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Chapter

Governance and Growth in the Western Balkans: A SVAR Approach

Gordana Djurovic and Martin M. Bojaj

Abstract

The quality of economic governance is one of the prerequisites for sustainable and faster economic development of the Western Balkan countries, having in mind their historical background, dissolution of the ex-Yugoslavia, specific economic circumstances during the transition recession of the 1990s, slow economic recovery at the beginning of the twenty-first century, strong impact of the global financial and economic crisis, and long and complexed path towards the European Union (EU). The main research problem in this paper is examining the dynamic relationships among government effectiveness, inflation, and GDP across Albania, Bosnia and Hercegovina, Kosovo, Montenegro, North Macedonia, and Serbia. We employ the Worldwide Governance Indicators of the World Bank, namely, the Governance Effectiveness Indicator, as one of the six broad dimensions of governance. Using a structural VAR approach, we examine the time-varying effects of economic governance shocks on inflation and economic growth dynamics for each of the Western Balkan (WB) countries in the period of January 2006 to December 2018. Our findings allow the WB policymakers to understand the impact of institutional strength involved in identifying the onset of sustainable development dynamics and the EU integration process in WB better and develop more effective government regulations that can be employed nationally.

Keywords: Western Balkans, economic governance, governance effectiveness, indicator, GDP, inflation

1. Introduction

What causes a fundamental lack of development in Western Balkan (WB) countries? The effectiveness of political and economic institutions is a vital determinant of long-run growth. Institutions constitute one of the underlying explanations for differences in growth across countries [1]. The structure of a societal organization is the central force behind differences in Albania, Bosnia and Hercegovina, Kosovo, Montenegro, North Macedonia, and Serbia [2]. The WB 6 shares a similar economic history. However, each of these countries has its differences. Today, the six Western Balkan countries are facing numerous economic and financial challenges and weak institutions, while future development dynamic is significantly dependent on the quality of economic governance.

Political institutions, which represent the governance structure, exercise public authority. Examining differences of the Western Balkan governance structures

assists us to feature the efficiency of each country's public administration. On average, most of the WB 6 fare poorly on public services, implementation of policies, enforcement of property rights, and corruption. The relationship among these dimensions of economic governance and growth has been studied in recent literature [3–5]. Each of the WB 6 has tendencies to converge towards the European Union (EU), and each is expected to join the EU. Early in the 1990s, these countries started the transition mechanism. Countries with efficient institutions, well-advanced property rights, and sound public policies have stronger will to employ more efficiently physical and human capital and achieve a higher growth rate. Since each of the WB 6 has set its national development strategies, it is valuable to examine how the government efficiency indicator impacts this set of economic growth dynamics. Besides, we are interested in observing the behavior of inflation, as the new Member States eventually have to fulfill the Maastricht price criteria.

Based on the requirements of the Maastricht criteria for entering the EU, the inflation rate must be stabilized as a prerequisite to joining. The WB 6 has to bring its national legislation in line with EU law and meet price stability to ensure economic convergence. Convergence criteria explicitly report: "A price-performance that is sustainable and average inflation not more than 1.5% above the rate of the three best performing Member States [6]". The Union carefully monitors the progress in the alignment with and implementation of the *acquis* throughout the process of negotiating. For instance, in the case of Montenegro, one of the benchmarks for the chapter Economic and Monetary policy is the Country has adopted the required constitutional change. It has to ensure that the primary objective of price stability is defined in compliance with Articles 127 (1) and 282 (2) of the Treaty on the Functioning of the European Union—Article 143 of the Constitution [7].

Even though economic governance has been analyzed to a moderate extent within the EU, we find there is still sufficient space for enhancement using the WB 6 as an example. The novelty of this paper is that it uses a structural vector autoregressive approach for the economies of Albania, Bosnia and Hercegovina, Kosovo, Montenegro, North Macedonia, and Serbia to analyze the impact of economic efficiency to growth. This paper suggests examining time series data from January 2006 to December 2018 for WB 6. It evaluates and compares the empirical performances of forecasts of inflation, GDP, and economic governance effectiveness.

