



ANALYSIS OF EMPIRICAL LITERATURE OF SAVING DETERMINANTS

Irma Didelija*

*Dzermal Bijedic University, Faculty of Economics, Mostar, Bosnia and Herzegovina

ABSTRACT: This paper deals with the analysis of the empirical literature of the determinants of saving. Capital accumulation in the form of savings is becoming an increasingly significant source of investment financing and economic growth. The review of the empirical literature determines what the statistically significant factors that determine savings are. Empirical works were obtained by proving the direction and strength of the relationship between the observed phenomena, using different methodology, with or without examining the maturity effects of particular saving factors. Statistically significant determinants of savings can be grouped into the following groups: financial determinants (deposit interest rate, financial market development, stock market development), demographic determinants (dependent population rate, life expectancy, urbanization rate), education and employment (education level, form employment), government policy (public revenues and expenditures, public savings / budget deficit, forms of social assistance), income, macroeconomic uncertainty (inflation, CPI changes), external factors (export / import ratio, current account balance, trade balance). The results of this paper provide the basis for building further savings models.

Keywords: Savings, Financial Determinants of Savings, Macroeconomic Determinants of Savings, Demographic Determinants of Savings.

1. INTRODUCTION

Securing investment funds is an essential issue for every national economy. The central problems of such financing are in fact the accumulation of necessary capital, but also its adequate distribution. With the openness of their own economies to foreign capital, countries in transition, those that move from centralized market organization to free markets, are trying to achieve market allocation of the same. However, such activities, in the opinion of most economists, lead to dependence on external capital inflows, which further implies a direct "spillover" of external economic shocks into the domestic economy.

In order to avoid the aforementioned negative reprisals when using foreign capital as a source of funds for financing investments and further economic growth, the literature emphasizes the importance of domestic sources of financing economic growth. Savings are predominantly mentioned as domestic sources of capital mobilization. Since savings are a significant domestic source of capital mobilization, then it is important to determine what factors affect savings.

Within the empirical studies studied, it is possible to observe a large number of determinants of different character that determine savings, such as the following groups: financial determinants (deposit interest rate, financial markets development, stock market development), demographic determinants (dependent population rate, life expectancy, urbanization rate), education and employment (education level, form of employment), government policy (public revenue and expenditure, public savings / budget deficit, forms of social assistance), income, macroeconomic uncertainty (inflation, CPI changes), external factors (export-import ratio) price, current account balance, commodity balance). All these savings factors can actually be grouped into three main groups of determinants: financial, macroeconomic and demographic determinants. By using different methodology, with or without examining the maturity of individual austerity factors, the mentioned studies obtained a proof of the direction and strength of the relationship between the observed phenomena.

The influence of the determinants of saving in this groups will be presented below, since the authors use a larger number of variables in the models. Therefore, such a review of the literature is considered more transparent.

2. RESEARCH METHODS

In order to achieve the set goal of this research, a detailed and systematic review of the current literature in the field of savings determinants, and in order to facilitate the creation of future models, appropriate qualitative methods were applied.

The inductive method was applied for inductive way of inference which, on the basis of the analysis of individual facts, led to the conclusion of the general court, from the observations of specific individual cases to the general conclusions.

The reliability of inductive inference depends directly on: the number of facts and cases investigated, the representativeness of the analyzed facts for a particular occurrence, and the degree of reliability of the meaning of the facts. The analysis of the inductive method must include the fundamental element of each inductive inference, which is the relation of the particular - the general.

The deductive method was applied for deductive way of inference in which special and individual conclusions were drawn from the general courts.

Deduction always presupposes knowledge of the general knowledge on the basis of which it is learned separately or individually.

The most important elements of the deductive method are the methods of: analysis, synthesis, abstraction, generalization and specialization.

Induction and deduction have one thing in common: it is the recognition of one phenomenon as the dialectical unity of the general and the particular.

Induction and deduction reveal the connection, relationship, unity of the special and the general, and with these characteristics they are highly dialectical methods of cognition. Induction is the initial, and deduction is the final process in scientific cognition, because cognition begins with individual cognition of the special, and ends with deductive systematic cognition of the special based on the general.

The method of analysis was used to break down complex concepts, judgments and conclusions into their simpler components and elements.

