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The development of periphery in an industrialised country: the case of *Basso Ferrarese* in Italy

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Introduction[*]

This paper combines and finalises two previous pieces of research by Melloni [2008] and Palmieri [2008]. It presents and discusses the results obtained applying CGE, NEG and New-NEG models to the Italian area of the **"Basso-Ferrarese"** and compares them with new CGE simulations that have been specifically designed for the same area, taking into considerations the peculiar and unique territorial factors that characterise the study-area.

In the first part, we introduce a preliminary comparison between the different results obtained with the previous simulations and, subsequently, we discuss them in the context of the territorial factors judged as more relevant for the area of Basso Ferrarese. In particular, we summarise the results obtained through simulations made with the CGE, NEG and the New-NEG models. Those counterfactuals study several aspects of the economy of Basso Ferrarese and deal with the expected impact of possible shocks in different areas. In particular, the CGE model analyses the effects on the economy of the study-area of four different shocks. Two of them, a change in labour supply and a change in the infrastructures endowment/cost, are related to the supply side (and are analysed also by the NEG and New-NEG models); the third one is a demand-side shock, an increase in the demand for tourism-services (as well as increases in other demand components, less interesting for the Basso Ferrarese case). Finally, the fourth shock is related to a possible change of the CAP, in other words an external shocks which is particularly relevant for the TERA case as agriculture plays a major role in the economy of remote rural areas.

The second part introduces a new set of CGE simulations that have been developed taking in full consideration the characteristics of the territory so to offer a more punctual and precise view over the perspectives for future development and the implications for the policy-makers.

The third part deals with a final comparison of all the results obtained, in particular concentrating its focus on the movements of the labour supply and the effects of trade integration.

In the fourth part, we discuss the results and we present the possible policy-scenarios according to the results of the simulations.

I. Quantitative Results and Territorial Factors

We had three different sets of simulations, related to the economic development and overall situation of the Basso Ferrarese, from a previous stage of the project.

First of all, the CGE model which has conducted a series of simulation based on four different shocks:

1) changes in the exogenous amount of labour supplied;

2) an exogenous change in the price of world exports or imports (including tourism);

3) changes in agricultural policy with the revision of the CAP;

4) changes in transport infrastructure.

The NEG model studied the impact of both

a) an increase in taxation in order to finance infrastructure

b) an increase in the labour force

aiming at analysing the problem of convergence and divergence between the rural and the urban area, which is of course a key point in the developmental strategy of backward rural areas.

Finally, the New-NEG model (Mion [2007]) has analysed the impact of an increase in productivity in the region determined by a

α) a trade cost reduction

and

β) an increase of the local population.

This section aims at presenting, discussing and, where possible, comparing the different results of the three different kind of simulations. From what said above, it results clear that the terms of comparison between the models can be mostly reduced to: I) changes in the labour force; II) changes in the infrastructural endowment.

I.1   CGE Model

The CGE model analyses a series of four different kinds of shocks, as explained just above. Here, I will briefly expose the main results for what concerns the area of the Basso Ferrarese.

I.1.1   Labour supply

1. The basic analysis provides two main simulations, namely a change of +/- 10% in the overall labour supply. The results of the simulations are very strong in the case of Basso Ferrarese which is the region mostly affected by changes in labour supply. All the most relevant results are listed in Table 1 at the end of this section. As expected, we note that an increase in the labour supply has a very positive impact on the area of Basso Ferrarese, generating positive effects on GDP, private consumption, exports and investment although not as much as in other regions considered in the study. Similarly, a reduction by 10% of the labour force has strong effects on the economy of Basso Ferrarese which is the most affected region in the whole TERA sample. The results mostly mirror (negatively) the ones obtained simulating an increase of the labour force. An important feature of the simulation is that the rural zone is the more positively (negatively) affected by the increase (decrease) of the labour supply (and still predominates across the whole TERA samples), yet the positive (negative) affect is well

distributed among rural and urban zone. Finally, as far as wages are concerned, there are no significant differences in the way an increase (decrease) of the labour supply affects skilled and unskilled labour (-1.96, - 2; +2.2, +2.2).

2. The second set of simulations on the labour supply refers to shocks induced in the skilled/unskilled labour category.

The first counterfactual deals with a 20% reduction in the skilled labour category. Apart from obvious considerations – the GDP decreases drastically – the most important feature of this analysis is that urban economic activity registers less losses than those suffered by rural zones. The losses in the rural sector are mostly due to decreases in the service sector, as well as in manufacturing.

The second counterfactual explores a situation with an increase of 20% in the unskilled labour. The results are an increase in the GDP of the rural zone higher than in the urban zone (4.45%) where the growth is entirely driven by the manufacturing sector. It has to be noticed that the variations in the manufacturing sectors in the urban and rural zones tend to be very similar both in the case of a decrease of skilled labour and of an increase of unskilled labour, revealing a pretty complex industrial structure across the area. Finally, analysing the dynamic of wages, we can see that in both cases wages of the skilled labour increase albeit twice as much in the case of a reduction of skilled labour (10.7% and 4.59) while the wage of unskilled labour diminish in similar proportion (-11.8% and -13.04).

TABLE 1: The effects of changes in labour supply

	+ 10% overall Labour supply	-10% overall Labour supply	-20% skilled Labour	+20% unskilled Labour
GDP	8.13%	-8.28%	-11.85%	4.72%
Investment	14.22%	-15.32%	n.a.	n.a.
Private Consumption	8.89%	-9.04%	n.a.	n.a.
Changes Domestic Production Primary	8.35%	-8.51%	-5.89%	10.85%
Changes Domestic Production Secondary	7.99%	-8,21%	-10.08%	6.34%
Changes Domestic	7.25%	-7.33%	-11.53%	3.16%

Production Tertiary				
Urban GDP	7.70%	-7.72%	-11.43%	4.45%
Rural GDP	9.05%	-9-03%	-12.74%	5.28%

source: Pouliakas *et al*. [2007]

I.1.2   World prices

1. The first set of simulations regards a 1% increase in the overall price of exports and a 1% increase in the overall price of imports. In both cases it seems that the Basso Ferrarese is just slightly affected by changes in world prices and, hence, by possible change in the world demand for local products or change in the composition of internal demand. In fact, in the first case – an increase in the overall price of exports – regional exports increase, as expected, but a fall in the investment overbalances this effect. The total effect is a minimal decrease in the GDP (-0.01). In the second case – increase in the price of the imports – the structure of the internal market does not change very much: the change in consumption and imports is still low (-0.34, -3.86) and the overall impact on GDP is -0.04%. In both cases the primary sector slightly increases its level of activity (+0.55, +0.14), while the secondary sector declines (-0.2, - 0.01).

2. The second type of counterfactual involves a 10% increase in the world price of agriculture which should stimulate the primary sector in the region. Indeed, the level of rural agricultural activity gets significantly higher, with a 9.19% increase in the real GDP and 8.84% increase in the level of economic activity. However, the overall effect on the economy is a slight decrease (-0.01), mainly because of the decline registered across the urban area.

3. The third simulation deals with an increase in the world export-price of commodity for hotels and restaurant – a proxy for the demand of tourism. This is indeed an important point for the Basso Ferrarese that is investing a lot in order to improve its tourism-infrastructures. The effect of an increased demand of tourism is quite strong on both urban and rural services. In fact, the real GDP increases by 2.39% in the rural services and 2.13% in the urban services, mirrored by an increase in the

level of economic activity respectively of 1.87% and 3.18%. All these data are by far the highest registered among the TERA sample, revealing the key role of tourism in the local economy. However, the overall impact on the GDP of the area-study is modest, as real GDP slightly decreases (-0.03%), driven by a consistent decline in the investment (-15.77).

