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PREGLEDNI RAD

# Makroekonomski indikatori Republike Srpske

## The Republic of Srpska Macroeconomic indicators

### Rezime<sup>1</sup>

*Metastabilno stanje (stanje koje je do ravnotežnog stanja) preći će u ravnotežno stanje ukoliko čekamo dovoljno dugo. Stanje ravnoteže sistema zavisi od njegove istorije i šokova. U ravnotežnom stanju svaki agent je zadovoljan svojom pozicijom. Ovo stanje ekonomisti nazivaju Nešov ekvilibrijum (engl. Nash equilibria). Na koji način Republika Srpska može postići ravnotežno stanje, da li je ekonomija Republike u ravnoteži, koliko je udaljena od ravnoteže, na koji način šokovi pozitivno i negativno utiču na ovo stanje, na koji način se može povećati ekonomski rast, blagostanje građana i veći dohodak? Odgovori na ova pitanja zavise od prošlog i trenutnog stanja ključnih ekonomskih fundamenata i odluka – šokova, koje donose ključni nosioci ekonomskih politika. Predmet posmatranja su makroekonomski agregati na koje Republika Srpska svojim politikama direktno može uticati. Istraživanje uključuje potencijalni ekonomski rast i potencijalni BDP kao ekonomski indikator i, vjerujemo, može poslužiti donosiocima odluka koji utiču na kratkoročna prilagođavanja makroekonomske politike, ali i kreatorima strukturnih reformi u cilju dugoročnih prilagođavanja ekonomije dugoročno održivom i stabilnom rastu ekonomije.*

**Ključne riječi:** proizvodna funkcija, potencijalni BDP, fiskalna politika, fiskalna održivost.

### Abstract

*Metastable state (state which is near equilibrium) will become stable if we wait long enough. The stable state depends on historical patterns and shocks. In the equilibrium every agent is satisfied by his position, this state economist calls Nash equilibrium. In which way the Republic of Srpska can achieve equilibrium, is an economy of the Republic of Srpska can be characterized as the economy in equilibrium, how far is current state from equilibrium in which way shocks can positively and negatively influence equilibrium, in which way can we increase economic growth, citizens welfare, and higher income? Answers to those questions depend on the previous and current state of key economic fundamentals and decisions – shocks from policymakers. The subject of this article is macroeconomic aggregates on which the Republic of Srpska can influence directly with a different policy. Research include potential economic growth and potential GDP as an economic indicator for which I believe can help decision-makers who influence short-term adaptation of macroeconomic policy but also to creators of structural reforms with an aim to adapt economy in long-term to sustainable and stable economic growth.*

**Key words:** Production function, Potential GDP, Fiscal policy, Fiscal sustainability

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## UVOD

Ovim istraživanjem nastoji se prikazati ekonomska istorija Republike Srpske sa ciljem obuhvata više različitih segmenata ekonomije. Predmet posmatranja će biti: proizvodna funkcija, agregatna ponuda, potencijalni rast BDP-a, agregatna tražnja, fiskalna politika i fiskalna održivost. Period posmatranja obuhvata period raspoloživosti podataka i period koji je dovoljno dug da bismo stekli saznanje o kretanju date ekonomske pojave. Zbog ograničenog prostora i obuhvata istraživanja nastojaćemo prikazati dinamiku ekonomske pojave bez pretenzija za objašnjavanje uzroka za tu pojavu, ali sa ciljem diskusije o mogućim daljim politikama, instrumentima i pravcima u njenom razvoju. Takođe, želja nam je da postavimo osnovu za dalja ekonometrijska, makroekonomska istraživanja i izvor za njih.

## 1. METODOLOGIJA

Istraživanje ćemo zasnivati na dosadašnjoj ekonomskoj teoriji i novim instrumentima i postulatima koji su sadržani najvećim dijelom u istraživačkim radovima Međunarodnog monetarnog fonda. Razlog za upotrebu ovih istraživačkih radova je jednostavan. Zadatak MMF-a je stabilnost monetarnog sistema širom svijeta, a od 2012. uloga ove međunarodne institucije je proširena i obuhvata makroekonomske i finansijske rizike koji utiču na globalnu stabilnost. Svoj zadatak MMF obavlja putem nadzora nad ekonomskim i finansijskim politikama 189 zemalja svijeta. Prvi korak u istraživanju je kreiranje proizvodne funkcije Republike Srpske i agregatne ponude. Posmatraćemo efekte faktorske produktivnosti, rada i kapitala. Postavićemo tzv. metod stalnih zaliha (engl. perpetual inventory method<sup>2</sup>). Ovaj metod se preporučuje kada ne postoji statistički podatak o stanju fiksnog kapitala u društvu. Na osnovu proizvodne funkcije prikazaćemo koji faktori, na koji način i koliko daju doprinos ekonomskom rastu Republike Srpske. Nakon toga, analiziraćemo tzv. koncept potencijalnog rasta BDP-a i jaz u ekonomskom rastu na način kako su prikazali Basu i Fernald (2009) i analiziraćemo razliku između ostvarenog i potencijalnog BDP-a. Vremensku seriju za potencijalni BDP kreiraćemo pomoću Hodrick–Prescottovog filtera (engl. Hodrick–Prescott Filter). Daljim postupcima analiziraćemo agregatnu tražnju Republike Srpske i njene komponente: lična potrošnja, potrošnja države, investicije i neto izvoz. Analizu ćemo zasnivati na osnovu pristupa koje u radovima daju Ghazanchyan i Stotsky (2013) i Lebrun i Ruiz (2014). S obzirom na to da je u posljednje vrijeme velika pažnja međunarodne i domaće stručne i naučne javnosti posvećivana fiskalnoj politici i fiskalnim pitanjima, analiziraćemo fiskalnu politiku Republike Srpske. Indikatori koje ćemo posmatrati su ključni fiskalni agregati, poput fiskalnog okvira, opšteg i primarnog bilansa. Takođe, konstruisaćemo ciklično prilagođeni primarni bilans, tzv. strukturni primarni bilans u cilju određivanja fiskalne pozicije Republike i fiskalnog impulsa koju donosioci ključnih odluka imaju prema ekonomiji Republike. Ovoj problematici ćemo pristupiti na osnovu istraživanja koja su proveli Batini, Eyraud, Forni i Weber (2014), Bornhorst, Dobrescu i Fedelino (2011) i Daniel (2006). Posljednji aspekt posmatranja, ali i jedno od ključnih pitanja koja ćemo posmatrati predstavlja fiskalna održivost. Radom ćemo prezentovati koncept dinamike održivosti dugova i razvikaćemo različite scenarije – šokove, održivosti dugova.

## 2. REZULTATI ANALIZE MAKROEKONOMSKIH FUNDAMENATA

### 2.1. Proizvodna funkcija

Analiza sposobnosti i kapacitet zemlje da proizvodi robe i usluge vrši se pomoću analize proizvodne funkcije. To je jedan od prvih instrumenata koji se koristi u makroekonomskoj analizi. Ova funkcija prikazuje odnos BDP-a i dva faktora proizvodnje – rad i kapital, kao i efikasnost u kombinovanju ova dva faktora – ukupnu faktorsku produktivnost. Proizvodnu funkciju prikazujemo sljedećom jednačinom:

$$Y = TFP * f(K,L),$$

gdje je:

Y – BDP,

TFP – ukupna faktorska produktivnost,

K – kapital,

L – rad.

Jednačina ukazuje na to da nivo BDP-a zavisi od uposlenog kapitala i količine rada uvećanog za faktorsku produktivnost. Za analizu kretanja BDP-a i faktora proizvodnje potrebno je procijeniti nivo kapitala i rada. Početnu procjenu uposlenog kapitala prilikom kreiranja BDP-a zasnivaćemo na osnovu MMF-ovog uputstva o procjeni javnog, privatnog i javno-privatnog nivoa kapitala. Prema navedenoj metodologiji,<sup>3</sup> odnos BDP-a i uposlenog kapitala u 2005. godini za BiH iznosi 1,83. Polazeći od metoda stalnih zaliha, trenutni nivo kapitala zavisi od nivoa kapitala iz prethodnog perioda, uvećanog za investicije i korigovanog za amortizaciju. Na osnovu toga moguće je konstruisati model rasta kapitala u Republici Srpskoj. Ovaj model prikazujemo kao:

$$K_t = K_{t-1} + I_t - DEP_t \text{ odnosno}$$

$$K_t = K_{t-1} * (1 - \epsilon) + I_t,$$

gdje je:

$K_t$  – trenutni kapital,

$K_{t-1}$  – kapital iz prethodnog perioda,

$I_t$  – investicije u periodu t,

$DEP_t$  – amortizacija,

$\epsilon$  – stopa amortizacije.

Za kreiranje modela, pored podataka o investicijama i nivou kapitala iz prethodnog perioda, potreban nam je podatak o stopi amortizacije –  $\epsilon$ . Stopa amortizacije kapitala u EU se kreću između 4% i 5,5%.<sup>4</sup> Stopa amortizacije zavisi od oblika u kojem je kapital uposlen, za stambene objekte i objekte infrastrukture poput puteva stope su niže, dok se za IT opremu, vozila itd. koriste više stope. Za potrebe analize, s obzirom na to da je učešće fiksne imovine u Republici Srpskoj dominantno,<sup>5</sup> za javni sektor to iznosi preko 95%, pretpostavićemo nižu vrijednost amortizacije od 4% godišnje. Zaposlenost ćemo posmatrati na osnovu podataka o zaposlenosti koji objavljuje Zavod za statistiku Republike Srpske. Nadalje, na osnovu Cobb–Douglasove funkcije (engl. Cobb–Douglas production function), koja je data sljedećim izrazom:

<sup>2</sup> <http://www.oecd.org/sdd/na/2552337.pdf>

<sup>3</sup> [https://www.imf.org/external/np/fad/publicinvestment/pdf/csupdate\\_jan17.pdf](https://www.imf.org/external/np/fad/publicinvestment/pdf/csupdate_jan17.pdf)

<sup>4</sup> [https://www.ecb.europa.eu/pub/pdf/other/eb201607\\_article02.en.pdf?e917ba5e5156495c3a382abf942e9e53](https://www.ecb.europa.eu/pub/pdf/other/eb201607_article02.en.pdf?e917ba5e5156495c3a382abf942e9e53)

<sup>5</sup> Bilans stanja konsolidovanog izvještaja korisnika budžeta Republike Srpske dostupnog na: [http://www.gsr-rs.org/static/uploads/report\\_attachments/2017/08/18/RI028-17\\_Cyr.pdf](http://www.gsr-rs.org/static/uploads/report_attachments/2017/08/18/RI028-17_Cyr.pdf)

## INTRODUCTION

This research intends to show the economic history of the Republic of Srpska with the aim of including several different economic segments. The subject of the research will be: production function, aggregate supply, potential growth of GDP, aggregate demand, fiscal policy and fiscal sustainability. The researching period includes the period of data availability and a period that is long enough to find out more about how the given economic phenomenon changes. We will try to show the dynamics of the economic phenomenon without explaining its causes. Our aim is to discuss about possible further policies, instruments and directions in its development. We also intend to make a base for further econometric, macroeconomic research and source for them.

