The use of key indicators to assess Latin America's long-term economic performance

Stefanie Garry* and Francisco G. Villarreal

ABSTRACT

Official statistics and key indicators are essential for observing countries' economic and social progress, determining the structural drivers of their growth and shaping priorities. Using the methodology of Khramov and Lee (2013), key indicators from the System of National Accounts (SNA), as well as balance of payments, monetary and financial, and public finance statistics, it is proposed to use a composite indicator to assess Latin America's economic performance. An examination of long-term trends finds that this index generally captures the major economic shocks and periods of robust performance during the period 1990-2013. It construction enables the measurement of specific indicators that determine overall economic behaviour. While the usefulness of the index for analysing macroeconomic dynamics is high in comparison with alternative benchmark values, caution should be exercised when selecting a time frame for estimating the relative weights of each component.

AUTHORS   Stefanie Garry is associate economic affairs officer of the Economic Development Unit of the Economic Comission for Latin America and the Caribbean (ECLAC) subregional headquarters in Mexico. stefanie.garry@cepal.org

Francisco G. Villarreal is economic affairs officer of the Economic Development Unit of the Economic Comission for Latin America and the Caribbean (ECLAC) subregional headquarters in Mexico. francisco.villarreal@cepal.org

I

Introduction

This paper analyses the use of key indicators to assess macroeconomic performance in the countries of Latin America and aims to concisely interpret international data from the system of macroeconomic statistics in the form of an index. The importance of official statistics is highlighted first through a discussion of the main components of the integrated system of national statistics, and second through the construction of a composite index identified as the Latin American performance index. The abundance of available statistics is critical for monitoring national economic progress, shaping political priorities and assessing countries' economic and social development. Official statistics, when compiled in accordance with standardized international definitions and benchmarks, also allow for the comparative analysis of economic and social performance across countries (OECD, 2005; IMF, 2007).

A well-constructed system of national statistics also allows researchers, policymakers, academics and the broader public to understand more clearly the dynamics of economic progress in a particular country, region or locality. Statistical data that are published freely, regularly and promptly also help to keep governments accountable to their citizens. Through an astute and careful analysis of official statistics, it is possible to form a comprehensive picture of the recent economic performance of a given country and understand more fully what its drivers have been.

The field of international statistics is undoubtedly complex, and definitions, coverage and indicators tend to vary between countries, introducing a certain level of interpretation bias and difficulty for many users of these data. What is needed is a concise and easily interpreted composite indicator that captures the economy's overall health. In methodological terms, and in accordance

with the Economic Performance Index (EPI) devised by Khramov and Lee (2013), this paper proposes a relatively straightforward indicator, adapted for Latin America, which —as the results presented herein show— captures the main economic developments over time, and also enables the various aspects of production underlying development to be identified and compared. The objective of this paper is therefore to provide a tool that facilitates the evaluation of economic performance in Latin America.

This paper is organized as follows. Section II discusses the main objectives of the system of macroeconomic statistics, by examining the integrated formulation of the System of National Accounts (SNA), balance of payments statistics, monetary and financial statistics, and those concerning public finances. Together, these pillars make up the international system of statistical information and provide a wealth of data for countries to monitor and be held accountable for in their performance. Through the identification of selected key indicators from each of the main pillars, analysts can begin to understand the inputs needed to conduct a more nuanced analysis of overall macroeconomic development.

Section III presents the methodological framework of the EPI in Latin America. Drawing on the theoretical foundations of this index, this study constructs a modified index that measures the overall performance of the region's economies against their long-term trend. By capturing key indicators from each of the pillars of macroeconomic statistics, the index provides a concise and easily understandable snapshot of economic progress. This section also examines the robustness of the indicator in comparison with alternative benchmarks. Section IV illustrates the use of the index for macroeconomic analysis by comparing different historical episodes in respect of the same country and analysing a common episode across countries, and demonstrates the existing potential for a deeper analysis of recent macroeconomic performance in different countries in the region. Section V presents conclusions regarding the main findings of the research, and ends with a set of considerations for the future.

II

Key objectives of macroeconomic statistics and relevant indicators for measuring performance

Accurate, timely and relevant statistical information is necessary to assess and monitor progress favourable to social and economic development goals (ECLAC, 2010). As noted above, statistics are a fundamental input for individual and collective decision-making at the local, national and international level. Data and information serve as key tools for good governance, making it possible to keep politicians, policymakers and the public informed and accountable for their actions. They can also contribute to setting quantitative targets for national policy and allow for a more precise evaluation of programmes and progress towards their achievement.

Macroeconomic statistics are also crucial for making comparisons between countries. In this regard, international institutions perform two significant functions to enhance the availability and comparability of statistics. First, they provide methodological guidelines so that individual countries can follow uniform rules and arrive at broadly comparable results. Second, they codify the accounting rules for macroeconomic statistics with the aim of providing a harmonized structure and system of reporting. Standardization allows for greater and more effective international comparisons and monitoring (OECD, 2005).

Macroeconomic statistics rest on four pillars: the System of National Accounts (SNA), balance of payments statistics, monetary and financial statistics, and public finance statistics. When viewed as an integrated system, they make up the structure of national statistics. These accounts highlight the relationships between the main sectors of the real economy and allow recent economic developments to be monitored. An important feature of macroeconomic statistics is the use of the same core concepts. Although the specific needs of each set of accounts preclude full integration, linkages across the system reflect many common features which, when viewed together, provide a fuller assessment of the performance of a national economy at a given time.

The SNA offers a comprehensive and systematic framework for collecting, presenting and analysing macroeconomic statistics. The framework presents details of how an economy works and how its economic agents interact, and enables users to analyse the production and use of goods and services and to measure gross domestic product (GDP). It also permits the analysis of the incomes generated by that production and earned from the ownership of assets, and how they are redistributed within the economy. Users are also able to identify the capital and financial flows that take place. In summary, the SNA provides information not only about economic activity but also about an economy's productive assets and the wealth of its inhabitants. Within the SNA, the following indicators emerge as important statistical components: the level and growth rate of GDP (even by component and by type of economic activity), the level and growth rate of per capita GDP, employment and unemployment rates, and remuneration levels.

Following a similar structure to the SNA, balance of payments (BOP) statistics cover all economic transactions with the outside world. There are three types of BOP accounts: (i) the current account, which records transactions with non-residents in goods and services, income and current transfers; (ii) the capital account, which takes note of transactions in capital transfers and non-produced non-financial assets, such as contracts, leases and licences, and (iii) the financial account, which records transactions in external financial assets and liabilities. One of the most important features of the BOP is the information presented in the current account, which helps provide a succinct assessment of the country's relationship with the international community. The most important key indicators from within the BOP framework are perhaps the current account balance (often reported as a share of GDP), the capital account balance, exports of goods and services, imports of goods and services, national income and expenditure, and their components. Figures reflecting the level of current transfers to a country, including remittance flows and foreign direct investment (FDI), are also easily gleaned from the BOP framework.

