

**STUDY ON ROMANIAN REGIONAL CONVERGENCE UNDER  
THE IMPACT OF THE HEALTH CRISIS**

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## **Abstract**

The effects of the Covid-19 pandemic on national economic activities are mainly negative and quantified in macro indicators such as GDP contraction, increase in the share of current expenditures in household incomes, increase in the number of unemployed (indicator targeting technical unemployment), increase in budget deficit and others. The current pandemic has generated direct costs in the economy, increasing the operational costs, and indirect costs: reduction of production capacity, change in the structure of private consumption and public consumption, too. Private consumption has shifted towards rising spending on food and a drastic reduction in spending on services. As positive effects, we can mention the acceleration of the digitization of activities and the reduction of inflation. This paper aimed at analysing the economic convergence process among the eight Romanian regions in period from 2012 to 2019 and during the pandemic crisis (after 2019). The sigma and beta coefficients of variation were determined, both, in terms of per capita gross regional product and the monthly gross average wage. Regional disparities, through sigma coefficient of variation, seem to have decreased slightly in the post-economic crisis period (2012 -2019) - except for 2015, but the forecasts for the period 2020-2024 confirm the tendency to accentuate them over the estimated period of the health crisis. The beta convergence was negative, but it was not statistically significant in any of our model. So, the concentration at regional level must be seen as a whole based on a set of indicators that address key aspects of economic and social life: education, health, the structure of activities and their contribution to economic growth and so on.

**Keywords:** health crisis, gross regional product per capita, personal income per capita, development regions, regional disparities

**JEL Classification:** D63, R11, R15

## **1. Introduction**

Over the last three years, the Romanian economy has been under the constraints of the sanitary crisis and forced to face the measures such as: temporary restrictions prohibiting certain activities, lockdown, limitation of the activity program, restrictions on organizing activities or free movement of persons and goods on the national and international territory, etc.. All these have been generated additional costs (protective equipment, disinfectants, redevelopment, digitization of the activities, etc.) and increased risks in carrying out the activities (results of the impossibility of proper planning of the activity, the online communication problems and so on).

Lack of balance, pro-cyclical fiscal and budgetary policies coupled with excessive consumption by the private sector and the current account deficit were the internal contextual factors that, accompanied by the global financial crisis, threw Romania into the economic crisis marked at national level by the evolution of macro-indicators in the fourth quarter of 2008. (Enache, 2015; Ioan and Ioan, 2015; Costea, 2016 and others).

The period of timid economic growth (2012-2019) was unable to compensate for the effects of the economic crisis of the previous period (2008-2011). Therefore, far from being prepared to endure a new economic recovery, Romania is on the verge of a major economic crisis, considered by some specialists in the field as being more serious than the Great Depression of 1929-1933 (Kubinski, 2020).

The European Union's concerns about inequality have become pressing, as the effects of economic crisis on Europe have been profound, reversing years of convergence in living standards and putting considerable strain on social protection systems. Inequality has risen in a majority of Member States, triggering concerns for the sustainability of growth, for social cohesion and inclusiveness of growth. When the income produced in a country, as measured by GDP, is growing faster than the incomes received by that country's households suggests that growth is not inclusive and its benefits are not being felt by all households (European Commission, 2017, p.1).

The current situation analysed in terms of regional and local disparities becomes even worse in areas already facing problems such as: precarious employment in the primary and/ or informal sector, dependence on certain sectors of activity or enterprises (such as the Jiu Valley area, Pitesti - Dacia Renault and so on).

Romania continues to be the EU country with the most inadequate distribution of employment on economic sectors. This structure affects the ability of real convergence in order to join the euro zone. Its economy remains anchored in low and medium skilled labour, relatively low user of technologies and based on low value added industries. Productivity is affected and business models used allow productivity gains based only on wage cuts, which, basically, is a powerful additional stress factor (Enache, 2015, p.2).

Skills gaps refer to inadequacies in the quantity, quality, and types of skills available in the workforce. Romania's pool of potential and actual workers is relatively less educated than the rest of the EU, while there are also significant regional disparities within the country (Belinga et al, 2020).

Despite of 3.9% contraction in 2020, the International Monetary Fund (IMF) forecasts Romania on an upward trend, based on data provided by the Romanian National Institute of Statistics for 2019, with a Gross Domestic Product (GDP) growth rate of 6% this year (2nd position after Spain among European countries) and 4.8% in 2022. Turkey is also expected to have a similar increase, but it had a GDP growth of 1.8% in 2020, unlike Romania (IMF, 2021, p.35).

Christine Lagarde, President of European Central Bank, mentioned that the sectors that were hardest hit by the crisis, such as transport and hotels, contributed to the fall in inflation during the second half of the 2020 (Lagarde, 2021).

Despite the potential increase in the prices of some critical goods, the health crisis' impact generated a fall in demand – before the lockdowns for some “contact-intensive” goods and services (for example, restaurants, gyms) - increasing unemployment and income loss.

This fall in demand combined with high uncertainty and constraints on central banks' ability to loosen monetary policy, such as an effective or zero lower bound, could create deflationary pressures especially in advanced economies. However, the dynamics could be quite different in emerging markets (Ebrahimi et al., 2020, p.2).

