

Regional Resilience and rising gaps

North-South: the case of Italy

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June 27, 2014

Abstract

This study investigates the economic crises that occurred in Italy between 1970 and 2011, referring in particular to the employment level and the different effects on the Italian regions. We will refer to the “resilience” to describe the adaptive capacity of the regions to withstand the shock of an economic recessions. Empirical results suggest that regions with a larger share of manufacturing or a higher number of temporary workers suffered to a greater extent than others during recessions. In contrast, regions with higher percentages of public employees and service industries were better able to “resist” the negative phases of the economy. Moreover the recent crisis has exacerbated the strong gaps between North and South making rebalancing policies necessary to place the country on a sustainable growth path.

Keywords: regional economic growth, recessionary shock, industrial sectors.

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1 Introduction

The financial crisis that originated in the United States rapidly spread to Europe, with especially severe effects on countries characterised by weak banking sectors and large public budget deficits. European countries have responded to these financial difficulties with different interventions: for example, Germany and France have significantly increased public expenditures, including regional policy instruments designed to stimulate domestic demand and cope with economic difficulties. Other countries, such as Italy and the UK, instead shifted resources from the regions to the central government with the goal of developing anti-crisis policy capable of returning their economies to a growth path (Davies, 2011). In addition to the differences between countries, the economic crisis has fuelled and accentuated significant differences within individual states. This issue has become much more pronounced in countries with marked historical differences, such as the UK, Spain and Italy. This latter aspect has attracted the interest of several scholars from different disciplines, especially regional economists and economic geographers who are investigating the policies necessary to recover from the economic crisis. More specifically, several studies have focused on the concept of "resilience", a term borrowed from engineering sciences (Holling, 1973; Pimm, 1984; Walker et al., 2009), ecology (McGlade et al. 2006), psychology (Bonanno, 2004; Bonanno et al., 2007) and only recently employed in economics terms¹. The term resilience is derived from the latin "resilire", which indicates the verb leap back, or to rebound. In regional economy, it is used to denote the ability of a region to anticipate, respond to and return to growth following an economic shock (Martin and Simmie, 2010). In recent years, the term "regional resilience" has become popular because of its association with regional adaptation and so has strong connections with evolutionary economics and evolutionary economic geography. One obvious question is why the concept has become so popular at this historical moment. The processes it encompasses (rebound, adaptation and recovery) certainly are not new in any fundamental sense. The attention to resilience may be, however, a response to a generalised contemporary sense of uncertainty and insecurity and a search for formulas for adaptation and survival. In this respect, the fashionable use of the concept may originate both from an increased sense of risk (economic and political as well as environmental) and from the perception that processes associated

¹For a complete overview on the concept of resilience, see the book Zolli and Healy (2012).

with globalisation have made places and regions more permeable to the effects of what were once thought to be external processes. The social and economic paradigm seems to be permanently mutated, and therefore also the way to face the future will necessarily change. To look to the future it is often need to start from past experiences, and in this work it was decided to analyse the major economic crisis that hit the Italian regions (1970-1972; 1992-1995; 2008-2010), and the subsequent periods of growth (1973-1991; 1996-2007), trying to identify the "resilient regions". Each region may react differently to periods of crisis. This may depend on several factors, such as the economic sectors most affected, the ability of policy makers to devise policies that can mitigate the recessionary effects, the ability of firms to innovate and restructure its production, the innovative system of universities..etc. The majority of studies on regional resilience have been designed to investigate the effects of the economic downturn in UK: Martin (2012) and Fingleton et al. (2012) analysed the effects of the total employment in the last three UK recessions, and devoted particular attention to the strong heterogeneity observed across different areas of the country. Lee (2013) investigated the impact of the 2008-2009 recession on unemployment in the sixty largest cities in Great Britain. However, beyond those on the UK regions, few studies to date have considered other European states. Yet, significant differences are also present in other countries, such as Spain, Germany and particularly, Italy.

This work aims to partly fill this gap by analysing the Italian situation. Italy is among the European countries most affected by the recent recession, and the economic crisis has increased differences in employment level between the different areas of the country. In line with the work of Martin (2012), this study first, analysis the effects of the three major recessions in Italy in the period between 1970 and 2011. Second, studies the phases of recession and recovery during crises, highlighting the economic sectors that are most affected. Forth, computes the dynamic shift share analysis to measure the role in the long-term growth and competitiveness of the industrial mix in each region compared to others. Finally, this article attempts to revive interest in the gap between the North and South, which has always characterised the Italian economy, but that currently appears to have grown to a greater extent than in the past, producing severe imbalances and inequalities within the country.

2 The effects of the economic crisis on the Italian regions

The economic crises that have occurred in Italy in the last forty years have had different effects on the Italian regions. Following the approach of Martin (2012) and Fingleton et al. (2012), the focus of analysis is the employment rather than income². The employment experienced during an economic recession tends to return to pre-crisis levels with a much longer lag than output, which can lead to significant imbalances in the labour market, causing substantial inequality and social tension. We collected data on regional employment from Prometeia database between 1970-2011. Unlike the two works quoted, I use annual values rather than quarterly ones due to data availability. However, this does not imply biased data analysis. As shown in figure 1, it is possible to identify three major economic shocks that resulted in a significant reduction in the employment rate during the 1970-2011 period³. Specifically, the first shock is identifiable in the 1970-1973 period. This sudden decline in the employment rate was primarily due to the oil crisis and strong inflationary pressures that affected Italy in that period. The second shock is identifiable in the 1992-1995 period. The crisis was created by substantial internal problems in the preceding years, such as hyper devaluation of the Lira, scandals and political corruption (“Mani Pulite” operation - “clean hands”) which led Italy into a phase of strong political and economic instability. After the crisis years (1992-1995), the Italian economy has returned to growth, but much more slowly than in the past. For this reason Italy has been defined “the sick man of Europe” (King, 1992; Mammone and Veltri, 2010). The last recent recession was 2008-2010, which primarily resulted from a financial crisis caused by the credit crunch in the U.S. that rapidly expanded to Europe and more significantly affected vulnerable countries and with severe sovereign debt problems such as Greece and Italy. This economic situation was also associated with substantial uncertainty at the political level, which led to the resignation of government then in office and forced the President of Republic to appoint a government of technocrats who held office for approximately a year until the general election. This instability led to the main international ratings agencies downgrading Italian government debt, prompting significant speculative attacks on Italian government bonds.

