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Nivo državnih prihoda i državnih rashoda u BiH i BDP

The level of government revenues and government expenditures in BiH and BDP

Rezime

Struktura državnih prihoda i državnih rashoda mora biti adekvatno postavljena kako bi njihovo učešće u bruto domaćem proizvodu doprinelo poboljšanju makroekonomskog okvira određene zemlje. To podrazumeva da državni prihodi moraju biti definisani na način da pokrivaju državne rashode u meri u kojoj je to dovoljno za optimalno funkcionisanje privrede. Simultano upravljanje prihodima i rashodima implicira preduzimanje aktivnosti sa aspekta poreza, zaduživanja i drugih oblika prikupljanja sredstava, kao i kontrolisanje komponente javne potrošnje. Rad analizira učešće državnih prihoda i državnih rashoda u bruto domaćem proizvodu BiH za vremenski period 1998–2017. godine. Nakon prikazivanja deskriptivnih vrednosti, izvršeno je merenje povezanosti između državnih prihoda i državnih rashoda, kao i njihova korelacija sa bruto domaćim proizvodom. Rezultati su prikazali da postoji snažna i pozitivna povezanost između državnih prihoda i državnih rashoda, pri čemu je intenzitet korelacije znatno viši između državnih prihoda i bruto domaćeg proizvoda.

Ključne reči: državni prihodi, državni rashodi, fiskalni okvir, BiH.

Abstract

The structure of government revenues and government expenditures have to be adequately set up so their shares in gross domestic product will contribute to improving the macroeconomic framework of a certain country. This implies that government revenues have to be defined in a way to cover government expenditures to the extent that it is enough for optimal functioning of the economy. Simultaneous revenue and expenditure management implies taking action from the aspect of taxes, borrowing and other forms of fundraising as well as controlling the public spending component. The paper analyzes the share of government revenues and government expenditures in gross domestic product of BiH for the period 1998–2017. After showing descriptive values, the correlation between government revenues and government expenditures was measured, as well as their correlation with gross domestic product. The results have showed there is a strong and positive correlation between government revenues and government expenditures in order to correlation intensity is higher between government revenues and gross domestic product.

Keywords: government revenues, government expenditures, fiscal framework, BiH.

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UVOD

Rastući trendovi javne potrošnje predstavljaju uobičajenu pojavu u zemljama u svetu gde neretko dolazi do visokih budžetskih deficita usled nedovoljnog rasta državnih prihoda. Naime, intenzitet rasta državnih rashoda znatno je viši u odnosu na državne prihode, što rezultira stvaranjem negativnog jaza između ovih kategorija. Prisustvo negativnog jaza ne mora imati štetne implikacije na ekonomiju, ukoliko su državni rashodi dominantno opredeljeni ka produktivnoj potrošnji. Rast učešća državnih rashoda u bruto domaćem proizvodu može biti kontrolisan putem intenzivnijeg ekonomskog rasta koji neće primarno biti zasnovan na javnoj potrošnji. To znači da podsticanje ekonomskog rasta može biti ostvareno kroz veću ulogu privatnog sektora i doziranje učešća javnih rashoda. S obzirom na to da državni prihodi obezbeđuju sredstva za finansiranje i pokrivanje javnih potreba, njihova struktura i učešće moraju biti definisani na odgovarajući način. Struktura prihoda je dominantno opredeljena ka porezima i visina i opterećenje poreskih oblika predstavljaju suštinsko pitanje u upravljanju javnim finansijama. Porezi predstavljaju osnovni izvor redovnih prihoda svake države i jedan od najznačajnijih instrumenata fiskalne politike. To se posebno odnosi na zemlje u kojima dominantan deo javnih prihoda proizlazi iz oporezivanja (Kalaš, Mirović, Andrašić, 2017). Previsoki porezi destimulativno utiču na komponente potrošnje i investicije, što može proizvesti negativne efekte na ekonomski rast zemlje. S druge strane, pokušaj poreskog relaksiranja kroz niže poresko opterećenje može motivisati investiciono okruženje i poboljšati privredni ambijent. Manji iznos sredstava po osnovu nižeg poreskog opterećenja na kratak rok može biti kompenzovan kroz intenzivnije redukovanje potrošnje neracionalnog karaktera. Dugoročno, kreiranje ekonomskog rasta na bazi izvoza, investicija i produktivne potrošnje može obezbediti prosperitet zemlje i ubrzati ekonomske tokove. Struktura prihoda i rashoda mora biti opredeljena ka stimulativnom poreskom sistemu i racionalnoj potrošnji, što podrazumeva sužavanje prostora za tekuće izdatke i davanje prednosti kapitalnim ulaganjima.

Allen i Tommasi (2001) ističu potrebu realizovanja tri osnovna cilja prilikom upravljanja javnim rashodima:

- održavanje ukupne fiskalne discipline putem delotvorne kontrole i definisane limite na rashode, pri čemu se kontrola ističe kao fundamentalna svrha svakog budžetskog sistema;
- raspodela sredstava u skladu sa prioritetima države podrazumeva mogućnost definisanja prioriteta unutar budžeta, alokacija sredstava shodno prioritetima i delotvornosti programa, kao transfer sredstava sa manje produktivnih aktivnosti na aktivnosti sa većim nivoom produktivnosti;
- promovisanje efikasnog pružanja usluge putem primene programa i pružanja usluge uz minimalne troškove, odnosno troškovna i operativna efikasnost korišćenja budžetskih sredstava.

