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Territorial Impacts of EU Economic Policies and Location of Economic Activities

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Part 1: Executive Summary

In this first interim report, after only a very short period of research, we present mainly intermediate results of literature reviews, as well as a detailed assessment of data and data collection issues.

The team has decided to work on the basis of a unified theoretical background, defining a common working hypothesis in order to orientate all parts of the research in a coherent direction. This hypothesis reads as follows:

In a knowledge and innovation based economy going through a slow-growth cycle with low growth of productivity and demand, economic activity is becoming more spatially localised, i.e. more linked to specific environments which offer the necessary context to enterprises looking for externalities allowing them to profit from existing infrastructures and knowledge and thus to reduce costs. In this situation, combined with fiscal and ideological restrictions, public policy is oriented towards an indirect intervention through the creation of these specific environments. This leads to a rising importance of the existing resources of regions and thus to the remetropolitisation and reconcentration of economic activities, mainly into those areas already endowed with the necessary framework conditions.

The idea is to verify this hypothesis through a review of the existing knowledge and several different additional empirical means.

First, very preliminary results of literture reviews seem indicate the following (to be confirmed in later reports):

I. Concerning the general economic context (Chapter 2):
    a. There seems to be some evidence of remetropolitisation in the last years, but this very much depends on the scale of observation.
    b. More generally, evidence on convergence and divergence of European regions is very ambiguous, again depending on scale, but also on the sample used.
    c. Externalities come in very different forms. Classically economists distinguish Marshall-Romer externalities (based on specialised clusters) and Jacobs externalities (based on diversified agglomerations). One can also distinguish between fundamental

(i.e. inherent to each region) and tradable (i.e. interchangeable between regions) externalities, even though the seperation and the interactions between the two are often difficult to define precisely, thus making the concept a bit difficult to use. Choices for regional policy obviously depend on the types of externalities aimed at.

d. Contrary to common discourse, global competitiveness does not seem to be the decisive factor of growth. Internal demand, and thus endogenous development, seem more important, at least at the level of nation states. However, the decreasing proportion of wages in the total GDP indicate a loss of consumption potential.

e. For most regions, competition on a European level is probably more decisive than competition on a global scale.

f. In addition, firms reinvest a decreasing amount of their profits, thus making productivity growth through new production systems more difficult to obtain.

II. Concerning theories of regional development (Chapter 3.2)

a. *Orthodox (mostly neo-classical) perspectives*, e.g. the paradigmatic status of Weberian locational theory, have been challenged over the last 10-20 years by a plethora of heterodox perspectives.

b. If the distinction between orthodox and heterodox theoretical perspectives on the (re-)location of economic activities is combined with the three scales applied in many ESPON-studies, micro-, meso- and macro-level, cf. Table 2, it can be observed that the orthodox perspectives often confine themselves to one of the scales, whereas the heterodox perspectives are much more open to applying a 'multi-scalar' approach that enables them to analyse the interrelated processes.

c. In heterodox perspectives, firms are regarded as bundles of resources, competencies or capabilities that are then strategically deployed to realise corporate strategies. Resource or capability developments are tied to territories and networks, and the locational behaviours of embedded firms are constrained by these networks or territories.

d. There is a growing consensus, within both orthodox and heterodox perspectives, that innovation is the key driving force behind economic growth, standards of living, international competitiveness and regional development.

e. Knowledge spillovers provide a mechanism for enhancing the innovative performance and growth of firms. Co-location facilitates knowledge spillovers by providing opportunities for both planned and accidental interactions.

f. During the last decades the model of innovation gradually evolved from the linear to the integrated and networking model . The linear model views innovation as a straightforward path from the laboratory directly through the marketplace. By contrast, todays model favours regions characterised by an integrated innovation and production system with flexible linkage, feedback and looping relations between actors.

g. Geographical proximity of economic actors matters since knowledge spillovers and externalities are geographically bounded, and knowledge and innovation accumulate in a given region.

h. Due to their limited size SMEs tend to be particularly sensitive to regional variations in different kinds of external economies.

III. Concerning the economic geography of Europe (Chapter 3.4)

a. In spite of dramatic structural evolutions of the European economy as a whole since the Sixties, the spatial pattern of the European economy remains very strongly characterised by a centre – periphery structure and even the relative structural position of the different kinds of regions remains quite similar during the last two or three decades.

b. The European metropolitan regions are becoming more and more the nodes of the world network of the advanced services economy. Most of the metropolitan regions are now performing better than the rest of their national economy, at the reverse of what happened during the Sixties : at this time, desindustrialisation of the metropolitan regions was already on the way, at the benefit of the more or less peripheral Fordist low-skilled manpower basins, but the process of tertiarisation and globalisation was not yet so strong as it is today.

c. The dismantling of the socialist economy during the Nineties and the recovering in the beginning of this century led to a very quick growth of the intra-national disparities. Capital cities reinforced strongly their position, even if it was already strong in the centralised planned economy as centres of the national bureucracy. Western regions fit generally better than the Eastern

regions, mainly in the countries near the borders of the "Old Europe", from which investments or subcontracting is coming, in the search of the advantages of a cheap well trained manufacturing manpower. The worse situation is in the early heavy industrial regions and in the rural areas of the Eastern parts of these countries.

IV. Concerning public policy for regional development (Chapter 4.2)

a. Regional policy instruments can be divided into two categories:

i. Instruments to compensate the inadequacy between the supply and demand of factors. The policy objective is then to influence the decision process of businesses in terms of localization and investments, through fiscal policy, investment subsidies, etc.

ii. Instruments to improve the quality of factor supply in relation to business needs. Policy means in this domain can be the improvement of the workforce training, the access to credit, the quality of infrastructures, etc.

b. During the last two decades, in the light of continuous regional disparities, exogenous development policies have been abandoned for the valorisation of the scientific and technological potential and the training of the workforce in line with business needs. Thus, public policy moved from a Keynesian to a more Schumpeterian approach (see Figure 11 on page 94). In this context public subsidies and infrastructure investments' impacts are limited and other forms of capital need to be considered.

c. The concept of capital has considerably evolved to include intangible forms of capital. The same happened with infrastructures that now include soft infrastructure besides hard ones. Soft infrastructures, also called "suprastructure", include investments in trainings and research or institutional infrastructures (modes of regulations, governance, etc.).

V. Concerning impacts of macro-economic policies (4.3)

a. There are several methodological problems associated with policy evaluations. One problem concerns time lags. A second problem is concerned with creating a control group. This problem is more severe in evaluation of macro-economic policies

compared to regional policies since the macro-economic policy "treats" all regions in the same way.

b. The most common theoretical framework for analysing regional effects of the monetary union is the theory of optimal currency areas which can be traced back to the seminal work by Mundell (1961). A general conclusion is that when exchange rate flexibility is no longer an option among members in the currency area, economic flexibility is required in other dimensions; labour mobility, flexible wages, fiscal policies and capital flows. This flexibility is necessary in order to deal with asymmetric shocks among regions.

c. There are some empirical evidence that European regions are more sensitive to asymmetric shocks than regions in the U.S. (see, e.g., Bayoumi and Eishengren, 1993). One explanation is that Europe is more separated between periphery areas and centres.

d. It does not seem controversial to state that increasing returns to scale are important in the empirical growth and trade literature. Empirical research indicates that regional specialisation is lower in Europe compared to the U.S.

e. We propose to analyse the effects of the Single Market by studying changes in population concentration, e.g. after the implementation of the Single Market Programme. We know that migration is mainly determined by labour market conditions. If some regions increase their attractiveness after integration, the results may give some indication of the regional impacts of economic integration.

f. Another, new, option is the use of the MASST model developed in ESPON project 3.2 through the arrival of its authors in the TPG.

In terms of statistical analyses and data, the following can be said at this stage:

I. Concerning empirical analysis of location decisions by firms (Chapter 3.5):

   a. Much of the existing empirical literature on startups of new firms within a specific region are based on so called entry-exit models. Enquiries of decision-makers within firms are more difficult to

come across, especially since they are often part of the non-published grey literature addressed to policy makers or business representatives.

b. One main difficulty present in any kind of analysis on factors of localisation is that of scale. Which factors are important obviously depends on whether the question is asked pertaining to the global, European, national, regional or local level. ESPON normally works at macro (all of ESPON space), meso (transnational/national) and micro (regional) levels. However, existing studies, be it of entry-exit or on the base of enquiries do not use such a differentiation.

c. To analyse the vast amount of literature in a systematic fashion we intend to make use of the nowadays frequently used method of meta-analysis. In particular, we intend to use meta-regression analysis which is a specific statistical method designed to, in a structural way, summarize, evaluate and analyze previous results in empirical research.

II. Concerning ESPON-wide data sets (Chapter 3.3)

a. As always in ESPON, data is rare and often in very bad state. The team is currently busy collecting data from European and national sources to complement the already existing data in the ESPON database.

b. The main aim is to construct a regionalised data set of value added data ventilated according to at least 31 economic sectors, in order to be able to analyse regional economic structures at a sufficiently fine-grained level.

c. Even though in theory they would have been a very important source for the project, the new "Structural Business Statistics" available from Eurostat are in a catastrophically bad state with so much data missing that it is almost unusable at the current time.

Part 2: Scientific Report

1 Introduction

In the Scoping Document for an Assessment of the Territorial State and Perspectives of the European Union endorsed at the Luxembourg Informal Ministry Meeting on Regional Policy and Territorial Cohesion in May 2005, the ministers express the following hypotheses concerning territorial development in Europe:

1. Most important and dynamic forces in terms of economic development are increasingly both localised and territorially specific.
2. A key challenge for European regions is the accelerated relocation of economic activities.
3. Cities and regions specialise in certain kinds of production because of their specific territorial advantages.
4. The most competitive regions are those that are able to respond most effectively to globalisation.

These hypotheses lead to a series of policy orientations concerning the territorial dimension of the Lisbon strategy.

However, even though they are expressed as such in the document, none of the above hypothese is self-evident, and they all, therefore, need scrutiny. This is one of the main aims of this project, i.e. empirically analyse the patterns of location of economic activity and their determinants. It will do so through a thourough review of the existing literature, through statistical analysis and through case studies.

Another implicit hypotheses in the scoping document is the one that policy can make a difference concerning the localisation of activities. Again, this hypothesis needs scrutiny and the project will provide a first attempt at such scrutiny, even though it will be very limited due to the resource and time constraints.

In summary, the project will try to contribute to the exploration of the following questions:

- What are the patterns of localisation of activities in Europe ?

- What are the determinants of these patterns and is policy one of them ?
- If policy makes a difference, what types of policies have which effect on what types of regions / economic systems ?

This report is the first interim report and, as such, more about setting the scene than about actual results. Its main aim is to go more deeply into the definition of our methodology and to lay the foundation for the work to come. This is mainly done through a first review of the literature and of the available data and methodologies.

The report is divided into three main parts. The first gives an overview of the general framework, trying to make explicit the theoretical (and epistomeological) reference system in which we place our research, the second concerns the analysis of the localisation of activities and the third offers first insights into the issue of assessing the regional impacts of economic policies.

2 Regional economic development in Europe – an overview of the driving forces

2.1 General working hypothesis

In the tender we proposed to unify the different elements of the project under a common and overarching working hypothesis, in order to allow a unified scientific approach addressing the same set of questions across all the different parts of the project and making many of the epistemological assumptions evident. This general hypothesis reads as follows:

In a knowledge and innovation based economy going through a slow-growth cycle with low growth of productivity and demand, economic activity is becoming more spatially localised, i.e. more linked to specific environments which offer the necessary context to enterprises looking for externalities allowing them to profit from existing infrastructures and knowledge and thus to reduce costs. In this situation, combined with fiscal and ideological restrictions, public policy is oriented towards an indirect intervention through the creation of these specific environments. This leads to a rising importance of the existing resources of regions and thus to the remetropolitisation and reconcentration of economic activities, mainly into those areas already endowed with the necessary framework conditions.

This hypothesis is based on quite a number of reflections and observations, but also raises quite a series of questions. In the rest of this chapter, we will try to go deeper into some of these reflections, thus painting the background of this hypothesis in order to show where we are coming from in choosing such an approach. This should be considered work in progress and will be enhanced as the project advances. Ideally, this chapter will slowly evolve into a synthesis of all the other parts of the project, validating or not the initital hypothesis.

In the following chapters we then go deeper into the different questions raised and the approaches we propose in order to find some answers to them.

2.2 General economic framework

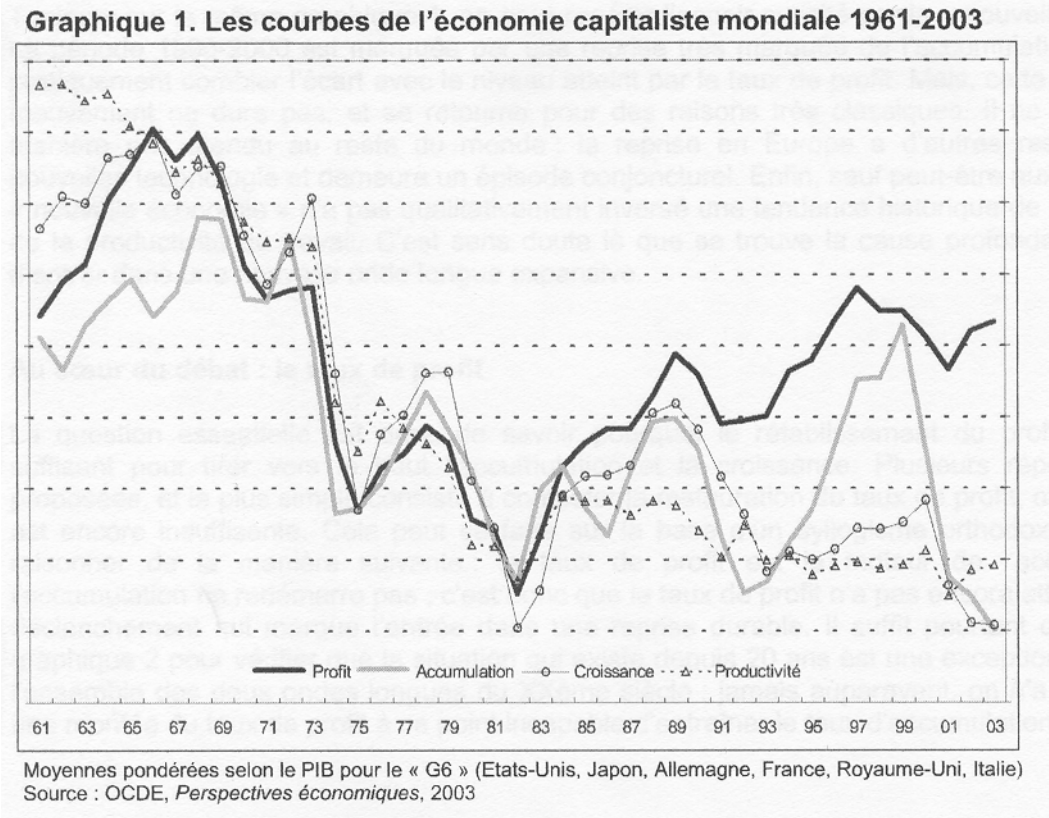


Figure 1: Evolution of profits, accumulation, growth and productivity for the G6 (USA, Japan, Germany, France, United Kingdom, Italy)

source: M. Husson, 2004

In a simplistic way, one can divide the after-war period into three phases of economic development: a high-growth (of GDP and productivity) period until the end of the 1960s, a decline during the 1970s and a low-growth period since then. For the sake of our study, it is the third period which is obviously of particular interest. Understanding its underlying mechanisms is necessary if we want to explore the spatial consequences.

The first period was marked by the fordist economic development paradigm which implied a distribution of growth gains between employers, employees and the state in a fairly static and inflexible system of state- and sector-wide negotiations. While productivity growth was high there were enough gains to redistribute.

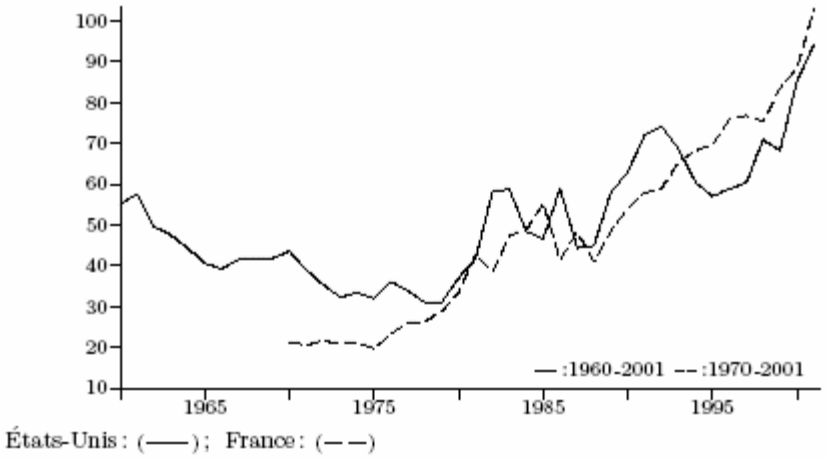
During the 1970's the crisis was interpreted as superficial, due to high oil prices, and governments tried to respond through neo-keynesian measures aimed at stimulating the demand and to dampen the negative social effects. The continuing decline in productivity, however, ignited inflationary tendencies. At the same time profits continued to decrease until the end of the decade with an all-time low at the beginning of the 1980's.

For companies, ways out of this "profit crisis", in which profits could not be created by raising productivity, also had to be found. This forced them to compete on other grounds than salary costs (still fairly strictly regulated), such as through 'novelty', implying shorter product life-cycles, and just-in-time production systems, thus announcing the end of the fordist period, and the beginning of more flexible production structures.

With productivity growth still very slow, public policy aimed at cost-saving measures for the companies, mainly through the delinkage of salaries from productivity, in an attempt to stimulate supply. In many countries salaries decreased in relative terms, thus redistributing the renewed growth in profits away from employees and towards the firms. This in turn has lead to a reduction of the demand which has reduced the potentials for market extension and economic growth. At the same time, however, profits rose again to levels known before the first oil crisis, without, however, reducing the amount of public spending.

In parallel, several factors, not the least of which technological evolutions, have allowed easier financial flows and have led to a reduction in proximity between capital, management and (state) regulatory systems, leading to an increase in power of (mainly institutional) stock holders and higher rotation rates in management, whose members often have direct interests in the evolution of their companies stock market value. This has lead to larger proportions of companies' value added being distributed in form of dividends (see Figure 2) and to pressure to increase the return on investment and thus the profit rates. Long-term investments are no longer favoured as stock holders demand high profit rates in short periods and as companies cannot hold on to their revenues long enough for long-term projects.

Figure D6. **Part des profits distribuée en dividendes (%) : France et États-Unis, sociétés nonfinancières**



États-Unis : (——) ; France : (— —)

Source : Comptabilité nationale française (INSEE) ; NIPA (BEA).

Figure 2: Proportion of profits distributed as dividends in France and the USA

source: Duménil and Lévy

In this context, i.e. where companies have to compete on cost (as productivity is not rising) and cannot invest themselves, one of the main sources of cost-savings is the increased use of externalities (already trained work force, outsourcing, existing infrastructures, etc) because, confronted with the lack of long-term investment funds and with the need to innovate constantly, enterprises (in the rush to higher and higher profit rates) have to save costs by pooling their resources, either directly in specific enterprise clusters (groups of firms specialised in the same sectors) or indirectly in metropolitan areas offering a more anonymous system of agglomeration economies (a large base of a flexible, trained work force, many different potential subcontractors, etc).

2.3 The translation into space

The translation into space of the above general economic trends obviously depends on the spatial context. We will differentiate our hypotheses concerning territorial impacts along the lines of the classical division in centre and periphery.

In central regions, the increased use of externalities can be seen as one of the most important factors determining current economic geography. Much of this trend is linked to the need for companies to have access to a recruitment pool of qualified and flexible labour, but also to the availability of multiple potential subcontractors allowing rapid changes of products and production flows. In spite of modern communication technologies, physical proximity still seems to be an important factor. Two types of regions offering externalities can be identified: First highly-specialised regions in which a network of enterprises offer a pool of subcontracting and labour-recruitment possibilities for a specific economic sector (so-called Marshall-Romer externalities). Classical examples have been the "Third Italy", the Belgian Courtraisis, and other marshallian districts. Second, large metropolitan areas which offer a wide spectrum of qualified labour and potential subcontracting relations across many economic sectors, thus allowing enterprises to reorientate themselves easily if necessary (Jacobs externalities). Generally, regions already rich in externalities have been favoured by the recent economic developments, which explains the trends of (re)metropolitanization of economic development.

At the same time, a high capital ratio allows industries to retain a certain independence from salary costs and thus to stay in high-salary, metropolitan regions, close to their markets. This is reinforced by the fact that most of the EU production remains within the EU.

The European economic geography, however, is obviously not only determined by the central and metropolitan regions with their particular offer of externalities. Some peripheral regions that present quite different characteristics show high growth rates. The companies localising in these regions seem to specialise in sectors demanding a careful balance between salary levels, public intervention and proximity to the central EU markets, thus justifying their choice of relatively (within the EU context) low-cost regions within Europe instead of moving further away. The classical metropolitan externalities of a qualified labour force seem to play a lesser role here.

Another type of possible regional growth type to be investigated is one based on a strong internal demand. Economic policy most often seems to

focus on globalised markets and “competition”. However, historically many economies have grown on the basis of their local markets and the specificity of the EU's economy as an SME economy pleads for the interest of at least investigating the possibility of regions not attracting supra-regional players, but of building their success on endogenous growth potentials. One example supporting this idea is the recent economic developments in Germany, where exports are flourishing, but the economy is almost in recession, mainly due to the very low level of internal demand.

Although they are represented in all of the above types, we will also have to investigate the Eastern European regions with special attention, due to their very specific historical paths. Some of them seem to offer some form of laboratory in terms of more radical economic policies. These should not, however, be overestimated either, as they are dependent on the very specific situation of these regions at this point in time.

What about the "New Economy" ?

Is it a reality ?

