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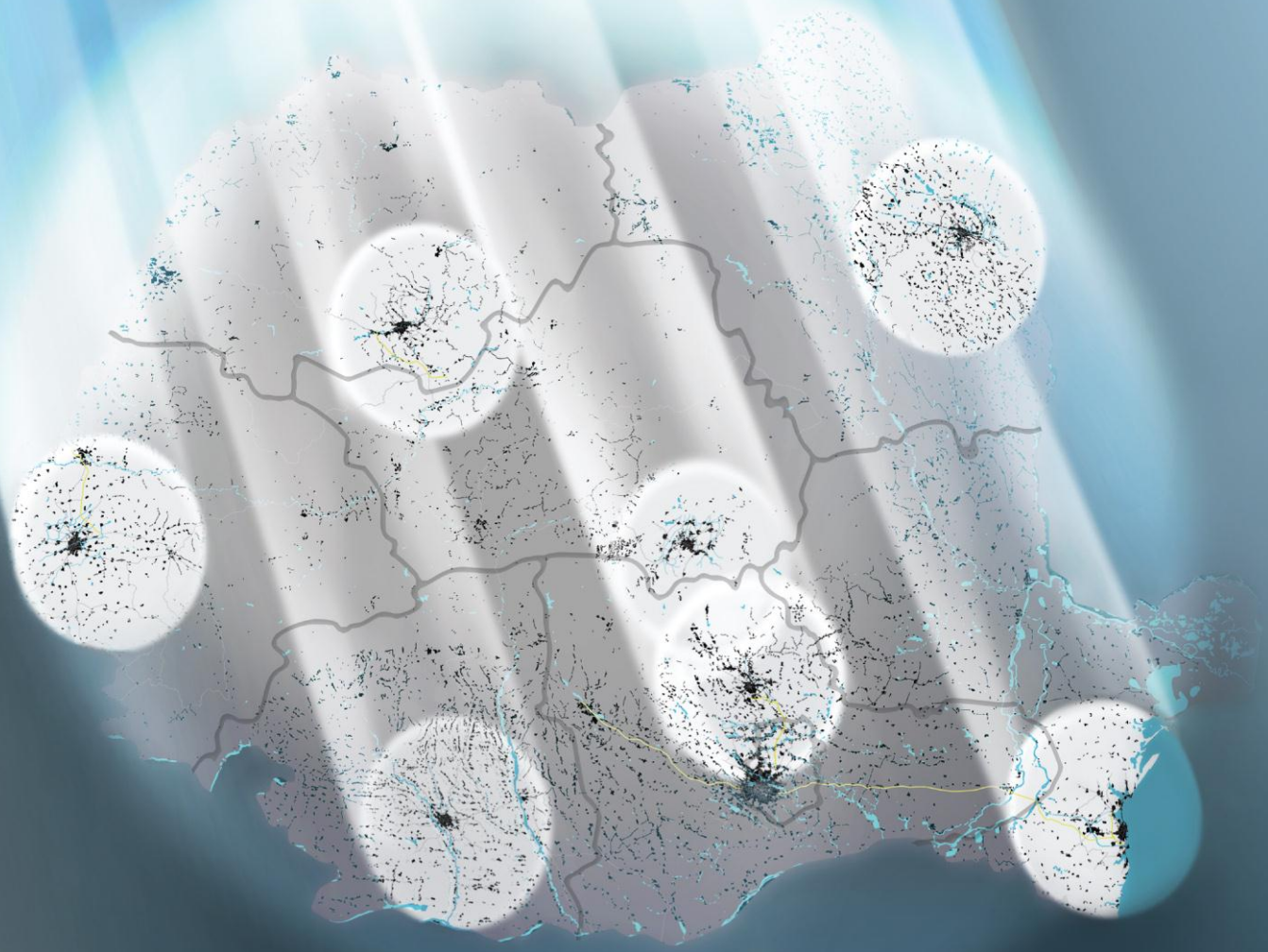
Instrumente Structurale
2007 - 2013

GROWTH POLES

The Next Phase



Regio
PROGRAMUL OPERAȚIONAL REGIONAL

Inițiativă locală. Dezvoltare regională.

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Executive Summary

Romania's growth poles policy has shaped an important part of the country's development in recent years. Prepared in March 2008, it defined several categories of urban centers: 7 growth poles, one for each development region beyond București; and 13 urban development centers of regional importance. The 2007-2013 Regional Operational Programme allocated dedicated funding for these various tiers of urban agglomerations with the specified purpose of "increasing the quality of life and to create jobs in cities by rehabilitating the urban infrastructure, improving services, including social services, as well as by developing business support structures and entrepreneurship."

