

ROMANIA'S LONG-TERM GROWTH PERSPECTIVES

IONUȚ LAURENȚIU GAVRIȘ¹, VALENTIN TOADER²

ABSTRACT. In a world of sustainable development, affected by a certain short-term liquidity distress, the economic actors are facing uncertainty since inadequate resource management and decision making can have significant effects over a country's future economic and societal development. Therefore, the stakeholders involved in the decision-making process consider economic forecasts, based on variables that factor in recent developments, to aid them in the aforementioned process. If they did not, they would not have a greater understanding of a country's performance indicators. Using past data, a set of analyses are performed, and economic models are built, with the scope of probabilistically determining Gross Domestic Product (GDP). The main objectives of this paper are thus, to assess Romania's development since joining the European Union (EU) and provide a long-term macroeconomic projection, together with a comparison between the forecasted data and the country's Sustainable Development Goals (SDGs) in order to realistically estimate their achievability. Furthermore, a set of scenarios have been built that aim at creating a clearer perspective of how the recent global pandemic might affect Romania.

The data sets have been taken from Eurostat, the International Monetary Fund, World Bank, European Commission, National Bank of Romania and the National Institute of Statistics; and a set of statistical tools have been used to fulfill the previously stated objectives, namely; Auto Regressive Moving Average (ARMA) for the short-term forecasts and Variable Autoregression (VAR) for the long-term models.

The main results suggest a negative GDP growth of 4.95% for 2020 followed by a strong rebound in 2021. However, this figure will drastically be affected by how well or poorly the situation is managed. The European Commission anticipates a downturn of 6% in 2020 and a rebound 4.2% in the following year. This paper includes a sensitivity analysis as well, that attempts to eliminate potential forecasting biases.

¹ Bachelor, Faculty of Business, Babes-Bolyai University, Cluj-Napoca, Romania, ilgavris97@gmail.com

² Assoc. Prof. dr., Faculty of Business, Babes-Bolyai University, Cluj-Napoca, Romania, valentin.toader@tbs.ubbcluj.ro

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Introduction

It is without doubt that we live in a scarcity and our progress can only be defined by how well we allocate resources. By looking at past data, future forecasts can be made to anticipate economic growth to constitute a more effective resource distribution. Predictability is so important because it builds confidence in the economic environment and leads to more educated decisions that overall result in the creation of welfare, as long as the forecasts are accurate and realistic, the contrary leading towards less prosperity. Take Zimbabwe for example and its' severe case of hyperinflation, reaching 231 million percent in July 2008 according to official sources and reported by (McGreal, 2008), and peaking at 89.7 sextillion percent in November the same year, according to a measurement index, however, no official sources have confirmed the number (Hanke & Kwok, 2009). This havoc was caused by military adventures and reckless spending which threw the country into huge budget deficits and forced seizure of commercial farms that almost brought the agriculture to a halt (Coomer & Gstraunhaler, 2011). Budget deficits can only be financed by limited means such as foreign or domestic borrowing, tangling foreign exchange reserves or by printing money (Fischer & Easterl, 1990). Had the country paid attention to the repercussions given by such implied decisions, they could have mitigated the harmful aftermath, however, the isolated case in cause was a result of political turmoil rather than an inability of causal anticipation. It can be argued that the latter had resulted as a matter of the aforementioned incident. As so with other cases of hyperinflation or economic uncertainty, it is important to understand and consider potential effects that a decision

can trigger, using forecasting methods with the help of econometric models. (Onofrei & Lupu, 2014) shows that controlling inflationary periods leads to stronger growth.

This paper seeks to emphasize the importance of economic forecasting with respect to long-term growth, by creating a 10-year economic forecasting model. Moreover, it assesses the macroeconomic evolution of Romania since joining EU and compares it to other similar economies, with the objective of shedding a light upon whether the policy makers have been interested in effective growth or they have been endorsing practices with a different objective, regardless of the respective, which will not be discussed in this paper since the objective is purely analytical and it contrasts macroeconomics and not societal policy making.

In this respect, the paper is organized as follows. The first chapter is composed of the literature review, the second chapter details the research objectives and the methodology, while the third chapter includes the results along with estimates of GDP aggregates, forecasting models and the scenario analysis. The paper ends with conclusion.

