Demographic transition in Northern Italy: a trans-scalar analysis

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Abstract.
The demographic transition in Northern Italy showed substantial settlement articulation which is the result of a variety of different factors inherited such as: public works, or historic and cultural resources, and of improvements which are the fruit of local initiatives. These initiatives oblige us to change our analytical approach which is based on a top-down relationship. These are forms of social cohesion that are more in tune with the territory.

But these areas need projects that will allow us to strengthen the regional integration of Northern Italy as a whole. It calls for an intervention that will create solidarity between hierarchically controlled networks and intersection hubs for the different means of transport.

Finally the ongoing projects conceived at a European level, like the Transeuropean Corridors (or the Maritime “high ways”) can satisfy the articulated widespread demand from the Northern Italian regions, and enhance the potential of the cities and towns. From this point of view the Po-valley region can be seen as an interface area designed to consolidate east-west relations and allow the Italian peninsula to be fully involved in the European expansion process.
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1. The Po-valley region.

The purpose of this paper is to individuate the different residential frameworks in the Po-valley region and to act as a knowledge support base in identifying considerations regarding the requirements of the new projects, in view of European expansion. From this viewpoint, the Po-valley region can be seen as an interface area, designed to consolidate European relations and allow the Italian peninsula to be fully involved in the expansion of Europe eastwards.

The macro-region is made up of 8 administrative regions, 46 administrative provinces, 284 local systems, 4546 municipalities (total area sq. Km. 119.893,52), with an economic role which is recognised both at home and abroad. It is one of the most dynamic regions of Europe that has experienced the different stages of development right through from rural to post-industrial. To date it can boast an impressive list of infrastructure development and public works, which can be rivalled by few European regions. These interventions include land reclamation, technology and development of ports and coastal areas, mountain passes, river embankments, and water governance.

All that however doesn’t authorize us to consider it as a unique, close-knit, integrated system; on the contrary, peripheral settlements can be found relatively near to well-developed areas. The interventions mapped out for the development of the corridor project in the near future, will give the area greater centrality and strengthen the links between the regions and the cities’s constellation.

Research carried out on the demographic and economic status of the Northern Italy region ¹ has identified many diverse settlement systems. These have all influenced the transition ² of the whole nation as a result of their specific territorial characteristics, geographical position, trade role, natural resources and so on.

¹ See the studies of Cencini-Dematteis-Menegatti (1983), C.Emanuel (1997), Senn (1992), quoted in bibliography.
² Demographic transition refers to the decline of the rural areas owing to the dismembering of the first economic (agricultural) regimes, the agglomerations around the urban areas and to the piedmont belts, near the manufacturing industries.
However, the establishment of the territorial systems is also a direct result of long-term settlement. Medium to short term settlement processes are strictly interlinked with the long term consequences of a principle, durable, unlimited transport infrastructure. These processes accumulate over time, retrace the same stretches and result in a variety of demographic–settlements. This explains the settlement types in the following areas which characterise northern Italy: the alpine valleys, the pre-Apennine piedmont, the coastal belts and the linear urban complexes of the plains.

In this paper we consider the different spatial areas to be the result of the evolution of diverse residential dynamics. Population dynamics over the last 40 years inform us about the different local and regional contexts of the Po-valley as the result of population shifts. The identification of daily urban systems, commuter areas, industrial districts, or local work systems, reveals a variety of contexts and importance they have in re-defining the new centralities in a macro-region. An increase in these peripheral areas that have readily available services and are within easy reach of high-ranking cities, support our view of re-location as the ability of the local population to plan interventions and as a consequence, raising the economic value of their territories.

This step revalues local resources, thanks to interaction between social, cultural and ecological factors. The identification of this settlement dynamics has given prominence to the areas once classified as “peripheries” or “marginal settlements”. They now have an economic impact and have acquired social recognition and a local collective identity. This recognition allows us to confirm that the post-industrial phase has seen a return, at a local level, to those values that had been lost during industrialisation.

