

Departament d'Economia Aplicada

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space:
What can we learn from the European
experience?

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Agglomeration and inequality across space: What can we learn from the European experience?

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Abstract

The purpose of this contribution is to draw a picture of the (uneven) distribution of economic activities across the states of the European Union (EU) and the consequences entailed by it. We will briefly summarize the most salient and recent contributions. Then, in the light of the economic geography theory, we will discuss the economic and social advantages and disadvantages associated with a core-periphery structure. In this sense, particular attention will be addressed to the EU financial system of Structural Funds and the effects they produced. Finally, we will formulate some suggestions, relying on the EU experience, that could be of interest to the current Brazilian regional policy.

Keywords: Core-periphery structure, Inequality, EU policies, Brazil.

JEL Classification: 054, R12, R58.

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1. Introduction

The unbalanced territorial distribution of resources is quite a common problem that various countries all around the world have to face. In recent times, the strong connection between economics and space has been widely studied in the economic literature. Spatial imbalances are often the source of economic inequalities. Then, typical economic problems can entail important consequences at the social level too.

The sources of an uneven distribution of activities are various. Naturally, it is easy to identify the concentration of persons and activities in cities. Firm owners like to cluster together in proximity to cities because the concentration of skills, infrastructures and the whole environment provided by cities are very attractive (this is known as the urbanization process). This tendency is also reinforced by the worker-migration process: workers migrate where there is a demand for their skills. At the same time, the concentration of productive activities attracting more and more activities also makes it interesting for consumers to settle there. Shopping facilities and business services are available in one place and this particular advantage is much appreciated by consumers. This organization of space with more and less concentrated areas of firms and people becomes more evident in the light of the progressive reduction of transport costs for delivering goods.

Beside the classical problem of congestion entailed by the growing urbanization rate, a deeper structural transformation appears when the centripetal forces for locating resources in a single place (such as a city) are strong. The endogenous system of organizing the territory is nurturing a developed center (the city) against an underdeveloped territory (the periphery or rural area). Here, the unbalanced economic structure appears and different growth and developing perspectives for each of the two territorial units (the city and the periphery) are to be considered.

As one can easily realize, this structure, known as core–periphery, can be freely spread across a region or a nation. Then, in order to guarantee a standard level of welfare to all the citizens belonging to either the same region or nation, local authorities (and to a larger extent governments) have to focus more on implementing policies to break the mechanism of the self-reinforcing unbalanced structure.

There is a wide range of interventions authorities can propose: improving transport and other infrastructures to connect lagging areas (in the periphery) with the fast-growing ones (in the core), or fostering the creation of agglomeration sites in the peripheral areas.

Is there a more efficient policy? Is there any experience of the policies adopted by governments and institutions?

There is no unique answer that can address these two issues. This article is exactly about the experience of the European Union and the policies it promotes to contrast the internal core–periphery structure. In particular, the aim is to describe the kinds of intervention supported by the European Union and their results and to explore possible paths to make them suitable for application in Brazil too.

As we argue throughout this contribution, there are some interesting features supported and promoted by the European Union that it could also be interesting to implement in Brazil. This article is organized as follows. First, we provide a general description of the economic structure within the European Union (Section 2) and the meaning of a core–periphery structure (Section 3). Section 4 is devoted to a general overview of the Structural Funds that the European Union promoted in order to solve the economic and social problems entailed by the unbalanced internal structure. In Section 5, we provide a statistical analysis of the internal structure of the Brazilian economy and then we discuss to what extent European policies could turn out to be feasible in Brazil. Finally, Section 6 concludes.

2. Economic structure of the European Union

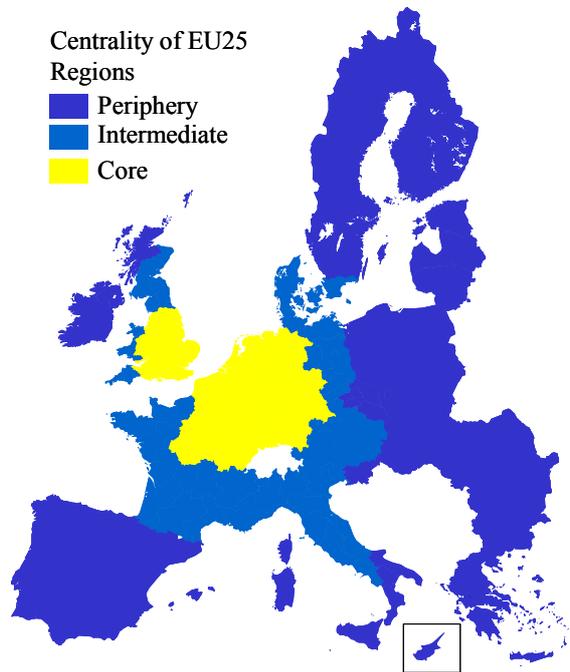
One clear feature of the distribution of activities across the European Union is the strong uneven pattern jointly with an evident sectoral specialization (Amiti, 1999). Since the 1980s, all countries have become more specialized, even if there is no clear trend toward a concentration pattern at industry level (Midelfart-Knarvik and Overman, 2002).

These differences are reflected in various economic indicators. According to Puga (2002), the differences in income across European regions are higher than those across US states. To be more precise, in 1992, the leading European regions recorded a GDP per person of 1.6 times the European average and 3.5 times that of the lagged regions.¹ In time, European regions experienced a strong convergence process in income per capita that stopped at the beginning of

¹ These data are mostly referring to regions identified by the NUTS 1 classification for spatial units.

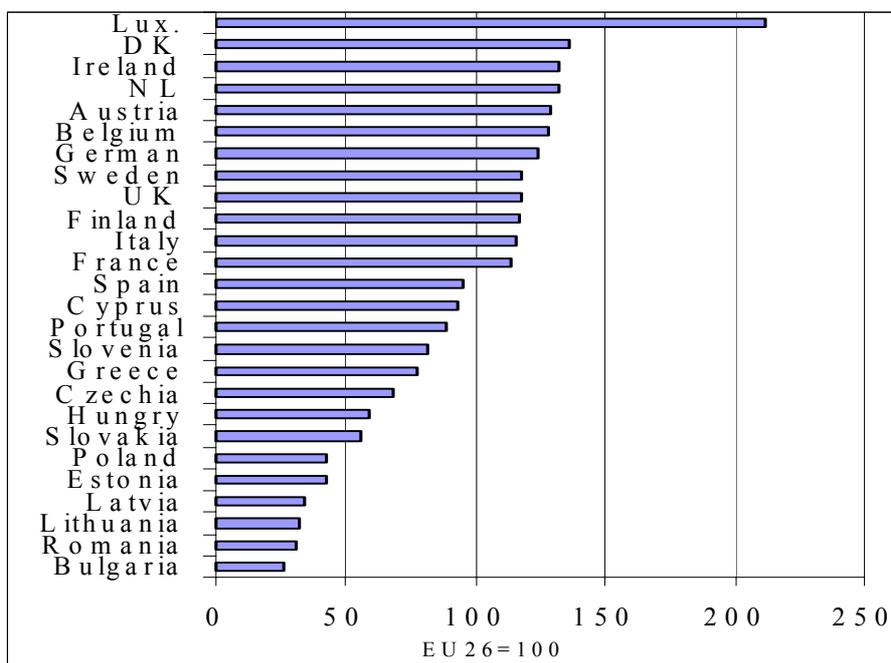
the 1980s. The interesting feature of the European variations in income per capita is that income inequalities across states fell (by 25%) but the regional ones rose (by 10%).

Figure 1: The structure of the European Union (Source: Baldwin and Wyplosz, 2006)



As discussed in Combes and Overman (2004) and shown in Figure 1 and Figure 2, it is quite easy to identify a rich core of regions at the heart of the European Union that have quite a high GDP per capita and are located close one to another and a poor peripheral area located away from the core. The core regions have the advantage of enjoying good access to the EU markets. The progressive integration improved the accessibility of the core regions relatively more quickly than the peripheral ones.

Figure 2: Geographic income inequality (1999) (Source: Baldwin and Wyplosz, 2006)



Looking at the distribution of the total production and the relative sectoral composition, Combes and Overman (2004) detect a few stylized facts: even if the structure of the production inside the EU countries is relatively different, there are some groups of countries with a similar structure. Half of the regions are more specialized and the others less so. In general, high-tech increasing returns activities are more spatially concentrated. For instance, the economies of France, Germany and the United Kingdom are very similar and tend to specialize in high-tech and high-skill industries. They all are dissimilar to Greece, Ireland and Portugal. Greece, Ireland, Portugal and Spain are the countries enjoying most of the Cohesion Funds. Nevertheless, their structures are quite dissimilar. Portugal and Greece display a tendency to specialize in low-tech and low-skill industries. Spain is specialized in the medium-tech and medium-skill sectors, while Ireland in the medium-high tech and skill sectors. Then, concerning the other countries, Austria, Belgium, Denmark and Italy are quite similar in terms of specialization (medium skill and medium tech); the Netherlands is an outlier (low tech and higher skill). Finally, the Scandinavian countries Finland and Norway are quite similar, with a relatively high-tech specialization.

3. The strengths and weaknesses of a core–periphery structure

Empirical evidence points out that firms and workers enjoy settling in close proximity to large markets. In the same manner, large markets are those that attract more firms and workers. This specific attitude is the main driving force fostering a core–periphery structure.