4. Finally, the fourth simulation involves a 10% increase in the world export-price of the most important exported manufactured commodity – which in the case of Basso Ferrarese is chemicals. Because this activity is concentrated in the urban centre, the GDP and the economic activity of the secondary registers a significant improvement (+2.38%, +2.61%) but the overall effect, once more, is slightly negative (-0.01) driven by a decline in the investments (-16.99) and an overall decrease of GDP and economic activity in all the other sectors of the economy.

I.1.3 Agricultural policy

1. The first simulation regarding the CAP implies a 30% reduction in coupled agricultural support. All the relevant results are shown in Table 2, where we offer a comparison of the effects of the four different counterfactuals. This first policy simulation has marginal effects on the GDP of the region, and the losses, as expected, are concentrated in the rural area and in the primary sector, with modest increase in the urban zones. Overall unskilled labour in the rural zone decreases (-1.05%, and, impressively, -9.51 in the primary sector). The most significant impacts are registered in the rural zones and are concentrated in the agricultural sector. Both agricultural domestic production and domestic consumption in the primary sector decrease. However, the reduction of the domestic consumption of the agricultural households (-2.53%) is the lowest among TERA area-study.

2. The second scenario deals with the option of "full decoupling". In line with the empirical findings of the first scenario, this counterfactual describes a situation of GDP decline still limited in its overall effect but again all concentrated in the primary sector which falls by 21.35%: a clear indication

of the importance of subsidies in the Basso Ferrarese. The other sectors record marginal improvements though not strong enough to offset the losses of the agricultural sector. This scenario magnifies the effects obtained in the first one, as unskilled labour in the agricultural sector is strongly affected by the full de-coupling (-28.76%) and so are agricultural domestic production and consumption (-18.32% and -6.01%, respectively).

3. The third scenario studies the effects on the economy of a relocation of CAP funds from Pillar 1 to Pillar 2. Once more, the overall result is a slight decrease of the GDP but with a larger sector-impact than the previous two simulations. Agricultural sector, in fact, registers a steep decline: -22.09% in GDP and - 29.75% in the unskilled labour. As a consequence of the expected raise of agricultural products, production and consumption decline as well -19.4% of domestic production and -6.98% of the domestic consumption. On the contrary, urban GDP rises and as a consequence of the shift toward those activities indirect taxation increases as well. Skilled and unskilled labour in the secondary sector also records an increase. Interestingly, exports in the manufacturing sector increase enough to (together with those in the service sector) offset the decrease in agriculture. The overall result is thus positive: +0.3%.

4. Finally, the fourth simulation analyses a situation of "modulation" in which decoupled support is reduced by 20% - instead of 100% as in the previous one – and those funds are transferred to the Pillar 2. Once more, the primary sector suffers of considerable losses as GDP decreases by 21.64%, domestic production by 18.74% and unskilled labour in agriculture also decreases by 29.13%. The results are very similar to those obtained in simulations 2 and 3. As expected, urban areas, secondary sector and labour in the secondary sector increase. GDP in secondary sector increases by 1.14% in the rural area and 1.07% in the urban area, production by 0.56%, unskilled labour by 1.92% and 1.85% respectively, skilled labour by 1% and 0.99%. The overall effect on GDP is yet still negative (-0.04) with a result in line with those of the scenarios 2 and 3.

TABLE 2: New CAP scenarios

	1st scenario	2nd scenario	3rd scenario	4th scenario
GDP	-0.04%	-0.038%	-0.043%	-0.04%
Rural GDP	-0.48%	-1.40%	-1.88%	-1.6%
Urban GDP	0.23%	0.61%	0.84%	0.71%
Domestic Production, Primary	-5.92%	-18.32%	-19.40%	-18.74%
Domestic Production, Secondary	0.9%	0.38%	0.86%	0.56%
Domestic Production, Tertiary	0.12%	0.49%	0.18%	0.38%

source: Pouliakas *et al*. [2007]

I.1.4   Transport

1. The first simulation describes a situation (in the short and long run) of a 20% increase in the productivity of the transport sector. The most relevant results are reported in Table 3. In the short run, the area of Basso Ferrarese shows significant improvement in the GDP of the rural area mostly driven by gains in the tertiary sector with lesser but still positive gains in the urban area, again driven by tertiary. The overall effect on the GDP is positive. The tendency of an increase in the tertiary sector is confirmed by the long run analysis. However, in the long run primary and, above all, secondary sector display losses. The net result is an increase of GDP by 1.64%, yet all concentrated in the rural area while urban area suffers of a net, albeit marginal, loss. The analysis of the level of the economic activity confirms the GDP trend, as in the long run the domestic production of the secondary sector decreases (-0.89%) and that of tertiary sector enlarges by 3.45% with a net effect of + 1.47%. As far as labour is concerned, the results are in line with those of the GDP, with increase in the tertiary sector and losses in the second.

2. In the second simulation there is a decrease in the transportation costs by 20%. Under this assumption, the effects on the short run are inexistent in the case of Basso Ferrarese, whereas in the long run primary and secondary sectors in the rural area increase and tertiary diminishes for a net effect in the rural area of − 0.05, while the urban area registers a small increase driven by increases in the

tertiary sector and a decrease of the secondary one. Overall GDP is not affected. Labour movements show a situation in which rural labour moves towards more unskilled labour (especially in the primary sector) and less skilled (with decreases in agriculture and increases in manufacturing). In the urban area the opposite holds true, as skilled labour increases driven by the tertiary sector while unskilled labour, especially in the secondary sector decreases. The level of domestic activity slightly increases (0.09%), mostly driven by a boost in the primary sector (0.66%).

TABLE 3: Transport costs simulations

	+20% productivity, short run	+20% productivity, long run	-20% transportation costs, short run	-20% transportation costs, long run
Rural GDP	1.85	5.39	0.00	-0.05
Rural Primary Sector	-0.01	-1.03	0.00	0.56
Rural Secondary Sector	0.00	-2.52	0.00	0.19
Rural Tertiary Sector	3.11	10.53	0.00	-0.27
Urban GDP	0.62	-0.15	0.00	0.02
Urban Secondary Sector	0.00	-3.52	0.00	-0.08
Urban Tertiary Sector	1.45	4.40	0.00	0.17
GDP	1.02	1.64	0.00	0.00

source: Pouliakas *et al*. [2007]

I.2 NEG Model

The NEG model developed by Marattin [2007] analyses the interaction between the urban and the rural zones of the study-area. In particular, it studies the production differential and the convergence of wages between the two sides of the economic system, investigating the possible effects of an improvement in infrastructures (via taxation) and of an increase of the labour force. Hence, the NEG model provides ten different types of counterfactual exercises: four related to a change in the tax-rate and six related to an increase in the population of the area. In short, the simulations proposed are:

1) an increase in the tax rate in the urban region by 2%;

2) an increase in the tax rate of the urban region by 4%;

3) an increase in the tax rate of the rural region by 2%;

4) an increase in the tax rate of the rural region by 4%;

5) an increase in the labour force of the urban region by 5% – from outside;

6) an increase in the labour force of the urban region by 5% – from the rural region;

7) an increase in the labour force of the urban region by 15 – from outside;

8) an increase in the labour force of the urban region by 15% – from the rural region;

9) an increase in the labour force of the rural region by 5% – from outside;

10) an increase in the labour force of the rural region by 15% – from outside.