Technological evolution certainly has been fast and new technologies have (sometimes radically) changed work and market processes. However, the new information technologies have not inherently caused a rise in global factor productivity. It is more the reorganisation of work that have increased productivity and it is the strong demand for (expensive) investments in the new technologies that has boosted growth, especially in the US.

How does the "New Economy" influence spatial patterns of economic activities ?

Through different ways, linked to that fact that it is based on knowledge:

- Proximity matters since in order to master the new technologies that come in increased complexity at rapid pace actors have to regroup and stay in contact.
- In opposition to information (which can be sent around the globe in no time), knowledge is often tacit and personal, making "transmission" costs rise with distance as they often imply face-to-face interaction and mutual trust.
- Knowledge creation is cumulative in nature and thus there is a feedback effect which strengthens those regions where knowledge and innovation is already present.

- Even though it is a "knowledge" economy, the new economy also needs physical infrastructure investments (hot spots, fiber optic conections, etc) which are only profitable in dence metropolitan areas.

So, what is the spatial pattern of the "New Economy" ?

For the reasons mentioned above, the "New Economy" shows a high degree of concentration, mainly in metropolitan areas where face-to-face interaction is possible and necessary infrastructures are present. However, metropolitan areas have to be seen in a large sense, englobing their suburban surroundings. Another reason for the central localisation is the need for a highly qualified and flexible work force which again is mostly available in metropolitan areas.

2.4 General economic policy: in search of convergence

Addressing the issue of integration and economic and territorial cohesion, one is confronted with the question of how to deal with a group of countries and/or regions of very diverse productivity and wage levels, such as, for example, Spain, Portugal and Greece at the moment of their accession or such as today's structural funds regions. One can oppose the two extreme approaches existing today: either a progressive harmonisation and a proactive policy towards economic, structural and spatial cohesion in a medium-term perspective, as was the case for the three aforementioned countries, or or an immediate opening of competition as the current discourse seems to endorse. Obviously other options exist between the two, but we seem to be in a phase of transition from the former to the latter.

The harmonisation approach is based on a process during which the lagging countries catch up in terms of productivity and wage levels. To launch this process at the time the European Community had put into place a macro-economic context along the following axes:

- The zones with low productivity have relatively high prices. In order to avoid the shock of immediate and total competition, these zones can maintain prices in (artificially) rapidly progression in order to accompany the catch-up in productivity. Such price support1 made possible an economic transition allowing restructuring and reconversion of low-productivity sectors towards more productivity intensive production.
- Lagging regions also benefited from transfers supporting convergence.
- At the same time, the application of the European social model implying wage progressions in relation to productivity growth allowed a rise of salaries and thus the strengthening of internal demand.
- Finally, the still existing control of capital movements allowed a certain stability for this exceptional mode of transition.

In this context, as could be observed in Spain, Greece and Portugal, regions were able to move up the value chain and to specialise in productive structures more in line with the European average.

The competition approach, on the other hand, goes against the first model on four levels:

1 As for example the support of agricultural prices for Spanish products after its accession.

1. By making price stability an absolute priority (as through the ECB's status), current European policy reduces the adjustment opportunities available in the past. Competition is immediate and severe pushing a series of economic activities lagging in productivity over the brink of bankruptcy.
2. Convergence transfers to new member states are less in relative terms than those attributed in earlier accession processes.
3. Current policies at all scales aim at abandoning any generalised norms for wage evolutions, but also at deregulating the labour market and reducing mechanisms of social transfers. In addition, globalisation and deregulation policies create competition for jobs, thus exerting pressure on direct and indirect wages and on working conditions.

The almost perfect freedom of movement of capital takes away the possibility for differential policies in lagging regions as it puts much pressure on prices, wages and social transfer mechanisms.

As a result of these elements, the new macro-economic context incites lagging regions to specialise in those economic sectors where wage level is an important competition factor, forcing them to limit the redistribution of productivity gains towards salaries and thus reproducing regressive specialisation. As recent studies have shown at global scale for the national level (Milanovic, 2003; Bensidoun and Chevalier, 2005), this development scenario contains the risk of rising economic, social and spatial inequalities as generalised competition blocks wage progression both in rich and poor regions, thus limiting the potential for endogenous growth and pushing towards an exogenous growth model. The unequal distribution of wealth contributes to the reduction of growth and employment, while the accumulated capital is invested elsewhere in the world. Thus harmonisation of production structures and convergence become more difficult.

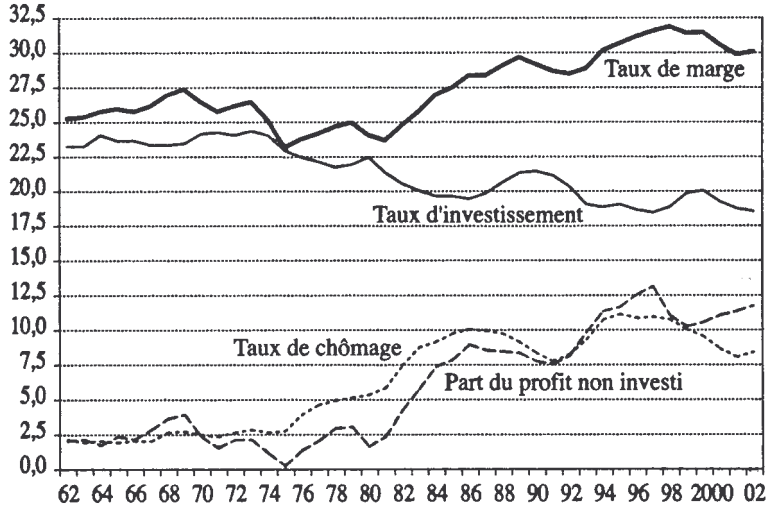


Figure 3: Evolution of the rate of investment (« Taux d'investissement ») and of the part of profits that are not reinvested (« Part du profit non investi ») in the EU

Source: IRES (2005)

Parallel to convergence, the second approach also seems to weaken economic growth. Europe does not seem to have a problem of competitiveness, but a problem of internal demand due to a transfer of income from wages to financial revenues as well as a lack of investment (see Figure 3 and Figure 4).

Financial revenues are only very partially reinvested (at least not in Europe) and the potential for private consumption decreases as can be seen in the proportion of wages in the total value added since 1960.

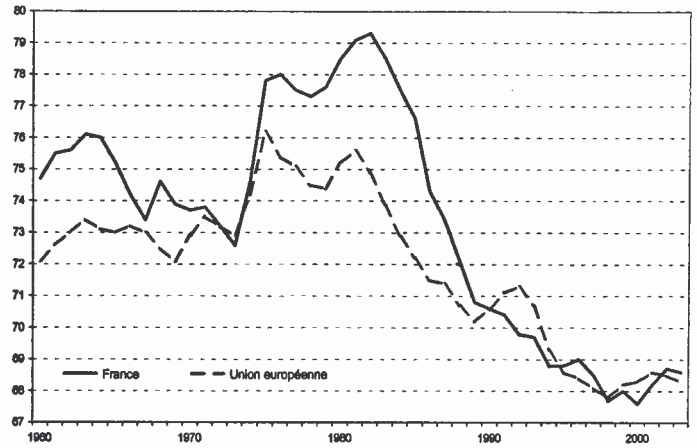


Figure 4: Evolution of the proportion of wages in the total value added (France and EU)

Source : Husson

Three observations support this hypothesis:

1. During the period 1993-2003, wherever salaries have risen the most, economic growth was highest. Without wanting to discuss the relationship between growth and salaries, it is impossible to deny that those countries who have seen the slowest salary growth have not seen the highest growth in GDP as can be seen in Figure 5. At the same time, it seems to be mostly those countries whose salaries have progressed the most rapidly that have also experienced the most important decreases in unemployment rate (Figure 6).

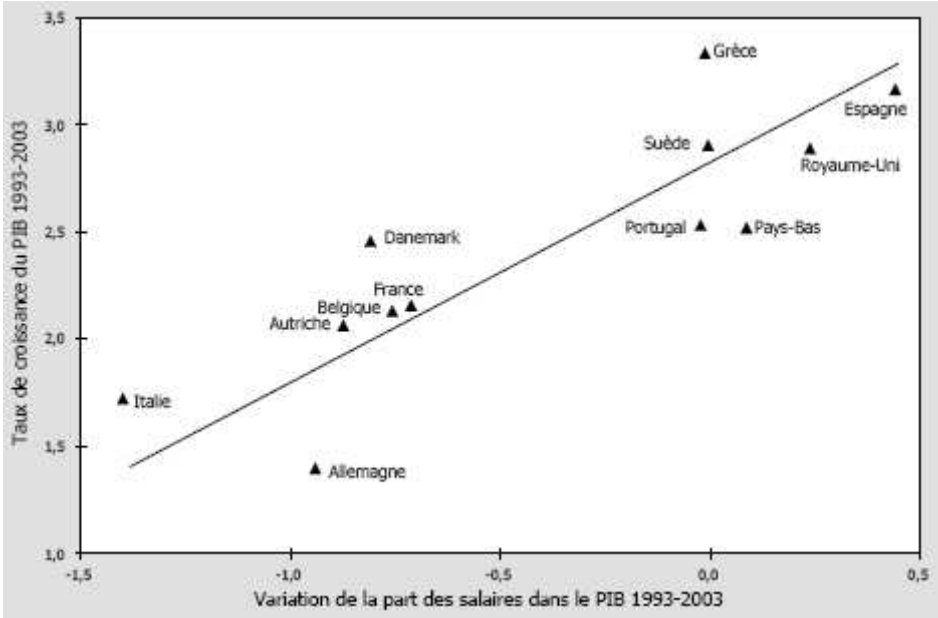


Figure 5: Variation of GDP growth rate and of proportion of salary in total GDP between 1993 and 2003 in Europe

Source : Les mutations de l'emploi en France, IRES, éd. La Découverte, 2005

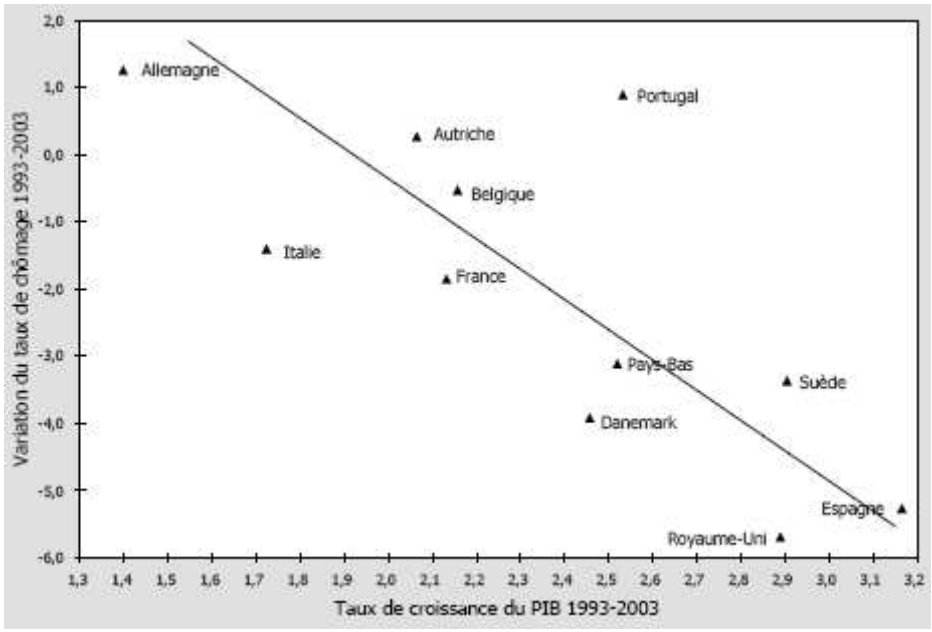


Figure 6: Variation of unemployment rate and GDP growth rate between 1993 and 2003 in Europe

Source : Les mutations de l'emploi en France, IRES, éd. La Découverte, 2005.

2. The « boom » period Europe went through between 1997 and 2001 with the creation of some 10 million jobs was essentially due to two factors: the weak Euro supporting exports and a halt of the decline of the proportion of wages in GDP. These factors are thus either exogenous (exchange rate) or in contradiction with the logics of current political leitmotiv of current EU policies
3. Finally, it is interesting to note that in Germany – as an example of a low-growth region – reduction of wage costs has allowed to support exports, increasing in volume by 16% between 2000 and 2004, but at the same time severely constricted internal demand which decreased by 1%. At the same time, growth has been slow.

2.5 Public policy for enterprises: in search of externalities

In the context of the above-mentioned productivity crisis and a market growing at very slow pace, we distinguish two types of public policies, both aiming at safeguarding profit rates for companies.

The first is linked to our hypothesis concerning externalities resulting in new role for public policy, now catering to this demand for externalities by supporting the "business environment" and by fostering clustering and

networking. The State is seen, therefore, as the provider of the necessary framework for the "free" play of market forces. The State thus takes over a part of the costs formerly supported by the enterprises, without investing directly in the enterprises which would contradict the notion of the State as "night-watchman", without active and directive intervention into economic activities. This can be seen in EU policies such as the Lisbon strategy or most of the Structural Funds investments which often transfer funds from the State to enterprises in the form of cost savings. However, one can ask several questions concerning these policies:

- Is the focus on externalities and on innovation capacity really the most efficient economic policy when the EU already has a higher capital/labour ratio than other comparable economies ?
- Wouldn't the sheer size of the EU market be enough to attract investments, without the State transferring means to enterprises in forms of innovation and externalities-creating policies ?
- Will too much public investment not cancel itself out since all regions will offer exactly the same externalities, thus destroying the initial effect of offering them ?

These specific questions lead to more global ones, such as:

- Should policy aim more at "efficiency" (concentration of means) than at equity (distribution of means), knowing that some evidence suggests that higher internal inequalities might actual hamper (or at least not foster) growth ?
- The increase in public spending for the creation of externalities doesn't it take away resources that would be necessary for the EU objective of social cohesion ?
- Most companies do not ask themselves whether they should invest in Europe or elsewhere but rather where they should invest in Europe ? So, at a European scale, should policy (and public budgets) aim at putting the regions in competition of each other, or should they invest in the distribution of the attracted wealth ?
- Austerity measures and public investments in externalities have lead to a significant increase in profit rates. Now that the rates are up again, and in the light of continuously low productivity and growing social inequalities, should the State (including the EU) change its policies ?

The second type of public actions concerns the creation or opening up of new markets in the form of economic liberalisation. Both the political enlargement of markets (through free movement of goods, trade agreements, etc) and the liberalisation of formerly restricted (public) sectors fall into this category, offering new possibilities for profit. One can assume that such policies will generally be targeted towards sectors and/or regions where the profit potentials are highest. This means that there is a risk that they lead to more unequal distribution of both activities and income across the European regions.

2.6 Concepts

In the context of the general research hypothesis, notions such as regional competitiveness, territorial capital and access to services of general interest can be seen as representing the shift of paradigm described in the previous sections. It will be an essential aim of the research to explore these notions in a way to lay open the underlying assumptions in order to clarify the policy options.

In parallel, the question of how to measure regional economic potential and performance also has to be seen in a wider policy context concerning the actual objectives of territorial development, including compensation for the apparently inevitable polarisation of activities. If social and environmental aims are taken into account (i.e. if all the elements of the Lisbon and Gothenburg agenda are to be taken seriously), measures other than the GDP have to be found to analyse whether economic performance also has wider positive impacts (raise in quality of life creation of employment, reduction of poverty, reduction in pollution, etc.).

The empirical measurement of the phenomena described in the previous sections (e.g. metropolitanization) has, however, often remained limited to monographic studies and thus continues to raise certain questions concerning their scale and their level of generality.

On a strictly economic level a large part of the analyses converge on the growing importance of the role of positive externalities in the recent regional economic developments as can be seen in the growing insistence on concepts such as territorial production systems or territorial capital. One often encounters the idea that economic policies today should focus exclusively on the reinforcement of the latter. However, notable divergences continue to exist concerning the precise definition of the notion, and more generally concerning the relative importance of different types of

externalities. Thus, the principal focus is sometimes put on characteristics of the labour market, such as education levels, mobility, the cost and the diversity of the labour force, but others emphasise the characteristics of the entrepreneurial fabric itself, such as the potentials for outsourcing (notably in high-level services), the connectivity of enterprises or the relative importance of specific growth-enhancing technological sectors. Accent can also be put on the quality of the material infrastructure (transport, communication, etc.), on the existence of a favourable environment for R&D activities, on the institutional context or on local governance and fiscal policies. Often defined to touch a part of the same characteristics, but sometimes limited to the only dimension of regional sectoral structures, the concept of regional economic potential suffers more or less from the same lack of precision.

The empirical usage of these concepts, notably through indicators allowing comparative studies, therefore appears quite difficult, especially since several components of the territorial capital cannot be measured quantitatively. In addition, within these concepts it is often difficult to distinguish the objective analysis of regional development conditions from normative a priori discourse. Thus, one can often propose a general list of favourable characteristics in terms of territorial capital without taking into account the specific characteristics of different types of regional economic fabrics. On the other hand, territorial capital can also be described as resulting from the specific and unique combination of productive structures, labour market characteristics, inter-firm relationships, institutional characteristics, etc., often on the base of monographic studies. Such a usage of the notion obviously does not easily allow comparative evaluations.

During the last years, the notions of territorial capital and of regional economic potential have more and more been linked to that of regional competitiveness, although neither the relevance, nor the measurement, and not even the precise definition of the latter is systematically discussed. This implicit definition of regional economies as corresponding to competing firms has been generally accepted without any empirical definition, while they convey the idea that strictly local economic activities have a very low impact on regional economic development and thus on the well-being of the local population. Thus endogenous development potentials are taken into account in only limited manner. In general, the potentials for regional development are seen as almost exclusively determined by the capacity to attract and fix, within the regional territory, very mobile production factors which are largely oriented to the outside of the region, be it firms competing on large markets, strategic or innovating activities or a highly qualified work force (but also, in more peripheral areas, labour-intensive activities), notably

through a competitive offer of externalities and of targeted services of general interest.

3 Analysis of localisation patterns

3.1 Introduction

As the theoretical framework shows, the determinants of localisation of economic activities are quite complex. The difficulty in studying them arises from the fact that decisions are taken on the micro-scale (in the sense of micro-economic, not in the ESPON sense), i.e. by individuals within enterprises. These individual decisions are not always rational and, even if they were, it is impossible to study them in detail across the ESPON space. We, therefore, need to take a step back and use statistical data in order to be able to cover all the regions and to maybe see the emergence of structural patterns which do not appear as easily when studying individual enterprises. This however, often leads to extreme simplifications compared to the complexity of the individual decision making, not the least because of the severe data lacks, which have already become proverbial in the ESPON programme.

We have, therefore, decided to attack the question from two different sides, the statistical macro-perspective and the empirical micro-perspective. After reviewing the theoretical literature on the topic of localisation, we will, thus, test our general hypotheses developed in the previous chapter, through the analysis of economic (and other relevant) data at NUTS2 and, where possible, NUTS3 level, before devling into the world of the enterprises and the study of their behaviour and its determinants. In the short time since the actual beginning of this project, we have spent most of our efforts in the evaluation of existing knowledge and data, in order to define more clearly the future tasks ahead of us.

3.2 Current state of knowledge concerning localisation of economic activities

While reporting on the current state of research on theories of localization of economic activities, and in reviewing the literature on territorial development, industrial (re-)organisation and issues related to regional and economic competitiveness, such as innovation and technological development, it becomes clear that *orthodox perspectives*, e.g. the paradigmatic status of Weberian locational theory, have been challenged over the last 10-20 years by a plethora of heterodox perspectives (Storper, 1997). In orthodox perspectives firms seek locations that minimize distance-transactions and production costs. Corporate locational behaviour might also be affected by resource dependencies.

Most notably the orthodox perspectives include application of neo-classical economics while discussing the issue of regional development. Within this framework processes of equilibrium will work in the direction of regional convergence at all scales, although hindrances for convergence can be detected, and dealt with theoretically. The neo-classical growth model (Solow, 1956) operates with diminishing returns to capital - ensuring that poorer regions tends to have faster income growth than wealthier regions. Mobility of production factors tends to speed up the convergence process. The neo-classical growth model is based on the assumption of an exogenous technology. This means that the model predicts that all economies grow at the same rate in steady-state. Economies with a small capital stock will however experience a faster growth rate in the short run. There is an extensive empirical literature on income convergence across nations and regions (see box further on). Several studies find evidence for convergence, e.g., Barro and Sala-i-Martin (1992) find support for the convergence hypothesis for European regions using data for 7 countries and 73 regions. However, the convergence tends to be relatively slow. Armstrong (1995) also includes regions from south Europe and concludes that the inclusion of these regions in the regression models results in smaller parameter estimates for convergence. Some authors have argued that growth studies often suffer from methodological problems which may bias the results towards convergence (see, e.g., Quah, 1993).

Within the neo-classical framework, economic integration is predicted to speed up convergence towards steady state. However, the neo-classical model does not explain factors determining higher growth rates in the long run. If we believe that economic integration will enhance economic growth in the long run, we can not use the neo-classical model in order to find out why

growth may be enhanced. The neo-classical model can be questioned in several aspects. A general conclusion from more recent theories is that economic growth is often associated with agglomeration and scale effects, e.g., endogenous growth models (see, e.g. Romer, 1986) and theories of the "new economic geography" (see, e.g. Krugman, 1991). These models are not based on the assumption of diminishing returns and whether or not income convergence is observed is ambiguous. Furthermore, the effect of economic integration is ambiguous in contrast to the neo-classical model.

3.2.1 Territorial development and regional competitiveness

The *heterodox perspectives* on territorial development are building upon inspiration from developments within various strands of economic theory, for example evolutionary and institutionalist economics. A major inspiration referred to by many scholars is the seminal work of Piore and Sabel (1984), which spurred researchers to look more carefully at localized, specialised productions systems, the 'industrial districts', 'Marshallian' districts, found in The Third Italy, in Baden-Württemberg and other places throughout the European space. Various development paths have thus been detected, for example, regions that are "high road" instances (e.g. Baden-Württenberg); upstream innovations (e.g. Québec); downstream near-market innovations (e.g. Catalonia); "dirigiste" systems (e.g. Midi-Pyrénées); localist system (e.g. Tuscany), etc.