Economic geography theory builds on some guidelines developed by Krugman (1991) and then extended in different directions.²

The core of the economic geography theoretical framework is very intuitive. Let us consider a situation in which we consider two (identical) regions endowed with the same economic structure and the same number of workers. Workers cannot move across the two sectors. In each region, there exists a monopolistically competitive sector whose firms may freely move from one region to the other and a perfect competitive sector that is completely immobile (for instance the agricultural sector). At the beginning, we are assuming we are in a completely

² A complete overview of this kind of subject can be found in Fujita *et al.* (1999), Fujita and Thisse (2002) and Baldwin *et al.* (2003). The content of the first two books is developed on the base of the core–periphery model, while the last one also introduces the concept of the footloose capital model. This framework is different from the standard core–periphery one because it assumes that the mobile factor repatriates all its earnings to its country of origin. This leaves room for the possibility to consider the physical or knowledge capital the mobile factor rather than labor.

symmetric situation, hence both the regions have the same share of industry and workers. However, if for any reason a few firms left one region to locate in the other, then a structural change may be produced. In the case where workers can move freely, the rise in the share of firms in one of the two regions (let us define it as the host region) increases the demand for workers, whose wages also increase, making it more attractive to workers. However, the incoming of new workers increases the local expenditure too (namely, the size of the host market increases) and this reinforces the attractiveness of the host region, which is receiving more and more firms. In such a way, the so-called core–periphery structure appears. Instead, in the case of complete immobility of workers, no concentration movement of firms takes place and the two regions can keep on being symmetric and identical. The mechanism producing the core–periphery structure and, also, reinforcing it is known as a ‘self-reinforcing’ mechanism.³

Another seminal contribution in this stream of literature is by A. Venables (1996). In this paper, the author addresses an important issue. He is able to identify further forces that are able to sustain the formation of agglomeration poles even in the absence of labor migration. These specific forces are the vertical linkages between upstream and downstream industries. Those linkages are then able to determine the size of the markets at different locations as it occurs with migration.

The model introduced by Krugman (1991) assesses that the agglomeration structure reinforces as much as the cost of transport costs in delivering goods between the two regions reduces.⁴ However, the relationship between transport costs and agglomeration turns out not to be so linear in the absence of labor migration. If the concentration in one region makes the wages paid there relatively higher, the relationship between integration and agglomeration is not linear anymore. A sufficiently high level of integration can also trigger industrialization in peripheral regions. In fact, if workers do not move, wage differentials persist and transform into a dispersion force to break the concentrated structure, even if industry is still distributed in a different proportion in both the regions (but it is not concentrated in just one of them). In the absence of the mobility of workers, even if trade costs are low, firms locate in the region with the lowest level of wages, while with a high level of transport costs, firms aim at locating as close as possible to the final demand. Hence, regional disparities may appear just for the intermediate value of transport costs.

³ Inside the European Union, this mechanism of circular causation faces a problem of low migration rate. As argued in Puga (2002), there are objective cultural and language barriers preventing the free movement of workers across states associated with a general cultural aptitude of strong familiar ties preventing real interstate migration flow rates as in the US.

⁴ This result has been generalized by augmenting the number of regions and introducing a differentiation between interregional and international transport costs, as in Monfort and Nicolini (2000) or Paluzie (2001).

In the spirit of this framework, according to Puga (2002), the low mobility of workers inside the European Union associated with a progressive economic integration (by lowering the level of transport costs) may produce a convergence process across regions. However, the rigidity of wage setting at the national level associated with some differences in the local environment may also explain the progressive rise of income inequalities between regions within European countries.

4. The EU structural funds: numbers and effects

One of the principal aims of the creation of the European Union is to achieve greater economic and social cohesion for reducing disparities across its member states. To that end, some initiatives have been taken, one of which is the introduction of the Structural Funds.⁵ Since 1989, the reforms of the financing system have made the Structural Funds the second most important area of intervention of the EU behind the CAP policy (Common Agricultural Policy). Some evidence is presented in Table 1 and Figure 3.

These funds devote a large part of the financial resources of the EU to the poorest regions of the Union.⁶ These resources aim at correcting some deficiencies in the endowments of strategic factors of production, above all infrastructure and human capital, and helping the modernization and technological upgrade of firm production.

According to Rodríguez-Pose and Fratesi (2004), Objective 1 regions gained more than two-thirds of the total Structural Fund expenditure. These funds are devoted to financing regional plans or multi-regional plans according to four priority axes:

1. Supporting the agricultural and rural promotion
2. Business and tourism support
3. Investment in education, requalification and, more generally, supporting the human capital of these regions
4. Investment in infrastructures, transport and the environment.

⁵ Other programs are patronized by the European Union, but they are not exclusively addressed to the group of regions labelled as Objective 1. Funds devoted to Objective 2 regions are those that aim at supporting the adaptation and modernization of areas facing structural difficulties and funds granted to regions labelled as Objective 3 target the adaptation and modernization of policies and the system of education, training and employment (Puga, 2002). (See Appendix 3).

⁶ As a poor region, we are referring to a territorial unit of the EU whose income per capita achieves a value below 75% of the EU average income.

However, in Rodríguez-Pose and Fratesi (2007), a major concern is put forward about the real capacity of the European Structural Funds to deliver the objective they are expected to achieved European regional policy seems to target more objectives of income redistribution than sustainable development.

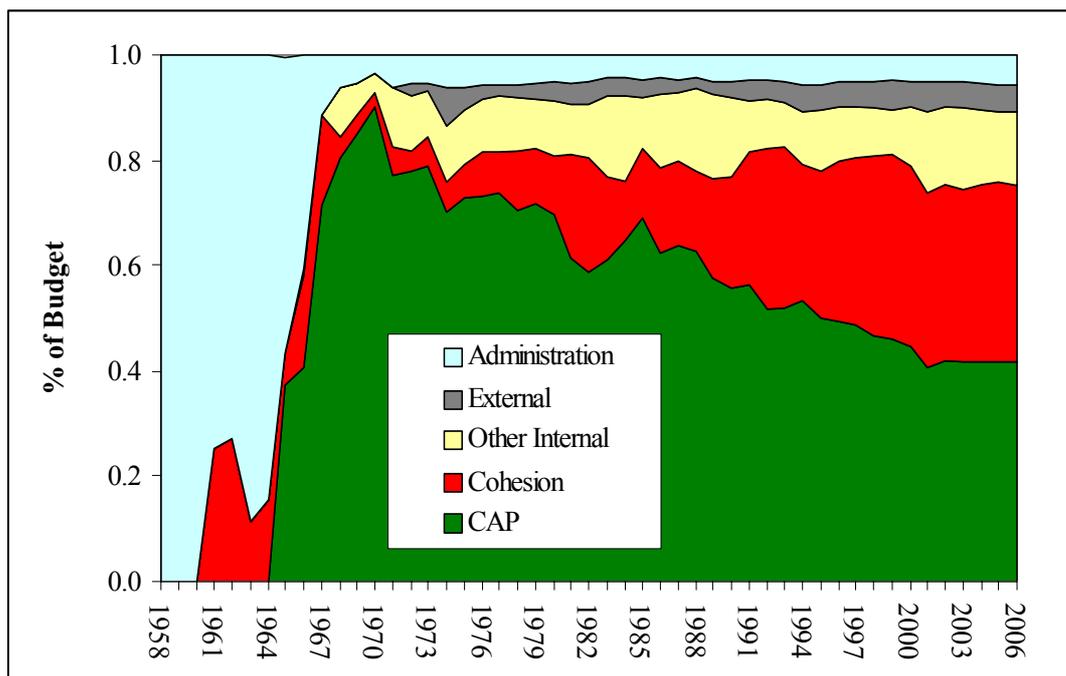
According to their estimations, since 1993, the European regions have been experiencing a strong divergence process, while convergence is exclusive to the subset of regions enjoying the Objective 1 funds. Hence, from this viewpoint, these funds seem more to prevent further divergence across regions rather than to foster convergence. In fact, the bulk of this intervention (investment in infrastructure) seems to be experiencing a low level of return (as investment) in the short and the medium term, mostly because of the nature of this kind of investment itself. Instead, investments in human capital show positive medium-term returns, mostly because the recipient regions are experiencing a strong mismatch between education supply and labour demand reinforced by a low mobility of workers.

Table 1: Structural funds' expenditure structure (Source: Rodríguez-Pose and Fratesi, 2007)

| | 1989 | 2004 |
|---|--------|---------|
| Total Community expenditure (€ mill.) (2000 prices) | 55,974 | 108,770 |
| Community expenditure as % of public expenditure in member states | 2 | 10.5 |
| Expenditure as % of the Community GDP | 0.94 | 1.1 |
| Expenditure per capita (€) | 129.5 | 301.6 |
| Expenditure per capita (€) (2000 prices) | 171.4 | 284.2 |
| Development funds per capita (€) (2000 prices) | 32.21 | 101 |
| Development funds on EU15 GDP (%) | 0.18 | 0.42 |

However, other interpretations may be considered.

Figure 3: Evolution of the spending priorities in the EU (Source: Baldwin and Wyplosz, 2006)



After the reform that took place in 1989, the action of the structural funds focused on the principles of territorial and financial concentration, programming, partnership and efficiency (Rodríguez-Pose and Fratesi, 2007). Despite the heavy investment efforts (Figure 4) (sizing in two-thirds of the whole budget), most of the regions belonging to the Objective 1 group (the poorest regions) – in 2004, before the enlargement ‘statistical’ effects (Figure 5) – are still those that were included in 1989. It is true that most of the national disparities have been declining across time, but regional disparities seem to be more persistent or have even increased by 10%, according to Puga (2002).

The reasons for this potentially unsuccessful European policy in accomplishing the planned objectives are various. The most likely motivation should be found in the coexistence of different simultaneous effects: structural funds help to smooth the centripetal effects (hence the forces reinforcing the core–periphery structure) fuelled by the action of the integration process itself, the tendency of the R&D to be concentrated in the core regions or the decline of the inter-European migration flows, associated with some specific policies implemented by some governments in order to protect local industries (see Midelfart-Knarvik and Overman, 2002).