1. Literature review

According to Vojtovic and Krajankova, the determinants of economic growth are a subject of change over time (Vojtovic & Krajankova, 2013). For example, before the accession, Romania had been a smaller stakeholder in EU growth compared to present days. A subject of change are even the assessment methods since they largely depend on methodology, approaches, time span and a set of specific factors (Barro, 1991). Different authors list a set of different factors as determinants, however, the ones that can commonly be agreed on are employment, inflation, current account balance, governmental debt, exports and imports, foreign direct investment, gross capital formation, natural resources, infrastructure and technology development, natural resources, social and political factors (Simionescu, Lazányi, Sopková, Dobeš, & Balcerzak, 2017). Kondratiuk list two key structural factors that stimulate growth, namely, liberalization of trade and the rate of development in communication technology (Kondratiuk-Nierodzińska, 2016). Globalization is another factor for consideration. Capello and Perucca state that it had a positive effect on EU integration

and CEE economic performance (Capello & Perucca, 2013). O'Rourke defines globalization as the decline in barriers of trade, migration, capital flows and FDI (O'Rourke & Williamson, 2001). According to (Mutascu & Fleischer, 2011), countries that globalize more tend to maximize economic growth on a medium and long-term basis. Moura and Forte consider FDI a key determinant of growth in the context of globalization because it tends to contribute to job creation, increases in labor productivity, a more efficient asset allocation, less regional disparities and a higher competitiveness of an economy (Moura & Forte, 2013). Simionescu showed that FDI did not generate economic growth in Romania after the last financial crisis but a higher economic growth attracted more foreign investors (Simionescu, Lazányi, Sopková, Dobeš, & Balcerzak, 2017). The empirical literature suggests and confirms that in the case of Visegrád Group - V4 (Hungary, Slovakia, Poland and Czechia) countries and Romania, a quick and sustainable growth has been achieved by the utilization of EU funds and the achievement of convergence criteria (Nežinský & Fifeková, 2014). Cuaresma et al. showed that a social factor as education also played a key role with respect to growth as new states developed faster due to investment in education (Cuaresma, Doppelhofer, & Feldkircher, 2014). Research and development are another factor to consider (Bilas, Bošnjak, & Čizmić, 2016). Considering that R&D expenditure is commonly treated as the most important investment in building a knowledge-based economy, empirical research shows that the influence of R&D on the growth process is very complex.

As a result, an effective utilization of investment in R&D depends on many institutional and even to some social factors. Thus, a positive influence of R&D on growth is not automatic (Balcerzak & Pietrzak, 2015). A study made for the CEE countries showed that the economic growth was influenced in 1990-2010 by political certainty and stability and by political freedom (Radu, 2015). Natural resources tend to have a considerable impact on economic development. The impact of energy consumption on economic growth was studied along time. For Czechia, Hungary, Poland and Slovakia, the V4 states, and Romania it was emphasized that energy consumption was positively correlated with economic growth, being a cause of output increase in the period of 1995-2012 (Kasperowicz & Štreimikienė, 2016).

Other studies point out that the level of financial intermediation is a good predictor for economic growth rate, capital accumulation and productivity (King & Levine, 1993). In the same context, Carlin and Meyer concluded that there is a strong relationship between the structure of countries' financial system and economic growth (Carlin & Meyer, 2003). A causal relationship between economic growth and financial markets development was identified in a different study: a 1% improvement of economic growth determines a 0.4% rise of market capitalization/GDP ratio. Yet, according to their results, market capitalization/GDP ratio does not represent a significant determinant of the economic growth (Garretsen, Lensink, & Sterken, 2004).

With respect to growth perspectives, Firoiu et al. explore the 2030 agenda implementation status of sustainable development goals and try to determine to what extent Romania will be able to achieve them. Their results showed that the implementation status is sub-optimal. In case of 40 indicators out of 107, forecasts indicate the possibility of reaching EU average values only in the context of involving all stakeholders and increasing concrete, well-targeted measures to improve SDG indicators (Firoiu, Ionescu, Băndoi, Florea, & Jianu, 2019).

2. Research objectives and methods

The main objective of this paper is to provide a 2030 macroeconomic projection of Romania and assess the achievability of proposed agendas in relation to the most recent international developments. To create a clear perspective, the following main objectives and targets have been addressed. First, it is imperative to assess how Romania has developed since joining the European Union. Second, to create a viable 10-year forecasting model and address the 2030 macroeconomic projection. In terms of targets, a fundamental benchmarking will be done in order to determine how GDP has developed relative to other regional economies and then, consider GDP aggregates such as Debt/GDP, public deficits and trade balances so that a regional overview is created. Euro adoption will then be discussed, but only after the point at which a forecasting model is built and used to determine probable future outcomes. The last target is to determine whether the 2030 vision can be achieved or not.

Methods

To determine how Romania has performed since joining the European Union with respect to fundamentals, a horizontal analysis was done, assessing the relative change compared to previous years. Moreover, a vertical analysis was also done, by comparing this evolution to other regional economies and the European average, on the grounds that a higher than average performance is considered to be a better development, not considering the reasons why that happened. Institutional data was taken from the International Monetary Fund (IMF), World Bank (WB), Eurostat, European Commission (EC), National Bank of Romania (NBR) and the National Institute of Statistics (NIS).

With respect to forecasting, two different methods were used, that are widely recognized in the literature: Autoregressive Moving Average (ARMA) and Vector Autoregression (VAR). ARMA was popularized in 1970 by the Box-Jenkins method; it is used to better understand a time series and predict future values while VAR is a method for determining interdependencies between multiple time series.