S druge strane, većina fluktuacija na prihodnoj strani uslovljena je automatskom reakcijom poreskih prihoda na stanje u privredi, dok kretanje potrošnje nesumnjivo zavisi od postavljenih fiskalnih pravila i ciljeva (Fatas, Mihov, 2006).

1. TEORIJSKO RAZMATRANJE DRŽAVNIH PRIHODA I DRŽAVNIH RASHODA

U poslednjih trideset i više godina, državna potrošnja i porezi imali su rastući trend u odnosu na proizvodnu komponentu u većini zemalja (Meltzer, Richard, 1981). U savremenoj ekonomskoj teoriji planiranje rashoda ima prioritet u odnosu na prihode države, čiji se nivo shodno nivo određenih rashoda za pokrivanje društvenih potreba. Učešće državnih rashoda u bruto domaćem proizvodu mora biti na

prihvatljivom nivou kako potrošnja ne bi izazvala kontraproduktivne implikacije na ekonomski rast. Naime, Folster i Henrekson (2001) potvrdili su da veće učešće državnih rashoda rezultira smanjenjem ekonomskog rasta. Slično, Christie (2011) ističe da rast državnih rashoda za 1% rezultira smanjenjem ekonomskog rasta merenog putem bruto domaćeg proizvoda za 0,07%. Putem komparativne analize zemalja OECD-a Fuceri (2007) dolazi do zaključka da države sa visokim učešćem državnih rashoda imaju sporiji rast, pri čemu volatilitet državnih rashoda ima veći efekat na ekonomski rast u zemljama u razvoju na dugi rok. S druge strane, analizirajući relativni uticaj smanjenja potrošnje i povećanja poreza, Bajo-Rubio i Gomez-Plana (2015) navode da rast poreskih oblika ima negativan efekat na bruto domaći proizvod i zaposlenost. Kada se analizira potencijalna međuzavisnost državnih prihoda i državnih rashoda, teorijsko i empirijsko istraživanje uključuje četiri hipoteze. Prvo, Friedman (1978) definisao je hipotezu „oporezuj–troši“, koja naglašava da promene u državnim prihodima dovode do promena u državnim rashodima. Druga hipoteza „troši–oporezuj“ ističe da promene u državnim rashodima rezultiraju promenama državnih prihoda. Treća hipoteza definiše fiskalnu sinhronizaciju i dvosmernu uzročnost između državnih prihoda i državnih rashoda, dok, s druge strane, četvrta hipoteza polazi od nezavisnosti državnih prihoda i državnih rashoda, tj. odsustva uzročnosti između navedenih varijabli. Chang i Chiang (2009) ispitivali su odnos državnih prihoda i državnih rashoda u petnaest zemalja OECD-a za vremenski period 1992–2006. godine. Na osnovu panel-kointegracione analize, determinisana je dvosmerna kauzalnost između državnih prihoda i državnih rashoda i na taj način potvrđena hipoteza o fiskalnoj sinhronizovanosti. Ispitujući uzročnost poreskih prihoda i državnih rashoda, Taha i Loganathan (2008) utvrdili su dvosmernu uzročnost između poreskih prihoda i državnih rashoda, gde su rezultati ukazali na to da smanjenje poreskih stopa može dovesti do pada državnih rashoda. Analizirajući odnos poreskih prihoda i državnih rashoda, Zortuk i Uzgoren (2008) ocenjivali su odnos državnih rashoda i poreza u Turskoj za vremenski period 1981–2004. godine. Rezultati su potvrdili dugoročnu ravnotežu između varijabli, pri čemu povećanje državnih rashoda za 1% rezultira rastom poreza za 0,8%. Državni rashodi pozitivno utiču na poreze u Turskoj na kratak i dugi rok, što implicira da ova ekonomija finansira povećanu potrošnju kroz veći nivo poreskog opterećenja. Elyasi i Rahimi (2012) istraživali su odnos državnih rashoda i državnih prihoda u Iranu za vremenski period 1963–2007. godine. Primenom ARDL pristupa i testa kauzalnosti utvrđena je kointegraciona veza, kao i dvosmerna uzročnost od prihoda ka državnim rashodima. Na taj način, potvrđena je fiskalna sinhronizovanost između posmatranih varijabli. Ispitujući odnos državnih prihoda i državnih rashoda u Grčkoj, Richter i Dimitrios (2013) došli su do saznanja da je u periodu od 1833. do 2009. godine hipoteza „oporezuj pa troši“ bila prisutna u ovoj zemlji. Utvrđena je jednosmerna kauzalnost od poreza ka državnim rashodima, pri čemu navode da je visok nivo deficita i javnog duga rezultat prevelike potrošnje. Takođe, ističe se da smanjenje državnih rashoda treba da ima prioritet u odnosu na povećanje prihoda po osnovu poreza.

2. GLOBALNI FISKALNI OKVIR U BIH

Posmatrajući ekonomska dešavanja u BiH u poslednje tri godine, možemo konstatovati da je zabeležen realni rast ekonomije od 3,08%. Ostvarenje ekonomskog rasta je prvenstveno zabeleženo zbog rasta izvoza i jačanja komponenti privatne potrošnje i investicija. Takođe, ekonomske prilike u evrozoni utiču na uslove privredivanja u BiH sa aspekta priliva stranog kapitala kroz direktna ulaganja. Usporavanje ekonomskog rasta u EU, kao i najvažnijim trgovinskim partnerima ne doprinosi poboljšanju ekonomske slike

