

Labor productivity, technological change and functional income distribution in Brazil and Mexico

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The intermediate technology of the production sectors is subject to intense processes of economic trade opening and integration into global production chains. These processes have caused a major restructure of the relationships between domestic and imported inputs, Latin America is not the exception.

In sectors led by transnational companies that come from Southeast Asia and the US, the proportion of domestic supplies of specific inputs has decreased and imports have increased. In sectors where leadership belongs to companies inserted in global production chains from the great economies of Latin America - Brazil and Mexico - the change of internal inputs by imported inputs has been less relevant. However, in both types of sectors it is expected that intermediate technological changes are associated with increases in labor productivity. Concomitantly, they would observe an increased share of wages in value added.

On the other hand, the sectors whose companies recorded a smaller share in the global production chains, or are led by domestic firms, the internal inputs have maintained a higher proportion in the total. In these sectors, labor productivity has not increased much and the share of wages in income has been maintained or decreased.

The central purpose of this paper is to analyze the functional relationship between structural circularity, labor productivity and share of wages in value added in each industrial sector, for the cases of Brazil and Mexico, from a comparative and inter-temporal perspective. According to the development of Latin America, it is important to answer the next question: "Is the complexity and cost of new technologies and their impact which changes the structure of income and labor-saving and modify the production function towards more capital intensive methods? ".

One way to capture the characteristics of intermediate technology sectors in the presence of significant changes in the composition of inputs is to observe the extent to which the path from supplier sectors to user sectors is amplified by feedback circuits both in the composition of domestic inputs as in the total inputs. The changes that take place when a sector moves from a sequential mode of supply - i.e. when is dominated by the sales that the sector does to another and this same to one more and so on until to arrive to an end-user sectors - towards a mode that is more circular in a specific manner in that some supplier sectors are in condition to buy inputs provided by sectors that are its own buyers. This change implies coordination and configuration of circuits of the sector with those of others. So a greater degree of intensity occurs in the use of the working capital and, at the same time, are introduced techniques that enable sectors located in the transformation of natural resources to go doing an increasing use of industrial goods and services to the production. The indexes of sectoral circularity are the indicators that permit to measure this technological change.

The respective indicators are constructed and measured with the information of the tables of input - output for Brazil and Mexico in three key years - circa 1980, 2003 and 2013 - and considering compatible disaggregation levels because circularity rates are sensitive to the number of sectors. Data sources to be used are provided by the Statistic and Geography National Institute (INEGI) and the Statistic and Geography Brazilian Institute (IBGE) for the respective years.

While there have been studies analyzing the circularity index, an indicator that synthesizes without losing information the circular relationships represented by a table of input-output, no studies have been done to take this indicator as representing technological change and, even less, research has been conducted to consider this indicator of a joint form with labor productivity to determine the functional income distribution.