Several variables were analyzed in order to determine the best forecasting model. First, a good fit had to be chosen in terms of regressors since more variables included would trigger more noise and therefore a less accurate forecast. After the parameters have been determined, the best model was chosen based on the highest R squared, which implies the predictability of the dependent variable from the independent ones, the lowest Akaike, which estimates the model quality relative to other models and the lowest Schwartz criterion, which is based on the likelihood function; and the lowest value of squared residuals. Another consideration on which the ARMA model was selected was based on checking for correlograms. After the model selection and the forecast, a performance evaluation was done using conventional assessment methods such as Mean Squared Error (MSE), Root Mean Squared Error (RMSE) and Mean Absolute Percentage Error (MAPE).

3. Results

There has been a positive YoY GDP growth at current prices in the last 12 years at an average of 6% annually, the only exception being 2009-10 which can be attributed to the last financial crisis. It can be

observed that growth has been quite irregular with a slow recovery after the downturn, averaging at only 2% YoY, followed by a rapid growth stage at a 9% average. At 2010 prices the median YoY rate is halved but still in rapid growth territory, registering a negative 2% growth average in the last downturn followed by a 4% upside recovery. EU GDP growth has averaged at 3% with regards to current prices and only 1% at constant prices. It is to be noted that the constant series represents a more accurate growth rate since it accounts for inflation. Another criteria is benchmarking Romania's GDP as a percentage of EU's GDP, although this method can be quite unreliable. The country's main performance indicator amounted for 1.2% of EU's GDP in 2007 and a 1.6% in 2019 showing a 0.3% development. One reason through which the above average growth can be explained is the catch-up effect, defined as the law of diminishing marginal returns. It states that each time a country invests, the amount gained will eventually be worth less than the initial investment assuming inputs remain constant, so returns must be higher in developing countries against mature economies (Brue, 1993). Other authors attribute the growth to the absorption of convergence funds combined with access to technological know-how that had already been researched and developed which implies that replication at reduced costs is possible, thus resulting in rapid growth rates. The actual GDP evolution can be seen in table 1.1.

Table 1. GDP at constant prices (EUR million)

	Romania	Bulgaria	Czechia	Croatia	Hungary	Poland	Slovakia
2007	126,359	36,922	156,760	48,580	104,290	325,783	64,527
2008	138,120	39,169	160,965	49,435	105,394	339,628	68,124
2009	130,499	37,828	153,234	45,797	98,333	349,206	64,408
2010	125,408	38,044	156,718	45,111	98,986	361,803	68,093
2011	127,926	38,938	159,504	44,972	100,787	379,956	70,043
2012	130,583	39,078	158,228	43,965	99,304	386,065	71,371
2013	135,172	39,203	157,463	43,724	101,253	391,439	71,850
2014	139,783	39,946	161,738	43,679	105,501	404,429	73,827
2015	145,197	41,539	170,325	44,743	109,558	419,955	77,387
2016	152,165	43,123	174,499	46,302	111,968	432,822	79,031

	Romania	Bulgaria	Czechia	Croatia	Hungary	Poland	Slovakia
2017	162,986	44,635	182,094	47,755	116,808	454,193	81,434
2018	170,218	46,012	187,277	49,042	122,758	496,361	84,718
2019	177,162	47,563	192,082	50,482	128,808	527,033	86,647

Source: Eurostat.

All countries have shown an impressive GDP growth in 2007 as a result of convergence funds absorption, averaging at 7.1% YoY from 2006-2007. The last economic downturn has had negative effects on all nations with the impact being visible from 2009 onwards and a mean of negative 4%. All countries registered growth in 2010 except for Romania and Croatia, while Slovakia had a fast 6% recovery. It is to be noted that Romania showed an upward evolution between 2012-2013 while Bulgaria did not grow while Czechia, Croatia, Hungary, and Poland did so but negatively. Slovakia is the only nation besides Romania that showed recovery. The following years have shown GDP growth for all economies averaging at 4%, above EU median.

At an average YoY growth rate of 4%, Romania has become more efficient in development when compared to other CEE economies, with a 0.2% surplus compared to Poland, in terms of real final output. Bulgaria, Czechia, Croatia, Hungary, and Slovakia have grown by 3.3%, 1.7%, 1%, 1.9% and 3.1%. Another consideration is represented by the Purchasing Power Parity (PPP), which according to (Taylor & Taylor, 2004) states that the nominal exchange rate between countries should be equal to the ratio of the aggregate price levels. After the PPP has been computed, it can then be cross rated to a common currency, Euro being the default as it is the standard currency in Europe.

However, PPP has some downsides as well since it does not account for variables such as trade tariffs and other implied costs of international trade. Taylor concludes his paper by arguing that short-run PPP does not hold and is not representative for assessing the purchasing power of a country due to volatility effects that can be expressed as economic shocks, but it may hold over long timespans because there is significant mean reversion of the real exchange rates.