²A recent paper by Cellini and Torrisi (2014), following the approach of Fingleton et al. (2012), used per capita income rather than the employment rate over a very long period of time (1890-2009) to analyse the Italian situation, finding few differences between Italian regions.

³In this work, we identify instances of a reduction of at least one percentage point in the employment rate as economic shocks.

[Figure 1 here]

2.1 Regional resilience: resistance and recovery

The concept of resilience is often used in conjunction with those of "resistance" and "recovery". Martin (2012) highlights how the effect of an economic downturn on the regional economy is composed of two phases: the first phase is that of the shock itself, while the second phase is to recover from the shock. Determining the resistance index and the recovery index will be possible to identify the so-called "resilient regions".

Specifically, the resistance index (β_{res}) is calculated as follows:

$$\beta_{res} = [(\Delta X_r / X_r) - (\Delta X_N / X_N)^E / |\Delta X_N / X_N|^E] \quad (1)$$

Where E represents the national expected growth during recession period.

$(\Delta X_r / X_r)$ and $(\Delta X_N / X_N)$ are the percentage changes in employment at the regional and national levels, respectively. A positive value of β_{res} indicates that the region exhibits greater "resistance" to an adverse shock compared to the rest of the country. A negative value of β_{res} indicates that the region is less resistant than nation; β_{res} equal to zero represents no difference to national effect.

Table 1 presents the values of the sensitivity index for the 20 Italian regions (NUTS 2) during the three recession periods. As the table shows, in the first recession (1970-73) the main regions affected are Umbria (+2.34) and Marche (+2.23) in central Italy, and Sicily (-2.75) and Calabria (-2.17) in the South. Among the regions of the North, only Piedmont with - 2.13 (the region where FIAT, the country's primary automotive firm, is located) and Friuli Venezia Giulia (-3.76) appear to have substantially suffered from the economic shocks, while the others appear able to significantly resist the negative effects of the recession. In the second recession, the crisis is most evident in the regions of Sardinia (-1.08) and Sicily (-0.87). The 1992-95 crisis was due to internal problems of a political-economic (Rossi, 2010). To cope with the economic crisis and the exponential growth of public debt, large increases in the tax burden and drastic reductions in public spending were required. Even the most recent recession (2008-2010) appears to have affected all of the southern regions more severely (Campania -1.13; Basilicata -0.70). However, and emphasising the severity of the recent crisis, particularly high levels was also recorded in

Lombardy (-0.08), historically the country's wealthiest region, that had been able to "resist" recessions better than others during previous crises.

[Table 1 here]

Table 2 presents values for the "recovery index" computed in the post-recession periods, in this case from 1974 to 1991 and from 1995 to 2007. This index is calculated as follows:

$$\beta_{rec} = (\Delta X_r / X_r) / (\Delta X_N / X_N)^E \quad (2)$$

A value of β_{rec} greater than 1 indicates a stronger (relative to the nation) performance after the recession period. A value of β_{rec} lower than 1 indicates a weaker (relative to nation) performance. β_{rec} equal to zero represents no difference to national effect. As the table 2 shows, there is a close relationship between recession and recovery periods. In the first post-recession growth phase (1974-1991), the central (Lazio +1.84;) and northern regions (Trentino A.A. +1.61; Valle d'Aosta +1.66) grew more rapidly than those in the south (except for Sardinia +1.83 and Puglia +1.10). In second post-recession period, central regions, such as Lazio and Umbria showed a higher recovery index (+1.73 and +1.45 respectively).

[Table 2 here]

Figures 2 plots the relationship across the Italian regions between resistance index (average of three recession periods) recoverability index (average of two postrecession periods). Further, by partitioning the relationship into quadrants, defined by the national resistance index (1.00) and national recoverability index, the five northern regions of the Lazio, Trentino A.A., Valle d'Aosta, Veneto e Lombardy stand out as having been both the most resistant to the recession and as having experienced the fastest post-recession employment growth.

[Figure 2 here]

3 Economic sectors in the recession

Certain economic sectors are known to be more subject to cyclical economic fluctuations than others and as such suffer the most from economic downturns (Conroy 1975, Siegel et al., 1995; Dissart, 2003; Ormerod, 2010). The manufacturing and construction industries typically appear to suffer to a greater extent than the services sector during an economic crisis. The latter is more flexible and can absorb and renew itself more rapidly than the former. Furthermore, the presence of a significant number of public employees enhances resilience to economic shocks, managing nearly completely absorb the effects of the recession. The geographical distribution of these activities across regions might then be expected to be relevant in explaining spatial differences in resistance to recessionary shocks (Martin, 2010). However, much will depend on the nature of the crisis.

Table 3 examines these issues during the recent crises. In the last recession, the manufacturing sector has decreased by 10.40 percentage points. The highest decline compared to the previous two crises (4.49 and 1.08 respectively). The construction sector has fallen by 4.43 per cent and the service sector of 2.82. Furthermore the crisis of 2008-2010, has had dramatic effects on all Italian regions. In the past instead of the northern regions were able to better withstand recessionary effects.

[Table 3 here]

Another element to consider in the analysis of employment, is the type of employer: public or private. Table 4 presents the percentage of public employees by region and the percentage of employees with fixed-term employment contracts. Regions such as Trentino Alto Adige, Valle d'Aosta and Lazio have larger numbers of workers employed in the public sector and, as is evident from Table 1, were also less affected by the recession than other regions. An interesting result can also be observed from the table 4 for temporary workers. Since the early 2000s, the Italian labour market has become much more flexible, especially for new employees, with far fewer safeguards than in the past and hence is much more exposed to the effect of economic crises. Unsurprisingly, therefore, southern regions, such as Puglia, Campania, Calabria, Sicily and Sardinia, where there are more workers with fixed-term contracts, are also the regions that have suffered from the effects of the crisis to a greater extent than others.