The heterodox perspectives are elaborated in and through a rather vivid, and at times bewildering, inter-disciplinary discussion amongst economic geographers, urban and regional economists, and economic sociologists. Despite the dissimilarities between the heterodox perspectives they share a rather critical stance towards the orthodox perspectives, especially that they are rooted in neo-classical economics. This, of course, has posed the orthodox perspectives with a challenge, and they have certainly not been unaffected by that very critique. Hence, as far as economic development theories are concerned, a whole range of competing theories exists. Martin (2005) proposes a useful didactic presentation of those theories and their implications for "regional competitiveness", cf. **Erreur ! Source du renvoi introuvable.**. In the table the first two sets of theories rest within the orthodox perspectives, whereas the latter two are forming an essential part of the heterodox discourse:

Theory	***Main Source of Regional Growth and Productivity***
Export-base theories	The competitiveness (productivity) of a region's tradable base is an important determinant of its overall economic performance and success. Export base theory highlights the role that a region's export sectors play – both directly and via multiplier effects on the region's non-tradable activities – in stimulating incomes, investment and productivity advance.
Endogenous (or 'new') growth theory	The accumulation and attraction of educated and skilled human capital is the key source of local economic growth and productivity advance, via its effect on technological progress. The localised concentration of such workers promotes knowledge creation and spillovers, and thence innovation.
Neo-Schumpeterian theory	Innovation, technological advance and entrepreneurialism are the key drivers of regional competitive performance. There are two opposing views as to what stimulates local innovation: local economic specialisation (through rivalry between similar and competing firms), or local economic diversity (through the greater scope for novelty and market opportunities).
Cluster theories	A region's competitive advantage depends on the presence of localised clusters of specialised export-orientated industries, and associated supporting supplier and institutional networks. Such clustering stimulates: inter-firm rivalry and knowledge spillovers, innovation, investment, and a local pool of specialised skilled labour, all of which increase local productivity.
Evolutionary theory	An evolutionary perspective emphasises dynamic competitive advantage, and the adaptive capabilities of a regional economy to respond to shifts and changes in markets, the rise of new competitors, and the development of new technologies. A region's

Theory	*Main Source of Regional Growth and Productivity*
	competitive advantage is the complex outcome of its past development – path dependence- and its capacity to create new pathways of development. The evolution of institutional forms and is crucial to this process.
Institutionalist theory	A region's competitive advantage is held to derive from the 'thickness' of its institutions. That is, a well-developed and regionally embedded set of informal and informal institutions, from business and trade associations, to educational and training institutions, to entrepreneurial culture, to civic trust and other forms of social capital, all with a common sense of purpose, provide a highly favourable environment for economic development and expansion.
Cultural theory	A looser body of 'theory' that attributes regional (and city) success to the existence, on the one hand, of cultural diversity and tolerance (which allegedly stimulates creativity, innovation and entrepreneurship), and, on the other, to favourable cultural amenities and infrastructure which enhance the quality of life and help to attract workers and businesses.

Table 1: Theories of regional competitiveness

If the distinction between orthodox and heterodox theoretical perspectives on the (re-)location of economic activities is combined with the three scales applied in many ESPON-studies, micro-, meso- and macro-level, cf. Table 2, it can be observed that the orthodox perspectives often confine themselves to one of the scales, whereas the heterodox perspectives are much more open to applying a 'multi-scalar' approach that enables them to analyse the interrelated processes, e.g. how are globalization processes influencing and influenced by processes at the local/regional level, including relocation of businesses. This development towards more 'relational' perspectives has also had an impact on empirical studies of locational behaviour at a local/regional scale, which tends to move away from – or supplement – studies of, for example, Christallian spaces (studies of the city and its

hinterland) and behavioural studies with an analysis of the complex relationship with wider socio-economic processes outside the firm's immediate business environment. In short, regional economies are viewed upon as 'stocks of relational assets' (Storper, 1997:28)

	Micro-level	Meso-level	Macro-level
Orthodox perspectives			
Heterodox perspectives			

Table 2: Analytical schema

In heterodox perspectives, firms are regarded as bundles of resources, competencies or capabilities that are then strategically deployed to realise corporate strategies. Resource or capability developments are tied to territories and networks, and the locational behaviours of embedded firms are constrained by these networks or territories (Maskell and Malmberg, 1999a). The heterodox perspectives are spanning from theories that are accompanied by advanced econometric analyses and multi-variable, statistical analyses to theories that are pointing to the importance of 'softer' factors, such as human and social capital, industrial milieux, institutional set-ups and 'cultural' aspects of competitiveness (Lundvall (ed.) 1992, Braczyk et al, 1998), Dunning (ed.), 2000. The latter is often based on qualitative research methods, but in the recent years numerous research teams have made comparative studies at the meso- and macro-level by the use of quantitative research techniques in order to rank the importance of various 'softer' development factors, including analyses that are comparing the importance of 'softer' factors to economic parameters of performance.

3.2.2 Innovation and technological development

The growing awareness that surrounds the issue of European competitiveness and Europe's innovative capacities is echoed – largely inspired by – theoretically informed investigations of the importance of medium- and long-term changes as well as the crucial role of innovation for economic development.

This is an essential element of Neo-Schumpeterian theories as they are focusing on recurring structural changes, inspired by, what Schumpeter

calls, the perennial gales of creative destruction, which is followed by waves of expansion and rapid growth. Pioneering entrepreneurs are responsible for creating these gales as they search for new productive and trade combinations (innovations in the Schumpeterian sense) to gain greater profits. In Schumpeterian views of localisation and innovation, firms are viewed as learning agents. Hence, some Neo-Schumpeterian models of economic growth and industrial dynamics have much in common with evolutionary theories of economic growth, e.g. the discussion of 'regional innovation systems' (Lundvall et al, 1993). System interactions are occurring between firms and the innovation support infrastructure. A typology of Regional Innovation Systems (RIS) (Brazcyk et al. 1996) based on dimensions of innovation activity (*governance infrastructure* and *business superstructure*) has been worked out and helps in understanding the differences and similarities in terms of level and degree of institutionalisation of RIS.

There is a growing consensus, within both orthodox and heterodox perspectives, that innovation is the key driving force behind economic growth, standards of living, international competitiveness and regional development (Acs and Varga 2001; Brazcyk et al., 1998). Three different and distinct literatures are re-examining these issues: what has become known as new economic geography (Krugman 1990), new growth theory (Romer 1990), and new economics of innovation (Nelson 1993).

The *new economic geography literature* seeks to answer the question: why economic activity concentrates in certain regions but not others. One of the most important findings from this literature is that knowledge spillovers provide a mechanism for enhancing the innovative performance and growth of firms. Co-location facilitates knowledge spillovers by providing opportunities for both planned and accidental interactions. Locations that contain concentrations of knowledge-intensive resources will be the locus of knowledge spillovers.

The *new growth theory* seeks to explain the causes of economic growth, leaving out regional considerations and ignoring completely discussions of the key processes and institutions involved in innovation. The new economics of innovation literature explain the institutional arrangements of the innovation process but leaves out regional issues and economic growth

New growth theories suggest that differences in growth rates may result from increasing returns to knowledge. One source of increasing returns may be agglomerations or geographic concentrations of knowledge that provide a means to facilitate information searches, to increase search intensity and to ease task co-ordination in general (Feldman 1999). Knowledge is not easily

contained and for this reason, location may enhance the generation of innovation and yield higher rates of economic growth.

From industrial regions to learning regions

Although his work has also been severly criticised[2], the recent contribution of Florida[3] is worth mentioning. He underlines that the role of the regions in the new area of global capitalism is a key element still misunderstood. Regions are becoming the reference points for the creation and transmission of knowledge. Florida introduces the concept of "learning region". "Learning regions" are vehicles of globalisation: they function as collectors of knowledge, provide the necessary environment for knowledge creation, circulation and learning. In opposition with old industrial regions, learning regions are characterized by bottom-up governance structures reflecting those of knowledge-intensive firms: mutual dependency relations, a network organization, decentralised decision-making processes, flexibility and a constant concern to meet the needs of consumers-citizens. More recently, knowledge externalities have been acknowledged to exacerbate spatial disparities of growth. Table 3 compares the opposing characteristics of industrial and learning regions.

The contrast is very evident between the functional logic that prevails in industrial regions and the territorial logic that is seen as making learning regions successful. Transition from one model to the other cannot be achieved without a regional strategy providing the impetus essential to mobilise the process of change[4].

2 The main arguments against Florida's theories are that he uses biaised data sets (confounding city centers and metropolitan regions), that his association between "creative class" and economic development has no empirical basis, and that the notion of "creative class" is as such misleading, since there is no homogenous "class" in that sense (Levine, 2004; Kotkin, 2005)

3 Florida (2000), pp. 231-239

4 Capron (2001)

	Industrial regions	Learning regions
Basis of competitiveness	Comparative advantages – Natural resources – Physical labour	Sustainable advantages - Knowledge creation - Continuous improvements
Production system	Mass Production – Physical work – Separation of production and innovation	Knowledge-based production – Continuous creativity – Integration production and innovation
Industrial Infrastructure	Arms's length supplier relations	Businesses networks
Human Infrastructure	– Low cost and low qualified work – Taylor-like workforce – Taylor-like education and training system	– « intelligent » work – Continuous training and education
Physical and communication infrastructure	– Infrastructures conceived on a national basis	– Infrastructures conceived on a global basis – Electronic exchange of information
Industrial governance system	– Conflicting relations – Hierarchical organisation – Regulatory framework for control and command	– Partnership relations of mutual dependency – Flexible regulatory framework
Institutional governance system	Centralised, hierarchic and reactive functional logic – Separation of skills – Intervention based on market deficiencies – Centralisation of decisions – Administrative management	Ascendant and proactive territorial logic – Integration of skills – Intervention based on systemic deficiencies – Decentralisation of decisions – Public-private partnership

Table 3: From industrial regions to learning regions

(Adapted from Florida, 2000)

In the *new economics of innovation* the importance of specific and regional knowledge resources in stimulating innovation capabilities and the competitiveness of firms and regions are combined in the concept of regional innovation systems. By this concept, it is argued that firm-specific competencies and learning processes can lead to competitive advantages if they are based on localized capabilities such as specialised resources, skills, institutions and shared common social and cultural values (Maskell and Malmberg 1999b)

In comparative studies of regional innovation systems, the relevance of various determinants for regional innovation potential as well as the innovative linkages and networks between different players have been studied. It is generally conceded that the innovative performance of regions is improved when firms are encouraged to become better innovators by interacting both with various support organisations as well as other firms within their region. Basic stimuli in promoting innovative activities are not only the individual strategy and performance of firms, but also the institutional characteristics of the region, its knowledge infrastructure and knowledge transfer systems (Doloreux and Parto 2004). These ideas have inspired studies of spatial clustering of firms, in particular in the OECD.

Major changes in the organization of production, policies and business location also mean that the regional level has grown in importance as a source of innovation support for business. This is especially so where regional business is predominantly small-firm in nature or linked in supply chains to larger enterprises. Some regional administrations are well equipped to perform this function, others less so.

On another level, opinions diverge on why some regions are more innovative than others. The Marshall-Arrow-Romer view is that innovation is stimulated by externalities associated with economic specialisation. In the Jacobs view, innovation is promoted by local economic diversity and heterogeneity. Despite the fact that the controversy is not yet resolved (Glaeser 2000), recent literature finds common evidence that the influence of Jacobs externalities on innovation increases together with technological intensity while Marshall-Arrow-Romer externalities are important for innovations of mature industries (Henderson et al. 1995; Greunz 2004).

More than ever innovation is a necessary condition for economic growth, and nowadays knowledge has become a production factor. During the last decades the model of innovation gradually evolved from the linear to the integrated and networking model . The linear model, dominant from the 50s until the 70s, views innovation as a straightforward path from the laboratory directly through the marketplace. The incompatibility of the linear model

with the present techno-economic paradigm has got a great deal of attention in the literature (Kline and Rosenberg, 1986; Lundvall, 1988; Dosi, 1988). By contrast, regions characterised by an integrated innovation and production system with flexible linkage, feedback and looping relations between actors (Kline and Rosenberg, 1986) revealed themselves as winners in the race of competition (for example: Third Italy (Pyke and Sengenberger, 1992) or Baden-Württemberg (Braczyck et al., 1998).

3.2.3 Differential growth patterns – re-agglomeration and re-metropolisation

In recent years a number of different "schools of thought" have described the various aspects of the resurgence of regional economies – a clear spin off from the work of Piore & Sabel (1984), referred to earlier in this chapter. The very awareness of the possibility of having developments that echoes 'Marshallian districts' implies that *re-agglomeration* does not necessarily equal *re-metropolisation*. Surely, growth continues to favour the 'core' areas, including the larger metropolitan areas in the Pentagon, but throughout the European economic space differential growth rates and different regional productivity rates are found. – within the 'core', as well as in other sorts of regions. Therefore the focus on re-metropolisation should be 'balanced' against discussions of processes of endogenous growth – and the weaknesses of Less Favoured Regions.

These various aspects of a regional environment, which tends to foster endogenous development have been presented as regional innovation systems (Tödtling & Kaufmann, 1999, Doherty, 1998), milieu innovateur (Maillat, 1998), learning regions (Asheim, 1996 and 1999, Morgan, 1997) or industrial districts (Belussi, 1996), or in terms of clusters or business networks (Johannisson et al., 2002, Johansson & Quigley, 2004, Lechner and Dowling, 2002, Nijkamp, 2003). Some of these have already been described in preceding sections, and since there are many areas of common ground between them, a thematic approach is therefore perhaps more appropriate here and will be pursued in upcoming reports.

3.2.4 Does geography matter ?

Contrary to prominent views that globalisation would gradually decrease the importance of geography and location for economic activity (Vernon, 1997; Cairncross, 1995), the logical consequence of the interactive linkage model is that geographical proximity matters. Moreover, knowledge spillovers and externalities are geographically bounded, and the main mechanism of high contextual, tacit or uncertain knowledge spillovers is face-to-face interaction through repeated and frequent personal contacts (von Hippel, 1994). This observation implies that social capital is indeed the material of knowledge spillovers.

A last observation is the cumulative nature of innovation processes. As advocated by the endogenous growth literature, knowledge accumulation constitutes the primary element of economic growth and is the main source of increasing returns to production factors (Romer, 1986, 1990; Lucas, 1988). This cumulative nature of knowledge and innovation may be part of the explanation why regional disparities regarding GDP per capita in the EU are persistent. This also explains the location choices of multinational corporations with respect to their innovation activities (Cantwell and Iammarino, 2003).

Convergence or Divergence – no clear evidence

It is quite clear that the study of economic growth and convergence have some methodological problems. Furthermore, empirical results seem sensitive to the selection of countries or regions as well as the time period. Barro and Sala-i-Martin argue that evidence of convergence is more likely to be found in studies on regional data since regions are more homogenous with respect to preferences and institutions. Although several studies find evidence for convergence among European nations and regions, other studies find more complex patterns. Some of the research is concerned with the existence of "regional convergence clubs" (see, e.g. Quah, 1996a, 1996b, for a discussion of convergence in the neo-classical model and "regional convergence clubs). These regional clubs can emerge from regional differences in saving ratios, technology, etc. Mora et. al.(2005) study conditional convergence for European regions related to the initial sector specialisation. The data covers 108 regions (NUTS 1 and NUTS 2) for the EU-12 members during the period 1985-2000. They found that regions specialised in low tech intensive industries before integration have not showed any sign of convergence. They also found that regions with lower specialisation in low-tech industries, located further away from the core had significantly higher convergence.

Esteban (2000) points out that one explanation for the inconclusive results on economic growth and convergence is that most empirical studies use per capita income instead of productivity per worker as the dependent variable. The problem with per capita incomes is that differences in income may reflect employment rates and participation rates and not necessarily productivity. Esteban states that interregional differences in aggregate productivity (per worker) may be compatible with regional equalisation of productivity sector by sector. Even if the productivity for each sector is equal across regions, differences in industry mixes can give variation in aggregate productivity in a region if the productivity per worker differs between industry sectors. It is also possible that regional differences in average productivity affects all industries in the same way, e.g. through regions specific endowments like infrastructure. Esteban (2000) studies interregional differences in productivity among European regions. Sector data on regional employment and gross value added are analysed for NUTS 2 regions. The empirical results indicate that interregional differences in aggregate productivity are foremost explained by region-specific productivity

differences and that regional specialisation has a much lesser role in explaining aggregate productivity. Esteban concludes that this result indicate that policies should be aimed at stimulating productivity uniformly in regions lagging behind, e.g., infrastructure and human capital.

Happich and Geppert (2003) study convergence across European regions by applying a Markov chain on GDP data for 57 regions for the period 1980-1999. They found no evidence for convergence for the period 1980-1992. Although they found evidence for convergence for the post-Single Market period, the convergence is very slow, a result which is consistent with many other empirical studies on convergence within Europe.

Although the empirical literature on economic growth and convergence is extensive, the results on convergence are ambiguous. Furthermore, the empirical results that have been presented can not answer the question if European integration has enhanced economic growth.

3.2.5 SME's and regional development

Due to their limited size SMEs tend to be particularly sensitive to regional variations in different kinds of external economies, including:

- Shared local business networks, both upstream and downstream, helping to reduce both transport and transaction costs.
- Access to a common pool of human capital resources, a well educated and trained workforce, endowed with "tacit knowledge" acquired through working within regional specialised industries (Asheim, 1999).
- Access to technical and marketing information through dense transaction and non-market business networks (Johannisson et al., 2002, Johansson & Quigley, 2004, Lechner & Dowling, 2002, Nijkamp, 2003).
- Appropriate and well coordinated institutional support (institutional thickness) Amin & Thrift (1995)
- Access to private business services (financial, marketing, clerical and so on)
- A "entrepreneurial culture" supportive of risk taking, and benefiting from collective learning about the practicalities of setting up a business (Malecki, 1997).

Clearly although some of these features tend to be associated with larger urban areas, there is no reason why they should not account for variations in "economic vitality" between more rural regions. Several recent studies have explored this possibility (Copus 2001 and forthcoming).

3.3 Data collection

3.3.1 Introduction

This section introduces the first efforts concerning data collection and analysis. As mentioned in the general introduction to this chapter, a statistical approach allows a birds-eye view of the ESPON space, thus hopefully providing some insights into general patterns across the continent, defining the where, which might then feed back into the more fundamental questions raised previously aiming at exploring the why.

Three basic questions seem the most appropriate for statistical analysis at NUTS2/3 level:

- Metropolitanization, myth or reality ?

  Can we actually observe the metropolitanization tendencies advanced as hypothesis ? If yes, where and at which scale ? More generally speaking, this part concerns the general geography of economic activity and performance.

- (De)Localisation, where and from where to where ?

  The Scoping document endorsed in May in Luxembourg, mentions one of the key challenges for European territories the " accelerated relocation of economic activities". This is often seen as a corollary to the hypothesis of increasing vulnerability of regions in light of globalisation. Again, how much of this is actually true ? Which companies relocate and do they represent an important part of the economic activities of regions ?

- Specialisation, the future of cities ?

  The notion of polycentricity is often accompanied by the idea that cities do and should specialise and then work together in networks of complementary poles. Is this really happening ? Are cities (and more generally regions) concentrating on specific "territorial advantages" ? Which advantages ?

These are just some of the questions that can be asked of the data, but they represent some of the more important elements of the current political

debates and are necessary bricks for constructing the walls underneath the theoretical roof elaborated in the previous chapter. Together with the general overview of the literature and the analysis of enterprise-level issues, the analysis of the statistical data will, thus, hopefully provide some insights useful for policy making.

In the tender, we proposed to analyse the data according to the following five axes:

- distribution of activities
- distribution of enterprises
- distribution of active population
- distribution of economic performance / "competitiveness" / potentials
- social impacts of economic development

In the light of the above questions, the two first points are obviously the most important as they allow the empirical verification of the general hypotheses in terms of the expected geographical outcomes. The next two are more linked to the driving forces of localisation. However, the question of potentials has been extensively treated by project 3.3 and we will, therefore, mostly use their work as basis of our analysis, wherever appropriate. The last point pertains to the question of why economic development is of importance, and, even more interestingly, which type of economic development. If we agree that the ultimate goal of economic development is an improvement of the well-being of people, than it has to be scrutinized and evaluated against this goal. We will, however, be limited by the availability of social data on regional level (hoping that project 1.4.2 will provide some inspiration).

Cycles of economic localisation are long-term cycles. This is obviously linked to the need for material investments to pay off before being able to change localisation. But it is also linked to other elements, often summarised in the term "path dependency" which integrates many tangible and intangible elements. Thus, economic geography cannot be studied convincingly in short-term periods (although a "knowledge economy" theoretically might change this if knowledge is seen as less grounded then material factors of production). We, therefore, propose to use some long-term time series in order to show general trends which are independent of short-term events.

However, as we will see in the next section, data problems are multiplied whenever one attempts to construct time series.

3.3.2 Identification of necessary data

In order to approach the above questions through statistical data, the following types of information seem necessary:

- sectoral structure

  Most analyses of regional production systems in ESPON use a very limited differentiation of economic activities. This is highly unsatisfactory as the type of policy to use in a given region obviously depends on the specific mix of activities with which this region operates. It is thus important to be able to analyse the distribution of activities across Europe and its evolution. As these structures have grown through long-term history, they can also provide insights into the general capability of a region to fix certain activities, but also into the overall structure of the labour force in terms of qualifications and specialisations.

- enterprises (number, size, investments, etc)

  As one of the main aims of this project is to understand patterns of localisation, basic information about the types, numbers and sizes of enterprises as well as their policies in terms of investment is needed.

- GDP

  While GDP has its shortcomings as an indicator of aggregated performance, it does provide an indications of the economic "success" of regions. In addition it is the most widely available indicator of that sort. Obviously, it measures wealth creation at the place of production, not of residence and it does not take into account social transfers.

- labour force

  As mentioned in the tender, information about the structure of the labour force (age, qualification, etc) will allow the evaluation of the "potential" of

the inhabitants of a region to adapt to different types of economic activities.