Assuming the statement holds, because over time there have been less fluctuations of the EUR-RON exchange rate, namely, between January 2000- December 2005 the relative change was of 99.7% while from December 2005 to December 2019 the relative change was of only 30%, implying a higher degree of stability and less overall fluctuations in the economy as the latter timeframe encompasses the last financial crisis.

Debt to GDP and deficits

Debt to GDP expresses a country's total public debt relative to its' total GDP over a period of time. By doing so, it assesses whether a country can pay back its' debts or not. According to (Wray, 1998) and his Modern Money Theory (MMT), countries are not constraint by revenues when it comes to government spending because the governments could print as much money as needed because they cannot go broke. Conventional theory suggests that printing so much currency will lead to catastrophic events like the inability to pay debt and hyperinflation, as it has many times been the case, some examples being Zimbabwe, Yugoslavia, Hungary, and Germany. Essentially, MMT is an oversimplification of the challenges of reaching non-inflationary full unemployment that ignores the dilemmas of the Phillips Curve (Palley, 2015).

However, having debt can stimulate economic growth. Empirical results show that in the short-term impact of debt to GDP is positive in the Euro area for countries that score up to 67%. Should those countries have a higher ratio, the positivity is reduced to zero and for countries with a level of above 95%, additional debt has a negative impact on growth. Additionally, long-term interest rates are subject to high pressure for a debt to GDP ratio above 70% (Braum, Checherita-Westphal, & Rother, 2013). Even though most countries have kept constant debt levels, it is important to note that the debt is relative to the GDP, meaning that each country has in fact borrowed more as GDP grew.

Since the debt to GDP ratio has mostly remained constant, it is a necessity to also examine the budget deficits, which is the amount of money borrowed, expressed as a percentage of GDP that helps in financing government expenditures. An increase in the deficit ratio leads to a higher debt-capital ratio which in turn leads to lower growth since the deficit and capital output increase relative to the economic growth.

Trade Balance

(Backus, Kehoe, & Kydland, 1992) find that, at least for their analyzed sample, the trade balance is uniformly countercyclical, and it is negatively correlated with current and future movements in terms of trade but positively correlated with past movements. All analyzed countries have improved their negative trade balance, resulting their transformation in export countries, the only exceptions being Romania and Croatia, albeit that Croatia has managed to keep the deficit below 1% while Romania showed signs of following the trend up to 2015, after which the deficit has worsened yearly.

The long-term outlook of Romania

ECB has published its updated economic overview and forecast in June 2020. According to it, there will be an uneven economic recovery throughout the continent in the form of a gradual “U shape”. It is presumed the highest economic impact will be seen in Q2 2020 because of the restrictions. As a result, GDP is expected to contract by 7.4% across EU, followed by a sharp upside of 6.1% in 2021, the full recovery from this pandemic being forecasted to happen by the end of the latter year. Prices are only to change by 0.6% while the public budget balance is foreseen at negative 8.3% in 2020 and negative 3.6% in 2021, far more than it had been in the last economic downturn, the difference being the timespan in which this high deficit had been maintained or reduced. Consequently, the gross public debt will enlarge to 95.1% of GDP, followed by a 3% contraction in 2021 to 92%.

Table 2. Total Impact of the pandemic

	2019	2020	2021
GDP	1.5%	-7.4%	6.1%
HICP	1.4%	0.6%	1.3%
Unemployment	6.7%	9%	7.9%
Budget balance/GDP	-0.6%	-8.3%	-3.6%
Debt/GDP	79.4%	95.1%	92%
Current account/GDP	3.25	3.1%	3.4%

Source: ECB

In order to understand how close to reality a forecast can be, an analysis using already existing data has been done. First, a unit-root test was performed which proved non-stationarity. In the estimation, a dummy variable was assigned for years 2009-2011 to explain the economic shock of the last downturn. The equation output can be seen below:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.068282	0.086216	0.791991	0.4320
LOG(GDP1(-1))	0.984115	0.024761	39.74485	0.0000
DUM	-0.025374	0.004374	-5.801478	0.0000
AR(1)	0.515446	0.498777	1.033419	0.3063
AR(2)	-0.615069	0.256874	-2.394440	0.0204
MA(1)	-0.569103	0.597812	-0.951975	0.3456
MA(2)	0.412095	0.386604	1.065936	0.2915
SIGMASQ	0.000233	3.29E-05	7.082712	0.0000
R-squared	0.985867	Mean dependent var	3.540321	
Adjusted R-squared	0.983928	S.D. dependent var	0.129584	
S.E. of regression	0.016428	Akaike info criterion	-5.250523	
Sum squared resid	0.013764	Schwarz criterion	-4.968823	
Log likelihood	162.8904	Hannan-Quinn criter.	-5.140558	
F-statistic	508.2388	Durbin-Watson stat	2.068304	
Prob(F-statistic)	0.000000			
Inverted AR Roots	.26+.74i	.26-.74i		
Inverted MA Roots	.28+.58i	.28-.58i		