The annual economic reform program exercise led by the European Commission with all Western Balkan countries is a crucial tool for supporting the modernization of their economies and achieving closer economic coordination with the EU. The Commission will strengthen this exercise, bring it even closer in line with the current European semester for the EU Member States, and provide more advanced technical assistance.

In the context of the EU framework to support economic governance, all candidate countries and potential candidates are invited to submit a three-annual Economic Reform Programme (ERP) which comprises of the following components: macroeconomic framework, fiscal framework, and structural reforms. The ERPs contain medium-term macroeconomic projections and budgetary plans for the next 3 years, as well as a list of priority structural reform measures aiming at boosting competitiveness and inclusive growth. The ERP process has helped to focus on governments' attention to addressing urgent structural reform needs and to improve coordination. However, the tangible results of such reform efforts on people's lives still need to materialize. Awareness of the policy guidance by the relevant stakeholders and commitment to their implementation needs to be strengthened by the WB 6.

The objective is to reveal the dynamic relationship between economic governance, growth, and inflation for each of the WB 6 in the specified period and forecast the economic growth and inflation dynamics using an SVAR approach. Specifically, we aim at exploring how economic governance shocks impact GDP growth and vice versa. To achieve that objective, we estimate recursively structural VAR identified models for each of the Western Balkan countries. On purpose, we included the years of the global crisis to observe, analyze, and explore changes in this vital relationship between the exogenous shocks of the economic integration of the WB 6 and growth. We have to keep in mind that foreign direct investments could not penetrate the WB 6 markets as they did in the EU members because of economic disintegration. The data for governance quality are collected from the World Bank database [8, 9]. We must identify purely exogenous (policy or another type) shock to be able to trace out its dynamic effects: identify the structural VAR. Impulse responses trace the effects of structural shocks on the endogenous variables. Besides, we use forecast error variance decomposition to observe the proportion of the movements of a variable due to shocks to itself and to shocks to other variables.

Ceteris paribus, we hypothesize that shocks to government effectiveness positively affect economic growth and can be employed by the WB 6 governments as an anti-inflationary mechanism in the process of accessing the European Union. In short, this paper will show the impact of institutional strength on the development dynamics and dynamics of the EU integration process.

2. Literature review

Government effectiveness fosters growth and prosperity. The relationship between growth and government effectiveness in advanced countries has been a topic of many empirical and theoretical studies [10–19].

Papers that examine WB 6 economies are limited. To this end, various conceptual and empirical models are employed. The convergence of the WB 6 towards the EU-15 members has been examined by Siljak and Nagy, and they find the WB 6 converges faster, ranging from 1.3% to 3.6% [20]. Economic integrations, openness, and foreign direct investments impact growth based on recent literature in the EU [21]. EU membership prospect is the best trigger for foreign inflows [22]. Economic integration of CEE countries, between 1993 and 2001 and 1995–2007, revealed faster convergence towards the EU [23, 24]. The convergence patterns change across the WB 6 in different periods [25].

It looks like there is no integrated agreement in the empirical literature on the significance and the line or course on which it is moving. On the other hand, the economic catch-up integration of the WB 6 towards the EU still shows no convergence [26, 27]. Colak analyzed 33 EU (CEE 10, SEE 8, and EU 15) countries and found that economic governance has converged for each group of countries [28]. Badinger does not find a strong relationship between economic freedom and long-term growth [29]. The relationship between EU integrations and economic growth showed to be of positive and strong significance [30].

As far as the global economic crisis of 2008, different countries have had different sensitivities [31–33]. Matkowski et al. examines the convergence of EU-11 towards the EU-15 during the period 1993–2015 and reveals that a greater extent of convergence was before the financial crisis [34]. The convergence before the crisis was at a higher rate in the EU [35–37]. Western Balkans have continually underperformed compared to the average of the EU.