[Table 4 here]

3.1 Dynamic Shift Share Analysis

In order to connect the concept of “resilience” to the concept of “regional competitiveness”, it was decided to compute the dynamic-shift-share analysis, widely used in literature to investigate the regional growth paths (Fotoupulos, 2007; Marquez et al. 2009; Mayor and Lopez, 2009; Gardiner et al., 2013). The traditional shift–share analysis decomposes a region’s sectoral growth into three components: national, industry-mix, and regional-shift effects. The decomposition of these effects provide valuable information that may form the basis for the development of regional goals, such as an attempt to increase the region’s presence in the national economy, frequently in the context of the evaluation of regional competition within a national economy (Marquez et al, 2009). In this study, to illustrate this shift–share decomposition, employment will be used as the variable of interest. For a given region r and a sector i in this region, the three traditional components are formulated as:

$$\text{National Effect} = Emp_{i,r} - EMP \quad (3)$$

$$\text{Industry Mix Effect} = Emp_{i,r}(EMP_i - EMP) \quad (4)$$

$$\text{Regional Shift Effect} = Emp_{i,r}(Emp_{i,r} - EMP_i) \quad (5)$$

where the growth or decline in total Employment in sector i of region r is $EMP_{i,r}$ with EMP_i being the national counterpart. Thus, the presence of subscripts i and r will denote reference to a specific sector i or region r , and the absence of a subscript indicates all sectors or total national. Most shift–share analysis is static. It only considers growth between the beginning and end years of a study period, or sometimes over a limited number of subperiods. This opens the method to two main criticisms which have been well rehearsed in the literature. The first is that an in-built bias is introduced because a region’s industrial structure is likely to change over time, and using the initial sectoral

shares of employment will not take account of this. Such a bias most likely occurs in regions undergoing rapid structural change, and/or where the time period being studied is a long one, since this would allow significant structural change to occur. The second problem is that if the difference between a region's growth rate and the national growth rate itself varies during the study period, the initial fixed weights (which equate to the region's size relative to the national total) will introduce a bias into the national share effect. A dynamic shift-share analysis can overcome these problems and presents an appropriate analysis of the employment changes. More specifically, regional total growth differentials and their various components were estimated on a year-to-year basis, and these growth rates were cumulated through time. This gives a continuous picture of the evolution of regional growth differentials and helps to reveal any structural breaks or changes in the contribution of the growth components (Gardiner et al, 2013). More specifically, in this section, I want to investigate whether the most resilient regions are also those which have maintained a higher competitiveness compared to others⁴. The figures 3, 4 and 5 show the results of the national share component, industry mix and regional shift, respectively. To better visualise the decomposition in different areas, it was decided to divide the regions according to the NUTS1 classification: North West, North East, Center, South. National share (figure 3) measures the regional employment change that would have occurred if regional employment had grown at the same rate as the nation. Lombardy (quadrant a) is the region that has increased more than all the employment level. Among of the Northeast regions (quadrant b) Veneto and regions (quadrant c) , Lazio and Tuscany have got the best performance, while among those in the South (quadrant d), Campania, Abruzzo and Sicily have had significant growth rates. The other regions of the South instead have maintained the level of employment on the national average.

[Figure 3 here]

The industry-mix (or structural effects) measures the industrial composition of the region and reflects the degree of industrial specialisation that are fast or slow growing nationally. Thus, if a region contains a relatively large share of

⁴In this section we are focusing on the four main economic activities (agriculture, industry, construction and services).

industries that are slow (fast) growing nationally, it will have a negative (positive) proportionality shift. Specifically, among the Central regions (Figure 4, quadrant c) Lazio, (which is the most resilient region, based on the analysis of the previous section) has accelerated after the early-1990s with a specialised employment in the service sector (in particular public administration). Over the period since the early-1970s, the Northern regions have progressively experienced in adverse industrial structure. In particular, the regions of Veneto and Emilia Romagna (North-East) seems to have had a negative trend. However it has had a small impact on growth performance, indicating that the varied and mixed economic structure of these regions have kept broadly in line with that of the national economy taken as a whole. By contrast, the trend in Southern region’s industrial mix effect has been negative over time (except for Sicily and Sardinia, quadrant d)

[Figure 4 here]

The contribution of regional-specific factors is shown in Figure 5. This component measures the extent to which a region’s industries are growing faster or slower than those same industries nationally. It is often referred to as the “regional competitiveness” effect (though the meaning of regional ‘competitiveness’ is not straightforward—see Kitson et al., 2004). It is not surprising, therefore, that the three large regions with very positive results (Lombardy, Veneto and Lazio), are also the most resilient regions over time (see figure 2).

More specifically, Lombardy after a downturn between 1970 and 1980, has seen a positive trend for the remaining period, with a stagnation phase since the mid-2000s. Veneto has had a positive trend throughout the period studied, not affected even during periods of recession. Lazio region instead had a significant growth phase between the early and mid 80s, then after a period of stagnation has begun to grow at a steady rate from 2000 onwards. Among the regions of the South (except Sicily), all regions have seen a progressive decrease, expanding the competitiveness respect to the Central-northern regions.

[Figure 5 here]

During the period 1970-2011 a marked shift of employment out of production industries into services has occurred in all of the major regions of the country. Table 5 shows the Local Quotient and the percentage of employment in industry and services sectors in the last years of recession periods. Lazio is the region most highly specialised in the service sector. This as repeatedly pointed out earlier, has allowed it to better mitigate the crisis. Especially since 2000, with the digital age and globalization, the service sector has become crucial to maintaining competitiveness in relation to other areas of the globe. The other richer regions of the country (e.g. Lombardy, Veneto, Emilia and Tuscany), have maintained a mix of industry and the services sector. The case of the Piedmont region is emblematic. It is the seat of most important Italian automotive company (FIAT). In the eighties, during the boom years of the automotive industry, this region was among the richest of Italy, while in the last decade the crisis in the automotive industry has coincided with the decline of the region. This situation remember the story of Detroit (seat of Chrysler and GM, in crisis during the nineties and two thousand) in the U.S. (Crandall , 2009; Ryan and Campo, 2013). Very often the regional specialisation in a specific industrial sector is an advantage during the periods of economic growth, but at the same time it can become a disadvantage in time of crisis of that one. Italy has always been a country with a dual economy, traditionally divided between the core (mass) industrial North (Piedmont, Lombardy, Liguria) and a sluggish and agricultural South. The northern industrial system has always been based on small and medium-sized manufacturing enterprises, organised in industrial districts at the local level and specialised in one or more phases of a production process. This organizational system has long been a factor in the competitiveness of the regions of the North. However today, with competition from countries such as China and India (where the labor cost is much lower), the manufacturing system is in crisis. Only firms that export are able to compete on international markets. Investment in human capital and in the services sector are therefore crucial for the country.

