

# **Economic crisis and the resilience of Italian regions: the case of Emilia-Romagna<sup>o</sup>**

di Francesca Cavicchi\*

## **Abstract**

In this paper the author refers to the concept of economic resilience of Italian regions after the crisis of 2007. Different approaches were analyzed to understand in a better way the distribution of the well-being and the vulnerability in Italy with a particular attention for the region of Emilia-Romagna and her reactions after the natural disaster caused by the earthquake of 2012.

*Key words:* Resilience, Vulnerability, Well-Being, Emilia-Romagna.

*JEL Classification:* Q54, Q56, Q57.

## **La crisi economica e la resilienza delle regioni italiane: il caso dell'Emilia-Romagna**

### **Sommario**

In questo elaborato si fa riferimento al concetto di resilienza economica delle regioni italiane dopo la crisi del 2007. Sono stati analizzati i diversi approcci per comprendere nel migliore dei modi la distribuzione del benessere e della vulnerabilità in Italia con una particolare attenzione per la regione dell'Emilia-Romagna e le sue reazioni dopo il disastro provocato dal terremoto del 2012.

*Parole chiave:* Resilienza, Vulnerabilità, Benessere, Emilia-Romagna.

*Classificazione JEL:* Q54, Q56, Q57.

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## Introduction

Taking stock from the research on regional resilience, this work sets out to detect the resistance and vulnerability of Italian regions and prefecture to economic crisis. Analysis is based on a newly elaborated dataset with socio-demographic, economic and well-being variables. Results highlight the multiplicity of ways in which crisis impacts on regions thanks to the different approaches. Moreover, a specific analysis to the level of well-being in urban and rural areas through the help of data and index.

Vulnerability will be explained referring to the human settlement and the region of Emilia-Romagna. This work will give a particular look to this region who was affected not only by recession but also by natural disasters. It's clear that research aims to investigate resilience in landscapes from co evolutionary perspective. Interactions between society and ecological systems therefore, are in close connection with resilience of territories and their ability to adapt perturbations. The research concludes with a proposal for a resilient and adaptive management project, intersection of skills and integration of objectives.

### 1. What is resilience?

Resilience derives from the latin word “*resilire*”, which means jump back or, bounce back. In economy, is the capacity of a person, a family, a community, a city or a region to prepare and put up with shocks and stress, to adapt and quickly restart without compromise the long term perspectives of development. After the economic crisis this phenomenon has to be analysed deeper to understand the complexity of the processes and the shock-absorption of the damages that affected the world between the 2007 and 2012. The EU has examined the resilience and has decided to face the causes of the crisis like the poverty and the vulnerability. Moreover it's really important to examine in depth, step by step, this topic thanks to the help of experts like Krugman, Hausmann and Rodrik<sup>1</sup>. Resilience has to be

<sup>1</sup>Krugman P., (2009) *The return of the depression economics and the crisis of 2008*, New York, W.W.Norton; Hausmann R., and Rodrik D., (2002) *Economic development as self discovery*, NBER working paper no. 8952.

faced with responsibility, defining: economic, political, social and environmental priorities.

### *1.1 EU approach to resilience*

Developing these aspects is a necessary thing that has to be done by EU and its members. Focusing on the poor ones, a particular attention is given for the families and marginalised groups with a global approach based on the civil rights and their requirements.

To promote the efficiency and the efficacy are used some test tables with upgraded measurements, also to prevent the damages of natural disasters. Like in Italy where in 2009 a terrible earthquake affected the city of L'Aquila in the South and after in 2012 also the region of Emilia-Romagna.

Different types of approaches have been used by experts to analyse deeper the resilience and each one of them has helped to discover how much a region is resilient and its process of replacement and reorganization. The results define a particular distribution of wellness in Italy that show a clear difference between North and South; urban and rural areas.

In this way it comes out a complete framework that explains this process and helps to understand what the regions have been going through and their rebirth since 2007.

## **2. Key elements of regional resilience in Italy**

Economic resilience has been decomposed in “engineering resilience”, the ability of a given area to bounce back after a negative shock, and “ecological” resilience, multiple patterns of growth experienced by a system after a recession. Both concepts can be applied to different geographical spaces and different adverse events. Moreover regional resilience offers the opportunity to look at the disaggregate responses to common shocks by correctly identifying the transient and permanent effects of aggregate disturbances on particular areas.

