

THE ROLE OF NATIONAL SAVINGS ON GENERATION FIXED INVESTMENT CAPITAL

Akmal Athamov

*National University of Uzbekistan named after Mirzo Ulugbek,
University str. 1, Tashkent, Uzbekistan
E-mail: atkhamov@gmail.com*

Abstract. The purpose of this study is to examine the relationship between savings and investment spending. In this paper it would be investigated the role of national savings on generation investment capital. The main objective of this work is analyzing national savings in European countries and determination of interrelation of national savings and investments rate, and consequently define the role of investment on providing economic growth. During the analysis it will be made some identical equations, through which we will define interaction of savings and investment.

Interrelation between national savings and investments will be analyzed through the indicator Gross Domestic Product. Due to the calculation of this indicator by expenditures method, it should be taken into consideration such indicators like consumption, investments, and government spending. Besides that growth of GDP is the main indicator of the economic growth. Consequently during analysis it will be defined main factors affecting to investment spending, and their results. For analyzing and approving theoretical information it will be used statistical data of European Union countries.

Keywords: national savings, fixed investment capital, economic growth, gross domestic product, investment rate, effectiveness of self-financing, investment spending, and gross fixed capital formation.

Jel: E22 - Capital; Investment; Capacity.

1. Introduction

Investments play one of the main roles either in long-run economic cycles or in the short-run cycles as investment is the most volatile component of the Gross domestic product of the country. Investments affect to the fluctuations in the economy's output of goods and services. So that providing sustainable economic growth depends on investment rate in the country.

According to the empiric investigations the main source of financing investment projects on the corporation or factory degree is own capital, which is formulated during

the long period like amortization and not distributed income. But when there is a lack of capital, corporation should get credit from banks or from credit organizations. Financial capital which is formulated at such financial organizations is savings, or one can say that the main part of the national savings.

Effectiveness of self-financing depends on the amount of own capital of the organization. And this indicator will be effective if corporation is able to finance 60% of the investment project (Chinenov *et al.* 2007). Unfortunately not all companies and corporations are able to use self-financing method. So that they use financial services of banks and credit organizations, or they can issue bonds or shares for accumulating free capital. It should be noted that investments play critical role on formulating national production power of the economy in long-term period. As investments create new capital goods, the high level of investments indicate to rapid growth of the capital funds. Consequently rapid growth of the capital funds affects the economic growth.

Above it was mentioned that when corporation or company is not able to commit investment project itself, administration of the organization or company decides to borrow credit from banks or borrow money from public on a long-term basis by issuing or selling debt securities that are generally called bonds. Borrowing money from public or getting credit from banks corporations and companies will get money which is accumulated during the long period, which is called savings.

Competition between financial institutions may have resulted in lower savings. And there is one reason, which is called real interest rates, and this reason may directly affect to savings ratio.

Investment has been defined as the purchase of new capital goods, which is fixed investment, such as machinery and buildings, including housing, and investment in stocks (Tucker 2008). In modern economics definitions of capital becoming more broader and these definitions are including such concept like reputation, management structure, technical knowledge and the formation of human capital through education and training. This paper will be mainly concerned with the category of fixed investment. Investment is a flow concept, because it is concerned with the creation of new capital, whereas capital is a stock concept, because it is concerned with the accumulated volume of capital. To calculate the capital stock, it is necessary to know the capital additions, those are the rate of investment, and capital losses.

The main role of financial markets is transforming savings to fixed investment (Adams 1989). Without financial markets organizations should be on state to finance all new investment projects themselves. One of the main resources, which are being mobilized in financial markets, is bank credits. In this case not the least of the factors for borrowers are discount rates, which are being defined according to the demand and supply for loan capital, interest rates for deposits, rate of inflation in the country, expectations of investors on perspectives of the national economy. Necessity for long-term credits is based on deficiency of own capital in companies and the need for expanding production. Under these conditions appear long-term credits relations, which are can give to borrower to get capital on time.