INTRODUCTION

Increasing public spending trends are a common phenomenon in countries in the world where there are often high budget deficits due to the insufficient increase in government revenues. Namely, the intensity of the increase in government expenditures is significantly higher compared to government revenues, which results in the creation of a negative gap between these categories. The presence of a negative gap doesn't have to have a detrimental effect on the economy, if government expenditures are dominantly directed towards productive consumption. The increase in the share of government expenditures in Gross Domestic Product can be controlled through more intensive economic growth that will primarily be based on public spending. This means that the stimulation of economic growth can be achieved through a larger role of the private sector and a proportionate share of public expenditures. Given that government revenues provide funding and support for public needs, their structure and share must be defined adequately. The revenues structure is predominantly tax oriented, and the amount and burden of tax forms is a fundamental issue in public finances management. Taxes represent the main source of regular revenues of each state and one of the most important fiscal policy instruments. This particularly applies to countries where the dominant part of public revenues comes from taxation (Kalas, Mirovic, Andrasic, 2017). Too high taxes affect the components of consumption and investment, which can produce negative effects on the economic growth of the country. On the other hand, attempting tax relaxation through lower tax burden can motivate the investment environment and improve the economic environment. A smaller amount of funds coming from lower tax burden in the short term can be compensated through a more intensive reduction of irrational consumption. In the long term, creating economic growth based on exports, investments and productive expenditures can provide country prosperity and accelerate economic flows. The structure of revenues and expenditures must be set up as a stimulating tax system and rational consumption, which means cutback of space for current expenditures and giving priority to capital investments.

Allen and Tommasi (2001) emphasize the need to realize three basic goals in managing public expenditures:

- Maintaining the overall fiscal discipline through effective control and defined expenditure limits, whereby control is emphasized as the fundamental purpose of each budget system;
- allocation of funds in accordance with the priorities of the state implies the possibility of defining priorities within the budget, allocation of funds in accordance with priorities and effectiveness of programs, as a transfer of funds from less productive activities to activities with higher level of productivity;
- Promoting efficient service provision through program implementation and service provision with minimal costs, ie cost and operational efficiency of budget funds spending.

On the other hand, most fluctuations on the revenue side are conditioned by the automatic reaction of tax revenues to the state of the economy, while the consumption trend undoubtedly depends on the fiscal rules and goals which are set. (Fatas, Mihov, 2006).

1. THEORETICAL REVIEW OF GOVERNMENT REVENUES AND GOVERNMENT EXPENDITURES

In the last thirty years or more, government spending and taxes have had a rising trend in relation to the production component in the most of the countries (Meltzer, Richard, 1981). In contemporary economic

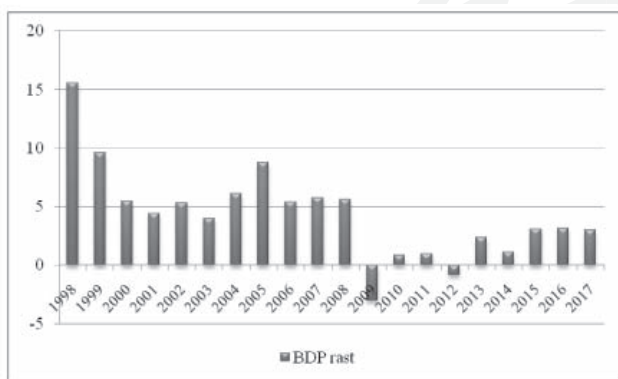
theory, expenditure planning has priority over government revenues, the level of which is consistent with the level of certain expenditures needed to cover social needs. The share of government expenditures in the Gross Domestic Product must be at an acceptable level so that consumption does not cause counterproductive implications for economic growth. Namely, Folster and Henrekson (2001) have confirmed that greater share of government expenditure results in a reduction in economic growth. Similarly, Christie (2011) points out that government expenditure increase of 1% results in a decrease in economic growth measured by Gross Domestic Product by 0.07%. Through a comparative analysis of the OECD countries, Fuceri (2007) concludes that countries with a high share of government expenditures have slower growth, with the volatility of government expenditures having a greater effect on economic growth in developing countries over the long term. On the other hand, analyzing the relative impact of expenditures cuts and tax increases, Bajo-Rubio and Gomez-Plana (2015) state that tax growth has a negative effect on Gross Domestic Product and employment. When analyzing the potential interdependence of government revenue and government expenditure, the theoretical and empirical research includes four hypotheses. First, Friedman (1978) defined the "tax-spend" hypothesis that emphasizes that changes in government revenues lead to a change in government expenditures. Second, the "spend-tax" hypothesis points out that changes in government expenditures result in changes in government revenues. The third hypothesis defines fiscal synchronization and the two-way causation between government revenues and government expenditures, while on the other hand, the fourth hypothesis is based on the independence of government revenues and government expenditures, i.e. the absence of causation between these variables. Chang and Chiang (2009) examined the ratio of government revenues and government expenditures in fifteen OECD countries for the period 1992-2006. Based on panel cointegration analysis, a two-way causality between government revenues and government expenditures was determined, thus confirming the hypothesis of fiscal synchronization. Examining the causality of tax revenues and government expenditures. Taha and Loganathan (2008) have identified the two-fold causation between tax revenues and government expenditures, where the results indicated that a reduction in tax rates could lead to a fall in government spending. Analyzing the ratio of tax revenues and government expenditures, Zortuk and Uzgoren (2008) evaluated the ratio of government expenditures and taxes in Turkey for the period 1981-2004. The results confirmed the long-term balance between variables, where the increase in government expenditures by 1% resulted in tax growth of 0.8%. Government expenditures positively affect taxes in Turkey in the short and long term, which implies that this economy finances increased spending through a higher level of tax burden. Elyasi and Rahimi (2012) investigated the ratio of government expenditures and government revenues in Iran for the period 1963-2007. Using the ARDL approach and causality test, a co-integration relationship was established, as well as a two-way causation of revenue to government expenditures. In this way, the fiscal synchronization between the observed variables was confirmed. Examining the ratio of government revenues and government expenditures in Greece, Richter and Dimitrios (2013) have come to the conclusion that in the period from 1833-2009, the hypothesis "tax and spend" was present in this country. A one-way causality of taxes and government expenditures was determined, stating that the high level of deficits and public debt is the result of over-consumption. Also, it is pointed out that the reduction of government expenditures should be given priority over the increase in tax revenues.