[Table 5 here]

4 The North - South divide in Italy

The large socio-economic divide in Italy has been widely analysed in previous studies (Viesti, 2003; Rossi, 2004; Guerrieri and Iammarino 2007; Gonzales, 2011), which have stressed the significant differences between the different areas of the country. Italy is broadly divided into two, with a heavily industrialised North that includes the regions of Lombardy and Veneto that have high economic output, resulting in a per capita income that is among the highest in Europe. Whereas the southern regions, with economies heavily dependent on agriculture and that are in some ways more similar to the economies of North Africa than the rest of continental Europe. This massive divide became all the more important following the recent economic crisis, which amplified the differences and made the so-called "*Questione Meridionale*" a focus of political and academic debate.

Figure 6 shows the differences in employment growth between northern and southern regions. It appears clear that since the end of the 1970s the two macro-areas of the country have followed separate paths that perfectly parallel the gap that became increasingly evident in the wake of the most recent recession.

[Figure 6 here]

Figure 7 shows the differences between North and South in terms of GVA per capita (part a) and Total Employment (part b) during the last recession. As can be clearly seen in the change in colour, Italy is currently broadly divided into two parts: the northern regions have a GVA per capita and Total Employment that are much higher than the southern regions, with peaks in the "historically" wealthiest areas, such as Lombardy, Veneto and Emilia Romagna. Instead, southern regions such as Campania, Calabria, Puglia and Sicily have values much lower than average, up to 40% lower than those of the North. Moreover, in Italy, unlike other European countries, the crisis also resurged in 2012 and 2013, following a brief recovery in 2011, leading to dramatic unemployment rates and imposing a migration to the northern regions and foreign countries (ISTAT, 2013).

In recent years even the massive European funding in Objective 1 regions, seem to have not had the desired effects. The process of convergence has been very slow and the gap has remained almost unchanged over past years. Over

the past twenty years, Italy had no common industrial policies. Each region has independently developed its own development policies. However, in the medium term these development strategies have not generated the expected results. Many European resources have been wasted or unused. Joint regional policies are critical to the country's growth.

[Figure 7 here]

In Italy, realigning the growth paths of the North and South appears to be crucial for the future. This large gap between the two areas of the country has produced for a long time (and today, substantially increased after the recent crisis) strong labour migratory flows towards the North or abroad (Biagi et al. 2011). This problem is associated with the worrying phenomenon of "brain drain", which every year sees thousands of young people with a high education migrate to the northern regions or to foreign countries, weakening the human capital of the southern regions. Viesti (2005), Fratesi and Percoco, (2014) found that these migrations are reducing the quality of human capital in the southern regions, adversely affecting the regional growth. These large differences have also repercussions in terms of infrastructure, services, and therefore income inequalities. Placing "the Questione meridionale" at the top of the government's agenda then would not only benefit the southern regions, but it could also ensure growth throughout the country.

5 Conclusions

The recent economic crisis has returned the issue of unbalanced growth in the regions of individual states to the centre of the political and academic debate. This phenomenon is the most apparent in Italy, which has always been characterised by a dual economy with a highly industrialised North that has employment rates and per capita income that are approximately 40% higher than the southern regions. The causes of this gap are historical and sociological. The presence of organised crime and a substantial shadow economy have consistently hampered growth in the southern regions. There are clear gaps in terms of infrastructure (trains, airports, digital divides). The system of high speed trains is present only in the North-Central regions (except Salerno). In the

second and, particularly in the last recent recession of 2008-2010 (which continues in Italy in the period after), the widening in the gap between the North and the South appears evident. The especially dramatic values observed for the youth unemployment rate, which reached nearly 40 percent, are generating strong generational differences and some severe cases of intolerance and rioting in the population. Policies for new public investments able to fill the gaps in infrastructure and resources that make the divide in the country are clearly necessary. Moreover, each year approximately one million people move from the southern to the northern regions (ISTAT, 2012), thereby also reducing human capital stocks in the southern regions. Even in retrospect, it appears clear that for Italy cannot return to sustainable growth without placing the reinvigoration of the southern regions on the agenda in the form of a programme of investment and resources to revive not the South alone but the entire country. The experience of the 1970s, which witnessed a boom in the Italian economy capable of generating an "economic miracle" that allowed for the country to catch-up to the more advanced economies, and this miracle coincided with a significant phase of convergence between the two areas of the country. The main policy agenda of the past (1960s and 1970s), with the "Special funding Plan for the Development of the Mezzogiorno Area (Byrne et al., 2009), was oriented towards increasing the amount of industrial investment through financial assistance in public firms. During this period the southern regions experienced a period of strong expansion which allowed a convergence in term of employment and output with northern regions (De Stefanis and Sena, 2005). However, the end of public investment coincided with a slow decline and the re-emergence of a considerable increase of the gap in employment and value added. One of the main problems of the Italian economy is the low level of productivity. The increase in productivity is considered a key factor to sustain long-term growth. In the era of globalization, today more than in the past, to invest in research and innovation is crucial to guarantee high wages and maintain a technological advantage over other countries with low labor costs. The loss of skilled human capital is a factor particularly problematic, as it reduces even more the productivity of companies (particularly in the South with fewer skilled workers). This suggests that reducing the gaps between the North and South of Italy has the potential to generate the highest and most sustained growth path. Without reducing these gaps, the catching-up process is doomed to fail.

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Tables and Figures

Table 1 Resistance indices of Relative Employment Contraction in Three Downturns

	1970-1973	1992-1995	2008-2010
Piedmont	-2.13	0.10	-0.10
Valle d'Aosta	3.07	-0.85	0.66
Lombardy	0.93	-0.01	-0.08
Trentino-Alto Adige	3.98	0.15	1.19
Veneto	0.37	0.55	0.55
Friuli-Venezia Giulia	-3.76	0.22	-0.07
Liguria	0.31	-0.78	0.31
Emilia-Romagna	-1.27	0.51	0.19
Tuscany	-2.21	0.31	0.45
Umbria	-4.49	-0.05	-0.15
Marche	-2.43	0.32	0.71
Lazio	2.45	0.15	0.27
Abruzzo	4.76	0.08	-0.50
Molise	0.41	-0.09	-0.14
Campania	-0.99	-0.31	-1.13
Puglia	5.42	-0.51	-0.65
Basilicata	-0.37	0.34	-0.70
Calabria	-2.17	0.39	-0.34
Sicily	-2.75	-0.87	0.02
Sardinia	-0.53	-1.08	-0.06

Source: Calculated from Prometeia dataset.

