

Macroeconomic impacts of the Covid-19 crisis on selected CEE countries

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Abstract

The outbreak of pandemic COVID-19 across the globe with more than three million dead people has completely disrupted the, social, economic and financial structures of the world. The rapid spread of COVID-19 pandemic in early March 2020 interrupted the growth momentum, which was present in most of the Eastern European countries. Many countries have closed their borders, ordered businesses to close, instructed their populations to self-quarantine, and closed schools. In addition, stock markets around the world have fallen and tax revenue sources have collapsed. Because of the medical crisis, governments across the globe implemented monetary, fiscal and balance of payments measures to curb with the severe economic downturn. Today, one and a half year after the first case was registered in China, even with high uncertainty about the path of the pandemic, a way out of this health and economic crisis is increasingly visible.

In this paper, we prepare macroeconomic overview of the COVID – 19 impact on the macroeconomic developments with comparative analysis of the Eastern European countries. Unfortunately, many of these countries are among the worst performers with very high number of deaths per million people. We found serious impact of COVID-19 to the economies in this group of countries with higher magnitude than the global financial crisis of 2007-2009. The impact is different, attacking both supply and demand side of the economy and certain sectors has been more affected, especially micro, small, and medium enterprises. We found that countries, which rely more on tourism sector, suffered more than other countries.

Key words

Covid-19 crisis, CEE countries, macroeconomic indicators

1. Introduction

As many as 220 countries and territories have registered COVID-19 cases, and the entire world is struggling with uncertainty and questions: How long will the pandemic last? What will people's lives look like once the pandemic is over? Its spread has left national economies and businesses counting the costs, as governments struggle with new lockdown measures to tackle the spread of the virus. Despite the development of new vaccines, many are still wondering what recovery could look like.

The COVID-19 pandemic hit the Southeastern European countries as well. With the rapid spreading of the coronavirus in the Western Balkans, most of these countries are among the top worse performers in the world measured by the death people on million population. Seven among 15 worse performers are from the Western Balkans, and nine are from the Southeastern Europe.

With the rapid spreading of the coronavirus, governments introduced measures to protect their fragile health systems by purchasing medical equipment and medicine, converting medical centers to specialized COVID-19 hospitals and concert and sport arenas to temporary vaccination arenas, increasing the salaries of medical staff. In addition, governments responded with lockdowns and partial shutdowns in the first quarter of 2020, resulting in the closure of airports and borders, educational institutions, restaurants and shops, restrictions on travel.

All these measures had severe economic repercussions. Significant reductions in income, a rise in unemployment, and disruptions in the transportation, service, and manufacturing industries are among the consequences of the disease. This was an alarm for the governments around the world to introduce economic measures to combat the economic downturn.

According to the IMF's World economic outlook Global prospects remain highly uncertain one year into the pandemic. New virus mutations and the accumulating human toll raise concerns, even as growing vaccine coverage lifts sentiment. Economic recoveries are diverging across countries and sectors, reflecting variation in pandemic-induced disruptions and the extent of policy support. The outlook depends not just on the outcome of the battle between the virus and vaccines—it also hinges on how effectively economic policies deployed under high uncertainty can limit lasting damage from this unprecedented crisis. Output losses have been particularly large for countries that rely on tourism and commodity exports and for those with limited policy space to respond. Many of these countries entered the crisis in a precarious fiscal situation and with less capacity to mount major health care policy responses or support livelihoods.

In this paper we analyze the impact of the COVID 19 health crisis to the economic developments in selected Southeastern European countries. First, we present the literature review as the economist are working hard to describe and quantify the impact of the virus to the growth. Furthermore, we present the data and we analyze them.

2. Literature review

So far the literature is not very rich with papers which analyze the Covid-19 economic repercussions, as economists are currently working on this topic. Furthermore, econometric analysis is not very prudent as there is a structural break in the data. A study by Verna P. et al. analyses the impact of COVID-19 on the economic growth and stock market as well. In addition, the research considers the top five other tax revenue sources like S&P500 (GPSC), Crude oil (CL=F), Gold (GC=F), Silver (SI=F), Natural Gas (NG=F), I Shares 20+Year Treasury Bond (TLT), and correlate with the COVID-19 [6].

To fulfill the statistical analysis purpose, this research uses publically available data from yahoo finance, IMF, and John Hopkins COVID-19 map with regression models that revealed a moderated positive correlation between them. The model was used to track the impact of COVID 19 on economic variation and the stock market to see how well and how far in advance the prediction holds true, if at all. According to data analysis they conclude that due to the COVID-19 epidemic, the average economy is down from 1.62 to - 5.45. The S&P 500 stock index and other

assets are highly influenced during the COVID-19 timeline. In addition, the S&P 500 stock index already touched the mark of -28.67% downfalls. As of April 22, 2020, it is measured at -12.20 below the index value in September 2020. In short, the impact of the virus on world economies would be more devastating in the long run if the virus was not stopped in the short term.