The third pillar of the national statistical system is the set of monetary and financial statistics, which consist of comprehensive stock and flow data on the financial and non-financial assets and liabilities of that sector of the economy. Primary indicators from these statistics provide relevant information on monetary aggregates, the level of credit to various sectors, and the level of foreign

financial assets and liabilities. In addition, they provide valuable links to government finance and the BOP. This type of data is generally available on a more frequent basis than other sets of macroeconomic statistics and are important for the analysis, formulation and implementation of monetary and macroprudential policy. In this regard, key indicators include monetary aggregates, the leading interest rate or monetary policy rate, the level of credit and credit growth in a given economy, as well as measures of the health of the financial system.

Public finance statistics comprise the final pillar of the integrated system of national statistics. Economists and statisticians have long found it useful to separate the activities of government from those of the rest of the private sector for a clearer picture of the health of national treasuries, and to gather more detailed information on public-policy-related expenditures. From the set of public finance statistics, perhaps the fiscal balance (the sum of revenues minus the sum of expenditures) and the level of national debt are the most relevant for macroeconomic analysis in a broad sense. Included in this set of key indicators would be the level of tax revenue and its components, public income and expenditure, internal debt, external debt and debt service. It is also important to note the scope of public finance statistics, which may be measured at the central or federal

government level, as well as at the State, local or other subnational level.

Using the large set of relevant statistical indicators captured by macroeconomic statistics, it is possible to construct a matrix of available information detailing the actual performance of a given economy over a specific period, as well as to capture and analyse shifts in performance over a long or short time frame. However, despite the abundance of statistics available today, many individuals —including policymakers, business leaders and members of the larger public— remain confused about the best way to understand and interpret data, leaving them unable to properly assess their country's economic performance. A consistent and transparent indicator of the economy's overall performance could help guide economists, policymakers and the general public in making more informed decisions by providing a broader picture of the economy. This is where composite indicators have a role to play, since they make it possible to diagnose the overall health of an economy from a single headline figure. The creation of a composite index on the basis of the large panel of available statistical indicators presented in this section (drawing on indicators from each key pillar of economic statistics) would help to simplify and condense a large amount of data into a single, powerful diagnostic number.

III

The Latin American economic performance index

In a recent working paper, Khramov and Lee (2013) proposed a composite index for assessing the economic performance of the United States. This is a single, simple, yet informative metric that enables the assessment of a country's general macroeconomic performance in a methodologically straightforward and intuitive way. In its original formulation, the indicator measures the activity of the economy's three primary institutional sectors (households, firms and the government) by looking at GDP growth, consumer price inflation, unemployment and the government fiscal balance. The index is calculated using the weighted sum of deviations of each indicator from a given benchmark, where the weightings reflect the relative variability of each of the components.

The index proposed herein is based on the methodology of the EPI. However, in order to make the indicator relevant to the economies of Latin America, it has been modified along the lines set out below.

Since the Latin American economies are relatively small in comparison with the United States, and are highly integrated into the world economy, developments in the external sector have profound repercussions for their macroeconomic performance, which are particularly felt through trade flows and often through remittances flows. Accordingly, this study draws on balance of payments statistics through the inclusion of the current account balance —expressed as a proportion of nominal GDP— as an additional input. From a macroeconomic perspective, the relevance of the current account balance is that it

summarizes the domestic economy's transactions with the rest of the world and any changes in the country's investment position.

Much as the recent financial crisis highlighted the vulnerability of the world economy to imbalances in the financial sector, so several Latin American countries have recently experienced their own domestic financial crises. The main challenge for incorporating this dimension into the Latin American performance index is the broad availability of information from monetary and financial statistics. Candidate indicators include measures of the health of the banking sector, such as capital ratios, and measures of the degree of banking penetration, such as the ratio of the M2 monetary aggregate to GDP. Considering that the seeds of financial crises are in many instances sown by the excessive growth of credit, this study has incorporated share of bank credit to the private sector as an input to the Latin American performance index, which has the added advantage of allowing comparison across countries.

Although labour market developments are of the utmost importance in assessing the performance of an economy, coverage of the measures of unemployment varies significantly across countries, and is unavailable for some countries in the region. For that reason, unemployment has been excluded from the estimation of the index, while GDP growth and consumer price inflation are maintained as broad measures of trends in the volume and prices of the goods and services produced.

Lastly, on the basis of government finance statistics, the analysis focuses on the primary balance of the central government, which is the balance of revenues minus expenditures, excluding interest payments. This indicator was chosen because it provides the most relevant measure for assessing the long-term sustainability of public finances. The focus was on the central government because it is the level at which it is certain that fiscal policy shifts can be detected across countries, and because it is a measure that is available and comparable across the majority of countries in the region.

By combining these individual key indicators, it was possible to construct a composite index that captures salient features from each of the four pillars of macroeconomic statistics and, from the perspective of this research, more fully reflects the depth and dimension of the Latin American economies.

Khramov and Lee (2013) argue that their choice of benchmarks reflects the optimal level for each indicator, meaning that deviations from the reference value of 100 reflect decreases in performance. It should be stressed that this interpretation is dependent on the benchmarks

chosen. One of the advantages of the relative simplicity of the indicator is that its benchmarks can be adjusted to reflect different uses. For example, benchmarks can be chosen so as to reflect the levels of performance needed to close gaps in, for instance, job creation.

In this paper, the selected benchmarks indicate the historical long-run performance of Latin American economies. Thus, deviations above (below) the reference value of 100 reflect performance that is better (worse) than the long-term average according to certain criteria. Regarding the benchmark for GDP growth, the study proposes the existence of a potential growth rate. Since this variable is unobservable and notoriously difficult to estimate, standard practice is adopted and its trends approximated using the Hodrick-Prescott filter (Hodrick and Prescott, 1997), with a smoothing parameter equal to 6.25, which is the yearly equivalent of the commonly used value of 1,600 for quarterly data (Ravn and Uhlig, 2002). To account for the distortion introduced by the asymmetric nature of the filter at the end of the sample, the modification devised by Kaiser and Maravall (1999) was applied, and the time series extended using forecasts before estimating the smoothed series. Forecasts are obtained using the automatic routine in the TRAMO program (Caporello and Maravall, 2004; Gómez and Maravall, 1994).

Although in standard monetary policy models a zero target for inflation is optimal from a welfare perspective (see, for example, Galí (2003) for a brief overview), once it is recognized that the actual environment in which policy is implemented is characterized by incomplete markets and substantial heterogeneity across agents, a zero target for inflation becomes suboptimal (Bhattacharya, Haslag and Martin, 2005). Considering Latin America's history of relatively high inflation levels, benchmark inflation is set at 5% and only deviations above the target are penalized in the computation of the performance index.

Regarding public finance and the external sector, the benchmark value of the central government primary balance and the current account balance was set at zero. In the case of the primary balance, this target was chosen because it is consistent with the long-term budget balance of the public sector, and in the case of the current account balance, because it reflects a situation where all investment during a given year is financed from domestic savings.

As regards the financial sector, considering the volatility of the series for bank credit to the private sector, expressed as a proportion of nominal GDP, a penalty was applied for year-to-year changes in the ratio that exceeded the value of the standard deviation

of the series over the previous 10 years. The idea is to capture sudden changes in the provision of credit that could signal future imbalances. That is to say, one-off events in credit growth are not necessarily problematic. Rather, sustained episodes of low or excessive credit growth are penalized.