The current growth poles policy includes several positive features. First, it is based on a clear and simple identification of seven growth poles as the largest economic and population center within each respective region beyond București. It is also based on the fundamental recognition that cities are critical engines for a country's economic growth. Second, policymakers selected one growth pole for each region to encourage balanced long-term development, in line with economic principles regarding the benefits of agglomeration and spillover effects from center cities to surrounding areas. Third, ROP funding has been contingent on cities forming metropolitan areas and preparing integrated development plans – both measures are critical for encouraging the formation of urban areas with larger mass (bigger labor force; better supply chains; more diverse firms, etc.) and integrated development projects for enhanced impact.

On the other hand, the current growth poles policy has a few shortcomings. For example, it lacks a clear, in-depth understanding of how the designated growth poles can contribute to the general development of Romania and it is inherently based on regional boundaries, even though some urban centers entail cross-regional synergies. Additionally, the area of analysis and intervention is usually limited to a 30-kilometer buffer around growth pole centers, missing the fact that functional economic areas are usually larger and rely on the fact that people are generally willing to commute for up to about one-hour each way on a daily basis. Larger metropolitan areas basically allow for stronger economies, larger labor pools, and better incentives for investments. Last and not least, the formation of metropolitan areas is based entirely on voluntary agreement among localities. In practice, this has led to the formation of associations that fail to formally include all localities that fall within corresponding functional areas.

A new urban systems approach in Romania is currently prepared by DG Regional Development within the Ministry of Regional Development and Public Administration (MRDPA). The pending proposal is more in line with EU-level thinking on territorial development, includes more clear criteria for classifying different cities, and also establishes a tentative economic profile for these urban centers, prioritizing investments tailored to the specific profile of each growth pole, in line with preferences expressed in existing integrated development plans. While further consultations are needed, this can be considered a strong start by any measure. Future refinements can also further consider the EC's broader perspective on urban growth poles. While relatively diverse, including a

high degree of flexibility in recognition of Member States' specific development models and needs, the EC's framework has evolved continuously, focusing increasingly focus on the three essential dimensions of development (also captured in the World Bank's 2009 World Development Report): distance, density, and division.

There are several recommendations worth considering for the future growth poles policy (2014-2020). For one, economic principles and practice teach that development is inherently uneven: for a country's economy to grow, some regions have to grow faster than others. As such, the ROP should continue encouraging ongoing external regional convergence and not resist the growing internal regional divergence, which in the long term will generate faster growth, optimal outcomes, and eventually ensure similar living standards across the country. In other words, higher growth in some cities means that more endogenous sources will be generated and could be redistributed to help with key public investment projects in slower-growth areas.

Equally important, rather than targeting public investments and programs at cities, the ROP should place at its core the *people living in those areas*. Better productivity and sustainable economic growth ultimately hinges on the realization that an economy is the sum of its people. The implication is that decision-makers should enable people's access to opportunities, rather than create opportunities from scratch in areas where the market does not lead to such outcomes in the absence of the government's intervention. Moreover, given current demographic and migration trends, the new growth poles policy should remain realistic about what is feasible: in short, if success means that all growth poles are performing equally well (e.g., having a growing population and a more powerful local economy), it may be doomed to fail from the start; if, however, it will focus on the productivity of the people living in the growth poles, it may very well have a meaningful impact.

In practice, the implications of this new paradigm for the future growth poles policy include the following recommendations:

- **Better definitions of intervention areas around growth poles based on functional criteria:** The current legal framework does not specify why the 30 kilometer buffer was preferred and risks missing out on integration benefits beyond this limited buffer. Functional synergies, such as those deduced from commuter data, would likely lead to more optimal metropolitan areas. Moreover, the status quo system also fails to address situations where localities refuse to join metropolitan associations, which limits the potential to develop truly integrated projects and take full advantage of an area's economic mass.

- **More targeted interventions based on specific contextual factors for each growth pole:** Data for the 20, 40, 60-minute driving buffers from city centers, and for 60-minute buffers from city outskirts, show that different growth poles have different strengths at different sizes. For example, considering a 20- minute driving buffer, Cluj-Napoca has both

the largest population and the highest share of firm revenues of the seven growth poles. Within a 40-minute driving buffer, Constanța dominates. At the 60-minute limit (both from the center city and from the city border), Timișoara ranks first in economic terms (with the largest share of firm revenues), while Craiova prevails in demographic terms (with the largest population in the area).