Table 2 Recovery indices of Relative Employment after recessions

	1973-1991	1995-2007
Piedmont	0.53	0.83
Valle d'Aosta	1.66	0.91
Lombardy	1.20	1.11
Trentino-Alto Adige	1.61	1.18
Veneto	1.19	1.18
Friuli-Venezia Giulia	0.58	0.63
Liguria	0.38	0.55
Emilia-Romagna	0.86	1.14
Tuscany	0.98	0.99
Umbria	0.99	1.45
Marche	0.43	1.09
Lazio	1.84	1.73
Abruzzo	1.15	0.57
Molise	0.21	0.93
Campania	0.77	0.67
Puglia	1.10	0.53
Basilicata	0.11	0.69
Calabria	0.70	0.48
Sicily	0.76	0.80
Sardinia	1.83	0.93

Source: Calculated from Prometeia dataset.

Table3. The composition of employment change in recession

	1970-1973			1992-1995			2008-2010		
	Manufacturing	Construction	Services	Manufacturing	Construction	Services	Manufacturing	Construction	Services
Piedmont	-0.90	-5.23	2.60	-2.65	-7.83	-0.39	-13.99	-2.31	-3.08
Valle d'Aosta	1.44	-0.05	2.81	1.44	-0.05	-3.41	-17.02	-18.47	-2.56
Lombardy	0.59	-5.75	2.46	-5.14	-6.02	-0.90	-13.04	-7.52	-0.08
Trentino-Alto Adige	3.63	-3.62	3.31	-7.48	-11.89	-1.47	-0.59	-5.44	1.68
Veneto	-0.36	-8.37	5.09	-0.88	-0.88	-0.95	-14.99	-2.28	1.51
Friuli-Venezia Giulia	-2.11	-13.18	5.16	1.77	-11.36	-2.70	-4.08	-8.19	-4.13
Liguria	-0.62	-3.91	2.82	-12.55	-8.01	-6.57	-8.85	8.37	-2.52
Emilia-Romagna	-0.95	-5.36	3.34	-0.41	3.57	-0.44	-6.12	-11.73	-1.89
Tuscany	0.02	-3.81	3.92	-4.36	-10.98	-1.01	-19.18	7.22	1.71
Umbria	2.22	-6.11	6.05	-11.77	-14.65	1.09	-12.46	2.37	-0.66
Marche	-0.50	-13.21	6.46	-2.25	1.41	-0.23	-10.86	10.90	1.25
Lazio	-0.41	-7.03	5.72	-8.57	3.73	-4.01	-4.94	2.54	-1.24
Abruzzo	0.35	-3.30	5.23	-0.47	2.82	-2.70	-14.52	-9.63	-6.94
Molise	1.55	1.75	5.27	-3.75	-17.77	-4.04	-3.21	-6.87	-4.21
Campania	-5.60	-2.59	4.89	-9.47	-4.82	-4.45	-8.75	-20.68	-4.12
Puglia	7.20	8.03	-0.13	-12.82	-13.07	-6.61	-14.48	-3.39	-3.84
Basilicata	-7.30	-6.42	9.45	22.52	-16.25	-4.55	-8.48	1.88	-6.79
Calabria	-21.11	-15.67	12.08	-6.95	-5.11	-3.05	-12.21	-1.09	-4.68
Sicily	0.05	-1.07	0.23	-9.52	-17.69	-3.77	-9.48	-11.53	-0.37
Sardinia	1.28	-1.57	2.16	-16.41	-14.02	-6.33	-7.27	-11.51	-0.73
Italy	-1.08	-4.82	4.45	-4.49	-7.44	-2.82	-10.23	-4.37	-2.08

Source: Calculated from Prometeia dataset.

Table 4. Percentage of civil servants and temporary employees in Italian regions (2008-2010)

	% civil servants	% Temporary Employees
Piedmont	5.01	11.57
Valle d'Aosta	9.31	12.07
Liguria	6.1	11.88
Lombardy	4.17	9.09
Trentino Alto Adige	7.19	15.14
Veneto	4.63	10.39
Friuli-Venezia Giulia	6.76	12.08
Emilia-Romagna	5.19	12.95
Tuscany	5.62	14.02
Umbria	5.51	14.43
Marche	5.27	13.35
Lazio	6.9	10.59
Abruzzo	5.37	12.85
Molise	6.22	12.46
Campania	5.21	13.50
Puglia	5.23	18.98
Basilicata	5.54	15.65
Calabria	5.92	20.77
Sicily	5.49	18.96
Sardinia	6.29	16.94
Italy	5.36	12.76

Table 5. Regional dependence on Manufacturing and services industries (percent of total employment and location quotient)

	1973 % (LQ)		1996 % (LQ)		2010 % (LQ)	
	Manufacturing	Services	Manufacturing	Services	Manufacturing	Services
Piedmont	39.29 (1.37)	38.86 (1.30)	29.79 (1.11)	57.59 (0.85)	21.44 (0.92)	67.06 (0.98)
Valle d'Aosta	18.81 (0.66)	51.29 (0.51)	11.79 (0.53)	70.34 (1.12)	12.33 (1.12)	72.57 (1.06)
Liguria	43.50 (1.52)	42.75 (1.38)	31.56 (1.33)	58.02 (0.94)	29.90 (0.93)	65.85 (0.96)
Lombardy	19.58 (0.68)	54.09 (0.72)	16.54 (0.87)	66.22 (1.18)	22.15 (1.06)	69.11 (1.01)
Trentino A.A.	36.16 (1.26)	39.59 (1.40)	32.14 (1.43)	54.59 (0.87)	34.19 (0.87)	60.50 (0.88)
Veneto	28.81 (1.01)	49.68 (1.12)	25.78 (1.21)	62.32 (1.09)	23.63 (0.99)	67.40 (0.98)
Friuli V.G.	21.30 (0.74)	62.32 (0.57)	13.1 (0.61)	76.25 (1.37)	11.01 (1.22)	76.35 (1.11)
Emilia-Romagna	31.24 (1.09)	43.48 (1.22)	28.01 (1.33)	57.44 (0.95)	29.42 (0.92)	63.69 (0.93)
Tuscany	33.36 (1.17)	45.51 (1.15)	26.25 (1.01)	62.86 (1.00)	22.55 (1.00)	69.34 (1.01)
Umbria	29.81 (1.04)	35.73 (0.95)	21.86 (1.03)	61.51 (0.78)	23.19 (0.98)	68.39 (1.00)
Marche	30.73 (1.07)	37.19 (1.36)	31.25 (1.56)	55.25 (0.81)	32.32 (0.88)	59.11 (0.86)
Lazio	15.12 (0.53)	63.04 (0.48)	11.02 (0.45)	78.05 (1.38)	12.58 (1.24)	81.04 (1.18)
Abruzzo	24.19 (0.85)	33.12 (1.00)	22.89 (1.16)	57.87 (0.73)	23.94 (0.92)	61.98 (0.91)
Molise	13.74 (0.48)	29.57 (0.76)	17.33 (1.03)	56.63 (0.65)	19.10 (0.90)	61.10 (0.89)
Campania	18.98 (0.66)	45.69 (0.67)	15.41 (0.61)	67.88 (1.00)	11.51 (1.08)	74.14 (1.08)
Puglia	19.62 (0.69)	49.64 (0.75)	17.16 (0.76)	61.86 (1.09)	15.03 (0.99)	65.96 (0.96)
Basilicata	13.83 (0.48)	30.41 (0.72)	16.46 (0.82)	56.89 (0.67)	14.16 (0.91)	62.50 (0.91)
Calabria	11.10 (0.39)	41.99 (0.39)	8.85 (0.45)	65.03 (0.92)	8.87 (1.04)	67.73 (0.99)
Sicily	14.24 (0.50)	50.79 (0.46)	10.48 (0.51)	70.50 (1.11)	9.97 (1.12)	74.38 (1.09)
Sardinia	15.07 (0.53)	51.16 (0.51)	11.61 (0.57)	68.37 (1.12)	13.22 (1.09)	74.61 (1.09)