- social indicators

One of the aims of this project is also to analyse which types of growth and which types of economic organisation have which impact on the social situation within this region. Data is rare on this issue, but hopefully ESPON project 1.4.2 will provide some hints. This issue will thus be covered in later reports.

3.3.3 Information about current state of data collection

This section provides an overview on the current state of data collection, including an evaluation of the different available data sets and their quality.

3.3.3.1 Structural data

We have mainly concentrated our efforts on the collection of structural data, on the basis of value added (and employment) by economic sector, as this is the basic building block in the understanding of regional economic developments. The goal is to build a typology of European regions based on their economic structure. Thus we had to collect data of value added, by region and by economic sector, for two periods (1995 and 2002).

After describing for which regions and economic sectors the data are needed, we present:

1. First, an inventory of the existing (regional and sectoral) data of value added and employment available through Eurostat database
2. Second, a list of the data already collected (through Eurostat or national statistics institutes) and the data which is still to be collected.

3.3.3.1.1 The regions

ESPON aims at collecting data at NUTS3 level. However, economic data with sufficiently fine-grained structural divisions is not available at that level for all countries. We, nevertheless, attempt to collect as much as possible at that level,

supplementing with NUTS2-level data, whenever necessary. In that respect, we try to follow the recommendations currently developed within ESPON project 3.4.3 in order to try to have data available for units of comparable population size.

3.3.3.1.2 The sectors

The economic sectors for which the value added data are needed have been chosen according to the European nomenclature: NACE Rev. 1. The choice of the ideal level of sectoral division is a trade-off between precision and availability. If it were possible, the data should be collected at the NACE 2-digits level, that is to say with 60 sectors, but we are aware that at this level the statistics of value added by region will not be available for every country.

The NACE A-17 level is, on contrary, not precise enough because with its 17 branches, it does not include a subdivision of the manufacturing (D) branch. We need this division inside the industrial sectors for differentiating regions with old heavy-industries, light industries or technologically advanced industries.

In conclusion, the ideal level of sectoral breakdown is the "NACE A-31" level, with 31 branches, given in the table below.

A	Agriculture, hunting and forestry
B	Fishing
CA	Mining and quarrying of energy producing materials
CB	Mining and quarrying except energy producing materials
DA	Manufacture of food products; beverages and tobacco
DB	Manufacture of textiles and textile products
DC	Manufacture of leather and leather products
DD	Manufacture of wood and wood products
DE	Manufacture of pulp, paper and paper products; publishing and printing
DF	Manufacture of coke, refined petroleum products and nuclear fuel
DG	Manufacture of chemicals, chemical products and man-made fibres
DH	Manufacture of rubber and plastic products
DI	Manufacture of other non-metallic mineral products
DJ	Manufacture of basic metals and fabricated metal products
DK	Manufacture of machinery and equipment n.e.c.
DL	Manufacture of electrical and optical equipment
DM	Manufacture of transport equipment
DN	Manufacturing n.e.c.

E	Electricity, gas and water supply
F	Construction
G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
H	Hotels and restaurants
I	Transport, storage and communication
J	Financial activities
K	Real estate, renting and business activities
L	Public administration and defence; compulsory social security
M	Education
N	Health and social work
O	Other community, social, personal service activities
P	Activities of households
Q	Extraterritorial activities

Table 4: The NACE A-31 nomenclature

3.3.3.1.3 The existing data sources

After having described the ideal data that we need for a matrix of the economic structure of European regions, we now present the existing data that we could use. Since we need harmonised data, on all ESPON countries, we will emphasize mainly on the Eurostat regional database.

Eurostat proposes data in numerous areas, in a harmonised way (data proposed in the same currency and years, use of the NACE and NUTS nomenclature,…). Since we have to collect data for a total of 29 countries, this constitutes undoubtedly a great advantage with regard to the time necessary to collect data for each country and to harmonise the data and verify its quality.

This database unfortunately also has some disadvantages:

1. Depending on the data sets, there are sometimes a lot of holes in the downloaded tables;
2. The need to present harmonised data sometimes leads to data that does not fulfil our needs (for instance : if an indicator is available for European regions at the NUTS 2 level, the same data will not exist at the NUTS 3 level even for countries where it is the functional regional level).

We present below the data that exist in Eurostat website for two indicators: firstly the value added, secondly employment (which sometimes allows to ventilate VA data if necessary). Let us pay attention that we will emphasize here the data that are available at the same time at a regional level and with a sectoral breakdown.

A. Value added data

In the "Regions" database of Eurostat website, the value added data do exist, yearly from 1995 to 2002, each time for the EU 25 and the non-EU 25 countries (mainly Bulgaria and Romania), in several forms :

1. Gross domestic product indicators

Two indicators seem relevant:

- Gross domestic product (GDP) at market prices at NUTS 2 or NUTS 3 level;
- Real growth rate of regional GDP at market prices at NUTS level 2 - percentage change on previous year.

These indicators exist in current € or in Purchasing Power Parities and are also available "per inhabitant" and with regard to the European average. However they are not given by economic sector and thus they could help to know the differences of level of production across Europe but not to build a typology based on the economic structure.

2. Branch accounts (Gross value added at basic prices at NUTS 2 or NUTS 3 level)

These are the really relevant statistics since they concern value added data by region and sector. One has to pay attention to the fact that the data at the NUTS 2 level are given for 17 sectors (A-17 Nace nomenclature, all the sectors we need except the detail for the Manufacturing sector) whereas the data at the NUTS 3 level are given only with the three broad sectors (primary, secondary, tertiary). Given the very precise sectoral breakdown we need, the existing data at the NUTS 2 level are not satisfactory but are already relevant and precise information. Inversely, data at the NUTS 3 level, with a so weak differentiation between economic sectors seem useless.

We provide in the table below a state of the existing data for the branch accounts statistics.

Country	Level of NUTS region aimed for at least	Availability of VA data at NUTS 2 level (17 sectors)
Austria (AT)	2	ok
Belgium (BE)	2	ok
Cyprus (CY)	0	ok
Czech Republic (CZ)	2	ok
Germany (DE)	2	I
Denmark (DK)	3	ND
Estonia (EE)	0	ok
Spain (ES)	3	ok
Finland (FI)	3	ok
France (FR)	3	ok
Greece (GR)	2	ok
Hungary (HU)	2	ok
Ireland (IE)	2	ok
Italy (IT)	3	ok
Latvia (LV)	0	ok
Luxembourg (LU)	0	ok
Lithuania (LT)	3 (2)	ok
Malta (MT)	0	I
Netherlands (NL)	2	ok
Poland (PL)	3	ok
Portugal (PT)	3 (2)	ok
Sweden (SE)	2	ok
Slovenia (SI)	0	ok
Slovakia (SK)	2	ok
United Kingdom (UK)	3 (2)	ok
Switzerland (CH)	2	ND
Norway (NO)	3	ND
Bulgaria (BG)	2	ok*
Romania (RO)	3 (2)	ok

Table 5: State of existing data of value added in Eurostat regional database (Branch accounts statistics)

ok : the data do exist and are totally or almost totally complete

ok : the data do exist for 2002 but not for 1995 (but 1996 data are complete)*

I : Incomplete (some regions or sectors are missing)

ND : no data for this indicator in this country

For the smallest countries for which national data can be directly used, one can also use the national accounts database. It supplies the gross national product, in current or constant prices, from 1966 to 2005, with three possible sectoral divisions (6 sectors, 17 sectors, or 31 sectors namely the A31 NACE nomenclature needed).

We provide in the table below a state of the existing data for the national accounts statistics.

Country	Availability of GDP data at the national level (31 sectors)
Austria (AT)	ok
Belgium (BE)	ok
Cyprus (CY)	I
Czech Republic (CZ)	ok
Germany (DE)	ok
Denmark (DK)	ok
Estonia (EE)	I
Spain (ES)	ok
Finland (FI)	ok
France (FR)	ok
Greece (GR)	ok
Hungary (HU)	ok
Ireland (IE)	ND
Italy (IT)	ok
Latvia (LV)	ok
Luxembourg (LU)	ok
Lithuania (LT)	ok
Malta (MT)	I
Netherlands (NL)	ok
Poland (PL)	I
Portugal (PT)	ok
Sweden (SE)	ok
Slovenia (SI)	I
Slovakia (SK)	I
United Kingdom (UK)	ok
Switzerland (CH)	ND
Norway (NO)	ok
Bulgaria (BG)	I
Romania (RO)	I

Table 6: State of existing data of GDP per sector in Eurostat national accounts statistics

ok : the data do exist and are totally or almost totally complete
ok : the data do exist for 2002 but not for 1995 (but 1996 data are complete)*
I : Incomplete (some regions or sectors are missing)
ND : no data for this indicator in this country

B. Employment data for ventilating value added data

If we refer to the indicator of number of employees by region and sector (and not to indicators as unemployment, active population and so on) the employment data have quite the same characteristics as the value added data, except that they are spread across different parts of the regional Eurostat database. Indeed, we can find employment data in the three following units: "Branch accounts", "Science and Technology" and "Structural business statistics" where they are given with various sectoral divisions:

1. The branch accounts data : here the proposed employment data have exactly the same characteristics than the value added data ; the statistics at the NUTS 2 level are given for 17 sectors (A-17 Nace) whereas data at the NUTS 3 level are given only with the three large sectors (primary, secondary, tertiary).
2. The Science and technology data : under the title *Employment in high technology sectors* one can find the number of employees by NUTS 2 region, with a sectoral division corresponding to groups of NACE 2 digits sectors according to their level of technology, for instance, Manufacturing (D) is split in four groups : High technology manufacturing: NACE Rev. 1.1 codes 30, 32 and 33; Medium high technology manufacturing: NACE Rev. 1.1 codes 24, 29, 31, 34 and 35; Medium low technology: NACE Rev. 1.1 codes 23 and 25 to 28 and Low-technology: NACE Rev. 1.1 codes 15 to 22 and 36 to 37. These sectoral divisions are thus more precise than the one existing in the branch accounts data.
3. The Structural business statistics data : Under the title of *Structural business statistics by economic activity*, statistics of number of employees are also proposed by NUTS 2 regions, but by NACE 2 digits sectors, from code 10 to code 74, thus covering all the manufacturing sectors and private services sectors. However, these data are the less complete of all the sources cited so far (see table below).

Table 7 provides a state of the existing data for the three data sources for employment by sector and region.

Country	Employment data : branch		Employment data : Science and technology (nuts 2)	Employment data : Structural business statistics
	at NUTS 2 level (17 sectors)	at NUTS 3 level (3 sectors)		
Austria (AT)	ok	ok	ok	I
Belgium (BE)	ok	ok	ok	I
Cyprus (CY)	ok	ok	ok	ND
Czech Republic (CZ)	ok	ok	ND	ND
Germany (DE)	I	ok	I	I
Denmark (DK)	ND	ok	ND	ND
Estonia (EE)	ok	ok	ok	I
Spain (ES)	ok	ok	I	I
Finland (FI)	ok	ok	I	ND
France (FR)	ok	ok	I	I
Greece (GR)	ok	ND	I	ND
Hungary (HU)	ok	ok	ND	ND
Ireland (IE)	ok	ok	ok	I
Italy (IT)	ok	ok	I	I
Latvia (LV)	ok	I	ok	I
Luxembourg (LU)	ok	ok	ok	ND
Lithuania (LT)	ok	ok	ok	I
Malta (MT)	ok	ok	ND	ND
Netherlands (NL)	ND	ND	ND	I
Poland (PL)	ok	I	ND	I
Portugal (PT)	ok	ok	I	ND
Sweden (SE)	ok	ok	I	I
Slovenia (SI)	ND	ok	ok	ND
Slovakia (SK)	ok	ok	ND	I
United Kingdom (UK)	ok	ok	I	I
Switzerland (CH)	ND	ND	ND	ND
Norway (NO)	ND	ND	I	ND
Bulgaria (BG)	ok	ok	ND	I
Romania (RO)	ND	ND	ND	I

Table 7: State of existing data of employment per sector in Eurostat regional database

ok : the data do exist and are totally or almost totally complete
I : Incomplete (some regions or sectors are missing)
ND : no data for this indicator in this country

3.3.3.1.4 Conclusions on the state of the data collection for structural data

Before analysing the economic structures and production level of the European regions, a long task consists in collecting all the data described above. We present here a state of the data collection at the end of October 2005.

This state of the data collection includes two types of data :

1. Eurostat data as described above;
2. National statistics collected in order to complement the Eurostat data.

For some countries, the data have been easy to collect and no particular problem arise. For others, the data are until now unavailable either because of the too precise regional breakdown need, or more frequently because of the too precise sectoral breakdown needed. Sometimes it is even the two problems that occur, for instance France where data at the level of NUTS 3 (*département*) are rare and where value added data, even at the Nuts 2 level, are not divided into the 31 sectors.

Table 8 provides the state of collection of data in answering for each country to four questions:

1. Availability at the regional level: Do you the value added data exist at the required regional level?
2. Sectoral division: Are these data divided in the appropriate sectoral division (31 sectors)?
3. Employment data: if the value added data do not exist in the appropriate sectoral division, do we have some employment data that give information about the breakdown between sectors, for each region?
4. In conclusion, do we already have for this country the data we need?

Country	Level of NUTS region aimed for at least	1. Availability at the regional level	2. Sectoral division	3. Use of employment data	4. Availability
Austria (AT)	2	Y	N	Y	Y
Belgium (BE)	2	Y	Y	-	Y
Cyprus (CY)	0	Y	N	Y	Y
Czech Republic (CZ)	2	Y	N	Y	Y
Germany (DE)	2	Y	N	?	**N**
Denmark (DK)	3	Y	N	?	**N**
Estonia (EE)	0	Y	N	Y	Y
Spain (ES)	3	Y	N	?	**N**
Finland (FI)	3	Y	Y	-	Y
France (FR)	3	N	N	?	**N**
Greece (GR)	2	Y	N	N	**N**
Hungary (HU)	2	Y	N	Y *(but not for 1995)*	Y *(but not for 1995)*
Ireland (IE)	2	Y	N	Y	Y
Italy (IT)	3	Y	N	N	**N**
Latvia (LV)	0	Y	N	Y	Y
Luxembourg (LU)	0	Y	Y	-	Y
Lithuania (LT)	3 (2)	Y**	Y**	-	Y**
Malta (MT)	0	Y	Y *(but not for 1995)*		Y *(but not for 1995)*
Netherlands (NL)	2	Y	Y	-	Y
Poland (PL)	3	N	N	?	**N**
Portugal (PT)	3 (2)	Y**	N	Y** *(but not for 1995)*	Y** *(but not for 1995)*
Sweden (SE)	2	Y	N	Y	Y
Slovenia (SI)	0	Y	Y	-	Y
Slovakia (SK)	2	Y	N	Y	Y
United Kingdom (UK)	3 (2)	Y**	N	?	**N**
Switzerland (CH)	2	N	N	N	**N**
Norway (NO)	3	Y	Y	-	Y
Bulgaria (BG)	2	Y	N	Y *(but not for 1995)*	Y *(but not for 1995)*
Romania (RO)	3 (2)	Y**	N	N	N

Table 8: State of collection of value added data

***Data available not for the defined « ideal regional level » but for the second possible regional level*

This table shows that the data are already completely collected for 15 countries (19 if we take only the year 2002). For the other countries, work is still in progress. The

biggest problem concerns the largest countries (Germany, United Kingdom, Spain, Italy, France, Poland) where it seems difficult to find data divided at the same time according to the necessary regional levels and sectors.

3.3.3.2 Enterprise statistics

In the perspective of analysing data on firm structures in the different regions, we have analysed the actual content of the "Structural business statistics" data set already mentioned above.

Data is available at NUTS level, but for none of the years (1995-2002) all of the NUTS2 are covered. For number of enterprises, the "best" year is 1999 where only 21 of the NUTS2 are missing out of the 237 total, the worst is 2003 with 203 out of 237. It becomes worse when trying to analyse evolutions: Taking the "best" year (1999) as end date, we still miss 96 out of 237 regions because either the 1995 (or 1996) or the 1999 data is missing, i.e. we cannot calculate evolutions for 40% of the regions based on the same dates. To make matters even worse, data is not available for all sectors in all years, making even the use of "total" numbers of enterprises very shaky, and time series impossible. In terms of numbers of employees the situation is similar.

	earliest available year	latest available year	volume possible?	evolution possible?	level	Obsevations
at	1995	2002	y	y	nuts 2	
be	1999	2000	y	n	nuts 2	sectors missing before 1999
bg	-	-	n	n		
ch	-	-	n	n		
cy	-	-	n	n		
cz	-	-	n	n		
de	1995 (4 sectors)	2001-2002 (5 sectors)	y(?)	y(?)	nuts 2	always at least 3 sectors missing
dk	1999	2002	y	n	nuts 0	sectors missing before 1999
ee	2000	2002	y	n	nuts 0	
es	1995 (3 sectors);1999	2001	y	n	nuts 2	some data lacking
fi	1997	2000	y	y	nuts 0	
fr	1996	2000	y	y(?)	nuts 2	
gr	1995(2 sectors)	1999 (2 sectors)	n	n	nuts 2	unusable
hu	2001	2002	n	y		

ie	1995 (3 sectors)	2002 (2 sectors)			nuts 0	unusable
it	1996	2002	y	y(?)	nuts 2	data missing for some regions in 1996
It		2002	n	y	nuts0	
lu	-	-	n	n		
Lv	-	2001 (5sectors)	y(?)	n	nuts0	
Nl	1995 (without sector c)	2002	y	y	nuts 2	
No	-	-	n	n		
Pl	1999	2000	n	y	nuts 2	
Pt	1996	2001	y	y	nuts 0	
Ro	2000	2002	n	y	nuts 2	
Se	1999 (without sector f)	2001 (without sector f)	n	y	nuts 2	
si	1996 (without sector g)	2002	y(?)	y	nuts 0	
Sk	-	-	n	n		
Uk	1998	2000	n	y	nuts 2	

Table 9: Summary of state of structural business statistics data

3.3.3.3 Total employment

Eurostat proposes 3 different data sets containing total employment numbers, the already mentioned branch accounts, and two based on the labour force survey. However, none of these data sets are coherent with each other, so, for example, combining branch account and LFS data in order to create longer times series is not possible.

Employment at NUTS level 2 (e2empl95)	
Branch accounts - ESA95 (branch95)	Employment at NUTS 2
Last update:	14.10.2005
Oldest data:	1995
Most recent data:	2003
Number of values:	121310
Regional employment - LFS series (lmemp_r)	
Employment by sex and age, at NUTS levels 1 and 2 - EU 25 (1000) (lf2emp)	
Last update:	07.10.2005
Oldest data:	1999
Most recent data:	2004
Number of values:	55367
Regional labour market data based on pre-2003 methodology (data up to 2001) - LFS adjusted series (lmhist_r)	
Employment by sex and age, at NUTS levels 1 and 2 - EU 25 (1000) (emp_q2)	
Last update:	11.06.2004
Oldest data:	1996
Most recent data:	2001
Number of values:	40758

Table 10: Summary of existing sources for employment volume data

3.3.3.4 GDP

GDP data exists in the ESPON database. However, the time series only begins in 1995 making long-term time series impossible. We, therefore, had to collect data from different sources in order to create time series 1960 to present. For obvious reasons, these are only available for EU15 plus Switzerland and Norway. Special caution has to be taken because of the change of accounting systems in 1995.

3.3.4 Next steps in data collection, including recommendations to ESPON concerning data

The following next steps will be taken:

- reception of the new version of the ESPON database in order to evaluate current data situation in ESPON (all analysis have been done with the Oct. 2004 version (or with data directly from Eurostat), plus only some individual tables sent by the BBR). This should allow us to have more coherent series of data than currently.
- completion of sectoral data based on national sources
- further evaluation of the structural business statistics in order to validate its usage
- collection of remaining necessary data, mostly in social issues

3.4 First preliminary results of statistical analysis and proposals for new ESPON indicators

3.4.1 A first overview of the empirical evidence

As the previous section explains, data collection is still ongoing. The following chapter thus gives only a general overview of some empirical analyses dating from before this project. The main aim of the project will be to enhance and update them, notably by extending the analysis to the entire ESPON space.

Also note that several of the following analyses concern long-term historical evolutions, and thus often only western Europe as long-term economic analysis of the ex-communist countries does not make much sense.

3.4.1.1 A persisting centre – periphery opposition

In spite of dramatic structural evolutions of the European economy as a whole since the Sixties, the spatial pattern of the European economy remains very strongly characterised by a centre – periphery structure, even more so if we consider the the new member states. Even the relative structural position of the different kinds of regions remains quite similar during the last two or three decades.

These evolutions took place in the framework of two different economic phases, already mentioned in chapter 2:

1. the first one characterised by Fordist industrialization as the main engine of the economy, policies clearly oriented towards attracting foreign investments and big factories;
2. the second one, more flexible and more linked to service-oriented developments, with a much lower level of fixed capital formation. The

geographies of production and consumption become more and more seperated, leading to a rapidly growing use of long-distance transports. Sub-contracting becomes more and more frequent. The importance of the regional economic and technological clusters and of the network economies is growing. Globalisation leads to a weakening of the possibilities of regulation inside the national governance frameworks and a growing competition between regions and even cities.

	1966	1973	1982	1990	2003
Centre (a)	59 %	59 %	59 %	58 %	56 %
Of which the largest metropolitan regions (b)	*28 %*	*27 %*	*27 %*	*27 %*	*27 %*
Rest of Western Europe	41 %	41 %	41 %	42 %	44 %
Of which the largest metropolitan regions (c)	*9 %*	*9 %*	*9 %*	*9 %*	*10 %*
Total Western Europe	100 %	100 %	100 %	100 %	100 %

Table 11: Estimation of the part of the centre and the periphery in the European GDP (excluding Central-Eastern European countries and the new German Länder, but including Switzerland and Norway)

a) Midlands and South-East, North-West England, Benelux, Nord-Pas-de-Calais, Ile-de-France, Lorraine, Alsace, Rhône-Alpes, Provence-Côte d'Azur, old German Länder excluding Berlin, Lower Saxony, Schleswig-Holstein, Hamburg and Bremen, Switzerland, Northern and Central Italy.
b) South-East of England, Manchester, Merseyside, Ile-de-France, Rhône, North and South Holland and Utrecht, Brabant, Düsseldorf, Cologne, Darmstadt, Stuttgart, Oberbayern, Zurich, Lombardy, Latium
c) Lisbon, Madrid, Cataluna, Campania, Attica, Vienne, Stockholm, Copenhague, Oslo, Uusimaa (Helsinki), Hamburg, Bremen.