In this study, the modified performance index is constructed in accordance with the following formula:

$$LAPI = 100 + \theta_y \left(\Delta_y - \Delta_y^* \right) - \theta_\pi \left[\iota_\pi \left(\pi - \pi^* \right) \right] + \theta_G \left(G - G^* \right)$$
$$+ \theta_{CA} \left(CA - CA^* \right) - \theta_{Credit} \left[\iota_{Credit} \left(\Delta Credit - \Delta Credit * \right) \right]$$

where Δy denotes annual GDP growth, π is yearly average consumer price inflation, G and CA are the central government primary and current account balances, respectively, both expressed in terms of GDP, and $\Delta Credit$ is the variation in credit provided by banks to the private sector as a proportion of GDP. The starred variables denote the respective benchmarks, while ι_j, where $i \in \{ \pi, Credit \}$, are conditional indicator variables which take the value of one (1) if the respective statistic exceeds the value of its benchmark, and zero (0) otherwise. Lastly, θ_i, where $i \in \{ y, \pi, G, CA, Credit \}$, are the weightings for each component, which are computed as the product of the inverse of the standard deviation of each component's deviation from their respective benchmarks, multiplied by the average of the individual component's standard deviation. All standard deviations are computed for the sample period under consideration. As in Khramov and Lee (2013), the logic behind the choice of weightings is to rescale the importance of the most volatile components so as not to distort overall fluctuations in the index.

By combining the key statistics into a single composite indicator, the Latin American performance index makes it possible for a broad audience to gauge the overall macroeconomic health of the economy. Moreover, analysing the contribution of each component to changes in the index provides additional tools for dissecting the sources of fluctuations in macroeconomic performance. The index was constructed to enable its simple mathematical calculation, and allows for each variable to be presented in the same unit of measurement, in this case a percentage.

1. Application to Latin America

To illustrate the use of the Latin American performance index, as well as to assess its sensitivity as regards choice of benchmarks, the rest of this section will analyse the macroeconomic performance of Chile between 1990 and 2013. This choice reflects the fact that recent economic developments in Chile are conducive to highlighting some of the main features of the index, notwithstanding that it may be used with reference to any country in the region, and that its robustness in terms of choice of alternative benchmarks applies to all countries.

Figure 1 illustrates Latin American performance index trends in Chile and the contributions of the individual components during the period 1991-2013. While the general uptrend in the index until the mid-2000s reflects the gains in macroeconomic performance achieved by Chile during this period, the fluctuations point to a more nuanced story than would be obtained from a single indicator such as GDP.

It can be seen, for example, that during most of the 1990s, as monetary policy struggled with the effect of relatively high capital inflows, inflation was consistently above its benchmark, so that the indicator shows a downtrend. On the other hand, the positive contributions of the government finance component reveal the commitment of the Government of Chile to the achievement of primary surpluses.

Current account trends are particularly relevant to Chile and to Latin America in general. During the 1990s when the international price of copper, one of Chile's main exports, reached a historic low, the resulting current account deficits impinged on macroeconomic performance. However, as the price of copper rose thanks to renewed demand for commodities from China, the contribution of the current account turned significantly positive, in particular during the period 2004-2007.

Lastly, the spectacular rise in bank credit to the private sector observed from 2007 explains much of the decrease in macroeconomic performance that persisted until 2010, when GDP began to grow faster than its long-term trend.

As the above discussion shows, while the Latin American performance index is a useful tool for establishing trends in macroeconomic development, it is the contributions made by the different components that provide the inputs for a detailed analysis of its determinants. Continuing with the example of Chile, the next subsection investigates the sensitivity of the index to the choice of alternative benchmarks.

FIGURE 1
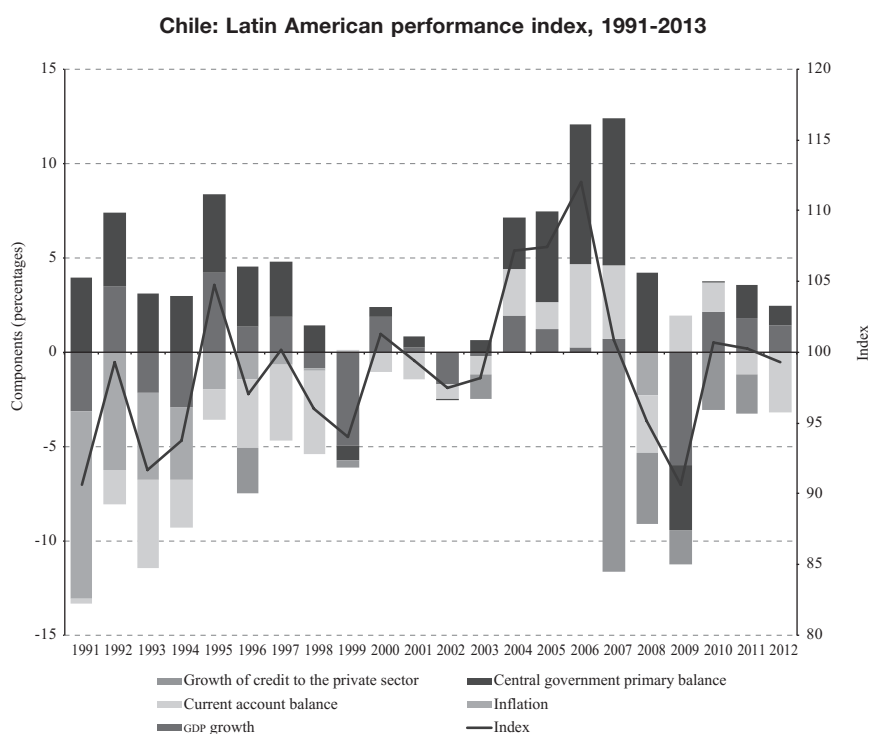
Chile: Latin American performance index, 1991-2013

Legend:
- Growth of credit to the private sector
- Current account balance
- GDP growth
- Central government primary balance
- Inflation
- Index

Source: Prepared by the authors, on the basis of official data.

