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## Does the structure of employment affect the external imbalances? Theory and evidence

Giray Gozgor\*

*Istanbul Medeniyet University, Faculty of Political Sciences, Unalan Street 5, North Campus E104, Uskudar, Istanbul, Turkey*

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### ABSTRACT

This paper theoretically constructs a simple model to study the effect of the structure of employment on the external trade balance. The paper illustrates that when the share of employment in services increases, the external trade deficit also increases, and this occurs due to the direct effect of the income and the indirect effect of the productivity. Empirically, the paper analyzes the effects of the structure of employment upon the external balance of goods and services in the panel dataset of 137 developing and developed countries for the period from 1960 to 2011. The paper finds that the external trade deficit has been rising with a higher share of the employment in services.

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### 1. Introduction

The rapid globalization process in the 1990s, which continues today, has led to changes in the crucial transformation of the structure of employment both in the developed countries and the developing economies.<sup>1</sup> Similarly, since the early 1990s, most developed and developing countries have experienced the “deindustrialization process”, that is the transformation of employment from industry to services or directly from agriculture to services (Palma, 2005; Rodrik, 2013, 2016). Indeed, Fig. 1 provides the data for the employment in agriculture, industry, and services (% of total employment) in the world economy for the period from 1991 to 2017. The data demonstrate that there is a significant deindustrialization process; particularly, the transformation of the employment from agriculture to services.

Our paper aims to systematically analyze the direct- and the indirect effects of the structure of employment on the external trade balance and it tests the validity of the hypothesis of whether

employment in the non-tradable sector (services) can affect the external trade balance. Our paper explores the relevant question given that the service sector has burgeoned in the last two decades and has come to acquire the significant share in total output, even in the case of some developing countries (e.g. India) that are yet to reach a mature stage of industrialization (Cantore et al., 2017). At this stage, augmenting the share of service employment creates the macroeconomic activity from the specialization in manufacturing exports to domestic consumption. Accordingly, our paper tests whether the employment in the service sector as a labor-intensive sector can be a significant determinant of the external trade balance; that is, whether the surge in employment in the service sector leads to a greater household income as well as domestic consumption and whether this process leads to the significant changes in the external trade balance.

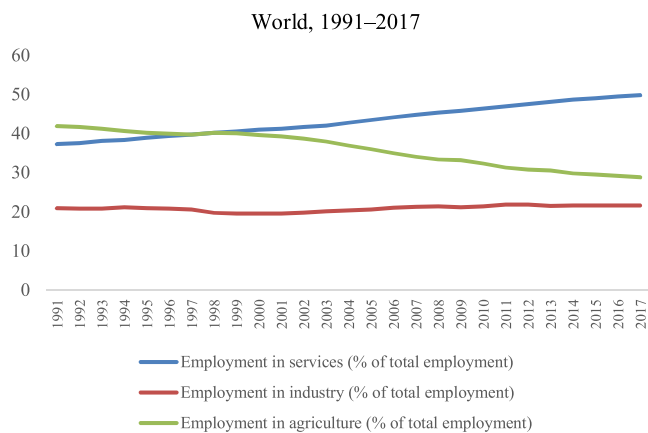
The early contributions to the literature came from the works of Nicholas Kaldor and Simon Kuznets. Indeed, the classical economic models of Kaldor and Kuznets illustrate that the employment transformation from the agriculture to the manufacturing (industry) and the services raises the productivity and accelerates the rate of economic growth.<sup>2</sup> According to Kuznets (1966, 1971), an

\* Corresponding author.

E-mail address: [giray.gozgor@medeniyet.edu.tr](mailto:giray.gozgor@medeniyet.edu.tr)

<sup>1</sup> Throughout the paper, we define the structure of employment as the shares of agricultural, industry (manufacturing and other industries), and services in total employment in an open economy.

<sup>2</sup> The Kaldorian literature on the balance of payments constrained growth rate is also especially relevant here. Indeed, the models of that Kaldorian literature also



**Fig. 1.** The Employment in Agriculture, Industry, and Services (% of Total Employment) in the World (1991–2017).

Data Source: World Development Indicators Database, (Modeled ILO Estimates).

increase in the employment in industry causes expansion in the per capita gross domestic product (GDP) in the first place due to the economies of scale and technological improvements. Then, growth in the per capita GDP yields not only an upswing in employment in the industry but also in the employment in services. Kaldor (1966) also indicates that the manufacturing sector is the engine of economic development. Furthermore, Kaldor (1967, 1978) shows that the transition of the employment from agriculture to industry will reach to a boundary level; and therefore, as long as the economic expansion proceeds, the share of the employment in services in total employment will also increase gradually. Following Kaldor (1966), the work by Reddaway (1973) is also in support of the introduction in the United Kingdom (UK) of the Selective Employment Tax, which sought to use differential tax rates across different types of employment to influence the external trade balance. In the Reddaway's work, there is an implicit assumption that the greater employment in services will increase the trade deficit (will distort the trade balance), which is the obverse of our hypothesis and should be referenced as the background to our paper.

