Abstract:

This paper analyses the efficiency and the equity motives that can justify regional policies. The market failure induced by localized technological spillovers entails too little agglomeration. However, coordination failures and the fact that firms do not take into account the welfare of immobile agents entail too much agglomeration. We argue that diminishing inter-regional inequality may have an undesirable impact on inequalities between workers and capital owners in the rich region. We also analyze the short-term demand and the long-term supply effects of regional policies. Finally, we argue that due to non-linear effects, regional policies may be useless most of the time and very powerful in particular circumstances.

Introduction.

Spatial concentration of economic activities is one of the most salient features of economic development. The almost parallel urge by policymakers to counteract such a trend through public polices is also striking. This is not only reserved to those countries, especially in Europe, which have a long tradition of public intervention. To a lower extent, the United States have (for example during the New Deal period) put into place policies aimed at correcting uneven patterns of regional development. Public intervention can usually be defended on either efficiency or equity grounds. In the case of economic geography, a justification in terms of efficiency implies to identify the various market failures, specific to the issue of space, that make the optimal economic geography differ from the one induced solely by market forces. Although one needs also to show that public intervention will make a
better job than market forces, the identification of market failures is a necessary first step to justify public intervention on efficiency ground. Whereas this type of analysis has been standard for public intervention in the fields of education, technology, pollution etc…, the counterpart for regional policies is much less developed. There are two ways forward: the first is to analyze how some “standard” market failures are modified by the introduction of space and distance and how in turn, this should affect the definition of public policies; the second is to understand how space and distance themselves can be at the origin of market failures.

The second way to justify public intervention is to do it on equity grounds. Some economic agents, workers and consumers, are not mobile and stuck in poor regions, regions from which mobile factors, labor and capital, have left. Because of the lower demand for labor in those regions, either real wages will adjust downwards or if real wages can not adjust due to rigidities on the labor market, unemployment will increase. As consumers, these agents will also see their welfare decrease because some of the goods and services formally produced locally will be produced in the core or the rich region. In this case, they will either have to pay a higher price for those goods and services because of the transaction cost involved in importing them from the rich region. In some cases, in particular for services, the transaction cost will become so high that they will become non tradable so that the diversity of available services will decrease. Also, if the mobile agents are those with the highest human capital and if positive spillovers exist between workers due to localized social interactions, then as mobile agents move away from the poor region, immobile workers will also lose the benefits of these positive spillovers which may imply a decrease in their productivity and therefore in their equilibrium wage. One can say that the root of this problem is then the lack of concentration and the lack of mobility of agents rather than concentration itself. This is partially right and we want to analyze some policy implications of this interpretation. However, one could not go too far along this road because some economic agents will remain immobile so that the equity
motive behind regional policies remains. This raises the question whether regional policies are best equipped to deal with this issue and how to coordinate them with other redistributive policies.

Finally, we want to analyze how regional policies affect economic geography and regional inequalities. One important difficulty here is to distinguish the different effects of these policies: the demand from the supply effects but also the short term from the long term effects. Another difficulty is that these policies, due to the very nature of self-sustaining agglomeration forces at work in economic geography, have extremely non linear long term effects.

I. Searching for market failures in economic geography.

Externalities are the best friend of an economist who wants to defend public intervention and economic geography and regional policies are no exceptions. Both technological and pecuniary externalities can be put forward in the case of economic geography because physical space has a strong impact on both. One such externality that leads to market failure is due to technological spillovers that are spatially localized. Several reasons can be advanced. One possibility is the existence of localised technological spillovers such as those studied by Jacobs (1969) and by Henderson and others (1995). For instance, the proximity of numerous firms might enable the innovative sector greater scope for observing and analysing the production process and thereby facilitate the creation of new production processes. Silicon Valley is the most successful example of the effect of such interactions between producers and innovators in a particular domain, that of information technology. Northern Italian regions are also examples of the force of such localized spillovers.