## 2. Structure of the national economy by activity categories

In Romania, the gross value added (GVA) in nominal terms increased by 0.5 p.p., while the inflation rate was 2.6, which in real terms signals an economic contraction of about 2%. The structure of GVA by activity is presented in Table 1.

**Table 1.** Structure of Romanian GVA by activity, 2019-2020

Indicators	millions RON, current prices		
	2019	2020	2020/2019
Gross Added Value (GVA)	956782.1	961616.8	4834.7
Agriculture, forestry and fishing	43656.7	40494.3	-3162.4
Extractive industry; manufacturing industry; production and supply of electricity and heat, gas, hot water and air conditioning; water distribution; sanitation, waste management, decontamination activities	224177.4	208320.5	-15856.9
Construction	64130.1	69997.7	5867.6
Retail and wholesale; repair of motor vehicles and motorcycles; transport and storage; hotels and restaurants	192794	189199.6	-3594.4
Information and communications	61566.3	71759.3	10193
Financial intermediation and insurance	24606	25771.9	1165.9
Real estate transactions	82008.2	84720.6	2712.4
Professional, scientific and technical activities; administrative service activities and support service activities	80797.6	85769.1	4971.5
Public administration and defence; social insurance of public sector; education; health and social assistance	149487.3	159056.1	9568.8
Performances, cultural and recreational activities; repairs of household appliances and other services	33558.5	26527.7	-7030.8

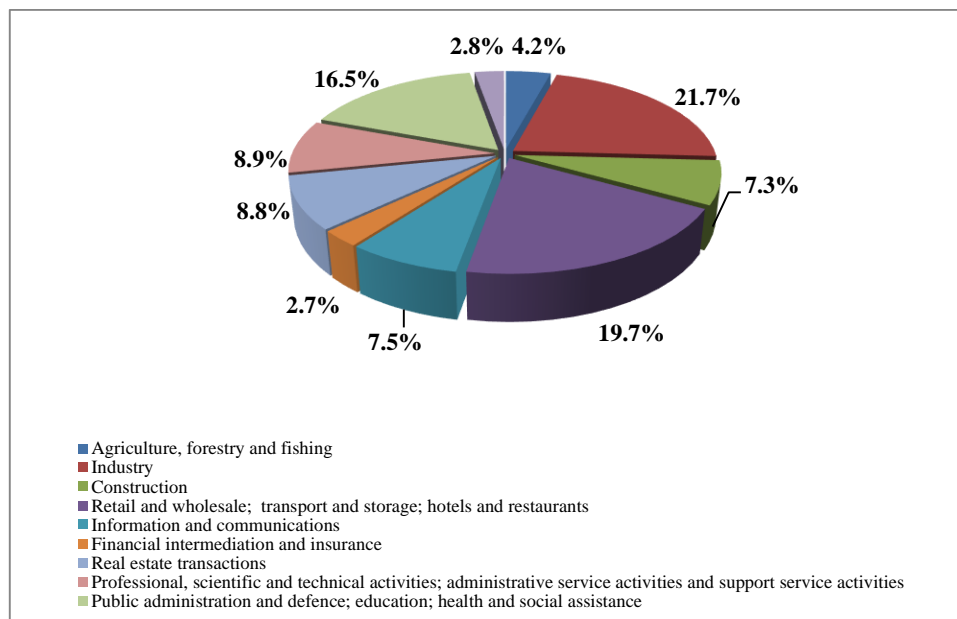
**Source:** Authors, based on National Institute of Statistics (NIS), TEMPO database

Because of the legislative provisions imposed in the conditions of the COVID-19 pandemic, in 2020 there was an economic contraction at national level, compared to the previous year. If in the

primary sector and in the industry GVA decreased by about 7%, the construction has registered an increase of 9% in 2020 (compared to 2019). In the tertiary sector, the GVA in trade, transport and hospitality decreased by 1.9% but in performances, cultural and recreational activities; repairs of household appliances and other services the decline has been of 21%. (Table 1)

In 2020, trade, transport and hospitality had a significant contribution in GVA of 19.7% (slightly decreasing from 20.2%, in 2019) and public administration and defence; social insurance of public sector; education; health and social assistance of 16.5% (increasing from 15.6%) (Figure 1).

**Figure 1.** Contribution of activities to GVA, in 2020



**Source:** Authors, based on Table 1.

The Romanian economy already has a growth tradition based on private consumption (the main component of GDP) (Anghelache, 2011; Dachin and Ali, 2012; Costea, 2016; European Commission, 2018 and others) supported, on the one hand, by salary increases, both in the public sector and minimum wage, and, on the other hand, by easy access to the credit system.