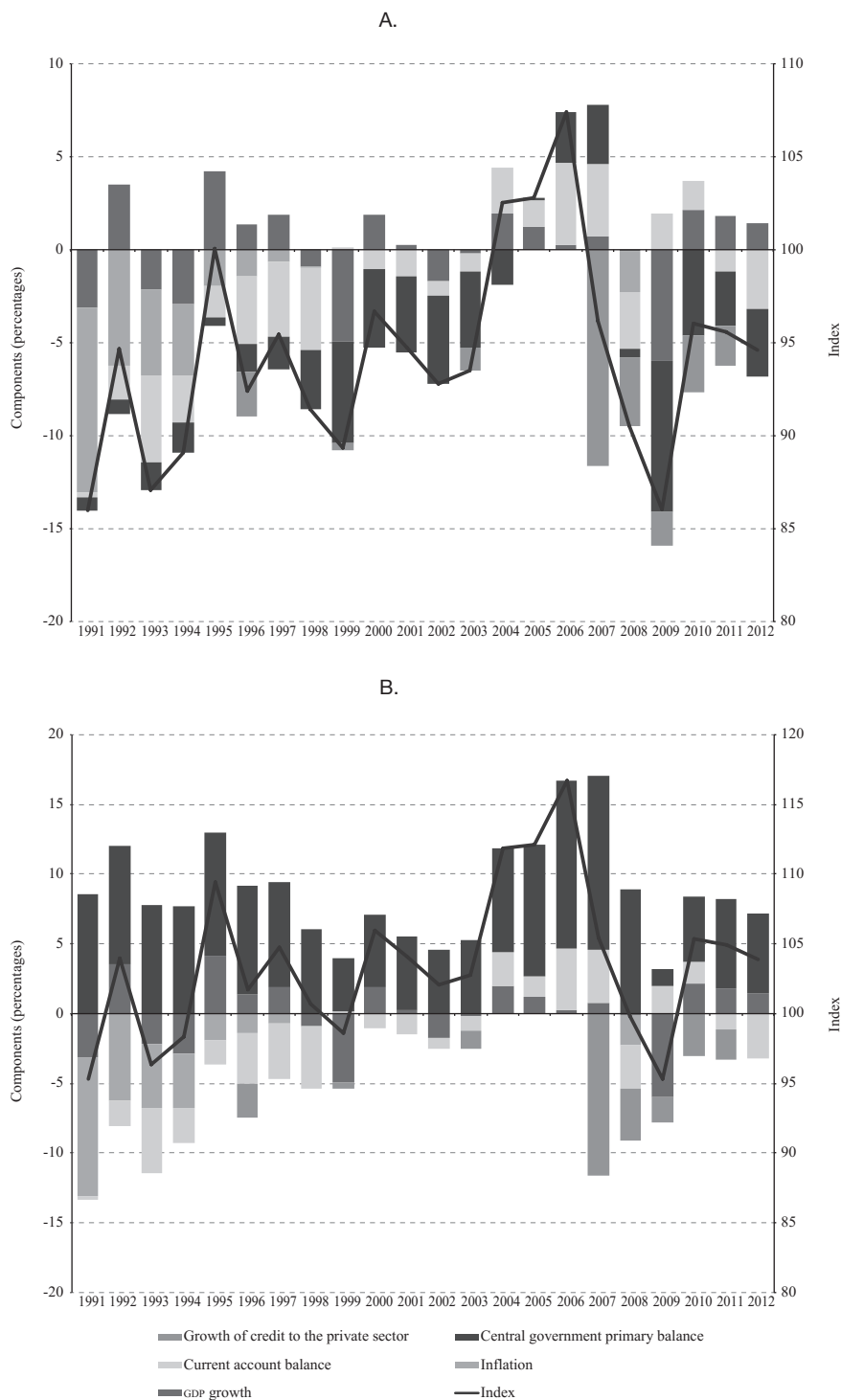Note: GDP: Gross domestic product.

2. Sensitivity analysis

As detailed above, in this analysis the choice of benchmarks gives an account of countries' long-term performance. Two types of benchmark were used: those that are fixed (such as those selected for inflation the current account balance and the central government primary balance); and those that fluctuate (such as the long-term GDP trend (see figure 3) and the standard deviation of changes in credit to the private sector, which are computed on a rolling basis).

Regarding the fixed benchmarks, alternative values will shift the Latin American performance index upwards or downwards, depending on whether the new value is lower or higher. Figure 2.A illustrates the effect of setting the benchmark for the government primary balance at

a surplus of 5%, while figure 2.B shows the effect of a deficit of the same magnitude; taken together they show that the overall dynamics of the composite index remain constant. In other words, phases of improved performance, stagnation and decline, as well as the magnitude and direction of index changes, remain the same. What does change, however, is the relative importance of the individual components, leading again to the assertion that interpretation of the sources of fluctuations in the index is dependent on the choice of benchmarks. With respect to the original benchmarks (see figure 1), raising the benchmark for the central government primary balance (figure 2.A) changes the sign and reduces the relative weight of this component, whereas the opposite happens when the benchmark is lowered (as in figure 2.B).

FIGURE 2

Chile: Latin American performance index, using alternative benchmarks for the central government primary balance, 1991-2013

A.

B.

Growth of credit to the private sector   Central government primary balance
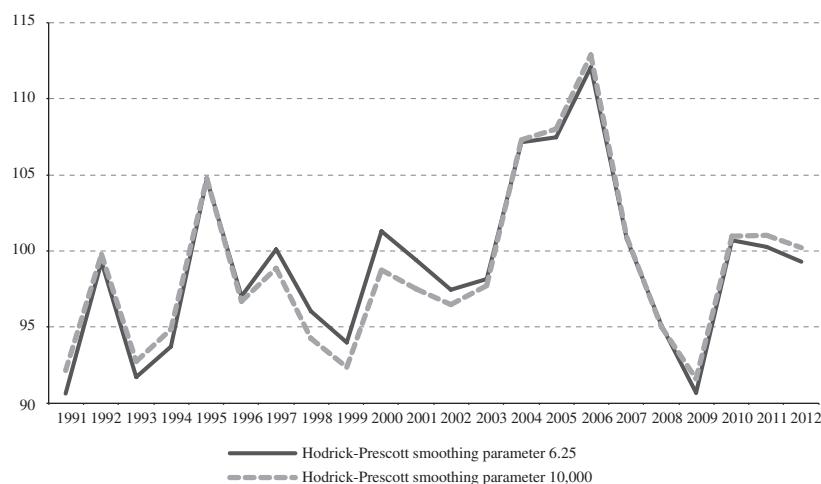Current account balance   Inflation
GDP growth   Index

Source: Prepared by the authors, on the basis of official data.

Note: GDP: Gross domestic product.

FIGURE 3

Chile: Latin American performance index, using alternative benchmarks for GDP growth, 1991-2013

Source: Prepared by the authors, on the basis of official data.

Note: GDP: Gross domestic product.

Table 1 compares the contribution of each component under the alternative smoothing parameters from 1997 to 2003, the period during which the composite index was most sensitive to the benchmark smoothing parameter for growth. It is apparent that the lower index values yielded by the alternative benchmarks are explained by the higher penalization of GDP growth deviations from a smoother series. Despite the effect on both the absolute and relative magnitudes, the contributions of the other components are quite robust to changes in the benchmark value. In the case of credit to the private sector, a similar effect would be observed by adjusting the length of the period under consideration to compute the standard deviation of the benchmark. Longer lengths will mean that the latter has a smoother evolution, implying that sudden changes will usually be more heavily penalized.