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1 The work of Jaffe, Trajenberg and Henderson, (1993) shows that the citation and use of patents is very localized. This is very strong evidence that knowledge spillovers are themselves very localized.
Also, if the innovative sector uses manufacturing sector inputs, its concentration will enable transaction costs and hence the cost of innovation to be reduced. In this case, the positive externality arising from spatial concentration is pecuniary, operating through an effect on prices (see Martin and Ottaviano 1995, for such a model).

Another type of externality comes from the fact that firms (and in general owners of mobile factors) do not take into account the welfare of other agents when they choose where to locate. In particular, they do not take into account the welfare of those agents who are immobile. The reason is that they do not get the whole surplus linked to their location decision. Immobile agents in the region that experiences delocation will then suffer both as consumers and as workers. As consumers because the diversity of goods and services available nearby will decrease and they will have to pay higher transaction costs to buy those goods which production is relocated in the other region. As workers because the matching process between workers and firms will get worse so that the unemployment length will increase. Also, as agents with human capital (those usually considered most mobile) leave the region, the positive externalities that they produce on other workers are lost. In this various cases, the existence of the externality and of the implied market failure is due ultimately to the fact that certain agents are immobile. If all agents are immobile, and no congestion effect appears then full concentration will not create any problem. Hence, if these were the only market failures, public policies that promote mobility of workers should be enough to respond with problems caused by agglomeration.

In a recent paper however, Matsuyama and Takahashi (1998), show that the freedom to move can in fact be self-defeating in certain circumstances. They in fact show that agents would be better off if their freedom to move were taken away. The reason is that as agents move to the agglomeration in pursuit of better life provided by the diversity of services and goods provided there, the production of the goods produced in the poor region (now in “the
middle of nowhere”) declines and the standard of living of all agents declines. Here, the
market failure is the absence of coordination between the different agents and is not linked to
the immobility of certain agents. Another market failure that is not solved by the mobility of
agents and can even be aggravated by it is due to congestion externalities.

Finally, space itself can be at the origin of market failures because it leads to imperfect
competition. The reason, first analysed in the context of the Hotelling model, is that distance
between producers gives firms a relative market power over consumers who are located
nearby. In this case, as transaction costs go down, competition between firms is reinforced
and firms will react by differentiating their products along non geographical characteristics.
This important insight has been analysed by Gabszewicz and Thisse (1986) and Scotchmer
and Thisse (1992). Some of its implications for regional policies may not have been entirely
exploited yet. If regional policies impact is to reduce transaction costs, then a direct effect
would be to reduce the monopolistic power of firms that is based on distance but to increase
then the incentive to regain monopolistic power through product differentiation. This later
type of differentiation has some positive impact on welfare if consumers value diversity.

II. Equity Considerations

What is the impact of economic geography on equity and can regional policies be
justified on this ground? This depends very much on several factors: 1) the relative distortion
effects of regional policies and of redistributive fiscal policy to individuals 2) the mobility of
factors (capital and labor) and the extent of inequality among individuals in the population of
both the poor and the rich regions.

To make equity considerations a possible justification for regional policy, we must
assume first that non distortionary lump sum transfers are not possible. Otherwise, if a region
experiences a delocation of its economic activities and could be compensated in a non
distortionary manner by the other region, then the question of regional inequalities would be easy to solve. The standard view is however that such redistribution is indeed not possible due, in particular, to information reasons. Then it should be argued convincingly that regional policies are less distortionary than income taxes that could serve to compensate individual losers of economic geography changes. Regional policies add a supplementary distortion in the sense that they alter the economic geography through the location decisions of firms. In recent papers (Martin 1999a and b), I have argued that a tradeoff exists between equity and efficiency at the spatial level so that public policies, which, through taxation and subsidies, induce firms to relocate in the poor regions may reduce the overall efficiency of the economy. A more detailed analysis of the empirical validity and of the policy implications of this tradeoff can be found in these papers.