In the conditions of the sanitary crisis, private consumption continued to increase, well approximated by the volume of turnover in retail trade, due to the increase in sales of food and non-food products. (NIS, 2021)

According to Spring Prognosis of the National Commission for Strategy and Prognosis (NCSP), Romania will recover next year the loss of 3.9% registered in 2020, based on the GDP increase generated mainly by agriculture (the most affected by the crisis, -16.2% in 2020, compared to 2019), the continuation of the growth generated by the construction sector (the only one that

registered an increase of 10% in 2020) and the slight recovery of industry and services. (NCSP, 2021b)

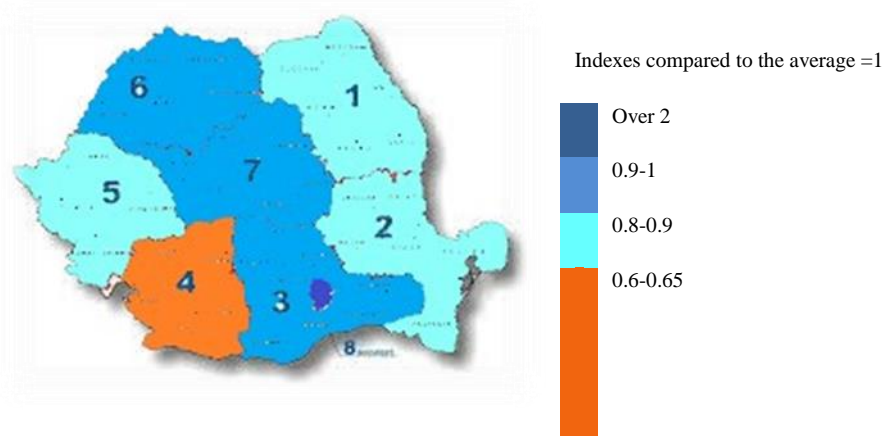
### 3. Regional inequality and convergence

#### 3.1. Differences by output and income

Traditionally, international and national economic analyses have explained territorial disparities based on differences between regions in terms of endowments with natural resources, factors of production, infrastructure and technology, thus eliminating obstacles to the mobility of goods and/ or factors of production that automatically eliminates the cause of the gaps and would contribute positively to the convergence in the standard of living. However, empirical evidence shows that there are relevant influencing factors that are missing from traditional analysis, factors that have been highlighted by theories of localisation (Zaman et al, 2013, p.22).

In terms of the GDP, expressed in current prices and in million euros (based on EUROSTAT database), we notice a disparity at regional level. Bucharest-Ilfov region - the smallest in terms of area, but concentrating a significant number of inhabitants (2.3 million inhabitants in 2019 - 12% of the total population) - achieves over a quarter of GDP at national level (27.4%) (Figure 2).

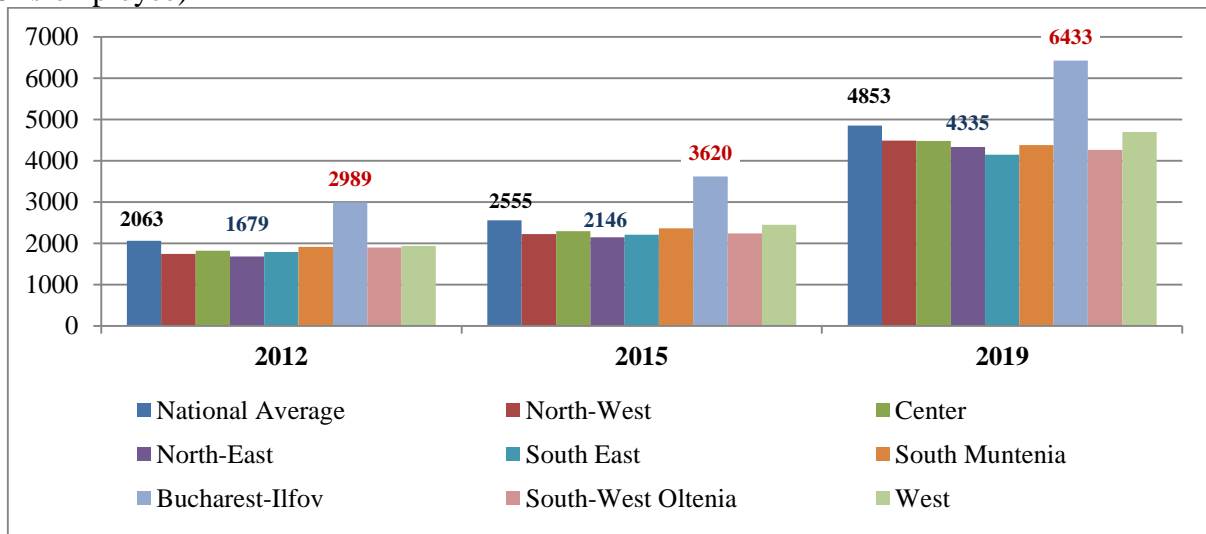
**Figure 2.** Regional disparity by GDP in Romania, in 2019



**Source:** Authors, based on EUROSTAT database, April 2021

During 2012-2019, there has been a reduction in regional disparities in terms of monthly gross average wage.

**Figure 3.** Evolution of the regional disparity index in terms of monthly gross average wage (in RON/ employee)



**Source:** Authors based on NIS TEMPO database, April 2021

The North-East region had a minimum value of this indicator in 2012 of 1,679 RON/employee (about 377 Euros, 0.81 compared to the national average = 1), while in 2019 the last place was occupied by the South-East region with 4,148 RON/employee (about 874 Euros, 0.85 from the national average). The Bucharest-Ilfov region throughout the entire period has registered the maximum value, but decreasing as share in the average of the territorial series (1.45 in 2012 and 1.33 in 2019). (Figure 3)

### 3.2. Sigma convergence and Beta convergence

In the empirical literature of economic growth, two concepts of convergence are typically used, sigma and beta convergence.

