After crisis scenarios for Europe: alternative evolutions of structural adjustments

Roberta Capello and Andrea Caragliu

ABC Department, Politecnico di Milano, Piazza Leonardo da Vinci, 32, 20133 Milan, Italy, roberta.capello@polimi.it, andrea.caragliu@polimi.it

Structural adjustment in the European Union emerged as the result of the 7-year crisis, providing risks and opportunities to national and regional economies. The effects that these structural changes will generate are difficult to be foreseen. This article builds after-crisis scenarios for Europe on the basis of alternative evolutions of these structural changes. On the basis of a regional forecasting model (MASST3), the article presents two opposite scenarios: the 'place-based' competitiveness' and the 'social cohesion' one. Results unexpectedly show that the place-based competitiveness scenario achieves both the highest Gross Domestic Product (GDP) growth rates and the lowest increase in regional disparities.

Introduction

Over the last few years, the world economy has undergone a period of severe economic downturn, the worst since the end of World War Two (WWII). The relevance of the effects of the present economic crisis is clear, and is supported by remarkable evidence in the negative trends affecting basic macroeconomic indicators such as GDP, employment, consumption and investment growth. This applies to the whole European Union (EU), although the impacts of the crisis are strongly differentiated and large differences in this respect hide behind the average European trend.

While the significant impact of the crisis is an established result, less common-knowledge is the fact that the crisis has now induced responses by the EU economies, in the form of structural changes in the economic systems in both Western and Eastern countries. They are not univocally for the worse, since they may represent a potential asset for the future growth patterns of EU regions when the associated advantages are higher than the costs. Before the crisis, for example, Central and Eastern European Countries (CEECs) were characterised by fast convergence in GDP and productivity levels, because of faster growth rates with regard to (w.r.t.) the EU15 economies (Dell'Anno and Villa, 2013);[1] the competitiveness behind such fast growth rates was mainly due to low labour costs, which thus attracted foreign direct investment, thus ultimately fostering convergence towards Western EU levels of GDP. The crisis years have already

altered this trend (Capello et al., 2014b); cost competitiveness seems to have partially vanished (and bound to further worsen, because of the faster catch up of salaries in new member states w.r.t. EU15 countries); together with changes in the rhythms of innovation adoption that took place during the crisis, the increase in relative fac-tor prices affected the convergence trends among EU economies.

However, this is only one of the many possi-ble examples of the ongoing structural changes. The limited resources for public expenditure in the EU[2] calling for a deep revision of public expenditure allocation criteria in several countries, and limiting Keynesian growth mechanisms (with a concentration of the fewer public resources in strong areas of the Countries) are another example in this respect.

The reactions by economic systems to turbu-lence have an additional awkward characteris-tic; macroeconomic policies and strategies are, in the common beliefs, interpreted as space-invariant. However, they exert quite different effects in different regions of the same country, exacerbating or reinforcing intranational convergence trends (Camagni and Capello, 2015).

A scenario exercise is helpful in raising awareness of the consequences of the different reactions to the crisis. Especially for CEECs, the way in which economies adjust to the crisis might imply a change in the rhythm of convergence path towards Western economies.

The aim of the present article is therefore to build after-crisis scenarios on the basis of alter-native trends that the responses to the crisis might follow.

The methodology applied to build the scenar-ios is neither that of a pure forecast nor that of a pure foresight. Our approach can be defined as a *quantitative foresight* in that it is the result of three major steps. The first involves scenario building, whereby an image of the future is con-structed on the assumption that a discontinuity will emerge in the main elements or driving forces that influence and regulate the system. The second step is to include these changes into

a model of structural relationships that in a tra-ditional manner links conditional (explanatory) variables and the dependent variables. The qual-itative assumptions of the first-step procedure are then translated into quantitative ones, which link the expected driving forces to specific values of the model's independent causal variables. The third step involves a simulation procedure lead-ing to a 'conditional' forecast of the dependent variables (Camagni and Capello, 2011; Capello et al., 2008; Chizzolini and Fratesi, 2008).

The first step is represented by the scenario building. In this article, a *reference scenario* will first be built, which cannot refer to the past decades as the crisis has already generated some structural adjustment strategies, as the next section will show with the use of recent statistical evidence: public administrations in several EU countries will have to face an ongoing revision of public expendi-ture criteria, and will have to cope in the long run with a constant reduction of the amount of public resources, concentrated in central areas, with a consequent increase of social costs. In particular, CEECs will have to cope with a continuous decrease of cost competitiveness, due to a loss of flexibility in macroeconomic policy tools because of the increasing integration into the EU.

The article will then build two extreme adjustment strategy scenarios, on the basis of opposite and alternative response to the crisis; *a place-based competitiveness scenario*, based on the assumptions of reinforcing competitiveness through the exploitation of local excellence, will be compared to a *social cohesion scenario*, built around the idea of limiting the social costs of the crisis. The first strategy of response would aim at handling the structural changes induced by the crisis as to orient them towards enhancing overall competitiveness, through the exploitation of local excellence and untapped resources. An utterly opposite strategy implies instead handling the same structural changes towards minimising the direct, short-run impact of the economic contraction in terms of social distress.

Both scenarios are thus built under the assumption of a conscious policy reaction to

the short-run and long-run consequences of the crisis that have been showing up soon after its inception. The aim of this exercise is thus not to compare a positive and a negative scenario; on the contrary, both scenarios have the same legitimisation to be supported by policy-makers. For this reason, the choice between the two alternative after-crisis scenarios is in abstract terms very difficult; and this is where a simulation exercise can be very useful.

The scenarios assumptions feed a macro-econometric regional growth forecasting model, the MASST3 model, recently updated and improved in order to formally model the effects of the crisis (Capello, 2007; Capello et al., 2008, 2014a).

Results unexpectedly show that the most positive after-crisis scenario for Europe is the place-based competitiveness scenario, whereby unexploited local growth potentials are tapped: in this way, both the highest aggregate growth rates, as well as the lowest increase in regional disparities are achieved. This is also true for CEECs, for which the capacity to invest in dispersed, unexploited local excellences, seems to be the best way to (re-) gain faster economic growth and enhance regional convergence processes.

Structural adjustments induced by the crisis

The economic crisis that began as mostly driven by the contraction of the financial industry in 2008–2009 (Helleiner, 2010) quickly extended to several real aspects of the EU economies (EU Commission, 2009). As a consequence, over these last 5 years, the most severe crisis to be recorded after WWII in Europe (The Economist, 2014) has engendered relevant effects that present a high degree of spatial and industrial heterogeneity.

The impacts of the ongoing crisis are so profound and diverse that they cannot be fully taken into account in one single empirical exercise. Table 1 aims at summarising the most

important recent structural changes experienced by EU economies as a response to the economic crisis. Not all changes are for the worse; these changes bring about also oppor-tunities that, once grasped, produce economic advantages. Table 1 presents the advantages and disadvantages that can be associated to each emerging tendency. Finally, each new trend is associated to a process of structural adjustment that can already be observed in real data. Each row in the last column will represent a building block for a reference scenario, that will be discussed in the next section.

By far the most striking trend recently affecting the EU economy is an increasingly limited availability of resources for public budgets (Table 1, first row). In order to provide Keynesian stimulus to deprived national economies, this prompted most EU countries to borrow money from financial markets, which in turn caused a remarkable increase in the stock of outstanding public debt. This process gave a halt to a decade of slow but progressive improvement of public finances in countries such as Italy and Spain. In the Euro area, the debt/GDP ratio increased from a bottom value of 58.9% (reached in 2007 and within the boundaries of the Maastricht criteria) to a zenith of 85.2% in 2012. In some EU coun-tries, the accumulation of public debt showed a disastrous pace: in Ireland, for instance, debt is now almost four times as high as in 2007 (see also Figure A1 in Supplementary Appendix 1). The accumulation of public debt has been so fast that the famous 90% threshold suggested by Reinhart and Rogoff (2010) has never been so close for the EU.[3]

The risks associated with this negative trend are numerous and clear. A contraction of public budgets constrains the freedom of policymak-ers, reducing the room available for fiscal and, more in general, Keynesian stimuli, threatening the quality of the Welfare State, and, more directly, causing a loss of jobs in both the public sector and the associated industries. A debt-driven aggregate demand also turned out to be

Table 1. *Recently emerging tendencies, risks, opportunities and structural adjustments for the EU.*

New tendency	Risks	Opportunities	Structural adjustments for the EU economy (reference scenario)
Limited resources for public expenditure in the EU	Lower Keynesian stimulus in EU areas	Revision of public expenditure criteria	Ongoing revision of public expenditure criteria in several EU countries
	Decreasing quality of welfare state (education, healthcare)	Public budgets more strictly under control (less profligate public expenditure)	Reduced amount of public resources
	Job losses		Concentration of the (fewer) public resources in strong areas in CEECs
Process of adjustment to the EU integration	Loss of flexibility in CEECs (no freedom on exchange rates, public expenditure, and other macroeconomic policy tools)	Financial stability and discipline in public accounts	Loss of cost-competitiveness in CEECs
		Integration in a larger market	
Decline in R&D budgets due to the fiscal and credit crunch and the growth slowdown	Loss of dynamic efficiency	Schumpeterian selection process of innovative actors	Concentration of the R&D resources in strong areas
Reshuffling of industrial specialisation patterns	Exposure to new competitors from new areas	Increase in economic potential and resilience	Reindustrialisation of sectors related to green economy technologies
Geographical reorientation of FDIs	Loss of economic potential for EU countries	Endogeneization of investment (less exogenously-driven growth process)	Loss of FDIs inflows into the EU

highly sensitive to the moods of the financial markets and this reason is widely responsible for the emergence and sudden explosion of the real estate and construction bubble. Global connectedness and the generalized financialisation of Western economies led to accelerated changes in the real economy, mainly through expectation channels, driven by global bench-marking on financial returns.

