

Chapter 4

Population Aging and Human Capital: Evidence From Countries With Different Income Levels

Ipek Akad

Bitlis Eren University, Turkey

ABSTRACT

This study investigates the effect of the changes in the demographic structure of countries with different income levels on human capital. The world population is getting increasingly older. So, what are the consequences of population aging increasing further? To answer this question, the author constructed the econometric equation as a polynomial equation. The result of the study is that population aging is a highly important issue in terms of the economy due to its causes and effects. While population aging creates disadvantageous in underdeveloped or developing countries, it creates an advantage in terms of human capital stock in developed economies. The effect of the increase in population aging on human capital is U-shaped in low-income countries and inverted U-shaped in middle and high-income countries.

INTRODUCTION

Population policies affect the amount of population, the weight of age groups in the population, the ratio of the foreign population to the local population, and the population growth rate with parameters such as birth, death, and migration (Attar, 2020). Changing the demographic structure and implemented policies leads to some economic and social impacts. Considering these impacts, the effects of population aging in countries with different income levels on the human capital index (HCI), which is a socioeconomic indicator, have been investigated in this study.

Regarding the historical transformation of production, mechanization, which started with the industrial revolution, decreased the need for physical labor in production due to technological developments. The present production system requiring less physical labor has also had a positive impact on human

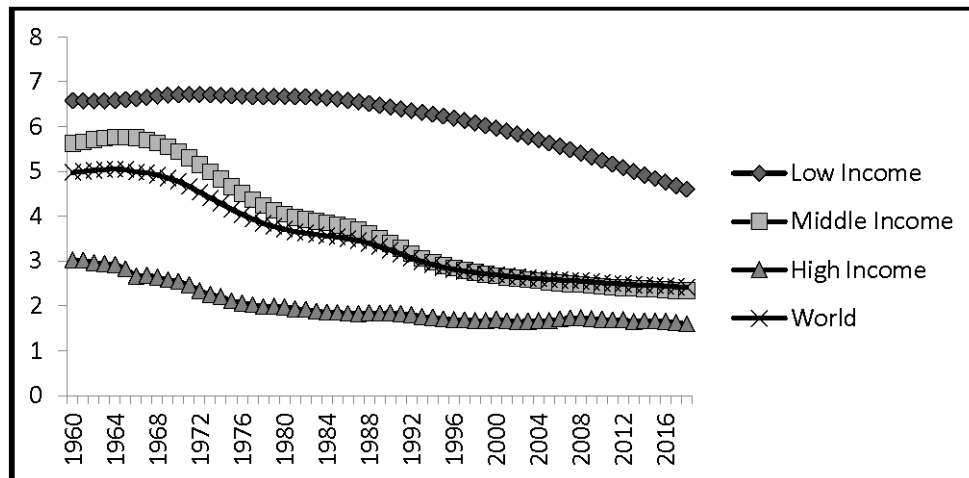
DOI: 10.4018/978-1-7998-7327-3.ch004

life. The average person needs to work between 30-40 years before retirement. If the person has a physically demanding job during this period, they are more likely to suffer from various diseases and have a shorter lifespan. This phenomenon is supported through some studies in the literature. These studies reveal that those working in physically demanding jobs have a higher risk of death than those working at a desk (Petersen et al, 2012; Coenen et al., 2018; Holtermann et al. 2018).

The technological transformation of production processes, namely mass production techniques, has increased the income levels of countries. This increase has led to better social welfare and in turn, has had a positive impact on life expectancy. Besides, as a result of the evolving production systems, the need for skilled labor has emerged. This is since machines for production purposes need to be designed and built, and that this innovation may lead to the development of technologies for use in different sectors over time. This condition has led to an increase in social education levels. In line with the increasing wealth and education levels, the demographic structure of the transforming society has also changed. Particularly, women's presence in higher education can be described as the most prominent factor influencing the demographic structure. In developed countries, the desire of women to pursue a career thanks to higher education and their perception of child-raising as a cost that would lower the standard of living they are used to, has decreased fertility rates (Nargund, 2009). In developing countries, considering children as a workforce increases fertility rates relatively. While in the less developed countries, although fertility rates are high, there are high maternal and infant mortality rates causing a decrease in birth rates (Nargund, 2009).

Figure 1. Fertility rate, total (births per woman)

Source: World Bank, World Development Indicators



In Figure 1, 60-year fertility rates of countries for the years 1960-2019 have been divided into three groups, specifically low, medium, and high income which are compared with the world average.

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