The sigma coefficient, a basic measure of convergence, proposed by Barro and Sala-i-Martin (1992), involves plotting the time path of some measure of dispersion of a variable (in logarithms) and describes the evolution of the cross-sectional dispersion of this variable. From this perspective, convergence occurs when the cross-sectional dispersion declines over time, so the level of the variable under study becomes increasingly more similar across countries or regions from a country.

To measure sigma convergence ( $\sigma$ ), the territorial variation coefficient is used, which is the standard deviation of the analysed variable divided by the mean of the variable (formula 1).

$$\sigma = \frac{\sqrt{\frac{\sum_{i=1}^n (y_i - \bar{y})^2}{n}}}{\bar{y}} * 100, \quad (1)$$

The concept of beta ( $\beta$ ) convergence describes the inverse relationship between the initial level of a variable and its average growth rate. From this perspective, if such an inverse relationship exists, it means that, on average, poor countries/regions tend to grow faster than the rich ones, so over time, poor countries/ regions tend to catch up with the level of the rich ones (Solow, 1956; Barro and Sala-i Martin, 1992).

Calculation method for  $\beta$ -convergence used in this study is the linear dependence expressed as below:

$$y_{i,t,t+T} = \alpha - \beta \log(y_{i,t}) + u_{i,t} , \quad (2)$$

Where:  $y_{i,t,t+T}$  represents the economic growth of region i, in the temporary interval of T years, from time t (year 2012, in our study), to time t + T (year 2019, with T = 8 years),  $\beta$  represents the slope (a positive value in case of convergence), and the last term ( $u_{i,t}$ ) represents the error.

To analyse the convergence of the 8 Romanian regions post-economic crisis, in period 2012-2019, we used R software with REAT (Regional Economic Analysis Toolbox) package. The REAT package deals with several R data types: the most functions require and calculate numeric vectors, but, in some cases, also objects of type matrix, data frame and list, depending on the complexity of calculation (Wieland, 2019, p.R2).

We selected as variables to test the convergence process: GDP per capita (based on EUROSTAT Database) and monthly gross average wage (based on NIS TEMPO database).

An analysis in terms of regional sigma convergence in Romania, from one year to another, reveals the same slight trend of reducing disparities in terms of both, GDP/ capita and monthly gross average wage, with the exception of year 2015. (Table 2)

We took into account that if only two years are regarded and e.g.  $\sigma_{t1} > \sigma_{t2}$ , the regional inequality has declined from  $t_1$  to  $t_2$  (Wieland, 2019, p. R9). So, the coefficient of variation, both in case of GDP per capita and monthly gross average wage, is a little smaller in 2019, which means the spatial inequality declined between 2012 and 2019. The quotient of the variances is slightly above one, but not statistically significant ( $p > 0.001$ ). (Table 2)

**Table 2.** Sigma convergence for two periods

Indicators	2012	2013	2014	2015	2016	2017	2018	2019
$\sigma_{\text{GDP per capita}}$	0.04258	0.04219	0.04145	0.04306	0.04202	0.04068	0.03918	0.03902
$\sigma_{\text{AW}}$	0.02240	0.02127	0.02011	0.02041	0.01951	0.01752	0.01662	0.01548

Source: Authors own calculation based on EUROSTAT and NIS databases

The beta convergence model is not statistically significant for the variable GDP per capita ( $F=1.58$ ,  $p > 0.001$ ), as well as the coefficients  $\alpha$  ( $t= 3.186$ ,  $p > 0.001$ ) and  $\beta$  ( $t= -1.25$ ,  $p > 0.001$ ),



despite of a negative slope of absolute beta convergence ( $\beta = -4.864$ ). The trend regression model for sigma convergence is not also significant ( $F = 7.36$ ,  $p > 0.001$ ). (Table 3)

**Table 3.** Absolute Beta convergence and Sigma convergence (GDP per capita, 2012-2019)

**Absolute Beta convergence**

Model coefficients (Estimation method: OLS)

	Estimate	Std. Error	t value	Pr (> t )
Alpha	1.079391e-01	0.033880692	3.185859	0.01893513
Beta	-4.864437e-03	0.003870233	-1.256885	0.25550884
Lambda	6.966152e-04	NA	NA	NA
Half-life	9.950216e+02	NA	NA	NA

Model summary

	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.2084181	1.579759	1	6	0.2555088

**Sigma convergence (Trend regression)**

	Estimate	Std. Error	t value	Pr (> t )
Intercept	0.8147405364	0.2848473313	2.860271	0.02879147
Time	-0.0003835388	0.0001413283	-2.713815	0.03492854

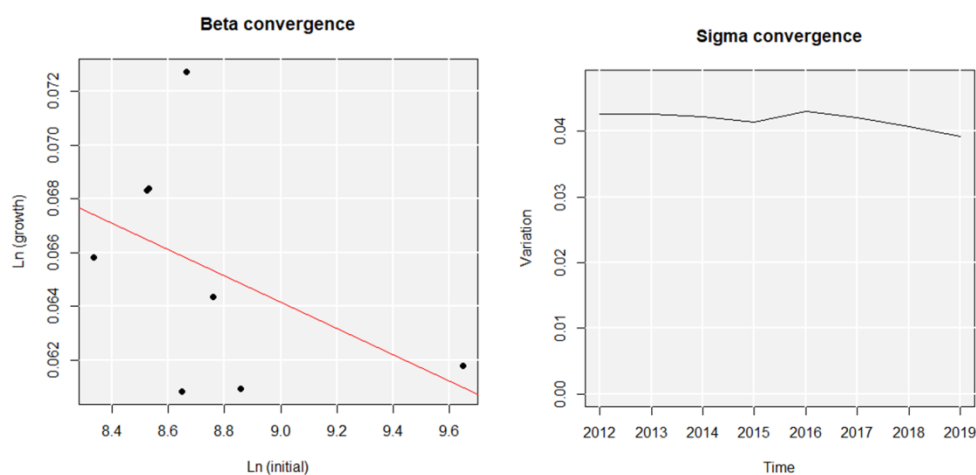
Model summary

	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.5510593	7.364793	1	6	0.03492854