2. GLOBAL FISCAL FRAMEWORK IN BIH

By observing economic development in BiH over the past three years, it can be concluded that the real economic growth was 3.08%.

u BiH. Na osnovu projekcije rasta za 2018–2019. godinu, očekuje se nastavak poboljšanja u okruženju koja bi trebalo dodatno da podstaknu rast investicione komponente. Istovremeno, očekuje se stabilizovanje rasta finalne potrošnje od 2% i izvoza od 5,5%, uključujući zadržavanje realnog rasta od 1,5%–1,8% na godišnjem nivou. Pored rasta izvoza, prisutno je povećanje uvoza koje bi uz rast javnih investicija trebalo da podstakne intenziviranje ekonomskog rasta u 2018. godini (www.mft.gov.ba). Pored obezbeđenja ekonomskog rasta, neophodno je održavati zdrave javne finansije sa stanovišta odnosa državnih prihoda i državnih rashoda. Struktura prihoda je opredeljena ka poreskim prihodima, pri čemu se izdvajaju indirektni porezi, kao što su porez na dodatu vrednost i akcize. Naime, direktni porezi čine svega 15% poreskih prihoda na nivou konsolidovanog budžeta BiH, što dovoljno govori o zavisnosti prihoda po osnovu indirektnog oporezivanja. S druge strane, subvencije, socijalna davanja i transferi najviše opterećuju strukturu rashoda, gde njihovo učešće prevazilazi 40% javne potrošnje. Pored toga, bruto plate i naknade, kao i izdaci za materijal i usluge, čine 44% javnih rashoda, što ukazuje na to da postoji minimalan prostor za kapitalne investicije i javne rashode produktivnog karaktera.

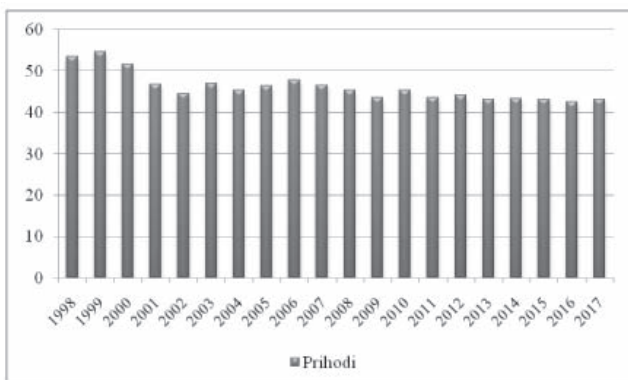
Grafikon 1. Stopa ekonomskog rasta u BiH



Izvor: Autori na osnovu www.imf.org

Na grafikonu 1. predstavljeno je kretanje realnog bruto domaćeg proizvoda u BiH za vremenski period 1998–2017. godine. Primetne su visoke stope ekonomskog rasta na početku vremenskog horizonta. U periodu od 1998. do 2006. godine, prosečna stopa rasta iznosila je 7,8%, pri čemu je pozitivan trend prisutan sve do 2009. godine. Tada dolazi do usporavanja ekonomije i pada od 3%, što predstavlja negativan kumulativan trend od čak 8,5% u odnosu na 2008. godinu. U poslednje tri godine, stopa ekonomskog rasta bila je 3,08% na prosečnom nivou, što je svakako ohrabrujuće, imajući u vidu da mnoge zemlje imaju negativne stope ekonomskog rasta.

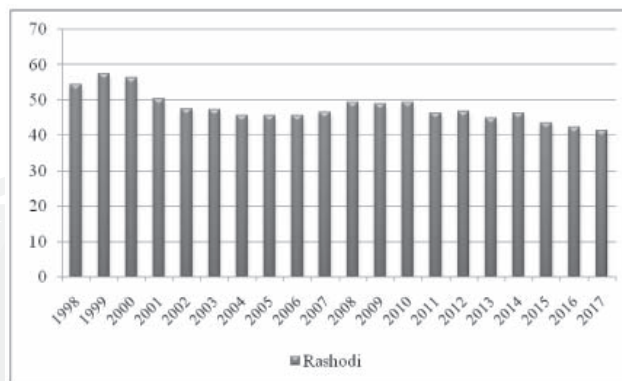
Grafikon 2. Učešće državnih prihoda (% BDP-a)



Izvor: Autori na osnovu www.imf.org

Grafikon 2. prikazuje učešće državnih prihoda u bruto domaćem proizvodu BiH za vremenski period 1998–2017. godine. Analizirajući posmatrani vremenski horizont, prosečno učešće državnih prihoda iznosilo je 46,15% bruto domaćeg proizvoda, pri čemu je primetan njihov opadajući trend. Naime, njihovo učešće je opalo za čak 10% u bruto domaćem proizvodu za dvadesetogodišnji vremenski period. Maksimalno učešće državnih prihoda je zabeleženo 1999. godine, kada su činili 54,72%, dok je najmanje učešće evidentirano 2016. godine, kada su bili na nivou od 42,66% bruto domaćeg proizvoda.