In addition, according to Rodríguez-Pose and Fratesi (2004 and 2007), the composition of the expenditure of the Structural Funds deserves some attention. Almost half of the total expenditure was devoted to infrastructures and development, 25% went to the promotion of the local economies including tourism, while 12% was for human resources and 8% for rural development.

In particular, financing the creation of a modern infrastructure system can be considered as one of the potential reasons for the low effectiveness of structural funds.

According to the model of the New Economic Geography, transportation costs play an important role. In the case of mobility of workers, low transport costs favor a strong agglomeration in the core area, thereby contributing more to greater rather than lower disparities across regions. This is the bulk of the effect of modern infrastructure in a core-periphery structure: dispersion can arise again when other factors (such as the mobility of goods or the kind of transport costs) are taken into consideration.

These results can be extended to the concrete situation of peripheral EU regions (namely almost all the members of the Objective 1 group). Their relatively lagged industrial structure associated with a more efficient transport system may reinforce the delocation process of the productive activities from the periphery to the center, exacerbating even more the regional imbalances.

Rodríguez-Pose and Fratesi (2007) also claim that the regions that have used the structural funds in a more balanced way by endorsing policies including all the three groups of interventions have performed better. In fact, their results also show that the expenditure in human capital within regions has been the development expenditure with significant positive results.

From this perspective, two main considerations may be put forward: either the volume of structural funds has been globally below the critical threshold to finance properly all the chapters of expenditure and, then, to trigger a significant growth process across regions, or, at least, those funds help in smoothing the impact of the consequences of the self-reinforcing centripetal forces on regional development.

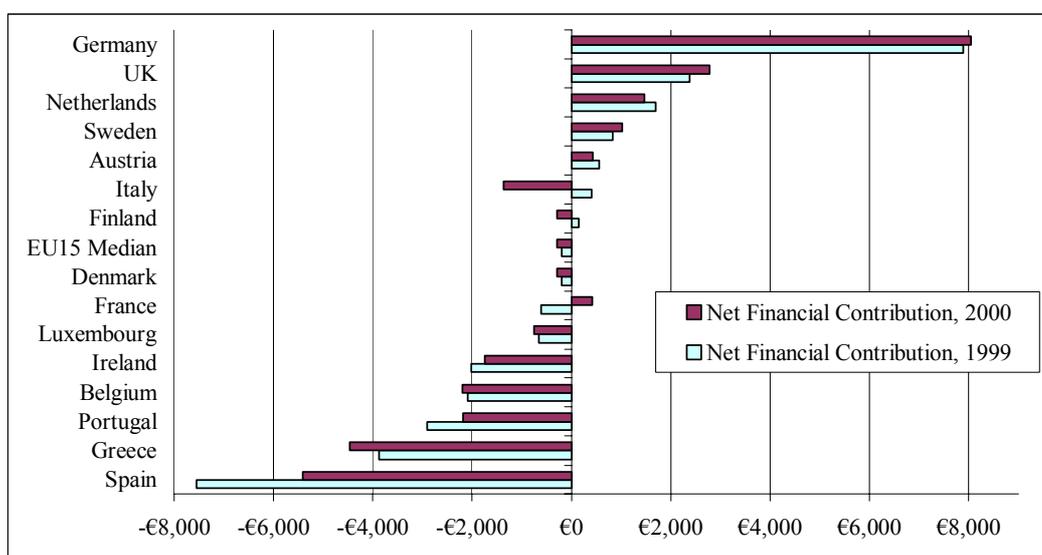
This second way seems to be the path followed by other authors, such as de la Fuente, to evaluate the impact of the Structural Funds in Spain.

In de la Fuente (2003), there appears a clear result: the rate of returns of investments in infrastructure is notable but a more rational redistribution of resources would have pushed the convergence process across regions even more.

The analysis of the effects on growth fuelled by the introduction of structural funds found in Spain one of the most salient cases. According to de la Fuente (2002), the impact of the Structural Funds in Spain (in the period 1994–1999) has been quite sizable, by adding around 1% to the annual output growth in the average Objective 1 region and 0.4% to employment growth. To be more concrete, the Structural Funds helped to create around 300,000 new jobs and reduced by 20% (on average) the gap in income per capita of the regions receiving funds with respect to the rest of the country. However, by exploiting the statistics at hand, the author is able to identify a great uncertainty concerning the returns of the training expenditure. Moreover, investing more in infrastructures and other capital (by reducing the amount of subsidies) would be desirable. In another contribution focusing on the regional convergence process that took place across Spanish regions, de la Fuente (2008) refines the results previously obtained. The convergence process results in being fostered by structural funds when considering investment in infrastructures, while the same outcome does not hold in other cases. In addition, Spanish regions experienced a convergence process in stock of infrastructure per capita across time. Considering the period between 1965 and 2004, de la Fuente is able to establish that the investment in infrastructures contributed by about 0.5% yearly to the Spanish growth rate and 0.25% to the Spanish employment rate. Moreover, the investment in infrastructures endorsed by EU funds allowed the speeding up of the convergence process across Spanish regions.

Nevertheless, the wide dispersion of the returns of those investments across regions generates some inefficiencies that, to some extent, would have prevented a faster convergence rate among member states and, eventually, increased the internal inequality.

Figure 6: Net contribution by member (Source: Baldwin and Wyplosz, 2006)



In de la Fuente and Doménech (2001), some ideas about the possible budget reforms appeared. First of all, a problem associated with the status of net contributors and net receivers needed to be addressed (see Figure 6). The richer members of the EU (such as Germany or the United Kingdom) pressed for a reduction in their net contributions, but the poor countries argued that their positive net balances should be preserved on equity grounds. The proposal formulated by the two previous authors was clear:

“[...] linking fiscal balances to income per capita through a simple rule that reflects an evolving consensus on the desirable degree of redistribution and treats countries with similar income levels in a similar way”. (p. 319)

In the wake of this idea, they proposed computing indicative net balances for each Member State on the basis of its income per capita and a fixed (commonly agreed) redistribution coefficient. Then, budget allocation to specific expenditure programs should be made on the base of relevant priorities in policy objectives with no concern for the net balances. The principal goal of this reform was to (i) improve the quality of budget decisions by acting on the incentive mechanisms, (ii) improve efficiency in the funding of horizontal programs totally independently of their impact on the member net balances.

In a new proposal formulated by de la Fuente *et al.* (2008), in order to overcome the conflict among members concerning the distribution of the net financial burdens, they suggest linking the member's state net balance to the relative prosperity, by the introduction of a system of compensating horizontal transfers. In such a way, EU members could achieve at once (i) the financial burden to be distributed in proportion to the ability to pay, (ii) countries with the same level of real income to have similar financial positions (the missing point of the current EU financing system).⁷ Furthermore, linking the net balance to the per-capita income level would help to simplify the EU budget transparencies as well as avoid any distortionary expenditure policy.

For instance, nowadays, the European Commission has called for the introduction of the compensation mechanism for member countries experiencing excessive deficits (such as the United Kingdom). The proposal by de la Fuente *et al.* (2008) would be to require that no member state should sustain an excessively high budget deficit with respect to its level of prosperity (measured as income per capita in real terms). Then, a system of horizontal transfers

⁷ According to de la Fuente *et al.* (2008), the net effect of the EU budget is equivalent to a flat tax of 1.75% charging the difference between the country income and the EU average. However, countries with similar income per capita end up with a different treatment. Luxembourg (high income country), Greece and Ireland (relatively low income countries) are basically well treated. France and Germany, whose income level is almost the same, end up in different positions: the German deficit is almost double the French one.

across members would compensate for any deviation from the desired allocation following the rule applied to the current UK rebate. The final purpose would be that the countries with a level of income below the EU average would gain a net transfer from the richer ones, but with the fulfillment of the obligation to use these funds to finance investments fostering growth (such as those in infrastructure) to reduce the existing income disparities and, then, make the financing burden less heavy.

Of course, this kind of solution would entail a negotiation bargaining process between resources and objectives.

A few estimations confirm that this plan helps a redistribution of resources across countries: the most recent EU members would lose a part of the funds, while Greece, Ireland, Portugal and Spain would be called to increase their net contribution. They would both finance a net transfer to the remaining EU members.

5. Any lessons for Brazil?

As argued in Puga (2002), policies put in place by the European Union should help to reduce regional imbalances. However, agglomeration effects are difficult to control for. Clustering mechanisms may entail potential efficiency effects. In the case of sufficient mobility, the rise of an agglomeration pole can coexist with a convergence in income. The lack of mobility makes agglomeration poles and the convergence process incompatible. In that sense, public policy should force a dispersion process by working against the natural market forces.

In order to achieve these results, the European Union approved an investment program (the Structural Funds) principally addressed to three potential tools favoring the break of the concentrating forces: training, subsidies to enterprises and investments in infrastructures.

Concerning the evaluation of the potential effects of investments in training, economic geography models cannot be considered as a reference, since human capital is not (almost) explicitly included in the theoretical framework.

These models mostly apply in the evaluation of the policy intervening in the creation of the infrastructure network and in the subsidies to enterprises. The former case perfectly fits in the economic geography theory while the latter is a less important case study to refer to with the theoretical framework we are considering. In fact, in the case of subsidies to firms, the central point is to preserve the positive externalities firms may enjoy in belonging to an agglomeration

pole. However, as shown in Nicolini (2003), focusing exclusively on fostering the creation of agglomerations as networks of firms is not always the right choice, because the rise of unspontaneous networks can entail some inefficiencies and losses in the total welfare of the territorial area hosting them.