The simplest way to confirm this centre – periphery structure is to examine the deviation of the GDP/head of each region towards the European average (EU 15) in 1960, 1990 and 2003 (see Map 1, Map 2 and Map 3).

The main area of high level of GDP/head in 1960 stretches from Central England to the North of Italy, including the Paris region. It corresponds more or less to the so-called Blue Banana. However, inside this core of the European economy, some regions appeared already to be in a less favourable situation : the decline of the coal industry and of some related traditional heavy-industry sectors as well as the crisis of the textile industry in some areas where this industry was not sufficiently modernised explain the below-average level of some regions like Nord-Pas-de-Calais in France or Hainaut in Belgium. At this time, the situation is very depressed in all the peripheral part of Europe, in spite of some State-sponsored manufacturing developments in the South of Italy or in the Franquist Spain.

The 1990 map still shows the favourable position of the European pentagon (London – Hamburg – Northern Italy – Paris), but with the centre of gravity inside this central polygon slightly shifted towards the South : the old coal-mining and manufacturing basins of the North, linked to the beginning of the industrial revolution, perform badly, including the whole of Britain except the London metropolitan area. Southern Germany, on the other hand, is

becoming one of the best performing and most R&D-oriented manufacturing regions in Europe while North and Central Italy benefit from its networks of small and medium enterprises, even if the level of R&D is quite low in this region. Some other smaller industrial districts with the same kinds of structure are also performing well, like the South of West Flanders in Belgium. The dramatic change of the position of Norway is linked to the growth of the oil rent, very well redistributed among the whole economy and all the regions thanks to the efficiency of the Norvegian welfare state.

GDP per capita (pps) 1960 - European deviation

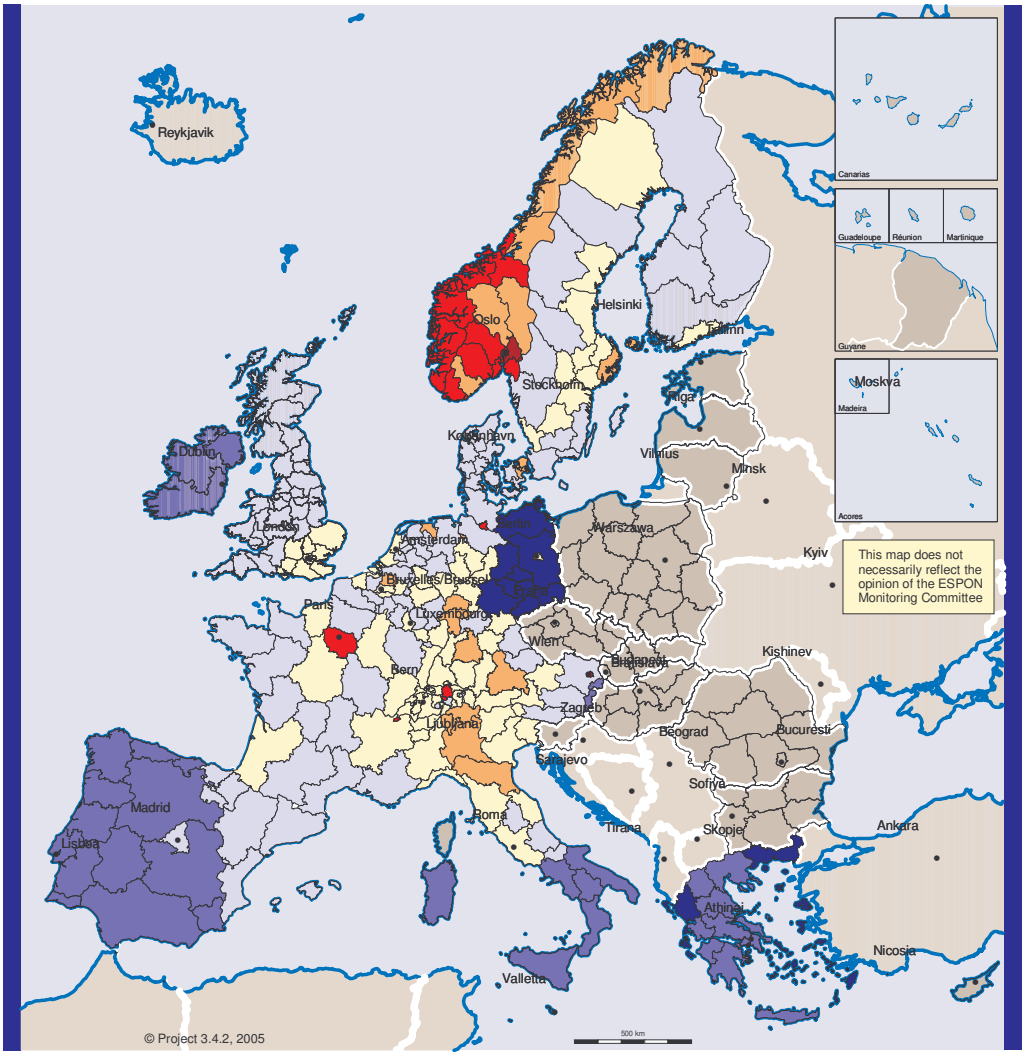
Origin of data: Eurostat, National Statistical Offices

Source: ESPON Database

EU = 100
- 0 - 15
- 15 - 40
- 40 - 75
- 75 - 100
- 100 - 125
- 125 - 150
- 125 - 200
- > 200

Map 1: GDP per capita in 1960 (EU15 without 6 East-German Länder=100)

GDP per capita (pps) 1990 - European deviation

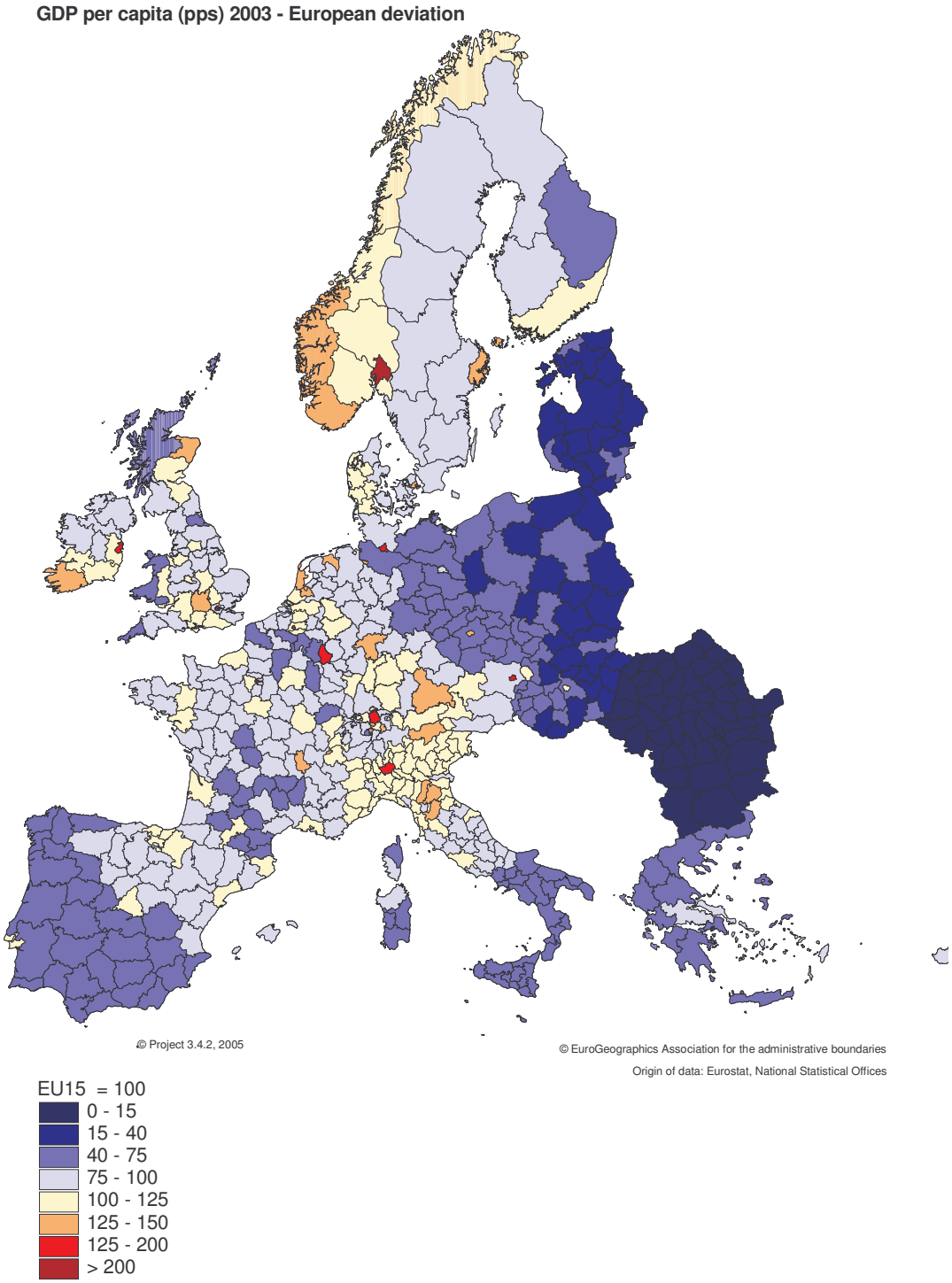


Origin of data: Eurostat, National Statistical Offices

Source: ESPON Database

EU = 100
- 0 - 15
- 15 - 40
- 40 - 75
- 75 - 100
- 100 - 125
- 125 - 150
- 125 - 200
- > 200

Map 2: GDP per capita in 1990 (EU15 without 6 East-German Länder=100)



Map 3: GDP per capita in 2003 (EU15 without 6 East-German Länder=100)

The 2003 map confirms the position of the pentagon, but now the consequences of globalization of the world economy and the resulting very good economic results of the main metropolitan areas appear clearly (at least if one considers the metropolitan regions as a whole ; the performances are often best in their periburban areas and some strong social problems are developing in some districts, due to the growing dualisation of the labour market linked to the dramatic desindustrialisation of those metropolitan regions). The metropolitan regions are becoming more and more the nodes of the world network of the advanced services economy.

As Table 12 shows, most of the metropolitan regions are now performing better than the rest of their national economy. This process benefits much more to the metropolitan areas in the pentagon (London, Paris, Brussels, Amsterdam, Hamburg, Frankfurt, Munich), than to those which are more peripheral and less well integrated in the global economic networks, as described by P. Taylor. However, the peripheral metropolitan areas improve also their position towards the average of their national economy, like Lisbon, Madrid, Athens and yet more the Central-Eastern European capitals, which appear to be the main economic winners of the transition in these countries.

Industrial conurbations, with a low tertiary potential represent an exception to this new situation of the main metropolitan areas performing better than their global national context concern. Moreover, Ile-de-France seems to get out of breath and Vienna and even more so Berlin seem not to have been able to capitalize as they initially hoped on the opening to the East.

Reference	Metropolitan areas	1960-1980	1980-1990	1990-2003	1995-2003
Belgium	Brussels	-	-	+	+
	Antwerp	+	-	=	-
	Walloon conurbations	-	-	-	-
Netherlands	Amsterdam	=	+	-	+
	Rotterdam	=	=	-	-
United Kingdom	London	+	+	+	+
	Manchester	n.d.	n.d.	+	+
	Liverpool	-	-	-	-
	Sheffield-Leeds	-	-	+	+
	Birmingham	-	-	=	+
	Glasgow	-	-	+	+
Ireland	Dublin	n.d.	n.d.	n.d.	+
Denmark	Copenhague	-	-	=	=
Sweden	Stockholm	-	+	+	+
Finland	Helsinki	+	+	+	+
Germany	Berlin	-	=	-	-
Northern Germany	Hamburg	-	+	+	+
(a)	Bremen	-	=	+	+
	Düsseldorf	-	=	+	+
	Cologne	+	-	+	+
Southern Germany	Stuttgart	-	=	=	+
(b)	Frankfurt	+	+	-	-
	Munich	+	=	+	+
Eastern Germany	Berlin	n.d.	n.d.	-	-
(c)	Dresden	n.d.	n.d.	+	+
	Leipzig	n.d.	n.d.	+	+
	Vienna	=	+	-	-
Austria	Basel	n.d.	+	+	+
Switzerland	Zurich	n.d.	+.	+	+
	Geneva	n.d.	-	-	-
	Milan	-	-	+	=
Italy	Other main Northern cities	n.d.	-	+	+
	Rome	-	+	+	+
	Southern main cities	•	+	=	+
	Athens	-	-	+	+
Greece	Madrid	+	+	+	+
Spain	Barcelone	=	=	+	-
	Lisbon	-	-	-	+
Portugal	Paris	-	+	+	-
France	Other main cities (without Lille)	n.d.	=	=	+
	Nord-Pas-de-Calais	-	-	-	-

Table 12: Relative economic results of the metropolitan areas, by comparison to their national context (relative evolution of the GDP/inhab.)

(a) Northern old Länder

(b) Southern old Länder

(c) New Länder and Berlin

Among the peripheral parts of Europe, the evolutions are quite contrasted : two parts of peripheral Europe are performing dramatically well, Ireland and

the Northern countries (without considering Norway, where the results are strongly influenced by the variations of oil prices). The success story of Ireland appears now to be less the sole result of footloose delocalisations of foreign enterprises looking for cheap manpower, as it was perhaps at the beginning of the Irish exceptional growth during the Eighties. The success of Denmark, Sweden and Finland is linked to a very efficient R&D-led growth, in small countries which have kept large national firms, and also, as in Denmark, to the efficient transformation of industrial small and medium enterprises districts into innovative tertiary areas, having delocated the manufacturing sequences to Poland or the Baltic countries for instance.

These global trends are subtended by a mix of national performances, the national level remaining very significant, and regional structural patterns. At this time, the sole existing structural typology of the (Western) European economy based on a full regional matrix of the structures of the GDP at a detailed NUTS level (NUTS 3, with the exception of countries where the NUTS 3 level is very small like Germany or Belgium, where NUTS 2 is used) is available for 1990 (C. Vandermotten and P. Marissal, 2000) (Figure 7). A new one is in progress for this project, with the most recent data, including obviously the new members of the EU.

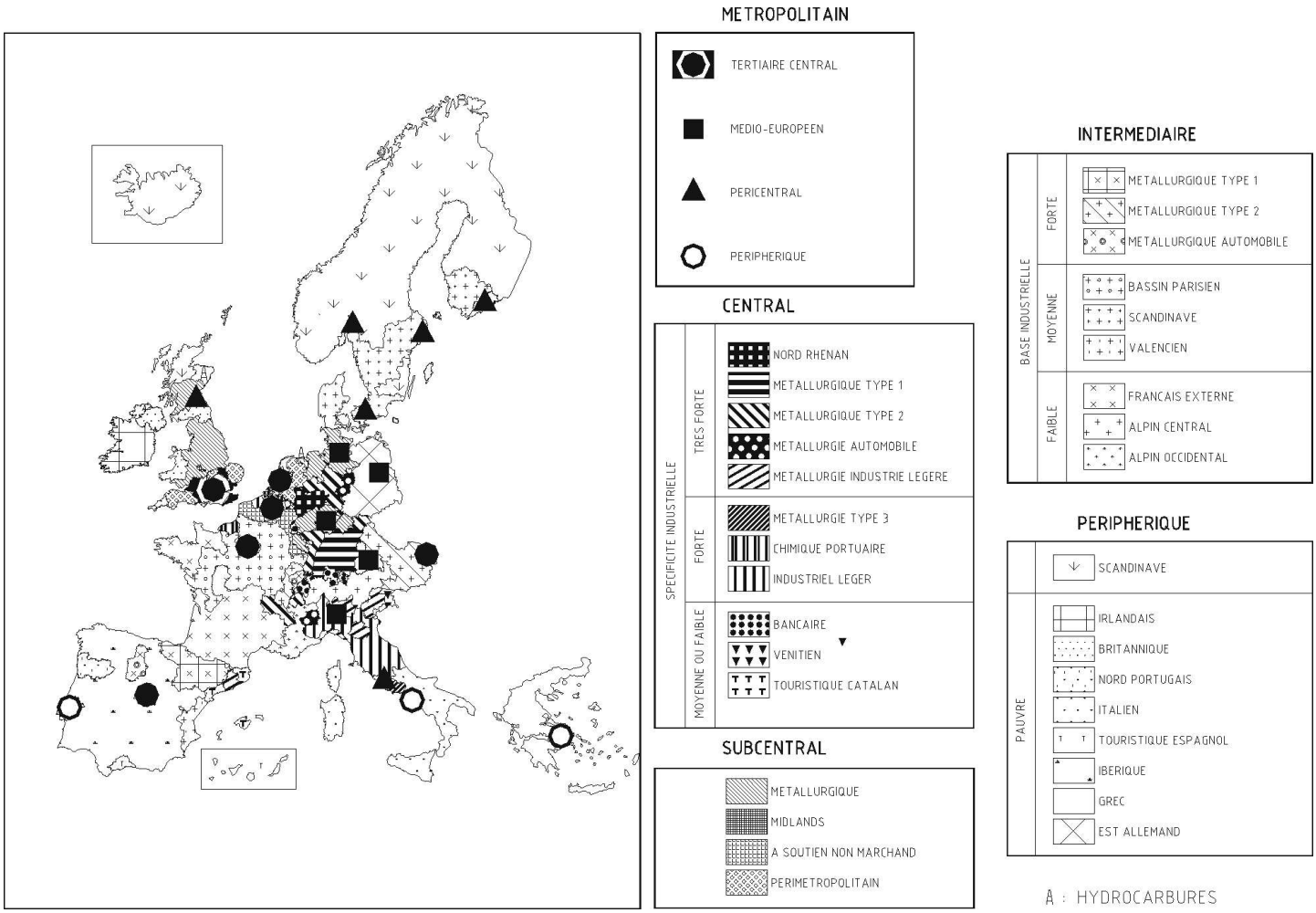


Figure 7: Example of a detailed economic typology of Western Europe, based on structural data of 1990

Source : C. Vandermotten and P. Marissal (2000)

However, at this stage and for examining the long-term impact of the structures, we can and have to work with a quite simplified typology for the old members of the EU (Figure 8) and can only describe some recent trends for the new members. This is done in the next section.

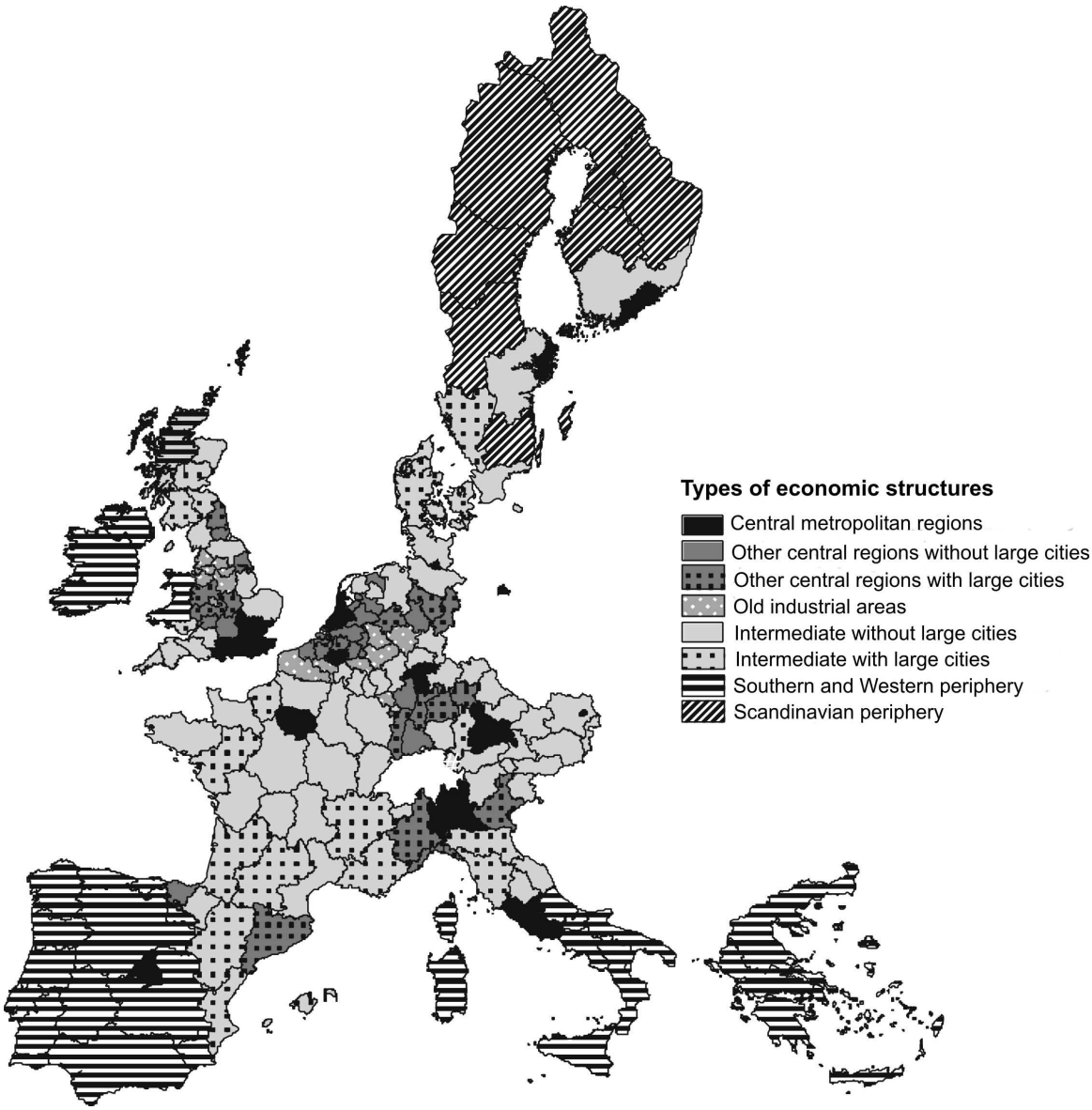


Figure 8: Simplified regional structural economic pattern in Western Europe

Source : C. Vandermotten (2002)

3.4.1.2 The structural long-term evolutions in the old members of the Union

EU 15, without the new German Länder and Berlin = 100, in PPS	1960	1973	1982	1990	2003
Metropolitan central regions	135	129	129	132	133
Other central regions with big cities	111	112	109	112	108
Other central regions without big cities	110	103	100	100	101
Central old industrial regions	125	106	101	100	96
Intermediate regions with big cities	97	102	104	101	101
Intermediate regions without big cities	97	95	97	98	92
Nordic periphery (without Norway)	89	92	99	94	85
Western periphery (Ireland and Northern Ireland)	61	66	70	90	110
Southern periphery	45	59	62	66	67
East German periphery	…	65	…	32	69

Table 13: Relative GDP/inhab. level in Western Europe, by kind of structural region

Regions with big cities are those including cities with more than 250 000 inhabitants.
Source : personal computations, after Eurostat data and the database of the IGEAT/ULB ; Maddison for the former GDR in 1973 and 1990.