## 1. METHODOLOGY

The research will be based on the current economic theory, as well as the new instruments and postulates which are mostly contained in the research work of the International Monetary Fund. The reason for using these research papers is simple. The aim of the IMF is the stability of the world wide monetary system and the role of this international institution has been expanded and includes macroeconomic and financial risks that affect global stability since 2012. The IMF is carrying out its task by monitoring the economic and financial policies of the 189 countries of the world. The first step in the research is the creation of the production function of the Republic of Srpska and aggregate supply. We will consider the effects of factor productivity, labor and capital. We will set the so-called perpetual inventory method<sup>2</sup>. This method is recommended when there is no statistical data on the state of fixed capital in the society. Based on the production function, we will show which factors contribute to the economic growth of the Republic of Srpska. After that, we will analyze the so-called. the concept of potential GDP growth and the gap in economic growth as shown in (Bas, Fernald, 2009); we will analyze the difference between the realized and the potential GDP. We will create a time series for potential GDP using the Hodrick-Prescott Filter. In further procedures we will analyze the aggregate demand of Republika Srpska and its components: personal consumption, government consumption, investments and net exports. The analysis will be based on the approach recorded in papers (Ghazanchyan, Stotsky, 2013) and (Lebrun, Ruiz, 2014). We will analyze the fiscal policy of Republic of Srpska considering the fact that all international and domestic scientific experts dedicate attention to fiscal policy and fiscal issues. Indicators which we will observe are key fiscal aggregates such as the fiscal framework, the general and primary balance sheet. We will also construct a cyclically-adjusted primary balance of the so-called. structural primary balance in order to determine the fiscal position of the Republic and the fiscal impulse that the key decision makers have towards the economy of the Republic. We will approach this problem on the basis of research recorded in (Batini, Eyraud, Forni, Weber, 2014), (Bornhorst, Dobrescu, Fedelino, 2011) and (Daniel, 2006). The last aspect of observation and the key issues we will research is the fiscal sustainability. In this paper we will present the concept of debt sustainability dynamic and develop different scenarios - shocks, debt sustainability.

## 2. RESULTS OF MACROECONOMIC FUNDAMENTALS ANALYSIS

### 3.1. Production function

An analysis of the country's ability and capacity to produce goods and services is done by analyzing the production function. It is one of the first instruments used in macroeconomic analysis. This function shows relationship between GDP and two production factors – labor and capital, as well as efficiency in combining these two factors - total factor productivity. The production function is represented by the following equation:

$$Y = TFP * f(K,L)$$

where

$$Y = \text{GDP}$$

TFP = Total factor productivity,

K - Capital

L – Labor

The equation indicates that the level of GDP depends on the employed capital and the amount of work increased by factor productivity. For analysing the GDP and production factors, it is necessary to assess the level of capital and labor. An initial assessment of employee capital will be based on the IMF's Guidelines on the assessment of public, private and public-private capital levels. According to the aforementioned methodology<sup>3</sup>, the ratio of GDP and employed capital in Bosnia and Herzegovina is 1.83 in 2005. Starting from permanent inventory methods, the current level of capital depends on the level of capital from the previous period, which is increased for investments and adjusted for depreciation. Based on this, it is possible to make a model of capital growth in the Republic of Srpska. This model is presented as:

$$K_t = K_{t-1} + I_t - DEPT \text{ i.e.,}$$

$$K_t = K_{t-1} * (1 - \delta) + I_t$$

where:

$K_t$  = Current capital,

$K_{t-1}$  = Capital from the previous period

$I_t$  = Investments in the period  $t$

DEPT = Depreciation

$\delta$  = depreciation rate

To create a model besides investment data and capital level from the previous period, we need the data on the depreciation rate -  $\delta$ . The capital depreciation rate in the EU ranges between 4% and 5.5%.<sup>4</sup> The depreciation rate depends on the form in which capital is used. For example, rates are lower for residential buildings and infrastructure objects like roads, while they are higher for IT equipment, vehicles, etc. Considering that the share of fixed assets in the Republic of Srpska is dominant,<sup>5</sup> the public sector rate exceeds over 95%. We will assume a lower depreciation value of 4% per year.

We will consider the employment on the basis of employment data published by the Institute of Statistics of Republic of Srpska.

<sup>2</sup> <http://www.oecd.org/sdd/na/2552337.pdf>

<sup>3</sup> [https://www.imf.org/external/np/fad/publicinvestment/pdf/csupdate\\_jan17.pdf](https://www.imf.org/external/np/fad/publicinvestment/pdf/csupdate_jan17.pdf)

<sup>4</sup> [https://www.ecb.europa.eu/pub/pdf/other/eb201607\\_article02.en.pdf?e917ba5e5156495c3a382abf942e9e53](https://www.ecb.europa.eu/pub/pdf/other/eb201607_article02.en.pdf?e917ba5e5156495c3a382abf942e9e53)

<sup>5</sup> Bilans stanja konsolidovanog izvještaja korisnika budžeta Republike Srpske dostupnog na: [http://www.gsr-rs.org/static/uploads/report\\_attachments/2017/08/18/RI028-17\\_Cyr.pdf](http://www.gsr-rs.org/static/uploads/report_attachments/2017/08/18/RI028-17_Cyr.pdf)

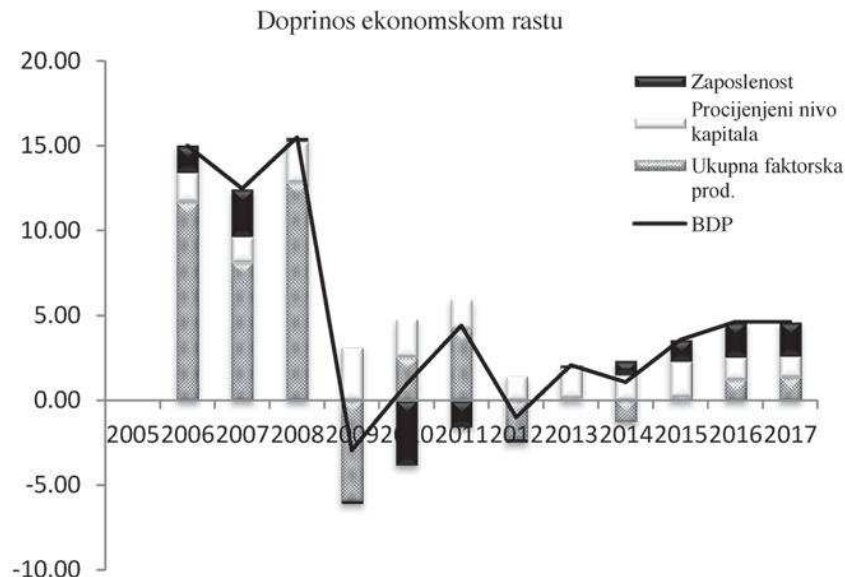


$$Y = TFP * K^\alpha * L^{1-\alpha},$$

uz uslov  $0 < \alpha < 1$ ,

gdje  $\alpha$  predstavlja elastičnost kapitala i ekonomskog rasta, kreiramo proizvodnu funkciju za Republiku Srpsku. Treba imati u vidu da se najčešće kao pretpostavka elastičnosti kapitala koristi iznos od 0,3 (iznos koji je karakterističan za SAD) ukoliko ne postoji bolja pretpostavka ili tačno utvrđen iznos. U nastavku ćemo za potrebe analize elastičnost kapitala i ekonomskog rasta pretpostaviti

**Grafikon 1.** Doprinos ekonomskom rastu Republike Srpske, period 2006–2017. godine



Izvor: kalkulacije autora

Na osnovu analize prethodnog grafikona može se izvesti zaključak da su za ekonomski rast dominantnu ulogu imale investicije od 2009. godine. U 2012. i 2014. godini zabilježen je pad faktorske produktivnosti, a u periodu od 2014. do 2017. godine rast zaposlenosti počinje značajnije da utiče na ekonomski rast Republike Srpske.

## 2.2. Potencijalni BDP

Donosioci ekonomskih odluka u društvu zainteresovani su za dugoročno održiv i stabilan nivo ekonomskog rasta. Ovaj nivo rasta se najčešće naziva potencijalnim rastom BDP-a. To je onaj nivo ekonomskog rasta koji je konzistentan sa stabilnim nivoom inflacije na nivou na kojem se postiže prirodna stopa zaposlenosti i puna uposlenost kapitala i gdje se postiže prirodna stopa nezaposlenosti. Ekonomski rast fluktuiru ispod ili iznad potencijalnog nivoa. Razlika između ostvarenog BDP-a i potencijalnog BDP-a naziva se jaz BDP-a (engl. Output gap). Jaz u rastu BDP-a prikazuje se formulom:

$$\text{Output Gap}_t = \frac{Y_t - Y_t^*}{Y_t^*},$$

gdje je:

$Y_t$  – ostvareni BDP,

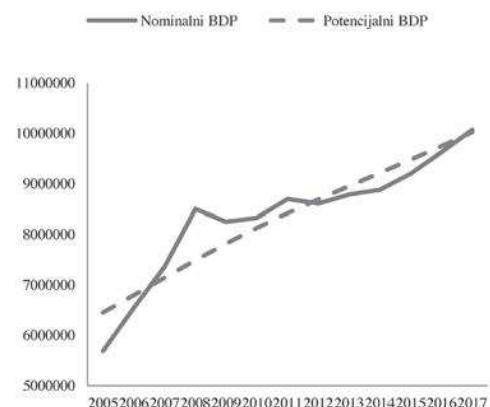
$Y_t^*$  – potencijalni BDP.