The Italian recession started in the second half of 2007 with the crisis and the financial turmoil seem to have a longer impact than the oil shock. In the early 1990s, the severe employment losses experienced in the South of Italy can be related to the joint effect of the crisis and other events such as the abolition of the consolidated regional policy framework. It's interest-

ing to observe that after the oil shock Italian macro-regions have moved to asynchronous dynamics.

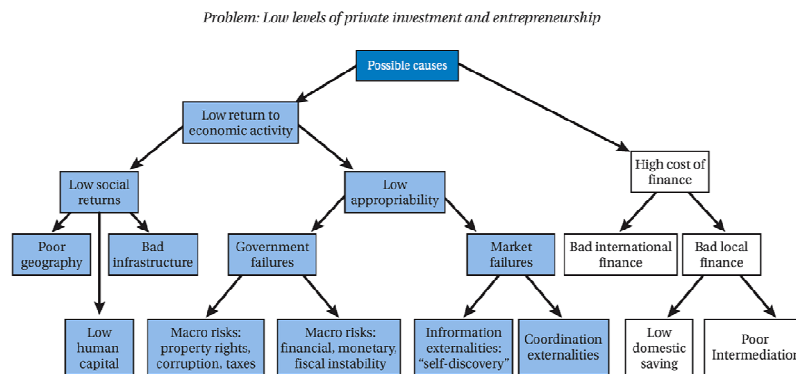
### *2.1 Methodology of the different approaches*

Engineering resilience looks for ways to improve the ability at all levels of organizations to create processes that are robust and flexible, to monitor and revise risk models, and to use resources proactively in the face of disruptions or continuing production and economic pressures. To identify engineering resilience there's the need to specify a model which is able to describe how regional employment responds to national shocks within an equilibrium framework. With the help of the Engle-Granger cointegration test it's possible to identify the model.

After having consulted the Italian National Institute for Statistics (ISTAT) database for the 20 Italian regions in the years between 1992-2012, it's possible to obtain the speed of adjustment for each region responding to one unit negative aggregate shock by applying a two-step Engle-Granger procedure: If a set of variables are inserted, then there exists a valid error correction representation of the data, and viceversa. If  $y$  and  $x$  are both variables and have a long run relationship, there must be some force which pulls the equilibrium error back to zero. So, it's possible to estimate the long-run (equilibrium) equation:  $y = \delta + \delta x + u$  (Engle-Granger, 1987).

In general, a sort of North-South divide seems to emerge from our results with more resilient regions mostly located in the North of Italy and less resilient ones in the South. The regions in the centre of Italy such as Emilia Romagna, Toscana and Marche show the highest levels of adjustment across the Peninsula. Calabria and Campania are characterized by the lowest degrees of engineering resilience in Italy. Ecological resilience and adaptive development are important because an ecologically sustainable development is not simply a matter of harmonious equilibrium with the environment. Preventing damage to ecosystems, is absolutely essential for sustainable development, but it is not enough. Human society is constantly changing, and so is the environment. Sustainable development requires a capacity to deal with change. Resilience and adaptive development are the key to attaining that capacity. Italian regions seem to present different degrees of tolerance according to the different employment state for relevant positive changes of the transition variable. For example Toscana completely switches to a worse scenario when national unemployment rise by more

than 23%. In the region Campania the transition sees lower values. Ecological resilience seems to confirm the spatial unevenness of recessions and recoveries across Italian regions. In the end we can say that Liguria continues to register a low level of resilience, though this region is in the North of Italy, while Puglia and Sardegna are more resilient than this one. To measure the importance of economic resilience we can use the Hausmann-Rodrik-Velasco diagnostics decision tree:



Source: Ricardo Hausmann, Dani Rodrik, and Andrés Velasco, "Getting the diagnosis right," *Finance and Development* 43 (2006), available at <http://www.inf.org/external/pubs/ft/fandd/2006/03/hausmann.htm>. Used with permission.