2. Savings and capital accumulation in national economy

In national economy there is an indicator – savings rate, and this indicator is able to indicate both social and economic situation in the country. Besides that according to the savings rate economists are able to analyze financial situation in the country. Because saving is income, which had not been spent, or deferred consumption, and saving would be formulated by putting money aside as deposit to bank accounts. Saving also includes reducing expenditures, such as recurring costs. In terms of personal finance, saving specifies low-risk preservation of money, as in a deposit account, versus investment, wherein risk is higher (Vakhabov *et al.* 2010). In national economy saving will be on desirable degree only when gross supply in the country will be on desirable degree. Because as it was mentioned above saving is directly connected with consumption. National saving rate in the country might be calculated according to the below mentioned formula:

$$S=Y-C-G$$

where is,

S – National saving

Y – Production volume

C – Consumption

G – Government spending

The main part of national savings would be formulated by households, which are personal savings. Within personal finance, the act of saving corresponds to nominal preservation of money for future use (Mankiw *et al.* 2007, Stutz *et al.* 2007). A deposit account paying interest is typically used to hold money for future needs, notably an emergency fund, to purchase capital, like car, house, vacation, etc., or to give to someone else.

Within personal finance, money used to purchase shares, put in a collective investment scheme or used to buy any asset where there is an element of capital risk is deemed an investment. This distinction is important as the investment risk can cause a capital loss when an investment is realized, unlike cash saving(s).

In many instances the terms saving and investment are used interchangeably. For example many deposit accounts are labeled as investment accounts by banks for marketing purposes. But asset, which is being accumulated in bank account might be saving or investment. Because banks' functional task is accumulating free money from households and transfer to real sector of economy, i.e. to production.

The definition of capital accumulation is subject to controversy and ambiguities, because it could refer to a net addition to existing wealth, or to a redistribution of wealth. If more wealth is produced than there was before, a society becomes richer; the total stock of wealth increases. But if some accumulate capital only at the expense of others, wealth is merely shifted from A to B. In principle, it is possible that a few people or organizations accumulate capital and become richer, although the total stock of wealth of society decreases. But it should be noticed that capital may increase by increasing the total wealth of society but few people become richer while most of the people become comparatively poorer. That is actually the tendency of the capital accumulation discovered by Karl Heinrich Marx (Marx 1933). Most often, capital

accumulation involves both a net addition and a redistribution of wealth, which may raise the question of who really benefits from it most.

In economics, accounting and Marxian economics, capital accumulation is often equated with investment of profit income or savings, especially in real capital goods. The concentration and centralization of capital are two of the results of such accumulation.

But capital accumulation can refer variously to (Neshitoy 2007):

- Real investment in tangible means of production;
- Financial investment in assets represented on paper, yielding profit, interest, rent, royalties, fees or capital gains;
- Investment in non-productive physical assets such as residential real estate or works of art that appreciate in value;
- “Human capital accumulation”, i.e., new education and training increasing the skills of the (potential) labor force which can increase earnings from work.

Non-financial and financial capital accumulation is usually needed for economic growth, since additional production usually requires additional funds to enlarge the scale of production. Smarter and more productive organization of production can also increase production without increased capital (Drach *et al.* 1993; Lipsits *et al.* 2004; Harberger 2006). Capital can be created without increased investment by inventions or improved organization that increase productivity, discoveries of new assets (oil, gold, minerals, etc.), the sale of property, etc.

Accumulation can be measured as the monetary value of investments, the amount of income that is reinvested, or as the change in the value of assets owned (the increase in the value of the capital stock). Using company balance sheets, tax data and direct surveys as a basis, government statisticians estimate total investments and assets for the purpose of national accounts, national balance of payments and flow of funds statistics. Usually the Reserve Banks and the Treasury provide interpretations and analysis of this data. Standard indicators include Capital formation, Gross fixed capital formation, fixed capital, household asset wealth, and foreign direct investment (Kireyev 2001).

Organizations such as the International Monetary Fund, UNCTAD, the World Bank Group, the OECD, and the Bank for International Settlements used national investment data to estimate world trends. The Bureau of Economic Analysis, Eurostat and the Japan Statistical Office provide data on the USA, Europe and Japan respectively.