Tačno mjerenje potencijalnog BDP-a nije moguće. Za razliku od stvarnog BDP-a, ne postoje egzaktni podaci za potencijalni rast. Međutim, postoje informacije o ekonomskim varijablama poput stvarnog BDP-a, zaposlenosti, inflacije, nivoa kapitala itd. Zbog toga se potencijalni BDP izračunava na osnovu procjene, koristeći ekonometrijske i statističke metode u zavisnosti od dostupnosti i kvaliteta dostupnih podataka. Najčešće se koriste univarijantne

iznos od 0,3. Promjena agregatne ponude na kratak rok zavisi od povećanja ili smanjenja u radu i kapitalu. Na kratak rok, faktorska produktivnost nema velikih varijacija. Ukoliko želimo na kratak rok povećati agregatnu ponudu, potrebno je povećati ili količinu rada ili kapitala, međutim, veća agregatna ponuda znači i veće troškove koji se ogledaju ili u većoj stopi amortizacije ili u većim troškovima rada. U nastavku je prikazan odnos faktorske produktivnosti, rada i kapitala u doprinosu ekonomskom rastu Republike Srpske u periodu 2006–2017. godine.

metode (linearni trend, Hodrik–Preskotov filter i Bend Pas filter), multivarijantne metode (metod zasnovan na proizvodnoj funkciji, multivarijantni filteri i DSGE modeli – dinamičko-stohastički ravnotežni model). Svaki od izloženih pristupa ima određene prednosti i nedostatke. Najčešće korišteni metod je Hodrik–Preskotov filter. Iako ovaj metod nema teoretsku dokazanost, nedostaci ostalih univarijantnih pristupa daju prednost ovom metodu izračunavanja potencijalnog BDP-a. Pristup zasnovan na lineranom trendu podrazumijeva pretpostavku konstantnog rasta potencijalnog BDP-a, pristup zasnovan na proizvodnoj funkciji pretpostavlja iskoristivost faktora proizvodnje na potencijalnom nivou itd. U nastavku ćemo prikazati trend rasta BDP-a Republike Srpske na osnovu Hodrik–Preskotovog filtera. Ako posmatramo Republiku Srpsku za period od 2005. do 2017. godine, odnos potencijalnog i realnog rasta BDP-a prikazan je sljedećim grafikonom:

**Grafikon 2.** Odnos nominalnog i potencijalnog BDP-a



Izvor: Zavod za statistiku RS, kalkulacije autora

Furthermore, based on the Cobb-Douglas production function, given in the following equation:

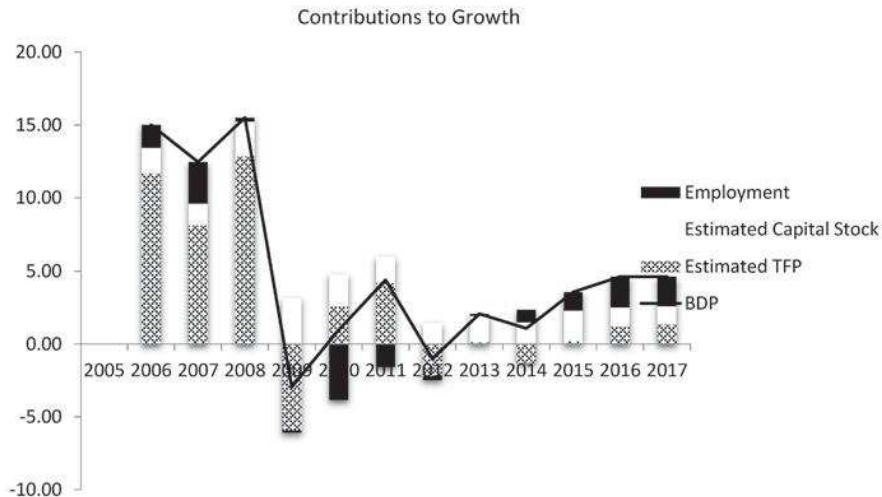
$$Y = TFP * K^\alpha * L^{1-\alpha}$$

if  $0 < \alpha < 1$

where  $\alpha$  represents the elasticity of capital and economic growth, we create the production function for the Republic of Srpska. It should be borne in mind that the most commonly used assumption of capital elasticity is the amount of 0.3 (the amount that is characteristic of the US), if there is no better assumption or exact

amount. Below we will assume an amount of 0.3 for the analysis of elasticity of capital and economic growth. Changes in the aggregate supply for a short period of time depend on the increase or decrease in labor and capital. Short-term factor productivity does not have large variations. If we want to increase the aggregate supply in the short term, it is necessary to increase either the amount of labor or capital, however a larger aggregate supply means higher costs reflected by either a higher depreciation rate or higher labor costs. Below is the ratio between factor productivity, labor and capital in contribution to the economic growth of Republic of Srpska in the period 2006-2017.

**Chart 1: Contribution to the economic growth of the Republic of Srpska, period 2006-2017.**



Source: Author calculations

Based on the analysis of the previous chart, it can be concluded that investments have had a dominant impact on the economic growth since 2009. In 2012 and 2014 there was a decrease in factor productivity, and employment growth began to significantly affect the economic growth of Republic of Srpska from 2014 to 2017.

**2.2. Potential GDP**

Economic decision makers in the society are interested in a long-term sustainable and stable economic growth level. This growth level is most often known as potential GDP growth. This is the level of economic growth that is consistent with a stable level of inflation at the level at which the natural rate of employment and full employment of capital are achieved and where the natural rate of unemployment is achieved. Economic growth fluctuates below or above the potential level. The difference between the realized GDP and the potential GDP is called the Output gap. The gap in the GDP growth is represented by the formula:

$$\text{Output Gap}_t = \frac{Y_t - Y_t^*}{Y_t}$$

where

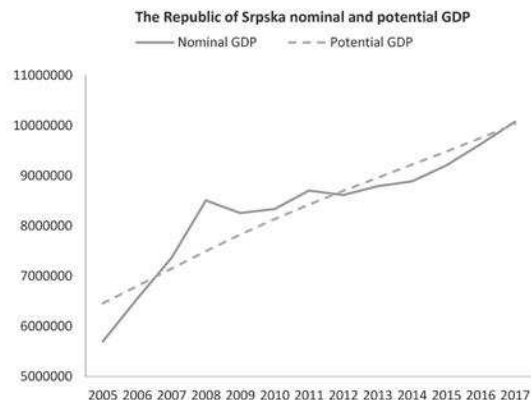
- Y<sub>t</sub> = realized GDP,
- Y<sub>t</sub><sup>\*</sup> = potential GDP.

A precise measurement of potential GDP is not possible. Unlike real GDP, there is no exact data for potential growth. However, there are information about economic variables such as real GDP, employment, inflation, capital level, etc. Therefore, potential GDP is calculated on the basis of estimation using econometric and statistical methods, depending on the availability and quality of the available data. Most often are used univariate methods (Linear trend, Hodrick - Prescott filter and Bend Pas filter), multivariate methods (production-based

method, multivariate filters and DSGE models - Dynamic-stochastic equilibrium model). Each of the mentioned approaches has certain advantages and disadvantages. The most commonly used method is Hodrick - Prescott filter.

Although this method has no theoretical proof, the disadvantages of other univariate approaches favor this method of calculating potential GDP. A linear trend approach implies the assumption of a constant increase of potential GDP. This product-based approach assumes the usability of production factors at a potential level, etc. Below we will show the trend of the GDP growth of Republic based on the Hodrick-Prescott filter. The ratio of potential and real GDP growth in Republic of Srpska from 2005. to 2017. is shown in the following charts

**Chart 2: The Republic of Srpska Nominal and potential GDP**

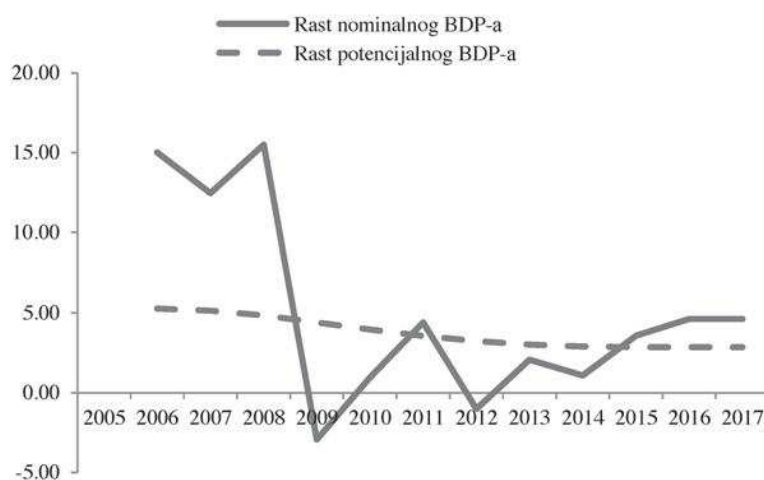


Source: Institute of Statistics of the Republic of Srpska, author's calculation

Posmatrajući odnos potencijalnog i ostvarenog rasta, možemo zaključiti da postoje oscilacije. Potencijalni rast BDP-a Republike Srpske u posmatranom periodu iznosi 3,74%, dok je ostvareni 5,03%. Period od 2006. do 2012. je period rasta iznad potencijal-

nog, dok je period 2013. do 2017. period rasta ispod potencijalnog nivoa. Prevedeno na stope rasta, to se može prikazati sljedećim grafikonom.

**Grafikon 3.** Stope rasta nominalnog i potencijalnog BDP-a



Izvor: Zavod za statistiku RS, kalkulacije autora

Zaključujemo da postoje značajne oscilacije u ekonomskoj aktivnosti, što je i očekivano. Takođe, zaključak je da se te oscilacije smanjuju vremenom. Smisao posmatranja ovih odnosa je pokušaj minimiziranja ovih oscilacija putem ekonomskih mjera, aktivnosti i različitih politika. Odnos između potencijalnog i ostvarenog BDP-a je bitan zbog definisanja mjera ekonomske politike. U slučaju da je ostvareni BDP ispod potencijalnog, ekspanzivnim mjerama ekonomske politike potrebno je djelovati stimulatивно na ekonomiju i obrnuto. Period od 2015. do 2017. je period rasta ekonomske aktivnosti iznad potencijalnog nivoa. Ova situacija dovodi do pregrijavanja ekonomije i nameće oprez u daljem vođenju ekspanzivnih ekonomskih politika.