TABLE 1

Chile: percentage contribution of components using alternative benchmarks for GDP growth, 1997-2003

	1997	1998	1999	2000	2001	2002	2003
Index (original)	100.1	96.1	93.9	101.3	99.4	97.4	98.1
GDP growth	1.9	-0.9	-5.0	1.9	0.3	-1.7	-0.2
Inflation	-0.7	-0.1	0.0	0.0	0.0	0.0	0.0
Current account balance	-4.0	-4.4	0.1	-1.1	-1.4	-0.8	-1.0
Central government primary balance	2.9	1.4	-0.8	0.5	0.6	-0.1	0.6
Growth of credit to private sector	0.0	0.0	-0.4	0.0	0.0	0.0	-1.3
Index (alternative)	98.9	94.3	92.3	98.8	97.5	96.5	97.7
GDP growth	0.7	-2.6	-6.6	-0.6	-1.6	-2.6	-0.5
Inflation	-0.7	-0.1	0.0	0.0	0.0	0.0	0.0
Current account balance	-4.1	-4.6	0.1	-1.1	-1.5	-0.8	-1.0
Central government primary balance	3.0	1.5	-0.8	0.5	0.6	-0.1	0.6
Growth of credit to private sector	0.0	0.0	-0.4	0.0	0.0	0.0	-1.3

Source: Prepared by the authors, on the basis of official data.

Note: GDP: Gross domestic product.

The general conclusion is that while the dynamics of the composite index are found to be quite robust to the specification of alternative benchmarks, the sign and relative magnitude of individual components' contributions should always be interpreted as dependent on the chosen benchmark. Lastly, it should be noted that some countries, such as Brazil and Nicaragua, were still struggling to contain inflation at the beginning of the 1990s. Caution should therefore be exercised when choosing the period under study in these cases, since the inclusion of hyperinflationary periods, or other extreme values in general, will excessively distort the estimation of the weightings of each of the components.

3. Scope of the Latin American performance index

In evaluating and contextualizing the scope of the Latin American performance index, it is not possible to make qualitative claims regarding the long-term success of the Latin American economies. For example, no assessment is made of whether a particular country's growth rate or level of credit available to the private sector is appropriate or insufficient. In the same vein, while the choice of zero as the benchmark value for the balances of the public and external sectors penalizes deficits, this selection carries no implicit judgement of the benefits of current account or primary surpluses.

It is important to recognize what the Latin American performance index is, and what it is not. Its principle objective, as stated, is to serve as a summary measure of headline economic development. However, this index also takes into account the availability of a diverse cross-section of macroeconomic indicators and seeks to incorporate and balance the influence of each component. Another relevant aspect of the index is that, owing to its composition and the fact that the selected indicators are captured in the same units, the contribution of each input to the overall headline figure can be isolated and observed.

It is essential to recognize the limitations of a composite macroeconomic indicator and to define the scope of the index, which was not conceived or designed as a tool for assessing public policy or political goals. Neither was it constructed so as to give meaningful commentary on the state of equality or inequality in a given economy. However, it does represent a relevant measure for assessing the overall performance of an economy, particularly in Latin America, and can be used as a complementary tool for analysing overall levels of national development, along with other composite indicators such as the Human Development Index (HDI) of the United Nations Development Programme (UNDP), or the Better Life Index of the Organization for Economic Cooperation and Development (OECD), which focus on the social and human aspects of development.

As stated, the Latin American performance index is a very relevant tool for macroeconomic analysis across countries and time frames. Through the construction of a sensitivity analysis, the chosen benchmarks and indicators have shown their robustness in capturing variations in overall performance, while permitting the comparison of each indicator's contribution and influence in the overall index. Thus, the Latin American performance index allows for a deeper understanding of the factors driving economic development across the countries of the region and, as the following section will show, may also serve as a highly useful tool for macroeconomic analysis.

IV

Examples of application of the Latin American performance index

This section demonstrates some applied uses of the index through an analysis of three situations that are commonly encountered in the practice of macroeconomic evaluation: the comparison of different historical episodes in respect of the same country; the analysis of a common episode across countries; and the analysis of current conditions.

1. Comparison across time

One way to test the validity of the Latin American performance index is to see if it captures economic recessions, both across time and in terms of their relative severity. The value of analysing economic development over time resides in the possibility of observing its

long-term trend. As figure 4 shows, the modified Latin American performance index clearly captures the overall rhythm of the Mexican economy, including the sharp

fall in 1994 and its severe impact in 1995, as well as the recession of 2009 following the onset of the global economic crisis.

FIGURE 4
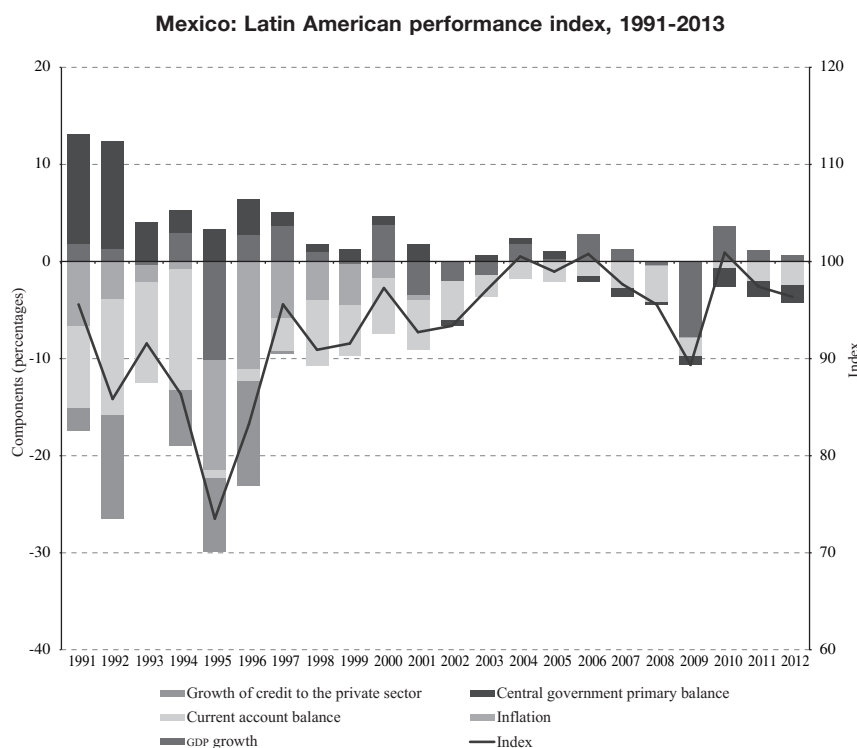
Mexico: Latin American performance index, 1991-2013

Source: Prepared by the authors, on the basis of official data.
Note: GDP: Gross domestic product.

While GDP growth fell significantly in both years, the results for the other variables are very different for 1995 and 2009, reflecting the fact that the 1995 crisis was a homegrown balance-of-payments crisis, which caused Mexico to abandon its crawling peg to the dollar (a fact that largely accounts for the figures for inflation, credit growth, and the current account balance for 1995), whereas the 2009 recession was a consequence of the international financial crisis and the contraction in global economic activity, as shown by the sharp fall in the contribution of GDP growth to the overall index. Throughout the 1990s, the government primary balance was a positive factor on the whole, though it began to perform below target in the years leading up to the 2009 crisis. Government intervention during the crisis swelled the primary deficit, although —as can be seen from its impact on the Latin American performance

index for Mexico— the primary deficit persists. While the country has recovered somewhat from the large deficits of the early 1990s, the current account has continued to perform below its benchmark target. After bouts of high inflation during and immediately following the 1995 crisis, the role of inflation in the country's overall economic performance seems to be moderating.