Analysis is the process of thinking in moving from the particular to the general, or deriving theorems from axioms according to established rules.

Two types of analysis were used: descriptive, when describing elements of a whole, and explicative, when attempting to explain a particular whole based on its parts.

The synthesis method was used to explore and explain reality through the synthesis of simple vessels into more complex ones.

Synthesis is a process of generalization in which more and more abstract concepts are created in comparison with previous concepts. Two types of synthesis were used: descriptive and explicit synthesis.

The method of generalization was used for generalizations which, from one particular term, came to a more general one, which is a degree higher than the other individual ones. From individual observations, general conclusions are drawn, which are only realistic if they are supported in reality.

The classification method was used to systematically and completely divide the general term into specific ones within the scope of the term. Science actually starts with classification. Based on knowledge of the nature of things, classification represents the systematic groups of objects, or the distribution of a series of related phenomena.

The compilation method was used to retrieve someone else's results of scientific research work, that is, other people's observations, attitudes, conclusions and insights.

The compilation method can be used in combination with other methods in scientific research, so that the work bears as much as possible the personal stamp of the author of the compiler, which, with a personal approach to writing a scientific or professional work, will correctly and habitually quote all that is from others took over.

3. FINANCIAL DETERMINANTS OF SAVINGS

The interest rate is the most significant "auxiliary variable" of both the Friedman and Keynes models. Interest rates can affect savings in different ways. On the one hand, there is a substitution effect, in which the rise in the interest rate increases the current costs relative to future consumption, causing the growth of savings. Savings thus appear as a substitute for current consumption.

On the other hand, there may be an income effect where rising interest rates may discourage savings as a result of the desire to receive an equal amount of money in the coming period, or a decrease in public savings in countries with high public debt. The effect of "human wealth" may also occur, because changing interest rates also means changing the present value of individuals' future work expectations. The direction of influence is the same as that of substitution effect.

The sign and the magnitude of the impact of the interest rate on savings may differ. Certain empirical studies highlight the positive effects of interest rates on savings in both developed and developing countries. [Nicholas \(2007\)](#), [Chaudhry et al. \(2014\)](#), using autoregressive distributed lag (ARDL) and error correction (ECM) methodology, find that higher interest rates mean more savings. The methodology used has allowed proving the significance of the effect of interest rate on savings both in the long and short term.

Other studies, by contrast, highlight the negative effect of interest rates on savings. [Thanoon and Baharumshah \(2005\)](#) show that interest rates in the short term have a negative impact on savings in Latin American countries. The authors applied the unit root and cointegration test to test the effect of interest rate on savings. [Kolasa and Liberda \(2015\)](#) using the regression method, they determine the negative impact of the interest rate on savings in Poland, but the weak positive impact for OECD countries. Several analyzes have found that interest rates do not have a significant impact on savings, such as [Bhandari et al. \(2007\)](#).

The development of financial markets is also a significant determinant of savings according to Friedman and Keynes's theory, especially for developing countries, since such countries must undergo a phase of financial liberalization. Financial liberalization is a complex process, so it can have a variable impact between countries. The direct impact of financial liberalization is an increase in the availability of consumer loans and a corresponding reduction in savings. The theoretical relationship between savings and financial development was established by [McKinnon \(1973\)](#) and [Shaw \(1973\)](#). The authors argue that a developed financial market is expected to contribute to the growth of savings as the efficiency of financial intermediation increases. Developed financial systems have the ability to offer alternative savings instruments that can better meet individual needs.

One of the most frequently mentioned variables that expresses the development and depth of financial markets is the degree of monetization of the economy, which is measured as the rate of the relationship between M2 (money plus quasi-money) and GDP [Ozcan et al. \(2003\)](#). Certain empirical studies show that the degree of monetization has an exclusively positive impact on savings such as: [Park and Shin \(2009\)](#), [Sahoo and Dash \(2013\)](#), and [Bayar \(2014\)](#), while [Horioka and Yin \(2010\)](#), highlight the negative impact of financial development on savings. [Nwachukwu and Odigie, \(2009\)](#), using error correction models (ECMs), find that there is no long-term impact of financial development on savings.

In a number of studies, credit constraints are used to measure financial development, that is, the amount of credit to the private sector (usually as a percentage of GDP), where relaxation of credit constraints has been found to lead to an increase in private savings [Ozcan et al. \(2012\)](#).