Equity considerations also depend very much on the relative extent of capital and labor mobility. The main equity consideration justifying the objective of regional policies to counter agglomeration is the existence of immobile economic agents who are penalised by the concentration of economic activities. The fact that mobility (both between regions of a given country and between countries) is much lower in Europe than in the US explains why the location of economic activities has become a more important policy issue on this side of the Atlantic. From the regulatory point of view, housing and tax policies that facilitate the mobility of workers should therefore be regarded as part of regional policies. The fact that regions can be specialised in specific industries also suggests that low inter-sectoral mobility of workers adds to the welfare cost of spatial concentration. This suggests that policies that facilitate inter-sectoral mobility such as education and training policies in poor regions should be reinforced.

The spatial equity problem also depends very much on income inequality in the population. The more inequality among the individuals, especially between workers and
capital owners, the more the problem of spatial inequality will be acute. This can be seen in a simple model with two regions and two factors, mobile capital and immobile agents such as in Martin and Rogers (1995). Workers of the monopolistic manufacturing sector and of the perfect competition sector earn the same nominal wage in the two regions. This is because the good produced in the perfect competition sector is traded with no costs so that nominal wage rates are equalised. What determines their welfare is their real wage which also depends on the number of firms in each region. Workers in the region with the highest number of firms gain because they pay lower transaction costs as many of the goods are produced locally. This decreases the price index and therefore increases the real wage in the region with the highest number of firms. Hence welfare of the different types of agents (workers and capital owners) in the two regions (the rich one and the poor one indexed by an asterisk) can be written as:

\[
U_L = W\left(\frac{w}{P}\right), \quad U_K = W\left(\frac{r}{P}\right), \quad U'_L = W\left(\frac{w}{P'}\right), \quad U'_K = W\left(\frac{r'}{P'}\right),
\]

\[
P = P(\gamma), \quad P^* = P(1-\gamma) ; \quad P' < 0
\]
\[
r = r(\gamma) ; \quad r^* = r(1-\gamma) ; \quad r' < 0
\]

where subscripts L and K are for workers and capital owners. P and P* are the price indices in the rich and the poor region. P depends negatively on the ratio of the number of firms located in the rich region to the number of firms located in the poor region (\(\gamma\)). The price index in both regions also depends positively on the transaction costs between the two regions. w and r are the wage rate and the return on capital.

Facilitating capital mobility between the two regions for example by eliminating plant closures rules that make relocation of firms either costly or impossible have a different impact on the welfare of those different agents. If firms relocate from the poor to the rich region, the price index will increase in the poor region and decrease in the rich region. However the return (profits in the monopolistic sector) to capital will increase in the poor region and decrease in the rich region. The reason is that as firms move out of the poor region, local
competition will decrease and the opposite will occur in the rich region. Another way to say this is that firms from the poor region will move out if profits are higher in the rich region up to the point where profits and returns are equalised in the two regions. Unambiguously welfare of workers in the poor region decreases: their nominal wage is tied by factor equalisation due to free trade in the perfectly competitive sector, but the price index increases so that their real wage decreases. The inverse happens for workers in the rich region so that inequality between workers of the two regions increases when firms are free to choose location.

The situation for capital owners is more ambivalent. For capital owners of the poor region, their nominal income rises because profits are higher for firms they own due to relocation of some firms to the rich region. However on the other hand, as consumers, they may lose because the price index increases in the poor region. Following the methodology and the intuition given in Martin and Rogers (1995), it is possible to show that capital owners in the poor region will gain with relocation if transaction costs are low enough and if the extent of competition (measured by the inverse of the degree of elasticity of substitution between varieties in the monopolistic sector) is not too high. The exact reverse result holds for capital owners in the rich region. However, because the nominal income of capital owners in the poor region rises with free relocation, the inequality between workers and capital owners in the poor region (measured in terms of real income or welfare) will always increase when firms choose freely their location. This may be an important argument in favor of regional policies. However, note that the concentration process in the rich region will, by the same reasoning, decrease inequality between workers and capital owners in that region because as competition increases, profits will decrease (to equalize those in the poor region by an arbitrage process) as well as incomes of capital owners. This implies that regional policies that would tend to impede on this relocation process will benefit immobile workers of the
poor region but will harm immobile workers of the rich region. It would decrease inequality in the poor region and increase it in the rich region. This implies that the equity motive behind regional policies is not as straightforward as it seems because it implies a choice on which type of inequality to be reduced at the expense of another type of inequality.