Supposing that a country is constrained by a low level of private investment and entrepreneurship, the tree shows how to solve the problem. Starting from the low return to economic activity the results are: low social returns on poor geography, bad infrastructure and low human capital, which means that the workers are not well educated and don't contribute to increase productivity. The solution is to improve the skills in the economy to create new ideas. On the other hand the low appropriability means that some skills are not so much ingrained in a particular organizational culture that they can be easily extracted and replanted elsewhere in a meaningful way. This produces government failures and market failures with the consequences of moral hazard and other macro risks. The other possible cause is the high cost of finance that brings to bad international finance and bad local finance, where the domestic saving and intermediation resent from this problem caused mainly by elusive behavior.

The tree makes clear that the differences in recession and recovery among areas are motivated by some elements such as industrial structure, export propensity, financial constraints, human and civic capital.

### 3. Urban and rural wellness in Italy

To evaluate the material wellness, the EU Commission proposes that the earnings, the consumptions and the income have to be evaluated together to reach a level of measurements to support the families considering also the market activities.

The wellness measurement it's a result of the multidimensional evaluating process.

Life quality depends on the conditions of the people, for example: health status, possibilities to reach a good level of education, improve personal activities and invest on social capital.

So, it's appropriate to make ourselves a question: Does in Italy exist a relationship between the wellness and the territory? Does exist a link between families poverty and the rural areas?

It takes a deep analysis to explain the answers to these questions and they'll be discussed on macro level, with references to Italian regions, and micro level according to the families. The data are extracts from the survey EU-Silc (European Statistics on Income and Living Conditions) on the earnings and lives of Italian families<sup>2</sup>.

#### *3.1 What is the meaning of urban and rural?*

Rural is defined as a sparsely populated area outside the city limits or a designated industrial, commercial or residential centre. Rural areas are characterized by farms, vegetation and open spaces. They assume different aspects in the industrialized economies.

During the years the rural areas have been the subject of numerous mutations like: demographic dynamics, social transformations of the families and diversification of job market and multitasking rural spaces. According to this, EU policy makers have been researching new strategies about sustainable development. The operation areas where these strategies are employed are defined under the urban aspect, that is a built-up and populated area that includes a municipality and more than 5000 people. The territorial forms have been organized according to the dimension of the population and the index of demography density.

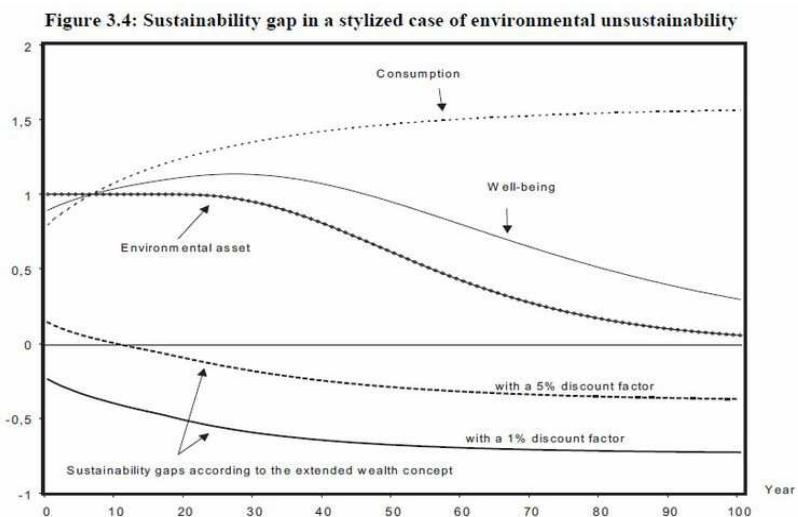
<sup>2</sup> Istat-Cnel Report on sustainable wellness in Italy (Istat, 2013).

### 3.2 How can be measured the well-being level?

According to the Stiglitz-Sen-Fitoussi Commission<sup>3</sup> there are some conditions that have to be observed to understand the approach to the individual wealth level:

- Combined consideration of the consumption, income and wealth;
- Evaluating the voluntary work, like care and feeding poor people;
- Evaluating the familiar situation;
- Level of contribution by public assets (landscape, security of the environment);
- Social capital valorization according to public and politic relations;
- Give importance to the subjective impressions.