Fig 1. Estimation output

Source: Authors' own calculation

As mentioned, the results indicate non-stationarity since, based on the evolution of the time series, there is a clear upward trend as time goes by. An aspect to consider in this regard is the type of non-stationarity that is present in the respective trend. With the available information and the equation outputs, it can be observed that the non-stationarity is a random walk with a drift since the growth is unkept at constant level and it is influenced by other factors. The selection criteria were based on the best Akaike fit, the lowest sum of squared residuals,

no correlograms and FIML. This model only forecasts data up to Q4 2019. Q1 2020 is represented by a stagnant evolution, while Q2 is seen with a 9.1% downside and a total GDP of EUR 167.55 billion, a total negative growth of 4.95%, followed by a strong rebound of 5.2% in 2021. The European Commission predicts that Romania’s GDP will diminish by 6%, followed by a 4.2% rebound over the same timeframe. IMF’s World Economic Outlook database, updated in April 2020, currently shows a negative 5% growth and a rebound of 3.9% in the following year; World Bank’s report shows a negative 5.7% in 2020 and a positive 5.4% upside in 2021. Adjusted for an economic shock, the forecasted GDP takes values EUR 167.65 billion in 2020 and EUR 176.26 billion in 2021, meaning a 5.2% rebound.

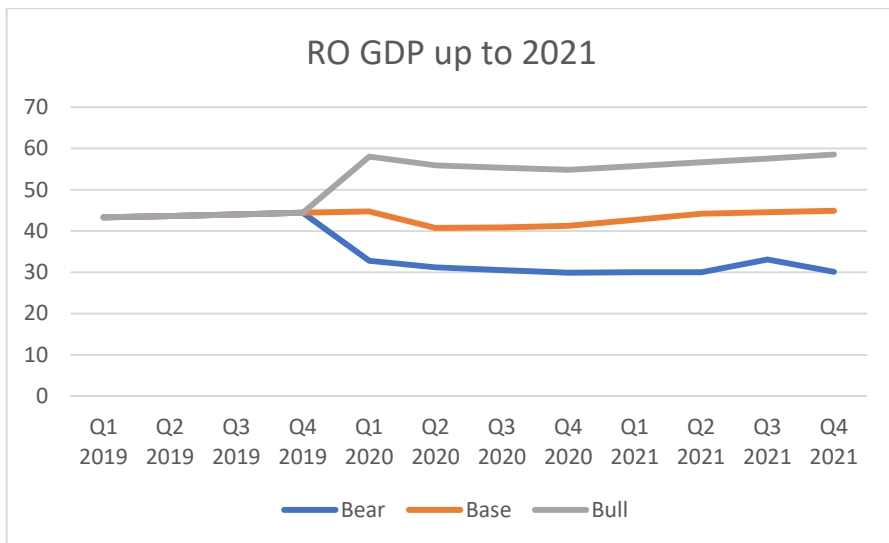


Fig 2. GDP forecast

Source: Authors' own calculation

A VAR model

Other authors built a VAR model based on 6 indicators to determine China’s Economic growth. A constructed model for Romania included 6 variables: a dependent variable (GDP) and 5 independent variables that are fixed capital formation, exports, imports, M3 and general government debt. Assuming a base case where no other shocks will happen until 2025

and considering the effects of the current situation will impact Q2 and Q3 2020, Romania's GDP is forecasted to reach EUR 169.69 billion in 2020 and EUR 180.72 billion in 2021. Furthermore, this scenario includes to EU aid package. It is without doubt that the actual GDP value will not be the same as the forecasted value, however, with a 95% probability, the metric will be between EUR 94-267 billion, the first number representing the bear case and the second one representing the bull. The significant difference between the bull and bear case can be explained by the confidence interval. In other words, the lower the confidence interval is, the closer the bull and bear cases will be to the base model's estimate; however, that would imply a higher inaccuracy in the outer bonds' prediction. Because these bonds have been considered the very worst, respectively best outcomes in a long-term perspective, the deviations from the base model can be explained in two ways. First, in a bear case, the pandemic triggers a downward domino effect that causes massive economic negative growth and second, the pandemic triggers an accelerated upward trend. It is important to note that the average of the cases represent are closely in line with the model's base case.

Table 3. Bear and bull case

	Bear	Bull
2020	94.61	267.61
2021	59.00	320
2022	54.00	334
2023	51.00	347
2024	40.00	365
2025	34.00	396

Source: Authors' own calculation

Uncertainty plays a big factor when considering the large number of possibilities and factors that can affect how development might occur. At the same time, it is easy to extrapolate a simpler model in which the world emerges in another expansionary period. Thus, a potential GDP can be estimated. As there are not enough observations in the sample, a larger timeframe has to be considered. With these implications, a bias

can occur with respect to the fluctuations of Romania after 1989, a period characterized by reform and instability. A model that can be calculated is the one for Europe and based on it, estimate Romania's GDP. One aspect that has to be considered is the potential error of estimating a country level aggregate. Nevertheless, the estimation outputs suggest an EU GDP contraction by 5.85% in 2020 and a 0.17% recovery in 2021, YoY, implying a U-shaped recovery, assuming no other events will happen.