Two main factors should be stressed. In the first four simulations, the increase in the tax-rate is used to enhance infrastructural development – a much needed intervention in the area of Basso Ferrarese and which is at the centre of public intervention. Secondly, the second set of six simulations concerning the change in the labour force capture an important issue of the region – as Basso Ferrarese is the area with less immigration from non-Europe (*i.e.*: East Europe and North Africa) of the entire Region to which it belongs, the Emilia-Romagna, and, at the same time, is affected by an on-going process of desertification and migration toward richer areas, including the major urban centre, Ferrara.

As far as infrastructural development is concerned, as expected, an increase in taxation of the urban (rural) area reduces (increases) the production differential, negatively affecting the production in the centre (periphery) while leaving substantially unaffected the periphery (core). Quantitative changes in the rate of taxation are mirrored by similar changes in production differentials (-1.12% and -2.19% in cases 1-2, +1.10 and +2.12 in cases 3-4). However, an increased taxation in the urban (rural) region pushes toward real wages divergence (convergence). Yet, while the divergence effect of increased urban taxation is very significant (+12.97 and +23.37 in cases 1-2), the convergence effect provoked by the increase in rural taxation is much smaller (-1.71% and -9.58 in case 3-4).

As far as changes in the population – and, hence, in the labour force – are concerned, the part of the area-study that benefits from a population increase will subsequently increase its production. This is even more evident when we analyse internal migration that both increases the production of the urban area and decreases the production of the rural area. In fact, production differential increases by 8.27% in case 6 (internal migration by 5%) and by 22.6% in case 8 (by 15%) against 3.99% and 11.03% of cases 5 and 7. Similarly production differential decreases when it is the rural area which benefits from migration from outside (internal migration towards rural area was ruled out as mostly inexistent on the ground): - 4.18 and – 12.99 in cases 9 and 10. A similar trend is registered in the case of wage differentials, as the region affected by immigration gains against the other, hence obtaining divergence in cases 5-8 (by 13.99, 21.85, 27.5 and 57.35 respectively) and convergence in cases 9-10 (-1.12, - 10.1).

FIGURE 1: NEG Results

$$\left\{ \begin{array}{cccccccc}
t_i, L_i & \Delta Y_1 & \Delta Y_2 & \Delta P_1 & \Delta P_2 & \Delta w_1 & \Delta w_2 & \Delta \frac{\omega_1 - \omega_2}{\omega_2} \\
t_1 : +2\% & -1.12\% & 0 & -2\% & 0 & -1.33\% & 0 & +12.97\% \\
t_1 : +4\% & -2.19\% & 0 & -2.69\% & 0 & -2.6\% & 0 & +23.37\% \\
t_2 : +2\% & 0 & -1.10\% & 0 & -2\% & 0 & -1.33\% & -1.71\% \\
t_2 : +4\% & 0 & -2.12\% & 0 & -3.86\% & 0 & -2.54\% & -9.58\% \\
L_1 : +5\% & 0 & -3.99\% & 0 & +1.2\% & 0 & 0 & +13.99\% \\
L_1 + 5\%^{intra} & 0 & -8.27\% & 0 & +2.5\% & 0 & 0 & +21.85\% \\
L_1 : +15\% & 0 & -11.03\% & 0 & +3.4\% & 0 & 0 & +27.50\% \\
L_1 : +15\%^{intra} & 0 & -22.6\% & 0 & +7.9\% & 0 & -0.23\% & +57.35\% \\
L_2 : +5\% & 0 & +4.18\% & 0 & -1.1\% & 0 & 0 & -1.12\% \\
L_2 : +15\% & 0 & +12.99\% & 0 & -3.4\% & 0 & 0 & -10.01\%
\end{array} \right\}$$

source: Marattin [2007a]

I.3 New-NEG Model

The New-NEG model (Mion [2008]) studies the effects of integration on the economy of the TERA study-areas. The initial consideration is that trade integration has a positive impact on aggregate productivity through the selection of the best firms. In fact, as markets get more open, the best firms

gain access to outside markets, the worst are excluded from the market and the intermediate keep existing on the local market. Hence, the main simulation is made calculating the effects of a productivity increase generated by 5% trade cost reductions. A second counterfactual, instead, consists in an exogenous growth of the population.

The reduction of trade costs forecasts a situation in which the Basso Ferrarese and the whole Ferrara province is more integrated with the rest of Po Plain, which is one of the richest and most industrialised regions in Europe. The results, not surprisingly, generates a situation in which the economic integration may likely be disadvantageous for the Basso Ferrarese, given its low structural competitiveness vis-à-vis with the other North Italian regions.

The second counterfactual is an increase in the population of the study-area which also generates an increase in the productivity of the regions. This is particularly true, according to the paper, in the case of Basso Ferrarese, where the productivity gains generated by a larger population outscore the productivity gains obtained by regional integration (1.2% against 0.662%).

I.4 Territorial Factors

Territorial factors play an important role in a deep understanding of the results obtained *via* CGE, NEG and New-NEG simulations. Specific local factors have been listed as extremely important in the case of Basso Ferrarese. In particular, an official publication of the province of Ferrara (Area Nord Orientale, [2005]) and the considerations expressed by a pool of highly qualified policy-makers and technical experts have agreed that the Basso Ferrarese is affected by some important territorial phenomena that should be taken into consideration in the analysis of the study-area, in particular population structure and unemployment, industrial backwardness, tourism and infrastructural endowment.

First of all, the <u>structure of the population</u> and of the working force is of extreme relevance. As suggested by Melloni [2007], the provincial occupational rate in 2000 was around 45-46%, while the regional level was about 50%; the unemployment rate albeit declining was still of 7% much higher than in the rest of Region Emilia-Romagna, where the unemployment rate is 3.9%. Female participation is the lowest in the region: 36.8% in 1999. Furthermore, the area is interested also by the worrying phenomenon of demographic decrease, while immigration of foreigners is still a marginal trend: immigrants represent a mere 3.5% of the population, against 6.5% of the Region Emilia-Romagna. In particular, the demographic decrease in the whole province is mostly originated in the Basso Ferrarese. Consequently, the area is affected by an ageing situation which, of course, may result in a big obstacle to the development of the zone. Such situation helps us to better understand the importance of labour supply increase, the effects of which are described in all three models.

Another major feature of the Basso Ferrarese is the relative <u>backwardness of the industrial sector</u>. Hence, the developmental strategy envisaged by the regional directives – with the fundamental contribution of Objective 2 – is mostly directed toward an enhancement of the productivity in the secondary sector (and partially in primary and tertiary sectors as well). As suggested in a previous TERA paper (again Melloni [2007]), the regional development plan focuses among other things on three major issues related to productivity and innovation of the firms' sector and in particular:

–   support to projects for innovation and competition

–   creation of new entrepreneurs - particularly in new sectors - and generational turnover

–   funding of enterprises and improvement of the bank-firm relationship.

Confirming the worries of analysts and policy-makers, Mion [2008] has shown that further economic integration with bordering regions is not necessarily the right strategy for Basso Ferrarese. In fact, the relative backwardness of the study-area risks offsetting the gains of economic integration.