Another important result is that the extent to which inequalities will be increased by letting the concentration process free will depend crucially on the distribution of factors of production. The more unequal the distribution of mobile capital in the population the more the concentration process will exacerbate inequalities in the population. The reason is that if immobile workers also have some (presumably mobile) capital, then the welfare loss due to higher a price index when firms relocate outside the region will in part be compensated by an increase in their income that comes from their capital endowment as the return to capital increases with relocation outside the poor region. A similar argument could be made for the distribution of human capital which points again to the fact that education and training policies in poor regions should be considered as key elements of regional policies.

Equity considerations are important for analyzing regional policies. However, the question: do regional policies decrease inequality between poor and rich regions? is not the same one as: do regional policies improve welfare of agents in the poor region? To see this we will use two simple examples.

In a similar framework as the one described above, suppose that we look at the welfare impact of a decrease of transaction costs between a poor and a rich region. This could be the result for example of infrastructure building such as a highway. One result that holds in economic geography models with increasing returns (see for example Martin and Rogers, 1995 and Martin 1999) is that this will induce firms of the manufacturing sector to relocate

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2 Note that in the US, not only workers are more mobile but more individuals have stocks than in Europe. This may explain partly why economic geography is less of an issue in the US than in Europe.
production in the large market, that is the rich region\(^3\). We will not rewrite the whole model but just refer to some intermediate results given in Martin and Rogers (1995). The important assumption of this model is that the manufacturing sector experiences increasing returns due to the fact that each firm requires a fixed amount of capital. Because capital is perfectly mobile, firms can choose to locate production in either of the two regions. \(K\) and \(K^*\) are the respective stocks of capital owned by the rich and the poor region and \(L\) and \(L^*\) are the number of immobile workers in those regions. We assume that \(K>K^*\) and \(L>L^*\) (the region * is poorer than the other one). There are iceberg transaction costs \(\tau\) on trade on manufacturing goods between the two regions and \(\rho = \tau^{1-\sigma} < 1\), is a usual transformation (\(\sigma\) is the elasticity of substitution between goods in the monopolistic sector) so that an increase in \(\rho\) implies an improvement in infrastructure facilitating trade between the two regions. In equilibrium, the number of firms locating production in each region is:

\[
n = \frac{K + K^*}{L + L^*} \left( \frac{L - L^* \rho}{1 - \rho} \right), \quad n^* = \frac{K + K^*}{L + L^*} \left( \frac{L^* - L \rho}{1 - \rho} \right) \tag{1}
\]

This equilibrium location is found by equating supplies and demands on goods markets and by an arbitrage condition that requires that the profit of a unit of capital be equal in both regions so that no relocation can be profitable. Equation (1) shows that more firms locate in the rich region than in the poor one. It is easy to check that an increase in \(\rho\), an improvement of infrastructure facilitating trade between the two regions, leads to relocation of firms from the poor to the rich region. The reason is that firms can now better exploit economies of scale in the largest market and still export to the poor region as trade is facilitated between the two regions. Hence, if we were to look at GDP of the two regions we would see a fall in the poor region and an increase in the rich one. From that point of view one could interpret this policy as increasing inequalities between the two regions. However, what

\[V^* = C(n^* + n\rho)^{\sigma-1} \tag{2}\]

\(^3\) See Combes and Lafourcade (1999) for a study that shows that the reduction of transaction costs in France has indeed led to more industrial concentration.
is the impact on welfare of a worker in the poor and the rich region? Welfare is given by those equations:

Where \( C \) is a constant and \( \alpha \) is the share of manufacturing goods in the utility function. These equations just say that welfare depends on industrial location (\( n \) and \( n^* \)) and on transaction costs. Because \( \rho \) is less than 1 (some of the goods are lost in the process of transporting them between the two regions), welfare increases with the number of firms located in one’s own region (as \( n + n^* \) is constant and equal to the total capital stock \( K + K^* \)). The reason is again that if many firms are located in the other region, consumers have to pay transaction costs on many goods. For a given industrial geography, lower transaction costs (a higher \( \rho \)) improves welfare for all consumers.