In a case the quarterly data is taken from 1995, with dummy variables explaining all shocks in the economy since then, Romania's GDP is forecasted to reach EUR 199 billion by 2025 and EUR 234 billion by 2029, at 2010 prices.

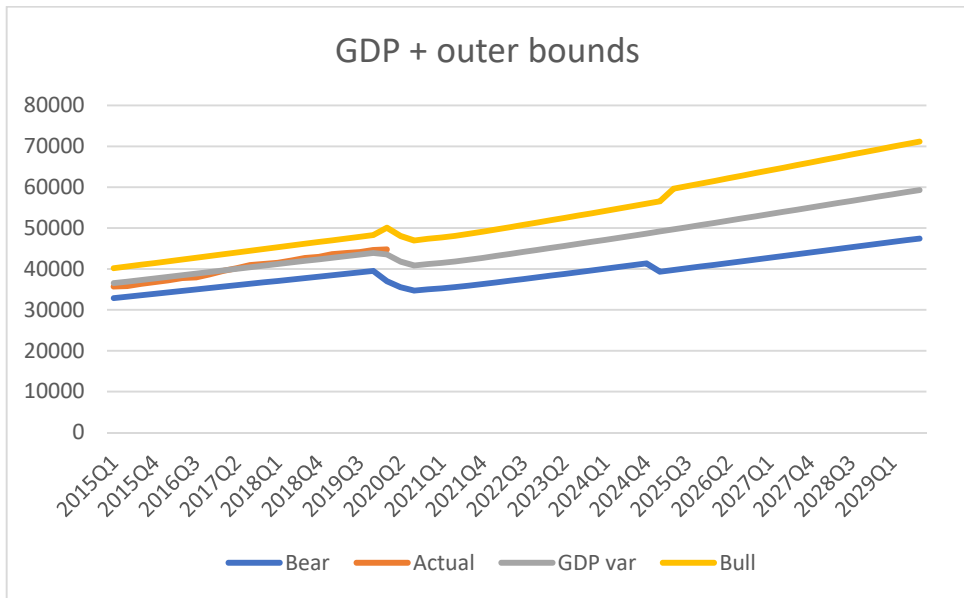


Fig 3. GDP and outer bounds

Source: Authors' own calculation

(Bratu, 2012) points out that there are 3 ways in which a forecast's performance can be assessed, which the international environment tends to use: accuracy, bias and efficiency. She also points out the two ways to measure prediction quality: Vertical (MSE) and Horizontal (distance in time).

Scenarios

In order to create a sound perspective on how the economy will evolve, a scenario analysis must be done. Not only does it provide a broader understanding of the macroeconomic dynamics, but also helps in future policy making. For the purposes of this analysis, 4 scenarios have been considered: the aforementioned base case, the potential effects of the pandemic lasting longer, a V shaped recovery, a W where the pandemic triggers and economic downturn in the future. Furthermore, another case has been considered, where there would be an increase in fixed capital formation.

The base case

As a base case, Romania is forecasted to rebound by around 1.4% in 2021 followed by an accelerated growth period of around 4.67% YoY, looking like a U-shaped recovery. Even so, the forecast expects a stagnation in 2024. A few assumptions have been made to justify the bull and bear. The bull has been considered at a 5-stage growth scenario, by 3%, 5%, 10%, 15% and 20% above forecasted rate. The high number of growth stages have been considered because of the uncertainty brought with long-term forecasting.

The same assumptions have been made in respect to the bear case. On a base case, by 2025 Romania's GDP will be of EUR 219 billion and by 2030 of EUR 280 billion, at constant prices. The GDP aggregates remain as previously stated.

The current pandemic will last longer than expected

Should the pandemic last for another 2 quarters that is by Q1-2021, it can be assumed that the effects will be seen in the following quarters as well since most of the economic activity will have to suffer. Nevertheless, this scenario outputs a negative growth rate of 2.44% in 2021 and a strong rebound of above 4% in the following years except for 2029. Consequently, Debt to GDP would increase sharply while the country would increasingly focus on imports rather than exports. In this case, the budget deficit would be expected to rise even more, employing a higher financial stress on how the government invests in critical, proven to be beneficial, outputs.

What a V recovery means

A V-scenario represents a very quick and sharp recovery of the economy. In a best fit model, Romania would be expected to grow by 1.84% in 2021, followed by above 4% changes in the following years, averaging at 3.99% by 2030. In this case, Debt to GDP is still expected to be on an upward trend but with lower percentage changes.