Figure 1: Total Employment in Italy (1970-2011)

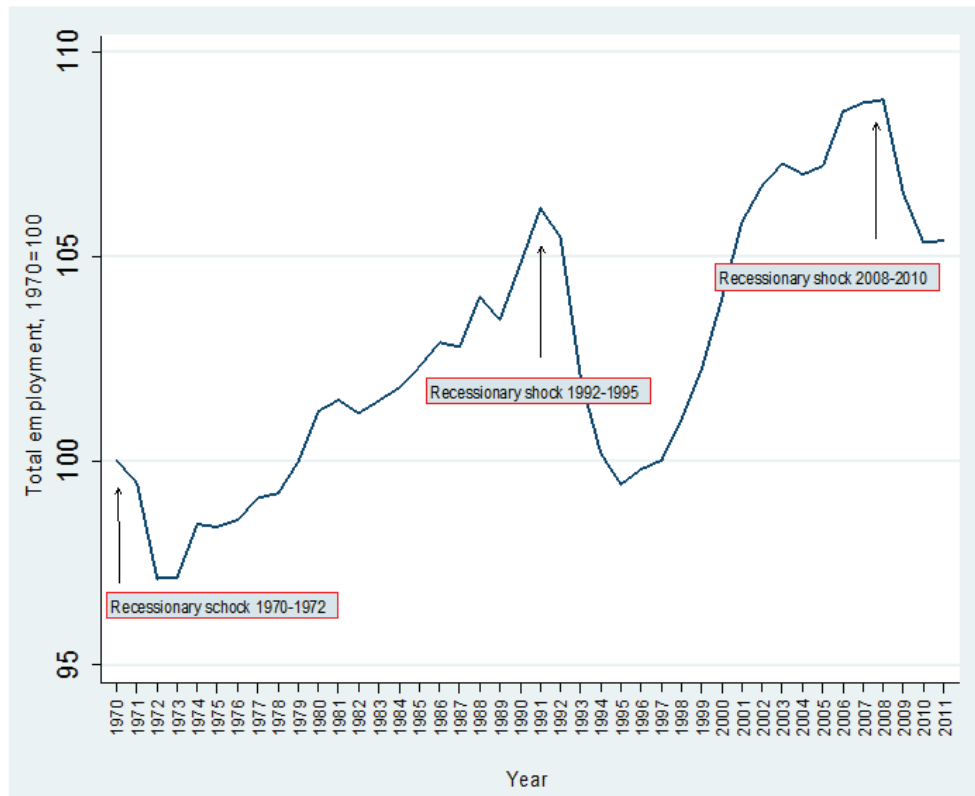
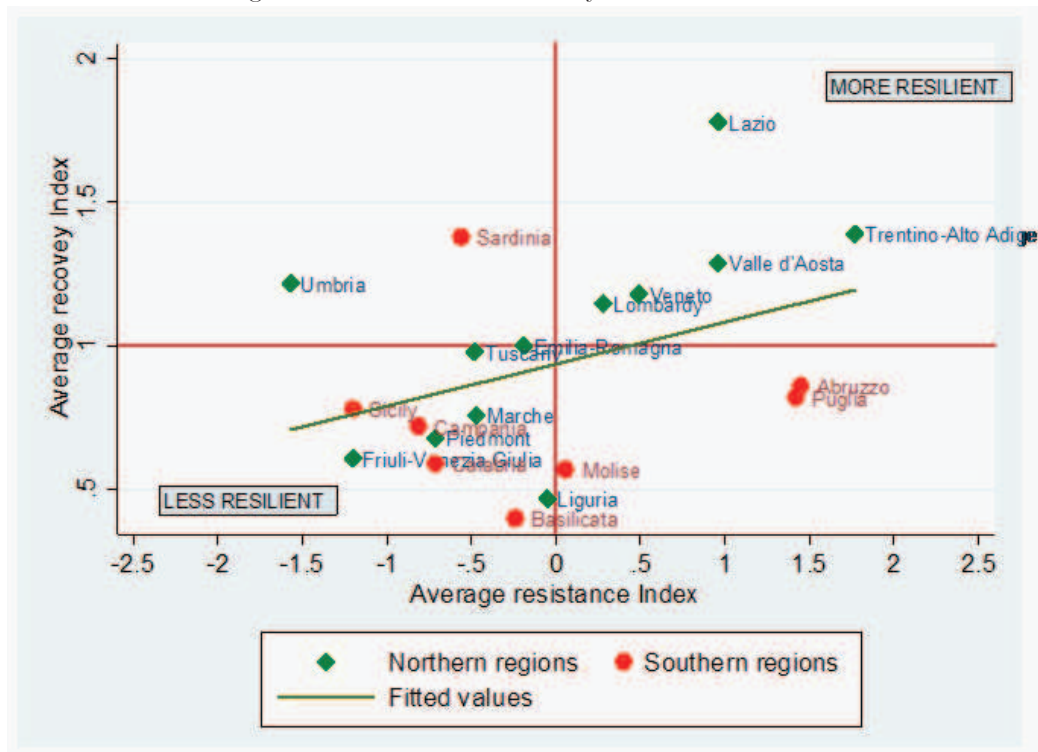


Figure 2: Resistance vs Recovery index



Note: Average Resistance index computed on three recession periods (1970-1972), (1992-1995), (2008-2010). Average Recovery index for two post-recession period (1973-1991), (1996-2007).