- **Policies adapted to the expected evolution of growth poles:** In most countries that have developed organically, cities follow a uniform distribution pattern, a statistical oddity known as the Zipf Rule or the Rank-Size Rule. The latest census data (2012) show that cities in Romania are realigning themselves around a city distribution that one would expect to see in a market economy, with the largest city followed by 1-2 cities of about half the population, then by 2-3 rank 3 cities of about a third the population, and so on. In particular, Cluj and Timișoara are emerging as Rank 2 cities behind București.

- **Planning for growth poles beyond defined metropolitan boundaries based on each area's economic growth potential:** Gravitational models show several potential con-urbations and growth corridors that could benefit from integrated planning and investments: București-Ploiești-Brașov; București-Pitești; the area framed by Iași, Botoșani, Suceava, Piatra Neamț, and Bacău; the area framed by Cluj-Napoca, Târgu-Mureș, Sibiu, and Alba-Iulia; and the Timișoara-Arad growth corridor.

- **Truly integrated programs:** Ideally, integrated development plans (IDPs) would include a comprehensive action plan, with a list of projects to be financed from the ROP, from other EU sources, as well as from the local and national budget. These programs should also explore ways to benefit larger metropolitan areas and multiple sectors to enable optimal synergies. In this sense, new instruments planned under the next EU programing exercise, such as Integrated Territorial Investments, should be utilized to ensure proper funding and implementation mechanisms for integrated programs.

- **Keep the same number of growth poles (if regions stay the same), but consider having different number of urban development poles:** A look at firm revenue data indicates that the current growth poles are indeed the main economic engines within their respective regions – each generating at least 20% of regional firm revenues. However, there is a larger number of cities than the current 13 urban development poles, which help regional growth. Thus, it may pay to consider designating all county capitals, outside the growth poles themselves, as urban development poles.

- **Consider the polarizing effect of București within the South Region:** All the data indicates that București has the strongest polarization effect within the South Region, and development planning for the South Region cannot be done with București outside the picture. An option

would also be to absorb the București-Ilfov Region within the South Region, and have București-Ploiești as the main regional growth corridor.

- **Design proper monitoring and evaluation mechanisms:** Finding the right indicators is critical both for the proper design of a growth poles policy and for monitoring the performance of such a policy. Ideally, these indicators would be easy to collect and easy to interpret. Two basic performance indicators that are collected annually are population and firm revenues, and they give a good base-line indication of an area's performance. A longer term performance review could make use of more complex and comprehensive composite indicators, such as the Local Human Development Index developed by Dumitru Sandu.

- **Designing robust governance structures for growth poles:** Institutional frameworks governing growth poles and ensuring implementation and monitoring of IDPs, should include both structures representing and mobilizing local communities' interest as well as specially designated regional/central support. More attention needs to be given to capacity building and generation of an enabling legal and regulatory environment for such institutions.

- **Consider alternative governance structures to IDAs:** It is obvious that the current IDA set-up has many shortcomings with respect to effective metropolitan governance. For one, center cities tend to dominate these associations. In addition: smaller localities lack the needed co-financing for truly metropolitan projects; politics often gets in the way of project implementation at the metropolitan level; and IDAs are primarily used as a vehicle for attracting ROP funds and nothing more. As such, national and local authorities may consider the establishment of metropolitan development agencies, which could draw on a very rich international experience, and on the good performance of the regional development agencies.

- **Ensure better policy correlations:** As growth poles are designed, essentially, as economic engines of the regions where they are located, growth poles policy should seek to correlate and build on economic development policies. Recent initiatives of the Ministry of Economy have illustrated interest in a territorial perspective over industrial policy and private sector support via clusters and poles of competitiveness. Such initiatives may complement the growth poles policy by providing the funding mechanisms and catalyzing the business environments in each growth pole.

In addition to these general principles and recommendations, the current report assesses each individual growth pole, focusing on three main areas: regional infrastructure, business environment, and spatial planning. With respect to the latter dimension, it is a fact that well-organized cities are more efficient, enable lower travel times to centers of activity, and create strong

premises for continued urban growth. For their part, regional infrastructure investments should aim to strengthen existing links (e.g., major commuting arteries) and to establish new links between places with large economic and demographic mass. As far as the business environment is concerned, ROP investments should primarily look at ways to encourage job creation and larger revenues. In addition to encouraging local economic engines, it is also critical to support economic diversity to be able to weather outside risks and global market changes.

