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REGIONAL RESILIENCE IN ROMANIA

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Abstract *In this study we propose to evaluate the capacity of resilience of Romania as seen in reaction to the economic crisis. There are several studies about regional resilience, which focus on factors which improve the capacity of a region to respond to crisis or shocks and to recover and return to the previous state of equilibrium. In this approach, several factors are important, such as the capacity of an economy to be innovative and adaptive. We study regional resilience, and we also study relation of resilience to competitiveness or vulnerability. Resilience can be measured either by GDP evolution or the evolution of the unemployment rate. We focus here on evolution of GDP in Romania during crisis, showing that our country succeeded to recover with great difficulty and in a long period from the crisis, which proved a low resilience at national but also regional/county level. Therefore we must find innovative strategies to improve resilience if we want to face the challenges of the competing international economy.*

Keywords

Resilience, regional resilience, competitiveness, vulnerability, innovation

1. Introduction

We intend in this study to make a comparative analysis of the situation of economic resilience in Romania, in the context of globalization challenges, from the perspective of the differences of competitiveness among countries. Regional resilience is considered the degree to which a region succeeds to cope with shocks or crises or to return to the state of equilibrium previous to the negative change. The reaction of a country to economic risks and changing socio-economic environment is vital, because it demonstrates its potential to face negative outcomes and to adapt and adjust. We take as an example the financial crises from 2007, analyzed from the perspective of different economies, in order to evaluate better the position of Romania on the map of competitiveness and resilience.
It has been noticed throughout the crisis that not all countries respond and recover in the same manner from shocks. There are countries which recover more quickly and which return to equilibrium faster, while other countries tend to recover with greater difficulty. This observed behavior has led to an increased interest in the concept of resilience and a desire to understand how an economy can withstand or regain its initial position from an economic shock. In this sense, studies have been elaborated to demonstrate how the particular characteristics of a place influence the resilience of the region to economic crises and shocks. Which are the principles on which resilience can be build? What is in fact the definition of a resilient economy and what can we do in order to transform our economy into a resilient one?
Increasing resilience is crucial for the economy, given that its evolution is based on a dynamic relationship between internal and external factors, including environmental and socio-human factors, marked by accelerating the globalization processes, but also those of rapid contagion effects following crises, recessions or disasters. So to develop the capacity of resilience of an economy means to make the economy fit in order to cope with the increasing challenges from the environment in permanent change.
In this context, we can promote a basic idea related to economy growth. The rate of economic growth must raise sufficiently fast for escaping recession or for allowing recovery. Obviously, the economic recovery following a crisis depends mainly on the resilience to external or internal shocks, the magnitude of the recession, the development level, the stage of the business cycle, which is specific to each country. Moreover, the shock of a crisis impact spreads asymmetrically in the territory, with different contagion effects. So a deep knowledge of the process of resilience is very important in order to build and strengthen this capacity.
There have been also prepared studies showing that diversity, skills, innovation and governance are principles that should be deployed to make the regions of Europe more resilient. The more a country is characterized by diversity of the labor force, the more skills the workers are endowed with, the economy has a

growing capacity to face and cope with shocks because of these essential qualities which favor adaptation and also rapid and appropriate reactions to crisis. Innovation and public policies are also important factors supporting resilience. If a country is innovative, then it will learn quickly and invent all the measures needed in order to overcome crisis, while countries with a lower innovation index suffer from lack of adaptability and are not resilient.

2. Economic resilience – general definition

Economic resilience means to identify new modalities to solve problems which suppose high enduring and resistance abilities, the capacity to stop or to recover after the negative effects of external shocks. A resilient economic system is a system where the probability of failures or risks appearance is reduced, and it supposes the existence of analytical and predictive skills.

Several definitions of economic resilience have been proposed. A first one is based on the analysis of economic equilibrium and it refers to the capacity of a system to return to a previous state, characterized by equilibrium. Other definitions of resilience are related to the theory of complex adaptive systems and refer to the ability of a system to adjust and change as response (reaction) to sudden pressures, shocks and negative impacts. Auto-organization in complex adaptive systems is an evaluative and adaptive process. Adaptive complex systems are formed from a big number of individuals who interact. Agents are different and they react in a various manner to stimulus which comes from the other agents and from the environment. Numerous interactions develop between these agents, and this environment of interdependencies and connections represents the environment where agents act. Within these interactions agents develop certain strategies of development; some of the agents realize a selection of these strategies in order to increase the adaptation to the environment, which represents the main activity of the complex adaptive systems.

Within the economy, resilience becomes a fundamental characteristic at micro and macro levels, in deterministic and stochastic terms of economic models for facing the shocks of various factors of sudden influence (Zaman, 2015).