However, it must be acknowledged that these events have also engendered a new discussion on expenditure criteria, and have, more in general, elicited a new awareness of the need to spend public money more efficiently. In CEECs, besides, such renegotiation of expenditure criteria are also matched by an increasing concentration of the fewer public resources in core areas (Hermant-de Callataÿ and Svanfeldt, 2011).

A second major structural change which altered growth paths of CEECs in particular is the process of adjustment to the EU integration, which inevitably imposes a convergence trend in wages to the levels of the Western countries. This tendency inevitably generates a loss in price competitiveness that originally characterised Eastern countries. The possibility to devaluate during the crisis has only to a limited extent reversed the trend in real effective exchange rates (Figure 1; see also Figure A2 in Supplementary Appendix 1), but in the long run this is destined to increase again.

A different trend characterises instead real competitiveness indicators: in this respect, the picture offered by the EU after the inception of the crisis is way less pessimistic. In fact, despite the growth slowdown and the fiscal and credit crunch, EU R&D budgets have been
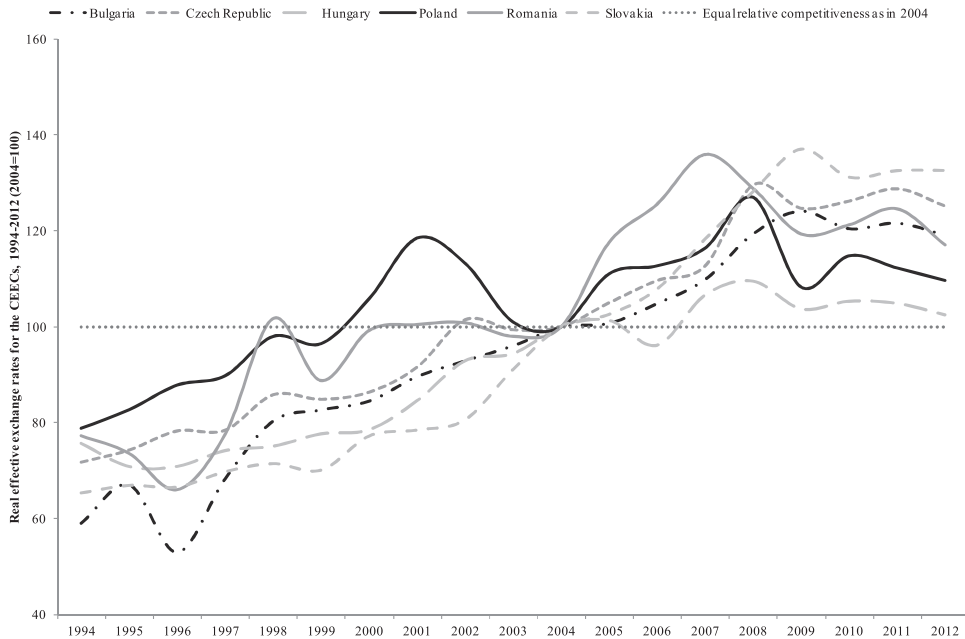
Figure 1. *Real effective exchange rates for selected CEECs, 1994–2012.*
Source: Authors' elaborations on EUROSTAT data. Base year = 2004.

steadily increasing since 2007. EUROSTAT data suggest in fact that after a relative decline between 2002 and 2006, R&D budgets have regained momentum both in absolute terms, as well as w.r.t. GDP (see also Figure A3 in Supplementary Appendix 1). However, what changes in this respect is the spatial distribution of R&D endeavour; during the early cri-sis years R&D investments increased fastest in regions that already presented a comparative advantage before the crisis, in a sort of research intensity *divergence* process.

A fourth and rather direct impact of the ongoing crisis revolves around the process of reshuffling of industrial specialisation patterns in EU regions. This recent evolution is made up of two components, viz. a long-run trend, that can be relatively stronger in CEECs, because of their relatively less advanced economic structure, and a short- and medium run effect directly induced by the crisis, which can enhance, or hamper, the long-run processes above identified. In this sense, while CEECs tend to be more specialised in relatively less knowledge-intensive industries (and in particular primary activities and construction), the EU15 lost some specialisation in more advanced sectors, to the (consequential) advantage of CEECs (see also Figure A5 in Supplementary Appendix 1).

A fifth and final major trend could, however, represent a major concern for CEECs, that so far thrived on the massive inflow of FDIs driven mainly by the remarkable cost-competitive-ness (in particular in terms of wages) of these areas (Hagemejer and Tyrowicz, 2012). Recent data suggest that this inflow may have been reversing, because of the second point above mentioned, viz. the worsening of cost competitiveness in CEECs. Many EU15 countries, that up to the beginning of the crisis preferred near-shoring in CEECs, are now looking for cheaper labour costs, and thus are increasingly looking at countries at the immediate borders of the EU (see also Figure A6 in Supplementary Appendix 1).

The adjustments of national economies to the crisis, especially in CEECs, are relevant. The way in which they will continue will mark the future of Europe and its territory. Once the reference scenario is built on the above trends, other alternative, and even opposite, scenarios can be created on the basis of different assumptions on how economic systems will respond to the crisis. In this article, this takes place through the choice of two alternative policy goals: to increase regional performance, in the scenario of place-based competitiveness, and to limit the social costs of adaptation to changes, in a scenario of social cohesion.

A methodology for quantitative foresights

The aim of a forecast is to obtain precise values of specific economic variables in the future, on the basis of extrapolations of a system of past socio-economic relations. Exactly because they extrapolate from past tendencies, forecasts yield the best results in a short-term perspective. The aim of a forecasting exercise is, in general, to achieve a quantitative value in a certain year, paying little attention to the intermediate path, or to the feedback and adjustment processes by which the end value is determined.[4]

Foresight is a radically different exercise. It is mostly qualitative in nature, and its aim is to provide an image of the future based on radical breaks, on structural effects which destroy past tendencies. A new technological paradigm, new socio-cultural models, new political regimes are all examples of structural breaks in the elements regulating an economic system which give rise to completely new and radically different images of the future. A foresight is a possible, probable and even desirable image of the future under the assumption that these events, or perhaps only one of them, will occur. Contrary to forecasts, foresights do not address the dynamic processes that will produce the final outcome; rather, they explore the general consistency of the final image by analysing all the adjustment processes that are likely to hap-pen. In general, a foresight is built on an image of what the future will look like (explorative projections), but also of what the future should look like (desirable projections). Foresight provides insights into the future based on a structural and radical break with the past, and assuming in general a long-term perspective (usually decades).[5]

The logic of our methodology is neither that of a pure forecast nor that of a pure foresight. Our approach can be defined as a quantitative fore-sight in that it is the result of three major steps. The first involves scenario building, whereby an image of the future is built on the assumption that a discontinuity will emerge in the main elements or driving forces that influence and regu-late the system. The second step is to include these changes into a model of structural relationships, called MASST, which in a structural manner links conditional (explanatory) and dependent variables (Capello, 2007; Capello et al., 2008, 2014a). The qualitative assumptions of the first-step procedure are translated into quantitative ones, thus linking the expected driv-ing forces to specific values of the model's inde-pendent causal variables. A detailed account of the quantitative assumptions for the design of the three scenarios in both the national and the regional MASST3 sub-models is available in Supplementary Technical Appendix 2. The third step involves a simulation procedure leading to a 'conditional' forecast of the dependent variables. The dynamic simulation procedure is fully deterministic; no random component enters this stage.

The aim is not to provide precise estimates of future GDP levels, but rather to highlight the main tendencies, major adjustments to change, relative behavioural paths that will be at work, given some conditional assumptions about the influence of the main driving forces.