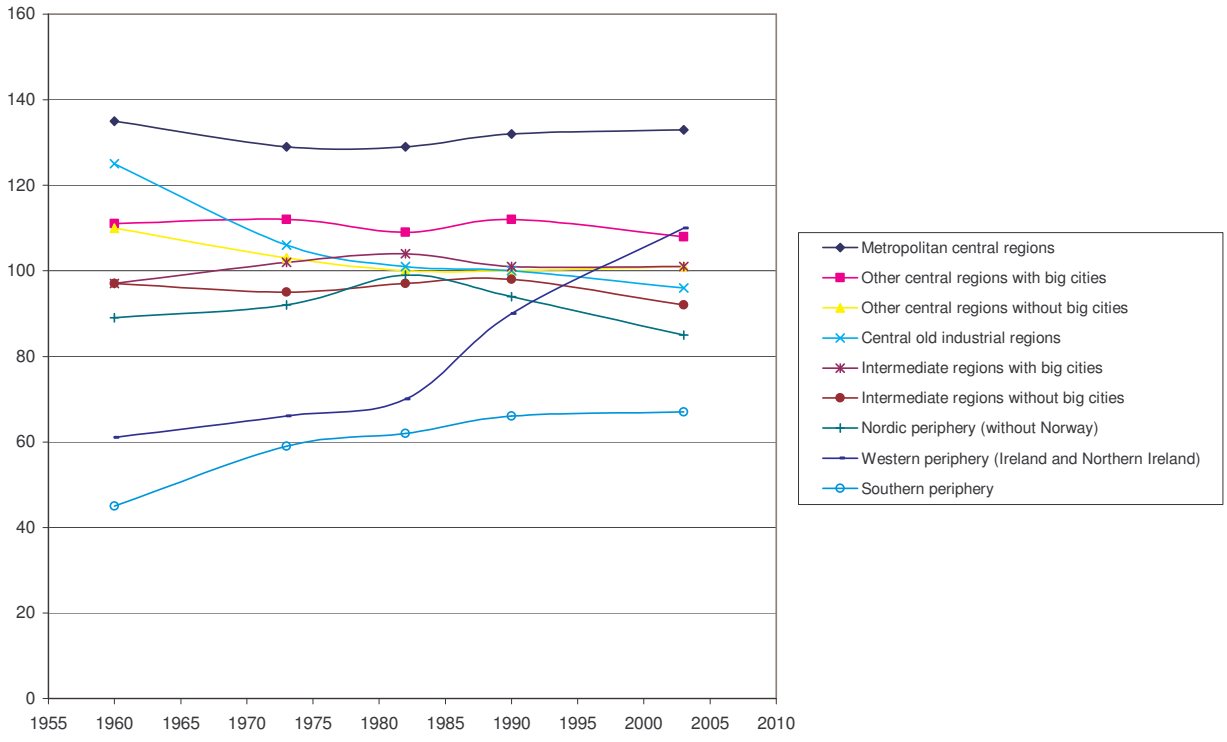


Figure 9: Relative GDP per capita levels in Western Europe, by kind of simplified structural region

Figure 10: Location of the headquarters of European Fortune 500 firms and of advanced services in European metropolitan areas

Left half-circles proportional to revenue, right half-circles to positioning in world city network according to GaWC methodology. The sum of surfaces of the left half circles is equal to the that of the right half circles.
Source : C. Vandermotten.

3.4.1.2.1 Metropolitan central regions

Metropolitan central regions are centred on the main capital cities in the pentagon and some other very important international nodes, like Frankfurt. As already mentioned, central metropolitan regions concentrate the main centres of direction of the world-economy, headquarters, advanced services, etc. (Figure 10). They are also characterised by strong desindustrialisation (which explains the slight decrease of the relative GDP level of these regions during the Sixties and the Seventies, however remaining at a very high global level), although more so in Britain, the Benelux and France than in Germany or Northern Italy. The remaining manufacturing sector in these regions is dominated by management functions, R&D, high technology (less

in Northern Italy). Some subsectors of the leading economy of these regions are now more dynamic in the periurban areas : this is particularly true for subsectors like logistics, research-development and some advanced services; on the contrary, the financial sector (and obviously the administrative non-market sector) remains strongly concentrated in the central cities and agrees to pay high rents, justified by the advantages of easy and numerous face-to-face relations and the image given by prestigious central locations.

By comparison to the central metropolitan regions, more peripheral metropolitan regions, like Edinburgh, Scandinavian capitals or even Rome, get directional functions more limited to their own national economies and more non-market services oriented.

3.4.1.2.2 Non-metropolitan central regions

Non-metropolitan central regions are predominant in most of the rest of the pentagon. They generally present a strong manufacturing basis, with a high percentage of high technology and capital-intensive industries, except in the North of Italy and some other so-called Marshallian districts.

Central old industrial regions are in a specific position, even if located inside the geographical core of Europe. Some of their characteristics are similar to those of the non-metropolitan central regions, but their GDP/inhab. is often beneath the West European average and more rapidly declining until the mid-Eighties. They still have not really recovered even if the relative decline is more or less halted. This situation is related to the decline of old manufacturing structures, either in the heavy industry or in the textile sector, even if the last one seems to be a bit more favourable for easier economic renewal. In this category, the British Midlands are advantaged by a more important development of the financial and market services sectors, which is related to the strong orientation of the British economy towards the tertiary market sector. But, in general, these regions are characterised by an insufficient development of market services and a lack of local entrepreneurship.

Many of these regions suffer from a history of external management of their economy, as in Wallonia. This last region appears paradoxically now as under-industrialised and the income of the population is sustained by the relative importance of the non-market services sector. (Former) industrial areas of the new German Länder are here included in another category, the East German periphery, but could also be considered as a paroxystic variant of this type, obviously with a much lower level of GDP/inhab.

3.4.1.2.3 Intermediate regions

Intermediate regions more or less surround the central regions. The GDP/inhab. level of the regions of this belt is near the European average, but the population densities are much lower than in the central regions, with the exception of Central (Third) Italy. We include in these intermediate areas such regions as the South of Scotland, Northern England, vast parts of France and of North-Eastern Spain, the Spanish Mediterranean coast until Valencia, Central Italy, Alpine Switzerland, Austria, Northern Germany and the South of the Nordic countries.

One can observe three main structural types among these regions :

1. the pericentral Fordist basins, the archetype of which is the French Parisian basin, outise the metropolitan Ile-de-France. Many big manufacturing plants (automobile, electric household devices, etc.) located in these regions during the Sixties, searching for unskilled cheap or less unionised manpower in a period of full-employment;
2. Marshallian industrial districts, with strong networks of small and medium enterprises, often textile or light industries oriented (Central Italy for instance), but also sometimes specialised in mechanics (Peripheral regions of Southern Germany, Southern parts of Nordic countries);
3. More external areas, like Western and South-Western France, with a stronger weight of agro-industry, but without excluding isolated poles based on mechanics or even high-technology sectors (Basque Country, Linz in Austria, Toulouse in France, etc.).

3.4.1.2.4 The peripheries

Outside the already mentioned Eastern German periphery, one has to distinguish between Nordic empty periphery, Western periphery, i.e. Ireland, and the Mediterranean periphery.

The vast empty Northernmost peripheral parts of the Nordic countries, to which one can add Northern Scotland, show levels of GDP/inhab. around 80% up to 90% of the West European average, in spite of their remoteness and the weaknesses of their economic structures, in which the weight of raw materials remain strong. Due to their very low densities of population, the level of GDP by square kilometer is only 6 to 7 % of the West European average. Income is strongly supported by the importance of public

transf'ers, which is also testified by the very strong weight of the non market services in the structure of the GDP, more than 50 % above the European average.

In spite of its quite remote location, it has become less obvious to classify Ireland as a peripheral region. It is now more an intermediate region. The country has registered such a dramatic change in its economic position, evolving in just a little more than a decade from a secular position of poor country to a level just surpassed by Luxembourg in the European Union ranking. Very intensive efforts for attracting foreign capital, in particular American, which is certainly linked to the very specific linguistic and historical position of Ireland in relation to the United States, but also a very intensive effort for better training and service provision to the new enterprises, allowed in only a few years to create a manufacturing structure with some characteristics similar to the one of the Parisian basin, but more oriented towards electronics and high-technology manufacturing, and also completed now by a strong development of the service sector.

Mediterranean peripheries remain poor regions, in spite of all the efforts of national and European regional policies. Moreover, these regions improved their relative position more during the Sixties and the Seventies than after. In the first period they succeeded in attracting some big manufacturing enterprises, using the benefit of the regional aids. Now they are confronted with a more tertiary economy as well as a growing competition of the rest of the world for manufacturing (and also for tourism). Until now, these regions preserve a relative agricultural specificity (even if much less than thirty years ago and obviously not in the metropolitan regions). The relative weight of trade and retail also remains quite high, definintely in the tourist areas. Outside the main cities and isolated poles of growth, often situated in maritime locations, the relative weight of manufacturing remains quite weak, with one strong exception: the structures of the North of Portugal are quite similar to those of central Italy, also with regards to the entrepreneurship.

3.4.1.3 Spatial and structural evolutions in Central-Eastern Europe during the transitional period

During the so-called socialist period these countries were characterised by a relative importance of manufacturing, in particular heavy industries, and a weakness of the service sector.

During the Sixties the growth of the economies of these countries was strong, but it was a quantitative more than qualitative growth. The crisis and

the reducing of the rates of growth appeared progressively during from the mid-Seventies and more and more clearly during the Eighties. The qualitative gap was then in fact growing and more and more unbearable as a relative opening of these economies towards the West took place in the same time. So, the economic and politic systems collapsed together very quickly at the turning between the Eighties and the Nineties.

The collapse of the "socialist" economy was followed by a very deep crisis, not only economic, but also social.

Depending on the countries, recovery begins from the mid-Nineties or even later, at the expense of very radical changes in the economic structure, eventually high levels of unemployment, at least in some countries, and dismantling of some very emblematic sectors of the former economy, in particular heavy industry. The evolution of agriculture is quite different from a country to another, with different kinds of privatisation, not to speak of the low-productivity of the formerly dominant non-socialised Polish agricultural sector.

Socialist planning aimed to a more homogeneous distribution of the industry, through new industrial plants more or less evenly distributed on the national territory, but also privilegied very big manufacturing "combinates", located either on the old coal basins or often in the Eastern parts of these countries for strategic reasons or due to the providing of raw materials from the USSR.

		Percentage of the national GDP		Relative level of the GDP/inhab. (national average = 100)	
		1995	1999	1995	1999
Bulgaria	Sofia	24,8%	25,4%	175	183
	Coastal areas (a)	12,6%	14,0%	94	111
	Rest of the country	62,6%	60,5%	86	84
Czech Republic	Prague	21,5%	24,5%	184	212
	Rest of the country	78,5%	75,5%	89	85
Hungary	Budapest	33,9%	34,6%	181	191
	West of the Danube and Pest	34,9%	37,3%	87	92
	East of the Danube	31,2%	28,1%	76	68
Poland	Warsaw	10,0%	12,7%	236	303
	Other big cities (b)	13,7%	14,6%	155	167
	Katowice	8,1%	7,1%	142	130
	Western regions (c)	12,7%	12,2%	97	92
	Central regions (rest of the country)	37,7%	36,2%	86	82
	Eastern regions (d)	17,8%	17,3%	75	72
Romania	Bucharest	12,9%	13,2%	142	150
	Constanta	4,0%	4,5%	121	137
	Timisoara, Arad, Brasov, Cluj	13,2%	13,9%	118	125
	Moldavie and Danube delta	22,2%	21,7%	84	81
	Hunedoara (e)	2,6%	2,2%	108	94
	Rest of the country	45,1%	44,5%	95	93
Slovakia	Bratislava	23,0%	22,7%	199	198
	Kosice	13,3%	14,0%	95	99
	Rest of the country	63,7%	63,4%	86	85
Estonia	Tallinn (f)	56,4%	58,8%	151	159
	Rest of the country	43,6%	41,3%	70	65
Lituania	Vilnius	28,5%	33,1%	118	137
	Rest of the country	71,5%	66,9%	94	88
Latvia	Riga	53,8%	66,6%	130	162
	Rest of the country	46,2%	33,4%	79	57

Table 14: Regional distribution and relative level of the GDP in the Central-Eastern European countries, on the basis of grouping of NUTS 2 units

(a) Bulgarian Dobrogea, Varna, Burgas
(b) Lodz, Poznan, Krakow, Gdansk, Wroclaw
(c) Lower Silesia, Lubuskie, Western Pomerania
(d) Warmie-Mazurie, Podlaskie, region of Lublin, South-East Poland, Mazowia, unless Warsaw
(e) Including Jiu basin
(f) Pöhja-Eesti

Source : EUROSTAT

The dismantling of the socialist economy during the Nineties and the recovering in the beginning of this century led to a very quick growth of the intra-national disparities. Capital cities reinforced strongly their position, even if it was already strong in the centralised planned economy as centres of the national bureucracy. Western regions fit generally better than the Eastern regions, mainly in the countries near the borders of the "Old Europe", from which investments or subcontracting is coming, in the search of the advantages of a cheap well trained manufacturing manpower. The worse situation is in the early heavy industrial regions and in the rural areas of the Eastern parts of these countries.

3.4.2 Propositions for new ESPON indicatorsperformance

The following list of indicators represent the result of a very preliminary reflection and will thus certainly be modified in the future. As many other ESPON projects, notably project 3.3, have developed indicators for measuring regional performance and potentials, we have decided to present a different set, which do not correspond to the classical EU Commission style indicators, but which we believe are important for understanding the economic structures and dynamics of European regions.

In the course of the next phase of the project, these indicators will be submitted to a more detailed reflection, mainly oriented along two axes :

1. What is the actual meaning of these indicators at a regional level ? Often indicators which exist at one scale are applied at another scale without verification of the meaning. This can be said for many national-level indicators, but also for some micro-level (enterprise) indicators, which are more and more applied to regions as independent entities (see the debate about regional competitiveness for example). Further scrutiny of these first ideas in that sense is thus necessary.
2. Some of the data necessary for constructing these indicators exists, although not always in a perfect state as explained in chapter 3.3.3. For others, however, new data collection at regional scale would be necessary.

Indicator	Calculation	Comments
Productivity	GDP / total hours worked GDP / total wages	
Proportion of wages in production	Total wages / GDP	Might be used to discuss the contribution of regional economic production system to internal demand
Real wages	Average wages in regional PPS	Regional PPS does not yet exist
Taux de marge	EBITDA/Added value	
Economic profititablity	(Profits – Taxes)/GDP	
Capital efficiency	GDP / Total capital stock	Measures the efficiency of capital accumulation
Capital stock per employee	Total capital stock / total employment	Measures capital intensity of the production system
Capital composition	Capital stock per employee / Real wages	
Profit rate	(Added value – Wages) / Capital stock	
Capital intensity	Capital stock / GDP	
Accumulation	Rate of investment	

Tableau 15: Proposals for indicators

3.5 Empirical analysis at the scale of enterprise: Meta-analysis of enquiries

3.5.1 Introduction

One of the more fundamental issues in the analysis of regional economic development is to understand why certain types of economic activities locate (or why they re-locate) where they do. That is, to understand what factors are important in firms' decisions to start up new business or close down old ones and why different types of firms tend to re-locate to certain regions are central in understanding the mechanism behind changes in the regional or local economic structure. That is, why do some firms or branches tend to locate within a specific region? Why do firms or branches tend to relocate to a specific region? Why do some firms or branches not survive within a specific region? Why are some branches not represented within a specific region? Why do some regions adjust to new economic conditions faster than others? In a wider perspective, the ability for a region to react and adjust to new economic conditions is central for the growth and welfare within that particular region. Therefore, in order to design a regional policy within the European Union it is of importance to understand what mechanisms affect the startup, closedown and location of economic activities.

Much of the existing empirical literature on startups of new firms within a specific region are based on so called entry-exit models.[5] Within this literature measures of the number of startups of new firms (entries) or close downs of old ones (exits) within a specific region are typically explained by existing factors of production within the region where the activity is located. Net measures of new firms or the net rate of startups, sometimes in relation to the existing stock of firms or economic activity, are also often used. Commonly used explanatory variables include the regional amount of human capital, access of natural resources, institutional arrangements and different measures of public policy. In addition, there also exist barriers to entry such as economics of scale, product differentiation advantages, absolute cost advantages and capital requirements. In some cases, the aim of the public

[5] Here, the aim is not to give a thorough review of the theoretical or empirical literature within this field. Instead we will just try to give the reader a brief intuition behind the concept of entry and exit. The interested reader may consult the pioneering work by Bain (1956) and Creedy and Johnson (1983) or the text book by Tirole (1988). Other empirical studies to mention are Audretsch and Vivarelli (1996), Davidsson, Lindmark and Olofsson (1994), Dunne, Roberts and Samuelson (1988), Ghemawat and Nalebuff (1990) and Love (1996), just to name a few.

policy is to minimize the effects of these barriers. The literature on entry and exit of firms are closely related to the literature on localization where features of the spatial dimension are introduced in a more complete manner.

The literature on entry-exit of firms and localization of economic activities brings many important insights when it comes to explaining why different economic activities tend to locate or startup where they do. For instance, many studies support the hypothesis that regions with high educational levels tend to attract economic activities. However, this approach do in *some cases* fall short on the *actual* reason why the individual enterprises are located where they are (or why enterprises have re-located). Or why entries of new firms (or exit of old ones) within a specific region are higher than in neighboring regions or in comparable regions. The main reason for this is that these studies are not based on direct questions to those who make the decisions, i.e. company executives. It might seem obvious that one should ask those who have made the decision in order to be able to answer the question of why, for instance, a specific enterprise is located within a specific region. On the other hand, executives are likely to 'defend' their decisions and therefore answer such questions in a way that make themselves look better, i.e. there is a potential problem related to stated versus revealed preferences. Despite these problems, a combination of the knowledge from these two literatures is probably the best way to really understand why different economic activities tend to locate where they do.

One main difficulty present in any kind of analysis on factors of localisation is that of scale. Which factors are important obviously depends on whether the question is asked pertaining to the global, European, national, regional or local level. ESPON normally works at macro (all of ESPON space), meso (transnational/national) and micro (regional) levels. However, existing studies, be it of entry-exit or on the base of enquiries do not use such a differentiation and it will be a major challenge to weed through the existing work in order to classify the results according to their relevant geographical scale.

To analyse the vast amount of literature in a systematic fashion we intend to make use of the nowadays frequently used method of meta-analysis. In particular, we intend to use meta-regression analysis which is a specific statistical method designed to, in a structural way, summarize, evaluate and analyze previous results in empirical research, not only within the field of economics. The basic idea behind meta-regression analysis is to first collect a set of independent (and relevant) empirical studies on a particular subject. In the next step a dependent variable is created based on a common metric, for instance, the parameter estimate, its t-value, or a summary statistic on the variable of interest from each of these studies. This variable is then used

as the dependent variable in a regression where the covariates may (among other things) include design, methodology, characteristics of the data set used, publication details (year, journal, etc.) in the different studies. In other words, the result (a parameter estimate or a summary statistic of the variable of interest) from one study become one observation of the dependent variable in the meta-regression analysis while research design, methodology, characteristics of the data set, publication information etc., are used as explanatory variables. This method will allow us to analyze a large set of previous studies and to formally test to what extend the results are driven by different research methods, type of data (number of observations, which region), type of industry analyzed, etc.. Compared to a narrative literature review, the results of a meta-analysis will put the researcher in a better position to detect trends and to make inference about the existing knowledge as presented in the literature.

The rest of this chapter is organized as follows. First, in section 3.5.2, we briefly discuss the pros and cons of meta-analysis in general and meta-regression analysis in particular. In section 3.5.3 we give a more technical description of meta-regression analysis followed by a discussion in section 3.5.4 regarding problems finding enough studies to conduct a meta-analysis on this literature. Finally, in section 3.5.5 we give recommendations regarding what we consider to be the best way forward.

3.5.2 The pros and cons of meta-analysis

The number of literature reviews based on meta-analysis has increased during the last decades, especially within the fields of medicine and social sciences. The use of meta-analysis within the medical profession has also been supported and encouraged by the American Statistical Association, even when they are based on small samples, i.e. a small number of studies (Hunt (1997), page 96). Within the field of economics, meta-analysis has been applied to analyze the relationship between minimum wages and employment of low-wage workers (Card and Krueger (1995)), price elasticities on gasoline demand (Epsey (1998)), and the relationship between years of schooling and earnings (Ashenfelter, Harmon and Oosterbeek (1999)), just to name a few.