The current report further performed calculations of location quotients for sectors represented locally in each growth pole, as well as a shift-share analysis for the years before and after the beginning of the global financial crisis. This allowed, at a preliminary level, to evaluate the health of local economies and identify those sectors with strong growth potential and, conversely, sectors with high risks in the future. Furthermore, local economic diversity was assessed using the Hachman Index to give an indication of the resilience of local growth engines. The last section of this report expands on the findings specific to each of the seven growth poles.

Introduction

1. This report looks at the growth poles policy in Romania to determine ways to increase its effectiveness and efficiency for the next programming cycle (2014-2020). The growth poles policy in Romania has been initiated in 2008, as a means to support a balanced economic development of the country, while still targeting investments to maximize economic impact. A total of seven growth poles have been designated and are currently supported as such, via an integrated development plan designed for each. (The current study will focus primarily on those seven growth poles. The 13 designated development poles and the urban centers will not be the subject of this analysis, although the report includes a short analysis of București).

2. The Ministry of Regional Development and Public Administration aims to evaluate the current policy content, its target areas (the growth poles) as well as its implementation instruments (the integrated development plans) in order to best prepare for a next set of strategic and programming documents framed under the EU Cohesion Policy and Europe 2020 Strategy.

3. In doing so, the Ministry seeks to assess the quality and effectiveness of the current policy setting, the appropriateness of its governance arrangements as well as the opportunity and relevance to continue this policy over the next programming cycle (and if so, in which way).

4. In an effort respond to all the above the Romanian Ministry of Regional Development and Public Administration (MRDPA) has engaged with the World Bank in a broader advisory services partnership implemented between 2012-2013. The current review is a result of this joint work.

5. The report is grouped into three main parts. The first part sets out the context of analysis, including a brief presentation of growth poles policy objectives as well as the European policy context and conceptual debates in which it is framed. The second part includes a set of recommendations regarding the growth poles policy for the next programming cycle (2014-2020). The third part includes an analysis of each of the growth poles, presenting specific recommendations for each.

6. The content of this work has built on extensive field trips in the country, meetings and discussions with representatives of different stakeholders involved in the design and implementation of the growth poles policy in Romania, including ministry representatives, regional development agencies, growth pole coordinators as well as local authorities.

7. The current work needs to be analyzed in conjunction with other reports drafted under the same project (i.e., review of growth poles integrated development plans, and the TRACE energy efficiency studies). Other reports prepared by the World Bank for the MRDPA are complementary to the present one, such as *Competitive Cities – Reshaping the Economic Geography of Romania* and *Enhanced Spatial Planning as a Precondition for Sustainable Development*.

PART I – Setting Out the Context

The First Growth Poles Policy

8. **The Ministry of Development, Public Works, and Housing (MDPWH) prepared the Romanian growth poles policy in March 2008**. This legislation was based on Law No. 351/2001, which set the framework for territorial planning in Romania. The policy designated the cities that could play the role of growth poles in their respective region.

9. **Law No. 315/2004 on regional development established eight development regions at the NUTS II statistical level, in accordance with EU regulations**. The same law laid down the objectives, institutional framework, competencies, and specific instruments necessary to promote the country's regional development policy, and created specific decision-making and executive bodies, at both regional and national levels.

10. **Each of the seven regions outside București-Ilfov has one growth pole**. These growth poles were deemed eligible for 50% of EU structural funds available for Priority axis 1 of the Regional Operational Programme, "Support to sustainable development of urban growth poles." Of course, București is the largest growth pole in Romania, but it was purposefully not included in the growth poles list, because the designated poles were meant to balance the weight of București in the national economy, in line with current EU-level thinking. This was formalized through Government Decision No. 998/2008, which chose the following seven growth poles: Brașov, Cluj-Napoca, Constanța, Craiova, Iași, Ploiești, and Timișoara.

11. **The way the growth poles were identified was relatively simple and straightforward**. In each of the seven regions outside București-Ilfov, the government selected the largest population center, which was usually also the largest economic center. These cities were among Rank 1 municipalities under Law No. 351/2001– i.e., municipalities of national importance, with a positive influence at the European level (outside the capital city of București, which is a Rank 0 municipality). Currently, there are a total of 11 Rank 1 municipalities in Romania: Bacău, Brașov, Brăila, Galați, Cluj-Napoca, Constanța, Craiova, Iași, Oradea, Ploiești, and Timișoara.

12. **The 2008 growth poles policy conducted a more in-depth analysis of all Rank 1 cities to determine those that would be best suited to serve as regional growth poles**. The analysis looked at: accessibility, the presence of higher education institutions, the quality and profile of scientific research institutions, demographics, and available medical services. Ultimately, this assessment showed that the largest cities were more economically prominent and benefitted from better, more developed public services.