Our quantitative foresight methodology relies on the MASST3 model, which is made of two parts: an econometric part, estimating the

structural relationships based on the past, and a simulation part.

The estimation part comprises two blocks of equations, one explaining national growth, and the other explaining regional differen-tial growth. The sum of the two provides, by definition, total or absolute regional growth (Equation 1):

$$\Delta GDP_{rt} = \Delta GDP_{nt} + diff_{rt} \qquad (1)$$

where ΔGDP_{rt} indicates regional GDP growth, ΔGDP_{nt} national GDP growth, and $diff_{rt}$ the differential shift of region r compared to its Country n, at any point in time t.

The MASST model has some distinctive fea-tures that differentiate it from other forecast-ing models (Capello and Fratesi, 2012). First, it features a mix of demand and supply-side ele-ments explaining regional growth at national and regional level. Second, it makes it possi-ble to simultaneously model competition and cooperation among regions. Third, it is a purely territorial model in which not only are regional growth spillovers modelled, but also the effects of variables are differentiated with respect to the settlement structure of regions.

Therefore, the estimation part of MASST model comprises a national and a regional sub-model. The national sub-model encompasses all national macroeconomic aspects, which are of paramount importance in a period of crisis like the present one. The regional sub-model, instead, explains competitiveness (supply side) aspects of growth, taking the territorial capital characteristics into consideration. The MASST model is in fact deeply rooted in endogenous development theories in which the competitiveness of an economic system depends on the presence of structural elements and on the ability of the economic system to cumulate them over time through endogenous and self-rein-forcing mechanisms. Among these elements, a role is given to both tangible and intangible ones. The two sub-models are not separate but instead interact, so that any shock affecting one or more regions impacts on the growth rates of their countries (and of the neighbour-ing regions through spillover effects), while any shock at national level impacts on regions of that country in a heterogeneous way on the basis of their own territorial capital elements.

The simulation procedure is based on seminal ideas about the driving forces of change and their (quantitative) impact on national and regional growth. In our meth-odology, the quantitative impact is obtained by including the change in the values of the variables representing growth drivers in a quantitative econometric model devel-oped for this purpose. In our analyses, the first year of simulation is 2013, and this is common to all scenarios. The output of the simulation procedure is represented by new values for the endogenous variables. These are calculated by the model at each run (that is, at each year end) using the equations with the estimated coefficients in the model.

The model includes overall 12 endogenous variables. All other variables are exogenous, thus representing levers used to produce dif-ferent scenarios. The methodology requires the identification o f t he q uantitative v alues for the exogenous variables representing the driving forces of change. Rather than an ad hoc procedure, which would require assigning a value to each variable for each geographi-cal unit in each year, a different and more synthetic procedure has been chosen. This involves identifying target variables (that is long-term values of the exogenous variables to which each initial regional and national vari-able will tend) on the basis of the following formula (Equation 2):

$$x_t = x_{t-1} + a(T - x_{t-1}) \qquad (2)$$

where x is the value of the exogenous ter-ritorial variable for a given region/country, T is the long run (target) value to which the variable converges and s is the speed of adjust-ment. A value of 1 in the speed of adjustment

implies an immediate adjustment (in 1 year) of the variable to its target. The target values can be the same for all geographical units, or they can be different for each geographical unit and entered as a vector, or, finally, they can be differentiated by regional/country typologies. Although the targets are mechanisms with implicit convergence, the structure of the MASST model ensures that the pattern of variables is different for each region and each country at the beginning of the simulation period as well as at its end. Although the quantitative assumptions on the target values of the exogenous variables of the model are subjectively defined, they respond to a very strict logic and to solid constraints. General consistency is required—and pursued—in the entire logical chain linking the general characteristics of each scenario to the potential trend in the main macroeconomic, technological

and social variables—our so-called 'driving forces' (Capello and Fratesi, 2010). For sake of transparency, the specific values of the 'driving forces' of our specific scenarios are reported in Supplementary Appendix 2.[6]

Scenarios of adjustments to the crisis

A reference scenario: stuck in transition

A reference scenario has first been built, with the aim not to merely extrapolate the conditions before the crisis. The new adjustment strate-gies undergoing in Europe will likely remain in the future; for this reason, the scenario can be defined a *stuck in transition* scenario.

In this section, all qualitative assumptions will be first discussed for the three scenarios (Table 2); each qualitative assumption will be

Table 2. *Qualitative assumptions for the three scenarios.*

Scenarios	Reference scenario	Alternative scenarios	
Structural adjustments	Stuck in transition	Place-based competitiveness scenario	Social cohesion scenario
Limited resources for public expenditure in the EU	Ongoing revision of public expenditure criteria in several EU countries	Different public expenditure criteria: concentration in medium-size cities, more oriented towards the private sector	Different public expenditure criteria: concentration in peripheral areas, more oriented towards the public sector
	Reduced amount of public resources Concentration of the (fewer) public resources in strong areas		
Process of adjustment to the EU integration	Loss of cost-competitiveness in CEECs	More integration of CEECs within the euro zone	Postponement of the integration of CEECs within the euro zone
Limited R&D budgets due to the fiscal and credit crunch and the growth slowdown	Concentration of R&D increases in strong areas	Increase in R&D resources, more oriented towards second-rank cities	Increase in R&D resources, more oriented towards peripheral areas
Changing specialization patterns	Homogenisation of speciali-sation patterns	Reindustrialisation of the EU	Growth in 'soft' industries (tourism, public administration)
Geographical re-orientation of FDIs	Loss of FDIs inflows into the EU	FDI incentives towards second-rank cities	FDI incentives towards peripheral areas

then linked to its quantitative translation, as reported in Table 3.[7]

Public administrations in several EU countries, especially southern European countries and Ireland, will face a revision of public expenditure criteria, and, in the long run, will have to cope with a constant reduction and concentration of the amount of public resources, with the consequent increase of social costs (EBRD, 2013). Moreover, because of the increasing integration into the EU, CEECs will need to address a continuous loss of cost competitiveness, due to a loss of flexibility in macroeconomic policy tools (devaluation of national currencies) (Table 2). This will trans-late into all countries satisfying stability pact criteria (60% debt/GDP and 3% deficit/GDP). Meeting the stability pact criteria will impose limitations to social welfare expenditures, and will consequently engender a decrease in social trust, especially in large and dense urban areas (Table 3).

A sustained increase in world demand will no longer be based on debt expansion in private demand in advanced countries, as happened in the recent past, giving rise to systemic risks and monetary bubbles not only in real estate markets. Other sources of aggregate demand must

Table 3. *Quantitative assumptions for the three scenarios.*

Scenarios	Reference scenario	Alternative scenarios	
Structural adjustments	Stuck in transition	Place-based competitiveness scenario	Social cohesion scenario
Limited resources for public expenditure in the EU	60% debt/GDP	60% debt/GDP Public expenditure concentrated in medium-size cities, and oriented towards the private sector	90% debt/GDP Public expenditure concentrated in peripheral areas, and oriented towards the public sector Higher taxes financing the higher public expenditures
	Decline of trust w.r.t. the past, especially in large and dense urban areas	Decline of trust w.r.t. the reference, but less in medium-sized urban areas	Increase of trust w.r.t. the reference, especially in less in peripheral areas
Process of adjustment to the EU integration	3%/4% interest rates on bonds for virtuous Western/ Eastern countries 4%/6% interest rates on bonds, respectively for vicious Western/Eastern countries	3% of interest rates on bonds all countries	4%/5% interest rates on bonds, respectively for virtuous Western/Eastern countries 5%/7% interest rates on bonds, respectively for vicious Western/Eastern countries
Limited R&D budgets due to the fiscal and credit crunch and the growth slowdown	Increase w.r.t. the past, especially in large city regions	Increase w.r.t. the reference, especially in medium city regions	Increase w.r.t. the reference in rural areas. Constant w.r.t. the past in all other regions
Changing specialisation patterns	Homogeneisation of manufacturing specialisation in Europe	Increase of employment in manufacturing sectors at European level	Increase of employment in tourism and public administration at European level
Geographical re-orientation of FDIs	Slowdown of FDI inflows growth w.r.t. the past	FDIs decrease in first-rank cities w.r.t. the reference	FDIs increase in rural areas w.r.t. the reference. Constant elsewhere.

be found, because the increase in imports by emerging, fast-growing economies will not be sufficient. Interest rates on bonds are therefore assumed to decrease in all countries, with dif-ferentiated targets according to the degree of the debt load of each group of countries (west-ern/eastern and vicious/virtuous). For what concerns R&D investments, past trends are confirmed in the reference scenario: an increase of R&D expenditures especially in large cities are assumed.

