

2020

## 36<sup>th</sup> IARIW General Conference

Paper Prepared for the 36<sup>th</sup> IARIW General Conference, Oslo, Norway, August 24-28, 2020

Contrast between Latin America, India and Others: Economic Growth and Productivity, 1990-2017

Andre Hofman

Tomas Galvez-Silva

Over the past 30 years, economic growth has tended to be low and unstable in Latin America and the Caribbean. The analysis presented in this paper helps explain the factors behind this poor performance, and discusses the challenges the region faces in achieving long-term growth, taking the most immediate determinants into account. In order to do so, a number of exercises designed to quantify the factors that have driven growth were carried out based on a “growth accounting” approach. These analyzes seek to identify elements that enable directing public policies toward promoting measures for the growth rates of Latin America and the Caribbean (LAC) to increase steadily.

This assessment of the sources of growth in Latin America strives to answer the following questions, of which the first is to establish the role of accumulating productive factors and technical progress. After that, secondly, to determine if this diagnosis is maintained when the disaggregation level to be studied is increased. Finally, to answer the question: What is the role of information and communication technologies (ICTs)? For this assessment, the most advanced methodologies, for example, services, capital and labor, were applied and a new database, LA-KLEMS, was used.

In the international literature on growth accounting, the discussion is generally structured around an approach that can be expressed following Caselli (2004), as:  $\text{Product} = F(\text{inputs, efficiency})$ . That is to say, the product, usually measured in per capita terms, is a function of certain inputs, usually some measurement of capital and labor, and of Total Factor Productivity (TFP) or "efficiency" in the use of the inputs. TFP is a displacement measurement of the production function (of an economy, a production facility or an economic sector) for a given level of inputs of capital and labor. In an intuitive sense, it measures the shift of the production function resulting in the addition to the contributions of capital and labor. Many factors may cause this shift or addition, such as technical innovations, organizational or institutional changes, changes in endowment of capital and labor factors, scale effects, variations in the working intensity, as well as measurement errors, poorly measured variables, etc. (Hulten 2001).

As many of the growth theories, this is a long-term relationship that entails full employment of resources. Consequently, empirical studies are based on long series of statistics, using averages of several years in certain cases, to obtain a quantitative estimate of the growth trends, as free as possible of short term cyclical fluctuations.

By nature, this approach faces two key challenges. The first is to try to determine the contents of the input in the best way possible, and the second and more difficult one is to try to determine what explains the “efficiency.” In this line, we recall Maddison (1987) stating that "Growth accounting of this type cannot provide a full causal story. It deals with "proximate" rather than "ultimate" causality and registers the facts about growth components; it does not explain the elements of policy or circumstance, national or international, that underlie them, but it does identify which facts need more ultimate explanation.”

In this line, the LA-KLEMS project, along with the Groningen Growth and Development Center, the Valencian Institute of Economic Research and the University of Harvard through the World KLEMS project, worked together to develop a database to improve the identification of “proximate” causes of growth evolution of the region. The outcome of this work is a homogeneous statistical data base known by its acronym in English, KLEMS that better measures and identifies capital (K), labor (L), energy (E), material (M) and service inputs (S). An exercise for the five countries for which there is more available disaggregated data was conducted. These are Argentina, Brazil, Chile, Colombia, and Mexico (Aravena and Hofman, 2014). Actually, the LAKLEMS database contains 5 additional countries: Costa Rica, Dominican Republic, El Salvador, Honduras and Peru. For these countries, the contribution of productive factors KLEMS will be studied in each of the nine branches of industry. This more detailed analysis enables us to assess if the diagnosis of the factors that determine growth is sustained, and, at the same time, identify the use of digital technologies, which has increased dramatically in the world and in Latin America in the last quarter of a century. The impact of ICTs on economic growth has been well documented (van Ark et al., 2003, Jorgenson and Vu, 2005, Inklaar et al., 2005, De Vries, et al., 2010). Comparative growth analyzes between Latin America and developing and developed countries shows poor results for the regions (Hofman et al. 2016, 2017 and 2018; Mas et al. 2019)

The remainder of this study is structured as follows: Section II contrasts key aspects of growth in ten countries of Latin America with some developing countries (India, ...) and some developed countries (USA, some European countries ..). This makes it possible to illustrate some of the gaps that determine lower levels of productivity in the region. Section III details the methodology applied. The following section undertakes the analysis of the evidence based on increasingly detailed exercises with regard to “proximate” causality of growth in Latin America and the Caribbean between 1990 and 2017. Section V analyzes the procyclicality of productivity. Sectoral aspects of productivity in five countries are addressed in Section VI. The final section concludes by bringing together the main findings and briefly discussing the policy guidelines for sustainable growth in the external context we are confronted with.