Figure 3: National share, Italy NUTS1

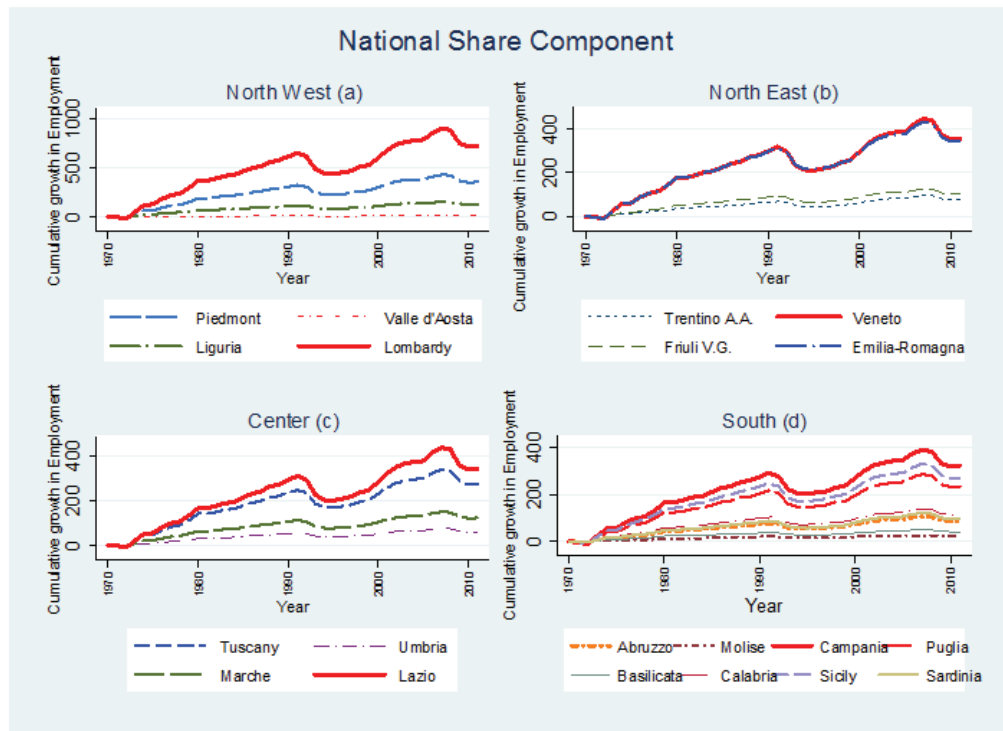


Figure 4: Industry Mix, Italy NUTS1

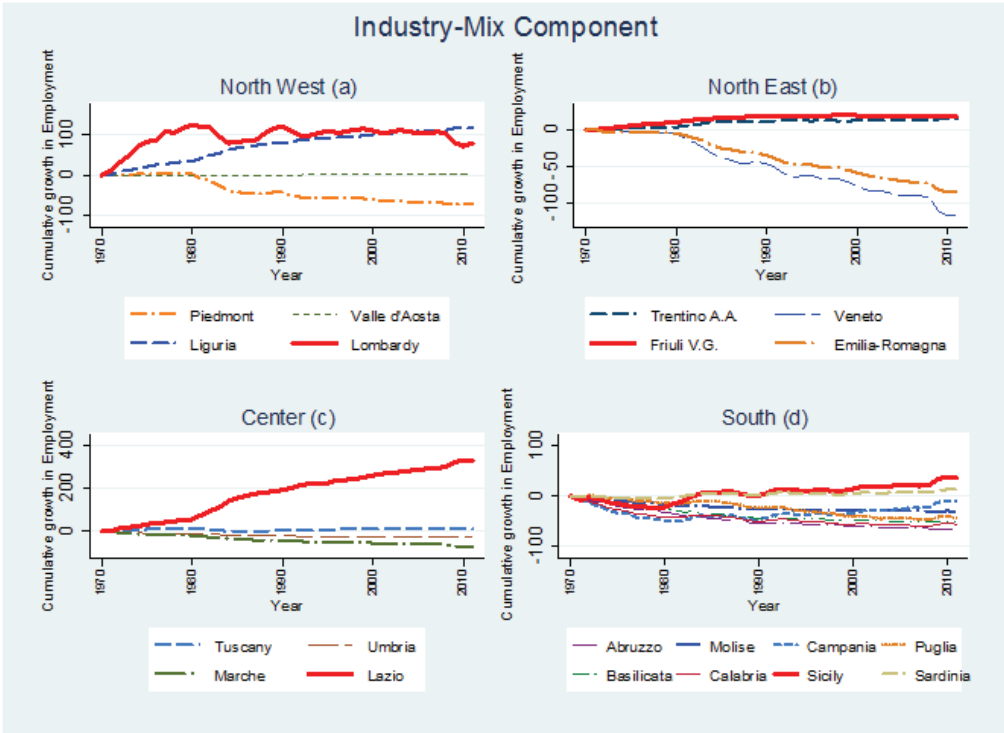


Figure 5: Regional Shift, Italy NUTS1

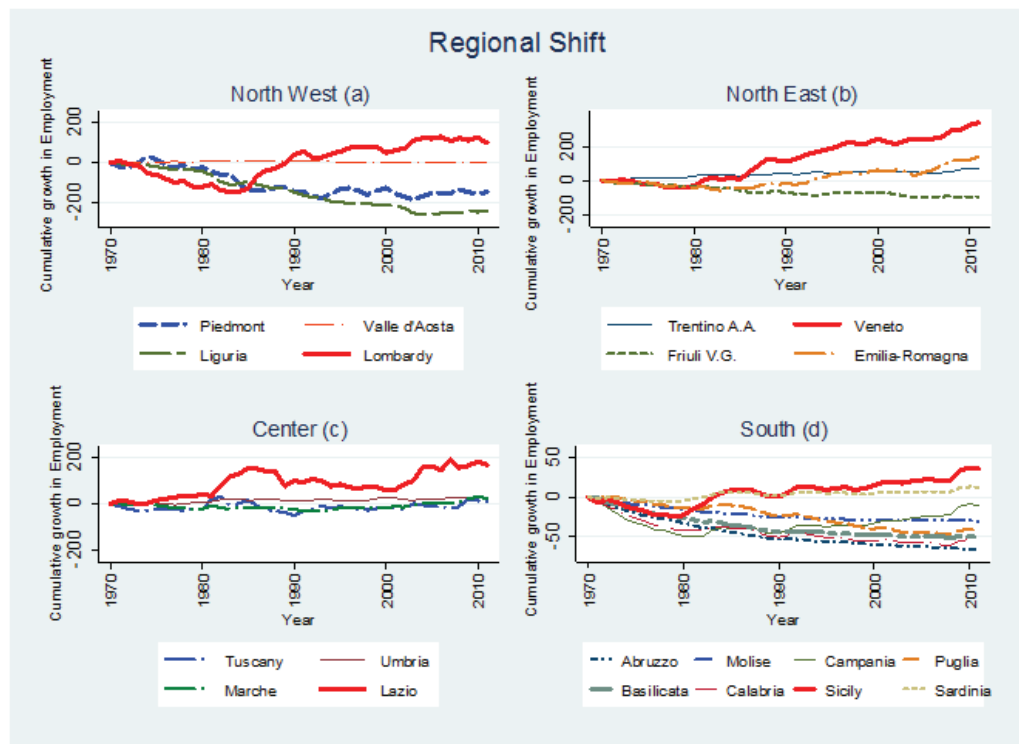