3. Investment and main factors affecting to investment

Resources in an economy can be used to produce goods and services for consumption, or to add to the stock of fixed capital.

The act of investment usually involves abstaining from current consumption in order to acquire assets, which raise the productive potential of the economy, and therefore the possibilities for future consumption. In another sense they are similar, both being types of spending create income for others in the economic system.

In spite of that investment is highly volatile, and through its impact on productivity affects both supply and demand sides of the economy. The majority of investment

expenditure is on fixed capital formation rather than inventories (Atkinson *et al.* 2007). Investment may be classified by the type of asset. For example, investment in machinery and equipment, investment in transport and equipment, investment in dwellings, investment in other buildings, and investment in intangible fixed assets. In addition, investment may be classified by sectors of economy, for example, business investment, government investment, private dwellings, and investment for national health services.

There are several factors, which may affect to investment processes. Now we start to analyze these factors. According to the earliest theories of investment the rate of interest is the compensation for minimized current consumption. American economist Irving Fisher used the rate of interest to calculate the present value of an expected future stream of income. The decision on whether to invest or not will depend on the relationship between the rate of interest (r) and the marginal efficiency of investment. In Figure 1 it is presented that with interest rate r_1 , it will be profitable to invest in all projects up to I_1 .

Second factor affecting to investment is profitability. There are at least 3 reasons why changes in profitability might be associated with changes in private sector investment:

1. Higher profits in one of the sectors of economy indicate a more favorable return on capital, which may encourage investors to invest;
2. Higher profits may improve business confidence and raise the expected future return on any project. An outward shift of the marginal efficiency of investment schedule might then raise investment at any given rate of interest. That is mean demand for investment will raise in spite of high rates of interest;
3. Higher profits may raise investment by reducing its cost, because, funds generated internally are cheaper than those obtained from the capital market.

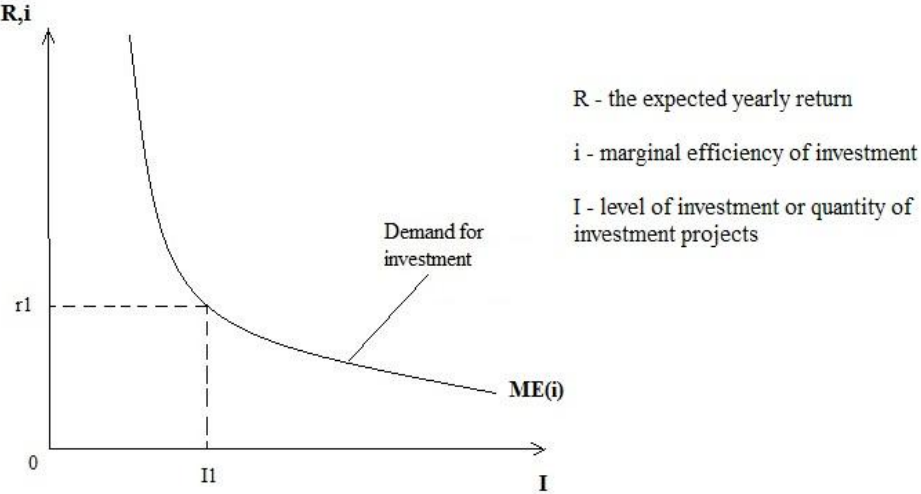


Fig.1. The investment demand schedule (source: Griffiths *et al.* 2004)

Third factor affecting investment decisions is public policies, which may also influence to investment in private sector (Griffiths *et al.* 2004; Seleznev 2006). For example, changes in the rate of taxation of company profits, or in the capital allowances which can be set against tax, are believed by many to significantly affect levels of investment. Government may force a tax credit for investments on Research and Development for stimulating spending to this area. But it should be noted that defining empirical relation between taxation and investment is very difficult. One problem is that simultaneously with the changes in taxation rates other factors will also change, which are affecting to the volume of the desired capital stock, such as the expected future marginal product of capital and real interest rates.