The WB 6 are heterogeneous, lacking similar convergence. Based on Zuk and Savelin (2018) the most successful central, eastern, and southeastern Europe

(CESEE) economic governances, in terms of the pace of convergence, share standard features such as, among other things, a sharp improvement in institutional efficiency and human capital, more outward-oriented economic policies, favorable demographic-economic developments, and the quick reallocation of labor from agriculture into other sectors [38]. Forward-looking, speeding-up, and sustaining convergence in the WB 6 requires in-depth efforts to improve institutional quality and innovation, reinvigorate foreign investment, and address the adverse impact of population aging seriously.

Stabilizing policies and implementation of reforms are the vital drivers of WB 6 growth, in the meantime declining the impact of initial conditions of the 1990s. Since the government efficiency indicator reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies, we give special attention to this indicator in explaining the growth differences among the WB 6 (through GDP) and macroeconomic stability (through inflation).

3. Methodology

Even though government efficiency has been studied to some extent, we reveal a significantly wider knowledge gap. First, conceptual specification, based on which empirical examinations of government efficiency is analyzed, is not prevailing combining theory and empirical analysis. Secondly, we identify six structural VAR models. To our knowledge, it has not been applied to WB 6 data. VARs turn out to be one of the key empirical tools in modern macroeconomics, and they allow one to model macroeconomic data informatively [39].

The range of the data is from January 2006 to December 2018. In order to control for time trends in our analysis, we include dummy variables. The expression referring to an SVAR model is used as follows:

$$Y_t = a_0 + \beta X_t + u_t \tag{1}$$

Here, we present parameter estimates and the main characteristics of the models. The identified recursive SVAR model is as follows:

$$y_t = a_t + \beta_1 GovEff_t + \beta_2 \pi_t + u_t \tag{2}$$

where y_t is the gross domestic product for each of the WB 6, $GovEff_t$ is the government efficiency indicator, and π_t represents inflation (a proxy for macroeconomic stability). This specification contains independently identically distributed stochastic disturbance term $u_t \left\{IID\left(0;\sigma_u^2\right)\right\}$. The above model will allow us to observe how economic governance shocks and macroeconomic stability impact GDP growth and vice versa. Of particular interest for this paper is to examine the role of economic integrations and macroeconomic stabilization in determining the growth of GDP in Albania, Bosnia and Hercegovina, Kosovo, Montenegro, North Macedonia, and Serbia. Thus, government efficiency and inflation are considered as important explanatory factors. For North Macedonia Model, we added purposely the corruption indicator variable, in order to observe the potential shocks to growth. As we will see, the indicator to this specific case shows no impact.

How well the models describe the dynamic behavior of economic variables? We will proceed with our VAR models for structural inference and policy analysis. One of the main objectives of our VAR model is forecasting, and it has common

characteristics as a univariate AR model. Zivot and Wang emphasize that forecasting future values of a matrix Y_t, when the parameters Π of the Var(p) process are assumed to be known and there are no deterministic terms of exogenous variables, the best linear predictor, in terms of minimum mean squared error (MSE) of Y_{t+1} or one-step forecast, is [41]:

$$Y_{(T+1|T)} = c + \Pi_1 Y_T + \ldots + \Pi_p Y_{T-p+1} \tag{3}$$

and forecasts for longer horizons h (h-step forecasts) may be obtained using the chain rule of forecasting as:

$$Y_{(T+h|T)} = c + \Pi_1 Y_{(T+h-1|T)} + \ldots + \Pi_p Y_{(T+h-p|T)} \tag{4}$$

and h-step forecast error may be expressed as:

$$Y_{T+h} - Y_{(T+h|T)} = \sum_{s=0}^{h-1} \Psi_s \varepsilon_{T+h-s} \tag{5}$$

where the matrices Ψ_s are determined by recursive substitution:

$$\Psi_s = \sum_{j=1}^{p-1} \Psi_{s-j} \Pi_j \tag{6}$$

with $\Psi_0 = I_n$ and $\Pi_j = 0$ for j > p.

As already emphasized in the literature review, the logic behind employing these variables is clear: in an economically free societal environment, people and companies are free to work, manufacture, utilize their disposable income, and make investments in any way they please, with that liberty both ensured and protected by the state and unconstrained by the state [40]. Besides, low and stabilized inflation significantly indicates faster and mounting economic growth.