The policy targeting the creation of an efficient network of infrastructure in the less developed regions involves the idea of increasing the rate of growth of such regions. Nevertheless, the road or railway infrastructure when exploited for shipping goods is likely to affect strongly the distribution of the production and, then, nurture regional imbalances. Within a core–periphery structure, a more efficient transport network entails two principal effects. First, it gives firms belonging to the periphery better access to the resources concentrated in the core region(s), but it also gives the firms settled in the core the possibility to sell goods in the periphery, harming the local industrial system.

Of course, economic geography theory points out that these effects are tempered by the condition of the local environment, namely the mobility rate. In the case of low mobility of workers associated with a similar level of wages both in the core and peripheral region(s), improving the transport infrastructure can even amplify the differences between the regions and reinforce the polarized structure. The European experience confirms this outcome: cities in the core enjoying high-speed railways have better accessibility to the surrounding space and growth is faster than for the others (Puga, 2002).

What about Brazil? Does a core–periphery structure exist over there?

We are briefly presenting some statistics with the purpose of drawing a picture of the distinguishing features of the Brazilian economic situation. In order to focus on the most salient factors associated with the economic geography framework, an analysis by state is preferred, since it can be assimilated to an analysis at level NUTS 1 or NUTS 2 in Europe.

The political composition of Brazil is visually presented on a map included in Appendix 1.

The first indicator showing the current structure and (possible) territorial imbalances is GDP per capita. This indicator is a measure of the wealth of the citizens belonging to a particular Brazilian state. Of course, this measure is not a perfect indicator, but it is a kind of rough measure of the purchasing power, and hence of the size, of the local markets. One of the most important problems we are expected to deal with when considering this type of information is the huge difference in nominal values across time due to strong and persistent inflation rates. In order to overcome this problem, we are using statistics in R\$ (2000) deflated by the GDP index of prices. The comparison will be made when comparable measures are available. Even if this

choice limits the extension of the potential comparisons, it allows us to obtain reliable enough results.

Table 2: GDP per capita by state deflated by GDP price index (R\$, 2000) (Source: IBGE, IPEA, calculus: author)

| | 2001 | 2005 |
|---------------------|-------|-------|
| Acre | 3.07 | 4.28 |
| Alagoas | 2.41 | 2.95 |
| Amazonas | 6.54 | 6.48 |
| Amapá | 4.25 | 4.63 |
| Bahia | 3.61 | 4.15 |
| Ceará | 2.60 | 3.18 |
| Distrito Federal | 14.24 | 21.75 |
| Espírito Santo | 6.50 | 8.73 |
| Goiás | 4.44 | 5.67 |
| Maranhão | 1.63 | 2.61 |
| Minas Gerais | 5.70 | 6.31 |
| Mato Grosso do Sul | 5.92 | 6.02 |
| Mato Grosso | 5.13 | 8.42 |
| Pará | 3.10 | 3.54 |
| Paraíba | 2.70 | 2.96 |
| Pernambuco | 3.61 | 3.74 |
| Piauí | 1.77 | 2.33 |
| Paraná | 6.84 | 7.78 |
| Rio de Janeiro | 9.26 | 10.12 |
| Rio Grande do Norte | 3.18 | 3.75 |
| Rondônia | 3.78 | 5.30 |
| Roraima | 3.24 | 5.12 |
| Rio Grande do Sul | 8.32 | 8.39 |
| Santa Catarina | 7.77 | 9.16 |
| Sergipe | 4.10 | 4.30 |
| São Paulo | 9.68 | 11.33 |
| Tocantins | 2.38 | 4.38 |

Quantitative Statistics

| | 2001 | 2005 |
|----------|-----------------------------|-----------------------------|
| Average | 5.02 | 6.12 |
| Std Dev. | 2.91 | 3.95 |
| Min. | 1.63 (Maranhão) | 2.33 (Piauí) |
| Max. | 14.24 (Distrito Federal) | 21.75 (Distrito Federal) |

Income levels across Brazilian states are very unequal. The quantitative statistics resume the information provided by the detailed Table 2 on the left-hand side. The level of individual income increased in recent years as far as polarization. Figure 7 shows the progressive polarization process experiences of Brazilian states since 1980.⁸ The polarization effect implies that a progressive unequal growth process has been followed by each single state. Of course, various hypotheses can be put forward in order to understand the sources of this process: a

⁸ In the Appendix, there is a short technical description of the Kernel estimators as well as the technique we applied to compute it. The Kernel estimations included in this text are made with the Stata 9.0 software package.

different composition of the economic structure or a strong demographic effect. We will check for these in the following.

Figure 7: GDP per capita by state deflated by GDP price index: comparison across years (R\$, 2000) (Source: IBGE, IPEA, calculus: author)

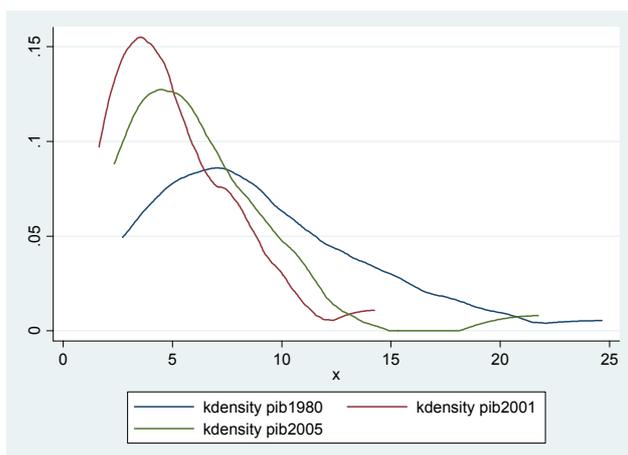


Figure 8: Source of income: rural and urban income per capita (R\$, 2000 – deflated by INPC – before 1979 and IPC-RJ after 1979) (Source: IBGE, IPEA, calculus: author)

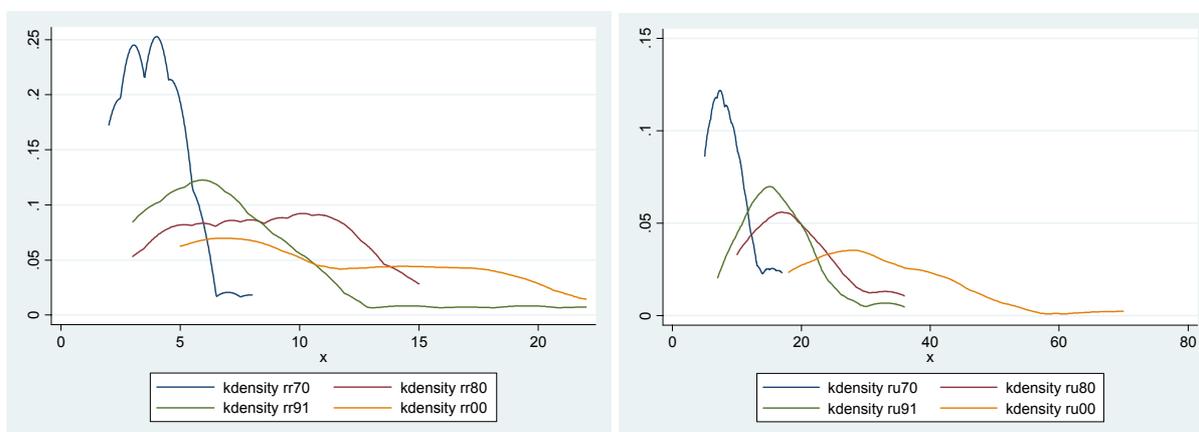


Figure 8 and Table 3 need to be interpreted jointly. By looking at the evolution of the GDP composition (Table 3), Brazilian states seem to be following an interesting evolution of the contribution of each sector of production in the total GDP. On average, service sectors account for more than half of the total production. Agriculture still has quite a relevant weight (around 10%) but industry is progressively losing its relative weight in the creation of the national gross internal product.

This effect is not new. As discussed in Nicolini (2007), this kind of path is similar to that of other countries – such as Spain – that followed a peculiar development process by passing from an economy with a strong presence of the agricultural sector to services without passing through the industrial phase.

In fact, by looking at the composition of the sources of income (Figure 8), there is a strong tendency to make uniform the creation of income in the rural areas (across states) against a strong polarization in the creation of income in urban areas. This last effect implies that there are areas that are more productive than others, and, hence, where production is more efficient than in others.

What does this uneven urbanization effect imply?

As discussed in Overman and Venable (2005), the urbanization process (above all in developing countries) entails important effects. In fact, urbanization means that productivity tends to be higher in cities as well as per-capita income. However, another indirect effect often accompanies the urbanization process: discrimination between first-rank cities (those with a larger size) and the others appears. The former group attracts more investments and reinforces its dominance in displaying a higher rate of productivity growth and, hence, deepens the gap with the latter one. According to Henderson (2002), standardized manufacturing tends to be concentrated in the medium-size and smaller metropolitan areas, while services and not standardized manufacturing are likely to be found in large cities. Large-size cities are the most natural environment for attracting workers, allowing them a high mobility among the different industries. Moreover, spillovers, due to the size effects, improve workers' skills and match better the requirement of the demand. In the case of Brazilian cities, the so-called urbanization effect is very important. In particular, the so-called localization effect is the main force driving the whole process. This effect is usually associated with the positive spillover effects issued by the close proximity of firms belonging to the same sector of production.