The Multidisciplinary Centre for Earth Engineering Research defines economic resilience as inherent and adaptive answers (reactions) to hazards that give individuals and communities the opportunity to avoid potential losses at the level of economic agents, households, markets, at national and regional level. Adaptation means therefore that both individuals and systems where they are elements co-evoluate. Co-evolution is a process which implies both individuals and systems and its possibility is ensured by adaptive changes produced as a result of learning.

It is crucial therefore to develop skills which build the resilience of a system, like possibility to learn and adapt in order to cope with shocks. If at the individual and economy or society level these kinds of characteristics are not enhanced, then the response of the system to crisis is not appropriate and the system loses the capacity to recover and return to the previous state.

3. Local/regional resilience

Resilience is both a global and local concept. Regional resilience is often discussed in literature and is defined as the capacity of a region to register economic success accompanied by social inclusion, environmental protection and also ability to quickly overcome shocks (Bristow, 2010).

It seems that resilience can be tackled and measured at the global and also local and regional level. From this point of view we consider it would be interesting to analyze the capacity of resilience of Romania, taking into consideration the challenges inherent to globalization and also of economic growth and development.

At the local level, the resilience of regions/locations, as a possible answer to uncertainty and to rapid and volatile changes from the social and economic environment started to enter into attention (Iordana, 2015). It is actual questions how some regions are able to overcome shocks and to ensure a high level of well-being for people and to be economically successful, while other regions have a low level of recovery after crises. There are regions which have a high level of resilience and these not only obtain success on short term, but they are capable to keep this position on long term as well.

There are obviously some traits of a system which increase its resilience, while other act as elements which prevent it. The capacity to adjust and adapt of a region is enhanced by its ability of learning and innovation, like modern infrastructure, high skilled workforce and corresponding financing schema and diversified sectorial base (Martin, 2010).

According to the findings of ESPON study, there are a number of factors highlighted that are positively associated with more resilient regions. These include more diverse, export-orientated economies, with the presence of international companies and an innovative and higher skilled workforce (Territorial Observation No. 12, 2014).

It has been shown that resilience is a long run phenomenon. It is policy decisions taken years, and even decades, in advance that shape the adaptive capacity of a region to cope with and recover from an external shock. These points to a clear role for policy-

makers, place-based actions and territorial development policy.
The interest towards regional vulnerability to shocks and their trajectories to surpass and return to growth has risen with the global economic crisis since 2008. There are several European studies which discussed the differences between various regions of Europe regarding the size of recession and afterwards economic recovery. In case of Romania, there has been noticed a greater resilience of the region Bucuresti Ilfov and difficulties associated with structural changes and integration into EU economy (Davies, 2011).
Regional resilience is an important factor when we analyze the economic structure and potential of a country. If the country or region has the above-mentioned characteristics, it has a great innovative capacity, high-skilled workforce and it is oriented towards international activities, the region has a bigger chance to survive through crises and to adapt. From this point of view, we will try to analyze the reaction of our country to the economic crisis since 2007, as well as the way various counties from Romania responded to crisis. The analysis shows that our recovery potential is not very big and our country can be considered a low-resilient country.

4. Competitiveness and resilience

According to a report realized by experts from World Economic Forum, The Global Competitiveness Report 2015–2016, there is a strong relation between competitiveness and resilience. Competitiveness improves resilience and contributes to the resilience of an economy, bringing another reason to prioritize the productivity increase. Countries which were considered more competitive before the crisis had the tendency to resist better to the crisis (like for instance Germany or Switzerland) or they recovered more quickly. For example, USA has returned to economic growth ever since 2010, while for Greece the return lasted until 2014.
In order to create sustainable economic growth on long term, the region must build resilience towards external shocks. To this purpose, innovation, infrastructure and skills are among the most important which must be strengthened. Important measures would be also structural reforms, measures to improve business environment and support innovation, to which adds a better educated workforce.
The Report shows that competitiveness – understood as higher productivity – is a key driver of growth and resilience. The historic proportions of the economic crisis and the relative performance of economies since its onset in 2008 have shed light on how structural weaknesses can exacerbate the effects of, and hinder recovery from shocks.
During the crisis, the more competitive economies systematically outperformed the least competitive in terms of economic growth: they either withstood the crisis better or recovered more quickly. This result holds true at every stage of development. So, it seems that competitiveness is a key factor for improving resilience of the regions. If a country is competitive from the economic point of view, then it can sustain a steady economic growth on long term. The relation between economic growth-competitiveness and resilience is therefore very important to be brought to attention. Competitiveness of a country influences its economic growth and this means that the country can build resilience better because it has the capacity to quickly recover and return to a previous state.