A visible process of de-specialisation in Europe has been taking place since the incep-tion of the crisis, and will remain strong in this reference scenario (Table 2); while EU15 coun-tries will keep losing jobs in the manufactur-ing industry, mostly because of off-shoring to CEECs, the latter will maintain their attractive-ness of medium and low-tech manufacturing plants, and will, additionally, remain on a track of positive growth of (advanced) service activi-ties (Table 3). As a result, a homogenisation of specialisation patterns across the EU will take place.

FDI inflows are expected to decrease with respect to the past, confirming the trends of European member states losing attractiveness.

All these structural adjustments take place within a framework of constant economic poli-cies, and of a halt in the crisis period in 2015. No major change will take place affecting the EU economy. In particular, no significant changes are assumed on the role of Europe in the world economy apart from the continuation of the present socio-economic trends which register a decline relatively to the emerging areas. Moreover, no major change is assumed in technology, so that no major technological leap will take place before 2030. Moreover, in the reference scenario no new policies are foreseen; in other words, European, national and regional policies will remain in the wake of current ones. The stability pact targets decided by the European Commission (3% of deficit/GDP) will remain the same. For national poli-cies, the various countries will try and maintain

the present effort towards balanced national budgets, with limited spending and infla-tion. Regional policies, especially those of the EU which are implemented in the model, are assumed to remain as they presently are. For instance, for EU cohesion policies, the effort and distribution will remain the same of the current programming period 2007–2013.

A scenario of place-based competitiveness

A scenario of place-based competitiveness is based on the willingness to achieve the com-petitiveness levels of the pre-crisis period. Competitiveness is interpreted as if depending on the exploitation of a hugely differentiated and scattered endowment of *territorial capital*, made up of natural and artificial specificities, varied settlement structures, cognitive and rela-tional assets at different degrees of complexity and development. All these elements—espe-cially those that are not yet fully or creatively exploited—represent the assets and potentials on which any development strategy should rely (Camagni, 2008). In fact, as today widely accepted by the most advanced literature on the subject, long-term development is largely a supply-side phenomenon. In this view, growth follows general rules and institutional frames, but above all is nourished by entrepreneurial capa-bilities of regions and places and by the local capacity to exploit existing resources efficiently. Therefore, local policies require a detailed knowledge of local resources and potentials, in line with the Barca (2009) Report and the Smart Specialisation approach (Coffano and Foray, 2014; McCann and Ortega-Argilés, 2011, 2014).

Modern territorial development policies are in this scenario designed with the aim to max-imise the returns to public investment, so to attract co-financement by private actors. The respect of the stability pact will lead to lower interest rate on public bonds in all countries, with a strong limitation in social welfare and a consequent decline in social trust, especially in strong areas.

This scenario is built on the idea that maximum returns to public investments are not reached through investment in strong areas, but through the capabilities of single policies to act on the specificities of each single area, of local actors to 'tap' and mobilise previously 'untapped' assets of territorial capital, and use them in the most efficient ways. The scattered geography of advanced economic activities, and in particular of advanced service sectors, has in fact been fostered by the emergence of nodes of transport and communication networks, allowing to relax the traditionally strong need of Knowledge Intensive Business Services to co-localise (Gallego and Maroto, 2015).

In fact, the possibility for any region to contrib-ute to the general EU growth strategy depends on the creative exploitation of its own assets of territorial capital, their preservation, completion and enrichment by setting appropriate priorities to local and regional policies. Thus, the aggregate development effects will be maximised, and at the same time the economic and social costs of an unbalanced development process kept under control, as suggested by theoretical reflections (Camagni, 2001; OECD, 2001, ch. 1 and 6).

In this scenario, the limited resources for public expenditure in the EU, due to the strong restrictions of the stability pact assumed to be met, are assumed to be re-directed towards medium-sized cities (Table 3), loci of most of the un-exploited potentials for growth, where agglomeration economies due to limited urban size can still produce growth advantages. Since attention is dedicated to competitiveness, a redistribution of public resources in favour of R&D and innovation measures, in particular those devoted to small and medium sized cities, will take place. This is particularly relevant in light of the debate about different productivity levels in service sectors, and the diversified picture of non-cost factors in determining long-run productivity growth (Visintin et al., 2010).

These policies will also favour productivity increases and therefore competitiveness; in CEECs, increases in productivity will be higher

than increases in wages, gaining competitive-ness and a re-launch of industry activities (Table 2). With the aim to boost productivity levels, EU15 countries will in their turn revert to a process of re-shoring (Camagni and Capello, 2011), bringing the currently ongoing process of deindustrialisation to a halt. The return to pre-crisis manufacturing specialisation pattern is also supportive of the role of specialisation, in particular in high-value-added industries, as means to re-ignite productivity growth (Piras et al., 2012).

The attention to second-rank cities in CEECs will have as a side effect an increase in their attractiveness for FDIs. Foreign investors will thus interpret a possible location in medium-sized cities as a strategic access to potentially growing markets, and this translates into faster growth rates of FDI inflows into second-rank areas (Table 3).

The macroeconomic framework of this sce-nario is similar to the reference scenario, except for the public expenditure growth rate; a lower availability of public resources characterises the scenario, with a corresponding decrease in tax rates. Re-industrialisation of some sectors is also facilitated by a lower interest rate and by higher private investments.

A scenario of social cohesion

The *social cohesion scenario* is based on a different policy goal; the aim is to limit the social costs that are associated with the crisis, without giving up economic modernisation. The sce-nario foresees social incentives to fight high unemployment rates, thanks to a relaxation of the stability pact, especially in terms of debt/GDP, and to keep the increase in wages in line with the increase in productivity levels, so to (re-) gain cost competitiveness. All this requires a political cohesion between policy-makers and trade-unions. Moreover, this scenario assumes the creation of employment opportunities in the public sector, the availability of public resources devoted to health and social ser-vices and for launching economic activities in

peripheral areas and modernising and exploiting their territorial assets; all these hypotheses support social cohesion.

In this scenario, higher public expenditure is distributed mostly in favour of rural areas (Table 3). A major role is in this respect played by service activities, in particular health and social services. Industrial activities per se have no reason for capturing the interest of policymakers. Instead, all industries related to tourism will have a possibility to expand, representing a good way for re-launching and modernising rural areas, through the exploitation of natural resources (mountains, forests, sea, rivers) and enhancing local identity, expressed through local handicraft activities, local food production and so on (Table 3).

R&D and related innovation activities (like the creation of broadband networks) will help the modernisation of activities in rural areas (Table 2), and for this reason the distribution of innovation expenditures will mostly take place in rural areas (Table 3). In this scenario, EU smart specialisation strategies will achieve their best, being able to identify the innovative technological domain of each region, that is the technological fields in which regions are specialised and to which regional policies should be tailored to promote local innovation processes (Camagni et al., 2014; Capello and Lenzi, 2013; McCann and Ortega-Argilés, 2014). In this scenario, regional policies are successful as

they are tailored to the regions' technological domains, also of rural areas, in order to promote local innovation processes in their fields of specialisation.

All the described tendencies assume a higher availability of public resources than in the reference and in the place-based competitiveness scenarios. The public expenditure growth rate inevitably increases, and, thus, public debt increases, which is partially financed through tax rate increases (Table 3).

Scenario results

Economic performance

Reference scenario results

This section discusses the results of the simula-tions of the MASST3 model both for the refer-ence scenario, as well as for the two alternative scenarios described in the 'Scenarios of adjustments to the crisis' section. The results in terms of average yearly GDP growth rates, and manufacturing, service, and total employment growth rates over the simulation period (2012–2030) are shown in Table 4.

The reference scenario allows for a mildly optimistic view on the future growth rates of the EU economy. Average yearly growth of GDP is equal to 1.84%, which is slightly higher than the average growth of EU15 countries (1.83%). The process of convergence would still

Table 4. *Scenario results by macro areas.*

Scenario	Reference scenario: stuck in transition			Place-based competitiveness scenario w.r.t. reference scenario			Social cohesion scenario w.r.t. reference scenario		
Variable	EU27	Old15	CEECs	EU27	Old15	CEECs	EU27	Old15	CEECs
GDP growth	1.84	1.83	1.90	0.49	0.50	0.34	−0.11	−0.12	−0.05
Manufacturing employment growth	1.55	1.63	1.25	0.52	0.56	0.35	−0.57	−0.64	−0.30
Service employment growth	1.54	1.45	2.20	0.43	0.43	0.45	0.05	0.06	−0.02
Total employment growth	1.54	1.48	1.89	0.45	0.45	0.35	−0.07	−0.07	−0.10

Source: Authors' elaborations.

be ongoing, with CEECs growing on average by 1.90% on a yearly basis.