Observing the approach, it's clear that families tend to maximize their wealth on the extra-business and employment opportunities remunerated according to the market situation.



Source: [economicpolicy.oxfordjournals.org](http://economicpolicy.oxfordjournals.org).

<sup>3</sup> The Commission on the Measurement of Economic Performance and Social Progress (CMEPSP), generally referred to as the Stiglitz-Sen-Fitoussi Commission after the surnames of its leaders is a commission of inquiry created by the French Government in 2008. The inquiry examined how the wealth and social progress of a nation could be measured, without relying on the uni-directional Gross Domestic Product (GDP) measure. The Commission was formed in February 2008 and Joseph E. Stiglitz, Amartya Sen and Jean-Paul Fitoussi were named as the Chairs.

If excessive consumption leads to environmental degradations that ultimately reduces well-being. The extended wealth index warns that we are on a non sustainable path, with a capacity of anticipation that depends on the discount rate.

To understand more how the level of well-being can be measured, it's useful to explain the Multidimensional Poverty Index. It considers the privation of services that are needed from every individual, like: deprivation of elementary and healthy things that are important to reach a level of medium wellness. This index considers six different dimensions:

- Income poverty: minimum level of earnings;
- Poverty of goods;
- Lack of time (f.e., a mother who works full time);
- Poverty of parents (f.e., absence of one parent);
- Low level of education;
- Poverty of jobs.

### *3.3 The multidimensional wellness on a territorial level*

At first there's evidence on the differences that affect Italian territory. There are three big regions (North, Centre, South) and for each one of them has been calculated a medium level of earnings  $Y^{\text{M}}$ , equivalent level of available earnings  $Y^{\text{M}}/\text{SE}$ , net worth  $\text{NW}$ , and the incidence of this one on the available earnings % and on the net worth.

There are a lot of differences on these elements passing from North to South, but the level of income in every region doesn't present a big variation, in exception of the Rural 2 zone in the South and on the net worth level in Rural 1 zone in the centre. In the centre the poverty values are affected by a progressive growth.

These data are important to build a framework where every level of wellness is explained and analyzed in every aspect like wealth and poverty and from the rural to urban areas. They show also that the level of wellness in the urban areas decreases approaching to rural areas (Chart 1).



Chart 1: Average values of the family earnings and the net worth by district and their connections

Circoscrizione	Area	Reddito disponibile (Y <sup>a</sup> )	Reddito disponibile equivalente (Y <sup>a</sup> /SE)	Patrimonio netto (NW)	Patrimonio Netto/ Reddito disponibile (%)	Rendimento patrimonio/ Reddito disponibile (%)
Nord	Urban	35.397	19.617	24.669	69,69	3,46
	Rural 1	32.577	17.372	21.158	64,95	3,79
	Rural 2	31.285	16.961	22.200	70,96	4,76
Centro	Urban	33.784	18.141	20.355	60,25	4,91
	Rural 1	31.765	16.410	16.994	53,50	5,12
	Rural 2	29.855	15.715	18.650	62,47	3,14
Sud	Urban	27.171	13.285	10.741	39,53	1,91
	Rural 1	26.605	12.511	11.198	42,09	4,11
	Rural 2	24.609	12.236	9.496	38,59	1,67

Source: research EU-Silc, 2012.

#### 4. Vulnerability and resilience of human settlement

Between the disturbances of an urban area there are also the ones caused by the natural and artificial disasters, like earthquakes and wars that cause an alteration on the equilibrium of the settlements.

The seismic activity it's the key to determine the effects on the urban geography and define the standards suitable to appreciate, evaluate and measure the capacity of a settlement to support and absorb the transformations, like the resilience.

The spatial configuration it's used to specify the theme of the resilience and it's based upon two conditions:

- tracking of the events to understand where and when they took place
- giving importance to the relational aspects in the urban area

##### 4.1 Space syntax

The space syntax was introduced by Bill Hillier in middle '80s, and it's used to observe the transformations resulting from the seismic activity. It's

defined like the capacity to observe the effects of an unexpected traumatic event that shocks and modifies the settlement for a period. The general idea is that the space can be divided in several components analyzed as networks of choices, then represented as maps and graphs that describe the relative connectivity and integration of those spaces. It rests on three basic conceptions of space:

- isovist: is the volume of space visible from a given point in space, together with a specification of the location of that point. Isovists are naturally three-dimensional, but they may also be studied in two dimensions;
- axial space: a straight sight-line and possible path;
- convex space: metric space with the property of any "segment" joining two points in that space has other points in it besides the endpoints.