**Source:** Authors own calculations using R REAT package based on Eurostat database

This function also produces the plots in Figures 4a and 4b, both showing a declining curve, which is a first indication of both beta and sigma convergence.

**Figure 4.** Regional convergence in Romania by GDP per capita, 2012-2019 (n = 8 regions)



(a) Absolute Beta convergence

(b) Sigma convergence

The beta convergence model is not statistically significant for the variable wage per employee as values of monthly gross average wage ( $F = 5.73$ ,  $p > 0.001$ ), as well as the coefficients  $\alpha$  ( $t = 3.509$ ,  $p > 0.001$ ) and  $\beta$  ( $t = -2.39$ ,  $p > 0.001$ ), despite of a negative slope of absolute beta convergence ( $\beta = -$

0.03). If there had been a beta convergence, the half-life would have shown us that, in order to reduce the pay gap by 50%, it would take about 156 years.

In the case of conditional beta-convergence, the incomes per capita of the regions *that have identical structural characteristics* converge in the long run (as opposed to the absolute case, where the incomes converge in the long run regardless of their initial conditions). Thus, there is conditional  $\beta$ -convergence when the partial correlation between growth and initial income is negative. The conditional beta convergence explains why the absolute convergence might not take place, since it allows for other factors such as institutional or economic policy issues to be considered. Then, the trend towards convergence determined by the marginal productivity of capital can be counterbalanced by institutional factors or economic policy issues that prevent certain regions from reaching higher growth or trigger more advanced areas to grow faster than less developed ones (Ramon-Berjano, 2004, p.71).

In a further study, we intend to analyse the conditional beta-convergence.

Regarding the trend regression model for regional convergence through wages is significant ( $F=83.43$ ,  $p > 0.001$ ),  $R^2=0.93$ , close to value 1 (Table 4).

**Table 4.** Absolute Beta convergence and Sigma convergence (wage per employee, 2012-2019)

**Absolute Beta convergence**

Model coefficients (Estimation method: OLS)

	Estimate	Std. Error	t value	Pr (> t )
Alpha	0.339335634	0.0967110	3.508759	0.01269052
Beta	-0.030571678	0.0127717	-2.393705	0.05375404
Lambda	0.004435534	NA	NA	NA
Half-life	156.271404189	NA	NA	NA

Model summary

	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.4884834	5.729824	1	6	0.05375404

**Sigma convergence (Trend regression)**

	Estimate	Std. Error	t value	Pr(> t )
Intercept	1.6953442995	1.834130e-01	9.243317	9.055199e-05
Time	-0.0008312145	9.100117e-05	-9.134108	9.684274e-05

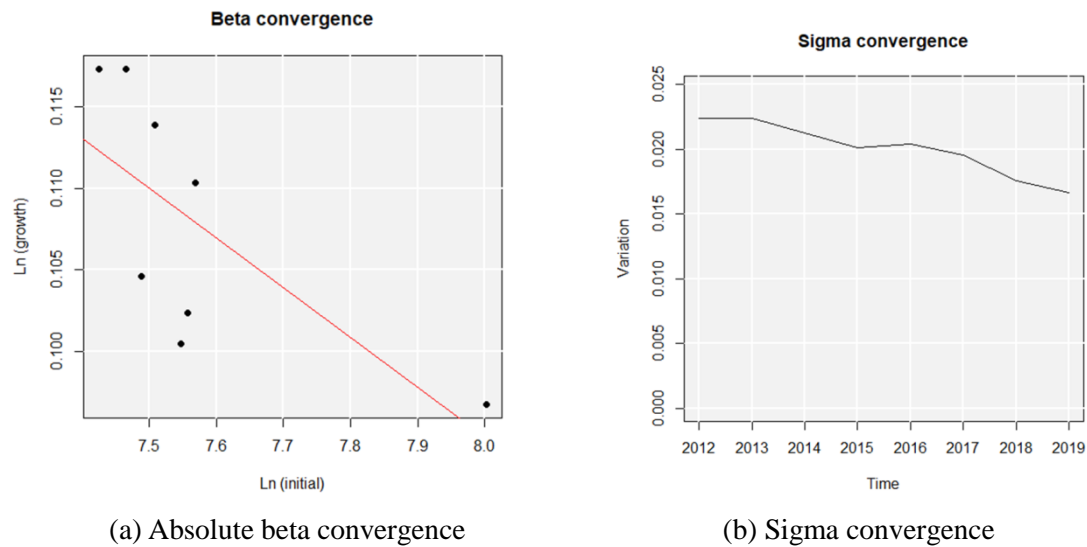
Model summary

	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.9329099	83.43192	1	6	9.684274e-05

**Source:** Authors own calculations using R REAT package based on Eurostat database

The plots from Figures 5a and 5b are showing declining curves that indicates a reduction in income inequality.