4. Empirical results

All variables are stationary based on unit root tests of ADF, PP, and KPSS stationary test. Visual inspection and statistical correlograms portray and confirm stationarity. Test results of *t*-statistics and *p* values reject the null hypothesis of a unit root.

We proceed with empirical construction and testing for potential structural breaks, which are crucial to identify for forecasting purposes as well as confidence bounds. Stability diagnostics, under recursive estimates, show that all coefficients have a lot of instability, indicating structural breaks. Chow breakpoint test confirms the above indication, having *F*-statistics and *p* values smaller than 5%, meaning to reject the null hypothesis of no breakpoints at 5% significance level. The Quandt-Andrews test indicates for rejecting the null hypothesis of no break. It reveals breaks for all cases Albania, Bosnia and Hercegovina, Kosovo, Montenegro, North Macedonia, and Serbia. Testing for multiple breaks in intercept and coefficients using Bai-Perron to sequentially test the hypothesis of L + 1 vs. L sequentially determined breaks. The Bai-Perron test recommends that there are breaks. We can conclude that all four tests indicate that there is a switch of parameters at 5% significance level, and we are dealing with multiple breaks in parameters. We will add the following dichotomous variables (**Table 1**):

Dummies	AL	B&H	KS	MNE	NM	SRB
1	d_2007	d_2007	d_2008	d_2008	d_2008	d_2008
2	d_2013	d_2008	d_2010	d_2010	d_2010	d_2010
3		d_2009	d_2011	d_2012	d_2012	d_2012
4		d_2011	d_2013		d_2013	d_2013
5		d_2013				d_2016

Source: Authors' calculation.

Table 1.
Dichotomous variables.

AL	B&H	KS	MNE	NM	SRB
0.979149	0.981038	0.975064	0.918688	0.987044	0.948791
0.917381	0.981038	0.975064	0.918688	0.987044	0.948791
0.814555	0.963392	0.927706	0.868723	0.979839	0.868408
0.814555	0.963392	0.927706	0.868723	0.979839	0.868408
0.383119	0.962341	0.725579	0.846442	0.943445	0.654013

VAR satisfies the stability condition. Source: Authors' calculation.
No root lies outside the unit circle in **Table 2.*

Table 2.
Root of characteristic polynomial.

Including 12 lags in the lag exclusion test or lag length criteria about deciding the maximum number of lags to be used in our VARs, we get an estimated fitting lag length denoted by an asterisk. We select 2, 11, 3, 2, 10, and 2 lags, respectively, as the appropriate lag length for our VAR models.

All inverse roots of the characteristic polynomial are <1, as seen in **Table 2**, confirming the stationarity of the VARs.

We have reached significant results, and based on the stationarity assessed so far, we can infer that impulse response standard errors are valid (**Table 3**). The largest inverse root of the AR characteristic polynomial is 0.987044. The correlograms of short-term error correlations of the estimated VARs suggest no autocorrelation. The entire lines lie within the 2 standard error bounds, showing at first lags another backup to the suggestion of missing autocorrelation in non-noticeable continual wave sinusoidal. Based on 95% significance level, the null hypothesis, which states there is no autocorrelation of residuals in our estimated VARs, cannot be rejected. It has *p* values of 44.15, 33.37, 86.14, 91.67, 76.31, and 96.69%, respectively, for lag orders up to 2, 11, 3, 2, 10, and 2 lags. Therefore, there is no indication, based on the LM tests, that there is the autocorrelation of errors.

4.1 Forecasting models

To generate a forecast, we can use known values or forecasted values. Using the known values for forecasting is static forecasting. In case we proceed using the predicted values from regression, then it is dynamic forecasting. There are two types of simulation processes. One is a deterministic simulation, where we get only one value for the solution, which does not respond to innovations. It calculates under the current set of assumptions or known facts without any shocks