Both specific analysis and policy-makers' opinion have stressed the importance of <u>tourism</u> for the economic development of the Basso Ferrarese. The province of Ferrara in general and the Basso Ferrarese in particular lay on the highly tourist-oriented Adriatic coastline, though mass-tourism tends to prefer the neighbouring provinces of Ravenna and Rimini. This is due to historical as well as geographic reasons. Rimini has historically been the capital of youth-tourism with a well developed leisure-industry, while Ravenna has been well-known for family-vacations. Ferrarese tourism, instead, has been more related to the presence of second-houses allotments that require fewer infrastructures and, consequently, fewer turnovers. The presence of pond-waters (and of mosquitoes and insects in general) has represented a major obstacle for the development of the tourism industry. Hence, one of the most important objectives of the regional development plan is the enhancement of the tourist district linked to the Natural Park. The project is to transform the tourism offer present in the province of Ferrara and especially in the Basso Ferrarese. It deals with the following actions:

- ❖ improvement of the receptive system on the coast;
- ❖ diversification of the tourist offer;
- ❖ the creation of a possible alternative infrastructural system linked to the realisation of the motorway "E55" leading to Rome from the Adriatic coastal side.

The core of this project is the capacity to create the conditions for the creation in the Basso Ferrarese of a new, re-qualified tourist offer.

Finally, <u>infrastructures</u> represent the last of the territorial factors relevant for the Basso Ferrarese. As suggested above and elsewhere (Melloni [2007]), the province of Ferrara is in a very peculiar (and unfortunate) geographical position in the Region Emilia-Romagna, as it is the only province not to lay on the via Emilia, the main road that crosses the region from North-West to South-East. This geographical position has contributed to the marginalisation of the entire province and of the Basso

Ferrarese *in primis*. Resolving the issue of isolation has been identified as an essential step toward the development of the zone. The local development plan identifies the following priorities:

➢ enhancement of the infrastructural network with specific attention to the recovered areas (axis Ravenna-Ferrara-Brennero: port, local railroads; metropolitan network: Ferrara-Copparo) and focus on commodities' transport.

➢ restructuring of the system of public transport by moving passengers' and goods' traffic on the railway and fluvial navigation system.

All these measures should contribute to the creation of the "long-city" (città lunga), by integrating the whole province into one single developmental path.

II. Area-specific analysis

Given the results obtained in WP6 and the analysis of the interviews with relevant policy-makers and experts and of the official documentation of the province and the region, we have considered useful to further our analysis with additional CGE simulations that would take into full consideration the territorial factors listed above. Hence, this section aims at discovering the specific features of the Basso Ferrarese and at measuring, where possible, their effect. In order to do so, the CGE model used in WP5 has been modified in order to better capture the specific features of the area-study.

The shocks in WP5 were performed under the hypothesis of investment-driven savings and full employment: it means that no autonomous investment is possible and there is no underutilization of the labour force, which is free to move across sectors and whose supply is fixed. Capital as a factor of production is also held fix and it is activity-specific, so it has no mobility at all: in other words, the entire framework represents the typical neo-classical setting. In the light of the above considerations, Palmieri [2008] has questioned these assumptions, confirming labour mobility and not confirming full-employment. In fact, in 2006 the provincial rate of unemployment rose up to 5.5%, but it is even higher

in the Basso Ferrarese. Moreover, as explained above and in Melloni [2007], Ferrara's labour market penalizes female labour force and is not able to absorb skilled labour because graduates of the local University hardly find employment locally. Finally, the unemployment period is getting longer and longer causing an exit from the labour force according to the definition of unemployment commonly adopted: this means that an increase in the employment rate could be the result of a reduction of the labour force rather than an actual growth of employed people. Our conclusion, therefore, is that the full employment assumption is not consistent with the actual situation in the study area. Thus, we decided to modify the framework accordingly and we substantially smoothed the full employment hypothesis by assuming both labour demand and the uniform wage as fix, and choosing the activity-specific wage as our balancing variable (thus leaving to the fourth variable, the labour supply, the possibility of being not-fully employed). By so doing, both the spatial directions (urban-rural) and the quality characteristics (skilled versus unskilled) of the labour force can be analysed. Moreover, we switched also to an investment-driven closure rule in order to acquire a more complete "Keynesian-type" scenario.

Having changed the framework, we decided to divide our analysis into two different sections. In the first one, presented below, we introduced new CGE simulations in the "old" setting which could be able to better capture some of the territorial-specific factors that characterise the Basso Ferrarese: in particular, productivity, investment in innovative sectors, tourism and skilled labour demand. In the second section we re-modelled the simulations of WP5 with the new Keynesian-type framework and compared them with the previous results. Our major findings, extensively analysed in Palmieri [2008], are presented in section III.

II.1 Area-specific simulations

II.1.1 Productivity

The first set of simulations deals with an increase in the productivity of various economic sectors, and more specifically in the urban and rural manufacturing, urban and rural finance, rural and urban trade. The results are shown in Table 4.

TABLE 4: Results of the shocks in productivity ranked by magnitude (all % variations)

+10% productivity		Urban Manufacturing	Urban Finance	Rural Trade	Urban Trade	Rural Finance	Rural Manufacturing
Real GDP		34.61	15.24	6.57	5.98	4.05	3.53
Domestic activity		30.09	13.71	5.96	5.76	3.27	3.13
Employme	**Unskilled**	39.70	13.24	8.42	6.37	2.56	4.03
nt	**Skilled**	35.60	17.32	6.59	6.32	4.99	3.55
HHS consumption		38.05	16.51	7.26	6.65	4.27	3.94
Exports		40.55	15.18	5.76	5.65	3.70	4.02
Imports		23.84	13.16	6.06	5.82	3.11	2.57

source: Palmieri [2008]

Analyzing the results we see that Urban Manufacturing has the strongest impact on the economic system. An increase in its productivity benefits all the other activities and also all production factors.

Increase productivity in Urban Finance has a less significant impact on GDP and production level, yet the positive effects are still considerable. As expected, increased productivity has positive effects in all the sectors considered, albeit not as much as in the first two cases.

These results outline a *traditional economy* that is not *static and* in which improvements of finance and trade activities have considerable good results. These results are particularly important insofar as productivity shocks are much easier to obtain in service sectors, because sunk costs and mark-up pricing are less important than in manufacturing activity. Considering the benefits spreading over all the economic system, banking and trade sectors can trigger development in the area while their low efficiency can severely damage the whole system in economic, social and demographic terms.

II.1.2 Investment

As far as investment is concerned, we have analyzed three different kinds of shocks. In the first set of counterfactuals we have simply modelled an increased investment in machinery – which we used as a proxy of the innovative sector – and in construction – which of course is strongly related with the infrastructural investment.

TABLE 5: Results of the shocks in investment (all % variations)

+10% investment		Machinery	Construction
Real GDP		-	0.46
Domestic activity		-0.17	0.52
Employment	**Unskilled**	-0.20	0.62
	Skilled	-0.22	0.53
HHS consumption		-0.46	0.20
Exports		-0.16	0.47
Imports		-0.20	0.27

source: Palmieri [2008]

Investment in machinery has a negative effect on the main variables (domestic activity, labour demand, households income), which is an effect widely explained in the literature (Kalecki [1939], Ricottilli [2008], Sylos Labini [1984]). An opposite effect characterizes investment in construction that raises GDP, households' consumption and domestic demand. This seems to stress the key role played by infrastructure in the area, although the word "infrastructure" should be interpreted in a broader sense than simply "construction of roads", as Gruber and Marattin [2006] have already underlined. For example, improvements in ICT and integrated logistic services are paths to explore, since they reduce transaction costs with a relative low financial effort (Kilkenny [1998]).