In a similarly positive vein, GDP growth has tended to lead Mexico's overall macroeconomic dynamics. Notwithstanding sharp falls in 1995 and 2008-2009, GDP growth as compared to its long-term trend has played a leading role in Mexico, contributing positively to the overall Latin American performance index score. As noted in previous examples, the selection of the time frame for evaluation has a significant repercussion on the magnitude of the index.

2. Comparison across countries

The Latin American performance index may also be employed to analyse the impact of a common event on a group of countries. For illustrative purposes, an analysis was conducted on the performance of the countries of Central America and the Dominican Republic in the face of the recent global crisis.

Figure 5 shows the relative performance of the countries in this subregion during the period 2006-2013. For comparison purposes, the initial period was normalized to 100 and the fluctuations in the individual Latin American performance indexes were computed. Contrary to what was observed in the region, where the brunt of the recent financial crisis was felt in 2009 (ECLAC, 2010), the financial crisis actually provided some relief through its effect on international food and energy prices, given that the subregion is a net importer of these commodities. It is observed that the impact of the global crisis was actually most severe in the subregion in 2008, and while all countries experienced a dip in their overall index scores in that year, the falls were particularly sharp in the Dominican Republic and Costa Rica.

Table 2 shows the impact of each component during the period. The rise in commodity prices, which peaked in 2008, caused a significant deterioration in the subregion's current account balances, as well as a notable uptick in inflation. The worsening current account balance also played a role in the deceleration, and in some cases, the contraction of economic activity in 2008. The sharp drop in activity as a result of the collapse in demand for commodities caused by 2009 global financial crisis partially reversed the adverse economic conditions in the subregion, which was reflected in an improvement in current account balances and an easing of inflationary pressures. These developments acted as a buffer to the slowdown in economic activity in response to the crisis. In the aftermath of the crisis, the economic climate was initially favourable but became less so around 2011 as a result of concerns regarding the sovereign debt crisis in the eurozone, which once again dampened demand for the subregion's exports; moreover, large current account deficits continued to be detrimental to its overall economic performance. However, on a positive note, inflation is no longer a significant drag on subregional performance. Once again, it is clear that the selection of study periods influences the weight and magnitude of inflation in the Latin American performance index.

FIGURE 5

Central America and Dominican Republic: Latin American performance index, 2006-2013
(2006 = 100)
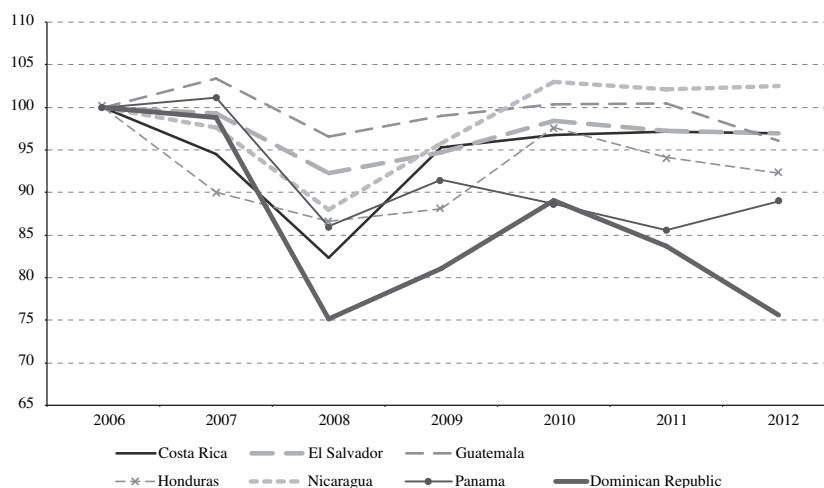
Source: Prepared by the authors, on the basis of official data.

TABLE 2

**Central America and the Dominican Republic: Latin American performance index
and contribution of each component to the index, 2006-2013**

	2006	2007	2008	2009	2010	2011	2012	2013
Costa Rica	95.4	87.0	75.0	88.7	88.5	89.6	89.7	87.6
GDP growth	3.3	3.0	-1.7	-5.1	1.5	0.8	1.4	-0.4
Inflation	-2.9	-2.0	-3.8	-1.3	-0.3	0.0	0.0	-0.1
Current account balance	-7.1	-9.7	-14.6	-3.1	-5.5	-8.4	-8.3	-7.7
Central government primary balance	4.0	5.4	3.5	-1.9	-4.5	-2.8	-3.4	-4.2
Growth of credit to private sector	-1.9	-9.7	-8.4	0.0	-2.7	0.0	0.0	0.0
El Salvador	100.8	99.9	94.8	91.9	97.6	96.6	96.2	91.3
GDP growth	1.6	2.1	-0.1	-4.9	0.5	1.2	0.4	-0.1
Inflation	0.0	0.0	-1.1	0.0	0.0	-0.1	0.0	0.0
Current account balance	-3.8	-5.6	-6.6	-1.4	-2.3	-4.4	-5.0	-6.0
Central government primary balance	3.0	3.4	2.6	-1.8	-0.6	-0.1	0.8	0.9
Growth of credit to private sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.4
Guatemala	93.4	98.8	92.3	90.5	93.4	94.5	84.3	95.7
GDP growth	3.1	5.5	-0.5	-6.0	-0.5	2.2	-0.9	0.4
Inflation	-0.6	-0.7	-2.4	0.0	0.0	-0.5	0.0	0.0
Current account balance	-5.9	-6.2	-4.2	0.8	-1.6	-3.9	-3.1	-3.2
Central government primary balance	-1.4	0.1	-0.6	-4.3	-4.6	-3.3	-2.2	-1.5
Growth of credit to private sector	-1.8	0.0	0.0	0.0	0.0	0.0	-9.6	0.0
Honduras	92.4	79.5	78.2	78.5	90.6	86.6	83.4	79.0
GDP growth	2.0	2.6	1.0	-8.3	1.5	1.4	1.6	-0.9
Inflation	-0.2	-0.8	-2.6	-0.2	0.0	-0.7	-0.1	-0.1
Current account balance	-4.1	-10.0	-17.0	-4.2	-4.8	-8.8	-9.4	-10.6
Central government primary balance	-0.2	-4.0	-3.2	-8.8	-6.1	-5.3	-7.1	-9.2
Growth of credit to private sector	-5.1	-8.3	0.0	0.0	0.0	0.0	-1.6	-0.3
Nicaragua	98.3	98.2	90.1	92.9	99.4	99.9	96.3	96.2
GDP growth	0.5	1.8	0.1	-4.6	0.2	1.7	0.6	0.1
Inflation	-2.2	-2.5	-6.5	0.0	-0.4	-1.6	-1.1	-0.9
Current account balance	-1.5	-2.7	-3.5	-1.8	-0.8	-2.1	-2.5	-4.0
Central government primary balance	1.6	1.6	0.0	-0.7	0.4	1.9	2.0	1.0
Growth of credit to private sector	0.0	0.0	0.0	0.0	0.0	0.0	-2.7	0.0
Panama	97.6	99.3	82.1	90.8	91.0	90.3	90.9	82.2
GDP growth	0.3	4.3	1.0	-5.0	-2.8	2.9	2.4	0.7
Inflation	0.0	0.0	-11.4	0.0	0.0	-2.7	-2.1	0.0
Current account balance	-8.3	-10.9	-11.7	-6.1	-6.3	-8.4	-8.3	-7.5
Central government primary balance	5.6	5.8	4.2	1.8	0.1	-1.5	-1.0	-3.1
Growth of credit to private sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-7.9
Dominican Republic	114.4	112.5	81.4	89.2	99.9	93.7	83.5	91.8
GDP growth	6.7	3.8	-3.4	-6.0	6.2	-2.1	-2.6	-0.1
Inflation	-0.9	-0.4	-2.0	0.0	-0.5	-1.2	0.0	0.0
Current account balance	5.0	2.3	-6.6	-0.8	-3.6	-2.8	-4.9	-6.9
Central government primary balance	3.6	6.9	-6.5	-4.0	-2.2	-0.2	-9.0	-1.2
Growth of credit to private sector	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Prepared by the authors, on the basis of official data.