Figure 6: Total Employment in North-South (1970-2011)

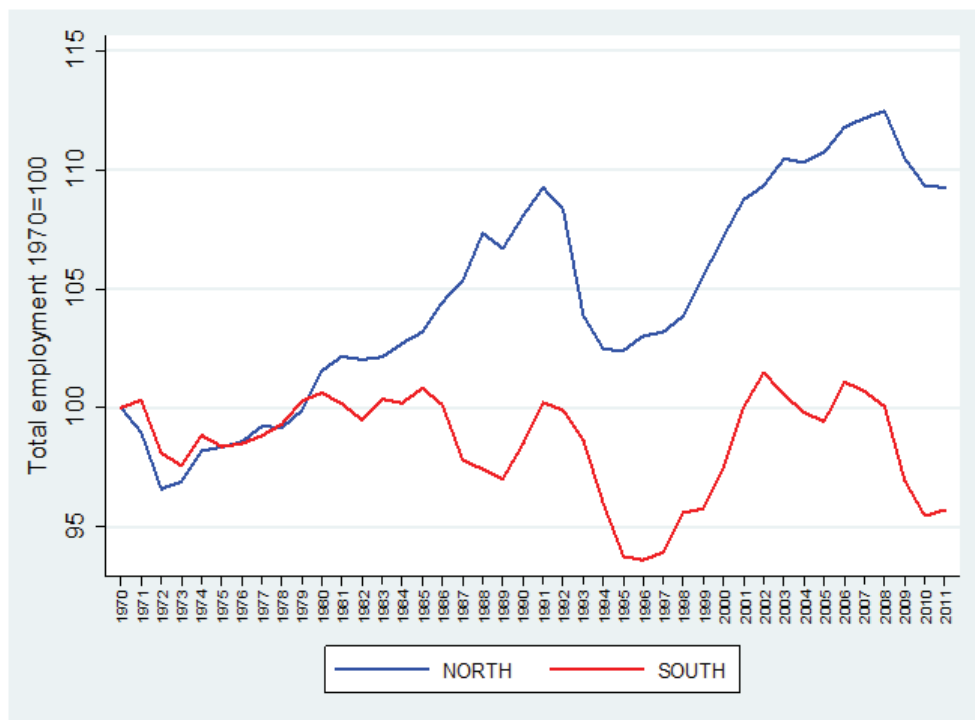
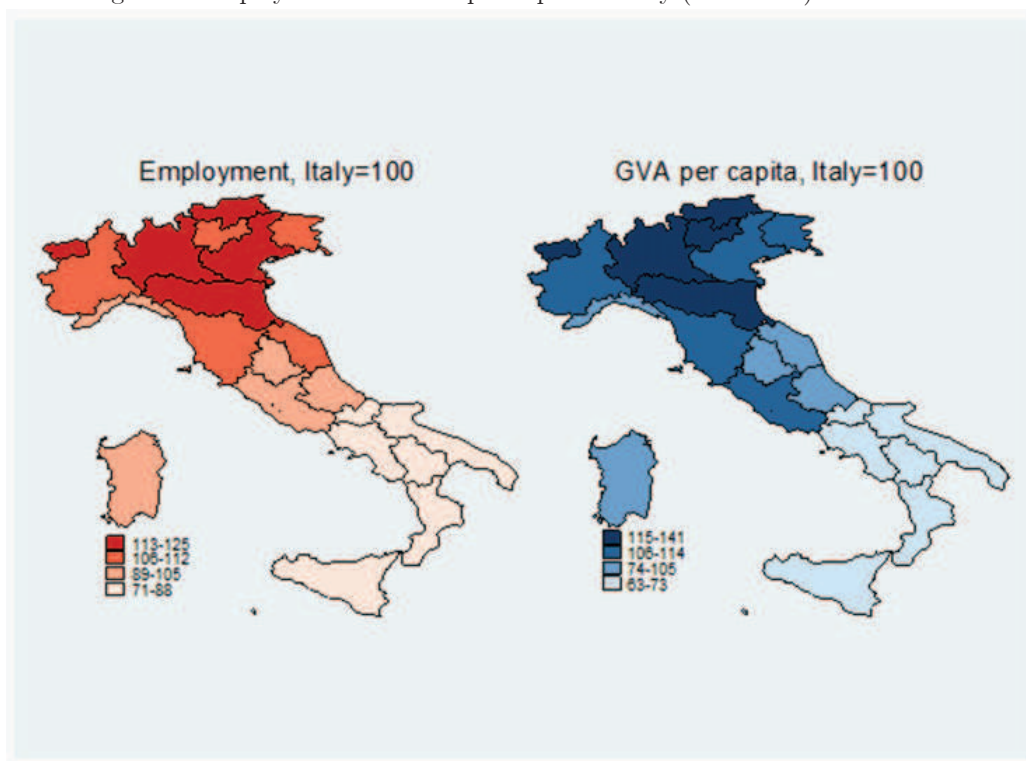


Figure 7: Employment and GVA per capita in Italy (2008-2010)



Total Employment Italian regions (1970-2011)