Lags	AL	B&H	KS	MNE	NM	SRB
	Prob	**Prob**	**Prob**	**Prob**	**Prob**	**Prob**
1	**0.2790**	**0.2574**	**0.3468**	**0.9348**	**0.1017**	**0.6712**
2	**0.4415**	**0.1356**	**0.6129**	**0.9167**	**0.0639**	**0.9669**
3	0.0103	**0.7364**	**0.8614**	0.7818	**0.0545**	0.4213
4	0.1171	**0.1947**	0.8915	0.1140	**0.2147**	0.1376
5	0.4000	**0.2323**	0.9923	0.0169	**0.2487**	0.3582
6	0.9380	**0.1057**	0.0000	0.9868	**0.6963**	0.0611
7	0.6340	**0.4410**	0.5016	0.0019	**0.9956**	0.4222
8	0.8501	**0.1188**	0.0757	0.6773	**0.3241**	0.3912
9	0.3897	**0.4393**	0.2606	0.9880	**0.2077**	0.4678
10	0.9490	**0.5177**	0.3401	0.7466	**0.7631**	0.9671
11	0.8103	**0.3337**	0.9346	0.3383	0.5245	0.2678
12	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000

Source: Authors' calculation.
Bold values represent lag values.

Table 3.
VAR residual serial correlation LM tests.

introduced, which is called the baseline. Deterministic simulation ignores the fact that relationships do not hold exactly, because of random disturbances and estimated coefficients, which are not known or predetermined values. We should account for these sources of uncertainty by using stochastic simulations. **Figure 1** performs gdp_gap and inflation stochastic simulations for static solution model simulators for period 2017m01 till 2017m12.

Forecasting performance of the static solution performs very well, both in terms of the fit and small standard error bounds, coming as a result of de facto one period ahead forecast.

It uses actual instead of forecasted lagged values over the forecast period. The blue lines portray the actual data for both gdp_gap and inflation, while the green lines represent the forecasting performance of the stochastic-static model. As seen in **Figure 1**, both predictions are very close to the real data and within the confidence bands, except in the 5th month for the North Macedonia GDP. The red lines show the upper and lower bounds of the stochastic-static solution model simulator. The comovement is noticeable for both variables. Including bootstrapped errors and coefficient uncertainty, we get forecast measures (**Table 4**).

Analyzing **Table 4**, the first thing we notice is low RMSE for all WB 6 countries. The RMSEs for gdp_gap and inflation are 0.1979 and 0.3768, respectively. Theil's coefficient U1, which measures the forecast accuracy, is acceptable for all variables of the VAR models.

4.2 Impulse responses

The impulse response function will tell us the change in endogenous variables for each structural shock at t, t + 1, and so on. Our goal is to trace out the effects of internal shocks to the WB 6 economies. First, we employ Sims' (1980) orthogonalized impulse response functions [42]. We will trace out the responses of the dependent variables in the SVAR models to shocks.