5. Resilience and vulnerability

Resilience can also be defined in comparison with vulnerability. The computation and corroboration of economic vulnerability and economic resilience indicate the global risk to be caused by external/internal shocks as a result of the inherent vulnerabilities more or less compensated by public policies.
The evolution of economic thought trends regarding the new concept of economic resilience, occurred from the need to capture and underlie policies, tools and mechanisms in order to prevent, improve, offset, reduce and combat the negative effects of different types of environmental and/or economic and financial shocks and was accompanied simultaneously by refining the concept of economic vulnerability. All in all, the economic vulnerability of a country/region is understood as a set of (inherent) features having a permanent or temporary nature on which decision makers cannot exercise a direct and decisive control and, therefore, cannot be associated to governance errors (Zaman, 2012; Zaman and Vasile, 2014).
Vulnerabilities are a kind of datum of an economy existence and functioning that cannot be directly invoked as a factor of the governance underperformance. This does not mean that obvious and demonstrable governance errors are automatically included in the whole vulnerability.
So resilience means to find ways to fight against vulnerabilities, which are inherent to a certain system. Vulnerabilities must be first identified, and measures taken in order to be able to adapt to them and increase resilience. Even if vulnerabilities are in a way natural, there is always a possibility to overcome them, but this requires again innovation and competitiveness in order to develop successful adaptation strategies.

6. Measurement of resilience

According to experts (Bruglio, L., 2004, Cordina, G., 2004, Crowards, T., 2000, Ferrugia, N., 2004), the index of resilience can be determined as automatic average of the following indices: economic openness (the rate of international trade in GDP); concentration of exports (lack of diversification); dependence on strategic imports. The economic resilience significance differs by the size of countries, the smallest ones being most vulnerable as against the large-sized ones which can better cope with external shocks. So, we can deduce that if an economy is not open to external trade and the exports and imports are not diversified, it is more vulnerable. In order for an economy to survive, it is necessary to have a system of trade which performs very well, in the sense of diversification, mobility and internationalization. Innovation, skills and diversity seem to lead to success in learning and adapting, increasing therefore the capacity of resilience.

Usually the components of the ER index, in the hypothesis of absorbing or combating shocks include:

- macroeconomic stability (the share of budgetary deficit in GDP, the sum between the inflation rate and the unemployment rate, the share of external debt in GDP);
- efficiency of the microeconomic market (refers to the size of government, legal structure and security of the ownership right, access to healthy money, freedom of international trade, regulations in the field of labor, business and credit);
- good governance (legal independence, impartiality of judges, copyright protection, military intervention in justice, political system);
- social development (education, employment, cohesion, qualification, health).

Taking into account the above mentioned, it is very important to find a unit of measure for resilience. We can use two principal indicators to assess the resilience of regional economies to the economic crisis: the number of persons employed and levels of economic output (GDP).

We take this view because in territorial terms, the crisis had an asymmetrical impact. Not all regions experienced economic decline and the territorial impact of the crisis has varied greatly. Equally, while some regions experienced a swift return to pre-crisis levels of employment and output, for others the process of recovery has proved much more protracted, with many regions entering a period of sustained stagnation.

Then the natural question becomes what helps resilience grow? Because regions are very different among them, it is of course difficult to appreciate which are the specific factors which help build resilience. Usually it is considered that the most important influence on the resilience of a region is the form and structure of the economy. Broadly, dependence on single sectors, or a small number of employers, is detrimental to the resilience of an economy. A more diverse economic structure provides greater regional resistance to shocks. Diversity is thus a key factor which helps economies survive through crises and even recover and which helps to build resilience.

At the same time there is a strong positive relationship between higher levels of innovation and entrepreneurial culture and observed resilience outcomes. Similarly, stable growth patterns and lower unemployment prior to an economic shock appear to promote resilience. This suggests that resilience is a longer-term phenomenon based on stable growth rates over longer periods of time.

A region's population can also influence its ability to withstand – or recover from – an economic shock. The clearest relationship is in the area of skills. Areas with more highly qualified populations tend to have more positive resilience outcomes. Labor market flexibility is also an important feature shaping the ability of many regions to respond to economic crisis. The reduction of working hours in order to retain skilled labor and human capital was a common strategy adopted by firms and, broadly, accepted by workers as an alternative to higher levels of redundancy and potential unemployment. This labor-led strategy is one reason that employment resilience has proved typically stronger than GDP resilience.

The evidence suggests that the presence of an urban center, particularly second-tier centers, is positively associated with resilience. In contrast, regions that are more remote from major urban centers have tended to prove less resilient.