The values that result from these schemes can formulate new rules that can be applied globally in the system and explain the distribution of the resilience inside the graphs. One of these rules is the index of integration that descends from the axial space configuration and it's explained with the equation:  $v = \text{choice}_{\max}/k$

The value of the index decreases with the growth of the system resilience, so It's confirmed that there is a strict equivalence between global integration and local integration.

This syntax is useful to understand how the resilience is arranged inside of a urban area through the application of isovists, axial maps and convex spaces.

#### *4.2 Vulnerability and resilience of Emilia-Romagna*

Vulnerability is defined like the degree to which people property, resources, systems and cultural, economic, environmental, and social activity is susceptible to harm, degradation, or destruction to a hostile agent or factor. Vulnerability and resilience are used to create a model of research on Italian provinces (Chart 2).

Emilia-Romagna registers a medium-high level of vulnerability, with the lower positions of Rimini (101), Piacenza (97) and Modena (94). Moreover, emerges a good placement of the cities of Parma and Ravenna according to the economic vulnerability index. The better performances are referred to the city of Bologna, which an high level of financial structure and low levels of debit load are registered. It's possible to see also a low level of unemployment.

Chart 2: the placement of the provinces in Emilia-Romagna according to the economic, social and environmental vulnerability indexes (from the better to the worst)

Province	Vulnerabilità economica	Vulnerabilità sociale	Vulnerabilità ambientale	Vulnerabilità territoriale
Bologna	15	103	62	87
Ferrara	54	89	63	88
Forlì-Cesena	30	88	78	78
Modena	33	91	96	94
Parma	7	85	83	68
Piacenza	17	93	101	97
Ravenna	3	99	81	75
Reggio Emilia	26	81	95	79
Rimini	20	100	100	101

Source: Ecoscienza, Numero 6 (2013).

According to these data it's easy to deduce that Emilia-Romagna is less penalized comparing to the other regions thanks to: productive diversification, high presence of small and medium companies and the globalization of some sectors like the agriculture and cars.

*Social vulnerability index*, refers to the resilience of communities when confronted by external stresses on human health, stresses such as natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss. The cities that register a high level of this index are Bologna, Rimini, Ravenna, and Piacenza, due to the presence of criminality.

The *environmental vulnerability index* characterizes the relative severity of various types of environmental issues. The results are used to reach a solution to negative pressures on the environment to promote sustainability. Piacenza, Rimini and Modena register the worst performances, instead of Bologna and Ferrara that present a good performance on this index.

The *territorial resilience index* is designed to help executives evaluate and manage unknown risk potentially inherent in the countries they rely upon. Nine key drivers of supply chain risk are grouped into three categories: economic, risk quality and supply chain factors. The provinces that show a higher level of this index are: Parma, Bologna, Modena, Reggio Emilia. They represent a general high trend in the most important sectors like, resources for the companies and families and the capacity to improve the entrepreneurial system and infrastructures (Chart 3).

Chart 3: the placement of the provinces in Emilia-Romagna according to the economic, social and environmental resilience indexes (from the better to the worst)

Province	Resilienza economica	Resilienza sociale	Resilienza ambientale	Resilienza territoriale
Bologna	2	4	27	3
Ferrara	49	6	5	6
Forlì-Cesena	24	22	47	30
Modena	6	21	18	9
Parma	3	2	15	2
Piacenza	17	39	32	24
Ravenna	8	12	4	4
Reggio Emilia	10	49	7	14
Rimini	14	9	51	16

Source: *Ecoscienza*, Numero 6 (2013).

The territorial risk is the result of the difference from vulnerability and resilience. Emilia-Romagna registers a medium-low index comparing to the other regions, thanks to the cities of Parma, Bologna and Ravenna that give an equilibrium to the general situation of the region. Comparing the two charts it's visible that Emilia-Romagna results particularly vulnerable environmentally and also in social terms, but it's able to contain the territorial risk thanks to its capacity of resilience on terms of social capital and environmental protection.

