


# Socio-Demographic Impacts on the Personal Savings Portfolio Choice: A Decision Tree Approach

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## ABSTRACT

Insufficiently-developed financial systems, poor standards of living, and inappropriate education of citizens on the saving products lead to low levels of investment in the financial markets of developing countries. In this paper, special attention is paid to examining the socio-demographic profile of Montenegrin citizens who invest their funds in some of the offered forms of savings, as well as examining main factors that restrict their investment. For this purpose, data collected through the survey of Montenegrin citizens were processed using decision tree method. Survey results have shown that there is a low level of savings, as well as that citizens prefer deposits and life insurance products rather than pension plans and debt securities. Also, the results indicate that the main causes of the current state of savings in Montenegro are low standard of living, citizens' poor awareness, and the financial system, which causes the insufficiently attractive supply of savings.

## KEYWORDS

Bank Deposits, Decision Tree Method, Financial Market, Life Insurance, Montenegro, Pension Plans, Securities, Survey

## INTRODUCTION

Montenegro, as one of the developing countries, is characterized by low levels of savings. The main causes of this situation are low standard of living, lack of information regarding the offer and importance of saving for citizens, undeveloped financial market, etc. For this reason, the aim of this research is to determine the current savings portfolio of Montenegrin citizens, to point out the key reasons why citizens do not invest their funds in the financial market, and to present the socio-demographic profile of those respondents who own some of the offered forms of savings.

The financial market of Montenegro is characterized by a poor range of savings products, and these are: term deposits, life insurance products, investments in voluntary pension funds, bonds and

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other debt securities. Because of the suspension of voluntary pension fund management companies by the regulatory body, neither of the two voluntary pension funds currently operates. In 2018, four life insurance companies operated in the insurance market, raising €15,23 million in cash for life insurance, accounting 17,5% of total gross written premium. The number of active life insurance contacts at the end of 2018 was 51870, while the number of life insured people was 52715.<sup>1</sup> Total deposits of population in 2018 amounted to €1327,528 million, of which term deposits amounted to €600,807 million.<sup>2</sup> It is also possible to save money by buying government bonds and corporate bonds in the financial market. The total turnover on government bonds in the amount of €2688791 and turnover on corporate bonds in the amount of €551665, was realized on the Montenegro Stock Exchange in 2018.<sup>3</sup>

A significant number of authors have dealt with some forms of population's savings, especially savings through voluntary pension plans and life insurance at country level and within the European Union, the USA, etc. There are also a considerable number of papers that indicate the structure of citizens' savings, depending on their socio-demographic characteristics, but none of these refers to Montenegro which is actually the topic of this research (Börsch-Supan and Brugiavini, 2001; Bikas, 2008; Brunetti and Torricelli, 2010; Temel Nalin, 2013).

The paper is designed to describe the socio-demographic characteristics of the respondents who participated in the survey of savings portfolio. After introduction and literature review, available dataset and methodology are described in the third section. Thereafter, the results of the analysis, based on six Decision Tree models that relate to the profile of respondents who have savings in Montenegro, are presented. In addition to the introduction, literature review and two mentioned sections, the paper contains a conclusion and references.

Generally, this paper points to the fact that savers in Montenegro have the biggest confidence in banks and insurance companies, while citizens have the least interest in paying contributions to voluntary pension funds and investing funds in government and corporate bonds. This result is a consequence of underdeveloped financial system, low level of citizens' confidence in financial institutions and poor supply of saving products. These listed facts give the possibilities for further researches on this topic, with the aim to improving the financial market of Montenegro.

## **LITERATURE REVIEW**

There are a few authors that have explored the socio-demographic characteristics of citizens from the perspective of savings and particular forms of preferred savings.

Doker et.al (2016) investigated how demographic determinants influenced saving ratios using panel data analysis between 1993 and 2013 on 20 transition economies. They found that unemployment rate, dependency in old age and population density had negative correlation with savings. They concluded that unemployment brought lowering income and savings. Lugauer et al. (2019) found that the number of dependent children is negatively correlated with household saving rates in China. Saving rates are significantly higher for urban households or those employed in the public sector. Households residing in urban areas have higher saving rates in part because they have a lower ratio of education expenditures to income. Curtis et al. (2017), analyzed how the different demographic profiles across Japan, China, and India have influenced each country's household saving rate. They showed that the rapid decline in the share of dependent children accounts for the majority of the increased saving rates in China and India. On the other hand, the decrease in Japan's saving rate was partially caused by the large and growing retirement-aged population. Tsega et al, (2014) also studied the determinants of household saving in Ethiopia. They found out that income, age, sex, marital status are the major determinants of household saving in Ethiopia. Chufa (2018) recognized the fact that the determinants of the household saving in Ethiopia are influenced by demographic and economic factors. Income is the most crucial factor of the household saving with positive influence on saving.

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