According to Pieper (2000), the deindustrialization process has two aspects: the “output deindustrialization”, which is the shifting of the output from industry to services, and the “employment deindustrialization”, which is the shifting of the employment from industry to services. Indeed, a possible employment deindustrialization process should lead to a greater level of imports (at least it can lead to inefficient production in exporting goods); and consequently, enlarging the share of services in total employment and total output can be defined as “unfavorable” for the external trade balance (Pieper, 2000). Furthermore, manufacturing can be seen as an engine of economic growth and exports since it is the most productive sector for enhancing export performance (Szirmai, 2012; Szirmai and Verspagen, 2015). Accordingly, increasing the share of the manufacturing industry<sup>3</sup> can be seen as “favorable” for the

provide a coherent framework for analyzing the link between the sectoral shifts and the external balance of trade. See, e.g. Nabar-Bhaduri and Vernengo (2012).

<sup>3</sup> In general, trade openness positively affects productivity since a higher level of globalization leads to a positive technology shock and this process results in productivity gains. Therefore, manufacturing exports relative to total exports, one of the most important indicators of trade openness, can also be crucial for driving productivity gains (Krugman, 1995). It is also noteworthy to note the case that higher trade openness has always not a favorable impact on productivity. As has been in the case of the Latin American economies, a higher level of trade openness can create enclave economies and could act to destroy past domestic linkages between different sectors. Consequently, a few sectors of the economy experience the productivity improvements, while others retain the low levels of productivity. See, e.g.

external trade balance (Jenkins and Sen, 2006).<sup>4</sup> Another issue is that trade liberalization not only leads to a higher productivity in the manufacturing sector (i.e. leads to a higher rate of economic growth) but also yields a larger share of the service sector in an economy. This is due to evidence that productivity gains are greater in manufacturing than in services (Palma, 2005); since the rises in the employment follow the increases in the output in services in most open economies.<sup>5</sup> In addition, the demand for goods and services has a high (income) elasticity; that is, the demand for goods and services increases as income increases in an open economy (Heintz, 2010). Hence, our paper focuses on the effects of the employment deindustrialization on the external trade balance. In other words, following Dehejia and Panagariya (2016), our paper focuses on the employment in the service sector instead of the share of services in the total output to avoid a potential simultaneity bias.

In short, we suggest that there are not only the direct effects but also the indirect effects on the share of the employment in services on the external trade balance. The theoretical background of our paper aims to model both the indirect and the direct effects of the share of employment on the external trade balance. Our paper theoretically constructs a simple model to study the effect of the structure of employment on the external trade balance. We illustrate that when the share of service employment increases, the external trade deficit rises, and this has been occurred by the indirect effects of the productivity (via the globalization and the technology shocks) and the direct effects of the per capita income (via the domestic consumption and the unit labor cost-real wage). Empirically, we analyze the effects of the structure of employment on the external balance of goods and services in the panel dataset of 137 developed countries and developing economies during the period from 1960 to 2011. We observe that the external trade deficit has been increasing with the expanding share of service employment.

The remainder of the paper is organized as follows. Section 2 describes the motivation behind the study and reviews the previous literature. Section 3 theoretically lays out the empirical model. Section 4 explains the data and the econometric methodology as well as it provides the empirical results. Section 5 concludes.

## 2. Motivation and previous literature

### 2.1. The evolving role of globalization in the structure of employment

Globalization causes faster economic development, poverty reduction, productivity improvement and technology transfer by cultivating specialization in the tradable sector; however, these complex theoretical benefits are still being debated (McMillan and Rodrik, 2011). Globalization can also affect employment in several ways. First, the burgeoning economic integration leads to a higher competition in global markets, which leads to a suppression of the unit labor cost as well as increases in the productivity (Corsetti et al., 2008a, 2008b). The hike in the productivity causes a proliferation of exports, and this positively affects the external trade balance.

Cimoli and Correa (2005), Cimoli and Katz (2003), Ocampo (2005), and Ocampo and Taylor (1998).

<sup>4</sup> According to the International Labor Organization (ILO), the employment transformation has been occurring from agriculture to services in developing economies (ILO, 2014: 96). At this point, there are a limited number of studies analyzing the relationships among the economic growth, the external trade balance and the international trade in developing economies (see, e.g. Dehejia and Panagariya, 2016; Jenkins and Sen, 2006).

<sup>5</sup> For instance, Triplett and Bosworth (2004) observe that the productivity gains in the service sector yield a higher rate of economic growth in the United States (U.S.).

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