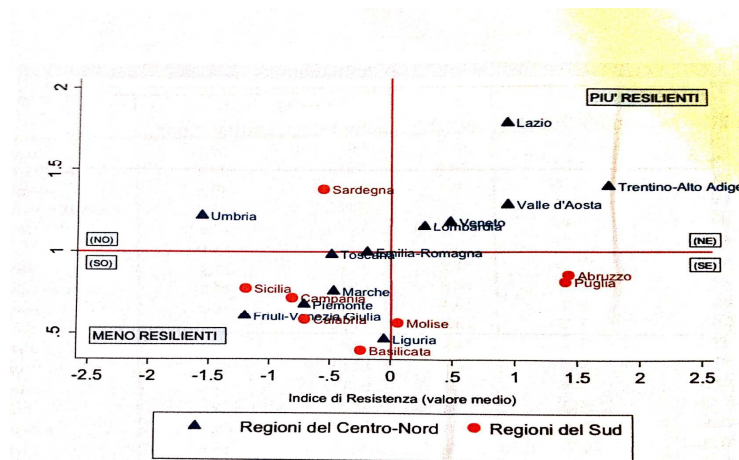
## 5. Emilia-Romagna's behavior towards recession

This image represents the situation of the Italian regions between the resistance index, measures the capacity of a region to "resist" to an economic recession according to the national average. This is calculated:

$$\beta_{\text{res}} = [(\Delta E_r/E_r) - (\Delta E_N/E_N)] / |\Delta E_N/E_N|$$

The recovery index is calculated in the years after the recession period and measures the capacity of a region to move back and grow after the economic shock. This is calculated:

$$\beta_{\text{rec}} = (\Delta E_r/E_r) / (\Delta E_N/E_N)$$



Source: EyesReg, Vol. 4, N. 2- March 2014.

Emilia-Romagna is placed in the middle of the diagram with Toscana, which means that has a static situation and the employment rate is at average level comparing to the one of Sicilia, Campania, Friuli-Venezia Giulia, Piemonte and Marche that registered a lower level of employment rate and had to put up with recession more severely instead of Lombardia or Trentino-Alto Adige that are more resilient, so they didn't deal with the decrease of employment during the crisis period.

After many years of crisis Emilia-Romagna is ready to change the direction towards a new era of resilience. According to the data of Prometeia<sup>4</sup> this region is going to register an enhancement of 1,1% in 2015: two points on the consumption level and five points on export level. The unemployment status is going to decrease to 8,2%. These data are way better than the national situation.

The region is going to rebirth from her strength points, also known as productive specializations that are recognized all over the world. The agricultural sector is one of the most important, in fact it organizes global events like Cibus to present new products and ideas. The same situation is located in the Motor valley, where companies like Ferrari, Ducati and Lamborghini present a network of competences and flexibility that cannot be replicated somewhere else.

<sup>4</sup> Prometeia is a company of expert advice, software, and economic research that has more than 500 people in 5 different countries.

Competition for that becomes more frenetic while consumers who do have the money have the opportunity to be much more discriminating. Investment to attract the consumer have paradoxically grown as a response to the recession. They generally focus on the quality of life. Gentrification (when poorer area goes upmarket) ,cultural innovation and physical upgrading of the urban environment, consumer attractions (sports stadiums, convention and shopping centres) and entertainment (the organization of urban spectacles) have all become much prominent strategies for urban regeneration.

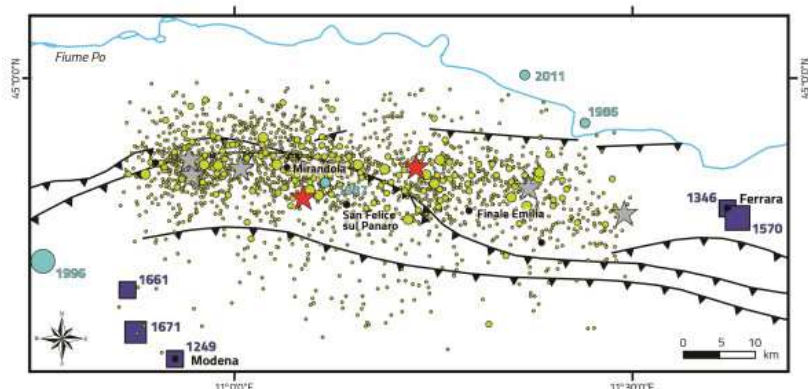
## **6. Reactions to natural disasters**