The last two columns in Table 4 show a fur-ther breakdown of growth rates in terms of countries belonging to two subgroups, according to the depth of the public debt crisis in 2008–2010. Because these countries include several CEECs economies, interestingly growth rates are expected to be slightly higher for this group of countries.

Another element that emerges from the results lies in labour productivity growth. As can be inferred from the fact that GDP grows faster than employment (Table 4), the reference scenario suggests that growth in this scenario is mainly driven by labour productivity growth, in turn also due to the industrial composition of employment growth, with new jobs being cre-ated mostly in high value-added industries.

A further major element of interest in this sce-nario is the generally equilibrated growth of both manufacturing and service employment. In this sense, minor, but non-negligible, differences can be identified. While areas in CEECs tend to face a faster growth in service industries, that have so far been relatively under-developed, EU15 coun-tries face a process of re-industrialisation, whose seeds can already be identified in the presently ongoing structural changes induced by the crisis (on this point, see also 'Structural adjustments induced by the crisis' section). Moreover, growth seems to be productivity-led: employment growth is found to be lower than GDP growth, in particular in CEECs.

Figure 2 shows the spatial distribution of average GDP growth rates in EU regions. Darker grey shades indicate regions expected to achieve positive growth rates; the more intense the colour, the faster GDP growth is expected to be. On the contrary, textures in all their variations refer to regions whose GDP is expected to shrink.

The long-lasting effects of the currently ongoing crisis in peripheral countries are evident on the map. Several regions in Italy and Spain present only mildly positive growth rates; in

Greece, the large majority of regions achieve negative growth rates of GDP over the simula-tion period. Other countries initially affected by the debt crisis (noticeably, Romania) appear to slow down their convergence path. On the con-trary, a few areas in Central and Eastern Europe (Slovenia and Hungary, above all) represent major growth areas.

In the reference scenario, GDP grows par-ticularly strongly in agglomerated regions, fol-lowing the concentration trend that has been characterising EU economies over the last few years; this process is matched by a weaker (although equally intense) faster growth in employment, with the result of a remarkably higher-than-average growth of labour produc-tivity in regions hosting large metropolitan areas.[8]

Table 4, next, shows the results for the same indicators for the two alternative sce-narios, viz. the place-based competitiveness (i) and social cohesion (ii) scenarios.

Given the nature of the assumptions, described in the 'Scenarios of adjustments to the crisis' section, related to the possible bifur-cations Europe may face as a result of the crisis-induced changes, some of these findings follow straightforward; however, unexpected results also come after the simulation exercise.

Place-based competitiveness scenario results

In aggregate terms, the place-based com-petitiveness scenario turns out to be the most expansive among the three. GDP grows faster than the reference by half percentage point (over the 18 years period of simulation, this implies that by 2030 aggregate GDP in the first alternative scenario would be 13% higher than in the reference case).

In the place-based competitiveness scenario, growth takes place mostly because of fast productivity growth (Table 4).[9] Employment grows in fact more than in the reference case, but less than GDP, suggesting that the productivity-led growth phenomenon is even
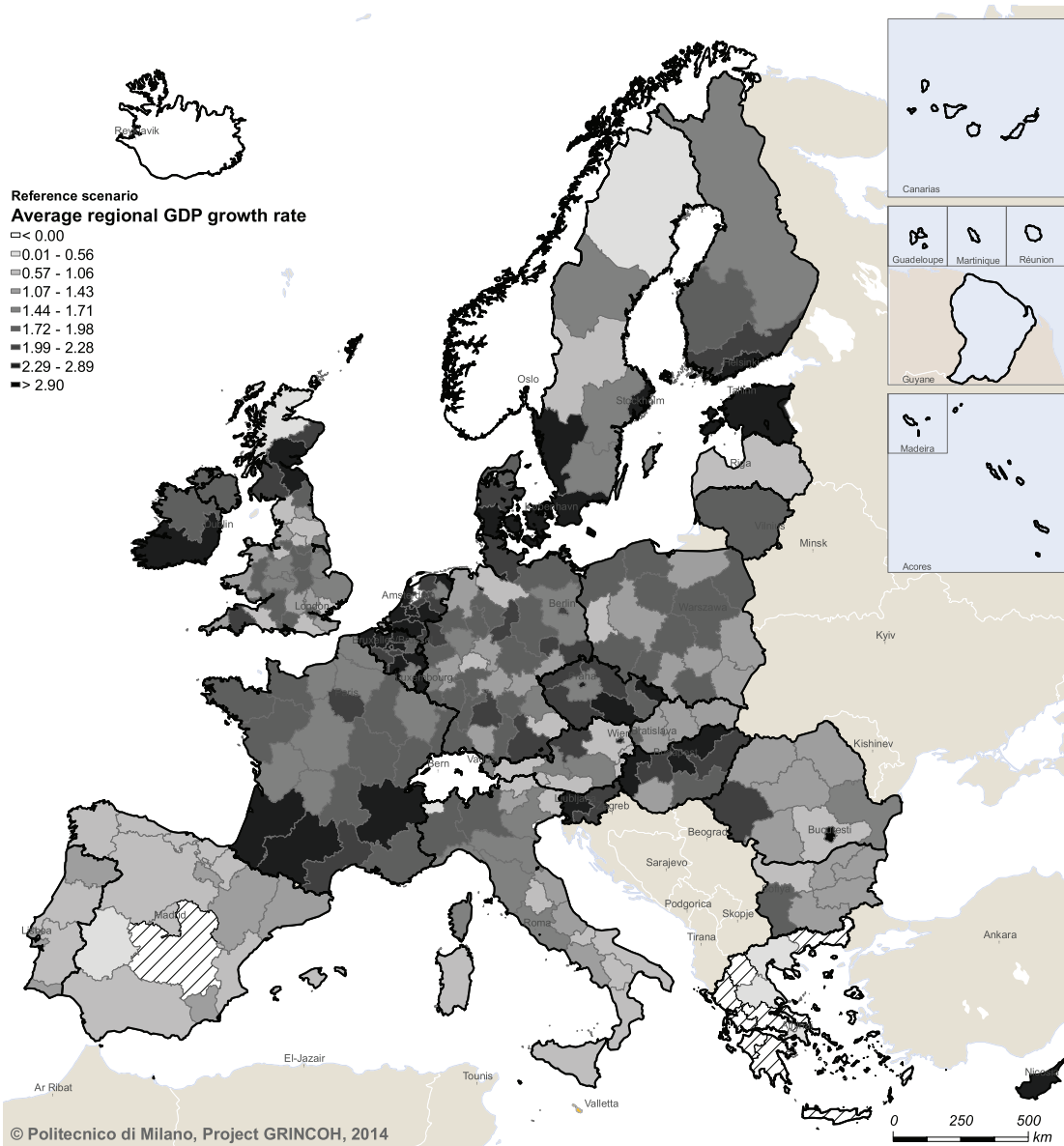
Figure 2. *Average regional GDP growth rate 2012–2030 for the reference scenario.*
Source: MASST3 results.

stronger than in the reference scenario. In the same vein, the place-based competitiveness scenario presents a rather balanced growth of employment, with a slight advantage for manufacturing employment in the EU15, and a relative faster growth for service employment in CEECs, with respect to the reference scenario. A scenario where all territorial excellences are exploited seems to give the expected positive effects.