A W scenario

In the scenario where an economic shock is triggered by the effects of the Covid-19, GDP will contract by 0.4% in 2021, reaching EUR 167 billion at constant prices. Debt to GDP will swing to 61%, followed by a downward trend unable to go lower than 57%. Even though the imports and exports will increase relative to GDP, Romania will have a negative trade balance, falling in line with the already existing trend. Based on this scenario, if an economic shock was to happen, it would hinder growth for another 2 years, reaching a potential GDP of EUR 229.94 billion in 2030, at constant prices.

Discussion

To join to the Euro area, a country must comply with 4 convergence criteria. It must achieve price stability, meaning the inflation rate cannot be higher than 1.5% above the rate of the 3-best performing member states, have sound and sustainable public finances, with a government deficit lower than 3% relative to GDP and debt lower than 60%, have stability in terms of exchange rates, by participating in the exchange rate mechanism (ERM 2) for at least 2 years without strong deviation from the central rate and without currency devaluation against EUR, and have a long-term interest rate not higher than 2% above the 3-best performing countries.

Base case

Even though all factors cannot be included, possible recommendations can be stated aimed at helping policymakers in their decision making. For the base case, an increase in healthcare efficiency could lead to easier access to sanitation, medical services and an increase in the standard of living. What the tradeoff would be will not be discussed in this paper.

Pandemic lasting longer

In this scenario, the economic pressure would accumulate even more. It could be assumed that the public deficit would have to suffer along with gross debt to GDP. A way of dealing with this impediment is issuing bonds, which historically is what happened in 2009-2010 and 2012. A drastic, perhaps as a last resort, solution would be austerity measures and the restructuring of the governmental apparatus. It is likely that an extended economic distress would significantly alter the long-term vision of Romania, thus, policy makers should be prepared to act accordingly through ways of stimulating the private sector or invest in capital goods that increase the competitiveness relative to the international environment.

V

A V-shaped recovery implies a strong rebound of the economy. Therefore, the policy makers should account for the correction of an extremely high growth rate and whether it can be sustainable for the future or not.

W

A W would likely have drastic effects over the economy as the scenario in which the pandemic lasts longer. But countries sometimes are slow to enact changes. In this case, the policy makers should consider a potential risk and shouldn't blindly make decisions without considering the world or regional context.

Conclusions

As the events unfold, Romania is dealing with a higher degree of uncertainty. In such times, decision making with respect to spending, be it consumption or investment, is done in the context of expectations conditioned by the uncertainties of future outcomes. In a Keynesian view, macroeconomic decision makers should correct market dysfunctions by building a favorable entrepreneurial environment when dire events occur to stimulate economic growth and to restart the economy. At what cost, however, is a different topic. When correcting these market dysfunctions, it is expected that the benefits brought by such decisional outcomes

should outweigh the cost of making them. Should they be made irrationally, the consequences would be more severe and affect all economic agents more profoundly.

Hence, there is a societal responsibility embedded in all of us to push for a more preferred outcome over time, to exert our right of creating beneficial environments that first rely on individual sustainable decision making and only after on other stakeholders that are bound to create such conditions. Historically, the above average growth impetus has been the absorption of convergence funds, inflation targeting policies, a higher degree of stability over time and an increase in overall consumption. If the trends continue as they currently do, Romania will still have an above average economic development with the concern of an increasing public budget deficit, a concern that might be beneficial in the short-term, detrimental to long-term sustainable development.

With current available data, the 2020 GDP will be of EUR 167 billion, an EUR 10 billion decrease from 2019, followed by a strong rebound in 2021 and reaching a potential GDP of over EUR 50 billion per quarter at 2010 prices by 2030. It is with certainty that such a development would allow more sustainable goals to be implemented and bring Romania closer to their achievement, however, they will not be achieved by 2030.

What is yet unclear is if certain stakeholders will make appropriate decisions to edge closer to European averages in terms of sustainability. One example of this is the potential increase of public pensions by 40%. Considering the urgent need of short-term liquidity, the negative current account balance, an increasing debt to GDP and an exploding budget deficit, a decision to implement the aforementioned would be damming for real development. It would not only hinder the respective, but it would severely affect the society since that amount of liquid securities would have to either be cut from other sectors such as education, public health or infrastructure, paid through the issuance of bonds or loans from other international institutions. Should the first case occur, lower investment in education will affect future generations through the quality of education provided, inadequate medical facilities, which Romania has already been criticized for, and a lack of capital goods that have a direct impact on how efficient logistical operations can be and not only. These issues would apply more pressure over the economy, and thus, it would be more appropriate to first rely on self-sustainability and only then on other stakeholders.

