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# Multiple trends of tertiarization: A comparative input—output analysis of the service sector expansion between Brazil and United States

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#### Abstract

The service sector expansion has shown to be a multiple trend process, producing distinct sectorial compositions. The present paper aims to make a comparison between two large economies in different stages of development with an extensive service sector (Brazil and United States), by focusing on final and intermediary demand changes and sectorial productivity as well. Input—output matrices for Brazil and United States were used and two applications were carried out: structural decomposition analysis and total factor productivity. Main results are as follows. Firstly, the growth in services was fostered by several factors, among which household consumption assumes an important role for both countries. Second, inter-industrial linkages play a major role only for United States. Thirdly, there is now evidence of cost disease for Brazil. Finally, productivity is lower in Brazil, nonetheless labor productivity increased above the average in some service sectors.

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#### Resumo

A expansão do setor de serviços tem se mostrado um processo de múltiplas tendências, produzindo composições setoriais distintas. O presente artigo tem por objetivo fazer uma comparação entre duas grandes econômicas em diferentes estágios de desenvolvimento e com um extensivo setor de serviços (Brasil e Estados Unidos), focando em mudanças na demanda intermediária, final e também

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na produtividade setorial. Matrizes insumo-produto do Brasil e Estados Unidos foram utilizadas e duas aplicações foram realizadas: análise de decomposição estrutural e produtividade total dos fatores. Os principais resultados são os seguintes. Primeiramente, o crescimento do setor de serviços foi fomentado por diversos fatores, entre os quais o consumo das famílias assume papel importante para ambos os países. Em segundo lugar, as ligações inter-setoriais exercem um papel de destaque apenas para os Estados Unidos. Terceiro, não existe evidência da doença dos custos para o caso do Brasil. Finalmente, a produtividade é mais baixa no Brasil, embora a produtividade dos serviços tenha crescido acima da média para alguns setores de serviços.

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Palavras-chave: Terciarização; Insumo-Produto; Desenvolvimento

#### 1. Introduction

The understanding of the tertiarization process involves understanding the tertiary activities composition, and its heterogeneity. Those variances manifest themselves in multiple ways related to different levels of economic development. In general, the maturity degree of each economy has effect on its productive structure, and consequently it produces effects on the composition and dynamism of the tertiary sector. Although the tertiary sector has constituted a world phenomenon whose economic determinants have been present in several countries, the features composing it – productivity, level of labor skill, growth level of value added and value of gross output – are different in developed and developing countries. Such characteristics reflect a set of historical and socioeconomic factors underlying the expansion of this sector, which have variously combined the effects of variations in final and intermediary demands, as well as differences in productivity between sectors.

For developed countries, the tertiary expansion is described by Bell (1976) from the emergence of the post-industrial society that has been characterized by income growth and, as a result, by an increased consumption of services, such as healthcare, leisure, education and cultural activities. In a society such as this, the proportion of manual and unskilled labor is reduced and the majority of population is dedicated to produce intangibles.

On the other hand, developing countries have experienced population growth and migration of rural areas to urban areas since the 1950s (Paiva, 1986). According to Pandit and Casetti (1989), these changes have given room to an increased labor supply that could not be absorbed by manufacturing in these countries. As a result, the service sector has swollen with low-productivity labor in traditional activities and even in informal activities. This process was named by Weller (2004) as a spurious growth in services sector associated with low-quality labor.

However, as Weller (2004) highlights, it is not correct to assume that all developing countries experience only spurious services sector's growth, and equally, it is not correct to assert that tertiarization carried out in industrialized economies is purely genuine or solely represented by high-skilled labor, able to produce high aggregate value. Each country and each tendency may be analyzed distinctly. There are several trends related to the tertiarization process, and all economies have spurious and genuine processes of varied proportions simultaneously, according to their development level (Weller, 2004).

In this regard, not only the total share of services in total economic activity or employment is important, but also what is inside the tertiary matters for sustainable economic growth. This perspective is in line with another broad area of the literature, analyzing the relationship between structural change, productivity and economic growth.<sup>3</sup> In this view, despite well-documented patterns of structural change for developed countries (for instance, Jorgenson and Timmer, 2011), with evidence of some services contributing positively for economic growth, similar statements cannot be extended to the developing world.

In this sense, the rising services participation in developing countries suggests signals of a premature process of deindustrialization, as pointed out by Rodrik (2015), combined with the rise of spurious services. Brazil is one of those countries, which occupies the seventh position in the global GDP (2.35 trillion dollars at 2014 prices), and reached 70% of value added in services in 2013. According to Squeff and Negri (2014), there is some consensus that deindustrialization process began in the 80s, nonetheless its consequences for the economy are still an open question. In this context, the present work aims to understand the driving forces of the services sector growth in Brazil, and

<sup>&</sup>lt;sup>3</sup> For a literature review, see Krüger (2008) and Herrendorf et al. (2014).

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