In the second sets of counterfactuals we have combined an increase in the investment level with an increase in the labour demand of urban manufacturing. An important feature of such exercise is that, given its nature, we had to use the neo-classical framework (full-employment), as explained above.

TABLE 6: Results of the shock in innovative investment and skilled labour demand in the advanced sector (all % variations)

	+10% investment in Machinery	+10% skilled labour demand of Urban Manufacturing	Previous coupled
Real GDP	0.00	1.71	1.71
Domestic activity	-0.02	1.41	1.37
Employment Unskilled	-	-	-
Skilled	-	3.03	3.03
HHS consumption	-0.20	1.50	1.30
Exports	0.01	2.38	2.39
Imports	-0.04	0.72	0.68

source: Palmieri [2008]

Again, we found the disturbing effect of innovative investment, but the increased labour demand overbalances the slightly negative impact caused by machinery investment. However, although GDP, households' income and domestic activity are rising, the results are partially unsatisfactory insofar as the benefits are limited to the sector at stake. Full employment hypothesis led to a zero-sum game in which gains of one sector are losses of another one.

The last set of simulations concerning innovative capital is about a 5% increase in the productivity of Urban Manufacturing coupled with +25% of investment in machinery.

TABLE 7: Results of the shock in innovative investment and productivity of the advanced sector (all % variations)

	Investment in Machinery (+25%)	Productivity Urban Manufacturing (+5%)	Previous coupled	Investment in Construction (+25%)
Real GDP	-0.43	15.01	14.58	1.26
Domestic activity	-0.46	13.08	12.63	1.48
Employment Unskilled	-0.49	17.09	16.60	1.70
Skilled	-0.54	15.50	14.96	1.46
HHS consumption	-1.14	18.05	16.94	0.61
Exports	-0.40	17.47	17.06	1.32
Imports	-0.50	10.63	10.15	0.76

source: Palmieri [2008]

Once more, we find that investment in construction has a more positive impact than investment in machinery, although we have to consider that those negative results are a consequence of the limited time-horizon that the model implies. As already suggested by the previous section, increase in the productivity plays a key role in the future development of the Basso Ferrarese.

II.1. 3 Tourism and services

After having analyzed investments and productivity in "hard" sectors and commodities, we decided to turn our attention on three "soft" simulations. The first one is about investment in mostly intangible commodities: +50% in retail trade, tourism and transport, +20% in finance. The second one is a 10% increase in productivity of both tourism sectors. The third aims at measuring the effects of a 5% reduction in margins (transport, wholesale and retail trade).

Rural Tourism brings higher benefits, even to urban sectors. However, the best results were brought by the simultaneous increase of investment and productivity, and this could be a feasible scenario even in short period.

Furthermore, when analyzing the impact of a reduction in trade and transport costs, we notice that the larger effect takes place on consumption and employment. In Table 8 we consider a joint reduction of three margins, while in Table 9 we split the former result measuring the contribution of each one separately.

TABLE 8: Results of the shock on tourism, overall margin and investment in intangible commodities (all % variations) (*source*: Palmieri [2008])

	Investment & productivity of both tourism sectors	Joint reduction of margins (-5%)	Productivity of Urban Tourism (+10%)	Productivity of Rural Tourism (+10%)
Real GDP	5.35	3.87	1.63	3.27
Domestic activity	4.85	4.04	1.95	2.49
Employment Unskilled	6.17	4.78	2.25	3.40
Skilled	5.14	4.70	1.35	3.26
HHS Consumption	4.41	8.00	0.95	3.67
Exports	6.02	3.50	2.48	3.13
Imports	3.32	4.52	0.79	2.29

TABLE 9: Results of the shock on each single margin (all % variations)

-5% cost		Wholesale Trade	Retail Trade	Transport
Real GDP		1.84	1.61	0.33
Domestic activity		1.89	1.71	0.32
Employment	**Unskilled**	2.39	1.84	0.43
	Skilled	2.19	2.02	0.38
HHS Consumption		3.75	3.36	0.72
Exports		1.69	1.46	0.27
Imports		2.06	1.99	0.36

source: Palmieri [2008].

The most effective reduction is in wholesale trade, followed by retail trade and transport. According to those results – which are in contrast with some others, such as the one obtained with the New-NEG model – it is possible to argue that the most beneficial intervention in the province of Ferrara would be a limited investments in the old, underused ways such as the Po river and local railways and, more importantly, the reduction of the weight of trade margins would be a realistic, not expensive and effective measure to be done.

II.1.4 Skilled Labour Demand

Instead of a generalized increase (or decrease) in labour supply, as it was done in the shocks presented in WP5, our simulations are about a 10% increase in skilled labour demand of some sectors supposed to be crucial for the entire system: manufacturing, finance and food processing. That increase was combined in many different ways under the hypothesis of full employment and activity-specific labour: in this case, sectoral wage is our balancing variable.

The increasing demand for skilled labour doesn't affect nor real variables as GDP, production and demand, neither distributional ones as factor and households income, whereas relevant changes take place in the allocation of labour force and in the wage distortion factors. The difficulty to sum up the results forced us to focus on two sectors whose labour force is largely affected by the shocks: in fact,

construction and transport embody urban-rural, inter-sectors and skilled-unskilled labour linkages, as it is described in Table 10:

Table 10: results of the shock in skilled labour demand (all % variations)

Skilled labour demand		Impact on Sector	Empl.	Wage	Impact on Sector	Empl.	Wage
+10% Rural Sectors	**Unskilled**	Urban Transport	+28	-14			
		Rural Construction	+24	-12			
		Rural Transport	+21	-11			
	Skilled				Rural Construction	-12	8
+10% Urban Sectors	**Unskilled**	Rural Transport	+272	-56	Urban Transport	-86	234
		Rural Construction	+81	-31			
	Skilled	Urban Transport	+14	-10	Rural Construction	-36	32
					Urban Construction	-14	9
+10% All Sectors	**Unskilled**	Urban Transport	+399	-63	Rural Transport	-73	122
		Rural Construction	+50	-23			
	Skilled	Rural Transport	+4	-4	Rural Construction	-28	22
					Urban Transport	-27	24
+10% Rural Finance	**Unskilled**	Rural Construction	+38	-19	Urban Construction	-5	3
					Rural Transport	-4	2
	Skilled	Urban Construction	+5	-3	Rural Construction	-29	22

source: Palmieri [2008]

   In short, as long as full employment and reduced mobility hypothesis hold, those simulations show basically two processes: first, transportation problems are more important for their consequences in the labour market rather than for growth and development. In fact, when a sector (or more) employs more skilled labour, there is a large demand of low qualified labour in transport-services, which is a sector with a high turnover and openness to unskilled labour. Second, rural economy too seems more prone to replace skilled with unskilled labour, thus widening the centre-periphery dualism (and the wage differentials) between a rural "unskilled-employing" area and an urban "skilled-employing" one. We now have a deeper insight on the economic reality of Basso Ferrarese that previous simulations about a generalized increase in skilled labour supply were not able to grasp. Our results have much in common

with the conclusions outlined by Mion [2007], who stresses the importance of larger market size and productivity. Innovation will hardly be the protagonist of development, if rural area tends to replace skilled with unskilled labour.