REFERENCES

- Backus, D., Kehoe, P., & Kydland, F. (1992). Dynamics of the trade balance. *National Bureau of Economic Research*.
- Balcerzak, A., & Pietrzak, M. (2015). Research and Development and Quality of Life in European Union Countries. *Ekonomia i Prawo*, 285–302.
- Barro, R. (1991). Economic Growth in a Cross Section of Countries. *Quarterly Journal of Economics*, 407-443.
- Bilas, V., Bošnjak, M., & Čizmić, T. (2016). Relationship between research and development and economic growth in the EU countries. *13th International Scientific Conference on Economic and Social Development*, (pp. 223-230). Barcelona.
- Bratu, M. (2012). The reduction of Uncertainty in Decision Making using forecasts. *Journal of scientific and industrial research*.
- Braum, A., Checherita-Westphal, C., & Rother, P. (2013). Debt and growth: new evidence for the euro area. *Journal of International Money and Finance*, 809-821.
- Brue, S. (1993). Retrospectives: The Law of Diminishing Marginal Returns. *Journal of Economic Perspectives*, 185-192.
- Capello, R., & Perucca, G. (2013). *Globalization and Growth Patterns in Eastern European Regions: From the Transition Period to the Economic Crisis*. Retrieved from Grincoh Working Paper Series: http://www.grincoh.eu/media/serie_1_growth_structural_change_deve/grincoh_wp1.11_capello_perucca.pdf
- Carlin, W., & Meyer, C. (2003). Finance, investment and growth. *Journal of Financial Economics*, 191-226.
- Coomer, J., & Gstraunhaler, T. (2011). Zimbabwe's economic crisis. *Quarterly Journal of Austrian Economics*, 311-346.
- Cuaresma, J., Doppelhofer, G., & Feldkircher, M. (2014). The determinants of economic growth in European regions. *Regional Studies*, 44-67.
- Firoiu, D., Ionescu, G., Băndoi, A., Florea, N., & Jianu, E. (2019). Achieving Sustainable Development Goals (SDG): Implementation of the 2030 Agenda in Romania. *Sustainability*, 1-30.
- Fischer, S., & Easterl, W. (1990). *The Economics of the Government Budget Constraint*. Retrieved from World Bank Research Observer: <http://www1.worldbank.org/publicsector/pe/pfma06/easterly.pdf>
- Garretsen, H., Lensink, R., & Sterken, E. (2004). Growth, financial development, societal norms and legal institutions. *Journal of International Financial Markets, Institutions and Money*, 165-183.

- Hanke, S., & Kwok, A. (2009). On the measurement of Zimbabwe's hyperinflation. *Cato Journal*.
- Kasperowicz, R., & Štreimikienė, D. (2016). Economic growth and energy consumption: comparative analysis of V4 and “old” EU countries. *Journal of International Studies*, 181-194.
- King, R., & Levine, R. (1993). Finance, Entrepreneurship and Growth. *Journal of Monetary Economics*, 513-542.
- Kondratiuk-Nierodzińska, M. (2016). Innovation capabilities in EU countries: have Central and Eastern European countries been catching up? *Journal of Business Economics and Management*, 765-779.
- McGreal. (2008). *Zimbabwe's inflation rate surges*. Retrieved from The Guardian: <https://www.theguardian.com/world/2008/oct/09/zimbabwe>
- Moura, R., & Forte, R. (2013). The effects of FDI on Economic Growth. *Singapore Economic Review*.
- Mutascu, M., & Fleischer, A. (2011). Economic Growth and Globalization in Romania. *World Applied Sciences*, 1691-1697.
- Nežinský, E., & Fifeková, E. (2014). The V4: A decade after the EU entry. *Entrepreneurial Business and Economics Review*, 31-45.
- Onofrei, M., & Lupu, D. (2014). The modelling of forecasting the bankruptcy in Romania. *MPRA Paper*.
- O'Rourke, K., & Williamson, J. (2001). *Globalization and History. The Evolution of a Nineteenth-Century Atlantic Economy*. MIT Press.
- Palley, T. (2015). Money, Fiscal Policy, and Interest Rates: A Critique of Modern Monetary Theory. *Review of Political Economy*, 1-23.
- Radu, M. (2015). The Impact of Political Determinants on Economic Growth in CEE Countries. *7th World Conference on Educational Sciences, (WCES-2015)* (pp. 1990 – 1996). Elsevier.
- Simionescu, M., Lazányi, K., Sopková, G., Dobeš, K., & Balcerzak, A. (2017). Determinants of Economic Growth in V4 Countries and Romania. *Journal of Competitiveness*, 103-116.
- Taylor, A., & Taylor, M. (2004). The purchasing power parity debate. *Journal of Economic Perspectives*, 135-158.
- Vojtovic, S., & Krajankova, E. (2013). Trends in Economic Growth and Unemployment in Slovakia. *Proceedings of the 2013 International Conference on Education, Management and Social Science (ICEMSS-13)*.
- Wray, L. (1998). *Understanding Modern Money: The Key to Full Employment and Price Stability*. Cheltenham: Edward Elgar.