7. Economic resilience in Romania

We will turn to a short analysis of the situation of Romania in terms of regional resilience as it was measured during the crisis. If we analyze the countries of the EU in terms of real GDP growth it was observed that more developed countries, such as France or Germany for example, succeeded to recover the GDP of 2009 in only one or two years, while for less advanced countries this time interval was much bigger.

We follow an analysis which focuses on the issue of regional resilience against the recent financial and economic crisis in the case of Romania, taking the county as territorial unit of observation. Based on the idea that the shock of a crisis impact spreads asymmetrically in the territory, with different contagion effects, the study advances a new approach of the speed and duration of GDP decline recovering.

Data analysis showed that, at macroeconomic level, Romania has not proved resilient to the crisis impact, after two years of recession and a recovery period of 4 years succeeding barely in 2014 to return to the GDP level achieved in 2008. In Romania the GDP decline from 2009 was recovered after 6 years, which means a low resilience to economic crises and the weak capacity of the country to return to its precrisis macroeconomic trend lines.

The research highlighted the differentiated recovery duration of the economic decline in territory, in 2014 many counties having to recover in the coming years remained GDP gaps. We will concentrate on GDP mainly, although there are also other measurements of the resilience, like impact on employment, focusing on R&D sector as revealing the endogenous growth generating potential at county level.

As noticed in a study by Zaman and Georgescu, the GDP recovery process at county level in Romania has been characterized by counties with lower resilience, which had only a partial recovery to certain degrees, counties with higher resilience, which overcame the GDP decline and succeeded to resume the economic growth and also counties with unsteady resilience, which altered post crisis recovery and recession (Zaman, Gh., Vasile, V., 2015).

If we analyze data from NIS we notice that during the year 2009 the crisis affected in a serious manner almost 39 counties from Romania. 39 counties of the country registered a decline in GDP as follows: Calarasi (-12,2%); Olt (-12,1%); Bucuresti (-11,7%); Galati (-11,4%); Valcea (-9,8%); Buzau (-9,7%); Bihor (-8,8%); Vaslui (-8,6%); Tulcea (-8,4%); Hunedoara (-7,8%); Mures (-7,7%); Alba (-7,5%); Timis (-7,3%); Vrancea (-6,9%); Arad (-6,7%); Neamt (-6,7%); Ialomita (-6,4%); Teleorman (-6,1%); Satu-Mare (-6,0%), Ilfov (-5,7%); Dambovita (-5,7%); Iasi (-5,7%); Bacau (-5,5%); Mehedinti (-4,8%); Salaj (-4,6%); Harghita (-4,5%); Botosani (-4,5%); Dolj (-4,4%); Cluj (-4,4%); Covasna (-4,3%); Maramures (-3,1%); Sibiu (-2,9%); Giurgiu (-2,9%); Bistrita Nasaud (-2,8%); Constanta (-2,5%); Prahova (-2,4%); Braila (-1,7%); Brasov (-1,4%); Suceava (-1,1%). 2009 was peak of the crisis for Romania and even counties which witnesses higher development levels, like Bucharest, Timis or Iasi recorded a big GDP decline. This shows that Romania was not actually prepared for a serious economic crisis and that the capacity of our regions to absorb shocks and return to equilibrium is very low compared with other regions of the world.

The situation lasted in 2010, when in 25 counties was registered a further decline in GDP. The GDP decline in 2010 affected the following counties: Braila (-14,3%); Prahova (-14,2%); Bistrita Nasaud (-11,4%); Arges (-10,5%); Covasna (-9,9%); Neamt (-8,1%); Harghita (-7,3%); Teleorman (-6,8%); Botosani (-6,5%); Suceava (-6,4%); Vaslui (-5,8%); Ilfov (-5,8%); Valcea (-5,7%); Mures (-5,3%); Dolj (-4,5%); Satu Mare (-5,3%); Hunedoara (-4,4%); Sibiu (-4,2%); Salaj (-3,8%); Bacau (-2,6%); Maramures (-2,4%); Caras Severin (-1,7%); Cluj (-1,5%); Bihor (-1,0%). The other 17 counties registered GDP increase in 2010 compared to 2009, but which were mostly in the range of 7% - 0.2%, which means rather a slight recovery of economic growth after large decreases compared to the previous year. It is also worth mentioning that the year 2010 was the year when economic recovery was beginning for other countries which restarted economic growth.