II.1.5 Households *income*

Finally, we want to report a surprising result obtained by assuming a 20% increase in Government transfers to Households:

Table 11: Results of the shock in Government transfers to Households (all % variations)

+20% government transfers to HHS		Rural HHS	Rural Agricultural HHS	Urban HHS	All HHS together
Real GDP		-2.05	-0.10	-0.87	-2.43
Domestic activity		-2.27	-0.10	-1.02	-2.73
Employment	Unskilled	-2.82	-0.15	-1.45	-3,64
	Skilled	0.62	0.05	0.52	1.19
HHS Consumption		3.31	0.15	2.68	6.90
Exports		-1.76	-0.09	-0.75	-1.93
Imports		-3.51	-0.11	-1.83	-3.72

source: Palmieri (2008)

Apart from private consumption (and skilled labour employment), a larger households' income has a negative effect on the aggregates: the only reasonable explanations for that result is the difficulty encountered by SAM builders while they were collecting data on households' income. The Basso Ferrarese area was the hardest one to be modelled among the partners: many answer-places in the TERA questionnaires are empty with the unpleasant consequence of having the lowest degree of disaggregation of households (some people even threatened the interviewers). Furthermore, national data are quite raw and do not allow the analysis of such a regional model; fortunately, the Province of Ferrara's Statistical Office and a local research centre (CDS) provided much more consistent data. Data on households income, spending and commuting habits could be improved only by overcoming the

general mistrust about sample survey on income, thus cooperation by local and national institutions is strongly needed.

II.2 Comparing the Frameworks

In this subsection we repeat the same simulations of TERA WP5 under the new closure rules we outlined above and we then compare the results. Not all the four sets of simulations were re-run. The first set – a change in the labour market on the supply side – and the first part of the fourth set – a change in transport infrastructure *via* an increase in its productivity both in the short and in the long run, were not feasible within our new "Keynesian" framework with unemployment. The second part of the fourth set was re-run, but since it had little effect, if any, in both frameworks, we simply bypassed such comparison. Thus, we focussed on *Agricultural Policy* and *World Price* simulations. The latter set has a somewhat misleading name because it is concerned in changing the terms of trade for some commodities. For that reason, we renamed them as *Terms of Trade*.

II.2.1 Agriculture

Let us remind the content of the common (i.e., across partners) WP5 simulations. For the agricultural set we had:

- *Decouple*: CAP subsidies are set to zero and transferred from Government to Rural Agricultural HHS (RAGHHS);

- *Modulation*: 20% SFP support to RAGHHS becomes investment demand for Construction;

- *Pillar2*: coupled support and subsidies are set to zero and become investment demand for Construction;

- *Agpcut*: 30% reduction of coupled support.

The comparison is summed up in Table 12, where the column NEO reports the results under the first scenario ("Neoclassic") and the KEY column those coming from the second ("Keynesian").

TABLE 12: Comparison of agricultural shocks under two frameworks (all % variations)

Agricultural WP5 simulations	Decouple		Modulation		Pillar 2		Agpcut	
	NEO	KEY	NEO	KEY	NEO	KEY	NEO	KEY
Real GDP	-0.04	-2.22	-0.04	-1.98	-0.04	-1.57	0.00	-0.58
Domestic activity	-0.11	-2.15	0.00	-1.82	0.18	-1.26	0.01	-0.53
Employment Unskilled	0.00	-3.38	0.00	-3.07	0.00	-2.50	0.00	-0,92
Skilled	0.00	-2.33	0.00	-2.05	0.00	-1.57	0.00	-0,60
HHS consumption	0.35	-2.05	0.22	-1.92	-0.52	-2.20	-0.21	-0.85
Exports	0.42	-1.92	0.38	-1.70	0.30	-1.34	0.09	-0.53
Imports	-0.42	-2.39	-0.57	-2.31	-0.68	-2.05	-0.06	-0.58

source: Palmieri [2008]

The Keynesian scenario shows worse results than the Neoclassical one: null or slightly negative values in the latter are negative and larger in the former and we can also notice many reversals in signs, as for example in HHS consumption, exports and domestic activity. About the sector-impact, not reported in the above Table, the heaviest effects take place in rural and utilities sectors. The distance between the two conceptual frameworks is evident both in analytic and in policy terms, and we will see later that it doesn't depend on the quite "extreme" nature of the simulated shocks.

II.2.2 Terms of Trade

World Price simulations are as follows:

- *Tourman*: +10% in exports price of other manufacturing;

- *Tourman2*: +10% in both exports and imports prices of other manufacturing;

- *Tourhotel*: +10% in exports price of hotels;

- *Tourexpall*: +1% in overall price of exports;

- *Tourimall*: +1% in overall price of imports;

- *Touragric*: +10% in exports price of agricultural commodities;

- *Touragric2*: +10% in both exports and imports prices of agricultural commodities.

Let us look at Table 12a) and b) for the comparison.

TABLE 12a): Comparison of terms of trade shocks under the two frameworks
(all % variations)

Terms of trade WP5 simulations	Tourman NEO	Tourman KEY	Tourman2 NEO	Tourman2 KEY	Tourhotel NEO	Tourhotel KEY	Tourexpall NEO	Tourexpall KEY	Touragric NEO	Touragric KEY
Real GDP	-0.01	4.60	-0.01	3.72	-0.03	2.49	-0.01	2.10	-0.01	0.58
Domestic activity	0.85	5.13	0.72	4.15	0.84	3.19	1.18	3.13	0.06	0.62
Employment Unskilled	0.00	6.09	0.00	5.00	0.00	3.48	0.00	2.55	0.00	1,04
Skilled	0.00	5.46	0.00	4.37	0.00	2.91	0.00	2.59	0.00	0,57
HHS consumption	1.39	6.52	1.15	5.29	0.65	3.45	0.58	2.91	0.21	0.86
Exports	0.92	5.83	1.15	5.14	0.90	3.60	2.52	4.77	0.10	0.73
Imports	-0.98	3.11	-1.99	1.29	-0.94	1.29	3.60	5.51	-0.20	0.33

source: Palmieri [2008]

TABLE 12b): Comparison of terms of trade shocks under the two frameworks
(all % variations)

Terms of trade WP5 simulations		Tourimall NEO	Tourimall KEY	Touragric2 NEO	Touragric2 KEY
Real GDP		0.00	-1.42	-0.01	-0.43
Domestic activity		-0.88	-2.16	-0.15	-0.52
Employment	**Unskilled**	0.00	-1.77	0.00	-0,24
	Skilled	0.00	-1.69	0.00	-0,63
HHS consumption		-0.40	-1.95	-0.06	-0.52
Exports		-0.84	-2.32	0.40	-0.03
Imports		-4.48	-5.68	-0.96	-1.32

source: Palmieri [2008]

In Table 12a) all negative and null values under neoclassical hypothesis become strongly positive if we turn to the Keynesian scenario, stressing the demand effects induced by our new conceptual framework. Focusing on the order of the changes, the most relevant simulations are about "other manufacturing products" and "hotel commodities". In Table 12b), negative effects of an increase in import-price and of a variation in the agricultural terms of trade (both in export- and in import-price) are wider under Keynesian closure rules, as we already saw repeating the *Agricultural* simulations. Therefore, there is a difference between *Touragric* and *Touragric2* shock that didn't occur in

manufacturing commodities: the former class of products is much more sensitive to changes in their terms of trade, though the effects are smaller.

III.   Results Comparison and Policy Implications

In this section we aim at comparing the results obtained with the simulations described above and seeing the possible implications for the policy-makers. A particular focus will be given to the comparison and the resulting policy suggestions in the field of infrastructure/transport and migration, because all the three different counterfactuals deal with those issues. However, a detailed analysis will be provided also for "tourism" and "agriculture".