Even though the use of meta-analysis is widely accepted as a method to summarize and analyze research results within different fields, the method has limitations. Let us discuss the potential of meta-regression analysis in relation to a 'typical' narrative literature review. This discussion will roughly follow the steps for meta-regression analysis outlined in Stanley (2001) and Florax, de Groot and de Mooij (2002).

3.5.2.1 Relevant studies

Irrespective of the form of the review, narrative or meta-analysis, one of the most important issues relate to the selection of studies to be included. One frequently used selection criteria are to include studies published in journals with referee system. The referee system has its obvious advantages; the results are critically reviewed by other researchers in order to detect errors and incorrect interpretations of the results. The use of Internet and online databases such as EconLit (economics) makes it nowadays a relatively easy task to find relevant studies published in referee journals. However, this approach has its limitations as there is a possibility that published studies constitute a biased sample of what has actually been found by researchers. For instance, it might be the case that editors and referees tend to reject insignificant results (see McCloskey (1985) and McCloskey and Ziliak (1996)). This problem could be overcome by including unpublished work in the analysis. Even though such an approach would better represent the knowledge, unpublished working papers and unpublished manuscripts are more difficult to attain. However, the problem of including relevant studies and a representative selection of studies are not unique for meta-analysis but also present in narrative literature reviews.

Linked to that, we are confronted with the difficulty that many enquiries on business localisation are not part of the scientific literature, but of grey literature, often in the form of contract research for actors such as local government, chambers of commerce or real estate agencies. This makes it very difficult to systematically locate these studies and also, since they are written in the language of the actor, of actually using them.

3.5.2.2 Heterogeneity of studies

In medicine and the sciences, replication of previous experiments is often used in order to legitimate results. Replicative studies are also often rewarded publication within these disciplines. Economics and the social sciences do not have the same tradition of replication. Instead, studies do in many cases have to be 'original' or 'innovative' in order to be of interest. For the meta-analysist, it is far from obvious how to account for this heterogeneity across studies. In most cases, such heterogeneity is accounted for by the inclusion of fixed or random effects. However, the problem of heterogeneity becomes even more difficult considering the fact that studies differ with respect to quality. As in the problem with including

relevant studies, the problem of heterogeneity across studies is not unique for meta-analysis but also present in narrative reviews.

3.5.2.3 Number of studies in the review

As mentioned above, the expansion of research publications within nearly every field has increased dramatically during the last decades. For the reviewer, this means that in most cases it will be (at least if the review is in the form of an article and not a book) impossible to include and comment all studies within the field. Let us use the excellent review of the empirical growth literature by Temple (1999) to illustrate our point. In his review, Temple tries to pin down what are major findings within the empirical literature on economic growth. In particular, based on previous research, Temple tries to answer 6 questions: 1) How is the world income distribution evolving? 2) Do countries converge to steady state path and, if so, how quickly? 3) How rapidly do returns to inputs like physical capital diminish? 4) Are poor countries poor mainly because they lack inputs, or because of technology differences? 5) Why do growth rates differ over long periods? and 6) What happens in the long run? This is an ambitious task, especially considering the fact that the article is only 40 pages long (the reference list not included).

In relation to the number of publications within other fields of economics, the empirical literature on economic growth since the famous papers by Barro and Sala-i-Martin (Barro (1991) and Barro and Sala-i-Martin (1992)) is probably best describes as a 'big bang'. Searching through EconLit's data base for journal articles on economic growth gives 998 hits. That's empirical papers on economic growth published in journals connected to the EconLit data base between 1991 and 1999! In all, Temples' review includes 138 references divided on 6 different questions, which is quite much for a narrative literature review. However, it would have been nearly impossible to review, comment and critically analyze all 998 studies. Not to mention the difficult task of analyzing and summarize what are the driving factors behind the different results. This is where meta-analysis has it main advantages; to in a systematic way handle a large set of results from previous studies and formally, using statistical methods, test to what extend the different results are driven by the research method applied, type of data, number of observations, which region etc.. However, it is a cumbersome work for the meta-analysist to read and develop a data base consisting of 998 studies.

3.5.2.4 Finding a common metric

One of the most delicate issues in conducting a meta-analysis is to find a common metric across studies. Although two different studies fall within the same literature, definitions of key variables are likely to differ. For instance, again using the empirical growth literature as an example, income growth may be measured as the growth rate of average personal income, average household income, Gross Regional Product (GRP), population, new firms etc. Another issue is to decide if the size of the effect is of more interest than the significance, or if the review should consider both. If the significance is of main interest, how should significance be measured? Two commonly used measures of the significance of a parameter estimate or mean values are t-statistics and standard deviation, where the first is calculated on the bases of the second. We will return to this issue in more detail when we discuss general econometric issues and model specification. For now we just point at this problem and conclude that this issue deserves serious attention.

3.5.2.5 The choice of covariates

Finding a common metric is maybe the most difficult task, the choice of covariates is slightly easier even though it also deserves serious attention. It seems natural to include information on the characteristics of the study itself; what kind of data is used (time series, panel data, cross section, what year, number of observations and years, different countries, level of aggregation etc.), what statistical method applied (GMM, fixed or random effects, ARDL, ARIMA, OLS, Maximum Likelihood, spatial effects, parametric or non-parametric etc.), functional form (linear or non-linear) and theoretical methods (is the function to be estimated on reduced or structural form). To test the hypothesis of publication bias (given that the review also include unpublished work), some information on publication status is needed. This could be in the form of a simple dummy variable indicating if the study is published in a journal or is in the form of a working paper. It could also be a set up of different dummy variables or in the form of a continuous impact measure based on a citation index of the study or ranking of the journal.

3.5.3 General econometric issues and specification

We now turn to a more formal description of a meta-regression analysis. Many empirical studies in economics involves a standard regression equation such as

$$Y = X\beta + u$$

where Y is a $(n \times 1)$ vector containing information of the economic variable of interest, X is a $(n \times m)$ matrix of explanatory variables, β is the $(m \times 1)$ vector of coefficients, and u is the random error term. The main issue is to test the hypothesis that one regression coefficient, let's say β_1, is significantly different from some value, most often different from zero. For instance, in the empirical literature on economic growth, many studies focus on the so called convergence hypothesis where a negative and significant correlation between the initial income level (in our case $\beta_1 < 0$ and standard deviation of $s_1 < |\beta_1 / 1.96|$ to make the parameter estimate significant) and the subsequent income growth rate, which is our dependent variable Y, is interpreted in support of this hypothesis.[6] If the size of the parameter estimates is of main interest and comparable across studies, the following meta-regression equation will be applied

$$b_i = \beta + \sum_{j=1}^{J} \gamma_j Z_{ij} + v_i \qquad (1)$$

where b_i is the reported estimate of β_1 in study i, β is the value against which β_1 is to be tested (most commonly $\beta = 0$), Z contain information on characteristics of the different studies, γ are the meta-regression coefficients which reflect the biasing effects of particular study characteristics and v_i is the meta-regression error term. However, in many cases the meta-analysist will focus not (only) on the size of the effect but (also) the significance of the parameter estimate of interest. If the significance of the results is of main interest, then following meta-regression equation is more appropriate

[6] However, in a meta-analysis, β_1 could also be some other measure like the first or second moment of the variable of interest.

$$b_i / s_i = \beta / s_i + \sum_{j=1}^{J} \gamma_j Z_{ij} / s_i + v_i / s_i \qquad (2)$$

By concentrating on the reported standard deviations (or more correctly, the t-statistic as $t = b_i/s_i$) of the parameter estimates the meta-analysist avoids the potential problems associated with the fact that variables in different studies are most often measured in different units.

Another advantage with specification (2) compared to (1) is that (2) focuses on the significance of a particular effect instead of size. Irrespective of the size of the effect, if it is not significant, we cannot say that the effect is present.

3.5.4 Problems finding enough studies

Ideally, the data set should consist of a common metric from a large set of relevant and independent studies. However, this is where we have had severe problems. We have put a large effort in finding relevant studies using EconLit (a data base of papers within all areas of economics including regional economics and economic geography), EconPapers (a data base with both working papers and journal publications), IDEAS (a data base with both working papers and journal publications), S-WoPEc (Scandinavian Working papers in economics) different search engines on Internet, the university library in Umeå, the home pages of Enterprise Directorate-General and the consultant firm Cushman & Wakefield Healey & Baker, just to name a few. We have also received suggestions from colleagues within this ESPON-project. As it has turned out, the suggestions from our colleagues have been the most fruitful source, even though the number of relevant studies is far from what is needed in order to conduct a meta-regression analysis. We have also been in contact with Cushman & Wakefield Healey & Baker and asked them if it would be possible for them to share their data set with us. However, they have not yet responded to our request.

3.5.5 Recommendations for the next step

As should be clear from the discussion above, the number of studies that we have found is not enough in order to conduct a meta-analysis. However, a narrative literature review of these studies and other studies we may find along the way are still in place. However, this will not fill this working

package. Therefore, we also suggest to study the empirical entry-exit literature either as a meta-analysis or a narrative review. Such an overview of the knowledge within these two literatures will add much to our understanding of what factors are important determinants when the individual firm decides where to locate and/or startup a new business.

4 Impact of economic policies

4.1 Introduction

ESPON is a policy-consultancy research program, and as such, one of the main elements is policy recommendations. But in order to be able to do any kind of useful policy recommendations, the impact of existing policies has to be analysed in order to understand the cause and effect relationships between different levels of policy making and the evolution of territorial patterns of economic activities.

In the already cited Scoping Document for an Assessment of the Territorial State and Perspectives of the European Union, the Ministers have agreed to focus the question of territorial question on the issue of economic development, in line with the Lisbon strategy and its recent relaunch. Thus, the question of which types of policies affect which types in which ways is of utter importance in current policy debates.

This chapter will address that question from two levels of policy intervention, the regional/local and the EU-wide macro-economic. Both have quite important impacts on the distribution of activities and wealth across the European territory, but in very different ways. The former are policies addressed to a specific region, in which different actors and policies mix to form some form of territorial governance. The latter, however, is decided very far away from any region's specificities and its impacts are, therefore, often indirect and only visible after a certain time lag.

4.2 Regional and local economic policies and their impacts

4.2.1 Aims and structure of the literature review

The present review aims at providing a background to the policy debate underlying the ESPON 3.4.2 project. More precisely, in the perspective of defining relevant guidelines for a thorough and extensive case study analysis, our review investigates the following fundamental questions:

- What have traditionally been the key concerns of regional/local economic development?
- How have these concerns evolved along time, especially in the context of increasing (techno-) globalisation? What are the current key concepts of regional/local development?
- What are the theoretical justifications underlying public regional/local economic policies?
- What are the commonly used policy measures of regional/local economic development and how are they implemented by local authorities?
- What are the methodologies for evaluating the impact of policies?

While this contribution to the first interim report mainly concentrates on points 1 and 2, ongoing research will tackle the remaining open questions and provide relevant guidelines for the case study working package.

4.2.2 Key concepts of regional economic development[7]

It is largely admitted that regional development does not only mean revenue growth. Social and environmental dimensions need to be considered together with the economical dimension. However, the latter is the most constraining dimension for a region's development since it is the economic growth that allows the generation of sufficient financial resources.

Economic growth shows temporal but also spatial variations. Initially, the interest for spatial distribution of economic performance manifested itself in

7 Based on Capron (2002)

the study of international trade and issues involving third world countries[8]. Later on, this interest grew towards other levels of analysis, such as industrial sectors, regional or urban areas, in order to answer the concern of social and political cohesion within nations.

Regional economic development implies to determine and analyse the factors and mechanism spawning regional disparities, the interdependencies between regions and the policy instruments of public authorities.

Since the end of the Second World War, governments have been attempting to influence the spatial distribution of economic activities. From a political perspective, the fear is that significant differences between the growth rates and wealth of regions could generate instabilities (equity principle). From an economic perspective, and especially the neo-classical one, those same differences due to persistent differentials in terms of labour and capital endowments reflect an insufficient mobility of production factors and lead to inefficiencies, with areas not as productive as they could be (efficiency principle).

Regional policy instruments can be divided into two categories:

1. Instruments to **compensate the inadequacy between the supply and demand of factors**. The policy objective is then to influence the decision process of businesses in terms of localization and investments, through fiscal policy, investment subsidies, etc.
2. Instruments to **improve the quality of factor supply** in relation to business needs. Policy means in this domain can be the improvement of the workforce training, the access to credit, the quality of infrastructures, etc.

In reality governments use simultaneously the two categories of instruments in the implementation of their regional development policy. Public subsidies and infrastructure investments have traditionally been the two main components of policy. But up until now, their real impact on regional development is a topic of controversy. Empirical analyses of the real impact of investment subsidies on regional development have lead to non persuasive results[9]. On the side of infrastructure investments different studies also present contradictory results[10].

8 As mentioned in Button , Pentecost (1999)

9 See Capron (1998, 2000)

10 See Aschauer (1989, 1997, 2001) for positive results and Tatom (1993) or Gamble et al. (1997) for negative results.

The economic crisis that occurred in the mid-70's not only radically changed the structure of economic activities and their location patterns but also lead to profound changes in the regional economic policies. This crisis showed the limits of Keynesian policies, unable to tackle with increasing unemployment, partly due to the decline of traditional industrial activities.

Figure 11 synthesizes the main characteristics distinguishing the policies implemented between the 50's and 80's with the policies that emerged during the last twenty years.

From the 50's until the 80's, in the context of a "demand-driven" economy, two instruments were favoured by governments: financial subsidies and infrastructure investments. The recovery of underdeveloped regions was only seen possible through the attraction of new investments and the development of infrastructures. The regional and local authorities had a passive role, as the implementer of decisions taken at the national level. The controversy stems from the fact that those policies produced both positive (homogenisation of infrastructures potentials of regions) and negative results (widening the "centre-periphery" gap due to increased mobility of labour and goods, regional dependency, etc.)[11].

Hence, the economic crisis caused a new conceptual change affecting three levels: the actors, the instruments and the development philosophy.

11 See Vickerman (1999)

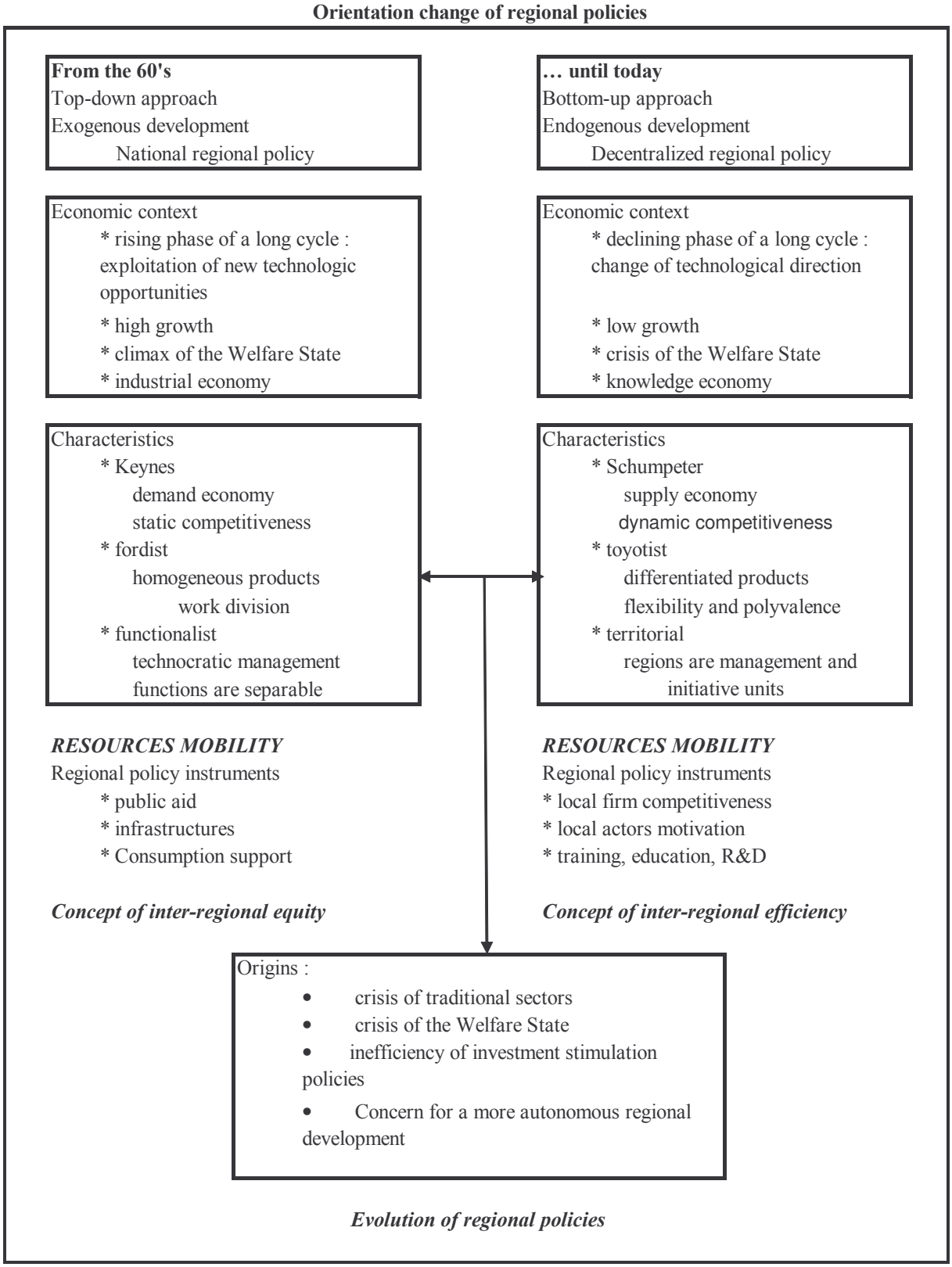


Figure 11: Main differences between policies of the 1950s-1980s and current approaches

(Capron, 2002)

At the level of actors, regional authorities obtained a higher degree of autonomy in the definition and implementation of those policies. Several factors favoured this move towards more autonomy. On an institutional level regions had requested more policy autonomy for a long time. In addition, the regional level was seen as better able to react to the fast changes induced by increasing globalisation. Policies for innovation, R&D and education became essential policy instruments. During the last two decades, in the light of continuous regional disparities, exogenous development policies were abandoned for the valorisation of the scientific and technological potential and the training of the workforce in line with business needs.

In this new context, public subsidies and infrastructure investments' impacts are limited and other forms of capital need to be considered. As shown in Table 16 (Capron 2002) the concept of capital has considerably evolved to include intangible forms of capital. The same happened with infrastructures that now include soft infrastructure besides hard ones. Soft infrastructures, also called "suprastructure", include investments in trainings and research or institutional infrastructures (modes of regulations, governance, etc.).

More recently it appeared that the contribution of "knowledge capital" and "human capital" is even more important when actors are set in a flexible, interactive and adaptative institutional context. This is why the concept of social capital has emerged, which corresponds to the mode of organisation of a given society. It is defined as the "relations infrastructure" linked with the collective action, which necessitates trust, support, reciprocity and cooperation (Henderson and Morgan, 1999).

Forms of capital	Nature	Content	Intervention means
Natural Capital	Public	Natural resources and environment	Subsidies to businesses Public investment
Productive Capital	Private Public	Business investments Infrastructures investments	Subsidies to businesses Public investment
Creative Capital	Private Public	R&D private spending R&D public spending	Subsidies to businesses Universities Public Research Centres
Human Capital	Private	Knowledge and skills of the workforce	Subsidies to businesses Education, trainings
Social Capital	Public	Depth and extent of interactions between business networks, public organisations, associations, etc.	Economic, technologic and social animation

Table 16: Forms of capital – base for regional development

(Capron, 2002)

In their turn, those new concepts encouraged the creation of "clustering policy". The interest in the cluster theory developed by Porter (1990) lies in the relationship between collaboration and competition. According to the cluster theories "a region's competitive advantage depends on the presence of localised clusters of specialized export-oriented industries, and associated supporting supplier and institutional networks. Such clustering stimulates: inter-firm rivalry and knowledge spillovers, innovation, investment, and a local pool of specialized skilled labour, all of which increase local productivity"[12]

Numerous studies tend to produce evidences that global corporations increasingly seek out regional economies with competitively advantaged regional industrial clusters (for example, De Vet (1993), a study of patterns of FDI flows in seven advanced economies). "As economic coordination becomes increasingly globalized, the key interactions among firms in specific industry clusters become regionalized".

An important question for policy making is how to relate key drivers of competitiveness (such as innovation, skills, etc.) discussed above and in previous chapters with policies.

According to Krugman (2003) there are two sources of regional "competitive advantage": *regional fundamentals* and *regional economical externalities*. According to Martin (2005), the notion of "regional economical externalities" is a common thread linking most of the regional growth theories (see Appendix) that relates to this idea of regional-specific interaction".

Krugman explains that "fundamentals" are rooted in a region's characteristics and "external economies" are themselves a consequence of a region's pattern of economic development. Fundamentals would be a well educated local population, a local culture of entrepreneurship, natural resources, sustained public policy differences, etc. External economies are "the spillovers that result from regional concentrations of industry, and therefore explain the snowball effect of virtuous circle of growth". For instance, knowledge spillovers result from personal contact among people working on related project.

Therefore, in order to improve its relative competitiveness a region could focus on improving its fundamentals (i.e. investing in education) or on enhancing its external economies (helping to promote technology transfer).

12 Martin (2005), p.17

4.2.3 The way forward

As mentioned in the introduction, the literature review is ongoing and will go in further details in order to define relevant guidelines for the case study analysis (see 3,4,5 in §1). The next deliverables will be:

- Making the link between the regions practice and the concepts and theoretical justifications
- Synthesis of economic policies in all European regions (most probably on the level of institutional regions), focusing on their results.

4.3 Analysis of regional impacts of EU-level macro-economic policies

4.3.1 Introduction

The previous chapter has dealt with issues of regional policy. However, they are not the only economic policies that influence regional development. In the light of the overarching objective of territorial cohesion, it is, therefore, important to understand what impacts such policies – which at their origin are not thought as regional development policies – have on the territorial structure of Europe's economy and on the economic development of individual regions.