Note: GDP: Gross domestic product.

It is interesting to note that, in contrast to the rest of the subregion, which has more or less regained pre-crisis levels of economic performance, the index for Panama presents a persistent overall downtrend, while the Dominican Republic, whose overall performance improved moderately in 2013, continues to post far lower growth rates. Table 2 shows that the most influential factor in Panama has been the deterioration of its current account balance, reflecting the increase in imports associated with expansion of the Panama Canal. Although the negative trend in the Dominican Republic is also the result of a widening current account deficit, it stems from the suspension of gold exports in 2007 and the sizeable fiscal deficits posted from 2007 onwards, which are partly explained by the fiscal cost of persistent energy subsidies.

3. Drivers of recent economic performance

Figure 6 depicts the changes in Latin American performance index scores from 1996 to 2013 for some of the region's main economic players: Chile, Colombia, Mexico and Peru.[1]

---

[1] It is interesting to perform a cross-cutting analysis of the region's economies. The countries selected for this purpose were Chile and

Overall index scores for Chile and Peru, South America's largest resource-dependent export economies, follow a marked upward trajectory from the mid-1990s, due in large part to rising commodities prices and an increase in global demand for their exports, which helped to boost growth and set up a positive fiscal balance. Despite sharp falls at the height of the crisis, Chile and Peru have both rebounded relatively strongly. Their growth remains fairly stable despite some moderation in their overall Latin American performance index scores in 2013, especially owing to deteriorations in the current account balances in both countries, and fluctuations in the supply of credit to the private sector in the case of Peru. After a buoyant recovery from the crisis, Mexico's performance continued to weaken in 2013 amid meagre GDP growth and a widening current account deficit.

Peru, which rely heavily on natural resources and extractive industries to shape their economic structure; Colombia, whose economy derives a large portion of revenue from agro-industrial processes; and Mexico, which is a major manufacturing exporter and a significant contributor to the region's overall economic performance. Argentina and Brazil were not included due to strong fluctuations in inflation with respect to the long-term trends, which preclude their selection for a longer-term evaluation.

FIGURE 6

**Chile, Colombia, Mexico and Peru: economic performance index, 1996-2013**
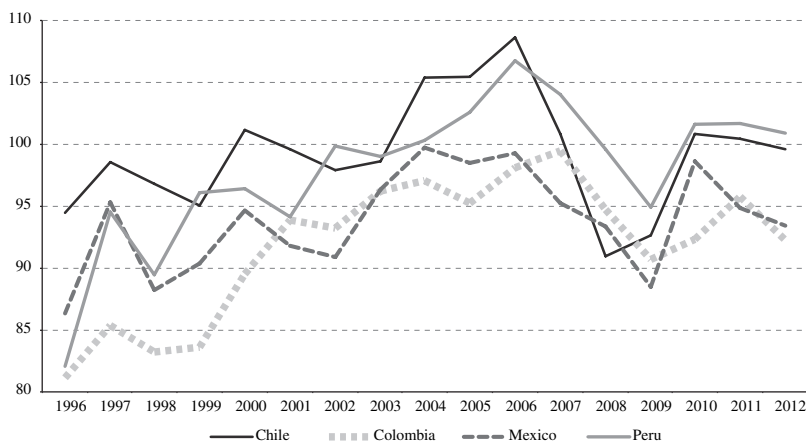
Source: Prepared by the authors, on the basis of official data.

As figure 7 shows, the composition of recent performance varies significantly across countries during the period under study. While overall index scores improved in the majority of countries, a notable trend is the region's chronic current account problem. Poor performance in this area, as shown by the impact of the current account component, particularly in Mexico and Colombia in the years leading up to the global financial crisis in 2009, is a major trigger for the recent decline in economic performance, and continues to hold countries back from achieving higher sustained overall growth. Given the importance of exports in each of these economies, the overall slowdown in world trade had a significant effect on current account dynamics. The role of public finance in recent economic performance is also interesting, although its contribution in large economies has varied somewhat in recent years. In the metal- and mineral-rich economies of Chile and Peru, public finances —as shown by the positive contributions of the primary balance compared to the long-term trend— served as a shield against the adverse effects of the financial crisis, creating a buffer space for these countries to enact more strategic policies.