A study by the European Central Bank shows that the sudden and deep recession triggered by the outbreak of the coronavirus (COVID-19) has warranted adjusting the standard tools used for forecasting euro area real GDP growth in real time [6]. The severe economic consequences of COVID-19 have played havoc with established statistical and economic relationships. Hence, standard short-term forecasting models have been able to capture neither the extent of the contraction observed in the first two quarters of 2020. The paper describes four approaches developed by ECB staff to account for the specific characteristics and implications of the COVID-19 pandemic. The first approach exploits the information content of the different containment measures implemented across countries. The second approach exploits the information content of high-frequency indicators, as these indicators are able to quickly capture sudden changes in economic conditions. The third approach consists of adjusting the linear relationship between GDP and the Purchasing Manager's Index (PMI). The final approach extracts information from tail events using a non-linear model. **Overall, given the exceptionally high level of uncertainty, the four approaches capture some of the specific features of the pandemic reasonably well.** The first two approaches led to real-time forecasts still below the actual very steep V-shaped pattern, however, they captured more effectively the symmetry of the developments in the second and the third quarters of 2020. The second two approaches reflected the extent of the collapse in activity in the second quarter rather well, albeit they did not completely account for the robust rebound in the third quarter, likely owing to the asymmetric reaction by the PMI.

A study presented by UNDP – “Socio economic assessment of Covid-19 impact in North Macedonia” analyses the impact of the health crisis of the economy with objective to support policy response by estimating the overall economic impact, providing disaggregated data about specific vulnerabilities and social groups, as well as evaluating the policy measures and identifying opportunities for better recovery at sectorial and municipal level [10]. The outcome of the study is Socio-economic impact assessment with several scenarios and sectorial and local level analysis, policy recommendations to mitigate the impact on the most vulnerable segments of the society, including women, evaluation of the adopted and new policy measures monitoring the impact of Covid-19 and policy response through a Needs Assessment Dashboard.

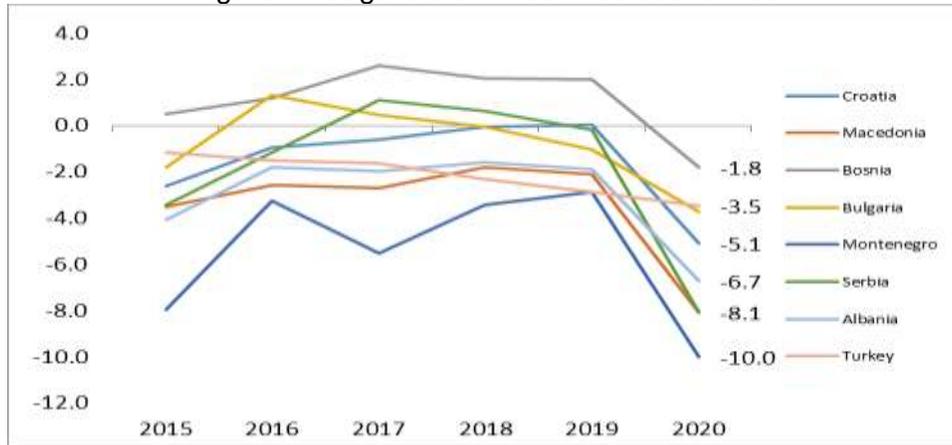
Gounder R. in his study analyses the impact of Covid-19 to Fiji and Papa New Guinea. Economic disruptions in these two countries are likely to be more severe as the tourism sector makes up the largest proportion of the Gross domestic product [1]. The study analyses the relationship between tourism and economic growth outcome on the supply and value chain and the level of impact of economic vulnerabilities on the livelihood of local communities in the formal and informal sector. The findings provide wider implications for the sustainable development goals and tourism linkages and their developments outcomes.

3. Data in a nutshell

In this paper we will analyze the economic developments in some of the Southeastern- European countries. The first signal of the severe economic crisis in these countries came from the fiscal data, the usual early-warning indicator. Namely, the revenue collection was subdued especially during the March-June period. At the same time, the expenditures were heavily increased as the

governments were undertaking different economic measures to mitigate the worsening economic environment. Hence, budget deficits skyrocketed in 2020. Figure one shows that Montenegro was the worst performer with 10% budget deficit, followed by Serbia and Macedonia with 8,1%. \best performer with only 1.8% budget deficit was Bosnia and Herzegovina.