**Figure 5.** Regional convergence in Romania by wage per employee, 2012-2019 (n = 8 regions)



The health crisis is increasing the economic differences between the member states of the European Union, but also regionally, within the countries.

Based on the projection of the two variables made by the National Commission for Strategy and Prognosis (Winter 2021) we analysed the regional convergence for the period 2019-2024.

The regional convergence model is not statistically significant for GDP per capita and wage per employee projections, as can be seen from Table 5 and 6, and this showing a degree of incoherence in applying regional policy measures.

**Table 5.** Absolute Beta convergence and Sigma convergence (GDP per capita, 2019-2024)

<b>Absolute Beta convergence</b>					
Model coefficients (Estimation method: OLS)					
	Estimate	Std. Error	t value	Pr (> t )	
Alpha	0.155748906	0.035632960	4.370922	0.004714318	
Beta	-0.012867567	0.003829586	-3.360041	0.015228853	
Lambda	0.002590214	NA	NA	NA	
Half-life	267.6022497	NA	NA	NA	
Model summary					
	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.6529761	11.28988	1	6	0.01522885
<b>Sigma convergence (Trend regression)</b>					
	Estimate	Std. Error	t value	Pr(> t )	
Intercept	1.4196900850	0.289800413	4.898855	0.008050616	
Time	-0.0006840109	0.000143359	-4.771313	0.008831570	
Model summary					
	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.8505535	22.76543	1	4	0.00883157

**Source:** Authors own calculations using R REAT package based on NCSP database

**Table 6.** Absolute Beta convergence and Sigma convergence (wage per employee, 2019-2024)

**Absolute Beta Convergence**

Model coefficients (Estimation method: OLS)

	Estimate	Std. Error	t value	Pr (> t )
Alpha	0.220308379	0.078576953	2.803728	0.03101127
Beta	-0.020589834	0.009313235	-2.210814	0.06906579
Lambda	0.004160952	NA	NA	NA
Half-life	166.583796221	NA	NA	NA

Model summary

	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.4489195	4.887701	1	6	0.06906579

**Sigma convergence (Trend regression)**

	Estimate	Std. Error	t value	Pr(> t )
Intercept	5.582236379	17.842508548	0.3128616	0.7700189
Time	-0.002747484	0.008826368	-0.3112814	0.7711349

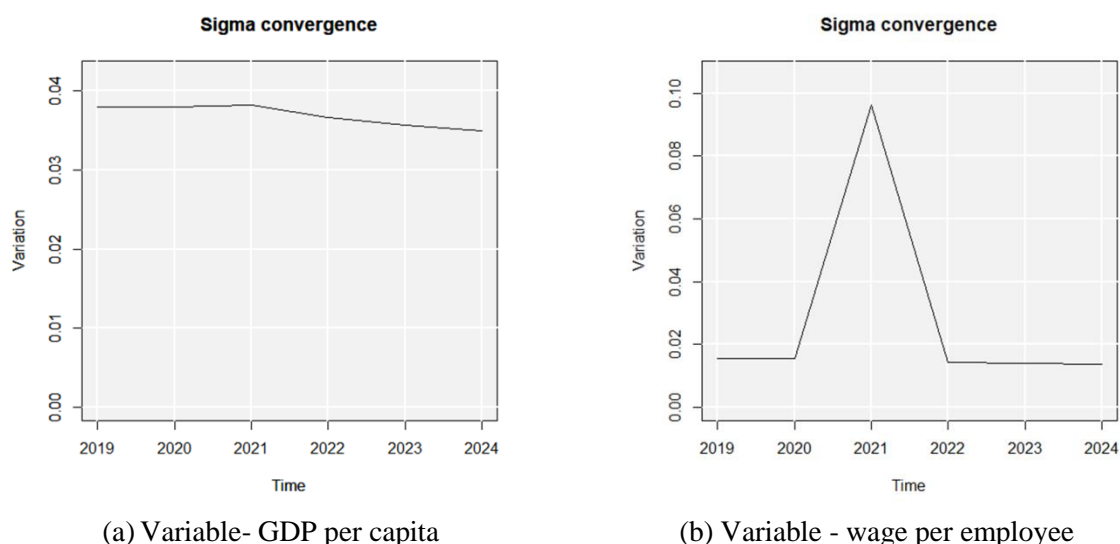
Model summary

	Estimate	F value	df 1	df 2	Pr (>F)
R-Squared	0.0236511	0.09689609	1	4	0.7711349

**Source:** Authors own calculations using R REAT package based on NCSP database

Figure 6 shows an increase in the value of the sigma coefficient in 2020, so that in the following years the trend will be downward (at least in GDP per capita estimations; the governmental decisions that influence wages are often controversial and far from following economic principles).

**Figure 6.** Regional sigma convergence in Romania, 2019-2024 (n = 8 regions)



The GDP per capita estimates are based on the optimistic forecasts of NCSP. For this year the prediction is higher regional GDP increases in less developed regions (e.g., South Muntenia 6.4% increase in 2021, after the decrease of 5.7% in 2020 based on 2019 value) and lower in those that are

developed (e.g., Bucharest-Ilfov region increase of 2.4% in 2021 after the decrease of 3.4% in 2020/2019). This scenario can create a false idea of regional convergence.