FIGURE 7

Chile, Colombia, Mexico and Peru: economic performance by component, 1996-2013
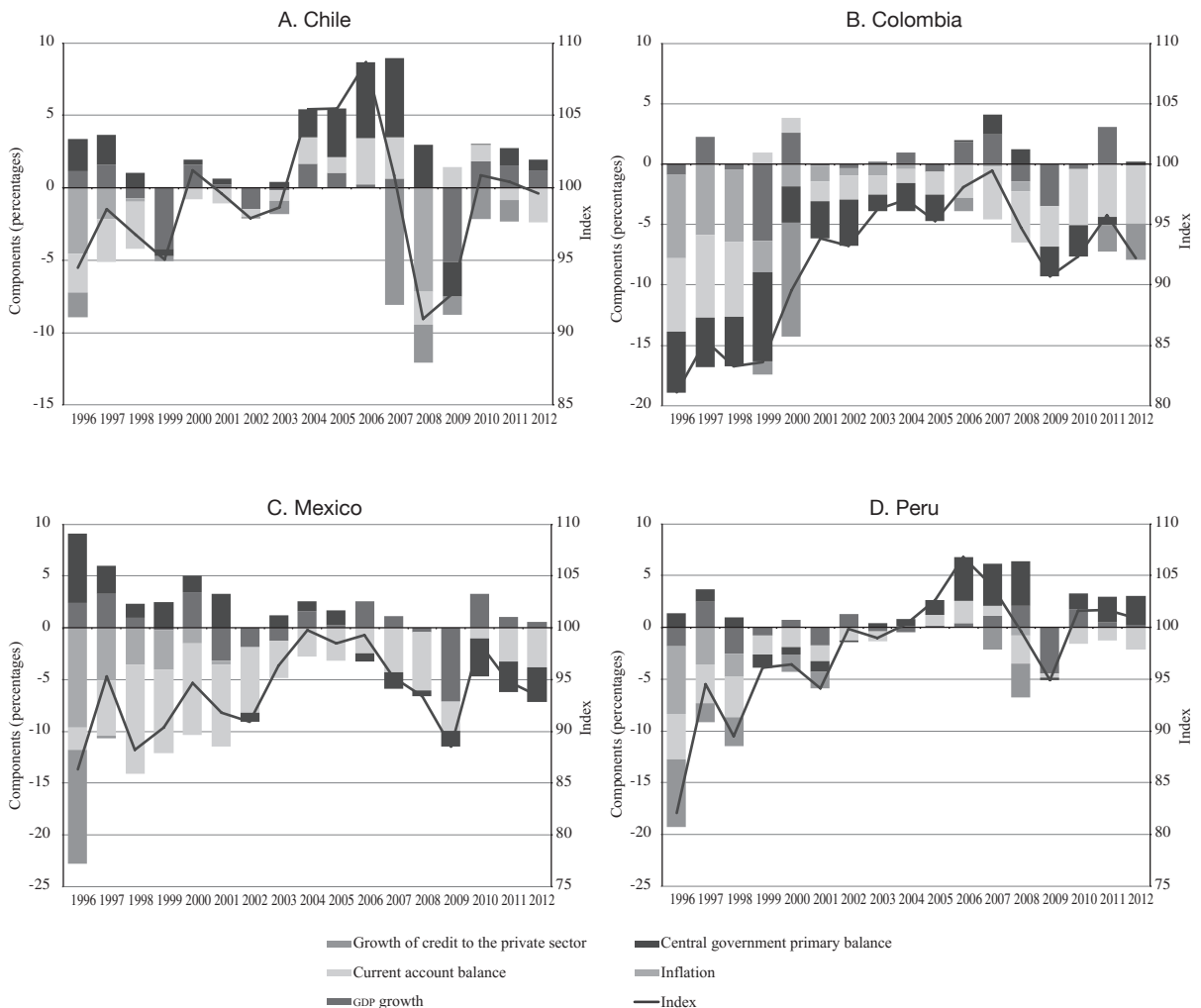
Source: Prepared by the authors, on the basis of official data.

Note: GDP: Gross domestic product.

Overall, it is observed that the current account balance and growth have been the strongest drivers of the Latin American performance index. Public finance has also been crucial, albeit to a lesser extent, in different countries. Inflation, once the thorn in the side of Latin American macroeconomic performance, has interestingly played only a minor role in determining the overall trend in the region, compared with other index components.

Credit growth has also played a somewhat volatile role for the main economic players. In Chile and Peru, particularly in the years preceding the 2009 crisis, growth in credit to the private sector weighed negatively on overall economic performance, perhaps serving as an early sign of inherent financial sector weakness. In the case of Colombia, credit growth to the private sector was not a major factor in the fall during the recent economic crisis, though it has tended to deviate from its long-term trend as the economy has recovered.

Another value added of the Latin American performance index is its contribution to highlighting variations in long-term economic development. Thanks to the way it is constructed and to the long-term benchmarking of certain values, the this index could serve as an early warning system for economies, highlighting weak or problematic performance in key variables, before these combine to produce a decline in overall performance or even a recession. For the region's large economies in particular, added insight into the structural dynamics of economic development could help in the formulation of more strategic policy initiatives to address economic shortcomings.

V

Conclusions and future outlook

This document places emphasis on the need for a set of comprehensive and transparent national statistical indicators, and acknowledges the role that statistics play in monitoring progress on the economic, social, and environmental fronts and in the analysis of a country and a region's macroeconomic outlook. It has been observed that there is a wide variety of macroeconomic statistics, though their availability tends to vary across countries.

The advantages and benefits of constructing composite indicators for macroeconomic analysis have also been highlighted. What is most important to underscore regarding the contribution of composite indicators is their power to combine information yet maintain the underlying richness of diverse statistical indicators, which when needed, can be broken down into their contributory parts. The simple construction of the Latin American performance index, which in turn is an adapted version of the EPI, has demonstrated the value of this type of statistical analysis for understanding the overall macroeconomic development of the Latin American economies.

The constructed index evidently serves as a straightforward and easily interpretable indicator of the overall health of a country's economy. Its applicability has been demonstrated in a variety of circumstances, whether for the comparison of similar episodes across groupings of countries, or in the use of a lengthier study period to benchmark a country's economic performance over its historical trend. The proposed index has broad potential and its utilization could be expanded to cover economic performance across regions and subregions, among other possible applications.

An additional strength of the Latin American performance index is its usefulness for revealing the performance of underlying indicators, in this case the components of the index. By analysing the impact of each component, those that drive overall economic development are more clearly discernible. This aspect of the index may have diagnostic potential in the evaluation of future economic performance, since it highlights elements of the overall economic system that may be performing below their long-term trend levels. It could therefore signal potential sources of macroeconomic weakness, before the overall health of the economy is impacted.

The need for statistics is paramount. The authors of this paper, as economic analysts, as policymakers, and as active citizens, need to know where we have come from, and, even more importantly, where we stand in order to understand how the economy will perform in the future.

Bibliography

Bhattacharya, J., J.H. Haslag and A. Martin (2005), "Heterogeneity, redistribution, and the Friedman rule", *International Economic Review*, vol. 46, No. 2, Wiley.

Caporello, G. and A. Maravall (2004), *Program TSW. Revised Reference Manual*, Bank of Spain.

ECLAC (Economic Commission for Latin America and the Caribbean) (2010), *Estudio Económico de América Latina y el Caribe, 2009-2010* (LC/G.2458-P), Santiago.

Galí, J. (2003), "New perspectives on monetary policy, inflation, and the business cycle", *Advances in Economics and Econometrics. Theory and Applications: Eighth World Congress*, vol. 3, M. Dewatripont, L.P. Hansen and S.J. Turnovsky (eds.), Cambridge, Massachusetts, Cambridge University Press.

Gómez, V. and A. Maravall (1994), "Estimation, prediction and interpolation for nonstationary series with the Kalman Filter", *Journal of the American Statistical Association*, vol. 89, No. 426, Taylor & Francis.

Hodrick, R.J. and E.C. Prescott (1997), "Postwar U.S. business cycles: an empirical investigation", *Journal of Money, Credit and Banking*, vol. 29, No. 1, Blackwell Publishing.

IMF (International Monetary Fund) (2007), *The System of Macroeconomic Accounts Statistics: An Overview*, Washington, D.C.

Kaiser, R. and A. Maravall (1999), *Spanish Economic Review*, vol. 1, No. 2, Springer.

Khramov, V. and J.R. Lee (2013), "The economic performance index (EPI): an intuitive indicator for assessing a country's economic performance dynamics in an historical perspective", *IMF Working Paper*, No. WP/13/214, Washington, D.C., International Monetary Fund.

OECD (Organization for Economic Cooperation and Development) (2005), *Statistics, Knowledge and Policy: Key Indicators to Inform Decision Making*, Paris, OECD Publishing.

Ravn, M.O. and H. Uhlig (2002), "On adjusting the Hodrick-Prescott filter for the frequency of observations", *Review of Economics and Statistics*, vol. 84, No. 2, Cambridge, Massachusetts, The MIT Press.