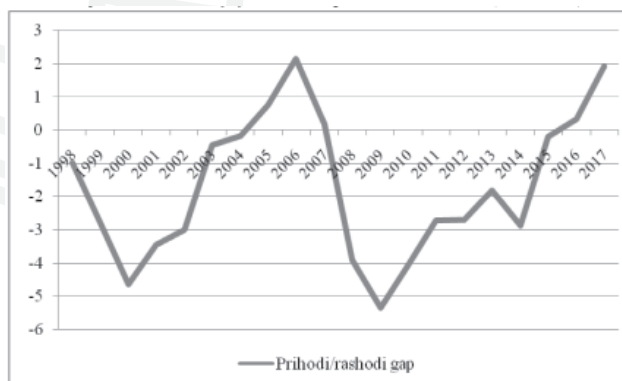
Grafikon 3. Učešće državnih rashoda (% BDP-a)



Izvor: Autori na osnovu www.imf.org

Nakon prikazivanja državnih prihoda, neophodno je analizirati učešće državnih rashoda u bruto domaćem proizvodu. Prosečno učešće državnih rashoda iznosi 47,84% bruto domaćeg proizvoda, pri čemu je zabeležen sličan trend kretanja kao i kod državnih prihoda. Učešće državnih rashoda je opalo za 13,01%, što implicira njihov intenzivniji pad u odnosu na državne prihode. Iako je 1999. godine ostvaren najviši nivo državnih prihoda u bruto domaćem proizvodu, potrebno je naglasiti da je učešće državnih rashoda bilo na maksimalnom nivou od 57,5%. S druge strane, njihovo učešće se smanjuje od 2011. godine, pri čemu je prisutan kumulativan pad od 5,08% bruto domaćeg proizvoda.

Grafikon 4. Godišnji jaz između prihoda i rashoda (% BDP-a)

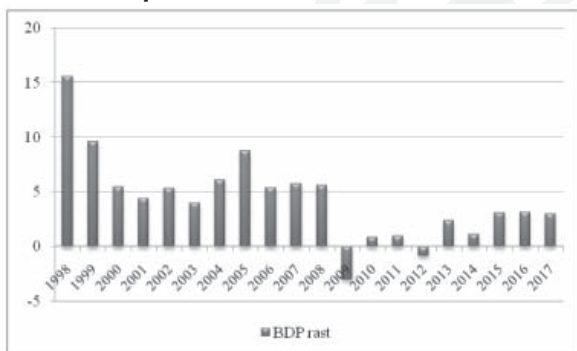


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Analiziranjem odnosa državnih prihoda i državnih rashoda sa aspekta njihovog učešća u bruto domaćem proizvodu, identifikovan je njihov realni jaz na godišnjoj osnovi. Iako učešće državnih prihoda i državnih rashoda opada u bruto domaćem proizvodu, intenzitet njihovog smanjenja je različitog karaktera. Naime, najviši negativan jaz je utvrđen 2009. godine, kada je učešće državnih rashoda premašilo državne prihode za 5,35% bruto domaćeg proizvoda. S druge strane, pozitivan jaz je primetan na kraju 2017. godine, kada je učešće državnih prihoda bilo veće za 1,93% u odnosu na državne rashode u bruto domaćem proizvodu.

The economic growth was primarily due to increased exports and the strengthening of private consumption and investment components. Also, economic conditions in the Eurozone affect the business conditions in BiH because of foreign capital inflow through direct investments. The slowdown in economic growth in the EU, as well as in the most of important trading partners, does not contribute to improving the economic picture in BiH. Based on the growth projections for 2018-2019, further improvements in the environment are expected to further stimulate the growth of the investment component. At the same time, it is expected to stabilize the final consumption growth of 2% and the export of 5.5%, including maintaining a real growth of 1.5-1.8% annually. In addition to the export increase, there is an increase in imports that, along with the growth of public investments, should stimulate the intensification of economic growth in 2018 (www.mft.gov.ba). In addition to securing economic growth, it is necessary to maintain sound public finances through the ratio of government revenues and expenditures. The revenues structure is directed towards tax revenues, where indirect taxes such as value added tax and excise tax are allocated. Namely, direct taxes make up only 15% of tax revenues at the level of the consolidated budget of BiH, which speaks enough about the dependence on revenues from indirect taxation. On the other hand, subsidies, social benefits and transfers mostly burden the structure of expenditures where their share exceeds 40% of public spending. In addition, gross salaries and benefits, as well as expenditures for materials and services make 44% of public expenditures, indicating that there is a minimum space for productive capital investments and public expenditures.

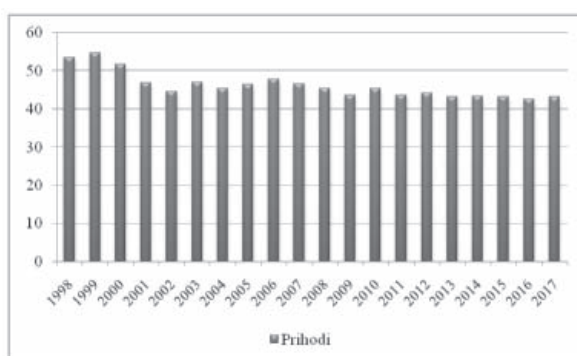
Graph 1 Economic Growth Rate in BiH



Source: Authors' based on www.imf.org

Graph 1 shows the changes in real Gross Domestic Product in BiH for the period 1998-2017. As can be seen, high rates of economic growth at the start of the time horizon are noticeable. In the period from 1998 to 2006, the average growth rate was 7.8%, with a positive trend present until 2009. Then there is a slowdown in the economy and it decreased to 3%, which represents a negative cumulative trend of as much as 8.5% compared to 2008. In the last three years, the economic growth rate was 3.08% at an average level, which is certainly encouraging, bearing in mind that many countries have negative economic growth rates.