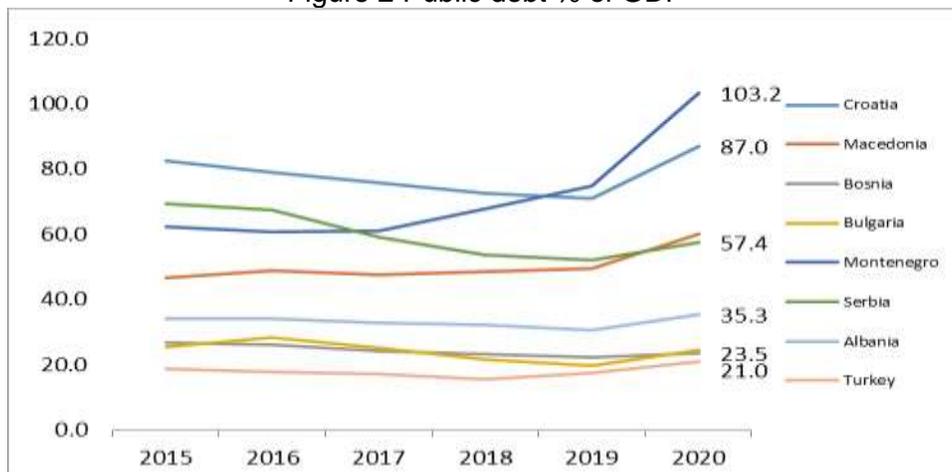
Figure 1 Budget deficit in selected economies



Source: Eurostat

Increased budget deficit normally leads to augmented public debt. Data comparison presented in figure 2 shows that Montenegro deficit skyrocketed to 103.5% of GDP which was 28% increase when compared with 2019. Montenegro was followed by Croatia with 16 percentage points increase of the public debt and North Macedonia of 10%.

Figure 2 Public debt % of GDP

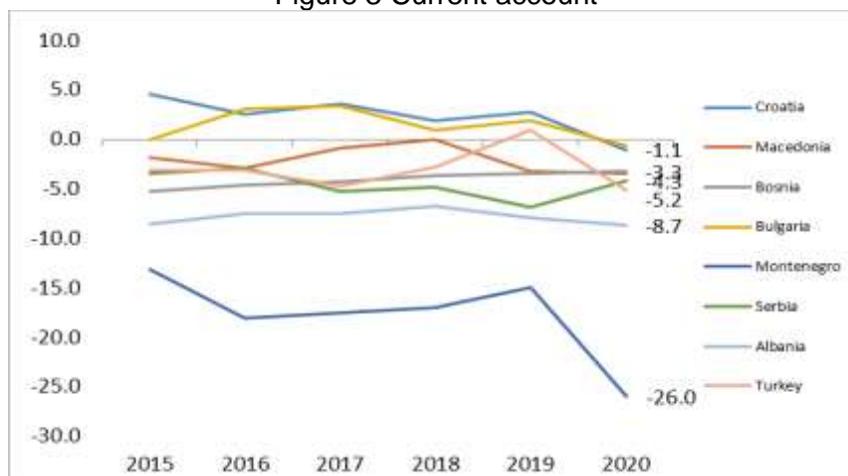


Source: Eurostat

The IMF issued special note produced by IMF experts to help members address the economic effects of COVID-19. They provided guidance on areas in which sovereign debt managers need to respond to challenges stemming from the COVID-19 crisis. It provides some considerations for addressing strains in situations where a debt manager is faced with sharply increased government financing requirements and borrowing costs, and where sound judgment is needed to distinguish between temporary dislocations and permanent changes. Within these constraints, sovereign debt managers can help cushion a liquidity shock by minimizing near-term liquidity risk, meet

rollover needs and support orderly functioning of primary and secondary government bond markets.

Figure 3 Current account



Source: Eurostat

Covid-19 had also impact on the current account developments in six out of eight countries we analyzed. The current account worsened in all countries except Bosnia and Herzegovina and Serbia. The worsening of the current account was accompanied with heavy decline of exports and imports in both goods and especially services. Furthermore, secondary income (remittances) dropped substantially as well.

Finally, Gross domestic product heavily declined. Table one presents quarterly Gross domestic product, annual change.