In a country such as Brazil, this growing urbanization rate is sustained by the intense migration flows from the rural to the metropolitan areas; as a consequence, a dual problem appears (Wagner de Albuquerque Oliveira *et al.*, 2007).⁹

⁹ This is the major issue of the Harris–Todaro model. There is a possible cost of urbanization that is the associated development of low wage and low productivity urban labor. The high urban wage attracts inflow labor to the city in search of jobs in the formal sector. Migrants not finding a job in the formal sector are unemployed and work for much lower wages in the urban informal sector. The high concentration of unemployment in the outskirts of the cities is the first factor favoring the surge of discrimination and segregation problems (Zenou, 2009).

According to the economic geography theory, urban areas often suffer from the dual problem. However, beside a pure migration effect, a demographic component can also be present.

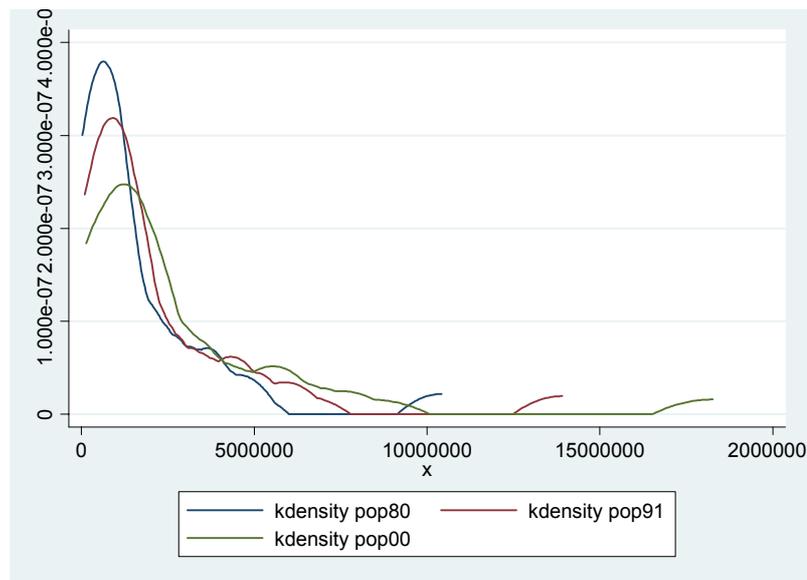
Table 3: GDP composition by sector (R\$, 2000) (Source: IBGE, IPEA, calculus: author)

| | 2001 | | | 2005 | | |
|---------------------|-------------|-------------|-------------|------------|-------------|-------------|
| | Agric. | Ind. | Serv. | Agric. | Ind. | Serv. |
| Acre | 5.6 | 24.3 | 70.0 | 20.0 | 11.5 | 68.5 |
| Alagoas | 10.6 | 29.7 | 59.7 | 8.6 | 27.1 | 64.3 |
| Amazonas | 2.3 | 66.1 | 31.7 | 5.2 | 44.3 | 50.5 |
| Amapá | 5.1 | 9.0 | 85.9 | 3.2 | 11.4 | 85.4 |
| Bahia | 10.5 | 41.6 | 47.9 | 8.6 | 32.2 | 59.2 |
| Ceará | 5.2 | 37.0 | 57.8 | 6.0 | 23.1 | 70.9 |
| Distrito Federal | 0.5 | 6.7 | 92.8 | 0.2 | 7.5 | 92.3 |
| Espírito Santo | 5.3 | 38.4 | 56.3 | 8.8 | 33.8 | 57.5 |
| Goiás | 17.5 | 35.0 | 47.4 | 13.4 | 26.0 | 60.7 |
| Maranhão | 17.1 | 23.5 | 59.4 | 17.8 | 17.2 | 65.0 |
| Minas Gerais | 7.4 | 41.7 | 50.9 | 9.3 | 32.5 | 58.2 |
| Mato Grosso do Sul | 32.0 | 22.5 | 45.5 | 15.5 | 17.3 | 67.3 |
| Mato Grosso | 24.5 | 22.2 | 53.3 | 32.2 | 18.7 | 49.2 |
| Pará | 23.4 | 33.4 | 43.1 | 8.9 | 33.1 | 57.9 |
| Paraíba | 12.2 | 32.5 | 55.2 | 7.1 | 22.5 | 70.4 |
| Pernambuco | 8.5 | 31.9 | 59.6 | 5.1 | 22.1 | 72.8 |
| Piauí | 10.4 | 27.1 | 62.5 | 11.4 | 17.1 | 71.5 |
| Paraná | 13.0 | 43.8 | 43.2 | 8.5 | 30.2 | 61.4 |
| Rio de Janeiro | 0.7 | 46.5 | 52.8 | 0.5 | 30.2 | 69.3 |
| Rio Grande do Norte | 2.3 | 43.4 | 54.3 | 5.6 | 26.0 | 68.3 |
| Rondônia | 15.1 | 28.3 | 56.5 | 20.4 | 13.9 | 65.6 |
| Roraima | 4.5 | 8.9 | 86.6 | 7.7 | 11.0 | 81.3 |
| Rio Grande do Sul | 14.5 | 40.0 | 45.5 | 7.1 | 30.3 | 62.7 |
| Santa Catarina | 13.5 | 49.4 | 37.1 | 8.3 | 34.0 | 57.7 |
| Sergipe | 6.0 | 52.3 | 41.7 | 4.4 | 33.3 | 62.2 |
| São Paulo | 6.5 | 41.3 | 52.2 | 1.8 | 31.7 | 66.5 |
| Tocantins | 14.1 | 30.5 | 55.4 | 21.9 | 27.4 | 50.7 |
| Average | 10.7 | 33.6 | 55.7 | 9.9 | 24.6 | 65.5 |

Figure 9 presents the Kernel statistics concerning the changes in the distribution of the population since 1980. In spite of the progressive polarization process experienced by income, the population seems to be following a more de-polarization process (through migration or different fertility rates) even if most of it is still concentrated in the urban areas.

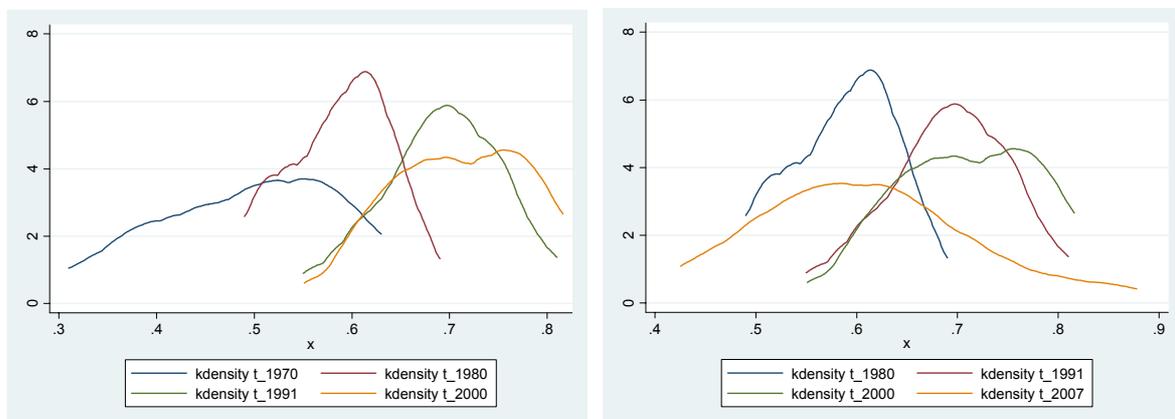
Is discrimination present in Brazilian urban areas and states?

Figure 9: Population distribution (Source: IBGE, IPEA, calculus: author)



Another important factor to take into account is the composition of the population and its structure.

Figure 10: Inequality index: Theil index for the population (Source: IBGE, IPEA, calculus: author)



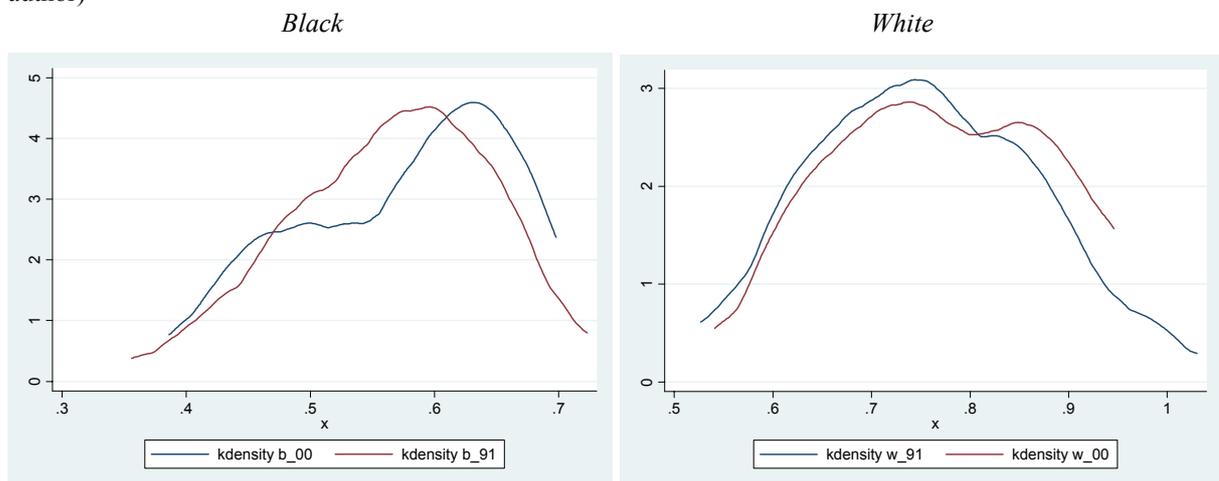
Brazilian citizens can be roughly split into two large groups (black and white) and we carry out our analysis by means of the Theil index.¹⁰ By looking at the evolution in time of the index, we are able to identify whether inequality within the population (and a group) was reinforced or weakened.