The health crisis highlights widening of regional disparities in access to healthcare and economic growth and persistent disparities in digitalization over the past decade (OECD, 2020).

These divergences are due to several factors, including the intensity and timing of the initial shock of COVID-19, the size and relative economic importance of the sectors with a high intensity of contacts (e.g. tourism and hospitality) and the differences in available budgetary room for manoeuvre. These differences have an impact on confidence, investment and growth prospects, as well as on regional disparities that exist before, but which may have been exacerbated. In the longer term, the current crisis caused by the COVID-19 pandemic risks having permanent negative effects on potential growth and income disparities, caused by declining human and physical capital (both tangible and intangible). This could result in an even lower increase in labour productivity and income (European Commission, 2020, p.2).

Considering the fact that any crisis also raises some alarm signals, there are authors who appreciate that Romania needs its own "Marshall Plan" channelled on supporting agriculture, a new type of industrialization, modernization of education and research, infrastructure development (Nițoi, 2020, p.15). The American Chamber of Commerce in Romania (AmCham Romania) emphasizes that even more important for Romania is to ensure budgetary balance by rethinking public expenditure, because now 88% of public revenues are intended for spending on public employees' wages and social assistance. (AmCham Romania, 2020, p.15).

## **5. Conclusion**

The legislative provisions imposed in the conditions of the COVID-19 pandemic generated an economic contraction at national level in 2020, construction, information and communications and some other tertiary activities being the only ones that registered increases.

There is a significant difference between the most developed region of Romania, Bucharest-Ilfov region, and the poorest one South-West Oltenia, from GDP point of view, or South East, if we have in mind the monthly gross average wage.

The sigma convergence analysis at NUTS 2 level of Romania reveals a slight trend of reducing disparities in terms of both GDP/ capita and monthly gross average wage in period 2012-2019, with the exception of year 2015. If the model involving the variable monthly gross average wage was statistically significant, the other models were not validated by the statistical test (F-Fisher and t-student).

Despite the measures taken at governmental and European level and the optimistic forecasts of the IMF and NCSP, the health/sanitary crisis generates significant disparities at the regional level. The most affected regions in Romania are those characterized by an important share of primary sector, transport and/ or hospitality activities to the regional GVA.

Future studies will address the sustainable economic convergence, so as to a single variable do not erroneously reveal a positive image – e.g. Romanian economic growth (based on increased consumption and persistent budget deficits) is "unhealthy", according to specialists, not being the result of investments and business infrastructure development.

## References

AmCham Romania, 2020. *Priorities for Romania 2021-2024*, Available at: <<https://www.amcham.ro/download?file=mediaPool/uXReief.pdf>> [Accessed 20 April 2021].

Anghelache, C., 2011. Analysis of the Correlation between GDP and the Final Consumption, *Theoretical and Applied Economics*, XVIII (9/562), pp.129-138.

Barro, J. R. and Sala-i-Martin, X., 1992. Convergence, *Journal of Political Economy*, 100(2), pp.223-251. Doi: 10.1086/261816.

Belinga, T.V., Butcher, N. and Valerio, A., 2020. Romania's long-term growth challenge: Raising the alarm of skills deficit. *Brookings. Future development*, [online] 22 July. Available at: <<https://www.brookings.edu/blog/future-development/2020/07/22/romaniias-long-term-growth-challenge-raising-the-alarm-of-skills-deficit/>> [Accessed 20 September 2021].

Costea, M., 2016. Consumption-based economy. The case of Romania in the last two decades, *Ecoforum*, 5(Special Issue), pp. 56-63.

Dachin, A. and Ali, S., 2012. Effects of the economic crisis on rural household incomes in Romania, In: *Agrarian Economy and Rural Development – Realities and Perspectives for Romania*. 3rd Edition of the International Symposium, Bucharest, October 2012, Bucharest: The Research Institute for Agricultural Economy and Rural Development (ICEADR), pp.82-88.

Ebrahimi, E., Igan, D. and Martinez Peria, S., 2020. The Impact of COVID-19 on Inflation: Potential Drivers and Dynamics, *IMF Special Notes Series on COVID-19*, [online] 10 September. Available at: <<file:///C:/Users/User2/Downloads/en-special-series-on-covid-19-the-impact-of-covid-19-on-inflation-potential-drivers-and-dynamics.pdf>> [Accessed 12 October 2021].

Enache, S. G., 2015. *The economic and social situation in Romania. Study*, Available at: <<https://www.eesc.europa.eu/sites/default/files/resources/docs/qe-01-15-435-en-n.pdf>> [Accessed 22 March 2021].

European Commission, 2017. *European Semester Thematic Factsheet Addressing Inequalities*, 22 November. Available at: <[https://ec.europa.eu/info/sites/default/files/file\\_import/european-semester\\_thematic-factsheet\\_addressing-inequalities\\_en\\_0.pdf](https://ec.europa.eu/info/sites/default/files/file_import/european-semester_thematic-factsheet_addressing-inequalities_en_0.pdf)> [Accessed 27 September 2021].