Table 1 The rate of economic growth in selected European countries

	2019-Q1	2019-Q2	2019-Q3	2019-Q4	2020-Q1	2020-Q2	2020-Q3	2020-Q4	2021-Q1
European Union - 27 countries	1.9	1.6	1.7	1.2	-2.7	-13.8	-4.0	-4.4	-1.2
Bulgaria	4.2	3.8	3.3	3.1	2.3	-8.6	-5.2	-3.8	-1.8
Czechia	2.4	2.3	2.2	2.0	-1.8	-10.8	-5.1	-4.8	-2.1
Croatia	3.9	2.4	2.7	2.6	0.8	-14.6	-10.1	-6.9	-0.9
Hungary	5.3	4.9	4.2	4.2	2.1	-13.3	-5.2	-3.9	-1.6
Poland	5.5	4.9	4.6	4.0	2.0	-7.9	-2.0	-2.7	-1.4
Romania	5.2	4.2	3.4	3.7	2.8	-10.0	-5.5	-2.0	0.0
Slovenia	4.4	3.1	2.7	2.6	-3.5	-13.1	-2.9	-4.8	2.3
Slovakia	3.3	2.6	2.0	2.1	-3.3	-10.9	-2.5	-2.3	0.3
North Macedonia	3.8	3.4	3.6	3.4	0.9	-14.9	-3.3	-0.7	-1.9
Montenegro	3.2	3.6	5.2	3.7	2.6	-20.3	-26.9	-7.5	-6.4
Serbia	2.5	3.0	4.9	6.6	4.9	-6.2	-1.5	-1.1	1.6
Turkey	-2.4	-0.9	1.1	6.3	4.6	-8.7	5.4	5.0	6.7

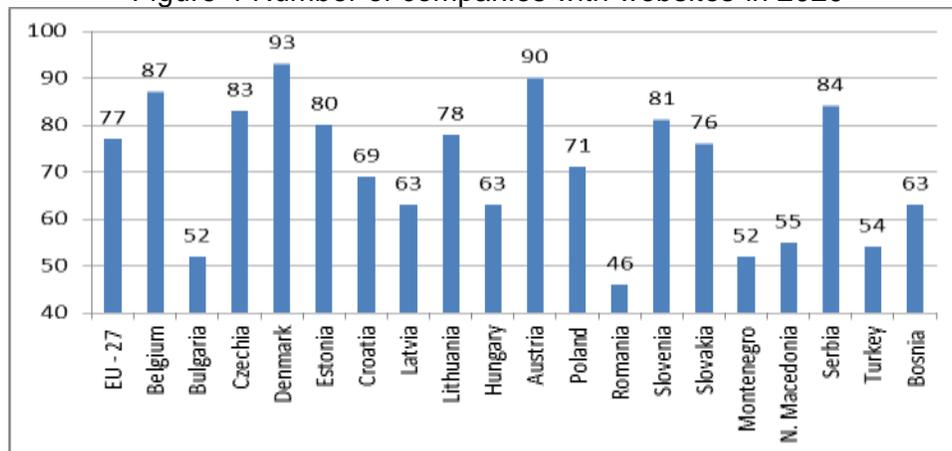
Source: Eurostat

As can be seen in the table, Montenegro was hardest hit in 2020, with stunning 26.9% annual decline in Q3 2020. Montenegro is particularly affected by **plummeting tourism**, which has a multiplier effect on all the other sectors and accounts for more than 20% of GDP. Depressed demand has caused **falling sales and rising losses for businesses**. The high level of **informal economy**, estimated in the range of 28% to 33% of GDP, adds another layer of complexity to the already grim economic landscape. Croatia followed similar pattern, however little milder when compared with Croatia.

On the other side North Macedonia GDP plummeted in Q2 2020 by 15%. However, in the following quarters the decline was not as severe as the second quarter of 2020. In the third quarter, the economy started to re-open, and exports started to approach pre-pandemic levels.

The question that arises is: are businesses using the **digital opportunities** to compensate for the sharp decline in sales: are they investing in new equipment, software, or digital solutions in order to successfully cope with the challenges.

Figure 4 Number of companies with websites in 2020



Source: Eurostat

Figure 4 shows that companies in countries which are in our focus have less web sites when compared with companies from more advanced companies. It seems that businesses are **missing out on digital opportunities** to compensate for the sharp decline in sales.

According to the WTO report (2018) digital technologies such as artificial intelligence, the Internet of Things, additive manufacturing (3D printing) and Blockchain have been made achievable by the exponential rise in computing power, bandwidth and digital information. Digital technologies are reshaping consumer habits by shifting purchases online through the widespread use of internet-enabled devices which provide consumers with direct access to online markets.

The wide adoption of digital technologies changes the composition of trade in services and goods, and redefines intellectual property rights in trade. Trade in information technology products has tripled in the past two decades, reaching US\$ 1.6 trillion in 2016 [9].