More recent econometric analyzes highlight the importance of introducing and developing a banking infrastructure variable in the analysis of savings determinants, eg number of banks, since deposits are still the most dominant form of savings in many countries [Pati and Shome \(2011\)](#), [\(Syden, 2014\)](#).

Stock market development can also be used as a substitute for financial development, as it represents an alternative to capital growth, ensures risk diversification, and ultimately, potentially, leads to increased savings. In the literature, different ways of measuring stock market development, such as market size, can be observed (the ratio of market liberalization to nominal GDP, [Bonser-Neal and Dewenter \(1999\)](#) or market capitalization (the ratio between market capitalization and GDP; [Ozcan et al. \(2012\)](#), the degree of market liquidity relative to the size of the economy (stock trading value / GDP) or rate of return (stock trading value / market capitalization). The results of studies show, in certain cases, a positive relationship between stock market development and savings, such as: [Levine and Zervos \(1998\)](#); [Bonser-Neal and Dewenter \(1999\)](#), and in some cases a negative direction of the relation (e.g., [Ozcan et al., \(2012\)](#)

4. DEMOGRAPHIC DETERMINANTS OF SAVINGS

The implications of the life cycle hypothesis have resulted in the inclusion of various austerity factors, related to the age structure of the population, in empirical models, such as the proportion of the working population relative to retirees ([Schmidt-Hebbel and Serven, 2002](#)) or the rate of dependent population (especially young, especially old, or summary variable), where the growth of this rate is an inverse function of saving.

Dependency rates have a more significant impact on savings, especially in underdeveloped economies, as higher levels of dependency lead to a reduction in disposable income (high costs) and savings (Aric, 2015; Bayar, 2014; Issahaku, 2011). However, Husain (1995) in their research using the cointegration method find no significant impact of this demographic variable on savings, unlike Ahmad *et al.* (2006), who found a significant negative impact of the degree of dependent population (population under 15 and over 64) on savings both in the long and short term, while Kwakwa (2013) highlight the negative impact of long-term dependency rates on savings, but this determinant is not statistically significant in the short term.

Life expectancy can also, according to life cycle theory, act on savings. Increasing life expectancy results in higher savings rates as longer retirement life is expected, and a greater return on accumulated human capital is required. Doshi (1994) incorporates life expectancy into the model and, by regression tests, finds that extending life expectancy leads to a rise in savings from precaution as a longer life expectancy is expected after retirement. However, Ozcan *et al.* (2012) highlight the negative impact of this variable on savings in Turkey.

Urbanization rate, as a percentage of the total population living in urban areas (Ozcan *et al.*, 2012), according to empirical studies, it has a negative impact on savings. Specifically, rural populations face more pronounced income volatility, and therefore increasing urbanization rates reduce the need for savings Aric (2015).

Denizer *et al.* (2002) conducted an analysis of the impact of education and employment patterns on savings. Generally, the model included only demographic variables: rural and urban population rate, household size, household responsible person, age of population, level of education and form of employment. Regression was used as a methodological tool. The authors point out that persons with higher levels of education are usually employed (wage workers), so this category saves less, regardless of gender, while Ozcan *et al.* (2012) showed that a higher proportion of women in the workforce further leads to a reduction in private savings. People with lower levels of education are mostly self-employed, so according to Denizer's analysis, they save more.

Some group research highlights a positive link between education and savings, as opposed to individual authors' analyzes Rijckeghem and Ucer (2009), and Laurine *et al.* (2013) which highlight the negative impact of education on austerity. As an implication of the former, it can be observed that the inclusion of unemployment in the savings model is significant (Athukorala and Tsai, 2003).

5. GOVERNMENT POLICY AS A DETERMINANT OF SAVINGS

Central government policy can have an impact on savings in various forms, whether through fiscal policy provisions or public savings, which is a significant implication of Keynes's theory. Neoclassical life-cycle models show that a reduction in government savings leads to increased consumption and a reduction in aggregate savings, shifting tax burdens from present to future generations. On the contrary, Keynes's model argues that greater aggregate savings temporarily reduce public savings. Ricardian theory, again, argues that the growth of public savings does not have a significant impact on total national savings, since the growth of public savings leads to a decrease in the private one by the same amount. There are also a large number of empirical papers dealing with this topic.