In this era of austerity several challenges and contradictions are expected to arise, but the depth and precise nature of the crisis varies considerably between different countries and so it's necessary that each government conducts its own detailed analysis and assessment of its crisis, socio-economic situation and finally of its self-reform capacity. In any case public services are indispensable for citizens and local economy, then it's necessary to identify a way to join service delivery, efficiency and money savings. A problem solving tool is the ICT.

The ICT is a combination of strategies and methods that realize transmission systems, reception and elaboration of the data. It's an important resource for the governments and organizations to use where it's always more difficult to arrange everything in a quick, efficient and smart way. The ICT it's a sort of strategic weapon that supplies data on a better quantity and quality level, so they can help organizations to reach a positive ending on the relationships with the clients, vendors and other organizations. After the earthquakes national, regional and local governments immediately proceeded in order to gather resources necessary to finance the reconstruction processes. Thanks to a partnership between the *Emilia-Romagna* Region, the Association of Local Governments and other institutional partners, the "*Open Ricostruzione*" website portal was launched. This portal links resources and reconstruction projects through innovative visualizations.

The case of Emilia-Romagna shows that risks have to be prevented to face the natural disasters, like the earthquakes that affected the region on the 20<sup>th</sup> May to 20<sup>th</sup> July of 2012. This picture identifies the sequence of the earthquakes occurred in May 2012 and the seismic history of the area.

*The sequence of the earthquakes occurred in May 2012 and the seismic history of the area*



Source: <https://ingvterremoti.wordpress.com/tag/i-terremoti-della-pianura-padana-emiliana/>

At least 100 structures of historical buildings have been damaged or destroyed. Many churches in towns around the epicentre suffered damages. There were also significant damages to factories and agricultural land in the region. The production of Grana Padano and Parmigiano Reggiano was badly affected; approximately 300,000 wheels of cheese, with an estimated value of €200 million, were destroyed. The magnitude 5.8 (Richter scale) earthquake of the 29<sup>th</sup> of May left 18 people dead, more than 350 injured, and more than 15000 homeless. The earthquake was felt in most of Northern Italy and in order to support the first emergency response and to speed up the recovery and reconstruction processes, several innovative solutions were implemented on this territory.

The ICT immediately gave the possibility to the public administration to use the social network in the earthquake area and immediate collaboration tools for damage report. These instruments brought a more “personal” approach of every user, like a real solidarity race, matching demand and request for first response goods and manpower, was experienced through the digital media.

Another important reaction was the one taken by the government requesting an amendment of aid to the EU Commission for the regions of Emilia-Romagna and also Lombardia and Veneto. The Italian foreign minister of 2013, Federica Mogherini, sent a letter where she explained the measures that had to be assumed. The more important are:

- Urgent provisions in matter of finances and functioning of local authorities, as well as provisions in favor of the areas affected by the earthquakes of May 2012;

- Under the amendment measure, undertakings that suffered damage caused by the 2012 earthquakes will receive support in form of subsidized loans to pay taxes and social security contributions due during the period following the natural disaster, and provisionally suspended by the Italian authorities in reason of *force majeure*, i.e. the impossibility for undertakings and public administration to regularly pay and receive payments as a consequence of disruptions by the natural disaster.
- Undertakings that suffered damage caused by the 2012 earthquakes could ask financial intermediaries (their house banks established in the area hit by the earthquakes) for subsidized loans of the duration of maximum two years, in order to pay taxes and social security contributions for which payments were suspended after the natural disaster. The beneficiary undertakings have two years to repay in instalments the capital of the loan.
- The notified measure is exclusively addressed to undertakings that have suffered damage which is a proven direct consequence of the earthquakes of May 2012. By end of 2013 Italy estimated that about 4,800 undertakings being eligible under the amendment measure (including self-employed and undertakings in the agricultural sector obtained subsidized loans).
- The first legal basis of the amendment measure already entered into force on 11 October 2012, and Italy explained that subsidized loans have been granted to undertakings as from December 2012. Under the amendment measure, undertakings could apply until 31 October 2013 for subsidized loans of the duration of two years. However this amendment decision does not alter the duration of existing aid, which expires on 31 December 2016.
- The budget allocated under the legal basis of 2012 to the notified amendment measure is EUR 215 million (EUR 145 million for 2013 and EUR 70 million for 2014), to be added to the original budget of EUR 4500 million mentioned in the initial decision.