¹⁰ The Theil index is considered one of the major measures of inequality. By taking a perfectly equal distribution as a reference, it measures the degree of inequality inside a population. It is not considered as a perfect measure, hence there is not a fixed range of values it can take. The range of possible values spans from zero (representing a completely equal distribution) to infinity (meaning the maximum unequal distribution). An interesting property of the Theil index is to be additive across different subgroups.

This particular Theil index has been computed by considering the per-capita income. As presented in Figure 10, a clear process of reduction of inequalities is taking place across Brazilian states from 1970 to 2000. However, in the most recent years (2000–2007), a slight recrudescence of inequality seems to have been taking place.

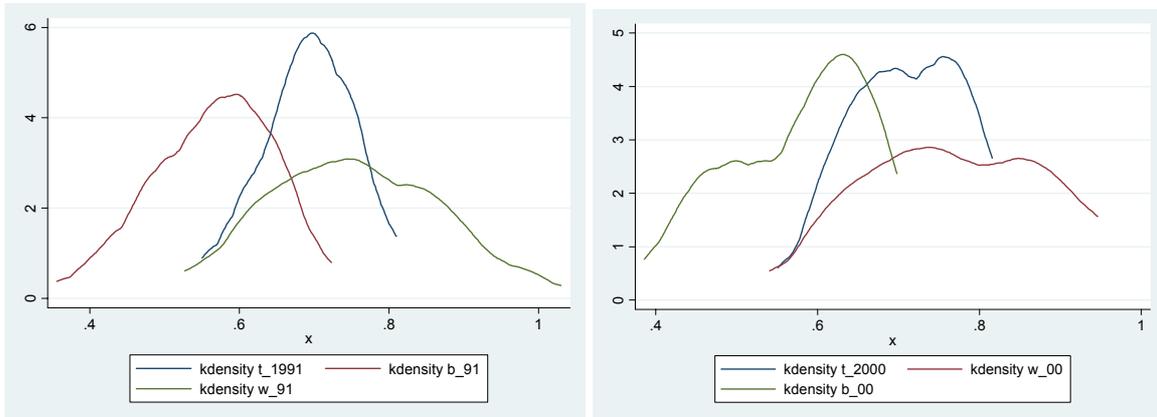
In Figure 11, we are representing the evolution of the Theil index for the two groups of population in Brazil and the results are quite different. Within the group of black citizens, there is a clear pattern showing that a redistribution process (favoring equality) is in place, even if the degree of ‘equality’ achieved in this group is lower than the degree of the white group. On the other hand, the whole white group does not record any relevant change in the degree of inequality but a clear de-polarization process seems to occur in 2000 with respect to 1991.

Figure 11: Inequality index: Theil index for the black and white populations (Source: IBGE, IPEA, calculus: author)



By comparing the distribution of the Theil index between the average and the two major groups (as we do in Figure 12), a strong pattern seems to be persistent within the structure of the Brazilian society across states: the black group always presents a much higher rate of inequality than the white one, even if this difference has been smoothed in time.

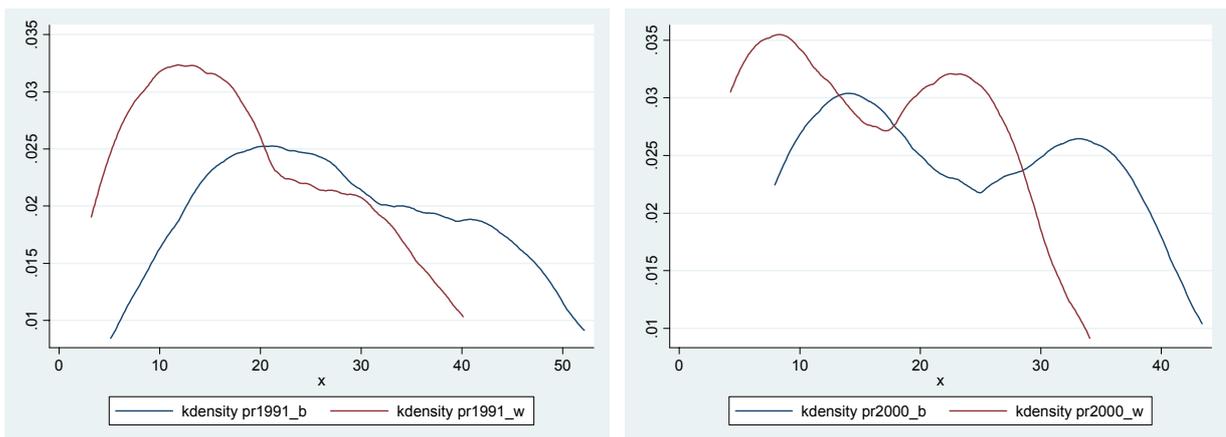
Figure 12: Inequality index: Theil index for the black and white populations in 1991 and 2000 (Source: IBGE, IPEA, calculus: author)



The same pattern also holds when considering the rate of poverty in the two groups (we are considering the percentage of poor persons over the total population of a specific group) (Figure 13).¹¹

In Brazil, poverty strikes both black and white people, with a relative higher percentage for black persons. Moreover, in 1991, the group of black poor persons presented a clear polarized distribution density while this was not the case for the white group. Nowadays, the distribution pattern is qualitatively identical in the two groups.

Figure 13: Poverty in 1991 and 2000 (% total population) (Source: IBGE, IPEA, calculus: author)



This type of result is also replicated in Figure 14.

¹¹ Poverty is measured as the percentage of persons whose income is lower than R\$34.75 (monthly), which correspond to 1/4 of the minimum wage in August 2000.

Figure 14: Poverty in the black and white populations (%) (Source: IBGE, IPEA, calculus: author)

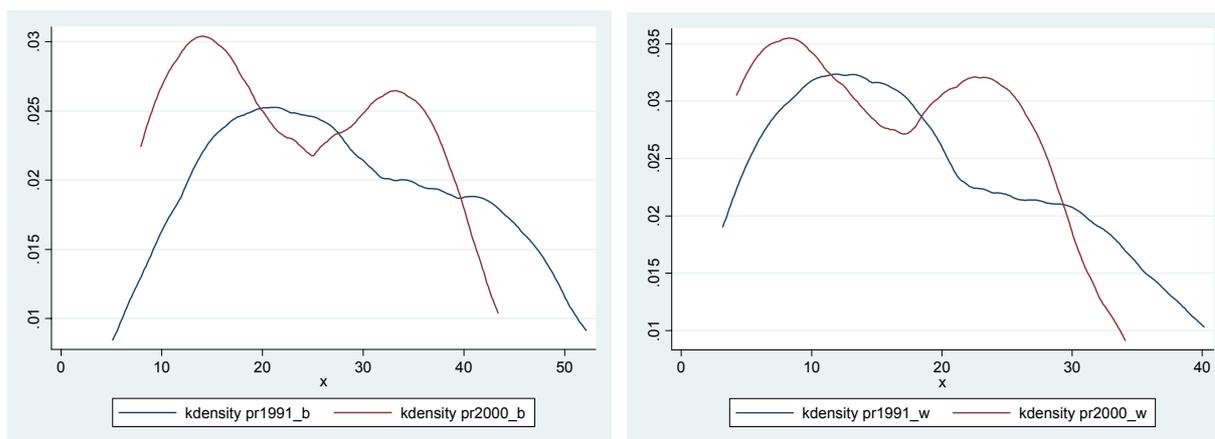


Table 4: Living conditions: households with the current water supply service (Source: IBGE, IPEA, calculus: author)

| | 1991 | | | 2000 | | |
|---------------------|-----------|---------|---------|-----------|---------|---------|
| | Total | % Black | % White | Total | % Black | % White |
| Acre | 22,261 | 26.0 | 42.8 | 46,720 | 33.5 | 44.8 |
| Alagoas | 233,043 | 42.4 | 59.2 | 411,679 | 57.9 | 70.0 |
| Amazonas | 198,210 | 48.6 | 67.4 | 342,709 | 49.9 | 68.5 |
| Amapá | 28,286 | 54.1 | 66.5 | 50,032 | 59.5 | 69.7 |
| Bahia | 1,077,511 | 43.1 | 54.2 | 2,203,903 | 57.9 | 67.2 |
| Ceará | 491,725 | 35.5 | 50.5 | 1,068,746 | 55.1 | 67.0 |
| Distrito Federal | 313,156 | 82.2 | 92.0 | 485,652 | 92.5 | 96.4 |
| Espírito Santo | 403,222 | 74.0 | 88.1 | 679,279 | 90.3 | 96.2 |
| Goiás | 499,836 | 63.5 | 78.4 | 971,358 | 85.4 | 91.9 |
| Maranhão | 221,567 | 22.1 | 35.1 | 654,220 | 29.3 | 42.7 |
| Minas Gerais | 2,511,827 | 68.4 | 85.9 | 3,953,396 | 84.3 | 94.0 |
| Mato Grosso do Sul | 273,791 | 70.5 | 82.5 | 440,605 | 86.3 | 93.8 |
| Mato Grosso | 208,788 | 53.2 | 67.4 | 411,233 | 69.3 | 83.0 |
| Pará | 293,241 | 34.4 | 50.3 | 558,213 | 41.3 | 55.6 |
| Paraíba | 352,068 | 47.5 | 59.1 | 584,190 | 62.7 | 71.5 |
| Pernambuco | 872,983 | 52.1 | 65.5 | 1,388,529 | 63.2 | 73.0 |
| Piauí | 172,817 | 31.0 | 44.6 | 402,102 | 44.4 | 58.1 |
| Paraná | 1,434,412 | 74.0 | 85.4 | 2,227,821 | 92.0 | 95.5 |
| Rio de Janeiro | 2,787,027 | 86.3 | 95.2 | 3,540,177 | 90.8 | 95.9 |
| Rio Grande do Norte | 248,468 | 43.2 | 59.1 | 525,739 | 62.4 | 74.9 |
| Rondônia | 68,455 | 37.4 | 49.2 | 106,759 | 58.2 | 71.4 |
| Roraima | 20,696 | 51.4 | 69.9 | 58,992 | 63.5 | 75.4 |
| Rio Grande do Sul | 1,740,391 | 72.6 | 88.8 | 2,423,264 | 89.0 | 95.9 |
| Santa Catarina | 684,584 | 73.2 | 92.2 | 1,117,430 | 91.0 | 97.1 |
| Sergipe | 191,868 | 56.1 | 68.8 | 330,039 | 68.7 | 77.8 |
| São Paulo | 7,169,870 | 92.4 | 96.8 | 9,690,889 | 96.8 | 98.2 |
| Tocantins | 39,561 | 25.4 | 43.9 | 185,717 | 50.4 | 66.2 |

