Chapter 11

The Nexus Between Population Aging, International Trade, Foreign Direct Investment, and Economic Growth in G20 Countries:

A Panel Vector Autoregressive Analysis

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ABSTRACT

This chapter examines the nexus between population aging, international trade, foreign direct investment, and economic growth in the G20 countries over 1994-2018 by using the panel vector autoregressive analysis approach. The G20 countries are considered locomotives of the world economy. Moreover, the G20 countries are also be regarded as the center of concentration of the interconnection of the above factors in connection with their economic significance and the population size. Thus, the analysis carried out within the framework of this chapter allows a better understanding the nature of the relationship between the examined variables. Moreover, using the impulse-response functions and the variance decomposition method, both the individual response of the variables to the shocks and the overall effect's magnitude are revealed.

INTRODUCTION

Population aging, in other words, the growth in the number of elderly people in the country's population, is one of the principal difficulties of our time for most developed and developing countries. The problem of population aging has long passed from the demographic plane to the socio-economic plane. At the same time, in the 21st century, the problem of population aging has grown from the boundaries

of individual regions to a global scale. Furthermore, although the speed of development of this demographic change in different countries is different, the problem of population aging affects all countries without exception through the spillover effect. In the scientific literature, terms such as "revolution" or "tsunami" are often used concerning the population aging problem, highlighting the dramatic shifts in the demographic age structure. "Aging" states are forced to make adjustments to the already developed socio-economic policies, taking into account the potential consequences of demographic aging. The worldwide phenomenon of demographic change directly affects the world economy's stable development. Therefore, a great interest in this issue has arisen in the literature, and a vast amount of research has been conducted studying various aspects of the impact of population aging.

This chapter investigates the linkages between population aging, international trade, foreign direct investment (FDI), along with economic growth in G20 countries based on a panel vector autoregressive (panel VAR) analysis. The primary motivation for selecting the G20 countries is that these countries are the immediate focus of population aging. For example,

According to UN DESA's Population Division, G20 member countries are home to more than 70 percent of the world's older population. The number of persons aged 65 or over in G20 countries is expected to grow from 501 million in 2019 to 705 million in 2030, and further to about 1 billion in 2050."[1] As known "the members of the G20 are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union.[2]

These countries are the locomotive of the world economy, produce the largest part of goods and services, and are the center of concentration of the world trade and investment flows. There is no research investigating the nexus between population aging, international trade, FDI, along with economic growth in G20 countries based on the panel VAR analysis to the best of the author's knowledge. In connection with the above, this research endeavors to bridge the aforementioned gap in the literature. Moreover, in the process of analyzing this issue straightforwardly, it is attempted to highlight not only theoretical aspects but also to provide step by step a guide to the panel VAR analysis approach. For this purpose, this chapter conducts a panel VAR analysis for the sample of G20 countries over the period 1994-2018. The analysis period is considered depending on the availability of reliable data, creating an essential restriction in selecting the analysis period.

In this context, this chapter is constructed as follows. The literature review section summarizes the studies related to the relationship between population aging, international trade, FDI, and economic growth. Section 3 introduces the dataset utilized in the analysis. Section 4 presents in detail the empirical methodology. Section 5 presents and addresses the preliminary and main analysis findings. Section 6 contains the conclusion part of the chapter.

LITERATURE REVIEW

International trade, FDI, along with economic growth are vital parts of the globalization process, reflecting the improvements in technology and productivity, knowledge transfer, education level. Due to the consequence of these determinants in the theoretical literature, the issue concerning the relationship with other indicators has been studied in great detail. For example, the well-known work of Romer (1989)

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