The speed with which trade takes place, real time competition, the inter-dependence of territorial systems, and increased mobility, call for efficient logistic structures and inter-connected systems which can only strengthen the role of the networks. As a whole, these aspects result in a need to look for solutions that can ensure internal symbiosis and external complementary support. Within this type of
framework, where the tendency is to eliminate pre-existing national boarders, time plays an important role in determining the future of developed and underdeveloped areas. It identifies the areas that can adapt to carefully synchronised systems and the areas excluded from this opportunity. Time is a strong determining factor in deciding the future of the regions. In fact, if on the one hand the economy gains freedom in terms of space, on the other hand it loses it because of the time limits. The bonds of time, the need for speed and greater synchronisation have a much bigger impact on managing operational and logistic space than do the distances between one location and the other or its geographical position. (Veltz, 1996)

But the synchronized systems call for an alliance and cooperation strategy between frontier areas to find mutual advantages, which are easier to verify in the case of basic homogeneity, this is less easy in the case of heterogeneity. From this point of view we can expect a geographical redefinition of the Po-valley region, new hierarchies and spatial non-homogeneities in terms of fluxes, speed and alliances.

The more territorial integration progresses the more the cohesion between transport networks and territorial systems becomes a factor of competition. We can see in fact that, as self-organised areas, territorial systems can grow and open up to the outside only with efficient transport and communication links. The lack of compatibility between these components can compromise both the ability of the local systems to self-reproduce and their local identity.

2. The demographic profile of Northern Italy

Demographic indicators (density, migration, etc.) are generally used as quick reference measures of the settlement preferences of the population, or the

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3 The local systems represent a novelty for the analysts who considers them to be “residuals”, and a sort of epistemological breakaways. The territorial unities derive from the result of the economic subjects which redefine territorial contexts based on implicit projects and locally accumulated information. The territorial unities are not represented solely by statistics, but by the variables to explore. For that reason the structural analysis must be accompanied by the endogenous characteristics of the model system.

4 Autopoietic systems are not only those which protect themselves from turbulences, but they are also responsible for generating their own organisation plans. They are sufficiently receptive to external contexts to guarantee self-renewal. (H. Maturana, F. Varela, pg. 97, 1999)
fluctuating attraction of human settlements variously distributed in the territory. The main demographic movements which have characterized the different demographic transition phases in Northern Italy after the second world war to date, reflect a spatially and functionally selected development. We can thus explain the distribution of the population in the main urban areas and the de-population of the rural, hill and mountain areas, its concentration in the lowlands and the coastal belts, and urban development along the main road and railway networks.

Industrialisation brought a greater concentration of people in proximity to strategically placed towns in the plains or along coastal areas with port facilities, to the end of large valleys and to interface areas (mainland / sea, plains / mountains), with an obvious logistic roles. Conversely, during the depopulation of rural areas, migration flows seriously affect the countryside, mountain and hilly areas etc. This phenomenon is not, however, irreversible as the repopulation of said areas over the last three decades has demonstrated.

Right up to the sixties, migration resulted in high density urban areas, but in the seventies, centralisation began to drop in favour of a trend towards decentralisation which saw the construction of smaller towns outside large, sprawling settlements, thus favouring the setting up of an extra-urban network, a trend which continued into the eighties.

In the nineties demographic migration proceeds with slower rhythms than the past decades. Now, after a 40 year period, we can see that regional differences became more and more evident as decentralisation made the identification of different settlement groups possible: polarized, sub-urban, extensive, self-contained urban areas. These settlement aspects will be examined in more detail using the information gathered in the ISTAT censuses from 1961 to 2001.

2.1 The spatialisation of demographic trends

As we have seen specialised literature divides the demographic settlement tendencies into three steps: the demographic urban-metropolitan concentration, the de-centralisation in the sixties, the growth of local urban systems and medium-size
centres in the seventies and eighties. The nineties still show a decrease in demographic rates. To describe these phenomena variations in the demographic rate, at a municipal scale, have been examined. Four periods and varying types of urban centres have been identified. They all confirm a gradual slowing down in growth of the bigger centres and the continuing growth trend of the smaller ones. (Table A)