It is difficult to define the “pure” effect of changes of taxation rates to investment (Shenkman 1994). Another problem is that changes in tax legislation are not made accidentally, but according to the assessment of economic conditions by government. For example, government will reduce taxes on investment in situations where it is expected a significant reduction in investment costs, in order to encourage them to grow. But low taxes on capital will be associated by people with low investment rate period, and tax cuts could lead to a decrease in investment spending. However, an interesting study was conducted by Jason Cummins and R. Glenn Hubbard from Columbia University, and Kevin Hassett, who is a member of the board of directors of the Federal Reserve System of USA (Abel *et al.* 2008). These authors found with empirical way the flexibility is about 0.66. Therefore, according to their estimates, the tax changes that reduce the cost of capital for the user by 10% lead to an increase in aggregate investment approximately to 6.6%, which is quite a significant value. Most previous studies determined this flexibility to be about 0.25 (Abel *et al.* 2008).

Another factor, which will affect to investment processes, is inefficiency of capital market. Because inefficient banking system and capital markets may prevent representatives of the real sector of economy from obtaining financial resources from capital markets.

4. Interaction between savings and investment

Saving is closely related to investment. By not using income to buy consumer goods and services, it is possible for resources to instead be invested by being used to produce fixed capital, such as factories and machinery. Saving can therefore be vital to increase the amount of fixed capital available, which contributes to economic growth.

However, increased saving does not always correspond to increased investment. This means that saving may increase without increasing investment, possibly causing a short-fall of demand rather than to economic growth. In the short-run, if saving falls below investment, it can lead to a growth of aggregate demand and an economic boom. In the long term if saving falls below investment it eventually reduces investment and detracts from future growth. Future growth is made possible by foregoing present consumption to increase investment.

To understand how investment spending is financed, we will analyze the relationship of savings and investment spending. Every individual of the national

economy earns income, and makes spending from this income. We should pay attention that whole income will be totally spent. So that,

$$\text{Total income} = \text{Total spending}$$

Income may be spent for consumption or saving. So that,

$$\text{Total income} = \text{Consumption} + \text{Saving}$$

At the same time individuals' spending will consist of spending for consumption and/or for investment. We can write it with the following way:

$$\text{Total spending} = \text{Consumption} + \text{Investment}$$

By putting these identical equations, we can get followings:

$$\text{Consumption} + \text{Saving} = \text{Consumption} + \text{Investment}$$

By subtracting “consumption” from both sides of the identity, we get:

$$\text{Saving} = \text{Investment}$$

But it should be said that such identity will be in simplified economy, where is no government and no interaction with other countries.

Bringing these realistic complications back into the discussed problem changes things in two ways. First, individuals of the national economy are not the only parties who are able to save. Every year the government can save, too. When government collects more tax revenue than it spends, the difference is called a budget surplus and is equivalent to savings by government. If, government spending exceeds tax revenue, there is a budget deficit, which is a negative budget surplus. In this case we often say that the government is “dissaving”. We shall define the term budget balance to refer to both cases, with the understanding that the budget balance can be positive (a budget surplus) or negative (a budget deficit) (Krugman *et al.* 2011). Consequently,

$$\text{National savings} = \text{Private savings} + \text{The budget balance}$$

and,

$$\text{Private savings} = \text{Disposable income (income after taxes)} - \text{Consumption}$$

Second, every country is part of a wider world economy. So that savings need not be spent on physical capital located in the same country in which the savings are generated. That is because the savings of people who live in any one country can be used to finance investment spending that takes place in other countries. So any given country can receive inflows of funds, which are foreign savings that finance investment spending in the country. Any given country can also generate outflows of funds, which

are domestic savings that finance investment spending in another country. The net effect of international inflows and outflows of funds on the total savings available for investment spending in any given country is known as the **capital inflow** into that country.

$$\text{Capital inflow} = \text{Total inflow of foreign funds} - \text{Total outflow of domestic funds to other countries}$$

Like the budget balance, a capital inflow can be negative, because, more capital can flow out of a country than flows into it. In Table 1 are shown capital inflows in European Union for the period 2004-2008, and according to the statistical data during the last 3 years in European Union there were negative capital inflows, because of higher level of outflow than inflow of capital.