Hence, lower transaction costs affects welfare in two different ways: the direct effect is always positive\(^4\) for the poor region. However, lower transaction costs affect industrial location too and therefore welfare through a more indirect way. Because, lower transaction costs imply relocation from the poor to rich region, \( n \) increases at the expense of \( n^* \), lower transaction costs have a negative indirect impact on welfare in the poor region as more goods must be imported from the rich region at a cost. Using equations (1) and (2), welfare in the poor region is:

\[
V^* = C \left[ \frac{L^* (K + K^*)}{L + L^*} \right] \frac{\alpha}{\sigma - 1} (1 + \rho)^{\frac{\alpha}{\sigma - 1}}
\]

Hence, even though lower transaction costs (higher \( \rho \)) induces industrial relocation from the poor to the rich region, the net effect is always positive for welfare in the poor region. The reason is that the negative “geography” effect is an induced effect whereas the “transaction costs” effect is a direct effect. Hence, this example shows that even though on equity grounds such a policy of lowering transaction costs may not be called for, it can be

\(^4\) This is an overstatement because infrastructures have to be paid for. Implicitly here we assume the infrastructure projects that lower transaction costs between the regions are paid by the rich region.
defended on the grounds that it increases welfare of the poor region. A contrario, even though the new economic geography insists on the concentration effects of lower transaction costs, its normative implications are certainly not to promote higher transaction costs.

In such models however, it is true that if a planner could change economic geography, that is could choose the number of firms in each region, equity considerations would entail to increase the number of firms in the poor region at the expense of the rich region (this again assumes that no lump sum transfers are possible as these may dominate such a distortionary policy). However, this result itself is not general. Martin and Ottaviano (1999) show for example that in a model with both endogenous location and endogenous growth, more spatial concentration in the rich region may be detrimental or beneficial to welfare in the poor region. This ambiguity comes from the introduction of localized technology spillovers. In this case, higher concentration in the rich region increases the extent of technology spillovers (firms being close learn more from each other) which increases the growth rate and therefore benefits the South. Hence, there are two effects for welfare in the poor region of changing economic geography starting from the one determined by market forces. On the one hand, more concentration reduces welfare in the poor region due to more spending on transaction costs on goods imported from the rich region. On the other hand, more concentration increases welfare in the rich region because geography becomes more efficient and more conducive to growth. Martin and Ottaviano (1999) show that the net effect on welfare in the poor region depends in particular on the level of transaction costs, the importance of localized spillovers and on the inequality in capital endowments between the two regions. When transaction costs between the two regions are low, the positive effect of concentration will dominate because in this case, the fact that more goods have to be imported from the rich region is not very important. The net effect of concentration is also positive when spillovers are strong enough. Finally, if the poor region has initially little capital (or the inequality in
capital endowments is high), then the positive effect will again dominate. This is because higher growth decreases profits of existing firms due to stronger competition: as the poor region has little capital the negative effect of lower profits is weak and the positive effect of stronger competition is important. Hence, the existence of localized spillovers, which induces a tradeoff between regional equity and efficiency, may be an important factor in choosing the type of regional policies to implement. We have seen that a priori a policy that reduces transaction costs between regions, even though it may induce more spatial concentration and inequality, may improve welfare in the poor region. This is even more true once localized technological spillovers are introduced. Also, a regional policy that induces firms to move to the poorer location (for example through subsidies) may not be always welfare improving for the poor region especially if spillovers are strong, inter-regional transaction costs are low and inequality in capital endowments between regions is high.