<table>
<thead>
<tr>
<th>Classes</th>
<th>Variations %</th>
<th>61-71</th>
<th>71-81</th>
<th>81-91</th>
<th>91-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 1 milion</td>
<td>9,5</td>
<td>-7,3</td>
<td>-14,7</td>
<td>-8,3</td>
<td></td>
</tr>
<tr>
<td>500 - 1 th.</td>
<td>9,7</td>
<td>-5,3</td>
<td>-12,7</td>
<td>-10,1</td>
<td></td>
</tr>
<tr>
<td>250 - 500 th.</td>
<td>10,5</td>
<td>-4,3</td>
<td>-9,5</td>
<td>-6,4</td>
<td></td>
</tr>
<tr>
<td>100-250 th.</td>
<td>14,7</td>
<td>0,9</td>
<td>-4,1</td>
<td>-2,0</td>
<td></td>
</tr>
<tr>
<td>50 - 100 th.</td>
<td>18,7</td>
<td>1,2</td>
<td>-5,4</td>
<td>-4,7</td>
<td></td>
</tr>
<tr>
<td>30 - 50 th.</td>
<td>36,1</td>
<td>5,3</td>
<td>-0,4</td>
<td>-0,8</td>
<td></td>
</tr>
<tr>
<td>10 - 30 th.</td>
<td>19,9</td>
<td>9,8</td>
<td>3,4</td>
<td>4,0</td>
<td></td>
</tr>
<tr>
<td>to 10 th.</td>
<td>-0,6</td>
<td>4,4</td>
<td>2,5</td>
<td>5,4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10,2</td>
<td>3,0</td>
<td>-1,4</td>
<td>1,0</td>
<td></td>
</tr>
</tbody>
</table>

The positive variation rates regard the small/medium-size urban systems. The downturn started in the bigger urban centres and gradually spread to the smaller systems. In the sixties the negative trend concerns the urban systems with more than 500 thousand inhabitants and those with less than 10 thousand. The seventies see drop in the systems with over 50 thousand inhabitants. The current negative demographic trend does not concern the smaller centres.

The dimension of the centres in the four periods can be seen in the table of demographic incidence (Table B).

<table>
<thead>
<tr>
<th>Classes</th>
<th>Incidence Residents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 1 milion</td>
<td>6,98</td>
</tr>
<tr>
<td>500 - 1 th.</td>
<td>7,99</td>
</tr>
<tr>
<td>250 - 500 th.</td>
<td>4,47</td>
</tr>
<tr>
<td>100-250 th.</td>
<td>8,65</td>
</tr>
<tr>
<td>50 - 100 th.</td>
<td>7,71</td>
</tr>
<tr>
<td>30 - 50 th.</td>
<td>6,24</td>
</tr>
<tr>
<td>10 - 30 th.</td>
<td>17,78</td>
</tr>
<tr>
<td>fino 10 th.</td>
<td>40,17</td>
</tr>
</tbody>
</table>

100 100 100 100 100

5 The variations of Table A are obtained with the formula [(Pn-P1)/P1*100] where P1 is the population at the beginning and Pn at the end of each period.
During the sixties, forty percent of the population lived in the smaller centres, and twenty percent in the larger ones (the six centres with more than 250 thousands inhabitants total 4 million individuals). These values change especially at the top of the table: 2001 shows an incidence rate of 14.2 % compared with 19.5 % in 1961 the equal to in centres with more than 250 thousand inhabitants (a total of 3.6 million people). Conversely, a growth of the small centres can be seen. For example the classes 10 to 50 thousands inhabitants, rise from 24 % in 1961 to a level equal to 30 % in 2001. The last decade shows the maximum diffusion in terms of number of centres with a demographic increase of the two lowest classes.

The incidence variations in the same four periods, as in the Table and Graphic B1, confirm the above-stated trends.6

<table>
<thead>
<tr>
<th>Table B1</th>
<th>Incidence Variations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes</td>
<td>res61-71</td>
</tr>
<tr>
<td>&gt; 1 milion</td>
<td>-0.6</td>
</tr>
<tr>
<td>500 th- 1 mil.</td>
<td>-0.5</td>
</tr>
<tr>
<td>250 - 500 th.</td>
<td>0.3</td>
</tr>
<tr>
<td>100-250 th.</td>
<td>4.1</td>
</tr>
<tr>
<td>50 - 100 th.</td>
<td>7.7</td>
</tr>
<tr>
<td>30 - 50 th.</td>
<td>23.5</td>
</tr>
<tr>
<td>10 - 30 th.</td>
<td>8.8</td>
</tr>
<tr>
<td>to 10 th.</td>
<td>-9.8</td>
</tr>
</tbody>
</table>

Graphic B1

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6 The variations of Table B1 refers to the values of the previous Table B and calculated with the same formula of note 5.
But how are these movements spatially distributed? To localize these phenomena we have recourse to the cartographic images.