Table 1. Capital inflow in European Union (Prepared by author according to statistical data of OECD: Key tables from OECD 2010)

Years	2004	2005	2006	2007	2008
Total inflow of foreign direct investments (Mln USD)	230 952	573 183	638 587	810 471	469 615
Total outflow of foreign direct investments (Mln USD)	281 845	532 598	662 661	883 596	634 725
Capital inflow (Mln USD)	-50 893	40 585	-24 074	-73 125	-165 110

It’s important to note that, from a national perspective, a dollar generated by national savings and a dollar generated by capital inflow are not equivalent (Krugman *et al.* 2011). Yes, they can both finance the same dollars’ worth of investment spending, but any dollar borrowed from a saver must eventually be repaid with interest. A dollar that comes from national savings is repaid with interest to someone domestically – either a private party or the government. But a dollar that comes as capital inflow must be repaid with interest to a foreigner. So a dollar of investment spending financed by a capital inflow comes at a higher *national* cost – the interest that must eventually be paid to a foreigner – than a dollar of investment spending financed by national savings.

So the application of the savings – investment spending identity to an economy that is open to inflows or outflows of capital means that

$$\text{Investment spending} = \text{Savings}$$

$$\text{Savings} = \text{National savings} + \text{Capital inflow}$$

That is, in an economy with a positive capital inflow, some investment spending is funded by the savings of foreigners. And in an economy with a negative capital inflow

(a net outflow), some portion of national savings is funding investment spending in other countries.

Table 2. Savings and Investment spending in European Union (15 countries) (Prepared by author according to the statistical data of Eurostat 2011)

Years	2006	2007	2008	2009	2010
Gross savings (Mln Euros)	2300776,1	2518039,2	2379434,5	1951631,1	2076758,3
Gross savings % of GDP	21.03	21.85	20.71	17.93	18.36
Investment spending by private sector (Mln Euros)	1,985,085.5	2,135,702.3	2,088,993.1	1,753,206.8	1,798,758.9

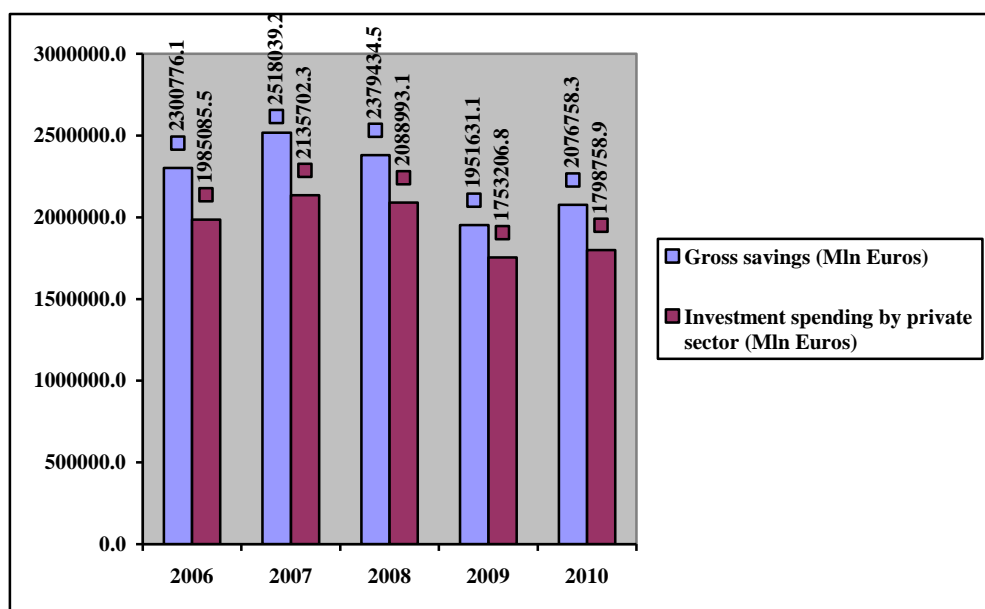


Fig. 2. Savings and Investment spending in European Union (15 countries) (Prepared by author according to the statistical data of Eurostat 2011)

In Table 2 and Figure 2 we can see savings and Investment spending in European Union (15 countries), and according to the data we can say that during the period 2006-2010 savings-investment spending identity were hold. It means that identity total income equals total investment is true, and savings and investment spending are interacted empirically.

