTOT(-2)	0 088842	0 805866	0 497054	0 033337	0 415754	-0 222177
	(-0 05032)	(-0 38348)	(-0 30661)	(-0 10192)	(-0 14004)	(-0 09154)
	[1 76537]	[2 10148]	[1 62111]	[0 32710]	[2 96875]	[-2 42712]
LINGTOT(-3)	-0 047889	-0 117769	0 301013	-0 274257	0 145934	0 31371
	(-0 05488)	(-0 41819)	(-0 33437)	(-0 11114)	-0 15272)	(-0 09983)
	[-0 87260]	[-0 28161]	[0 90023]	[-2 46757]	[0 95555]	[3 14254]
TC(-1)	-0 013784	-0 430179	-0 376919	-0 050723	-0 320611	0 887268
	(-0 08175)	(-0 62291)	(-0 49806)	(-0 16555)	(-0 22749)	(-0 1487)
	[-0 16862]	[-0 69059]	[-0 75678]	[-0 30638]	[-1 40937]	[5 96701]
TC(-2)	0 162843	0 341287	0 250837	0 200819	0 192492	-0 356509
	(-0 102)	(-0 77723)	(-0 62145)	(-0 20657)	(-0 28384)	(-0 18553)
	[1 59651]	[0 43911]	[0 40363]	[0 97218]	[0 67816]	[-1 92154]
TC(-3)	-0 088661	-0 253733	0 106271	-0 175085	-0 435109	0 006144
	(-0 07807)	(-0 59492)	(-0 47567)	(-0 15811)	(-0 21726)	(-0 14201)
	[-1 13561]	[-0 42650]	[0 22341]	[-1 10735]	[-2 00270]	[0 04326]
C	-43 37639	25 81294	-251 6828	456 8349	81 33151	92 05404
	(-74 1889)	(-565 319)	(-452 008)	(-150 246)	(-206 452)	(-134 947)
	[-0 58468]	[0 04566]	[-0 55681]	[3 04058]	[0 39395]	[0 68215]
Notes: Standard errors in ( ) & t-statistics in [ ].						
R-squared	0 996	0 936	0 907	0 896	0 992	0 811
Adj. R-squared	0 994	0 901	0 855	0 837	0 988	0 705

Source: Own elaboration.

Panama: vector auto regression estimates

Sample (adjusted): 2005Q4 2013Q4; 33 observations included after adjustments

	LPIB	LGCOR	LGCAP	LINGTOT
LPIB(-1)	0 998021	0 484496	-1 384215	-2 650215
	(-0 27307)	(-1 12063)	(-1 41497)	(-1 20)
	[3 65484]	[0 43234]	[-0 97827]	[-2 20851]
LPIB(-2)	0 000665	-1 400259	1 709464	2 485618
	(-0 49387)	(-2 02676)	(-2 55908)	(-2 1703)
	[0 00135]	[-0 69089]	[0 66800]	[1 14529]
LPIB(-3)	-0 025913	1 638382	-0 11106	1 244948
	(-0 35908)	(-1 47361)	(-1 86065)	(-1 57798)
	[-0 07216]	[1 11181]	[-0 05969]	[0 78895]
LGCOR(-1)	-0 007686	-0 290971	0 049223	-0.629329
	(-0 07896)	(-0 32404)	(-0 40915)	(-0.34699)
	[-0 09734]	[-0 89794]	[0 12031]	[-1.81366]
LGCOR(-2)	0 022259	-0 506764	0 540788	-0.181228
	(-0 08296)	(-0 34045)	(-0 42987)	(-0.36456)
	[0 26831]	[-1 48852]	[1 25804]	[-0.49711]
LGCOR(-3)	-0 046058	-0 021164	-0 801368	0.103342
	(-0 07556)	9-	(-0 39151)	(-0.33203)
	[-0 60959]	[-0 0682]	[-2 04686]	[0.31124]
LGCAP(-1)	0 007596	-0 037558	0 451934	-0.13055
	(-0 04266)	(-0 17507)	(-0 22105)	(-0.18747)
	[0 17807]	[-0 21453]	[2 04446]	[-0.69638]
LGCAP(-2)	0 022159	-0 158693	0 245519	0.193218
	(-0 04887)	(-0 20054)	(-0 25321)	(-0.21474)
	[0 45346]	[-0 79134]	[0 96964]	[0.89978]
LGCAP(-3)	-0 02723	8 89E-02	-0 391163	0.004321
	(-0 04013)	(-0 16468)	(-0 20793)	(-0.17634)
	[-0 67860]	[0 53954]	[-1 88124]	[0.02450]
LINGTOT(-1)	-0 015395	-0 157965	0 232841	0.123543
	(-0 07084)	(-0 29071)	(-0 36707)	(-0.3113)
	[-0 21732]	[-0 54337]	[0 63433]	[0.39686]
LINGTOT(-2)	0 013759	0 449664	-0 416181	0.301133
	(-0 05051)	(-0 20728)	(-0 26173)	(-0.22196)
	[0 27241]	[2 16931]	[-1 59014]	[1.35667]
LINGTOT(-3)	0 016727	0 224981	0 218297	0.025153
	9-	(-0 19159)	(-0 24191)	(-0.20516)
	[0 35830]	[1 17430]	[0 90240]	[0.12260]
C	-66 08171	-657 8784	106 6159	-93.34905
	(-84 1408)	(-345 302)	(-435 995	(-369.758)
	[-0 78537]	[-1 90523]	[0 24453]	[-0.25246]
Notes: Standard errors in ( ) & t-statistics in [ ].				
R-squared	0 978	0 663	0 424	0.820
Adj. R-squared	0 965	0 461	0 079	0.712

Source: Own elaboration.

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