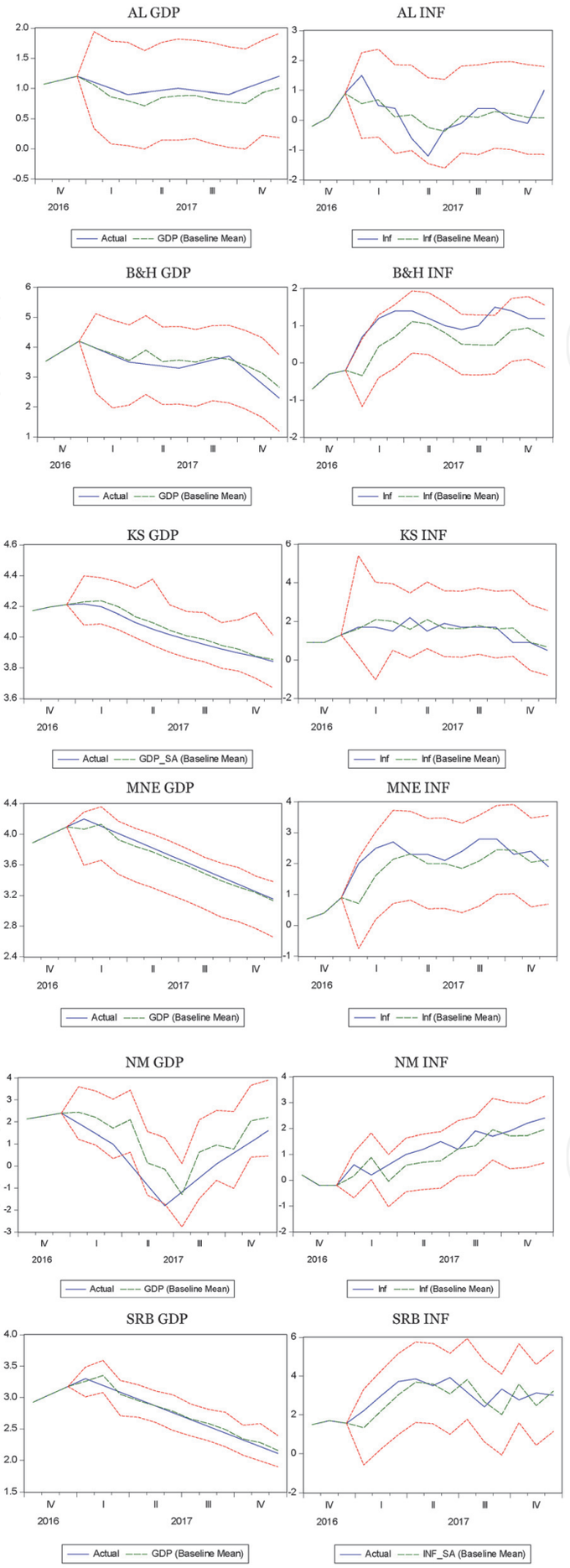

Figure 1.
GDP_GAP and inflation stochastic-static solution model simulator. Source: Authors' calculation.

	AL	B&H	KS	MNE	NM	SRB
RMSE	0.609466	0.471552	0.569857	0.623307	0.891088	1.618317
MAE	0.562789	0.365514	0.481942	0.558959	0.72649	1.353392
MAPE	192.5031	10.31633	10.45501	20.31178	1.223044	307.8459
Theil	0.404218	0.067415	0.066878	0.090758	0.007274	0.258264

Source: Authors' calculation.

Table 4.
GDP forecast measures.

The response of gdp_gap, in **Figure 2**, to the economic freedom shock, keeps increasing until the 19th month, up to 0.252388. As the economy is hit by the economic freedom shock, productivity increases for the first 6 months and then stops for a while till expectations of the market get to equilibrium and get positive perspective. Domestic investments increase until the 19th month. Closely, we must keep our eyes at how expectations of productivity and the labor market are formed.

We observe from **Figure 2** the response of GDP and inflation to the government efficiency shock. The response of AL GDP to GOVEFF shocks slightly decreases in the first quarter and afterwards continues with the same impulse. Moreover, the response of AL INF to GOVEFF shocks increases in the first two quarters and after that has no impact. Why? Moving to Bosnia and Hercegovina, we notice that the response of GDP to government efficiency shocks is positive. The GDP increases in the first 6 months then drops down until the end of the fourth quarter, while inflation increases from 0.15 to 0.23 from the first to the second month, respectively. Interestingly, inflation drops to 0.06 in the fifth month. In the second year, the shocks persist in lowering inflation (deflation) to −0.34. In the case of Kosovo, government efficiency shocks decrease GDP in the first two quarters to −0.19 and then keep mounting slowly till the 19th month, reaching 0. The response of inflation to the shock is that it increases just slightly until the 2nd month, following with a decrease until the 12th month, reaching deflation −0.47.

We have to take into consideration the role of expectations in explaining the impact of government efficiency shocks on GDP and inflation. As the economic government efficiency shock hits the economy, the productivity decreases for the first 10 months and then stops for a while till expectations of the market get to equilibrium and get a positive perspective. Domestic investments increase until the 19th month. Firmly, we must keep our eyes at how expectations of productivity and the labor market are formed. We observe from this case that the response of inflation to the shock immediately starts to decline after the second month, especially in the first year. Afterwards, it starts slowly to increase. Moreover, only after 23 months, it reaches the closest point to zero: 0.02. How can we interpret the above results? Having the good news that the region is moving ahead, towards the EU integrations, having positive expectations, and seeing everyday reforms within the economic activities in the real market, it is to be expected from a reasonable society to have a better perspective. This implies a correction of price expectations P^e in relation to the current price level P.