### 2.3. Analiza agregatne tražnje

Analiza agregatne tražnje predstavlja važno područje makroekonomske analize, jer agregatna tražnja utiče na nivo BDP-a i inflaciju. S obzirom na to da vođenje kratkoročne makroekonomske politike u najvećem dijelu zavisi od agregatne tražnje, u nastavku ćemo analizirati njene osnovne komponente u Republici Srpskoj putem dekompozicije rasta agregatne tražnje. Osnovne komponente agregatne tražnje prikazujemo formulom:

$$AD = C + I + G + NX,$$

gdje je:

C – privatna potrošnja,

I – investicije,

G – potrošnja države,

NX – neto izvoz (uvoz–izvoz).

Privatna potrošnja predstavlja najveću komponentu agregatne tražnje, a za RS ona se kreće između 67,7% i 73,3% BDP-a. Zatim je slijede investicije između 22,5% i 25,3% BDP-a. Potrošnja države sastoji se iz javne potrošnje i javnih investicija između 21,1% i 24,4% BDP-a i neto izvoza, koji sa promjenama u zalihama predstavlja jednu od najmanjih komponenti agregatne tražnje. Analizom komponenti agregatne tražnje može se utvrditi efekat pojedinih komponenti na ekonomski rast. Pored učešća pojedinih komponenti, bitan je i njihov relativni rast. Na osnovu prethodnog zaključujemo da je ekonomski rast posljedica rasta pojedinih komponenti agregatne tražnje, što zapisujemo na sljedeći način:

$$\Delta BDP = \Delta C + \Delta I + \Delta G + \Delta NX,$$

gdje je:

$\Delta$  – rast određenih komponenti.

U periodu 2007–2016. godine, najznačajniji izvor ekonomskog rasta bila je lična potrošnja, potrošnja države i investicije.

**Tabela 1.** Izvori rasta i pojedine komponente

Godina	BDP	Privat. potrošnja	Potroš. države	Investicije	Potrošnja NPISD	Promjena zaliha	Neto izvoz
2007–2010.	4.5	3.5	1.9	0.9	0.1	-0.5	-1.5
2011–2013.	1.8	1.1	1.1	0.2	0.0	-0.6	0.1
2014–2016.	3.1	0.7	0.2	0.3	0.0	2.0	-0.1
2007–2016.	3.1	1.8	1.1	0.5	0.0	0.3	-0.5

Izvor: Zavod za statistiku RS, kalkulacije autora

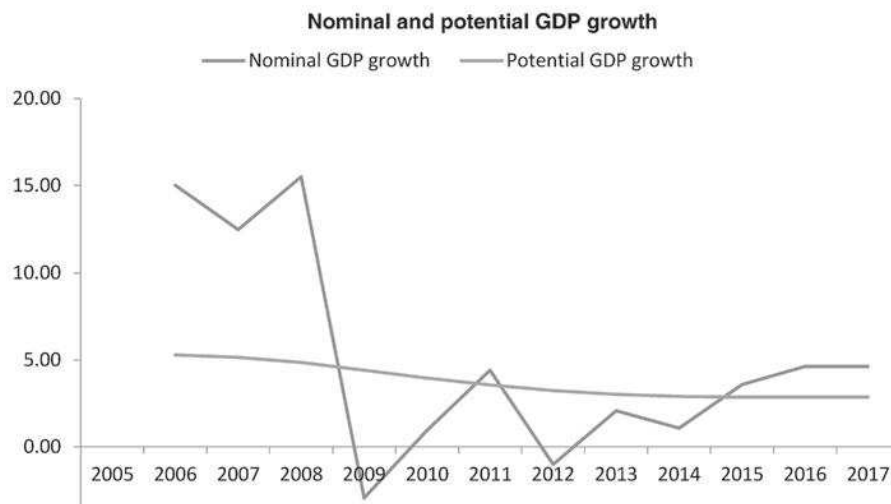
Ekonomski rast zavisi od rasta privatne potrošnje, privatnih investicija, potrošnje države i neto izvoza i promjena na zalihama. Analizom trenda rasta i pojedinih komponenti zaključujemo da se lična potrošnja kao izvor ekonomskog rasta smanjuje, a primat kao

izvor ekonomskog rasta preuzima neto izvoz i promjene u zalihama. Mjerama ekonomske politike potrebno je uticati na stvaranje pretpostavki za povećanje privatne potrošnje i investicija kao najvažnijih komponenti ekonomskog rasta.

If we look at the relationship between potential and realized growth, we will see that there are oscillations. The potential growth of the Republic of Srpska GDP in the observed period exceeded to 3.74%, while realized was 5.03%. The period from 2006 to 2012 is the

period of growth above the potential level, while the period from 2013 to 2017 is the period of growth below the potential level. This can be shown by the following charts if converted to growth rates.

**Chart 3: Nominal and potential GDP growth rates**



Source: Institute of Statistics of the Republic of Srpska, author's calculation

We conclude that there are significant oscillations in the economic activity as expected. Also, the conclusion is that these oscillations are being reduced during time. The purpose of observing these relationship is to try to minimize these oscillations through economic measures, activities and different policies. The relationship between potential and realized GDP is important for defining economic policy measures. In case the realized GDP is below the potential expansionary economic policy measures it is necessary to act stimulative on the economy and vice versa. The period from 2015 to 2017 is the period of economic activity growth above the potential level. This situation leads to overheating of the economy and demands caution in the further management of expansive economic policies.

**2.3. Analysis of aggregate demand**

The analysis of aggregate demand is an important area of macroeconomic analysis, as aggregate demand influences the GDP level and inflation. Considering the fact that leading short-term macroeconomic policies mostly depends on aggregate demand, we will analyze its basic components in Republic of Srpska through the decomposition of aggregate demand growth. We will present the basic components of aggregate demand in the formula:

$$AD = C + I + G + NX$$

where

C = Private consumption,

I = investments,

G = Government consumption

NX = net exports (imports - exports)

Private consumption is the largest component of aggregate demand; for the Republic of Srpska it ranges between 67.7% and 73.3% of GDP. Then there is investment between 22.5% and 25.3% of GDP. Government consumption consists of public spending and public investment between 21.1% and 24.4% of GDP and net exports which represents one of the smallest components of aggregate demand. By analyzing components of aggregate demand, we can determine the effect of individual components on economic growth. In addition to the participation of individual components, their relative growth is also important. Based on this, we conclude that economic growth is a consequence of the growth of certain components of aggregate demand, which is recorded as following:

$$\Delta BDP = \Delta C + \Delta I + \Delta G + \Delta NX$$

$\Delta$  - growth of certain components

The most significant source of economic growth was personal consumption, state consumption and investments in the period from 2007 to 2016.

**Table 1: Sources of growth and individual components**

Year	GDP	Private consumption	Government consumption	Investments	NPISD Consumption	Change in inventory	Net export
2007-2010	4.5	3.5	1.9	0.9	0.1	-0.5	-1.5
2011-2013	1.8	1.1	1.1	0.2	0.0	-0.6	0.1
2014-2016	3.1	0.7	0.2	0.3	0.0	2.0	-0.1
2007-2016	3.1	1.8	1.1	0.5	0.0	0.3	-0.5

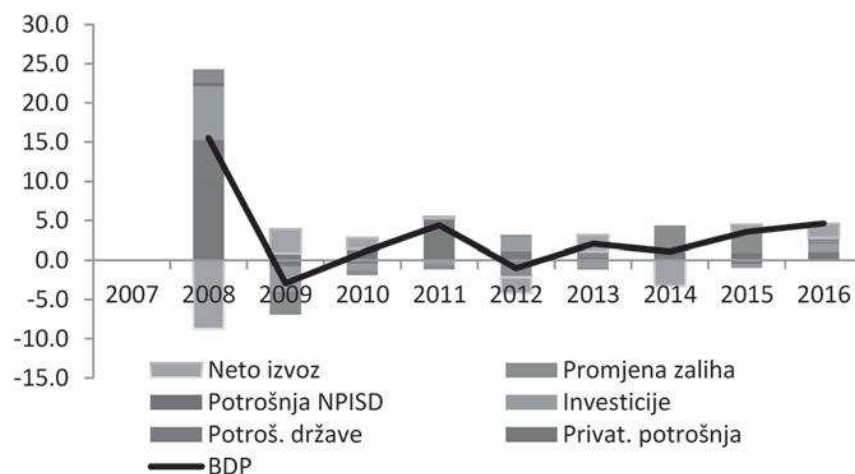
Source: Institute of Statistics of Republic of Srpska, author's calculation

Economic growth depends on the private consumption growth, private investment, government consumption and net exports and

inventory changes. Analyzing the trend of growth and individual components, we conclude that personal consumption is decrea-



Grafikon 4. Grafički prikaz izvora ekonomskog rasta



Izvor: Zavod za statistiku RS, kalkulacije autora

#### 2.4. Fiskalna politika

Makroekonomska stabilnost podrazumijeva uslov dugoročno održivog ekonomskog rasta. Javni sektor u ekonomiji Republike Srpske je značajan. Samo direktni budžetski korisnici i vanbudžetski fondovi čine više od 40% BDP-a Republike. Fiskalna politika jedan je od instrumenata ekonomske politike kojim vlada Republike Srpske utiče na dešavanja u ekonomiji. Cilj ove analize je utvrditi kretanje

ključnih fiskalnih agregata u prethodnom periodu. Fiskalna politika utiče na agregatnu ponudu i agregatnu tražnju. Ona utiče na kratkoročnu agregatnu tražnju, ali u srednjem roku na makroekonomsku stabilnost, prije svega u oblasti održivosti dugova. Indikatori koje ćemo posmatrati u analizi fiskalne politike jesu: opšti bilans, primarni bilans, ciklično prilagođeni fiskalni bilans, fiskalna pozicija i fiskalni impuls. U nastavku ćemo prikazati ključne fiskalne pokazatelje za Republiku Srpsku.

