Chapter 7

Pension Systems Dynamics: A Pooled Data Analysis

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ABSTRACT

The main focus of the chapter is to define directions and magnitudes of causality of the pension systems, labor force, and hours worked for selected OECD (Organization for Economic Co-operation and Development) countries through a pool data analysis. The information is examined within basic, intermediate, and advanced statistical analyses by regional comparison of the OECD countries. Main results include: (a) a positive impact of Labor Force size on Pension Systems, (b) a negative effect of the Average Hours Worked on Pension Systems, (c) when introducing cross-section and time series heterogeneity, relations are sustained from both global and regional inquiry, (d) an insightful and meticulous investigation can be performed using public and open databases if depuration of the information is well conducted.

INTRODUCTION

The use of a database to conduct research is a helpful way to gain an understanding of the behavior of a phenomenon by identifying its causes and consequences. Podestà (2002) stated that pooled data analysis, also called pooled time series cross-section

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analysis, is the combination of time series and cross-section data analysis. In order to conduct such an analysis, one must first perform a statistical analysis, which can be executed at three different levels: basic, medium, and advanced analysis.

The purpose of this chapter is to gain a phenomenological understanding of pension systems by conducting a statistical analysis. Data on demography and hours worked were retrieved to identify their relationships to pension systems. The authors compared and analyzed trends, differences, and similarities.

The first step was to identify the relationship of each country’s pension system to its demography. Then the authors described the relationship of hours worked to pension systems. Finally, a joint estimation measured the simultaneous effects of demography and hours worked on pension systems. This research includes OECD member countries divided by regions. The main objective of this study is to present a methodology for performing research through OECD open access data sets and OECD publications. The topics selected serve as an example of the quality research available through open access libraries and data sets.

BACKGROUND

The scope of the literature review was set to open access publications from OECD, according to the objective of this study. After reviewing the main sources and publication dates of the publications retrieved, the authors realized that chapters, graphs, and tables can be found in books written and published by OECD, so they are included in the publications retrieved by the search engine. The main source was *Pensions at a Glance*, published every two years; the latest version was published in 2015. The authors decided to narrow the search to editions in English with a publication date on or after 2012, considering that *Pensions at a Glance* (2015) included the findings from previous OECD’s publications and compiled updated data related to pensions of the OECD countries and several non-OECD countries.

The main concern of this research was that “pension systems are facing crucial and far-reaching challenges” (OECD, 2014B, p. 9) due to demography and life expectancy, so “reforms in the pension system are needed to extend coverage” (De la Maisonneuve, 2015, p. 3). The OECD stated, “pensions are under pressure from the retiring of the baby boom generations, [as well as] the improvements in mortality and life expectancy” (OECD, 2014B, p. 9).

OECD (2015A) established that “first-tier old-age pensions are defined as the first layer of protection of the elderly” and may have three components: (a) a basic pension, (b) a minimum pension, and (c) social assistance. Pension systems around
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