In the case of Montenegro, the GDP drops down in the first three quarters, reaching −0.28. Additionally, from the third quarter to the end of the 2nd year, the GDP keeps mounting. Inflation responds to the shock of government efficiency with an increase from 0 to 0.2 for the first 11 months. Why? How can we interpret the response of inflation to government efficiency shock? The enhancement of government efficiency changes the quality of the Montenegrin economy.

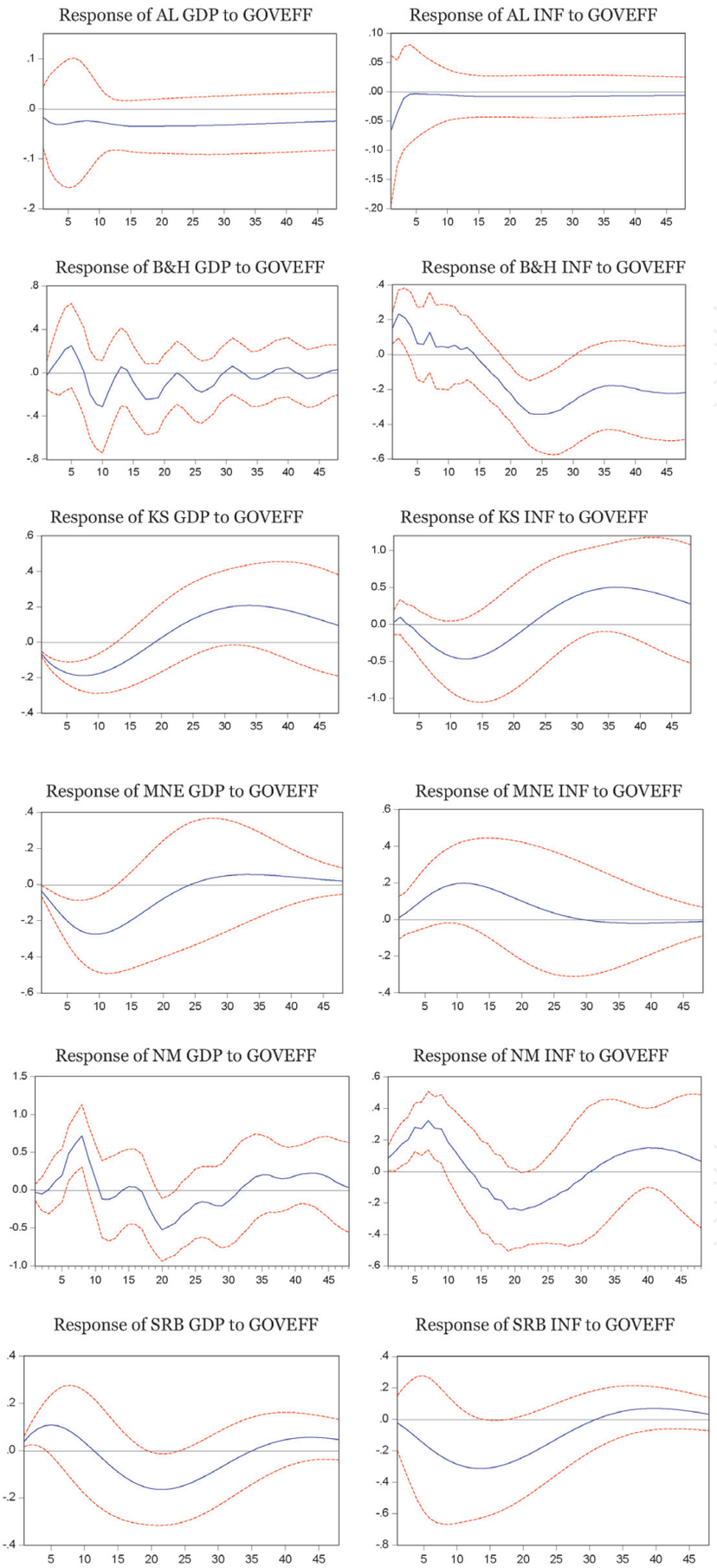

Figure 2.
Impulse responses to economic freedom and EGDI shocks. Source: Authors' calculation.