If one believes that this characterizes the European situation, then the European regional policies that focus on reducing transactions can be legitimate but not for the reasons that are usually advanced by policy makers. Reducing transaction costs between regions will induce more concentration but will weaken the detrimental effects of spatial concentration, will increase efficiency and growth and therefore improve welfare in the poorest regions. However, if the ultimate goal of regional policies is not only to improve welfare but also to decrease inequalities between European regions, then policies that focus on human capital (education and training) should be given priority.

II. Demand and supply effects of regional policies

Regional policies that finance infrastructure projects have both demand and supply effects. The demand effects are mostly short term effects whereas supply effects are more medium or long term effects. This distinction between demand and supply effects is linked to
another distinction between insurance and redistribution effects of these policies. The demand effects of infrastructure projects such as roads, highways and other heavy infrastructures that are often financed through regional funds are quite clear. With a simple keynesian framework in mind, it is easy to understand that these localized spending increases aggregate demand in the region as well as employment. The effect is both direct and indirect through the keynesian multiplier effect. The effect will be stronger the higher the unemployment rate and the lower the utilization rate of factors of production such as capital in the region. The demand effects are not permanent of course simply because once the infrastructure projects are over, the demand effects are reversed. However they are certainly the most visible and the easiest to analyze and quantify. Indeed, the Commission studies (1999) insist on these effects and use a keynesian econometric model at the level of the country to quantify those effects. They find that for the period 1989 to 1999 the contribution of the EU transfers has been to increase the average growth rate by a maximum of 1 point (Greece and Portugal on the period 1994-1999) and a minimum of 0.3 point (Spain on the period 1989 to 1993). These results are however very difficult to interpret for two reasons. First, they measure at best the upper limit of the effect of regional policies. The reason is that they attribute any gap to the past trend of growth to the effect of regional policies. But we know that during this period where the integration process was very strong the convergence process was also very strong due to large private capital inflows to these countries (except Greece). These inflows can well be explained in a simple Solow model with capital movements and convergence. Second, these studies look only at the impact on countries and not regions. This also is problematic because several studies insist on the fact that convergence in Europe is occurring between countries but not between regions. Neven and Gouyette (1994), find that, starting in the 1980s that has witnessed major advances in European integration, a process of divergence has been appearing between regions of the North and the South. De la Fuente and Vives (1995), for
instance, building on the work of Esteban (1994), suggest that around *half the income inequality existing between the regions of the EU is accounted for by domestic inequality between regions within individual countries*. Thus, during the 1980s and 1990s per capita income differentials have been narrowing between countries but widening between regions within individual countries (Martin, 1998). Hence the EU studies provide very little information on the important question of the impact of regional policies on regional inequalities in Europe.

Furthermore, we believe that, in the context of regional policies, the important effects to study are the supply effects. We have argued elsewhere (Martin, 1999a and b) that the long term supply effects may be exactly opposite to the short term demand effects. The reason is that infrastructure projects that decrease transaction costs between regions have an impact on the location decisions of firms. By decreasing transaction costs between a poor and a rich region, regional policies may in the presence of increasing returns to scale, induce firms to relocate from the poor to the rich region. This result is coherent with the “new economic geography” (Krugman, 1991): as transaction costs decrease firms do not need to be close to all their consumers and can concentrate their production in only one region to exploit economies of scale. As long as transaction cost are not too low, they will prefer to locate their single unit of production in the rich region where the largest market exists. Hence, on a poor region the supply effects of certain regional policies may be negative in the medium long term because of capital movements to other regions. This also shows that analysing the effect of regional policies at the country level is not very useful because the action is certainly at the level of regions.