2.2 The visualisation of the settlement structures. Population density 1961 (Map 1) - Population density 2001 (Map 2) - Demographic Transition (Map 3)

Population density. In order to visualize these dynamics, we have used graphic clustering techniques. Map 1 and Map 2, correspond to the population density in 1961 and 2001 and show the main urbanised areas situated along the main road arteries (such as “via Emilia” and “Padania Superiore”) and along the coastal belts or infrastructure networks, or grouped around the main industrial areas, port areas etc.. The infrastructure corridors going from the main axes towards internal areas or along the coasts link cities situated in strategic positions.

Small centres are also visible, as are areas that will eventually merge into each other like the area between the Veneto and Friuli V.G. regions, or some big city fringe towns.

The main impulse towards agglomeration comes from industry, maritime ports, and the main networks (roads, viaducts, oil pipelines) that link up the urban centres starting from cities strategically positionned. (thanks to government investment aimed at regulating the economy and helping out in critical situations).

Demographic Transition. Map 3. The Scheme 1 (see the Appendix) summarises the positive and negative trend in the municipalities over a period of four decades. We have followed a procedure similar to the one adopted in a previous analysis (AGEI 1983). The areas are classified as follows: a) steady demographic increase (from 1961 to 2001), b) precocious demographic growth (3

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7 With the occasion we thank the Cartographic Center of Iuav –Venice- for the precious assistance granted.
8 We can see many urban systems such as Brescia, Verona and the Lake Garda area on and around the mountain slopes between Lombardy and the Veneto, at the end of the valleys. On the western side there are low-density areas such as the central Venetian area, Vicenza, Treviso and the fringes towards Belluno and Pordenone.
9 See the analysis of Cencini, Dematteis, Menegatti, 1983 quoted in bibliography.
decades from 1971 to 2001), c) recent demographic growth (2 decades from 1981 to 2001), d) tardy population growth (decade from 1991 to 2001); e) depopulation, corresponding to the demographic decrease throughout the 4 decades.

From the Scheme 1 we note that 43\% of the population live in areas of steady demographic increase, 30\% live in decreasing population areas, 13\% live in declining areas - that had previously seen an increase up to the beginning of the 1980s - and 14\% live in growing areas, where the population started to increase after 1971.

In the seventies the residential trend marks a U-turn compared with the previous decades. The more crowded towns start to loose their residents. The “craters” (white areas) on the map show the de-urbanisation of (urban-metropolitan areas) the main cities and a move towards the surrounding fringe areas. The extensions and merging areas are particularly evident around the Brescia-Verona-Mantova triangle. The high number of smaller towns characteristic of the Po-valley-Veneto region, indicate the preference for living in less densely populated areas.

This decade reflects the economic crisis linked to the larger more industrialized, densely populated towns and cities. The metropolitan areas start selective restructuring, aimed at increasing services, light industry and the construction of smaller towns. Areas where the more specialised industries are concentrated have a close-knit influence on settlements and introduce new elements to the scenario described above: namely, more widespread development and the setting up of local systems that will further evolve in the following next decades.

The eighties in fact add two other phenomena to the framework described: empty areas in the core of the metropolitan systems, and a filling up of the external fringes.

As shown in Map 3 referring to the demographic transition, the decentralisation of the nineties (while the big towns have stopped growing) coincides with a development of the local urban systems. This is the decade of demographic growth in the more external areas and development of the medium-
size towns which began in the eighties. The effect is unexpected and is the consequence of the setting up of a variety of micro-enterprises and local initiatives in symbiosis with local prerogatives and sufficiently large enough to encourage the emergence of new settlements which are not necessarily limited to the plains. (G. Becattini, 2002- G. De Rita, A. Bonomi, 1988)

The mountain areas represent some sort of demographic continuity as is the case of the Trentino-AltoAdige region. This is due to the remaining ancient social structures (self-sufficient farmsteads) and to its privileged position as an autonomous region which directly contrasts the de-population of the Carst area. The extend of unpopulated areas here is noteworthy and is concentrated mainly around the low lands, pre-alpine and hill areas, and the mountains. Now the Alpine and Apennine areas are starting to register a demographic recovery in some of the valleys such as the areas around Lake Garda, the Lagarina valley, and the upper Adige-valley.