More precisely, we wish to address questions such as:

1. To what extent has the common market affected regional growth, production structures and trade? (growth theory and trade theory, neo-classical models as well as more recent models, e.g., new economic geography).
2. How has economic integration affected migration and population concentration in regions (and cities)? (labour economics, population economics, trade and growth theories) This topic is also related to the question above.
3. What are the effects of tax harmonisation? (public finance, industrial organisation, growth theory)
4. What are the main regional effects of the single currency and common monetary policy? (theories of optimal currency areas, monetarist theories, post-Keynesian theories)

The chapter consists of two parts; in the first part a literature review is presented and the second part contains a methodological discussion concerning evaluation of macro-economic policies. Later drafts of the WP are assumed to contain an empirical analysis of some EU-level macro-economic policy. The literature review should be seen as an attempt to point out some of the theoretical frameworks that can be the starting point for the discussion of EU-level macro-economic policies and their impacts on regional development. At this stage we can not present a thorough discussion of the theoretical contributions on economic integration and regional effects. In

later reports a more stringent discussion of theoretical models is needed in order give a better understanding of the processes determining regional effects of macro-economic policies. We also intend to review some of the empirical literature in order to collect some indication what effects of EU-level macro-economic policies have already been measured.

However, such a literature review would be extensive as regional effects of macro-economic policies may be studied by almost every discipline within economics. Thus, it is necessary to concentrate on some of the most relevant areas. Generally, the discussion is mainly concerned with "economic integration" and its regional effects. The question of whether or not the regional development is characterised by convergence or divergence is central in the literature. In this perspective, as developed in other chapters of this report, the predictions from neo-classical growth and trade theory are different from more recent theories of endogenous growth and the new economic geography.

Before going into details of impact assessment, it is necessary to specify what policies should be regarded as macro-economic policies. In order to qualify as an EU-level policy in this literature review, the policy should to some extent "treat all regions equally". The monetary policy performed by the ECB is a good example; the monetary policy treats the regions the same way, e.g. through a common interest rate. However, the outcome in regions may differ, e.g., due to different production structures and how sensitive regions are to asymmetric shocks. Regions may also differ in financial structures that make the money supply endogenous at the regional level. The main question is what regional characteristics determine the economic outcome in the regions. Another policy example is the Single Market Programme (e.g., free movements of goods, capital and persons). The Single Market raises the question of how political and economic integration affects regional development.

The second part of the chapter discusses different empirical approaches for analysing regional impacts of EU-level macro-economic policies. One challenge with the evaluation of EU-level macro-economic policies is that the outcome of the policies is also affected by regional policies implemented by the EU but also by fiscal polices implemented by the national governments. These policies may be implemented as a response to regional effects from EU policies. Our intention is to discuss these issues. As was mentioned earlier, later reports will also contain an empirical analysis of some EU-level macro-economic policy and its impact on regional development. It is very difficult to present a stringent empirical analysis within the time constraint of the project. However, we have so far discussed three different approaches that might be feasible. These will be developed in this part.

4.3.2 The literature on impacts of EU-wide policies

As mentioned above, the literature in this field is vast and complex, as the issue can be addressed from many different perspectives, be it in the definition of macro-economic policies, or the types of impacts studied. We have, therefore, decided to select those issues that seem the most relevant in regard to territorial development, i.e. economic integration (Single Market), tax harmonziation and foregin direct investment, and the European Monetary Union.

4.3.2.1 Economic integration and production structures

The purpose of this section is to review the literature on European integration and its impact on regional production structures. The main focus is on the Single Market Programme and its impact on regional development. This section may be very extensive and may capture several macro-economic policies. In the initial stage of the literature review, the major theme of this section will most likely be "economic integration" and its impact on production structures and trade. The discussion is based on neo-classical trade theory and more recent trade theories (new economic geography). Since the predictions from different theoretical models may be quite complex, it is necessary to find empirical studies analysing integration impacts on European regions. Some of the discussion concerning production structures in this section is not explicitly related to macro-economic policies; however, it is important to consider this literature when discussing the regional effects of the EMU.

According to the neo-classical trade theory, economic integration is supposed to increase regional specialisation when production structures change due to the comparative advantages. Convergence in factor prices and product prices are predicted by the neo-classical trade theory. This convergence may result from trade or mobility of production factors. The economic activity is supposed to be dispersed across regions. Several factors may change this prediction, e.g., an uneven distribution of natural resources or technology, which could result in complete specialisation.

More recent trade theories (e.g., new economic geography) incorporate other aspects in trade theory, e.g., transportation costs and scale economies. Agglomeration effects may result in regional specialisation and core-periphery patterns of income (see e.g., Krugman, 1991). The literature also describes centrifugal effects, e.g. as a result of lower transportation costs. The theoretical contributions in this area are numerous and we are not

able to review the theoretical literature. Instead we focus on the empirical results that can be found.

There are numerous studies analysing industrial specialisation and concentration at the national level, e.g. Aiginger and Pfaffermayr (2004) study industry concentration among European members for the period 1985-1998. Their analysis is based on 14 member countries and data on 99 industries. Although their study is not concerned with regions, their results indicate that geographic concentration actually declined during the period 1992-1998, i.e. the post-Single Market period.

The empirical literature on regional specialisation is not so extensive. Marelli (2004) analyse the development of employment structures among European regions. The empirical analysis is based on 145 European regions for the period 1983-1997. Marelli finds that regional specialisation has decreased over time. One explanation according to Marelli is the shrinking of agriculture and manufacturing in those regions were these sectors initially were strong.

Paluzie *et. al.*(2001) study integration effects on industry specialization in Spain for the period 1979-1992. The empirical analysis is based on data for 50 regions (NUTS 3) and 30 industrial sectors. They found no evidence of specialization among Spanish regions. They argue that one explanation could be that concentration was relatively high before the entry to the EU. Furthermore, they conclude that scale economies is the most important factor determining the economic geography in Spain. They also state that neo-classical trade theory is not able to explain the patterns of industrial concentration in Spain.

Besides the literature that is based on neo classical trade theory and the new economic geography, there is an interesting research field concerning urban and city growth. Several interesting empirical studies on production structures, industry location and city growth can be found for the U.S.; see e.g., Black and Henderson (1999), Dobkins and Ioannides (2001), Ellison and Glaeser (1997), Beardsell and Hendersson (1999), Glaeser *et. al.*(1992). Some studies have analysed the location of European industries, see e.g. Midelfart-Knarvik *et. al.*(2000) and Hallet (2000). In later reports this literature will be discussed in connection to EU-level macro-economic policies.

At this stage we are not able to draw any general conclusions from the empirical studies. However, it does not seem controversial to state that increasing returns to scale are important in the empirical growth and trade literature. Empirical research indicates that regional specialisation is lower in Europe compared to the U.S. Furthermore, the process of regional

specialisation, if there is one, seems to be relatively slow. It remains to explicitly discuss this literature in connection to the implementation of EU-level macro-economic policies.

Several of the studies mentioned above claim to study integration effects on production structures. However, to what extent these studies are actually capturing integration effects is not always clear, e.g. time lags may be significant and time series data for the "post-integration period" may not be long enough. We will discuss this issue in later drafts in the methodological section that follows the literature review.

4.3.2.2 Tax harmonisation and foreign direct investment

It may be in place to more explicitly discuss different aspects of the Single Market, e.g. the effects of tax harmonisation among EU members. This topic may be discussed in connection to foreign direct investments since much of this tax literature is focused on the behaviour of multinational firms. So far we have not been able to look through this literature. See e.g. Gorter and De Mooij (2001) for a review of literature concerning tax harmonisation and foreign direct investments. Another area that might be of interest to discuss is the impact of tax harmonisation on regional risk sharing through the fiscal system.

4.3.2.3 The European Monetary Union and its impact on regional development

The single currency and the common monetary policy are probably the most known EU-level macro-economic policies. Much of the literature on a common monetary policy in EU is focused on "optimal currency areas". This framework is well suited for this analysis due to the fact that the theories are focusing on national and regional differences in economic structures, e.g. production structures and mobility of production factors. Another issue is to what extent the common currency affect trade among EU members. We also intend to review some research concerning different financial structures and their regional effects, e.g. post-Keynesian theories where the money supply is assumed to be endogenous. Thus, we will concentrate on four areas; i) regional productions structures and asymmetric shocks ii) trade effects iii) labour mobility iv) regional differences in financial structures.

It is obvious that the common monetary policy has a strong impact on the economic development across European regions. The most common theoretical framework for analysing regional effects of the monetary union is the theory of optimal currency areas which can be traced back to the seminal work by Mundell (1961). A general conclusion is that when exchange rate flexibility is no longer an option among members in the currency area, economic flexibility is required in other dimensions; labour mobility, flexible wages, fiscal policies and capital flows. This flexibility is necessary in order to deal with asymmetric shocks among regions. There are numerous studies analysing whether or not EU is an optimal currency area.

The impact of asymmetric shocks on nations and regions have been studied empirically, e.g. by Fatas (1997). He studies the correlation in national and regional business cycles for 12 EU members for the period 1966-1992. He finds an increase in the correlation between regions across nation's borders but also a decrease in correlation between regions within countries. As an example he points out that regions in the northern part of Italy are more correlated with regions in Germany compared to the regions in south Italy. Fatas concludes that the result is partly an effect of increased trade causing regional cross-border links instead of specialisation at the national level. Another explanation according to Fatas is that coordination of economic policies has increased cross-country correlations.

Carlino and Delfina (1998) study how sensitive EMU countries are to monetary policy shocks. Carlino and Delfina define three different groups of nations with respect to how sensitive they are to asymmetric shocks, e.g. they find that Finland, Ireland and Spain are most sensitive to shocks. Obstfeld and Peri (1998) argue that EMU is not an optimal currency area, one argument is that price and factor mobility is low and that public transfers is a more important adjustment mechanism.

There are numerous studies on labour mobility, there are several reasons for the interest in mobility, e.g., real wages do not adjust downwards and capital is relatively mobile. However, the importance of labour mobility is dependent upon how sensitive the regions are to asymmetric shocks; a high degree of production specialisation within a region increases the demand for labour mobility in the case of asymmetric shocks. Another question is whether or not the monetary union affects production structures; Krugman (1993) argues that EMU will enhance regional specialisation.

There are some empirical evidence that European regions are more sensitive to asymmetric shocks than regions in the U.S. (see, e.g., Bayoumi and Eishengren, 1993). One explanation is that Europe is more separated between periphery areas and centres. In this perspective it is also of interest

to consider studies of migration patterns and regional disparities. Bentivogli and Pagano (1999) study to what extent regional differences within EU stimulate labour mobility. They find that migration in the U.S. is more influenced by income differences than migration in Europe. Bentivogli and Pagano concludes that the fact that migration in Europe is less sensitive to regional differences makes it difficult to rely on labour mobility in order to compensate asymmetric shocks. This is particular troublesome if European integration enhances regional specialisation. Then, it is necessary to rely on other adjustment mechanisms, which is a conclusion that is found in several studies.

Costa-i-Font and Tremosa-i-Balcells (2003) study how different Spanish regions respond to common currency. Among the results they find that large, diversified and open regions are best prepared for the common currency. They also find that real exchange rate differences may be large between regions. A policy implication is that if production factors and prices remain relatively rigid and the pattern found in Spain applies to other countries, then the most important policy for regional asymmetric shocks will be fiscal redistribution.

As pointed out by Rodriguez-Fuentes and Dow (2003) much of this literature assumes that money is neutral, i.e. money does not affect real variables in the economy. In this perspective, the effect of monetary policy on regional development is explained by structural differences and these structural differences do not depend on money. Some studies have focused on differences in financial structure across regions and the transmission effect of monetary policies. Regional differences may include local banking conditions and market failures, see e.g., Samolyk (1994). One consequence of different financial structures is that the common monetary policy will have different impacts in the regions. In coming reports we will look more closely at different regional characteristics and the transmission effect.

The empirical literature on the common currency and trade effects indicate that there are positive effects on trade. However, there is much debate on how large these effects are. We have so far not reviewed this literature. The reason is that most of the literature (that we have found) concerns aggregate effects on the national level and not regional effects.

4.3.2.4 Summary of the literature review

In later reports we will summarize the literature review in this section. The main question is whether or not the regional effects of EU-level macro-economic policies indicate a clear pattern, i.e. is it the same region type that

benefit from the different policies ? This question is obviously also closely connected to regional and local policies, a link which we will attempt to analyse in the case studies. A common theme in most areas is regional specialisation and concentration. Regional specialisation is an important aspect of the monetary union. Furthermore, specialisation is a central factor in the literature on regional and national risk sharing. The predictions on specialisation and concentration are very different when comparing neo-classical theories and more recent theories such as endogenous growth models and the new economic geography. However, factor mobility is crucial within both theories. Labour mobility is also a very important aspect of the monetary union. Thus, it might be of interest to look more specifically on economic integration and specialisation on the one hand and labour mobility on the other hand in upcoming reports.

4.3.3 Empirical study

As was mentioned earlier it is difficult to present a convincing empirical analysis within the time constraint of the project. Although it may be possible to present a relatively simple analysis we feel that it is important that the study is stringent and based on solid scientific methods. Otherwise it may be better to review the existing literature and try to summarize the existing knowledge within this field. Such review should include an extensive discussion regarding methodological problems and data needs for future research.

In order to perform an empirical study of regional impacts from macro-economic polices it is important to identify regional indicators. A critical question is whether or not data are available at the regional level, covering a period before and after the policy has been implemented. The ESPON database and the efforts concerning ESPON key indicators should be of help here. There are also several aspects of policy impacts on regional development. This means that it is important to choose an appropriate theoretical framework. However, this is the easy part of the empirical study.

There are several methodological problems associated with policy evaluations. One problem concerns time lags. A second problem is concerned with creating a control group. This problem is more severe in evaluation of macro-economic policies compared to regional policies since the macro-economic policy "treats" all regions in the same way. A third problem is concerned with the endogeneity of implemented policies and the outcome, and furthermore, the interdependence between macro-economic policies and regional policies. The outcome of EU-level macro-economic polices is not independent of other policies implemented by EU (regional

policies) and the national governments (fiscal policies). These policies may have been implemented as a response to regional developments, to some extent affected by EU-level macro-economic policies. Thus, it is very difficult to separate the effects that follow from the EU-level policies.

However, it should be possible to present a relatively simple (with risk of being simplistic) analysis within the time limit. Below we briefly discuss three different approaches.

4.3.3.1 Economic integration and regional population concentration

The first approach is a general study that considers regional effects of economic integration. It should be possible to study changes in population concentration, e.g. after the implementation of the Single Market Programme. We know that migration is mainly determined by labour market conditions. If some regions increase their attractiveness after integration, the results may give some indication of the regional impacts of economic integration. This approach may also indicate what types of regions benefit most from integration. Some existing empirical papers study economic integration and migration and population concentration among nations. The analysis at a regional level could range from a very simple study (purely descriptive) to a relatively advanced study by using established methods for analysing regional/city growth.

This study should be feasible with respect to data availability as quite a lot of population data is available at NUTS 3 level, with the regrettable exception of migration data (other then the migratory balance). If data is available, the study could also contain an analysis of income growth, but current data on household income only exists on NUTS2 level.

Although the time period is short, a very interesting research topic is to study regional population concentration within new member nations. It is reasonable to assume that it is easier to study integration effects for these countries. First, old members are more integrated which makes it more difficult to study integration effects, e.g. the Single Market Programme. Second, we believe that the new members have less developed transfer systems, indicating that risk sharing among individuals and regions are not comparable to the system in old members. A hypothesis is that this kind of risk sharing has a negative effect on factor mobility and the dynamics of the regional economy. Although this approach may not be feasible due to lack of data, the methodology for such studies should be discussed.

4.3.3.2 Long run and short run dynamics – an empirical evaluation of aid and economic development

In light of the current discussions on the reform of State Aid, it would obviously be interesting to study aid distributed among regions and regional development. This is a highly debated issue and it is far from clear how the actual relationship between aid and economic development look like. One might argue that aid is necessary in order to enhance growth in problem regions. On the other hand, aid may affect the incentives to change old production structures. Thus, regional aid may have a negative effect on regional development. One empirical approach is to use time-series data (if available) on regional aid and regional income and evaluate short-run and long-run relationships by the use of co-integration tests. However, we are here on the very limits of what can be defined as "macro-economic" policies as even though the rules for the State Aid mechanism are EU-wide, the way State Aid is actually used and distributed is very much dependent on each Member State. So it might be more appropriate to identify some specific applications of State Aid and to study them on case study basis.

4.3.3.3 Deregulation and economic development

A third approach is to select a specific policy implementation and try to identify regional effects, e.g., deregulation of energy markets. Electricity is a homogenous good, it has low transportation costs, and it is an important argument in an aggregated production function which makes it possible to find regional indicators. Furthermore, we believe that energy markets have been deregulated at different times, which gives us variation in the data. However, this latter study is a much narrow study compared to the former suggestions.

4.3.3.4 Conclusion

We believe that the first approach (*Economic integration and regional population concentration*) is the best alternative for this task. First, population movements and natural population growth are closely connected to the study of regional growth patterns. Second, the study of regional population patterns is highly relevant in the perspective of "regional competitiveness". Third, although it is very difficult to relate changes in regional population concentration to EU-level policies, the methodological

problems are not more complicated compared to the study of other regional indicators and effects of EU-level policies. Fourth, the first approach is most likely the least problematic empirical study with respect to data availability.

4.3.3.5 Use of the MASST model

In light of very recent changes in the team (exit of Maurice Baslé and entry of Roberto Camagni) opens the perspective of attempting to use the MASST model developed in ESPON project 3.2 as a tool for regional impact assessment of economic policy. This might also be the opportunity to develop a proof of concept for the general ESPON TIA in the field of the economy. This will have to be confirmed with the team, however.

4.4 Case studies

National, regional and local authorities make efforts to attract new activities and to promote new investment by a range of measures. At the national and / or regional and local levels measures such as taxation policy, monetary policy implying regional and sectoral incentives, public R&D investments, R&D subsidies, transport infrastructures, on-the-job training and other framework conditions relevant for the development of economic activities are implemented.

On the basis of a general literature review concerning the current knowledge on implementation and impacts of regional development policies some regions will be identified in order to realise case studies representative of the main European regional profiles. The selection of case studies will take into account the ESPON typologies. It is worth noting that given the time constraint, the number of case studies should be limited.

The canvas for the selection of regions should take into account:

- the different regional profiles;
- the extent of the study and
- the main points to be investigated.

First, regarding the different regional profiles a possible typology can be:

1. less favoured regions (example: objective 1 regions);
2. industrial regions (example: Third Italy);
3. metropolitan regions (example: see Table 1 of General theoretical framework);
4. agricultural and rural regions (example: relevant objective 2 regions);
5. innovative regions (example: Stockholm, Uusimaa, Oberbayern);
6. regions selected according to the particular types identified through the ESPON typology.

Second, regarding the extent of the analysis, three approaches can be envisaged:

1. to chose types of regions and analyse all policies implemented as well as the results and impacts. A main bottleneck about this approach is the risk of very wide range of policies to study. Furthermore case studies might not be comparable, as many characteristics are expected to be different.
2. to chose one or two policies and investigate their implementation as well as their results and impacts in several regions with different characteristics. A main advantage of this approach is to allow to focus the analysis and maybe to come up with more "generalisable" results. Nevertheless it limits the analysis to only one or two policies. Consequently, what to do with the rest? Finally a main argument against such an approach is that regional policy is in fact the art to design a policy mix in order to achieve some expected impacts.
3. to chose the best-performing region in each structural type and study policies implemented in these regions. Such a way of proceeding allows to analyse a representative panel of regions. From best performing regions "best practises" could be extracted. The study of poor performing regions could lead to the identification of main failure factors.

Third, the main points to be investigated can be summarised as follows:

- identification for each type of region covered by the case studies of policies implemented by European, national, regional and local authorities in order to improve the "local" attractiveness with respect to the location choice of companies and FDI;
- evaluation of the degree of coordination of policies identified at point a);
- appreciation regarding the coherence of the different levels of intervention and governance (according to the subsidiary principle) and identification of possibly "perverse" effects;
- evaluation of results and impacts of implemented policies;
- analysis of relations and proportions of endogenous development compared to FDI and evaluation of impact of policies on endogenous development;
- identification of best practices and policy recommendations.

As much as possible and obviously depending on availability, quantitative data will be collected for each case study, concerning economic and population structures, policy implementations, and other relevant indicators.

Attention should be paid to some drawbacks. A first one is linked to the way of isolating the effects of policy from all the other factors (given the time and resource constraints). A second one is that comparable policies have only been implemented very recently in European countries. Therefore it might be difficult to compare performance with a sufficient degree of liability. A third one is linked to the limit of the case study approach which allows one to conclude about the region under scrutiny but does not allow a generalisation. Nevertheless, they might help to identify more "qualitative" issues that we would be missed otherwise and also allow to focus on different scales. The last one refers to the choice of the relevant scale. Indeed, regional impacts are not only the result of a given regional policy but of the mix of European, national, regional and local policies according to the subsidiary principle. Given that the stress of the study is put on regional policy, it is suggested to select the regions according to their institutional status (regional political authorities).

5 Next steps in the project

This report is only a first glimpse of what we intend to provide through the research in this project. Each of the above chapters will be enhanced and enlargened. More precisely, the following elements are foreseen for the next interim report due in mid-February:

- Further literature review on localisation factors and impacts of EU-wide and regional policies in order to summarise usefully the existing knowledge, including logical cause-and-effect models for impacts of EU-wide policies and a synthesis of economic policies in all European regions (most probably on the level of institutional regions), focusing on their results.
- First draft of application of a methodology for territorial impact assessment of macro-economic policies, in close collaboration with project 3.2 and with possible use of the MASST model (to be confirmed)
- First (meta-)analyses of studies concerning analysing localisation factors, most probably entry-exit studies
- Analysis of structural economic data, in order to see patterns in the distribution of activities across Europe and identify types of regions according to their activity mix
- Analysis of economic performance in relation to other indicators, in close collaboration with project 3.3 for the definition of these indicators
- Finalised guidelines and list of regions for case studies (which will already be on their way by then)

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