5. Conclusions

The main condition for providing real sector of economy with capital resources and consequently providing sustainable economic growth is purposeful for every national economy. But real sector of economy should be provided with financial resources for account of internal capital of a country. Because, as it was mentioned above national savings would be very cheap financial resource instead of foreign investment. Besides that if public policies are directed for providing positive capital inflow, it would be very good condition for development of national economy. It means every dollar or euro saved in the country should be directed to investment processes in the country.

As it was mentioned above the following factors may cause to the level of investment:

1. Rate of interest. This factor may cause to both economic agents – investors and consumers of investment. Because high rate of interest makes profitable investment projects for investors, but consumers of investment, who are representatives of the real sector of economy should pay high dividends to investors. So that rate of interest is one of the main factors, which may directly cause to investment processes, and defining an optimal rate of interest plays important role in these processes.
2. Profitability of investment projects. According to the state of national economy and current business cycle there may be such sectors of economy, in which many investment projects may be profitable. According to the level of profitability investors will choose such sectors of economy, in which they prefer to invest. Because in these sectors investment projects are profitable. Consequently, profitability of investment projects will affect to the level of investment.
3. Public policies. Government makes policy for stimulating investment processes in the country for providing economic growth. Public policies may affect to investment and saving processes from different ways. Because purpose of policy depends on economic situation in the country and according to the situation policy may stimulate investors to invest or save their capital.
4. Inefficiency of capital markets. For accumulating capital and stimulating investment capital markets should work efficiently. Because all operations connected with these processes directly would be performed within capital markets. In addition efficient capital market may attract more capital and may provide active financial operations. So that inefficiency of capital markets negatively influence to individuals of the economy.

These factors may directly affect to the rate of investment. So that all arrangements directed for providing active investment processes in the country should take into consideration. Because negative effect of one factor may result to another factors and these factors may cause to whole process. The problems of providing favorable conditions for saving and investment processes in every country are very complicated, therefore, their understanding and solution require further investigations.

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NACIONALINIŲ SANTAUPŲ ROLĖ FIKSUOTO INVESTAVIMO KAPITALO SUDARYMUI

A. Athamov

Santrauka

Tyrimo tikslas – analizuoti ryšius tarp santaupų ir investicinių išlaidų. Straipsnyje tiriama nacionalinių santaupų rolė fiksuoto investavimo kapitalo sudarymui. Darbo objektas – Europos šalių nacionalinių santaupų analizė bei santykis tarp nacionalinių santaupų ir investicijų rodiklio, kuris apibrėžia ekonomikos augimą. Analizei naudota teorinių šaltinių analizė ir Europos Sąjungos šalių statistiniai duomenys.

Reikšminiai žodžiai: nacionalinės santaupos, fiksuotas investicinis kapitalas, ekonominis augimas, bendras vidaus produktas, investicijų rodiklis, savifinansavimo efektyvumas, investicinės išlaidos, bendro fiksuoto kapitalo formavimas.

Akmal ATHAMOV is the first year Doctorate student of the National University of Uzbekistan named after Mirzo Ulugbek (home university). He was born on the 7th December 1987 in Tashkent region. In 2008 graduated from National University of Uzbekistan named after Mirzo Ulugbek, Economics faculty, with major in Management (bachelor degree). In 2010 graduated from National University of Uzbekistan named after Mirzo Ulugbek, Economics faculty, with major in Theory of Economics (master degree). Since January of 2011 he is Doctorate student of the National University of Uzbekistan and doing his Doctorate research in economics. He is conducting research on theme: Investments as a factor on providing sustainable economic growth. Has published over 10 scientific works.

Research areas: macroeconomics, theory of economics, investments and finance