The more popular valleys are strictly linked to local resources and to the urban areas of the plain where economic evolution initiated. For instance, the alpine centres are influenced by the opportunity of attracting typical urban consumerism and developing services which catering to a well-established tourist industry. The alpine arc and his valleys, can protect the high value of his territories and enhance his environmental vocations if the road traffic can be routed in the proper means of transport (railways) or diverted outside the mountain regions.

3. Local territorial systems

Detailed results can be obtained with the territorial unities defined at the scale of the Local Labour Systems. We said before that demographic development evolved into so-called local urban systems, based on “local labour systems”, resulting in a concentration of the population and of economic activities which developed into a self-contained, daily interrelated network (see Note 3 and 4).

These areas concerning more municipalities have a certain weight thanks to the type of local interventions carried out, together with their functional and spatial
identity, which is also officially recognised by the Statistic Institutes (Istat). These areas are, in other words, not only considered to be super-municipalities but settlement models which reflect life styles in contrast with those of the big urban and industrial areas.  

In separating the residential behaviour of the main towns (provincial capitals - Cap) from the metropolitan hinterland (MH), and the centres of the local systems (LC) from the respective non-metropolitan hinterlands (NMH) we can better identify the differences between the two settlement models (the large metropolitan areas and the smaller ones).

In fact the Graphic C allow us to distinguish the different behaviour of the urban-metropolitan areas and their belts: the regional capitals reflect a negative trend which started in the seventies. A parallel decreasing trend is seen in the metropolitan hinterlands, despite the fact that they are still above the zero mark.

<table>
<thead>
<tr>
<th>Table C</th>
<th>Local Systems (Variations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap</td>
<td>11,6</td>
</tr>
<tr>
<td>MetrHinterlands</td>
<td>19,4</td>
</tr>
<tr>
<td>Local Centres</td>
<td>10,6</td>
</tr>
<tr>
<td>NonMetrHinterlands</td>
<td>1,5</td>
</tr>
<tr>
<td></td>
<td>10,2</td>
</tr>
</tbody>
</table>

10 These can be defined as socio-economic unities with easy-to-reach business sprang-up because the spatially contained fluxes remain within commuter boundaries. (Sforzi, pg.209, 1997).
11 The variations of this Table have been calculated with the same formula of Tables A and B1.
This leads us to suppose that even though demographic movements have slowed down, these areas continue to collect inhabitants from the region. If the metropolitan hinterland seems to compensate for the negative variations of the “capitals”, even if with percentages that vary region by region, the non-metropolitan hinterlands show a positive, growing trend.

The centres of local systems (LC) also indicate a decreasing trend, but their non-metropolitan areas supported by hinterlands (HNM) are reaching saturation point, while the more external suburbs are ready to absorb the overflow. Over the last decade both metropolitan and non metropolitan hinterlands reflect a positive trend which contrasts with that of the main cities (capitals and non capitals).

The same aggregations observed by the demographic incidence rate clarify what was previously stated: they show a decrease in the dynamics of the local urban systems and lead us to expect a change in their structure: the metropolitan belts appear to show a bigger increase in population than that lost by the capital cities, and the HNMs are growing more quickly than the LCs. After the concentration phase, the weight of regional capitals (Cap) dropped from 1971 to the
MH advantage. This only marginally concerned the external areas. In fact the non metropolitan centres remained stable while the HNM only recovered the same demographic weight registered in 1961, in 1991.