European Commission, 2018. *România creștere rapidă bazată pe consum (Romania rapid growth based on consumption)*, 7 February. Available at: <[https://ec.europa.eu/romania/news/20180207\\_previziuni\\_economice\\_intermediare\\_iarna\\_2018\\_romania\\_ro](https://ec.europa.eu/romania/news/20180207_previziuni_economice_intermediare_iarna_2018_romania_ro)> [Accessed 27 March 2021].

European Commission, 2020. *Recomandare a Consiliului privind politica economică a zonei euro (Council Recommendation on the economic policy of the euro area)*, 18 November. Available at: <<https://ec.europa.eu/transparency/regdoc/rep/1/2020/RO/COM-2020-746-F1-RO-MAIN-PART-1.PDF>> [Accessed 14 April 2021].

IMF, 2021. *World Economic Outlook. Managing Divergent Recoveries*, Washington, DC, April. Available at: <<https://www.imf.org/en/Publications/WEO/Issues/2021/03/23/world-economic-outlook-april-2021>> [Accessed 18 April 2021].

Ioan, G. and Ioan, A., 2015. Evolution and consequences of economic crisis in Romania, *EuroEconomica*, 34(2). Available at: <<http://journals.univ-danubius.ro/index.php/euroeconomica/article/view/2511/3135>> [Accessed 22 March 2021].

Kubinschi, R., 2020. *Economia românească la răscruce - Între contracția economică provocată de pandemie și oportunitățile oferite de sprijinul financiar al Uniunii Europene (Romanian economy at a crossroads - Between the economic contraction caused by the pandemic and the opportunities offered by the financial support of the European Union)*, 27 November, Deloitte. Available at: <<https://www2.deloitte.com/ro/en/pages/business-continuity/articles/economia-romaneasca-la-rascruce-intre-contractia-economica-provocata-de-pandemie-si-oportunitatile-oferte-de-sprajinul-financiar-al-uniunii-europene.html>> [Accessed 5 April 2021].

Lagarde, C., 2021. The year at a glance, *ECB Annual Report 2020*, Frankfurt am Main, Available at: <<https://www.ecb.europa.eu/pub/annual/html/ar2020~4960fb81ae.en.html>> [Accessed 14 April 2021].

National Commission for Strategy and Prognosis, 2021a. *Projection of the main macroeconomic indicators in territorial profile 2020-2024*. Available at: <[https://cnp.ro/wp-content/uploads/2021/07/PROGNOZA\\_2020\\_2024\\_in\\_profil\\_teritorial.pdf](https://cnp.ro/wp-content/uploads/2021/07/PROGNOZA_2020_2024_in_profil_teritorial.pdf)> [Accessed 14 April 2021].

National Commission for Strategy and Prognosis, 2021b. *Projection of the main macroeconomic indicators 2021-2024*. Available at: <[https://cnp.ro/wp-content/uploads/2021/09/EN\\_Spring\\_Forecast\\_2021.pdf](https://cnp.ro/wp-content/uploads/2021/09/EN_Spring_Forecast_2021.pdf)> [Accessed 16 June 2021].

National Institute of Statistics, 2021. *Press release no. 83: Retail turnover in February 2021*, 5 April. Available at: <[https://insse.ro/cms/sites/default/files/com\\_presa/com\\_pdf/com\\_amanunt\\_02r21.pdf](https://insse.ro/cms/sites/default/files/com_presa/com_pdf/com_amanunt_02r21.pdf)> [Accessed 18 April 2021].

Nițoi, M. (2020). Formarea PIB în România și posibile instrumente de intervenție. Analiză comparativă cu statele UE (GDP formation in Romania and possible intervention tools. Comparative analysis with EU members). In Moagăr Poladian, S. (coord.). *Oportunități pentru România din perspectiva contextului internațional generat de criza COVID-19 (Opportunities for Romania from the perspective of the international context generated by the COVID-19 crisis)*, Bucharest: Romanian Academy, Available at: <<https://acad.ro/SARS-CoV-2/doc/d09-OportunitatiRomania-COVID9.pdf>> [Accessed 14 April 2021].

OECD, 2020. *COVID-19 crisis highlights widening regional disparities in healthcare and the economy*, 30 November. Available at: <<https://www.oecd.org/newsroom/covid-19-crisis-highlights-widening-regional-disparities-in-healthcare-and-the-economy.htm>> [Accessed 20 October 2021].

Ramon-Berjano, C., 2004. Socio-economic disparities in Argentina and Brazil. Origins, Evolution and External Variables that Affect Regional Convergence: The Implications for Integrated Areas, *PhD thesis*, London School of Economics and Political Science. Available at: <<http://etheses.lse.ac.uk/2404/>> [Accessed 16 June 2021].

Solow, R. M., 1956. A Contribution to the Theory of Economic Growth, *Quarterly Journal of Economics*, 70 (1), pp.65-94.

Wieland, T., 2019. REAT: A Regional Economic Analysis Toolbox for R, *Region*, 6(3), pp.R1-R57. Doi: 10.18335/region.v6i3.267.

Zaman, Gh., Goschin, Z. and Vasile, V., 2013. Evoluția dezechilibrelor teritoriale din România în contextul crizei economice (The evolution of regional disparities in Romania in the context of the economic crisis), *Romanian Journal of Economics*, 37(2/46), Bucharest: Institute of National Economy, pp.20-39.