III.1 Labour

The problem of increase/decrease of labour supply/market size is analysed in all the three models: the CGE, the NEG and the New-NEG. These simulations indeed capture an important issue of the Basso Ferrarese. In fact, on the one side, the area is affected by a marginal but worrying reduction of the population and a serious problem of desertification in some parts, above all the tourism-areas on the coast. On the other side, other areas located in the neighbourhood of the Basso Ferrarese – the Bologna Province, and the other Emilia-Romagna provinces and, even more, the provinces of the neighbouring region Veneto – have revealed in the last years a high capacity of attraction for immigration, especially for workers coming from new accession countries (Poland, Romania) but also from Albania, Ukraine and North Africa. The Basso Ferrarese so far has been unable to generate a similar capacity of attraction.

The results we have so far come from implementing different hypotheses. In the CGE model, the counterfactuals study the effects of: 1) a 10% increase in the total labour supply; 2) an equal decrease; 3) a 20% decrease of skilled labour; 4) a 20% increase of the unskilled labour. The NEG model,

instead, analyses the effect of a 5% and 15% increase in the labour force of a) urban labour; b) rural labour and also a 5% and 15% migration from rural to urban areas. The New-NEG model studies the results of a 5% increase of the local population. However, whereas the CGE model provides results for standard economic data, the NEG deals with the differential between rural and urban zones and Mion observes the effects on productivity.

The first clear result is that migration from outside has always positive effect for the economy of the Basso Ferrarese. In fact, the CGE model sees considerable gains from an increase of the labour supply, distributed across all sectors of the economy and benefiting more the rural area than the urban one, with the higher gains in service and manufacturing. At the same time, the New-NEG argues that an increase of the local market – i.e. 5% immigration from outside – would boost productivity by 1.2%. Again according to the CGE, an increase of just unskilled labour would benefit mostly agriculture, while change in services would be marginal. Emigration and, in particular, emigration of skilled labour force, has devastating effects on the economy of Basso Ferrarese, particularly on the tertiary sector. Emigration, furthermore, has stronger effect on the rural area than on the urban one. Instead, the effects of immigration from a third region are mixed as far as the relationship urban/rural zone is concerned. According to the CGE model, the rural zone benefit the most from outside immigration (9.05% increase against 7.7% increase in the urban zone), and it is even more so in the case of unskilled labour migration (5.28% against 4.45%), with the important nuance of a major boost in agriculture and manufacturing but a rather modest increase in the tertiary sector. The NEG model, instead, forecasts a situation in which the key aspect is the direction of immigration, i.e. toward rural or urban area. As expected, an increase of the size of the labour force in the urban (rural) area, amplifies (diminishes) income and wage differential. The effects are much stronger in the case of migration from rural to urban areas.

Hence, we can argue that migration policies have a strong effect on the economy of Basso Ferrarese that according to both the CGE model and Mion's paper suffers of a reduced market size. The enlargement of the local market and the immigration of new labour force can be a key determinant for growth prospective. Whereas migration policy are decided at the national level, local administrations still have the instruments to attract additional labour force, especially from new accession countries. This, however – regardless of important considerations of socio-political nature that go well beyond the scope of this paper – would also mean a precise direction of development for the zone of Basso Ferrarese, since agriculture and manufacturing would be the sectors that most benefit from unskilled immigration, while tertiary sector would register little improvement. At the same time, not only immigration should be favoured, but above all emigration should be discouraged. Emigration affects almost equally all the sectors of the economy, badly hurting domestic production. Finally, but not less importantly, internal migration has strong effects in the relationship between the rural and urban areas. The experience of the Basso Ferrarese tells us that our area-study historically suffers of problems of very low immigration, ageing and emigration from the rural areas. Our analysis suggests that the solution of these problems should be a priority of the political agenda.

III.2 Infrastructures and productivity

Transport and infrastructures are also studied by all three WP5 models. It has to be noticed that the Basso Ferrarese is not a "very remote" region by usual standards since the distance from the Emilia Road – one of the most productive artery of Italy – is not wide, and no major natural impediments stand on the way. However, given the concentrated economic development in zones which are well-connected between each other and that, at the moment, exclude the province of Ferrara, the Basso Ferrarese suffers of a position of relative isolation within the deeply interconnected Po Plain region. As recalled in WP6, the Basso Ferrarese is hugely involved in projects of infrastructural development.

New motorway and railroad projects are meant to link the area with the core of the Po Plain and, *via* Mantova and Verona, with the Brennero-motorway and the lower Germany. Connections with the region Veneto, one of the most productive areas of Italy, and across Europe are also planned. Finally, a waterway is meant to connect Basso Ferrarese, Ferrara and Porto Garibaldi with Ravenna.

The three different styles of simulations offer important suggestions for transport policy in the region. The CGE model studies two different kinds of shocks, a 20% increase in the productivity of the transport sector and a 20% decrease in transport costs. The NEG model studies the impact of local taxation utilised to build infrastructure, while New NEG deals with the effect of trade integration (via a 5% reduction of trade costs) on productivity.

The results are mixed and much less univocal and clear than those on migration. According to the New-NEG model, in fact, the Basso Ferrarese is affected by structural poor competitiveness and, hence, is one of the regions that benefit the less from further integration. It has to be taken in consideration the fact that areas around the Basso Ferrarese are among the most productive of the entire Europe. Furthermore, as far as an increase in the productivity of the transport sector is concerned, our area-study will be overall positively affected but in the long run manufacturing will be negatively affected, reducing both GDP and domestic production. This means that, in this case, the core-economy of the Basso Ferrarese as a whole will shift toward the service sector, especially in the rural area, confirmed by a relevant increase of the employees in the tertiary sectors in the rural area (+4.47 unskilled, but., above all, +15.54 skilled). Interestingly, under this scenario the rural area, driven by the increase in tertiary sector, grows significantly, while the urban area is negatively affected.

A decrease in transport costs has marginal effects on urban (+0.02%) and rural area (-0.05), with slight decrease in the service sector in the rural zone and a modest increase in the urban one. In this case, a decrease of transportation costs moves the economy in a direction opposite to the previous one. The rural zone specializes in agriculture – registering increases in number of unskilled employees and a

decrease in the skilled ones – and in manufacturing, a sector in which the number of both skilled and unskilled workers raise. The urban zone, instead, specialises in the service sector, as the number of workers in the secondary sector decreases. Hence, in this case, the developmental strategy for the Basso Ferrarese implies further differentiation between the rural and the urban area. NEG analysis explores exactly the dynamic between the two different areas. Financing infrastructures with urban taxation reduces, as expected, the income differential between the urban (richer) and rural (poorer) zones, however, the wage differential increases because a more considerable reduction of the transport costs (higher in the case of urban taxation) would enhance the concentration of the economic activity in the urban area – which is one of the objectives of the local administration. Instead, infrastructure financing through rural taxation has much smaller (opposite) results, as wage divergence is just marginally affected. Hence, we can convincingly argue that a decrease in transport costs pushes toward divergence (both in the NEG and CGE scenario) between the urban and rural zone – or at best a very small reduction of wage divergence in the case of rural taxation, but at the cost of increasing income differential. However, the economy – and in particular the manufacturing – of Basso Ferrarese seems to gain not as much from a further trade integration, because of the poor structural competitiveness. Therefore, from this point of view the actual policy to enhance firms' competitiveness seems indeed appropriate and surely more urgent than infrastructural projects. These results are further confirmed by the additional CGE analysis that was partially presented in this paper and has a more extensive coverage in Palmieri [2008]. The area of Basso Ferrarese would greatly benefit from an improvement in the productivity of the manufacturing sector, but also from a better functioning financial and trade system. Transaction costs seem to represent a major impediment on the way toward development. Yet, improvements in these sectors seem to be easier to achieve than in manufacturing and this may represent a major path to undertake in order to boost growth in the study-area. However, at the same time, one of policy objectives of the local administration is to favour firms' delocalisation from

neighbour areas <u>into</u> Basso Ferrarese, especially exploiting the huge differentials in land costs with the via Emilia. Such project – which intends to boost manufacturing in the rural areas and improve productivity – is solely possible by the deployment of new infrastructural investments.