Tabela 2. Ključni fiskalni pokazatelji za Republiku Srpsku u periodu 2005–2017.

Go-dina	Nominalni BDP	Prihodi	Rashodi	Plaćena kamata	Primarni rashodi	Opšti bilans (OB)	OB kao % BDP-a	Primarni bilans (PB)	PB kao % BDP-a
2003.	4.562.686.000,00	1.853.464.382	1.749.673.635	32.458.954	1.717.214.681	103.790.746,9	2,3	136.249.700,9	3,0
2004.	5.115.577.000,00	1.853.693.749	1.743.907.059	30.906.297	1.713.000.762	109.786.690,6	2,1	140.692.987,7	2,8
2005.	5.695.292.000,00	2.078.474.312	1.980.196.312	37.249.812	1.942.946.501	98.277.999,8	1,7	135.527.811,5	2,4
2006.	6.550.072.000,00	2.525.630.439	2.399.462.750	42.321.334	2.357.141.416	126.167.689,0	1,9	168.489.022,9	2,6
2007.	7.366.228.000,00	2.919.137.755	2.892.478.550	46.570.645	2.845.907.906	26.659.204,8	0,4	73.229.849,5	1,0
2008.	8.507.471.000,00	3.264.533.982	3.333.077.689	54.408.170	3.278.669.519	-68.543.707,2	-0,8	-14.135.537,0	-0,2
2009.	8.256.873.000,00	3.080.299.171	3.626.614.041	55.516.006	3.571.098.035	-546.314.869,8	-6,6	-490.798.864,0	-5,9
2010.	8.335.987.000,00	3.234.617.937	3.652.332.470	56.677.606	3.595.654.864	-417.714.532,3	-5,0	-361.036.926,6	-4,3
2011.	8.703.122.000,00	3.685.609.009	3.744.733.331	69.264.946	3.675.468.384	-59.124.321,8	-0,7	10.140.624,7	0,1
2012.	8.614.704.000,00	3.652.648.221	3.841.845.390	100.090.287	3.741.755.103	-189.197.168,9	-2,2	-89.106.881,5	-1,0
2013.	8.792.917.000,00	3.604.433.611	3.725.436.858	105.726.774	3.619.710.084	-121.003.247,1	-1,4	-15.276.473,5	-0,2
2014.	8.887.307.000,00	3.769.791.969	4.012.842.521	133.900.612	3.878.941.908	-243.050.552,1	-2,7	-109.149.939,6	-1,2
2015.	9.205.038.000,00	3.931.278.001	3.935.923.021	149.310.768	3.786.612.252	-4.645.019,8	-0,1	144.665.748,5	1,6
2016.	9.630.569.000,00	3.936.951.116	4.003.234.426	120.715.851	3.882.518.575	-66.283.310,3	-0,7	54.432.540,8	0,6
2017.	10.075.733.134,39	4.141.822.231	3.964.719,081	102,224,111	3,862,494,969	177,103,150,2	1,8	279,327,261,3	2,8

Izvor: Ministarstvo finansija Republike Srpske, Republički zavod za statistiku Republike Srpske, kalkulacije autora

U periodu od 2005. do 2017. godine u Republici Srpskoj je ostvaren prosječni deficit opšteg bilansa u iznosu od 53 miliona KM ili 0,5% BDP-a. Stanje primarnog bilansa je suficit od 22 miliona KM

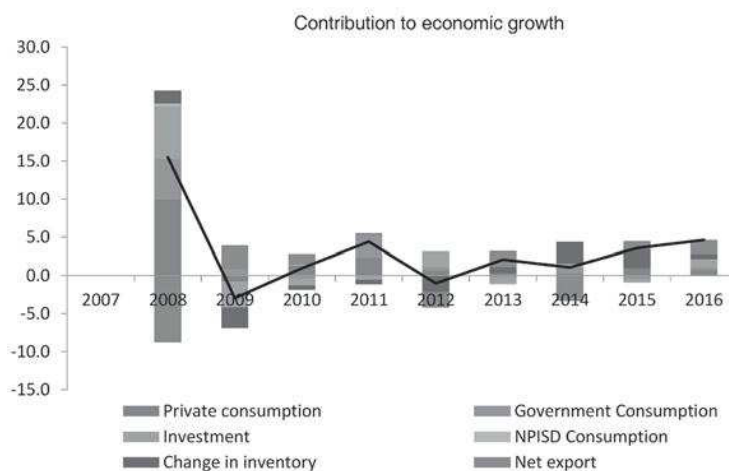
ili 0,4% BDP-a. Kretanje opšteg i primarnog bilansa moguće je grafički prikazati.



sing as a source of economic growth, and net exports and supply changes become a primary source of economic growth. Economy policy measures need to influence the creation of preconditions

for increasing private consumption and investments as the most important components of economic growth.

**Chart 4:** Graphical presentation of economic growth sources



Source: Institute of Statistics of Republic of Srpska, author's calculation

**2.4. Fiscal policy**

Macroeconomic stability includes a condition of long-term sustainable economic growth. The public sector in the economy of Republic of Srpska is significant. Only direct budget users and extrabudgetary funds represent more than 40% of the Republic's GDP. Fiscal policy is one of the economic policy instruments which the government of the Republic of Srpska can use to influence on the events in the economy. The purpose of this analysis is to determine the movement

of key fiscal aggregates in the past. Fiscal policy affects aggregate supply and aggregate demand. It affects the short-term aggregate demand, but in the medium term to macroeconomic stability, primarily in the area of debt sustainability.

Indicators to be considered in fiscal policy analysis are: overall balance, primary balance, cyclically adjusted fiscal balance, fiscal position and fiscal impulse. We will show key fiscal indicators for Republic of Srpska below.

**Table 2:** Key fiscal indicators for the Republic of Srpska in the period 2005-2017

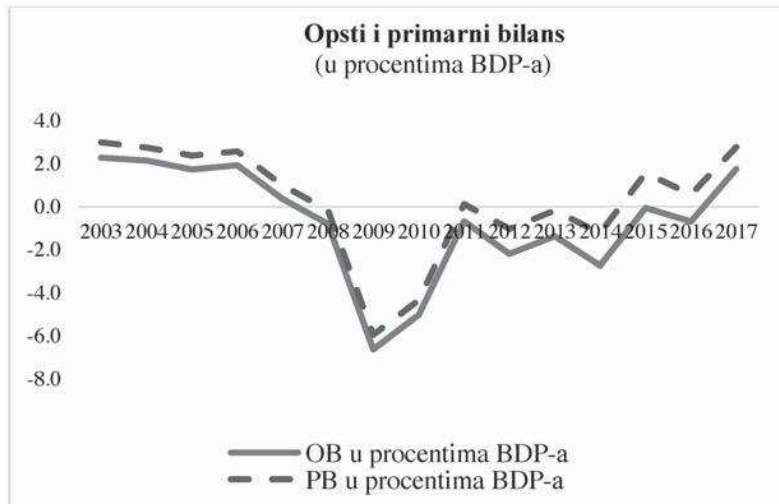
Year	Nominal GDP	Government revenue	Government expenditure	Interest Spending	Primary expenditure	Overall balance (OB)	OB (% of GDP)	Primary balance (PB)	PB (% of GDP)
2003	4.562.686.000,00	1.853.464.382	1.749.673.635	32.458.954	1.717.214.681	103,790,746.9	2,3	136.249.700,9	3,0
2004	5.115.577.000,00	1.853.693.749	1.743.907.059	30.906.297	1.713.000.762	109,786,690.6	2,1	140.692.987,7	2,8
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2013	8.792.917.000,00	3.604.433.611	3.725.436.858	105.726.774	3.619.710.084	-121,003,247.1	-1,4	-15.276.473,5	-0,2
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2017	10.075.733.134,39	4.141.822.231	3,964,719,081	102,224,111	3,862,494,969	177,103,150.2	1.8	279,327,261.3	2.8

Source: Ministry of Finance of Republika Srpska, Republic Institute of Statistics of Republika Srpska, calculations by the author

The average deficit in the general balance of the Republic of Srpska in the amount of BAM 53 million or 0.5% of GDP was achieved in the period 2005. - 2017. The balance of the primary balance is a

surplus of BAM 22 million or 0.4% of GDP. It is possible to present graphically the movement of the general and primary balance.

**Grafikon 5.** Opšti i primarni bilans fiskalnog okvira Republike Srpske u periodu 2005–2017.

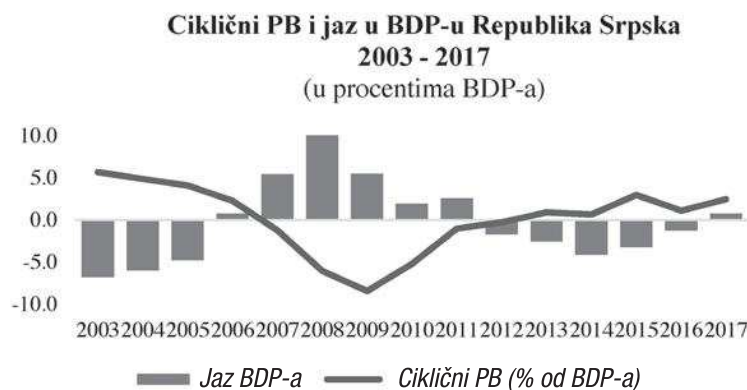


Izvor: kalkulacije autora

Opšti i primarni bilans su neki od osnovnih indikatora uticaja fiskalne politike na agregatnu tražnju. Međutim, njihov nedostatak predstavlja činjenica da na osnovu ovih indikatora ne možemo ocijeniti da li je vođenje fiskalne politike rezultat diskrecionih odluka vlade ili uticaj poslovnog ciklusa. U ekspanziji fiskalni prihodi rastu tako da primarni i opšti bilans ne uključuju uticaj ekonomskog ciklusa, ali i drugih faktora, rast cijene energenata kod resursno bogatih zemalja, rast cijena nekretnina usljed čega rastu prihodi

od poreza na nekretnine itd. Činjenica da fiskalni prihodi rastu sa ekonomskim rastom predstavlja procikličnost fiskalnih prihoda. Procikličnost fiskalnih prihoda i restriktivnost – kontracikličnost fiskalnih rashoda predstavlja pojam koji se naziva automatskim stabilizatorom. Nedostaci opšteg i primarnog bilansa su otklonjeni u fiskalnom indikatoru koji se zove ciklično prilagođeni primarni bilans ili strukturni primarni bilans. U nastavku je prikazan odnos primarnog bilansa i jaz u rastu BDP-a.