The Commission responded to the letter that the measures were compatible with the Article 107(2) (b) TFEU.

Above all, Emilia-Romagna showed right after the disaster that it's a region with a lot of resources and an excellent human capital. All the factories, especially the ones from the affected areas proved the strength of the workers, and the will of restart the activity immediately with even more intensity.



## 6.1 “2PxE” Project for the post-seismic rebuilding in Emilia<sup>5</sup>

To help improve the skills in this rebuilding phase, there were a lot of seminars that have been taken to promote actions of education on the theme of reconstruction after the earthquakes. The re-vitalization of the historic city centres in the epicentre area was analyzed by Giovanni Broccardi of the World Heritage Centre of Unesco with the theme: “risk preparedness”. It emerged that the cultural heritage has to be considered not only as a cost but also as an opportunity towards the disasters and the necessity.

About the case of Emilia-Romagna an important project was created: “2PxE: Pianura Padana, rebuilding the territory/ building the future”. From the beginning it’s clear that the education is a key element that puts together the rebuilding strategy promoted by Emilia-Romagna region. In one hand, already from the emergency phase, tough efforts have been concentrated on the restart and re-planning of the schools, evidencing the importance that education, as a social innovation, has inside the community after the earthquake. In the other hand, a lot of diligence was invested on human capital, that is considered as a key element for the rebuilding and as a part of a recreation that goes beyond the expectations.

The situation shows that the communities showed an excellent capacity of reaction, organizing, gradually, ethic associations, opinion groups and urban laboratories to discuss about the future of their cities. These laboratories are useful also because the population is affected by a high level of tiredness caused by the long periods of rebuilding and patience to see results from their efforts.

On the resilience perspective it’s important to evaluate the position of the public institutions that support the capacity of reaction and adjustment to the social system. In this sense, it’s possible to see a resilient institutional logic that helps activating positive dynamics to contrast the negative effects of traumatic events for the community.

Inside this wide analysis a lot of complicated aspects have been touched, such as, the re-vitalization of the historic centres, the program of the public operations, the participation of the communities to the rebuilding programs, the reduction of the vulnerability and the education to update continuously the experts and the population about the situation. This pro-

<sup>5</sup> De Menna E., Sardo D. (2014), “2PxE Rebuilding the territory/ building the future. The project “2PxE” for the post-seismic reconstruction in Emilia”. This material was generously given by the Professor Gianfranco Franz.

ject has helped not only under the information level but was also able to sensitize the territory of the affected area on how the entire regional system is going further on the post-seismic rehabilitation.

## Conclusions

This work starts from the analysis of the various approaches to resilience, highlighting the necessity to blend them with the civic capital theory. With a place based approach the economic, institutional and social aspects influence a lot the individual and collective behavior.

The purpose of this work was to analyze deeper the behavior of the Italian regions towards resilience after the economic shock in 2007. It has been tried to identify the regions more economically resilient, that means the ones who, after the shock, have found a new beginning and a new growing path. At the end of the analysis emerges that no specific Italian region has beat the others facing in a better way the shock. The regions with a high civic capital are the ones who reacted better. The complexity of this phenomenon and its multidimensionality make even more difficult to individuate the elements that can describe successfully resilience. Regions differ in terms of both shock absorption and post recession patterns; disaggregate response vary when taking into account temporary and persistent affects of crises; differences in recessions and recoveries among areas are motivated by some elements such as industrial structure, export, propensity, financial constraints, human and civic capital. In the end, the knowledge of the systemic vulnerability is unavoidable starting point to define seismic risk mitigation actions and try to rebirth from these disasters that effected the area of Emilia-Romagna few years ago.

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