III.3 Others: agriculture and tourism

As far as agricultural policy – which is mostly a European issue – is concerned, the four kinds of suggested reforms all affect negatively the economy of Basso Ferrarese. In all cases the rural area suffers of a loss in GDP driven by losses in the primary sector, while the urban area slightly benefits from the changes. In all cases manufacturing sector has larger GDP, domestic production and employment, just not enough to offset the losses in agriculture. In all cases, allocative efficiency improves, which is a result that was expected given the high quota of subsidies in the agricultural sector. Obviously, the first scenario (reduction in coupled support) has much smaller effects than more drastic policy scenario, such as full decoupling and 100% reduction of decoupled support (and transfer to Pillar 2). Even just a partial shift of funds from Pillar 1 to Pillar 2 has very strong effect on the economy. Those results are confirmed and reinforced by the additional analysis made with a different CGE framework – under a Keynesian scenario the implications for the whole economy of different CAP policies are even stronger as the GDP for the study-area diminish even more than under neo-classical scenario.

Finally, tourism is a key issue in the area of Basso Ferrarese. The area in fact lies close to one of the most tourist-zone of Italy – the area of Ravenna. However the Basso Ferrarese is affected by structural problems which have, historically, constituted serious impediment to the development of the tourist industry, primarily a less favourable climate affected by the negative presence of the Po-mouth, *i.e.* humidity and insects. Furthermore, the coastal zone has very little tourist-infrastructure and is mostly characterised by the presence of "sea-holidays houses" of people living in other areas. Hence, lately,

the local administration has tried to enhance tourist transformation of the zone, with a particular emphasis on natural tourism, in the attempt to exploit the huge opportunities given by the local landscape, culture and cuisine. However, the impacts forecasted by CGE simulations are not particularly positive. Though the service sector and rural zone are positively affected by an increase of tourism demand, the combined rise in wages and prices seems to affect negatively the secondary sector. In a typical case of Dutch disease, the increase of prices and wages generated by the external demand for a specific good expands to other sectors, hence reducing profitability. Yet, the further CGE analysis somehow reversed this situation. In particular, it seems that selected investments and increased productivity, especially in the area of rural tourism, can greatly benefit the economy of the Basso Ferrarese.

IV.   Conclusions and final policy suggestions

This paper has briefly described the work done in WP5 and WP6 for the area of Basso Ferrarese and the additional CGE analysis made in the context of WP7. The main results are that the area is affected by structural problems of competitiveness and that this should be an issue promptly addressed by local administration. While investments in innovative sectors and the attraction of skilled labour force represent an obvious path to undertake, other possibilities are present, in the particular the reduction of trade costs. An Italian distinguishing feature is the huge length of the supply chain, which brings on an unjustified difference between producer and purchaser prices. A selective intervention, involving communication, network services and traditional ways of communication is likely to be cheaper, much more useful and easily conceivable. Financial intermediation cost has to be reduced in order to make it play a developmental role: in fact, financial sector must act as a catalyst of the economic activity, not as a brake. Its better performance spreads benefits all over the other activities, but particularly over the rural ones. Since trade and financial sectors can rapidly change their way of

functioning, their contribution to development seems more a matter of goodwill rather than of institutional constraints. In this sense, an agreement between authorities and operators is possible and reasonable because all the stakeholders have much to gain from it.

Market size as well represents a huge problem. Policies favouring immigration should be implemented, as the expected economic results outweigh any other policy intervention, including infrastructure building. It has to be noticed that the area of Basso Ferrarese tends to lose inhabitants, so the first step should be to create the condition to stop this trend – including policies to create better life conditions. Housing, urban improvements and environmental policies may all play a role – and initial signs are positive, as for example the recent construction of a new hospital in the Basso Ferrarese. However, of course, industrial presence is indispensable to attract more workers in the area. The work of SIPRO seems exactly to address this problem, trying to promote the migration of firms from an overly busy via Emilia toward the Basso Ferrarese. Of course, this attempt requires also a huge infrastructural development. Our simulations have showed a limited impact of infrastructural investments; however this is true because of the relative backward industrial system. New infrastructures may well attract new, innovative firms, thus having possible positive impacts on market size, productivity and technology spill-over. However, these scenarios require further research.

Tourism is a key issue. As we have said above, tradition tourism has historically been underdeveloped in the Basso Ferrarese, for several reasons. Some specific interventions can be made to partially overcome this gap since the area still has a very poor receptive capacity that can be easily and costless improved. Camping, for example, can attract tourists who look for a more natural environment when compared to the one of the provinces of Ravenna and Rimini. However, rural tourism is just another great opportunity that needs to be exploited: growth in this sector may prevent the depopulation of the whole area by employing local labour force, which in turn can preserve the fragile environmental ecosystem of the Po-mouth (delta). Moreover, it can help to recover the monumental and architectural

endowment of such a natural area (Melloni [2008]) and also to promote investment in food-farming high quality products: that is what Gruber and Soci [2006] called "intelligent agriculture" as a key issue in rural development. Investments in "vie del sapore" (path of taste) strictly related to the exploitation of territory's potential, together of course with the environmentally friendly tourism in the park of the Po Delta. These investments may represent a huge resource for the development of the zone. World demand of tourism is changing, being the typical vacation now shorter – often week-end based – and directed toward specific targets (nature, food, wine, biking). Though the Basso Ferrarese, with the late policy implemented by the Region Emilia-Romagna, seems to be in a good position to exploit this potential, a more efficient marketing needs to be promoted, especially to win the lack of confidence of the average Italian tourism toward less known zones.

Finally, subsidised agriculture still plays a huge role in the rural zones and this represents an obstacle to the modernisation of the region. Subsidies reduction seems to increase allocative efficiency, but the costs in terms of GDP and employment in the rural area are considerable. In sum, a reduction of subsidies increase GDP in the urban zone and in the manufacturing and service sectors, but these increase are not large enough to offset the losses in terms of employment and GDP in the rural zone and in the primary sector. This is even truer if we assume a more realistic Keynesian scenario for the Basso Ferrarese. The policy makers has to decide between the increased efficiency of the economy as a whole and the improvement of the manufacturing sector and of the urban zone on the one hand, and the huge decreases in agricultural output and employment on the other. The policy-maker has a typical political economy dilemma to resolve – concentrating heavy losses in one sector to favour overall gains in the whole system. The choice is made harder by the fact that under the reforms hypothesized the costs will be suffered in the first period, while the entire system will require time to adjust. As suggested above, agricultural policy reform is likely to enhance modernisation of the economy, however may have strong social costs, as well as unexpected externalities, such as forcing migration

from rural areas to urban ones, intensifying the process of desertification that the same public authorities are trying to counter fight. The best policy scenario, thus, would be to encourage incremental changes such as the first scenario we have treated (partial decoupling), because they have smaller effects on efficiency which are also combined with much smaller losses in the rural sector.

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