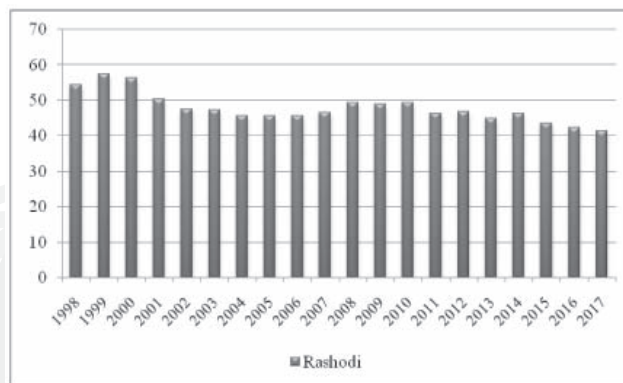
Graph 2 Government revenue share (% of GDP)



Source: Authors' based on www.imf.org

Graph 2 shows the share of government revenues in the Gross Domestic Product in BiH for the period 1998-2017. Analyzing the observed time horizon, the average share of government revenues was 46.15% of Gross Domestic Product, with a declining trend. Namely, their share has fallen by as much as 10% in the Gross Domestic Product for a twenty-year period. The maximum share of government revenues was recorded in 1999 when they made 54.72%, while the lowest share was recorded in 2016 when they were at the level of 42.66% of Gross Domestic Product.

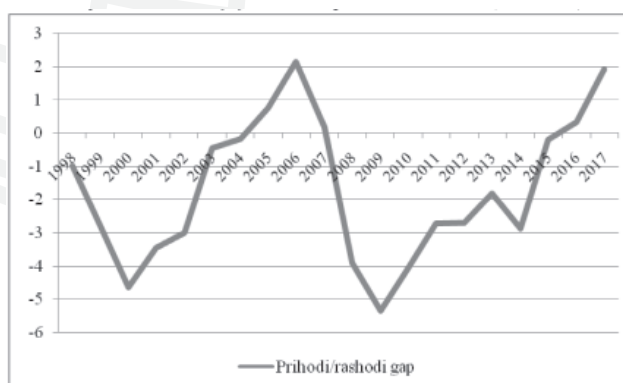
Graph 3 Share of government expenditures (% of GDP)



Source: Authors' based on www.imf.org

After presenting government revenues, it is necessary to analyze the share of government expenditures in Gross Domestic Product. The average share of government expenditures is 47.84% of Gross Domestic Product, with a similar trend of changes as in government revenues. The share of government expenditures fell by 13.01%, which implies their more intensive decline compared to government revenues. Although the highest share of government revenues in Gross Domestic Product was achieved in 1999, it should be noted that the share of government expenditures was at the maximum level of 57.5%. On the other hand, their share has been decreasing since 2011, with a cumulative fall of 5.08% of Gross Domestic Product.

Graph 4 Annual gap between revenues and expenditures (% of GDP)



Source: Authors' Calculation

Analyzing the ratio of government revenues and government expenditures from the aspect of their share in Gross Domestic Product, their real gap has been identified on an annual basis. Although the share of government revenues and government expenditures in Gross Domestic Product is decreasing, the intensity of their decrease is of a different nature. Namely, the highest negative gap was established in 2009 when the share of government expenditures exceeded government revenues by 5.35% of Gross Domestic Product. On the other hand, a positive gap was recorded at the end of 2017, when the share of government revenues was 1.93% higher than the government expenditures of Gross Domestic Product.

3. TEORIJSKO OBJAŠNJENJE KONCEPTA KORELACIJE

Korelacija podrazumeva međusobnu povezanost dve ili više varijabli, pri čemu se vrednost jedne varijable može predvideti na osnovu vrednosti druge varijable. To implicira da promena vrednosti jedne varijable utiče na promenu vrednosti druge varijable, gde se nezavisna varijabla može utvrditi kao varijabla koja utiče na vrednost druge varijable. S druge strane, zavisna varijabla se identifikuje kao varijabla na koju se ispituje uticaj nezavisnih varijabli. Izračunavanje Pearson koeficijenta korelacija uključuje sumu kvadrata varijable X, sumu kvadrata varijable Y i sumu proizvoda varijabli X i Y.

Suma kvadrata varijable X jednaka je sumi kvadrata odstupanja vrednosti varijable X od prosečne vrednosti \bar{X} :

$$SS_{xx} = \sum_{i=1}^n (X_i - \bar{X})^2 \quad (1)$$

Prosečna vrednost X jednaka je:

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i \quad (2)$$

Suma kvadrata varijable Y jednaka je sumi kvadrata odstupanja vrednosti varijable Y od prosečne vrednosti \bar{Y} :

$$SS_{yy} = \sum_{i=1}^n (Y_i - \bar{Y})^2 \quad (3)$$

Prosečna vrednost Y jednaka je:

$$\bar{Y} = \frac{1}{n} \sum_{i=1}^n Y_i \quad (4)$$

Suma proizvoda varijabli X i Y jednaka je sumi proizvoda odstupanja vrednosti X i Y od prosečnih vrednosti \bar{X} i \bar{Y} :

$$SS_{xy} = \sum (X_i - \bar{X})(Y_i - \bar{Y}) \quad (5)$$

Koeficijent korelacije može se izraziti na sledeći način:

$$r = \frac{SS_{xy}}{\sqrt{SS_{xx} * SS_{yy}}} \quad (6)$$

Tabela 1. Deskriptivna statistika

DP	Statistic	Std. Error	DR	Statistic	Std. Error	BDP	Statistic	Std. Error
Mean	46.15	0.77	Mean	47.84	0.95	Mean	4.33	0.89
Median	45.42		Median	46.73		Median	4.20	
Variance	11.91		Variance	18.03		Variance	16.15	
Std. Deviation	3.45		Std. Deviation	4.25		Std. Deviation	4.02	
Minimum	42.66		Minimum	41.35		Minimum	-2.99	
Maximum	54.72		Maximum	57.50		Maximum	15.60	
Range	12.06		Range	16.15		Range	18.59	
Interquartile Range	3.47		Interquartile Range	3.85		Interquartile Range	4.24	
Skewness	1.44	0.51	Skewness	0.94	0.51	Skewness	0.92	0.51
Kurtosis	1.39	0.99	Kurtosis	0.69	0.99	Kurtosis	2.35	0.99

*DP – državni prihodi, DR – državni rashodi, BDP – bruto domaći proizvod

Izvor: Kalkulacija autora

Tabela 1. prikazuje deskriptivne vrednosti državnih prihoda, državnih rashoda i bruto domaćeg proizvoda za vremenski period 1998–2017. godine. Prosečno učešće državnih prihoda iznosi 46,15% bruto domaćeg proizvoda, dok su rashodi na nešto višem nivou (47,84%). S druge strane, prosečna stopa ekonomskog rasta

bila je 4,33%, pri čemu su zabeležene pozitivne vrednosti asimetrije i spljoštenosti. Pozitivna mera vrednosti asimetrije (Skewness) podrazumeva pomenost distribucije na desnu stranu u odnosu na normalnu distribuciju, dok pozitivna vrednost mere spljoštenosti (Kurtosis) ukazuje na povećanu homogenost distribucije rezultata.

Tabela 2. Korelaciona analiza

Korelacija		DP	DR	BDP
DP	Pearson Correlation	1	0.860**	0.755**
	Sig. (2-tailed)		0.000	0.000
	N	20	20	20
DR	Pearson Correlation	0.860**	1	0.450*
	Sig. (2-tailed)	0.000		0.046
	N	20	20	20
BDP	Pearson Correlation	0.755**	0.450*	1
	Sig. (2-tailed)	0.000	0.046	
	N	20	20	20

* Korelacija je značajna pri nivou 0.05., ** Korelacija je značajna pri nivou 0.01.

Izvor: Kalkulacija autora

3. THEORY EXPLANATION OF THE CONCEPT OF CORRELATION

Correlation implies the interconnection of two or more variables, with the value of one variable being predicted based on the value of the other variable. This implies that the change in the value of one variable affects the change in the value of another variable, where an independent variable can be defined as a variable that affects the value of another variable. On the other hand, the dependent variable is identified as the variable to which the influence of independent variables is examined. Calculating the Pearson coefficient, the correlation includes the sum of the square of the variable X, the sum of the square of the variable Y, and the sum of the products of the variables X and Y.

The sum of the square of the variable X is equal to the sum of the square of the deviation of the values of the variable X from the average values \bar{X} :

$$SS_{xx} = \sum_{i=1}^n (X_i - \bar{X})^2 \quad (1)$$

The average value X is equal:

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i \quad (2)$$

The sum of the square of the variable Y is equal to the sum of the square of the deviation of the value of the variable Y from the average value \bar{Y} :

$$SS_{yy} = \sum_{i=1}^n (Y_i - \bar{Y})^2 \quad (3)$$

The average value Y is equal:

$$\bar{Y} = \frac{1}{n} \sum_{i=1}^n Y_i \quad (4)$$

The sum of the multiplications of the variables X and Y is equal to the sum of the multiplications of deviation of the values X and Y from the average values \bar{X} i \bar{Y} :

$$SS_{xy} = \sum (X_i - \bar{X})(Y_i - \bar{Y}) \quad (5)$$

The coefficient of correlation can be expressed in the following way:

$$r = \frac{SS_{xy}}{\sqrt{SS_{xx} * SS_{yy}}} \quad (6)$$

Table 1 Descriptive statistics

DP	Statistic	Std. Error	DR	Statistic	Std. Error	BDP	Statistic	Std. Error
Mean	46.15	0.77	Mean	47.84	0.95	Mean	4.33	0.89
Median	45.42		Median	46.73		Median	4.20	
Variance	11.91		Variance	18.03		Variance	16.15	
Std. Deviation	3.45		Std. Deviation	4.25		Std. Deviation	4.02	
Minimum	42.66		Minimum	41.35		Minimum	-2.99	
Maximum	54.72		Maximum	57.50		Maximum	15.60	
Range	12.06		Range	16.15		Range	18.59	
Interquartile Range	3.47		Interquartile Range	3.85		Interquartile Range	4.24	
Skewness	1.44	0.51	Skewness	0.94	0.51	Skewness	0.92	0.51
Kurtosis	1.39	0.99	Kurtosis	0.69	0.99	Kurtosis	2.35	0.99

*DP-government revenues, DR-government expenditures, BDP-Gross Domestic Product, Source: Authors' Calculation

Table 1 shows the descriptive values of government revenues, government expenditures and Gross Domestic Product for the period 1998-2017. The average share of government revenues is 46.15% of Gross Domestic Product, while expenditures are slightly higher (47.84%). On the other hand, the average economic growth rate

was 4.33%, with positive values of asymmetry and tailedness being recorded. A positive measure of asymmetry value (Skewness) implies the distribution to the right side relative to normal distribution, while the positive value of the tailedness measure (Kurtosis) indicates an increased homogeneity of the distribution of the result.