In 2011, there was the beginning of recovery for Romania with a GDP growth of 2.2% at the national level. The year 2011 witnessed a beginning of the economic recovery, sustained by higher or lower GDP increases (between 7.9% in Buzau county and 0.3% in Bucharest) in 40 counties. Still economic growth was rather modest and insignificant compared to the previous levels of decline and we cannot state that the recovery can be considered an important one. The decline was not recovered and GDP increases were rather small.

During the year 2012, the country registered also a modest GDP growth of 0.6% at national level. In 25 counties economic decrease continued and 17 counties had an uprising trend in GDP. The big number of counties which registered an economic decline in GDP is a sign of seriousness and duration of the crisis, which proved to be a long phenomenon.

Only during the year 2013 economic growth started seriously in all the counties of the countries. GDP at the national level increased by 3.5%. Of the counties which registered economic growth in terms of GDP we can mention but a few: Dolj (22.2%); Sibiu (8.4%); Arges (8.4%); Timis (6.8%); Prahova (4.4%); Brasov (4.2%); Arges (3.9%).

This economic recovery continued all along the year 2014, when most counties recorded an economic increase.

From this analysis we can draw the conclusion that there are of course counties which have a bigger potential of resilience than other counties from Romania. There are counties which demonstrated their potential to recover quickly from crisis and to show economic recovery, which can be considered high-resilient counties, while there are other counties which do not possess the same potential for recovery. In the case of these counties the potential of recovery is extremely low. Generally speaking, the potential of recovering the economic decline per total of the economy has not proved to be enough, because in Romania the effects of the economic crisis have started to recover only in 2014.

That is why we think it would be important to continue the analysis of each county potential for resilience, taking into account the main factors which caused GDP decline, as well as studying opportunities in order to improve and strengthen future resilience. In the context of globalization challenges, it is important to have an economy at the national and regional level which has the potential to improve and support economic growth in a steady and self-sustainable manner. Our interest is to increase resilience and recovery capacity from internal and external shocks which, in the context of globalization, can bring about speeds and intensities of contagion and spreading at the international scale.

The analysis also shows that the global economic crisis had a serious negative impact on the economy of Romania, especially as concerns the severe GDP decline at macroeconomic and at county levels, and the longer duration of the economic downturn recovery. The main point to be outlined from this analysis is that the decline produced by the crisis was recovered only after 6 years, in 2014, which shows a low recovery and resilience capacity of Romania. In other words, Romania has just managed to recover the GDP level achieved in 2008, after a period of economic decline for two years, followed by a recovery period of 4 years, which basically means a longer recovery period compared to that of other countries. The research highlights the differentiated recovery duration of the economic decline in 42 counties, a number of 23 counties, Bucharest Municipality included failing to achieve by 2014 the GDP level recorded in 2008.

Thus, after 2014, a number of 11 counties have to recover GDP gaps. Among counties with GDP gaps to be recovered in the following years, there are some counties of systemic importance such as Bucharest, Prahova or Cluj. One of the factors to be considered for catching the calculated gaps is related to the increase of total factor productivity in the implementation of endogenous regional growth strategies, based on internal economic and natural potential, efficiently combined with external factors of economic growth. Enhancing regional economic resiliencies is an extremely complex task which depends on a multitude of economic, social, technological factors, both external and internal. The external economic openness of regions, their well-defined specialization strategies, environmental investments represents important factors supporting the resilience and re-launching sustainable regional economic development.

8. Conclusions

Resilience requires complex adaptive systems, in response to stress and strain, a new examination of the economic equilibrium and dynamics, new stability domains and factors. It is important to find and invent new manners to respond to shocks and crisis. Economic systems should be seen as complex adaptive systems, because learning inside these systems takes place naturally and has as effect a better response to environment challenges. Economy must be treated and understood in its complexity, not considered a simple mechanism of aggregation of individual rational behaviors, but a real complex system where everything happens in interrelation and interconnection. Inside these systems, order is created not in a rational predicted manner but through the cumulated effect of individual behaviors characterized by diversity and impredictibility. This requires a transition from liner to non-linear approaches.

In today global economy there are a lot of factors of risk and uncertainty which affect economic evolution, and we have to analyze the synergy between risk and uncertainty taking into account the increasing international interdependence of globalization. Referring to the regional resilience of Romania, it is clear that policy makers should work in order to shape resilience, taking into account the long-run effects of implementing resilience into an economy. If we want to live in a resilient economy, then we must encourage diversity, competiveness and reduce inherent vulnerabilities. This approach requires a new vision of innovation and the introducing of innovative practices and of special skills which should enable people to react to crises or shocks. Romania, both at national and county level, has a serious problem regarding resilience and this process of creating resilient mentalities should start from decision-makers to the whole economy, because crisis or shocks can be tackled and we must find innovative ways to cope with them.

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