13. **A more rigorous selection method was deployed to determine the cities that could serve as urban development poles**.[1] These were selected from among the Rank 1 and Rank 2 municipalities in Romania. As the table below shows, there are 91 Rank 2 cities in Romania, which increased the difficulty of selecting cities with optimal economic growth potential as urban development centers.

Table 1. Ranking of urban areas in Romania (according to Law 351/2001)

Rank	Locality type	Number of localities
0	Municipality, Capital	1
I	Municipality	11
II	Municipality	91
III	Town	217
Total urban localities		**320**

14. **Ultimately, authorities selected a total of 13 urban development poles**: Arad, Bacău, Brăila, Galați, Deva, Oradea, Pitești, Râmnicu-Vâlcea, Satu Mare, Baia Mare, Sibiu, Suceava, and Târgu-Mureș. The main criteria, listed below, were based on indicators from Law No. 351/2001, where they served to classify localities as towns (e.g., a minimum population of 5,000) or municipalities (e.g., a minimum population of 25,000). For each instance when a city passed the minimum threshold, it would receive a point. These points were tallied for all 17 indicators, and the highest-scoring 13 cities were selected as urban development centers.

Table 2. Criteria for selecting Urban Development Poles

Cod	Indicators	Minimum Value
1	Number of inhabitants	40,000
2	Population engaged in non-agricultural activities	85%
3	Housing units with running water	80%
4	Housing units with interior bathroom and WC	75%
5	Housing units with central heating	45%
6	Number of hospital beds per 1,000 people	10
7	Number of doctors per 1,000 people	2,3
8	Number of education units	Post-high school
9	Cultural and sports endowment	Auditoriums, theaters, music halls, public libraries, stadium, sports halls
10	Hotel beds	100
11	Modernized streets	60%
12	Streets with water distribution infrastructure	70%
13	Streets with sewage pipes	60%
14	Wastewater treatment	Connected to a wastewater treatment plant with mechanical and biological treatment
15	Streets with network of fire hydrants	70%
16	Green spaces (m^2/inhabitant)	15
17	Services by controlled landfill	

[1] Urban development poles are considered to be cities of regional importance, one level below the seven growth poles (considered to have national importance). They also receive dedicated EU structural funding under Axis 1 of the Regional Operational Programme.

15. **Compared to the indicators used in Law 351/2001 to designate towns and municipalities, only certain thresholds were different, such as the minimum population size** (40,000 for urban development poles, as opposed to 25,000 for municipalities and 5,000 for towns). Ultimately, the criteria appeared to favor the larger municipalities as urban development poles, although not always. For example, Deva made the cut over several larger cities like Buzău, Drobeta Turnu-Severin, Botoșani, or Piatra Neamț. It is not clear why the total number of urban development poles was limited to 13. Moreover, there are some critics who point to an imbalance in the geographic distribution of urban development poles, with a higher incidence in the Western region of Romania. [2]

16. **The 2008 growth poles policy does not specifically define the purpose of growth poles and urban development poles, but this issue is addressed by the final version of the Regional Operational Programme 2007-2013**. In that document, funding for growth poles, urban development poles, and other urban centers is meant to "increase the quality of life and to create jobs in cities by rehabilitating the urban infrastructure, improving services, including social services, as well as by developing business support structures and entrepreneurship."

17. **Moreover, the ROP 2007-2013 specifies that policymakers selected growth poles from each region to encourage balanced development across Romania.** More specifically, the argument is that encouraging the development of growth poles creates the premise for faster, more balanced long-term development. With greater concentration of resources and a whole range of corresponding agglomeration benefits, the welfare generated by these economic engines will eventually spill over to neighboring areas, and eventually to the entire region as a whole.

18. **Another positive feature of the growth poles policy is that funding is contingent on cities forming metropolitan areas and preparing integrated development plans**. Urban development rarely happens in a vacuum and cities are part of larger urban systems. For example, most cities draw their labor force, suppliers, distributors, and customers from a wider region around the main center of economic activity. As such, city planning should be integrated to also include peri-urban communities.