Moreover, we must remember that these observations conceal very different regional behavioural patterns. Graphic C 1 refers to the settlement structures and shows the regional differences relative to the Local Urban Systems (LUS). The cases worth mentioning are the following:

- the concentrated areas where the regional capitals (Cap) prevail, such as in the Liguria region,
- a decreasing polarisation which characterizes the centre-west (Lombardy);
- the sub-urbanized areas where the metropolitan hinterland prevail, such as the Lombardy and Friuli Venezia Giulia regions. Not to mention the fringe areas where the incidence of NMH is high, such as Veneto region
- and the contained areas where the morphology and the urban hierarchy is recognisable as is the case of the pre-apennine axis (Emilia Romagna). 12

The Map 4 shows the average values of the Local Urban Systems (LUS). Therefore, it paints a more simplified picture than the previous one. The final effect of this image is to emphasize the homogenous values for each Local Urban System (as it excludes the fringe settlements round the areas shown in the previous map). The population areas, classified with the same criteria as the previous figure, are summarised as follows: consolidated population, precocious (and intense), tardy (or feeble) increase areas, and areas of depopulation.

The map shows the local polarized systems or the consolidated areas in the high plains (Po-valley Veneto plains) and the pre-Apennine belt, and the lesser populated areas of the low lands, which lack the constant flow of the previous decades. In particular, there is evidence of a constant population belt between Lombardy and the Veneto, stretching from Novara (The Ticino River) to

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12 We see some different tonality from Piemonte, Lombardia, Veneto, the Liguria region for instance has seen a decreasing in the urban belts during the last two decades.
Pordenone (The Tagliamento River). There is no interruption in continuity in the areas between Parma and Rimini, and in some recent increasing population areas such as the coastal belts and mountain areas (in the upper Friuli Venezia Giulia region). The axis which runs north-eastwards connecting Mantova, Verona, and Trento to Bolzano and the other which runs north-westwards from Piacenza to Milan, make the city of Bologna the southern gateway to the system of the Po-valley region.

The question we must now ask is, what are the objectives for the Northern Italian regions and what can the small-size systems expect from the new transport projects (like for instance Corridor V, or the maritime “high ways”, and so on) ? Should new projects expand territorial networks into a system of gateways, or a big corridor opening up to countries abroad but remaining limited in its internal network connections ?

4 Population distribution and territorial articulation

The stages of demographic transition over the last four decades show a constant urbanisation process in most of Northern Italy. The geographical distribution of the population in this area corresponds to a new order which is the result of a variety of different factors inherited as public works, or historic and cultural resources. The popularity of these areas cannot be attributed solely to historical reasons or to the abundance of natural resources, but also to a variety local improvements and enhancements which are the fruit of local initiatives.

These extended urban settlement areas lead us to think of flourishing, well-serviced urban centralities that cater to the needs of the population. They manage to combine many factors; suffice it to think of the different local development paths which are the result of the merger between hereditary resources and new resources, between industry and widespread urban values. The bottom-up approach has resulted in territorial re-arrangement.
These areas have kept in step with international competition, through innovation, specialisation and integration and have given rise to a process of local re-valuation and planning unlike the Fordist system of production. They stem from the spontaneous agglomeration of subjects belonging to the same social and cultural reality, with a view to integrating local and global dimensions, the marketplace with the environment, and natural resources with historical ones.

By viewing the realization of local initiatives in a different light to that of heavy industry, we are obliged to change our analytical approach. Till now we have conceived the development stages on a top-down basis. The spatial aggregation of these last two decades comes from subjects belonging to the same social levels and who are able to integrate globally, with the marketplace with the environment.

In other words the anchorage of the residents to the territory, the spatial redistribution of the population, and the territorial articulation differ from the massive migration which followed rural de-structuring. These are forms of social cohesion that are more in tune with the territory. It implies a sharing out of responsibilities between different subjects, such as operators, public administrators, citizens and management centres. That are able to handle complex problems, are capable of organising themselves and accepting responsibilities at a local level. They are anything but underdevelopment.

Bearing this in mind, we cannot base an interpretation of these territorial unities only on structural data, we must also consider the first-hand experience of the people and institutions that give life to these projects.

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13 The Local Systems generate more information than the administrative systems because they allude to cohesion between social models.

14 Territorial specialisation has generated positive external fields and discontinuities too, which reduce the interpretative effectiveness of the hierarchical scheme.

15 The recent population is different from the one of the mass migration period, because it has lost the compulsory aspect of those years and those aggregations were motivated by high demand levels. Today these schemes are result of spontaneous aggregation and local development projects.