In the case of North Macedonia, the response of GDP to GOVEFF is positive from the very start, increasing the GDP to 0.72 until the 7th month. Afterwards, it falls to −0.12 after the 11th month. The inflation response is positive, reaching 0.32 until the 7th month, then drops down. This might be a piece of vital information for the macroprudential policymakers of North Macedonia.

The response of Serbia GDP to the government efficiency shock is positive. It starts mounting until the second quarter to 0.11 and then keeps decreasing until the 22nd month, reaching −0.17. Again, the mechanism of expectations is crucial in explaining the responses of GDP and inflation in the case of Serbia. This process, in this case, shifts the wage-setting relation, *WS*, to the right less than the PS, increasing employment and GDP. Workers' expectations are not higher than what firms expect, as a result of an increase in government efficiency. Thus, the wage-setting relation (*WS)* will shift less than the price-setting relationship (*PS*). This will decrease unemployment. As we can notice from Figure, inflation automatically starts to fall. The adjustment mechanism, in the case of Serbia, is very well set up between the workers and firms.

5. Conclusions

Given the strategic priority the government of Albania, Bosnia and Hercegovina, Kosovo, Montenegro, North Macedonia, and Serbia have to join the European Union, we felt compelled to identify an approach and methodology that the Governments of the WB 6 can use in developing anti-inflation macroeconomic stability and overall development strategy. Given the high increase in the interest of fulfilling the Maastricht convergence criteria before the accession and the lack of any uniform methodology, we believe that the findings presented in our paper will appeal to macroprudential policymakers. Although previous research papers have identified a few methods that could be used in forecasting growth, such as internal and external variables, the methodologies developed from those findings have been restricted and difficult to administer on a national level of the WB 6. Thus, our findings will allow the macroprudential policymakers to understand the factors involved in identifying the onset of macroeconomic efficiency dynamics and macroeconomic expectations in Western Balkan countries better and develop more effective policy measures that can be used nationally. In so doing, we hope that our research paper advances the toolset needed to combat the growth concerns of many macroprudential policymakers in the Western Balkan countries, especially the Central Banks.

This paper reveals a significantly wider knowledge gap: both theoretical and empirical. We identified recursively six SVAR models. Each model aggregates two critical macroeconomic variables to forecast GDP in the Western Balkans. We find that among the performance of the individual-predictor forecasts, all country models perform with high precision, based on the root mean square error and stochastic-static solution model simulator. This essential evidence shows that government efficiency and inflation are critical in promoting sustainable growth. The main implications of this study suggest that the government efficiency indicator is crucial in governing macroeconomic stability and sustainable growth in Western Balkans.

The impulse response findings reveal that the responses of GDP and inflation to a shock on economic governance are significant, except in the case of Albania, where the response of GDP and inflation are almost flat. Future papers are

recommended to decompose the government efficiency to public services, civil services, independence from political pressures, policy formulations, and government commitment as individual independent variables. Meanwhile, the role of expectations are different for each of the Western Balkan countries, implying that each government has to take an in-depth analysis of different aspects of government efficiencies.

Future work should introduce new methods, e.g., Bayesian VAR (BVAR) and factor-augmented VAR (FAVAR); since central banks and the private sector have qualitative measures not reflected in the VAR, the time series which represent the economic concepts are arbitrary to some degree, and impulse responses are available only for the studied variables, constituting only a subset of the factors that policymakers are interested, especially in the Western Balkans. Thus, more massive data sets would be vital to identify the mechanism accurately. Finally, alternative estimation methods, identification schemes, and trying to interpret the estimated factors explicitly would be worthwhile and useful for macroprudential policymakers to forecast more precisely economic activities of the Western Balkans 6 especially in the dawn of entering the European Union.

Conflict of interest

The authors declare no conflict of interest.

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