Nicholas (2007), and Shaikh and Sheikh (2013), and Esmail (2014) point out that high government spending has the effect of reducing savings, especially if they are expressed in the form of public debt growth. The life-cycle hypothesis also highlights the negative impact of the reduction in public savings on the private, as there is a rise in consumption that discourages the growth of savings. Pradeep and Pravakar (2009), with their study confirmed that public savings has a significant impact on private ones. The strictly defined postulates of Ricardian theory have been refuted by Ozcan *et al.* (2003), where empirical research has found that public savings does not tend to "squeeze" private. Chaudhry *et al.* (2014) using the ARDL and ECM methodology show that the budget deficit has a negative impact on savings both in the long and short term, while budget revenues are a negative function of saving in the short term, that is, a positive function in the debt.

Given that the primary motive for savings is safety, then state social assistance / insurance programs can also be considered as a determinant of savings, and in the domain of central government policy. The life-cycle hypothesis model shows that stronger social security programs diminish private savings as they weaken the precautionary motive (Evans, 1983), and this has been confirmed by empirical studies (e.g., (Feldstein, 1980;1995), demonstrates the negative impact of the pension system on private savings). In general, political instability, according to Kwakwa (2013), has a negative impact on long-term savings.

6. INCOME AS A DETERMINANT OF SAVINGS

The longest-running debate regarding the determinants of savings is driven by the effects of income levels on savings and the issue of income measurement. The debate has already begun under central savings theories. The life-cycle hypothesis has been criticized for rejecting the existence of a positive relationship between savings and income. [Modigliani \(1993\)](#), in their recent studies, confirms the existence of a positive relationship between income and savings in poor countries. In poor economies, significant income acceleration allows savings, as a form of asset accumulation, to balance consumption throughout the life cycle. The theoretical postulate that higher income rates produce higher savings rates has also been confirmed by a series of empirical analyzes for both underdeveloped and advanced economies ([Waithima, 2008](#)). Waithima conducted an analysis of explicitly private savings using regression, VAR, and ECM models. Also, workers' remittances, as a form of remuneration for work, have a positive impact on savings both in the long and short term ([Chaudhry et al., 2010](#); [Syden, 2014](#)).

7. MACROECONOMIC DETERMINANTS OF SAVINGS

In most savings studies, inflation is used as a common measure of future uncertainty. According to buffer stock theories of savings, greater uncertainty is a positive function of savings, since individuals who are risk averse during this period save money due to precaution.

Empirical analyzes also show the positive impact of inflation on savings (with rising inflation and savings), precisely because of the creation of a precautionary motive, but also the fact that inflation is linked to income growth in the expansionary phase of the business cycle. ([Chaudhry et al., 2014](#)) by analyzing the determinants of savings in Pakistan, they confirm that inflation has a significant positive impact on savings both in the short and long term. Inflation also raises nominal interest rates, producing higher income and savings. However, [Loayza et al. \(2000\)](#) point out that if the interest rate is not adjustable to changes in the inflation rate, then rising inflation will reduce the real interest rate by discouraging savings in the form of financial assets. [Kolasa and Liberda \(2015\)](#) considering both private and household savings by regression, they also find that consumer price growth is a positive function of saving.

The ratio of export and import prices and the current account deficit, or in some studies, foreign trade balance relative to GDP ([Hussain and Brookins, 2001](#)) are often referred to as external variables and can have a significant impact on savings in open economies, regardless of their level of development. The analysis of the causality of savings and the relationship between export and import prices is driven by Herberger-Laursen-Metzler's hypothesis that the deterioration of export-import prices leads to a decrease in income and savings. Empirical studies have shown that if there is an improvement in the export-import price ratio, savings are expected to increase due to the positive impact on income and wealth. [Nicholas \(2007\)](#) and [Kwakwa \(2013\)](#) determine the positive, significant impact of export-import prices on savings both in the long and short term. It is usually expected that the current account deficit causes a partial decrease in private savings, because external savings tend to substitute for domestic savings. Empirically, [Loayza et al. \(2000\)](#), demonstrate that an increase in the current account deficit leads to a decrease in domestic savings, which is substituted by external savings, while [Ayalew \(2013\)](#), establishes the statistical insignificance of this variable in the long run.