**Grafikon 6.** Primarni bilans i razlika između potencijalnog i ostvarenog ekonomskog rasta u periodu 2003–2017. godine

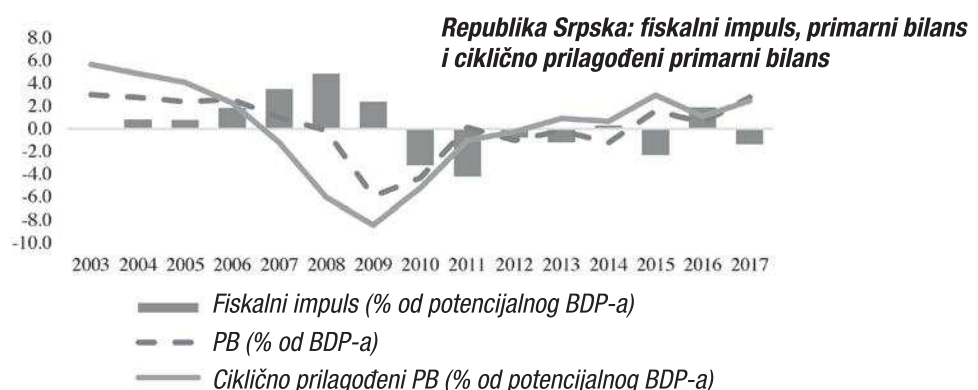


Izvor: kalkulacija autora

Analizom ciklično prilagođenog primarnog bilansa i razlike između aktuelnog i potencijalnog BDP-a možemo zaključiti da je Republika Srpska u periodu do 2008. imala suficit. Period od 2008. do 2015. godine bilježi deficit, sa izuzetkom 2011. godine, gdje je zabilježen blagi suficit od 10 miliona KM. Od 2015. godine Republika Srpska ostvaruje suficite. Međutim, ostvaren je ekonomski rast ispod potencijalnog nivoa u periodima od 2003. do 2005. te od 2012. do 2016. godine. Takođe, veoma je bitno posmatrati odnose između

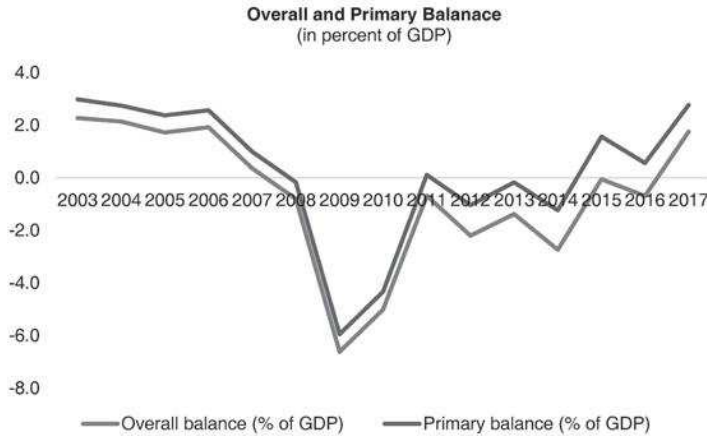
primarnog bilansa i ciklično prilagođenog primarnog bilansa zbog toga što je stanje primarnog bilansa bitna komponenta kod ocjene održivosti javnih finansija, odnosno ocjene održivosti javnog duga, ali i zbog utvrđivanja da li se vodila prociklična ili restriktivna fiskalna politika. Daljom analizom posmatračemo ukupnu fiskalnu poziciju i fiskalni impuls u Republici Srpskoj za posmatrani period u cilju odgovora na pitanje da li su fiskalna pozicija i fiskalna politika Republike Srpske adekvatno vođene.

**Grafikon 7.** Fiskalna pozicija i fiskalni impuls u Republici Srpskoj u period od 2003. do 2017. godine



Izvor: kalkulacija autora

**Chart 5: General and primary balance of the fiscal framework of the Republic of Srpska in the period 2005-2017**



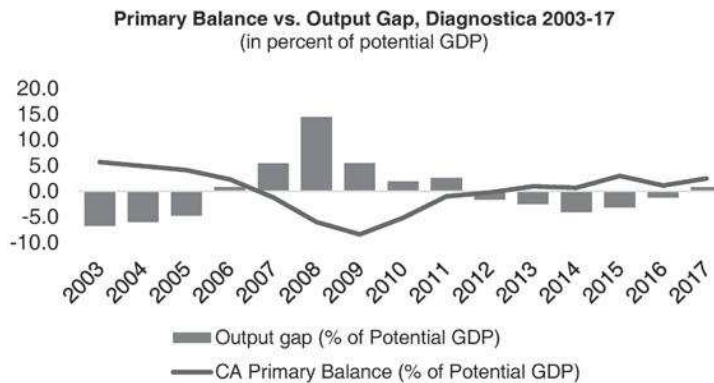
Source: Author calculations

The general and primary balance sheet are one of the main indicators of the fiscal policy impact on aggregate demand. However, their lack is the fact that based on these indicators we can not assess whether leading of fiscal policy is the result of discretionary decisions of the government or the impact of the business cycle. Fiscal revenues are rising in the expansion so that the primary and overall balance sheet do not include the impact of the economic cycle.

Other factors like growth in the energy price in resource rich countries, the rise in real estate prices, increase the real estate tax

revenues also have impact on government revenues. The fact that fiscal revenues grow with economic growth represents the procyclical nature of fiscal revenues. Procyclicality of fiscal revenues and restrictiveness - contracyclicality of fiscal expenditures is a term called automatic stabilizer. Deficiencies in the general and primary balance are eliminated in a fiscal indicator called a cyclically-adjusted primary balance or a structural primary balance. Below is the ratio between the primary balance and the gap in GDP growth.

**Chart 6: Primary balance and difference between potential and realized economic growth in the period 2003-2017**

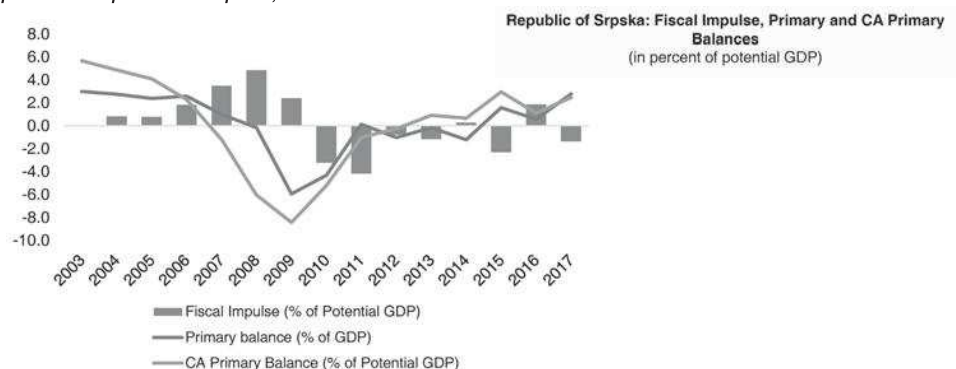


Source: Author calculations

By analyzing the cyclically-adjusted primary balance and the difference between actual and potential GDP, we can conclude that Republic of Srpska had a surplus in the period up to 2008. There was a deficit in the period from 2008 to 2015, except 2011 where a slight surplus of 10 million BAM was recorded. Republic of Srpska has been making surpluses since 2015. However, economic growth was below the potential level in the period from 2003 to 2005, then from 2012 to 2016.

It is also important to observe the relations between the primary balance and the cyclically-adjusted primary balance, because the balance of the primary balance is an important component in assessing the sustainability of public finances, ie the assessment of the sustainability of public debt. It is also used for determining whether a pro-cyclical or restrictive fiscal policy has been led. By further analysis, we will research the overall fiscal position and the fiscal impulse in the Republic of Srpska in order to answer the question: Are fiscal position and fiscal policy adequately led in the Republic of Srpska?.

**Chart 7: Fiscal position and fiscal impulse in Republic of Srpska, 2003 – 2017**



Source: Author calculations



Fiskalna pozicija daje odgovor na pitanje koliko tekuća fiskalna politika prikuplja prihoda iz privrede i stanovništva, a koliko fiskalni rashodi doprinose agregatnoj tražnji. Fiskalna pozicija je inverzna ciklično prilagođenom fiskalnom bilansu. Ukoliko je ciklično prilagođeni fiskalni bilans pozitivan, fiskalna pozicija je negativna i obrnuto. Ovo znači da donosioci fiskalnih odluka u slučaju suficita „uzimaju“ od stanovništva i privrede više nego što „daju“. Kada je fiskalna pozicija negativna, tada fiskalna politika smanjuje agregatnu tražnju. Fiskalni impuls je jednostavan koncept koji pokazuje na koji način fiskalna politika daje impuls agregatnoj tražnji. Ukoliko je impuls pozitivan, to ukazuje na ekspanzivnu fiskalnu politiku. Analizom prethodnog grafika možemo tvrditi da je Republika Srpska imala pozitivan fiskalni impuls u period od 2003. do 2009. i 2016. godine, dok je u ostalim godinama imala negativan fiskalni impuls. Ukoliko posmatramo odnos potencijalnog i ostvarenog ekonomskog rasta (tabela 2), Republika Srpska je imala ostvareni BDP ispod potencijalnog u period od 2003. do 2005, u period od 2005. do 2011. ostvareni BDP je iznad potencijalnog, da bi u period od 2012. do 2016. godine ekonomija opet bila ispod ravnotežnog nivoa. U 2017. godini ostvaren je ekonomski rast kojim je ostvareni BDP približan potencijalnom.