Regionalised growth forecasts provide further evidence about the spatial distribution
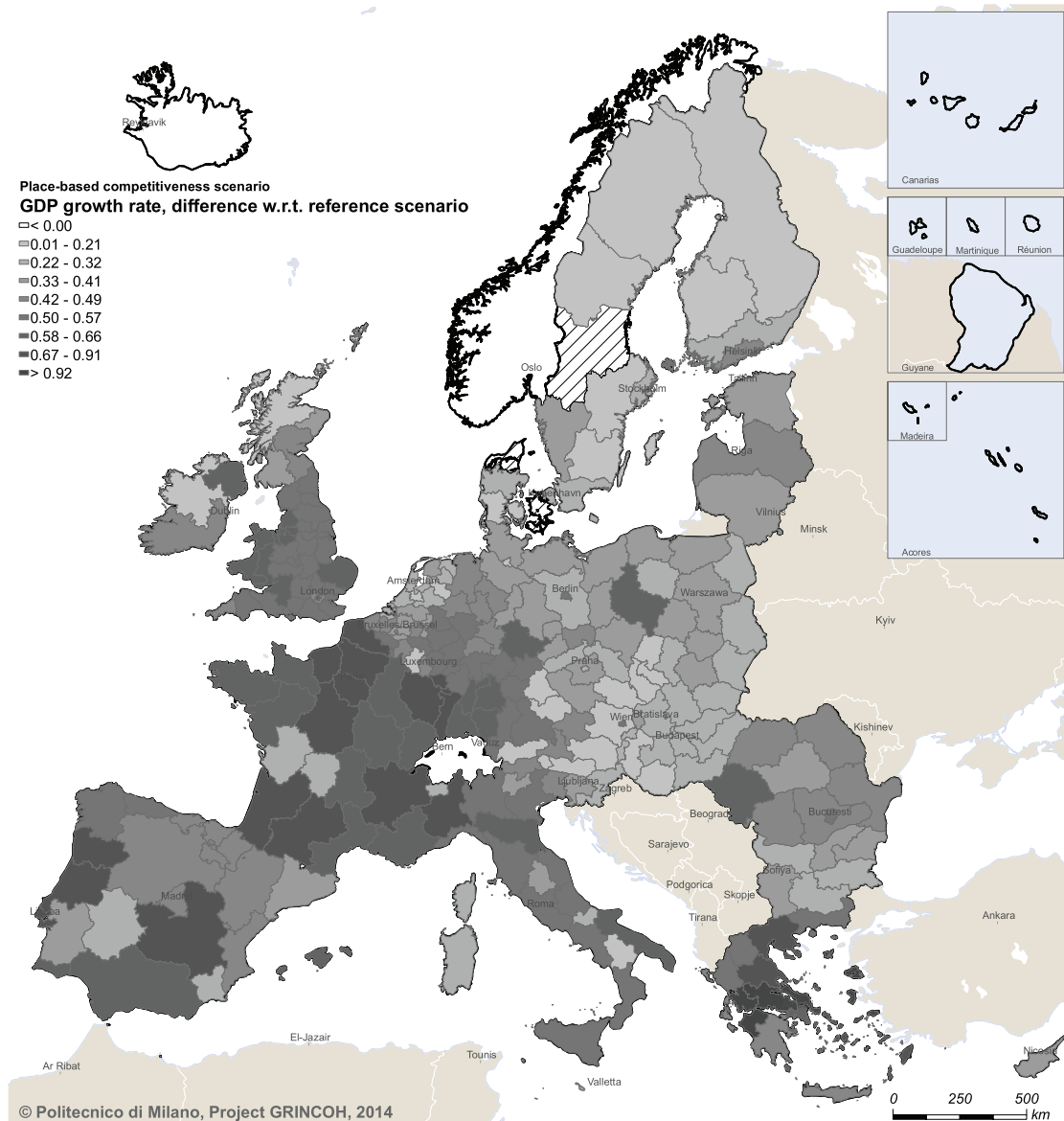
Figure 3. *Average regional GDP growth rate 2012–2030 for the place-based competitiveness scenario (difference w.r.t. reference scenario).*
Source: MASST3 results.

of these results. Figure 3 maps average GDP growth rates in the case of the place-based competitiveness scenario. The map (represented with the same colour code as Figure 2, but again, as in the case of Table 4, as a difference

w.r.t. the reference scenario) clearly shows a concentration of growth differentials in EU15 regions. Countries that would benefit the most from such a scenario, favouring areas hosting second-rank cities, include most importantly

France, Spain and Greece. In Greece, in par-ticular, all regions that in the reference scenario would achieve negative growth rates, grow (or lose less) than in the reference. Although this scenario would be no panacea, it does suggest that policies aiming at a spatially more balanced growth pattern would be beneficial not only for spatial disparities, but also for overall economic performance; a relative faster labour productiv-ity growth is in fact equally distributed across regions hosting large and medium-sized cities, suggesting a spatially balanced impact of this strategy. Besides, a one-way concentration of economic resources does not necessarily mean that more efficient outcomes will be obtained.

In CEECs, the effects of a less concentrated scenario are evident; regions that do not host the capital cities show a higher performance than in the reference. Interestingly, even if there is a concentration of resources in non-capital regions, also the latter enjoy more expansion-ary effects with respect to the reference sce-nario, regaining efficiency thanks to a decrease in the costs of concentration.

Social cohesion scenario results

The social cohesion scenario presents a rather different picture (Figure 4). As shown in Table 4, the growth of both GDP and manufacturing employment are lower than in the reference case. Because of the relevant public investment in health and social services, this scenario displays a higher growth rate of service employment with respect to the reference scenario. Jointly analysed, these findings suggest that the social cohesion scenario is characterised by lower labour productivity growth with respect to both the reference and the place-based competitiveness scenario. The social cohesion scenario depicts, in fact, the possible future attempt to minimise the social costs associated to the crisis, to the partial expense of competi-tiveness and slowdown of labour productivity growth.

The spatial distribution of GDP growth rates generated within this scenario (Figure 4) expectedly presents a very different picture w.r.t the reference and place-based competitiveness cases. Darker shades of grey, indicating regions where GDP growth rates are higher than in the reference case, are mostly found in peripheral areas (regions in CEECs on the Eastern borders of the EU, as in Poland, Romania and Bulgaria), in rural Scandinavia (both in Finland and in Sweden), in lagging regions of Southern Europe (Spain, France and Italy). Areas that are com-petitive now benefit less, while a significantly more equally distributed growth process w.r.t. the reference case seems to emerge. It is worth stressing, however, that the simulation exer-cise does not lead to self-fulfilling prophecies: in fact, also regions hosting large metropolitan areas benefit in this scenario w.r.t. the reference one. The relatively less remarkable labour productivity performance of this scenario is finally mostly due to service employment growing faster than productivity, in line with the scenario assumptions, and particularly in rural regions.

A legitimate question that follows is whether the social cohesion scenario is the one achiev-ing highest cohesion, lowering regional dispari-ties as would be expected.

Evolution of regional disparities

A sound way to further inspect the social cohesion associated to the three scenarios is via the analy-sis of the Theil index. Figure 5 (a through c) shows the evolution over time of this index, both in its general form (Figure 5a) as well as in its two main components: Figure 5(b) shows the evolution of the between countries Theil index, Figure 5(c) the change of the within country component.

This type of analysis is crucial for assessing the impacts of the presently ongoing crisis on regional disparities in the EU. In fact, one of the main goals of the EU being the reduction of spatial disparities (European Commission, 1999; European Parliament, 2007), the evolution of spatial disparities represents a source of major concern, as also evidenced in the theoretical (Tan and Zeng, 2014) and empirical literature
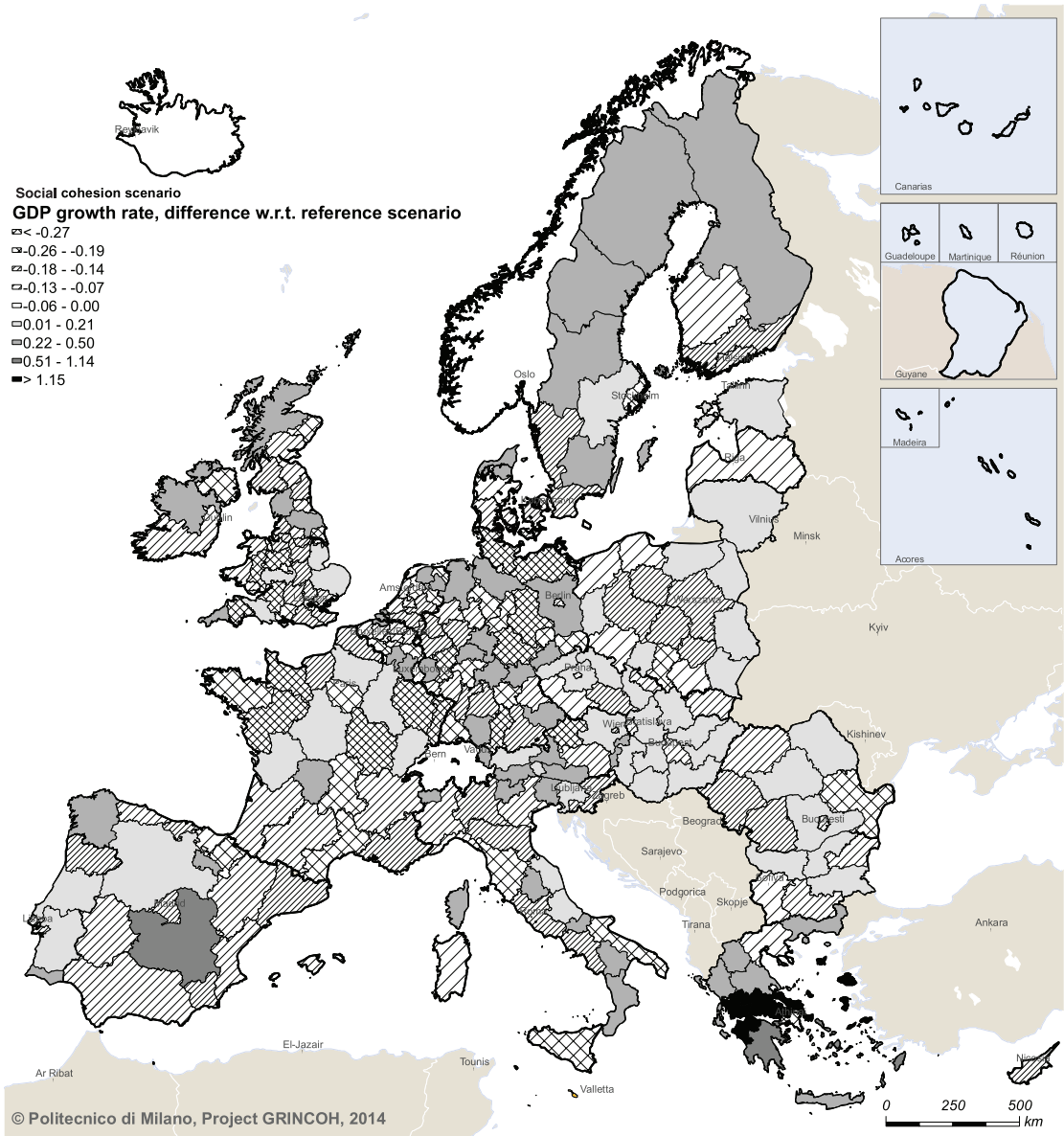
Figure 4. *Average regional GDP growth rate 2012–2030 for the social cohesion scenario (difference w.r.t. reference scenario).*
Source: MASST3 results.