The introduction of supply effects through capital relocation also complicates the analysis of the short-term impact of infrastructure projects. We have argued that the prime effect will be an effect on short-term demand via a keynesian effect. However, the
introduction of capital movements between regions makes the dynamic analysis quite complex. Suppose that we use a traditional aggregate demand/aggregate supply graph for a poor region that receives funds to finance infrastructure that reduce transaction costs. On the graph below in the short term, the aggregate supply curve may be almost horizontal. First, because the poor region may suffer from unemployment and under-utilisation of capital but also because with free capital movements and increasing returns, capital will move to the poor region when aggregate demand increases. The reason is that with increasing returns, a larger market (the higher aggregate demand due to the temporary keynesian increase in public spending) will entail higher profits and will increase the incentive to produce in that region. Hence, such a policy may have the following effects as depicted on graph 1.

Due to elastic supply in the short run the positive short run impact on output is high (output goes from point 1 to 2). However, the demand effect is per-se a temporary effect and is reversed once the project is over. The long term effect is uncertain: the economic geography message is that the reduction of transaction costs may induce firms to concentrate
in the rich region so that aggregate supply in the poor region is reduced (output goes to point 3).

The distinction of demand and supply effects is also important for political economy reasons. Because the demand effects are short term effects and they are most important for heavy infrastructure, and because the political horizon is also a short term one, the strong bias in favor of heavy transport infrastructure in regional policies can be explained easily.

Finally, the distinction between short term and long term effects implies another distinction between the role of these policies as insurance against regional shocks and the role of these policies as redistribution. The positive short term effects of regional policies can be thought of as insurance scheme such that regions hit by a negative shock receive regional funds. In this case, the focus on short term effects is warranted because the shock itself is transitory and short term in nature. The keynesian framework is also legitimate. However, if these shocks are permanent, such as the loss of competitiveness of the textile industry or of mining then the regional policies are redistribution schemes. The way regions (objective 1 regions in particular) are chosen to receive most of the funds shows that the second interpretation is the one that has been predominant (may be implicitly) with European policy makers. However, the choice of infrastructures, with strong keynesian effects, suggests that some insurance purpose was may be present too. It would certainly be important to clarify better these two objectives. This is all the more important with European monetary unification which will take away one essential instrument of short term stabilization and which may give some further potential role to regional policies as regional insurance schemes (see Puga, 1998 for such an interpretation).
IV. Conclusion

We have seen that public policies aimed at altering economic geography and regional development have multiple and sometimes contradictory impacts. The reason is that economic geography is key for many economic issues. It is important as a determinant of welfare, inequalities, productivity, growth and innovation. Moreover, economic geography is itself endogenous and public policies that influence transaction costs, innovation, mobility of factors will change the location decisions of economic agents. Because of these potential self-reinforcing mechanisms at work which were analyzed by Faini (1983) and Krugman (1991), it is also likely that regional policies have very non linear effects. If the dynamics of economic geography can be interpreted as one equilibrium loosing suddenly its stability at the benefit of another equilibrium this implies that regional policies will be most of the time useless and extremely powerful in some rare circumstances. If agglomeration is due to a self-sustaining mechanism, through vertical linkages for example, then giving a small advantage to the poor region (for example through subsidies) will in no case alter the stability of the equilibrium. However, in the case where economic geography is in the process of being made because of some drastic exogenous change in the economic environment or because new activities, which have not yet settled in a region, are created, then public policies may be the exogenous force that gives a key advantage to one region or to one stable equilibrium out of many stable and possible equilibria. It may be that the process of European integration is exactly such a moment where previously stable equilibria are redefined and where new equilibria emerge. The experience of call centers in France is also revealing. This is a rather new activity which by itself does not require to be close to a specific region. The city of Troyes in Champagne was relatively successful to attract call centers by a specific training policy and also a real estate policy aimed at favoring this activity. To a certain extent the example of Brittany with some information technologies linked to telephones is similar; the training policy was again a
key element. If indeed, regional policies have very little impact most of the time and a strong one in some very specific circumstances, then policy mistakes are going to be numerous because the information requirement is too severe. This does not imply that regional policies have no use, but that these non linear effects should be carefully integrated in the choices made.
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