Table 2 Correlation analysis

Korelacija		DP	DR	BDP
DP	Pearson Correlation	1	0.860**	0.755**
	Sig. (2-tailed)		0.000	0.000
	N	20	20	20
DR	Pearson Correlation	0.860**	1	0.450*
	Sig. (2-tailed)	0.000		0.046
	N	20	20	20
BDP	Pearson Correlation	0.755**	0.450*	1
	Sig. (2-tailed)	0.000	0.046	
	N	20	20	20

* Correlation is significant at 0.05., ** Correlation is significant at 0.01.

Source: Calculation by the authors

U tabeli 2. predstavljeno je merenje povezanosti između državnih prihoda, državnih rashoda i bruto domaćeg proizvoda za vremenski period 1998–2017. godine. Vrednosti koeficijenta korelacije ukazuju na snažnu povezanost državnih prihoda i državnih rashoda, pri čemu je ona pozitivnog karaktera. Takođe, primetna je pozitivna korelacija između državnih prihoda i bruto domaćeg proizvoda, kao i državnih rashoda i bruto domaćeg proizvoda. Iako je identifikovana slična korelisanost između navedenih varijabli, intenzitet povezanosti je viši između državnih prihoda i bruto domaćeg proizvoda.

ZAKLJUČAK

Teorijsko i empirijsko izučavanje odnosa državnih prihoda i državnih rashoda ističe permanentnu potrebu njihovog usaglašavanja i održavanja njihove optimalne relacije. U većini zemalja u svetu dominira koncept naglašenih rashoda u odnosu na prihode, pri čemu se kao rezultat pojavljuju budžetski deficiti koji su neretko nekontrolisanog karaktera. Pozitivan ili negativan jaz između navedenih komponenti može izazvati pozitivne ili negativne implikacije na stanje javnih finansija određene zemlje. U sklopu odnosa prihoda i rashoda, potrebno je imati u vidu njihovu strukturu i utvrditi osnovne prioritete prilikom njihovog definisanja. Naime, preterani rashodi izazivaju naglašenu potrošnju koja je često neracionalnog karaktera i dovodi do štetnih efekata na javne finansije određene zemlje. Deficiti se pokrivaju kroz iscrpljivanje prihodne strane putem poreza, kao i zaduživanje koje privremeno odgađa problem manjka u budžetskoj kasi. To znači da je neophodno uspostaviti optimalan odnos između državnih prihoda i državnih rashoda, pri čemu ne treba istrajati na formalnom zadovoljenju njihove ravnoteže ili pozitivnog odnosa. Veći rashodi u odnosu na prihode ne moraju predstavljati problem za ekonomiju, ukoliko oni ne opterećuju privredne tokove u zemlji i ako su usmereni na potrošnju investicionog i produktivnog karaktera. U radu je analiziran odnos državnih prihoda i državnih rashoda, kao i njihova relacija sa bruto domaćim proizvodom u BiH. Rezultati deskriptivne statistike ukazali su na to da prosečno učešće državnih rashoda prevazilazi prosečno učešće državnih prihoda u bruto domaćem proizvodu. Takođe, identifikovan je negativan jaz između državnih prihoda i državnih rashoda u većini posmatranih godina. Rezultati korelacione matrice prikazali su da postoji snažna i pozitivna povezanost između posmatranih varijabli, pri čemu je intenzitet korelisanosti nešto viši između državnih prihoda i bruto domaćeg proizvoda.

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Table 2 shows the measurement of the correlation between government revenues, government expenditures and Gross Domestic Product for the period 1998-2017. The values of the correlation coefficient indicate a strong correlation between government revenues and government expenditures and it is positive. Also, there is a positive correlation between government revenues and Gross Domestic Product, as well as government expenditures and Gross Domestic Product. Although similar correlation between the mentioned variables has been identified, the intensity of the correlation is higher between the government revenues and the Gross Domestic Product.

CONCLUSION

The theoretical and empirical study of relations between government revenues and government expenditures highlights the permanent need for their harmonization and maintenance of their optimal relationship. In most countries in the world, the concept of accentuated expenditures dominates compared to revenues, and as a result there are budget deficits that are often uncontrollable. A positive or negative gap between the listed components can cause positive or negative implications on the state of public finances of a particular country. Within the ratio of revenues and expenditure, it is necessary to take into account their structure and to establish the basic priorities in their definition. Namely, excessive expenditures cause accentuated consumption, which is often irrational, and leads to adverse effects on the public finances of a particular country. The deficits are covered through the exhaustion of the taxpayer's side through taxes, as well as the borrowing that temporarily puts off the problem of the deficit in the budget box. This means that it is necessary to establish an optimal relationship between government revenues and government expenditures, without the need to persist in the formal satisfaction of their balance or positive relationship. Higher expenditures compared to revenues do not have to be a problem for the economy, unless they burden the economic flows in the country and if they are focused on consumption of an investment and productive character. The paper analyzes the ratio of government revenues and government expenditures, as well as their relation to Gross Domestic Product in BiH. The results of descriptive statistics indicated that the average share of government expenditures exceeds the average share of government revenues in Gross Domestic Product. Also, the negative gap between government revenues and government expenditures has been identified in most of the observed years. The results of the correlation matrix showed that there is a strong and positive correlation between the observed variables, with the correlation intensity somewhat higher between the government revenues and the Gross Domestic Product.

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