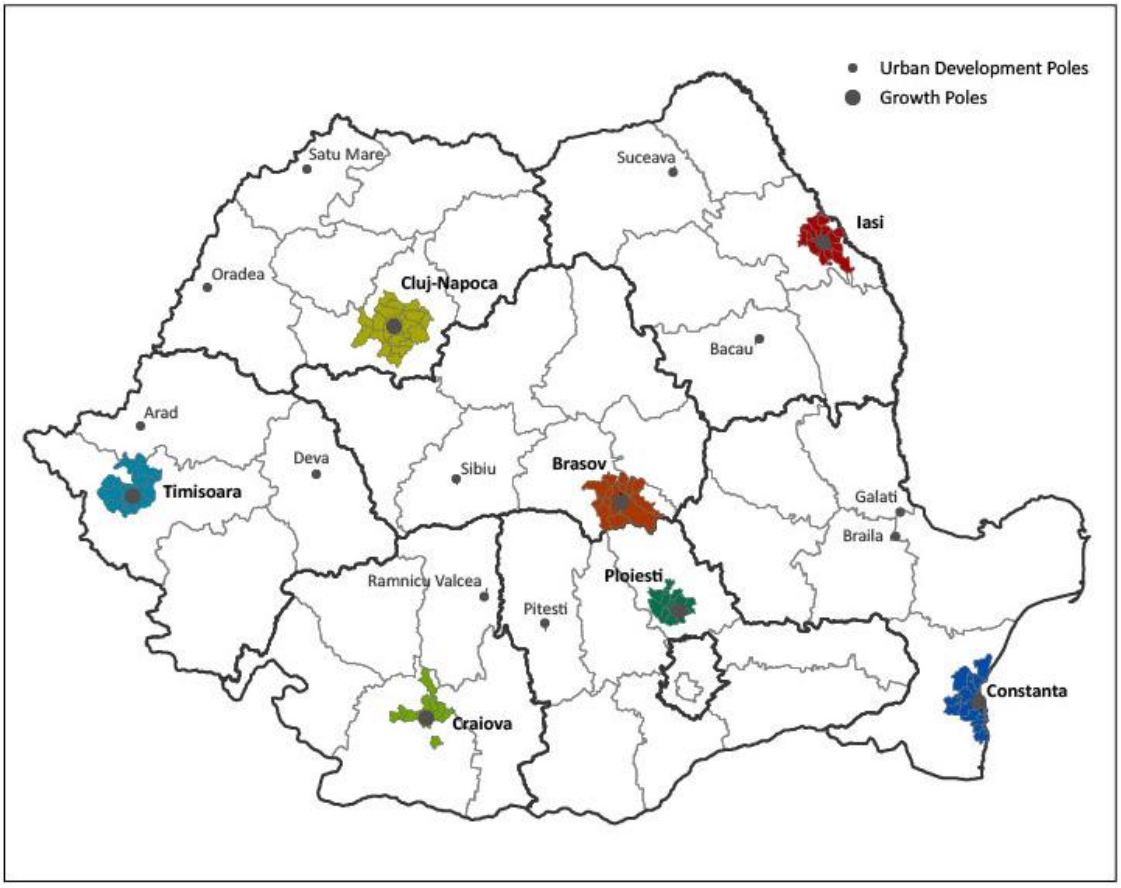
19. **While there is no formal metropolitan administrative tier in Romania, Law No. 351/2001 specifies that large urban areas can form voluntary agreements with surrounding localities that are 30 km away or closer**.[3] Law 215/2001 on local public administration specifies that local authorities can form inter-municipal associations to protect and promote their joint interests. All

[2] See for example Popa, Nicolae. 2010. The Growth Poles: a Balanced Option for Decentralization and Regional Development in Romania", *Revista Română de Geografie Politică, No. 2, pp. 206-226.*

[3] No specific details are provided on whether the 30 km area is measured from the city's center or from the outside boundary.

growth poles had to create such inter-municipal or metropolitan associations and prepare Integrated Development Plans (IDPs) to access dedicated EU structural funding.

Figure 1. Growth Poles and Urban Development



20. **One of the key elements that is missing from the 2008 growth poles policy is a more clear, in-depth understanding of how the designated growth poles can contribute to the general development of Romania** (i.e., where individual cities fall within Romania's overall regional development setting, and which of the seven cities is better positioned to become an economic engine for the country as a whole). At the same time, the focus on regions misses potential synergies that go beyond regional boundaries. For example, Brașov is the main economic engine for the Center Region, but its functional economic area spills over into the South-East and South Regions.

21. **Moreover, limiting the area of analysis and intervention to a 30 km buffer around the center of cities misses the fact that major urban agglomerations usually have even larger economic functional areas**. For example, the universities in Cluj-Napoca serve a much wider region, while the international airport functioning there attracts customers from all over Transylvania. As such, it is important to have a policy that looks at growth poles

within a larger spatial context to ensure that policymakers capture all available potential opportunities.