### 2.5. Fiskalna održivost

Fiskalna održivost predstavlja dugoročnu održivost trenutne fiskalne politike i javnog duga. Ocjena održivosti javnog duga podrazumijeva ocjenu da li su zadovoljena tri uslova. Prvi uslov je solventnost odnosno sposobnost javnih finansija da izmire sve svoje obaveze. Drugi uslov je uslov likvidnosti, tj. sposobnost javnih finansija da „zanove“ javni dug, finansiraju kratkoročna odstupanja prihoda i rashoda i eventualne dodatne nepredviđene troškove. Treći uslov podrazumijeva realnost prilagođavanja fiskalne politike, tačnije primarnog bilansa koji neće imati veći uticaj na ekonomsku aktivnost. Kada posmatramo uslov solventnosti javnog duga, pod solventnim vladinim finansijama podrazumijevamo stanje javnog duga koje je niže od sadašnje vrijednosti očekivanih budućih primarnih suficita.

**Tabela 3.** Analiza održivosti javnog duga Republike Srpske

Pretpostavke		Stanje			Projekcije			
		2016.	2017.	2018.	2019.	2020.	2021.	2022.
Rast BDP-a (%)	g	4,6	3,1	3,1	3,1	3,1	3,1	3,1
Efektivna nominalna domaća kamatna stopa (%)	i	4,6	4,6	4,6	4,6	4,6	4,6	4,6
Inflacija (%)	$\pi$	-1,2	1,5	1,5	1,5	1,5	1,5	1,5
Efektivna nominalna inostrana kamatna stopa (%)	$i^f$	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Depresijacija valute (%)	$\varepsilon$	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Učešće inostranih dugova (% ukupnih)	$\alpha$	66,6	66,6	66,6	66,6	66,6	66,6	66,6
Efektivna realna domaća kamatna stopa (%)	r	2,2	3,0	3,0	3,0	3,0	3,0	3,0
Efektivna realna inostrana kamatna stopa (%)	$r^f$	2,4	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3
Ponderisana kamatna stopa (%)	$r^w$	2,4	0,8	0,8	0,8	0,8	0,8	0,8
Primarni bilans (% BDP-a)	pb	0,6	0,4	0,4	0,4	0,4	0,4	0,4
Javni dug (% BDP-a)	d	49,8	46,8	43,9	41,2	38,7	36,2	33,9

Izvor: kalkulacije autora

Na osnovu prethodne tabele, može se zaključiti da je javni dug održiv, odnosno realni ekonomski rast od 3,1%, efektivna ponderisana kamatna stopa od 0,8% i očekivani primarni suficit od 0,4% BDP-a jesu faktori uz koje je javni dug održiv. Primarni deficit koji stabilizuje javni dug uz prethodno navedene varijable iznosi 2,6% BDP-a. To po-

Ovaj uslov je zadovoljen ukoliko je stanje javnog duga stabilizovano ili na silaznoj putanji. Prilikom ocjene održivosti javnog duga koriste se tzv. indikatori solventnosti i likvidnosti duga (više o teoretskom okviru i ovim indikatorima može se pronaći u: Krajišnik, Stevanović 2018).

U praksi, analiza održivosti duga zasniva se na sljedećoj jednačini akumulacije duga:<sup>6</sup>

$$\Delta d_t = \frac{i_t - g_t}{1 + g_t} d_{t-1} - pb_t + dda_t,$$

gdje je:

$\Delta d_t$  – rast bruto duga kao procenta BDP-a,

$i_t$  – nominalna kamatna stopa,

$g_t$  – nominalni rast BDP-a,

$d_{t-1}$  – odnos bruto duga izražen kao procenat BDP-a iz prethodnog perioda,

$pb_t$  – primarni bilans,

$dda_t$  – faktori koji utiču na dug, poput primitaka od privatizacije, priznavanja potencijalnih obaveza, oprosta dugova i dr.

Relacija  $i_t - g_t$  naziva se diferencijal kamatne stope i ekonomskog rasta. Ukoliko je ovaj diferencijal negativan pri primarnom bilansu od 0 i isključujući ostale faktore koji utiču na dug, javni dug će imati silazni trend. Na položaj javnog duga utiče prosječna kamatna stopa koja se plaća na dug, ekonomski rast, stanje primarnog bilansa i ostali faktori (primici od privatizacije, priznavanje potencijalnih obaveza, oprost dugova itd.). Posmatrajući tabelu 2, uviđamo da prosječni ostvareni primarni suficit u periodu od 2005. do 2017. godine za Republiku Srpsku iznosi 0,4%. Prosječna kamatna stopa na javni dug u 2016. godini iznosi 4,6% na unutrašnji javni dug, dok za spoljni dug kamatna stopa iznosi 1,2%. Sljedećom tabelom prikazaćemo procjenu kretanja javnog duga Republike Srpske u narednom periodu.

<sup>6</sup> MMF (2013), „Vodič za analizu održivosti duga za zemlje koje imaju pristup finansijskim tržištima“. Dostupno na: <http://www.imf.org/external/np/pp/eng/2013/050913.pdf>

The fiscal position gives an answer to the question of how much the current fiscal policy collects revenues from the economy and population, and how much fiscal expenditures contribute to aggregate demand. The fiscal position is an inverse cyclically-adjusted fiscal balance. If the cyclically-adjusted fiscal balance is positive, the fiscal position is negative and vice versa. This means that the fiscal decision-makers in the case of surplus “take” from the population and the economy more than they “give”. When the fiscal position is negative, the fiscal policy reduces aggregate demand. A fiscal impulse is a simple concept that shows how fiscal policy gives impulse to aggregate demand. If the impulse is positive, it indicates an expansive fiscal policy. By analyzing the previous chart we can say that Republic of Srpska had a positive fiscal impulse in the period from 2003 to 2009 and 2016, while in other years it had a negative fiscal impulse. If we look at the relation between potential and realized economic growth (Table 2), the Republic of Srpska had a realized GDP below the potential in the period from 2003 to 2005. In the period from 2005 to 2011 a realized GDP was achieved above the potential, while the period from 2012 to 2016 brought the economy again below the equilibrium level. In 2017, the economic growth achieved by GDP was similar to the potential.

## 2.5. Fiscal sustainability

Fiscal sustainability is a long-term sustainability of the current fiscal policy and public debt. The assessment of the debt sustainability implies an assessment of whether three conditions are met. The first condition is the solvency or the ability of public finances to settle all their obligations. The second requirement is a liquidity condition, i.e. the ability of public finances to “borrow” public debt, finance short-term revenue and expenditure deviations and possible additional unforeseen costs. The third condition implies the reality of adjusting fiscal policy, i.e. the primary balance that will not have a greater impact on economic activity. When looking at the public debt solvency under solvent government finance, we mean the state of the public debt that is lower than the present value of the expected future primary surpluses. This condition is satisfied

if the state debt is stabilized or if it decreases. The indicators of solvency and liquidity of debt are used in assessing the public debt sustainability. More information about the theoretical framework and these indicators can be found in (Krajišnik, Stevanović 2018).

In practice, the analysis of debt sustainability is based on the following equation of debt accumulation<sup>6</sup>:

$$\Delta d_t = \frac{i_t - g_t}{1 + g_t} d_{t-1} - pb_t + ddat_t$$

$$\Delta dt = dt-1 - pbt + ddat$$

$\Delta dt$  - growth of gross debt as a percentage of GDP

$i_t$  - nominal interest rate

$g_t$  - nominal GDP growth

$dt - 1$  - ratio of gross debt expressed as a percentage of GDP from the previous period

$dt - 1$  - primary balance

$ddat$  - factors that affect debt, such as receipts from privatization, recognition of potential liabilities, debt relief, etc.

The relation  $i_t - g_t$  is called the differential of interest rate and economic growth. If this differential is negative at a primary balance of 0 and excludes other debt-related factors, the public debt will become lower. The public debt position is influenced by the average interest rate on debt, economic growth, the state of the primary balance and other factors (privatization receipts, recognition of potential liabilities, debt relief, etc.). If we look at Table 2, we will notice that the average realized primary surplus in the period 2005 to 2017 for Republic of Srpska is 0.4%. The average interest rate on public debt in 2016 is 4.6% on the domestic public debt, while for external debt the interest rate is 1.2%. The following table will show the assessment of the public debt of Republic of Srpska in the following period.

**Table 3:** Analysis of the public debt sustainability of Republic of Srpska

Assumptions		Actual			Projections			
		2016	2017	2018	2019	2020	2021	2022
GDP growth (%)	g	4,6	3,1	3,1	3,1	3,1	3,1	3,1
Effective nominal domestic interest rate (%)	i	4,6	4,6	4,6	4,6	4,6	4,6	4,6
Inflation (%)	$\pi$	-1,2	1,5	1,5	1,5	1,5	1,5	1,5
Effective nominal foreign interest rate (%)	if	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Currency Depreciation (%)	$\varepsilon$	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Foreign debts participation (% of total)	$\alpha$	66,6	66,6	66,6	66,6	66,6	66,6	66,6
Effective real domestic interest rate (%)	r	2,2	3,0	3,0	3,0	3,0	3,0	3,0
Effective real foreign interest rate (%)	rf	2,4	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3
Weighted interest rate (%)	rw	2,4	0,8	0,8	0,8	0,8	0,8	0,8
Primary balance (% of GDP)	pb	0,6	0,4	0,4	0,4	0,4	0,4	0,4
<b>Public debt (% of GDP)</b>	<b>d</b>	<b>49,8</b>	<b>46,8</b>	<b>43,9</b>	<b>41,2</b>	<b>38,7</b>	<b>36,2</b>	<b>33,9</b>

Source: Author calculations

Based on the previous table, it can be concluded that the public debt is sustainable, ie real economic growth of 3.1%, effective weighted interest rate of 0.8% and the expected primary surplus

of 0.4% of GDP are the factors which sustain the public debt. The primary deficit that stabilizes public debt with the above mentioned variables is 2.6% of GDP. This means that Republic of Srpska has

<sup>6</sup> MMF, (2013), „A Guide to Debt Sustainability Analysis for countries that have access to financial markets“. Available on: <http://www.imf.org/external/np/pp/eng/2013/050913.pdf>