4. Model specification

In this section we provide the empirical framework for our analysis. In this regard, we extend the standard growth model by adding sector-specific variable – use of internet by households and companies, in addition to the standard Cobb-Douglas production function variables representing capital and labor. Thus, our model takes the following form:

$$Y_{it} = f(K_{it}, L_{it}, INTs)$$

where Y_{it} , K_{it} and L_{it} are real GDP, physical and human capital, respectively, INTs is usage of internet by households and companies, downloaded from World Bank development indicators. We also include one more variable – Corruption index based on World Bank World Government indicators:

$$GROWTH_{it} = \alpha_{it} + \beta GCF_{it} + \gamma EMP_{it} + \lambda INTs_{it} + \theta Corr_{it} + \mu_i + \xi_{it}$$

where μ_i is a set of unobserved fixed effects and ξ_{it} is i.i.d standard error.

We use static panel models that control for unobserved heterogeneity in the sample.

4.1 Data Description

This section provides a description of the variables used in the model as well as the sources for the panel data. We use the following variables in our extended growth model: per capita real GDP growth rate, gross capital formation, Employment to population ratio calculated by ILO. GROWTH is the dependent variable and is defined as the annual growth rate of per capita real GDP. INT s is the usages of internet by individuals and companies. We introduce the Corruption variable as well which captures the rule of law and control of corruption. We expect that all coefficients of the independent variables, except corruption, should take positive signs.

There are 22 countries in the data set and we cover the period from 1990 to 2019, although there are some missing values especially regarding the independent variables. The chosen time period is based on the availability of data. Data is acquired from the World Bank's World Development Indicators database, IMF and EBRD.

4.2 Estimated results

Table 2 summarizes the results of random effects GMM panel estimation¹. We use statistical software E-views. In order to be on the safe side as this model may suffer from heteroskedastic and auto correlated error structure, we choose to estimate with Cross-section weights as E-Views will estimate a feasible model assuming the presence of cross-section heteroscedasticity.

Table 2 GDP per capita growth and internet usage
Dependent variable- per capita real GDP growth rate

	1	2	3
K (Gross fixed capital formation)	-0.011403** (-2.11)	-0.009901* (-1.89)	8.11*** (3.86)
L (employment to population ratio)	0.198*** (4.88)	0.194*** (4.86)	-9.17*** (-5.38)
Internet usage		0.045037*** (3.39)	1.6*** (6.13)
Corruption			-0.412 (-0.54)

T-statistics in parenthesis. *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

¹ Fixed effects model is not pursued since Hausman test shows that random effects model is more appropriate.

As table 2 shows, the main dependent variable Internet usage, shows that new technologies are positively contributing to the economic growth. The more internet companies and citizens are using the higher the GDP growth is. As can be seen from the table 2, the coefficient maintains the significant positive effect after controlling for physical and human capital (Colum 2). This shows that companies which were using digital technologies had better chances to survive through the Covid-19 crisis, when compared with companies which are not using the new technologies.

We can confirm this for the investments represented through Gross fixed capital formation. The more countries invest, the higher the GDP growth is. It is well known in the theory that labor quality should contribute positively to economic growth since it increases both labor productivity and innovative capacity of the labor force and facilitates the diffusion and transmission of knowledge [2], [4]. However, we were not able to find, strong correlation of the human capital represented by enrollment to population and GDP growth per capita.

5. Conclusion

The COVID-19 pandemic hit the Southeastern European countries as well. With the rapid spreading of the coronavirus in the Western Balkans, most of these countries are among the top worse performers in the world measured by the death people on million populations. Almost all economies in the world suffered with many bankruptcies and loss of jobs.

The analysis shows that countries with strong tourism sector had higher GDP decline in 2020 and this is due to the travel ban, lock down and many other measures undertaken by the governments. Countries with low tourism sector like North Macedonia, experienced lower GDP decline especially in the third and fourth quarter of 2020. However expected recovery for 2021 should be more intensive in economies with developed tourism sector, like Montenegro and Croatia. Furthermore, our model points out that usage of digital technologies were extremely beneficial for the companies. After the lock down in March and April, companies which adopted new technologies experience milder economic problems. Digital technologies are reshaping consumer habits by shifting purchases online through the widespread use of internet-enabled devices which provide consumers with direct access to online markets.

As a policy recommendation we can confirm that usage of digital technologies should be supported by the Governments. Digital technologies give rise to opportunities and challenges that may require the consideration of governments and the international community in areas as diverse as investment in digital infrastructure and human capital, trade policy measures and regulation.

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