8. CONCLUSION

A review of the empirical literature reveals that there is no strictly established order of significance and the degree of influence of certain determinants on savings. The impact also depends on the cultural, political characteristics of particular economies, population, experience and the like. However, the role of savings in all economies is undoubtedly irrespective of the level of development, and it is therefore important to empirically test the determinants that affect savings.

In their research, the authors used different variables, ie savings determinants, as independent model variables. Also, depending on the time when the study was written, different statistical and econometric methodology was used.

It can be concluded that the authors were mainly engaged in research on total / aggregate savings or private savings. Few authors have addressed the study of household savings alone ([Ahmad et al., 2006](#); [Athukorala and Tsai, 2003](#); [Denizer et al., 2002](#); [Evans, 1983](#); [Horioka and Yin, 2010](#); [Pati and Shome, 2011](#); [Syden, 2014](#)).

The most common variables used by the authors in the models are those used by basic theoretical models: income, GDP growth, interest rate, and dependent population share. In addition to these basic

theoretical variables, the following variables are often included in the models: M2, loans to the private sector, current account balance, export-import price ratio, inflation and public expenditure.

From a methodological point of view, it can be seen from the literature review that until 2003, regression analysis was the dominant methodological tool for determining the relationship between savings and its determinants (Athukorala and Tsai, 2003; Bonser-Neal and Dewenter, 1999; Denizer *et al.*, 2002; Doshi, 1994; Evans, 1983; Feldstein, 1980;1995; Hussain and Brookins, 2001; Levine and Zervos, 1998; Loayza *et al.*, 2000; Ozcan *et al.*, 2003).

In the coming years, the authors began to apply econometric, vector models more significantly in their works (AbuAl-Foul, 2010; Ahmad *et al.*, 2006; Alguacil *et al.*, 2004; Ayalew, 2013; Bayar, 2014; Bhandari *et al.*, 2007; Chaudhry *et al.*, 2014; Kwakwa, 2013; Mehrara and Maysam, 2013; Mohan, 2006; Nicholas, 2007; Nurudeen, 2010; Nwachukwu and Odigie, 2009; Olajide, 2009; Pradeep and Pravakar, 2009; Sahoo and Dash, 2013; Sajid and Sarfraz, 2008; Shah, 2015; Thanoon and Baharumshah, 2005; Verma, 2007; Waithima, 2008). Regression is also used after 2003 (Aric, 2015; Horioka and Yin, 2010; Kolasa and Liberda, 2015; Laurine *et al.*, 2013; Park and Shin, 2009; Pati and Shome, 2011; Rijckeghem and Ucer, 2009).

Combining methods is also observed (AbuAl-Foul, 2010; Bayar, 2014; Chaudhry *et al.*, 2014; Esmail, 2014; Issahaku, 2011; Kwakwa, 2013; Nurudeen, 2010; Shah, 2015; Shaikh and Sheikh, 2013; Syden, 2014) etc. The above is presented in more detail in the appendix to the paper.

In the continuation of the research, it would be useful to test the established conclusions from previous empirical works on a concrete model of both developed and underdeveloped economies using recent statistical and econometric analysis. The most significant contribution of this paper is the creation of a basic basis for the development of further savings models, both in terms of model variables and in the scientific and research methodology to be applied.