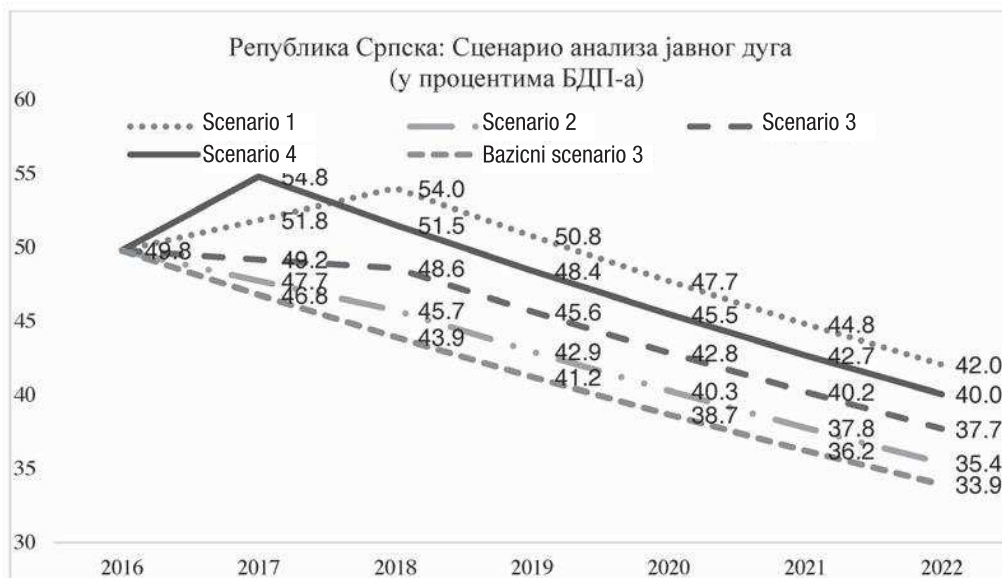
koji utiče na stabilizaciju javnog duga, što nameće potrebu daljeg jačanja i monitoringa fiskalne discipline. Takođe, moguće je ispitati putem analize stres scenarija „otpornost“ održivosti javnog duga. Scenariji koji su testirani ovim istraživanjem su:

- scenario 1: u toku 2017. i 2018. godine BDP iznosi -2%,
- scenario 2: rast domaće i inostrane kamatne stope za 200 baznih poena 2017. i 2018. godine,

- scenario 3: ostvarenje primarnog deficita od 2%, i
- scenario 4: depresijacija valute od 25%.

Uz navedene testirane šokove može se tvrditi da je javni dug Republike Srpske dugoročno održiv. Rezultati analize prikazani su sljedećim grafikonom:

**Grafikon 8. Stres test javnog duga Republike Srpske**



Izvor: kalkulacije autora

## ZAKLJUČAK

Analizom makroekonomskih indikatora Republike Srpske ovo istraživanje nastoji opisati ekonomske pojave poput proizvodne funkcije, agregatne tražnje, potencijalnog rasta BDP-a, fiskalne pozicije i fiskalne održivosti. Posmatranjem ovih pojava stiče se saznanje o njihovoj istoriji, međusobnoj povezanosti i formira se osnova za dalje predviđanje ovih kretanja, ali i definisanje mjera za dalji rast, održavanje fiskalne discipline, identifikuje se fiskalni prostor za mjere koje će dovesti do održivog ekonomskog rasta. U periodu 2015–2017. godine ekonomski rast baziran je na povećavanju zaposlenosti i investicijama. Ova dva faktora objašnjavaju više od ¾ ekonomskog rasta. Iako je ekonomski rast u periodu od 2012. do 2017. godine bio na nivou koji je ispod potencijalnog nivoa ekonomske aktivnosti, u posljednje dvije godine bilježe se stope rasta koje su iznad potencijalnih stopa. Ovo nameće oprez u vođenju daljih politika rasta, prije svega zbog smanjenja oscilacija u rastu i predupređivanju očekivanja za pad ekonomske aktivnosti. Fiskalna pozicija je popravljena iako je vođena prociklična fiskalna politika. Uvidom u održivost dugova može se tvrditi da je dug održiv. Razvojem scenarija i stres testova prethodna tvrdnja je potvrđena i u okolnostima šoka ekonomskog rasta, kamatnih stopa, depresijacije valute i primarnog bilansa. Ohrabruje činjenica da je nakon devet godina zabilježen suficit opšteg bilansa i rekordan primarni bilans. Uz očekivani ekonomski rast od 4% i kamatnu stopu na dug od 2,3%, diferencijal između ekonomskog rasta i kamatne stope iznosi 1,7% BDP-a. Ukoliko posmatramo tekući primarni bilans od 2,8%, možemo odrediti fiskalni prostor Republike Srpske za odgovaranje na potencijalni šok u ekonomskom rastu. Fiskalni prostor iznosi 4,5% BDP-a. Drugim riječima, Republika Srpska ima u „rezervi“ jedan godišnji ekonomski rast. Pozitivan primarni bilans nameće pitanje i dilemu na koji način ovaj suficit primarnog bilansa iskoristiti. Da li dalje stimulisati ekonomiju? Da li ga iskoristiti za stvaranje rezervi u

društvi i štednje za crne dane? Da li ovaj fiskalni prostor iskoristiti za nastavak strukturnih promjena? Ovo istraživanje imalo je za cilj da opiše ekonomske pojave u Republici Srpskoj, uvede nove instrumente i neke nove pojmove, poput potencijalnog ekonomskog rasta, da pruži osnovu za nova istraživanja, diskusije i otvori neka nova pitanja i saznanja u definisanju ispravnih politika u ekonomiji Republike Srpske.

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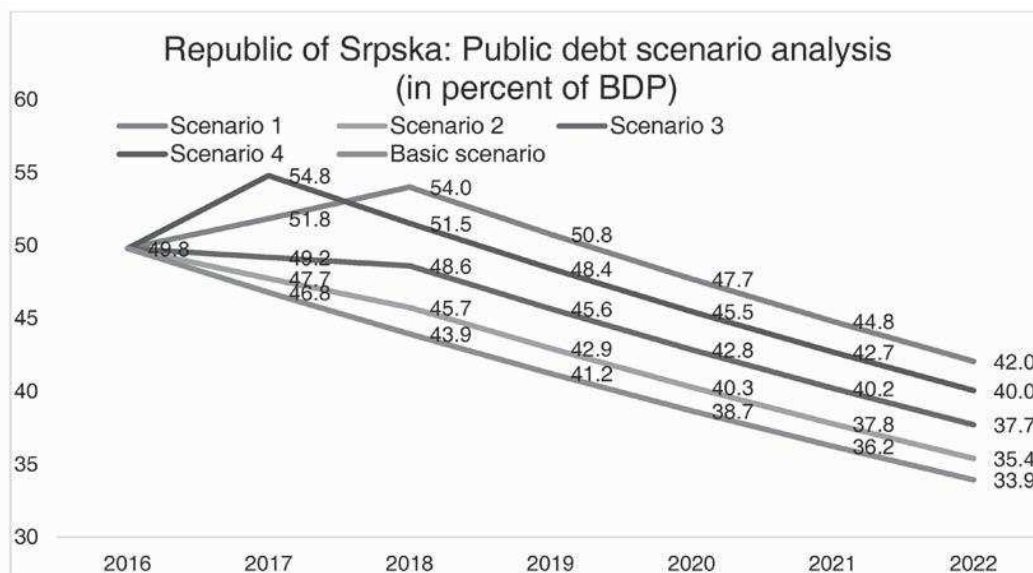


a fiscal space which is approximately equal to 3% of GDP that can be used in the purpose of unforeseen shocks in order to stabilize its economy and that way public debt sustainability won't be threatened. In the period from 2005 to 2017, the primary deficit was two times recorded higher than the primary deficit affecting the public debt stabilization, which imposes the need for further strengthening and monitoring of fiscal discipline. "Resistance" of the public debt sustainability can also be examined by analyzing the stress of the scenario. The scenarios tested by this research are:

- Scenario 1: in 2017 and 2018 GDP is -2%,
- Scenario 2: growth in domestic and foreign interest rates by 200 base points in 2017 and 2018,
- Scenario 3: achieving a primary deficit of 2% and
- Scenario 4: currency depreciation of 25%.

In addition to the above tested shocks, it can be claimed that the public debt of Republika Srpska is sustainable. The results of the analysis are shown in the following chart.

**Chart 8:** Stress test of the public debt of Republic of Srpska



Source: Author's calculations

## CONCLUSION

By analyzing the macroeconomic indicators of Republic of Srpska, this research intends to describe economic phenomenon such as production function, aggregate demand, potential GDP growth, fiscal position and fiscal sustainability. By observing these phenomena, we can learn about their history, their interconnection and form the basis for further forecasting of these movements, as well as defining measures for further growth, maintaining fiscal discipline, identifying fiscal space for measures that will lead to sustainable economic growth. In the period 2015-2017 economic growth was based on increasing employment and investment. These two factors explain more than ¾ of economic growth. Although economic growth in the period from 2012 to 2017 was at a level below the potential level of economic activity in the last two years, growth rates were recorded that are above potential rates. This requires further growth policies to be carefully led, primarily due to the reduction in oscillations in growth and the pre-empting of expectations for a decline in economic activity. The fiscal position has been corrected although procyclical fiscal policy has been guided. By examining the sustainability of debts, it can be claimed that debt is sustainable. By developing stress tests, the previous assertion can also be confirmed in the context of the shock of economic growth, interest rates, depreciation of the currency and primary balance. It is encouraging that overall balance surplus and a record primary balance have been recorded after nine years. Along with the expected economic growth of 4% and the interest rate on the debt of 2.3%, the differential between economic growth and the interest rate is 1.7% of GDP. If we look at the current primary balance of 2.8%, we can determine the fiscal space of Republic of Srpska for responding to the potential shock in

economic growth. The fiscal space is 4.5% of GDP. In other words, Republic of Srpska has one year of economic growth in the "reserve". A positive primary balance poses a question and dilemma how should be used this surplus of the primary balance. Should further economies be stimulated? Should it be used for creating reserves in the company and saving for black days? Can this fiscal space be used to continue the structural change?

This research intended to describe the economic phenomena in Republika Srpska, to introduce new instruments and some new concepts such as potential economic growth, as well as to provide the basis for new research, discussions and to open some new questions and findings in defining correct policies in the economy of Republic of Srpska.

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