22. **The insufficient articulation of specific policy objectives and contribution to the overall economic competitiveness in Romania has also influenced the capacity of those engaged in growth poles policy implementation**, be it central or local authorities, to mobilize support and generate synergies to other policy initiatives. Local consultations revealed that the communication and awareness raising effort associated with the introduction of such a new policy has been under estimated. Integrated planning, thinking development at the level of functional areas, inter-municipal cooperation, polycentric development – these are all new approaches that need to be understood and assumed by local authorities forming growth poles areas. Such aspects require time, resources and deliberate efforts by the authorities pushing for the respective policies.

23. **Another missing element of the growth poles policy is a clearly laid out metric system, setting a monitoring and evaluation framework** on which the policy could be presented, in terms of baselines and objectives, and monitored as progress. Integrated development plans do contain in depth status analysis of growth pole areas, however the indicators used do not cover sufficiently aspects such as business environment, economic flows, commuting patterns, etc. Also, the indicators used are only partially reflecting milestones set by the EU strategic framework (namely Cohesion Policy or Europe 2020 Strategy), which makes it difficult to assess what is the contribution of the growth poles, and the respective policy, towards achieving broader nationally assumed targets.

24. **Indeed, the growth poles policy imposes significant challenges in terms of statistical infrastructures and data collection**, with most of statistical sources in the country focusing on economic and demographic indicators of a static nature, with few dynamic indicators (e.g. commuter flows). Successful policy design and implementation should equally consider aspects such as accurate assessment of needs, relevant and reliable set of data ensuring accountability, proper institutional framework, enabling legal environment as well as well objectives and milestones which are well communicated and assumed by all factors involved. The effectiveness of new policy initiatives in mobility, value chain optimization for increased competitiveness, energy efficiency and climate change require a rethinking of the role of data and improvements in statistical infrastructure and instruments.

Policy Impact – Are Growth Poles Really Growing?

25. **Whether growth poles do indeed live by their names is an important and relevant question to ask**, especially as a policy continuation is in discussion. However, as the growth poles policy has been issued in 2008 and project implementation commenced 2010-2011, it is too early to assess to what extend any growth pattern observed may be attributable to the growth poles policy instruments.

26. **In demographic terms, all growth poles have dramatically decreased in size over the last two decades.** In four cases the registered population drop exceeded 20% (Brașov, Constanța, Iași, and Ploiești). Only Cluj-Napoca and Timișoara have registered declines lower than the national average[4]. With no exception, the demographic decline has been less pronounced when zooming out at growth pole areas (see table below), with some even scoring positive trends. This finds explanations in suburbanization processes, changes in preference in terms of housing consumption, loss of attractiveness of central cities or decreasing number of jobs, caused by economic restructuring.

Table 3. Evolutions in demographic size of growth poles

	Territory	1992	2002	2012	% Change btw. 1992 and 2012	% Change btw. 2002 and 2012
1	Brașov City	325,057	285,712	227,961	-29.9%	-20.2%
	Brașov growth pole area	**450,143**	**407,992**	**340,108**	**-24.4%**	**-16.6%**
2	Cluj-Napoca City	320,345	297,014	309,136	-3.5%	4.1%
	Cluj-Napoca growth pole area	**386,893**	**364,903**	**392,562**	**1.5%**	**7.6%**
3	Constanța City	346,558	312,010	254,693	-26.5%	-18.4%
	Constanța growth pole area	**468,513**	**440,625**	**370,227**	**-21.0%**	**-16.0%**
4	Craiova City	301,486	300,487	243,765	-19.1%	-18.9%
	Craiova growth pole area	**327,753**	**325,237**	**267,356**	**-18.4%**	**-17.8%**
5	Iași City	337,854	303,714	263,410	-22.0%	-13.3%
	Iași growth pole area	**407,821**	**383,202**	**349,992**	**-14.2%**	**-8.7%**
6	Ploiești City	254,733	237,420	197,522	-22.5%	-16.8%
	Ploiești growth pole area	**374,265**	**355,600**	**311,480**	**-16.8%**	**-12.4%**
7	Timișoara City	325,704	308,765	304,467	-6.5%	-1.4%
	Timișoara growth pole area	**374,038**	**357,919**	**367,788**	**-1.7%**	**2.8%**
	Romania - total	**22,788,969**	**21,794,793**	**19,042,936**	**-16.4%**	**-12.6%**