Appendix: A summary of the literature

Author and year of publication of the research	Variables included in the model	Applied research methodology
Feldstein (1980)	Private savings, private income growth rate, dependent elderly and younger population, benefit-to-earnings ratio, older men's share of the workforce	Regression
Evans (1983)	Household savings, disposable income, retained corporate income, household wealth, social security, transfer payments, population size	Regression
Doshi (1994)	Aggregate savings, dependent elderly and younger population rate, life expectancy, average GNP per capita, average real GDP growth	Regression
Feldstein (1995)	Private savings, disposable income per capita, household wealth per capita, real social security per capita	Regression
Husain (1995)	Aggregate savings, working age population, income growth, M2, net wealth, public debt	Cointegration
Levine and Zervos (1998)	Aggregate savings, real GDP growth per capita, stock market liquidity, banking development, productivity, stock market size, stock market volatility, market capitalization, total stock trading value, banking rate of return, loans to the private sector, international integration	Regression
Sinha and Sinha (1998)	Private savings, public savings, GDP	ADF, Johannes cointegration test, Granger causality test
Bonser-Neal and Dewenter (1999)	Private savings, real interest rate on bank deposits, real GDP growth, dependent population rate, per capita income, current account balance, fiscal balance, stock market development (trading value / GDP; market capitalization)	Regression
Loayza <i>et al.</i> (2000)	Private Savings, Real GDP, Real GDP Growth, Real Interest Rates, M2, Export-Import Price Index Ratio, Urbanization Rate, Dependent Younger and Older Population Rates, Public Savings, Private Sector Loans, Inflation	GMM, Regression
Anoruo and Ahmad (2001)	GDP, domestic savings	ADF, Johansen cointegration test, Granger causality test
Hussain and Brookins (2001)	Aggregate savings, real GDP per capita, life expectancy, share of agricultural production in GDP, dependent younger and older population rate, labor growth, urban population rate, social security (% of GDP), income volatility, inflation, share of woman in labor force, average years of schooling, public savings, tax revenues, public expenditures, fiscal balance, loans	Regression

	to the private sector, M2, deposit interest rate, financial development, foreign trade balance (% of GDP), current account balance	
Denizer <i>et al.</i> (2002)	Household savings, rural and urban population rate, household size, durable household assets, income size, household responsible person, population age, education level, employment (sources of income, employment sector)	Regression
Schmidt-Hebbel and Serven (2002)	Aggregate savings, financial reforms, financial liberalization	Case analysis
Athukorala and Tsai (2003)	Household savings, real disposable income growth rate, real disposable income, dependent younger and total population rate, unemployment rate, real bank deposit interest rate, inflation, private sector loans, financial liberalization (dummy), social security payments, corporate savings, public savings, wealth of economy	ADF, KPSS, ECM, Regression
Ozcan <i>et al.</i> (2003)	Private Savings, Public Savings, M2, Deposit Interest Rate, Private Sector Credit, Dependent Younger and Older Rates, Urbanization Rate, Life Expectancy, Export-Import Price Index Ratio, Current Account Balance, Real GDP Per Capita, Real GDP Growth Rate per capita, inflation, political instability (dummy), economic crisis (dummy)	ADF, Regression
Alguacil <i>et al.</i> (2004)	Aggregate savings, foreign direct investment, GDP	ADF, PP, Granger causality test
Thanoon and Baharumshah (2005)	Aggregate Savings, Foreign Savings, Deposit Interest Rate, Dependent Population Rate, GDP Growth, Per Capita Income, M2, Current Account Balance, Exports (% of GDP)	Unit root test, cointegration
Ahmad <i>et al.</i> (2006)	Household savings, deposit interest rate, inflation, public savings, per capita income growth, per capita income level, dependent younger and older population	ADF, cointegration, ECM
Mohan (2006)	Aggregate Savings, GDP	ADF, cointegration (VAR, VEC), Granger causality test
Bhandari <i>et al.</i> (2007)	Private Savings, Central Government Expenditure, M2, Deposit Interest Rate, Per Capita Income, Inflation, Demographic Variables	Unit root test, cointegration
Nicholas (2007)	Aggregate Savings, Real GDP Growth Rate, Foreign Savings, Deposit Interest Rate, Central Government Expenditure, Export-Import Price Index Ratio	Cointegration, ECM
Verma (2007)	Aggregate Savings, Gross Domestic Investment, GDP	Perron's unit root model, ARDL
Sajid and Sarfraz (2008)	Private saving, public saving, aggregate saving, real GDP, real GNP	ADF, cointegration, ECM, Granger causality test
Waithima (2008)	Private Savings, Export Value, Consumption, Import Value, GDP Growth, GDP Growth Per Capita, Central Government Expenditure, Inflation, Population Growth Rate	ADF, regression, VAR, ECM, Granger causality test
Nwachukwu and Odigie (2009)	Private savings, real GDP growth per capita, deposit interest rate, fiscal balance, M2, public savings	ADF, PP, cointegration, ECM
Olajide (2009)	GDP, aggregate savings, foreign direct investment	ADF, PP, cointegration, TYDL
Park and Shin (2009)	Aggregate savings, per capita income, income growth rate, life expectancy, M2, dependent total and younger population rate	Regression
Pradeep and Pravakar (2009)	Total savings, private savings, GDP growth, dependent population rate, deposit interest rate, number of banks, foreign savings, M2, financial liberalization (dummy), share of agricultural production in GDP, inflation	VAR, Granger causality test, FEVD
Rijckeghem and Ucer (2009)	Private savings, rural and urban population rate, working-age and dependent population, number of children in households, deposit interest rate, household ownership, form of employment, size of enterprise, income, educational level, housing conditions	Regression
AbuAl-Foul (2010)	Aggregate Savings, GNP	ADF, cointegration, Granger causality test
Horioka and Yin (2010)	Household savings, loans to the private sector (% of GDP), rate of dependent population	Regression
Nurudeen (2010)	Aggregate Savings, GNP	ADF, cointegration, Granger causality test
Issahaku (2011)	Aggregate Savings, Household Savings, Population Age Structure, Education, Form of Employment, Dependent Population Rate, Income Level, Household Expenditure,	Interview, regression