(Castells-Quintana and Royuela, 2014) link-ing inequality to poor economic performance; a situation that, before the crisis, was improving thanks to CEECs decisive convergence trends towards Western European levels. The structural trends, summarised in the 'Structural adjust-ments induced by the crisis' section, emerging because of the crisis point to a generalised con-centration of resources that might bound to give a halt to the previous process of convergence.
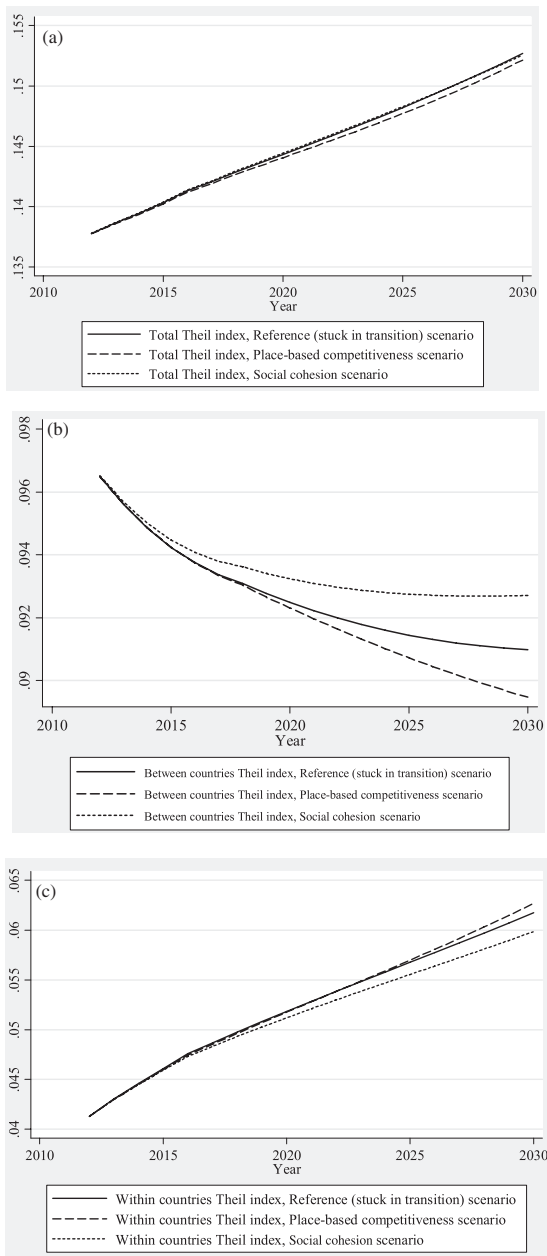
Figure 5. *Theil indices for the reference and alternative scenarios, 2012–2030. (a) Total Theil indices for the reference and alternative scenarios, 2012–2030. (b) Between countries Theil indices for the reference and alternative scenarios, 2012–2030. (c) Within countries Theil indices for the reference and alternative scenarios, 2012–2030.*
Source: MASST3 results.

In fact, Figure 5(a) shows that indeed over-all Theil indices confirm this expectation, with a rise in all three scenarios. This increase turns out to be faster for the reference case, based on an extrapolation of both long-run patterns of evolution dating to the period before the cri-sis, as well as on the structural trends recently emerging because of the economic downturn. Interestingly, the reference scenario is also based on assuming no major deviation in poli-cymaking style; in other words, it is based on the hypothesis that the process of concentration of economic resources that can be already verified in the recent data will continue along the same tracks. In the case of the other two scenarios, instead, policies and strategies are expected to change, which results into a containment of the worsening of spatial disparities (Figure 5a).

Strikingly, in the place-based competitiveness scenario, the convergence trend is higher than in the social cohesion scenario. This provides further evidence to those suggesting that development policies based on territorial excellence generate highest aggregate effects and keep the economic and social costs of an unbalanced development process under control (Camagni, 2001; Camagni and Capello, 2015; OECD, 2001, ch. 1 and 6).

The result of the decrease of general dispari-ties in the place-based competitiveness scenario is the result of the strong decrease in disparities among countries, only partially limited by an increase in intra-country disparities (Figure 5b and c). For what concerns the social cohesion scenario, it displays the lowest intra-national disparities, as it was reasonably expected. However, the decrease in international dispari-ties is so limited that the final effect is of a gen-eral increase of total disparities, just a little bit lower with respect to the reference case.

The combination of these findings suggests that overall disparities have been growing in the last few years, and will continue growing in the absence of a major change in the style of policymaking, mostly because of a rise in within country disparities. This statement is linked to the process of convergence of CEECs,

which will likely continue for the years to come, as also testified by the trends discussed in the 'Structural adjustments induced by the crisis' section, and that is rapidly reducing the differences between EU15 and New Members.

In this respect, the place-based competitiveness scenario, based on the assumption of a more balanced distribution of economic resources across areas of first and second rank w.r.t. the reference case, is particularly beneficial for the increased resources attributed to second-rank cities in CEECs, which have so far been relatively neglected in a concentrated model of development. The social cohesion scenario, as also suggested by Figure 5, presents instead a limited growth of within country disparities, because of the policy aim on which it is based, that is a more balanced distribution of economic resources, in this case also aiming at stimulating growth in rural and peripheral areas.

Conclusions

The after-crisis scenarios presented in the article show remarkable differences in future European trajectories according to the response that countries will have to the crisis. The structural changes already present in the economy will affect as such the future of Europe and its territory, as the reference scenario shows. In aggregate terms, under the assumption that the crisis ends in 2015 and macroeconomic policies will not change, Europe will manage to grow, even if some regions will show still a very low regional growth rate, stressing the importance of wise policies to go out of the crisis.

When alternative after-crisis scenarios are built, based on alternative policy goals (a competitive and a cohesive goal), an interesting result emerges. The so called social cohesion scenario, with the aim to keep the social costs of the crisis under control, registers, as expected, the lowest aggregate GDP growth, however, results on the convergence trends show that this scenario is not the one where convergence is highest. The place-based competitiveness

scenario, in which competitiveness is achieved through the exploitation of under-exploited territorial resources, on excellence present in second-rank areas, is able to achieve at the same time two important results: a lower increase in disparities, and a higher aggregate GDP growth.

This result is even more relevant for CEECs. The tendency of a concentration of resources in large cities and central areas, reinforced during the crisis period with the hope to get out of the crisis by investing in the champions, is something that has to be avoided, as it generates relevant disparities. However, also the opposite situation of investing in keeping the social costs of the crisis under control, does not seem to be the best reaction strategy. Also for CEECs, the capacity to invest in dispersed, un-exploited local excellence, seems to be the best after-crisis scenario for Europe and its territory, (re-)gaining economic growth and enhancing regional convergence trends.

These results suggest the importance of cohesion policies in favour of local excellences and reinforcing territorial specificities, rather than urging generalised social support.

Supplementary material

Supplementary material is available at *Cambridge Journal of Regions, Economy and Society* online.

Endnotes

[1] Defined as those European economies that belonged to the EU before the 2004 wave of enlargement.

[2] Keynesian responses to the financial crisis, and the associated higher risk on government bonds perceived on financial markets, in turn engendering higher costs for servicing the stock of debt, have caused general government liabilities in the EU28 to grow from 73.9% to 107.6% of the EU's GDP between the first quarter of 2009 and the last quarter of 2014 (*source*: EUROSTAT). The accumulation of public debt has finally triggered measures aimed at limiting public expenditure in several EU countries.