The relevant differences between the two communities also exist for other indicators of the living conditions and not just income. Table 4 makes the comparison between the two groups by focusing on the percentage of households with current water supply services in 1991 and 2000. The water service has been implemented throughout. In a few states (São Paulo, Santa Catarina, Distrito Federal or Paraná), there is not a significant difference between the two groups in the conditions of the standard of living. In others, such as Piauí, both groups are suffering from poor living conditions. However, there are other states in which differences across the two groups are quite important (Amazonas, Ceará or Maranhão), meaning that a real inequality situation is taking place over there.

Finally, a last indicator that it can be useful to take into account is the analfabetism rate as a proxy for the human capital formation (see Table 5).

Unfortunately, we do not have at our disposal information concerning the two groups, but evidence confirms that policies that have been implemented allowed the reduction of the analfabetism rate in these last years, making it more uniform across the territory.

Table 5: Analfabetism rate (≥ 15 years) (% of total population) (Source: IBGE, IPEA, calculus: author)

| | 2001 | 2005 |
|----------|-----------------------|-------------------------|
| Average | 14.88 | 13.81 |
| Std Dev. | 8.05 | 7.71 |
| Min. | 6 (Rio de Janeiro) | 5 (Distrito Federal) |
| Max. | 31 (Alagoas) | 29 (Alagoas) |

The final picture of the current situation across Brazilian states underlines the deep social and economic transformation this country is experiencing. The polarization of income and urbanization (with all the consequences produced by a strong rate of urbanization) are the most evident features of the uneven development process that is taking place in Brazil. Beside the policies that have been adopted in order to reduce the gap between the south and the north-east, inequalities in income per capita and inequalities across groups still persist even if smoothed.

As in the case of the European Union, the persistence of inequalities across space is a problem that demands to be faced and, possibly, solved.

In this spirit, the experience of the progress made in the European Union can teach something and the policies implemented by the Structural Funds can provide some valuable suggestions.

Let us briefly describe the three most relevant points that can bridge the two realities.

1. Objectives of the policies.

As we discussed, one of the principal objectives targeted by the policies adopted by the European Union is to foster the creation of an economic and social environment as the main sources of growth and convergence across regions. Economic growth and human capital formation go ‘hand in hand’ when thinking of sustainable growth and the convergence process across regions. This is basically the motivation to support different plans of intervention and target different intermediate objectives: training of the workers, education, creation of infrastructures, funding the research and development and supporting firm activities.

The European policies principally target creating an environment that can stimulate the economic activities. The policies are not exclusively addressed to firms, even if they are one of the principal recipients. The advantage of funding different parallel activities produces interesting returns not only from an economic but also from a social viewpoint. Fostering education is also a tool to foster mobility among the different states of the Union.

Do these policies pay? Even if a clear core–periphery structure is distinguishing the current economic structure of the European Union, some interesting results have been achieved. A convergence process has been taking place, even if not as impressive (in some cases) as one could have expected. However, some results are tangible.

By comparing these policies with the different activities sponsored by the government in Brazil (for instance the Constitutional Funds), the difference is quite striking: these interventions target the firms and partially the creation of infrastructures. The European experience could suggest extending the intervention to a wide range of objectives associated with the social and economic environment.

2. Firms and agglomerations

The European experience, as well as other case studies all around the world, claim that supporting the creation of an agglomeration of firms (such as networks of firms) to foster the local development does not always turn out to be the right choice. As theoretically argued by Nicolini (2003) or empirically by Cooke and Morgan (1998), local

agglomerations of firms cannot always guarantee the expected results. Beyond the purely economic argument, there are some other factors related to the social environment that may affect the achievement of the objective of maximizing the local welfare, and hence prevent the networks of firms from being a really a feasible way to support economic growth. Once more, the experience of the European Union of targeting the increase of both economic and social standards can be a path to follow to ensure the economic development process.

3. Financing strategies

The current debate to finance policy for local development across European states is not a clear issue and does not present a unique sustainable solution. The current debate among the European members and the lack of a concrete agreement are clear examples.

On one hand, there is the concern to grant capital to finance potential successful projects (hence making the right selection) as well as avoiding any kind of free-rider problem. In that sense, testing the solvency of the potential recipients of those credits is important.

On the other hand, there are projects that are quite risky or that are too big to be financed under the scheme of the regular market credit conditions. There is sometimes the need to grant capital as subsidies (hence, with no expected return of the invested amount) or other similar forms instead of credits. This is because of the aim to finance not only economic initiatives, but also social ones with the purpose of improving the economic and social conditions of the local environment. Therefore, it is not always possible to think of having some activities with real and tangible returns. Moreover, there are also projects (such as the creation of infrastructures) that need a huge amount of capital and a centralized management of the activity that cannot be dealt with under the usual credit market constraints.

As a consequence, planning policies interventions means also considering a good mix between centralized (at state level) and private activities (controlled by firms) really to guarantee a complete and balanced development process.

Of course, this complex way of financing strategies requires a more complicated way of finding capital suitable for investment in these activities. Local authorities can address international or national institutions to raise funds, but they could also ask to rely on regular capital flows granted by the central government. On the other side, central governments need to find the resources in their budgets to meet such a demand. This is exactly part of the problem that European states and regions are currently facing. All the tentative initiatives that are discussed try to implement the current and imperfect financing system that is able to guarantee the support of both centralized and private activities.

6. Conclusion

As discussed in Midelfart-Knarvik and Overman (2002), policy interventions may affect the outcome of the integration process, by targeting the reorganization of the distribution of factors or the attractiveness of a few selected locations.

The spatial spreading of activities that follows a core–periphery structure guarantees good perspectives for economic growth and development in the ‘core’ area but less so in the periphery. Besides, thinking of developing growth strategies only by supporting the creation of networks of firms does not guarantee the achievement of the expected results. There are several factors (such as the local social environment and the qualification of the labor force) that play an important role in the effectiveness of the economic mechanisms that may affect the efficiency of the networks of firms. Hence, policies that aim at having an impact should not neglect to plan a wide spectrum of interventions.

Moreover, when the major findings of the economic geography are taken as a reference, in order to replicate them, it is also important to fulfill the basic requirements underpinning the results. When considering the policy to improve the spreading of activities by financing the settlement of firms in the less developed areas, it is also important to foster quite a high mobility rate of workers by granting them the proper incentives to move to the less attractive areas. The relatively quite low interstate migration across Brazilian states (as happens within the European Union) is one of the important factors to control for, allowing the complete fulfillment of the expected results, in the case of targeting policies to the creation of agglomerations of firms in the less developed areas.

Targeting to foster development through the creation of local agglomerations, and hence fostering the concentration of activities, workers and population in specific areas, also imposes a consideration for the sustainable development of cities. When the economic development is associated with a high urbanization rate (as in Brazil) due to a high migration rate from the rural to urban areas, cities are not excluded from suffering from social problems such as conflicts or segregations also fuelled by the important income inequalities arising between various groups (for instance natives and immigrants or the black and the white populations).

There is no clear and unique development strategy that authorities should adopt in order to promote internal development. On the base of the experience of the European Union, public interventions should be thought of as a mixture of public policies with a relevant impact on the

territory, policies addressed to the firms and, finally, other interventions with a greater emphasis on social content, such as education and training. A wide concept of economic development such as that intended by the European policy is a mix of economic and social priorities aiming at qualifying the social environment jointly with the economic one.

The program and the mechanism put in place by the European Union are not perfect. There are still several open points, above all regarding the selection of the really feasible projects, the way to finance them and the right incentives to provide to compel recipients (namely agents) to behave properly. At the same time, there is the wide debate among the European member states about the general criteria on how to keep on financing those programs.

Nevertheless, some interesting results have been obtained: various regions have experienced a convergence process and the overall mobility across European territory has increased.

This is the reason that causes this experience to be evaluated as interesting, even if rather imperfect. It shows some strategies to adopt to follow quite a balanced economic and social development path that could also be adapted in other contexts.

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Appendix 1



Figure 15: Map of Brazil. (Source: U.S. Central Intelligence Agency)

Appendix 2

Kernel Density: a non-parametric technique

A nonparametric technique is a flexible form of estimation. The simplest nonparametric density estimate of a distribution of a series is the histogram, but it is not continuous.

The kernel density estimator replaces the “boxes” in a histogram by “bumps” that are smooth. Smoothing is done by putting less weight on observations that are further from the point being evaluated(x). More technically, the kernel density estimate of a series X at a point x is estimated by

$$f_n(x) = \frac{1}{Nh} \sum_{i=1}^N k\left\{\frac{x - X_i}{h}\right\}$$

where N is the number of observations, h is the bandwidth (or smoothing parameter) and $K(\cdot)$ is a kernel function that integrates to one.