	Household Property Value	
Pati and Shome (2011)	Household Savings, Income, Inflation, Deposit Interest Rate, Banking Sector Expansion, Physical vs. Financial Savings	Regression
Ozcan <i>et al.</i> (2012)	Private Savings, Public Savings, M2, Deposit Interest Rate, Private Sector Credit, Dependent Younger and Older Rates, Urbanization Rate, Life Expectancy, Export-Import Price Index Ratio, Current Account Balance, Real GDP Per Capita, Real GDP Growth Rate -a per capita, inflation, political instability (dummy), economic crisis (dummy), share of university graduates in the workforce, market capitalization, stock trading / GDP, labor market activity ratio, labor force education, form of employment	ADF, Regression
Ayalew (2013)	Aggregate savings, real per capita income growth, deposit interest rate, inflation, fiscal balance, current account balance, M2	ARDL, ECM
Kwakwa (2013)	Aggregate Savings, Export-Import Price Index Ratio, Deposit Interest Rate, Income, Dependent Population Rate, M2, Political Instability (dummy)	Unit Root Test, Cointegration, ECM
Laurine <i>et al.</i> (2013)	Aggregate savings, age structure, marital status, religion, education, household position, household size, type of accommodation, place of residence, employment status, income, number of household employees, monthly household expenses	Regression
Mehrara and Maysam (2013)	Aggregate savings, GDP, labor, fuel trading revenues, quality of human capital (education)	ADF, PP, ARDL, ECM
Sahoo and Dash (2013)	Aggregate savings, private savings, income growth, deposit interest rate, real per capita income, dependent population rate, public savings, share of agricultural production in GDP, foreign savings, financial development index	Unit root test, cointegration
Shaikh and Sheikh (2013)	Aggregate savings, real GDP growth, market capitalization, public debt, inflation	Regression, ADF, PP, D-W, BG tests
Bayar (2014)	Aggregate savings, ratio of bank deposits to total banking assets, banks' liquid liabilities (% of GDP), loans to the private sector, market capitalization, real GDP growth, deposit interest rate, dependent population rate	Unit root test, regression
Chaudhry <i>et al.</i> (2014)	Aggregate Savings, M2, Deposit Interest Rate, Inflation, Fiscal Balance, Public Expenditure, Public Savings, Public Income	Cointegration, ARDL, ECM
Esmail (2014)	Aggregate Savings, Real GDP Growth, Consumption Rate, Inflation, Investment, Unemployment Rate	Regression, D-W, BG tests
Syden (2014)	Household savings, income level, inflation, public savings, M2, deposit interest rate	Cointegration, ECM, Regression
Aric (2015)	Aggregate savings, labor and dependent population rates, rural and urban population rates, GDP growth per capita, inflation, M2	Regression
Kolasa and Liberda (2015)	Aggregate Savings, Private Savings, Household Savings, Export-Import Price Index, Productivity, Urbanization Rate, Dependent Older Population Rate, Unemployment Rate, Deposit Interest Rate, CPI, GDP Volatility, M2, Real Disposable Income Per Capita, Loans to Private sector, financial wealth of households	Regression
Shah (2015)	Aggregate Savings, GDP	Unit root test, cointegration, ECM, Granger causality test

Source: Author

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