[3] The 90% threshold refers to an empirical regularity that translates into a supposedly damaging effect of excessive debt on long-run economic performance: *When gross external debt reaches 60% of GDP, annual growth declines by about two percent; for levels of external debt in excess of 90% of GDP, growth rates are roughly cut in half.* (Reinhart and Rogoff, 2010, 573).

[4] On forecasting methodologies see, among others, Hawkins, 2001; Hendry and Clements, 2001; Loomis and Cox, 2000.

[5] On foresight methodologies see, among others, European Commission (2004); Miles and Keenan (2000); UNIDO (2004).

[6] In addition to the information provided in Capello et al. (2008, 2011, 2014a), further details about the technical aspects and the data sources needed to fully replicate the MASST3 model are available upon request from the authors.

[7] Quantitative targets are shown in full detail in Supplementary Technical Appendix 2.

[8] Because of space limitations, results disaggregated by regional typology are here only described, and can be provided upon request from the authors.

[9] It is worth stressing, however, that productivity differences between the different scenarios presented in this section turn out to be relatively limited in the medium run.

Acknowledgements

References

Barca, F. (2009) An agenda for a reformed cohesion policy. Report to Commissioner for Regional Policy. Brussels.

Camagni, R. (2001) *Policies for Spatial Development, in Territorial Outlook*. Ch. 6, pp. 147–169. Paris: OECD.

Camagni, R. (2008) Regional competitiveness: towards a concept of territorial capital. In R. Camagni, R. Capello, B. Chizzolini, U. Fratesi (eds.) *Modelling Regional Scenarios for the Enlarged Europe*, 33–48. Berlin: Springer.

Camagni, R. and Capello, R. (eds.). (2011) *Spatial Scenarios in a Global Perspective: Europe and the Latin Arc Countries*. Cheltenham: Edward Elgar.

Camagni, R. and Capello, R. (2015) Rationale and design of EU cohesion policies in a period of crisis, *Regional Science Policy and Practice*, **7**: 25–49.

Camagni, R., Capello, R. and Lenzi, C. (2014) A territorial taxonomy of innovative regions and the European regional policy reform: smart innovation policies, *Scienze Regionali—Italian Journal of Regional Science*. Special Issue on "Smart specialization and the new EU cohesion policy reform", **13**: 69–106.

Capello, R. (2007) A forecasting territorial model of regional growth: the MASST model, *Annals of Regional Science*, **41**, 753–787

Capello, R., Camagni, R., Fratesi, U. and Chizzolini, B. (2008) *Modelling Regional Scenarios for an Enlarged Europe*. Berlin: Springer.

Capello, R., Caragliu, A. and Fratesi, U. (2014a) Modeling regional growth between competitiveness and austerity measures: the MASST3 model, *International Regional Science Review*, DOI: 0160017614543850

Capello, R., Caragliu, A. and Fratesi, U. (2014b) The costs of the economic crisis: which scenario for the European regions?, *Environment and Planning, C*.

Capello, R. and Fratesi, U. (2010) Globalization and a dual Europe: future alternative growth trajectories, *Annals of Regional Science*, **45**, 633–665.

Capello, R. and Fratesi, U. (2012) Modelling regional growth: an advanced MASST model, *Spatial Economic Analysis*, **7**, 293–318.

Capello, R., Fratesi, U. and Resmini, L. (2011). *Globalization and Regional Growth in Europe: Past Trends and Future Scenarios*. Berlin: Springer.

Capello, R. and Lenzi, C. (eds.). (2013) *Territorial Patterns on Innovation: An Inquiry on the Knowledge Economy in European Regions*. London: Routlegde.

Castells-Quintana, D. and Royuela, V. (2014) Agglomeration, inequality and economic growth, *The Annals of Regional Science*, **52**: 343–366.

Chizzolini, B. and Fratesi, U. (2008) The simulation procedure: the algorithm, the target variables and the stability of the model, in R. Capello, R. Camagni, U. Fratesi and B. Chizzolini (eds.) *Modelling Regional Scenarios for an Enlarged Europe*, 123–151. Berlin: Springer.

Coffano, M. and Foray, D. (2014) The centrality of entrepreneurial discovery in building and implementing a smart specialisation strategy, *Scienze*

Regionali. Italian Journal of Regional Science, Special Issue on "Smart specialization and the new EU cohesion policy reform", **13**: 33–50.

COM (2006) *Enlargement, Two Years After—An Economic Success*, Communication from the Commission to the Council and the European Parliament of May 3, 2006. Available online at: http://europa.eu/legislation_summaries/economic_and_monetary_affairs/enlargement/e50026_en.htm [Accessed 16 January 2014].

Dell'Anno, R. and Villa, S. (2013) Growth in transition countries BigBang versus Gradualism, *Economics of Transition*, **21**, 381–417.

EBRD (2013) *Transition Report 2013*. London: European Bank for Reconstruction and Development.

European Commission (1999) *European Spatial Development Perspective: Towards Balanced and Sustainable Development of the Territory of the European Union*. Luxembourg: Office for Official Publications of the European Communities.

European Commission (2004) *Foresight and the Transition to Regional Knowledge-Based Economies*, Synthesis Report, DG for Research Information and Communication Unit, Brussels.

European Commission (2009) Impact of the current economic and financial crisis on potential output, Occasional Papers 49, Directorate-General for Economic and Financial Affairs.

European Parliament (2007) *Regional Disparities and Cohesion: What Strategies for the Future, study commissioned by the European Parliament's committee on Regional Development*, Brussels: European Parliament (IP/B/REGI/IC/2006_201).

Gallego, J. and Maroto, A. (2015) The specialization in knowledge-intensive business services (KIBS) across Europe: permanent co-localization to debate, *Regional Studies*, **49**: 644–664.

Hagemejer, J. and Tyrowicz, J. (2012) Is the effect really so large? Firm-level evidence on the role of FDI in a transition economy, *Economics of Transition*, **20**: 195–233.

Hawkins, J. (2001) *Economic Forecasting: History and Procedures*, mimeo available on line.

Helleiner, E. (2010) A Bretton Woods moment? The 2007–2008 crisis and the future of global finance, *International Affairs*, **86**: 619–636.

Hendry, D. and Clements, M.P. (2001) *Economic Forecasting: Some Lessons from Recent Research*, mimeo available on line.

Hermant-de Callataÿ, C. and Svanfeldt, C. (eds.) (2011) Cities of tomorrow—challenges, visions, ways forward. European Commission, Directorate General for Regional Policy, 'Urban Development, Territorial Cohesion' unit. Available online at http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/citiesoftomorrow/citiesoftomorrow_final.pdf [Accessed 16 January 2014].

Loomis, D. G. and Cox Jr., J. E. (2000) A course in economic forecasting: rationale and content, *Journal of Economic Education*, **31**, 349–357.

McCann, P. and Ortega-Argilés, R. (2011) *Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy*. Document de treball de l'IEB 2011/14, Institut d'Economia de Barcelona.

McCann, P. and Ortega Argilés, R. (2014) The role of the Smart Specialization Agenda in a reformed EU cohesion policy, *Scienze Regionali—Italian Journal of Regional Science*, Special Issue on "Smart specialization and the new EU cohesion policy reform, **13**: 15–32.

Miles I. and Keenan M. (2000) *Foren Issue Paper—From National to Regional Foresight: Experiences & Methods, workshop 1*, Manchester, April.

OECD (2001) *Territorial Outlook*. Paris: OECD.

Piras, G., Aroca, P. and Postiglione, P. (2012) Specialization, R&D and productivity growth: evidence from EU regions, *The Annals of Regional Science*, **49**: 35–51.

Reinhart, C. M., and Rogoff, K. S. (2010) Growth in a time of debt, *American Economic Review*, **100**: 573–578.

Tan L. and Zeng D.-Z. (2014) Spatial inequality between developed and developing economies, *Papers in Regional Science*, **93**: 229–249.

The Economist (2014) Free exchange: this time is worse, *The Economist*, 11 January 2014. Available online at http://www.economist.com/news/finance-and-economics/21593418-leading-american-economists-argue-desperate-times-call-desperate [Accessed 16 January 2014].

UNCTAD (2013) *World Investment Report 2013: Global Value Chains: Investment and Trade for Development*, United Nations Conference On Trade And Development, Geneva. Available online at http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf [Accessed 16 January 2014].

UNIDO (2004) *Foresight Methodologies*. Vienna: United Nations Industrial Development Organisation.

Visintin, S., Maroto, A., Di Meglio, G. and Rubalcaba, L. (2010) The role of cost related factors in the competitiveness of European services, *Global Economy Journal*, **10**: 1–25.