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Decomposing Brazilian manufacturing industry dynamics in the mid-2000s: Macroeconomic factors and their sectoral impacts☆

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Abstract

The manufacturing industry's loss in participation, phenomena called "deindustrialization", has been observed for the Brazilian economy for a while and seems to have intensified from mid-2000s. However, the literature has not developed a consistent or integrated analysis of this process. We have used a detailed simulation model to identify how macroeconomic factors (such as exchange rate, labor costs, and household consumption) have contributed to manufacturing dynamics. Our results indicate that the macroeconomic scenario explains a large portion of the manufacturing industry's participation loss. The rise in households consumption and investment, important factors in this period, were responsible for dampening of the pressures coming from the currency appreciation and the workforce costs, benefiting some industrial sectors, but not avoiding the manufacturings participation loss.

Keywords: Manufacturing; Growth; Development; Simulations

JEL classification: O14; C68; D58

1. Introduction

One of the most important structural modifications in the Brazilian economy throughout its history can be observed in the sectoral composition of the economic activity. The division of economic sectors in farming, manufacturing and services show, especially since the early 90s, manufacturings relative loss in participation in the economy (excluding mineral extraction).[1] Numerically, this is the result of lower growth rates compared to those from other sectors, or due to negative grow rates (which were observed in few periods and subsectors of the economy). However, it is harder to evaluate the effect of relative prices, which can lead to a loss of participation even with strong production growth rates

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[1] According to Bonelli et al. (2013), the participation of manufacturing in the GDP reached 44% in 1980, retreating to 42% in 1990, and 41% in 2000.

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Table 1
Value and participation of sectors in the Brazilian economy, 2005–2011.

	Gross Output (BR$ million at current prices)		Participation in Gross Output		Change in share of Gross Output
	2005	2011	2005	2011	2005–2011
Agricultural	194,477	331,755	5.1	4.5	−0.7
Manufacturing	1,421,514	2,457,618	37.5	33	−4.5
Services	2,170,692	4,647,017	57.3	62.5	5.2

Source: Prepared by the authors from IBGE (2014).

A sector can lose participation even with strong production growth rates, if the price of its products rises less than the average price of the economy.[2]

Recent data made available by Brazilian Institute of Geography and Statistics (IBGE, 2014) about the sectoral Gross Output illustrates the recent changes. Between 2005 and 2011, a relatively short period, manufacturing lost 4.5 percentage points of participation and services gained 5.2 points (Table 1). The loss in participation was greater in the manufacturing industry group than in the extraction industry, but the importance of the latter is still minor (3.5% of the total Gross Output or 12% of the industrial Gross Output).

During this period, in the manufacturing segment, participation declined from 34.7% to 29.5% of the economy's Gross Output. The unbundled analysis of the manufacturing industry (Table 2) shows that 20 sectors, which represent 65% of it, lost 6.45 percentage points of participation in the economy (with emphasis on Chemicals, Computer Equipment, Food, and Steel Products); while 6 sectors, which represent 35% of the manufacturing industry obtained 1.95 percentage points of participation, with higher gains in Machines and Equipment, Automobiles Fabrication and Oil Refining.

Differently from what is observed in the 90s, for which the effect of commercial opening is considered the decisive factor for this phenomenon, there is no agreement in literature about its causes in recent periods. As it will be discussed in the next section, scholars associate this movement to some macroeconomic and structural elements: (1) currency appreciation, which favored imports and hampered exports; (2) costs associated to labor, due to the heating up of the labor market and to the increase in salaries; (3) low gains in productivity, due to low investment in innovation; (4) low growth of the investment in infrastructure, which generates elevated distribution and production costs.

Manufacturings participation loss in the economy is recurrently associated to the term "deindustrialization", though its definition and importance vary according to the theoretical stream used. The theoretical contributions about deindustrialization in developed countries, occurred between the 60s and the 70s, consider that this process was essentially a natural consequence of the economic dynamism exhibited by such economies (see for example, Fuchs, 1980; Rowthorn and Wells, 1987; Baumol et al., 1991; Rowthorn and Ramaswamy, 1999). In most of the advanced economies, labor productivity grew at a faster pace in the Industry sector than in the services sector, while growth in production was similar in both. In this context, services started to absorb a growing part of the workforce, raising its participation in total employment. The growth in productivity also led to a decrease in relative prices of industrialized products, reducing the participation of the sector in the value added. A second argument is based on the Engel's law, which states that, with the consistent rise of per capita income, there would be a natural tendency to a relative reduction of the demand for industrialized products in favor of services. As a result, the participation of industrial jobs would also retreat (Rowthorn and Ramaswamy, 1999). In total, in this process, there would be only one change in allocation of resources for the services sector, not compromising employment nor growth in the long run, representing then, a case of positive or natural deindustrialization.

In the case of developing countries however, the most common hypothesis raised is of the existence of an "early deindustrialization", associated to the "re-primarization of the exports guidelines" and "Dutch disease",[3] especially

[2] According to Baumol (1967), the low productivity in the services sector would lead to its increase relative to manufacturing, causing a change in relative prices. His theory is known in the literature as the "cost disease".

[3] Deindustrialization caused by appreciation of the real Exchange rate, which results from the valorization of the prices of the natural resources in the international market (Oreiro and Feijó, 2010, p. 231).

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