The kernel function $K(\cdot)$ is a weighting function that determines the shape of the bumps.

We use the Gaussian kernel function that downs weights on points as the distance from x increases. Unlike most kernel functions, this is unbounded on x and each observation is included in the estimation (Härdle, 1990).

Appendix 3

European Programmes: facts and figures¹²

Period: 2007-2013

In view of improving the performance of European economies, the Commission decided to concentrate the effort on three main priorities:

- 1) Promoting sustainable development by sustaining the integration process of the internal market.
- 2) Promoting the role of the European Union as a global partner.
- 3) Reinforcing the idea of European citizenship by completing the area of freedom, justice and security and ensuring access to basic public goods and services.

According to these priorities, three objectives have been identified: Convergence, Regional Competitiveness and Territorial co-operation.

The rationale of the *Convergence* objective is to promote growth-enhancing conditions and factors to lead to real convergence the least developed Member States and Regions: around 84 regions (belonging to 17 States in the EU-27) with a per-capita GDP at less than 75% and other 16 regions on a “phasing out” basis with a per-capita GDP slightly above the threshold).

The *Regional Competitiveness and Employment* objective aims at strengthening competitiveness and attractiveness, as well as employment through:

- a. Developing programmes that will help regions to promote economic change through innovation, the promotion of the knowledge society, entrepreneurship, the protection of the environment, and better infrastructures.
- b. Better jobs will be supported by adapting the workforce by investing in human resources.

¹² Source of reference: <http://ec.europa.eu>.

Finally, the *European Territorial Co-operation* objective will strengthen cross border co-operation with joint regional initiatives and co-operation for integrating the territorial development.

In order to achieve these objectives, the European Union implemented a few specific funding programmes.

The Structural Funds¹³ are funds intended to facilitate structural adjustment of specific sectors, regions or the combination of both in the European Union. They include the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Guidance Section of the European Agricultural Guidance and Guarantee Fund (EAGGF) and the Financial Instrument for Fisheries Guidance (FIFG).¹⁴

The ERDF, the ESF and the Cohesion Fund contribute to the three objectives: Convergence (81.54% of the total budget), Regional Competitiveness and Employment (15.95% of the total budget), and European Territorial Cooperation (2.52% of the total budget) (Table A3.1).

The ERDF aims at strengthen economic and social cohesion in the European Union by correcting the imbalances between regions. It finances:

- Aid investments in companies to create jobs,
- Infrastructures, Research and Development, Telecommunications, Environment, Energy and Transport,
- Financial instruments to support the regional and local development and foster the cooperation between town and regions,
- Technical assistance measures.

The ERDF intervenes in the three objectives of regional policy:

- a. Convergence,

¹³ The way to spend the Structural Fund is based on a system of shared responsibility between the European Commission and the Member State authorities. The European Commission negotiates and approves the development programme proposed by the Member States; the Member States (or regions) manage the programmes implementing the policies and the Commission's task is monitoring. All projects to be funded need to target the priorities of the European Union regarding the promotion of the competitiveness and job creation (Lisbon strategy) and there are ceilings for co-financing rates: Convergence (75-85%), Competitiveness (50-85%), European Territorial Cooperation (75-85%) and Cohesion Funds (85%).

¹⁴ Source: www.oecd.org.

- b. Regional Competitiveness and Employment,
- c. European Territorial Cooperation.

The ESF aims at improving employment and job opportunities in the European Union. It supports:

- Adapting workers and enterprises,
- Access to employment for job seekers,
- Social integration of disadvantaged peoples and combating discrimination in the job market,
- Strengthening human capital by reforming the education system.

This fund intervenes in the framework of the Convergence and Regional Competitiveness and Employment objectives.

The Cohesion Fund is addressed to Member States whose gross national income is less than 90% of the Community average. It serves to reduce their economic shortfall and supports actions in the framework of the Convergence objective. This fund finances (i) trans-European transport network, (ii) environment, above all projects associated to energy, energy efficiency, renewable energy etc..

In addition other programmes belonging to the Regional Policy scheme:

1. Instruments for the Pre-Accession Assistance (IPA). Since 2007, IPA replaces a series of European Union Programmes (namely Phare, ISPA, Sapard, Cards) and financial instruments for candidate countries or potential candidate countries (as Turkey, for instance). The main objectives of this programme are: assistance in building institutions, cross-border co-operation with EU members, regional development (transport, environment and economic development), human resources and rural development.

2. Financing Engineering:

Jaspers: promoting cooperation in order to pool expertise and resources among Member States in order to implement the cohesion policy,

Jeremie: improving access to finance for micro business and small and medium enterprises in the regions of the European Union. It is a joint initiative of the European Commission, the European Investment Bank and the European Investment Fund.

Jessica: supporting a sustainable growth, jobs and investment in urban areas inside the European Union.

3. European Solidarity Fund (EUSF). Since 2003, it provides emergency aid in response to major (natural) disasters striking Member States. EUSF supplements public expenditure by individual Member States for emergency aid, limited to non-insurable damage (restoration of infrastructures, energy, drinking water, waste water, transport, health and education, temporary accommodation etc...).

Period: 2000-2006

In the period 2000-2006 the principal programmes were the following ones:

Structural Funds:

- Objective 1: Its main priority was the European Union's cohesion policy. It managed more than 2/3 of the total amount of Structural Funds for helping areas lagging behind in their development (namely with low level of investment, high unemployment rate, lack of services for businesses and individuals, and poor infrastructures) where the GDP was below 75% of the Community average.
- Objective 2: The main aim of this part of Structural Funds was to revitalise all areas facing structural difficulties (in industry, rural or urban areas) that are often sources of high unemployment rates. This is the case of the decline in traditional activities in rural areas, difficulties affecting the fisheries activities or a crisis in urban areas.
- Objective 3. Its aim was to support the adaptation and the modernisation of education, training and unemployment policies and systems in regions not eligible under Objective 1. Its goal was to modernise education and training policy and systems to promote employment.

Other programmes were:

- Interreg III. It was an initiative aiming at stimulating the interregional cooperation in the European Union. The emphasis was on integrating the most remote regions sharing external borders with the candidate countries.

- Urban II. This was part of the community initiative for sustainable development in the urban districts of the European Union. It aimed to promote the design and implementation of innovative models of development for the economic and social regeneration of troubled urban areas.

- Innovative action. The innovative actions were laboratories of ideas for regions. They provide 'risk space' to regional actors in order to respond to the challenges of the new economy. The strategic themes that were financed were: knowledge-based regional economies and technical innovation, the (regional) information society and the regional identity and the sustainable development.

Table A3.1 : Cohesion policy 2007-2013: Indicative financial allocations (Millions €, current prices)

(Source: http://ec.europa.eu/regional_policy/policy/fonds/index_en.htm)

| | Convergence Objective | | | Regional Competitiveness and Employment Objective | | European Territorial Cooperation Objective | Total |
|----------------------|-----------------------|----------------|--------------------------|---|---|--|----------------|
| | Cohesion Fund | Convergence | Statistical Phasing -out | Phasing-in | Regional Competitiveness and Employment | | |
| België/Belgique | | | 638 | | 1 425 | 194 | 2 258 |
| Bulgaria | 2 283 | 4 391 | | | | 179 | 6 853 |
| Ceska Republica | 8 819 | 17 064 | | | 419 | 389 | 26 692 |
| Denmark | | | | | 510 | 103 | 613 |
| Deutschland | | 11 864 | 4 215 | | 9 409 | 851 | 26 340 |
| Eesti | 1 152 | 2 252 | | | | 52 | 3 456 |
| Ellas | 3 697 | 9 420 | 6 458 | 635 | | 210 | 20 420 |
| España | 3 543 | 21 054 | 1 583 | 4 955 | 3 522 | 559 | 35 217 |
| France | | 3 191 | | | 10 257 | 872 | 14 319 |
| Ireland | | | | 458 | 293 | 151 | 901 |
| Italia | | 21 211 | 430 | 972 | 5 353 | 846 | 28 812 |
| Kypros | 213 | | | 399 | | 28 | 640 |
| Latvija | 1 540 | 2 991 | | | | 90 | 4 620 |
| Lietuva | 2 305 | 4 470 | | | | 109 | 6 885 |
| Luxemburg | | | | | 50 | 15 | 65 |
| Magyarország | 8 642 | 14 248 | | 2 031 | | 386 | 25 307 |
| Malta | 284 | 556 | | | | 15 | 855 |
| Nederland | | | | | 1 660 | 247 | 1 907 |
| Österreich | | | 177 | | 1 027 | 257 | 1 461 |
| Polska | 22 176 | 44 377 | | | | 731 | 67 284 |
| Portugal | 3 060 | 17 133 | 280 | 448 | 490 | 99 | 21 511 |
| Slovenija | 1 412 | 2 689 | | | | 104 | 4 205 |
| Slovensko | 3 899 | 7 013 | | | 449 | 227 | 11 588 |
| Suomi-Finland | | | | 545 | 1 051 | 120 | 1 716 |
| Sverige | | | | | 1 626 | 265 | 1 891 |
| United Kingdom | | 2 738 | 174 | 965 | 6 014 | 722 | 10 613 |
| Romania | 6 552 | 12 661 | | | | 455 | 19 668 |
| Interregional | | | | | | 445 | 445 |
| Technical Assistance | | | | | | | 868 |
| TOTAL | 69 578 | 199 322 | 13 955 | 11 409 | 43 556 | 8 723 | 347 410 |

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