16 We would not be able to explain Italian economic development over the last three decades if the growth of small size industry was considered to be a sign of backwardness. The mix of modern and archaic is the more significant aspect of the local systems which, together with the de-location, has produced significant shifts of entire “cognitive fields”.
5. **Linear urbanized areas and geographical re-locations**

We can interpret the highly urbanized areas in the Po-valley region in different ways: as east-west landbridges, 17 or as open-gates 18 which are able to extend their positive effects to the immediate regions and also to the maritime belts and the city intersections situated along its length and breadth.

In order to identify the links shaping the territorial configuration we have to integrate demographic analysis with the infra-structural aspects. At the moment we can note that roads are never independent arteries, but they are intertwined with the urban and sub-urban areas. By our side we must conceive the fact that roads are never only traffic corridors, but population axes too.

To be effective, the main-roadways must take past experiences into account: the existing links between long distance roads and settlements in the Po-valley regions began with the “roman consular” roads 19 where we can identify the main economic and administrative structures. 20 Only in modern times was this historic inheritance of the long-distance roman roads emulated, (Berengo, 1963, pp. 93-112) with the railways which integrated the nation with a network that led into the centre of the main cities: the “state roads” reaching across northern Italy in two distinct branches from Turin to Venice and which link the cities of high plain with the N°.11 State Road and the cities of the low plain with the N°.10 State Road; the Motorways which allow fast flowing traffic a guaranteed cruising speed and keep traffic away from to the cities.

Basically, these networks follow the stretches of the original roads and offer a mixture of fast flowing roads and of settlements. Synergy between the networks and the cities is the basis of the concentration along the main axes, and, as in the

17 Landbridges, are literally, as the name suggests land-bridges, historically container goods trains running from coast to coast across the USA.
18 For example, through the third Giovi Pass, from Novi Ligure to Genoa, the Liguria region ports will gravitate on the po-valley basin, and will make it easier to reach the Tyrrenian Sea.
19 Unification will not stop the political, military, economic aspect but become a civil, social and cultural reality. In short these big axes are like population channels. (channels which direct and determine the population flow). (L. Bosio, pg. 15-30, 1970)
20 The communication systems could also count on the Po-river waterway, which was preferred to the unsafe roads that connected cities as Piacenza, Cremona, Mantua, and Ostiglia before reaching the Adriatic Sea.
previous settlement phases, we can expect a re-location trend of logistic industrial and commercial structures. It suggests that the low-rent areas will be taken over for industrial and commercial use.

6. Conclusions

At this point of the survey, and after having seen the basic cognitive framework of Northern Italy, we can at last draw some conclusions. The demographic transition in Northern Italy showed substantial residential distribution and settlement articulation. The growth of the small urban centres is actually very dynamic and independent and far from being over-shadowed by the larger towns and cities, consolidate settlements continue to extend along the main axes (Padania Superiore, Via Emilia) and new ones are emerging (from Bologna to Verona and to Brennero pass).

These axes follow the stretches of the original roads (and offering a mixture of fast flowing roads and of settlements) and together with the cities form the basis of the linear development and concentration.

These areas need projects that will allow to strengthen regional integration and city intersections of the Northern Italy as whole, and to enhances the local skills and characteristics which are taking on an innovative role in the country’s economy. It calls for an intervention that will create solidarity between hierarchically controlled networks and will provide intersection hubs for the different means of transport, it will also be a concrete opportunity for the establishment of regulatory standards which limit vehicles in areas which need to be protected from heavy traffic.

The more territorial integration progresses the more the cohesion between transport networks and territorial systems becomes a factor of competition. Territorial systems, as self-organised areas, can grow and open up to the outside only with efficient transport and communication links. The lack of compatibility between these components can compromise both the ability of the local systems to self-reproduce and their local identity.
Finally we think that the ongoing projects can satisfy the articulated widespread demand coming from the Northern Italian regions, and adapt to the need, manage the connections between urban hubs and maritime ports, and enhance the potential of the cities and towns of the Po-valley in view of European expansion.
7. Appendix

<table>
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<th>Scheme</th>
<th>Population Dinamics</th>
<th>Decades</th>
<th>Municipalit %</th>
<th>Popul %</th>
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8. References