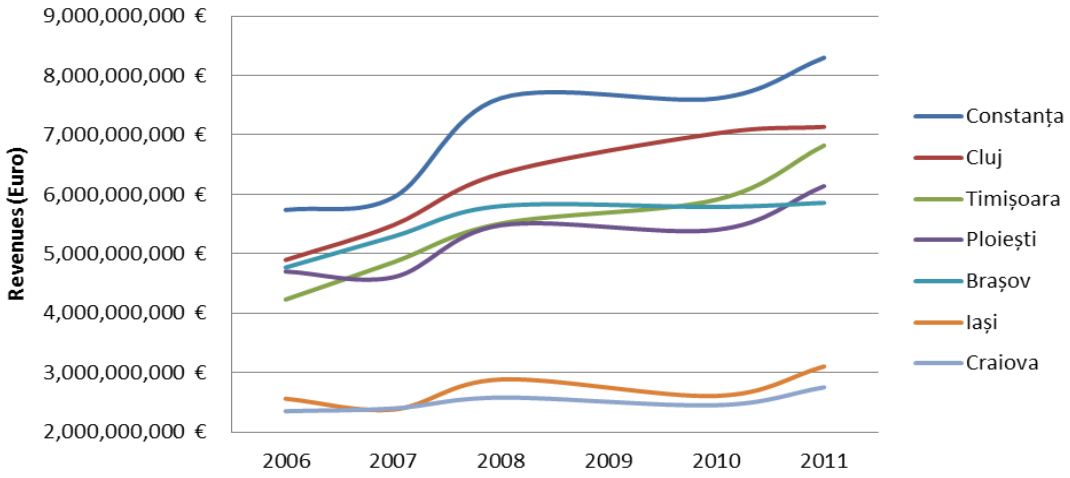
Data source: INS Tempo (1992, 2002), INS Preliminary Census data (2012)

Note: detailed demographic trends of all component localities are presented in Annex 1

27. **In terms of economic mass, all growth poles have had positive trends in terms of firm revenues generated within their respective areas**. The most significant evolution has been registered in the case of Timișoara, which moved from the 5th largest growth pole in 2006 to the 3rd largest one in 2011. The slowest development pace is recorded by Brașov, which almost stagnated between 2008 and 2011.

[4] Recently released final Census data indicate that Cluj-Napoca and Timișoara actually had growing populations, while the other growth poles still registered a net decrease.

Figure 2. Evolution of firm revenues in growth pole areas



Data source: ListăFirme

28. **Cluj-Napoca and Timișoara are the only two growth poles that seem to not have been affected by the 2008 crisis**. They are basically the only two growth poles that have registered continued growth from 2006 onward. They are also the only growth poles, along with Constanța, which have managed to grow faster than the national average (see table below). Taken together, the seven growth poles have had a poorer performance than the country as a whole. This can be explained by the fact that much of the growth in Romania is generated in and around the capital, București. As was shown in the *Competitive Cities* report, the only counties that have managed to keep the pace of growth with București are Timiș, Cluj, Sibiu, and Argeș (where the Dacia plant is located).

Table 4. Firm revenue growth in growth poles

Growth pole	(%) 2011/2008	(%) 2011/2006
Brașov	1%	19%
Cluj	12%	31%
Constanța	9%	31%
Craiova	7%	15%
Iași	8%	17%
Ploiești	12%	23%
Timișoara	24%	38%
România	**8%**	**28%**
All 7 Growth Poles	**11%**	**27%**

Data source: ListăFirme

29. **Of course, if the analysis is concentrated on the regions themselves, then all of the designated growth poles function as economic engines for their respective regions**. Nationally however, it is Timișoara and Cluj-Napoca that have set themselves apart as growth leaders along-side București. The economic

performance of Constanța is skewed by the oil refinery in Năvodari, which is responsible for a third of firm revenues within the Constanța growth pole.

30. **Evolutions in built up areas show the most significant growth pattern with Brașov, Cluj-Napoca and Craiova** expanding at a higher pace within the center city limits, while the other growth poles register, on average, a more dynamic peri-urban expansion.

Table 5. Evolution of built-up areas between 1992 and 2012

No.	Growth pole	Built up area growth of:	
		main city	peri-urban area
1	Brașov	24,2%	20,5%
2	Cluj Napoca	24,5%	15,2%
3	Constanța	7,2%	13,3%
4	Craiova	27,4%	12,8%
5	Iași	17,5%	19,6%
6	Ploiești	6,5%	19,2%
7	Timișoara	13,2%	24,2%

Data source: Author's calculations based GIS calculation on aerial maps from 1992, 2002, and 2012.
Note: detailed built-up area evolution of all component localities are presented in Annex 2

31. **Trends in built-up areas and demographic size reveal important messages to be considered when drafting a next growth pole policy**. The expansions of built-up areas suggest urban sprawl dynamics with several negative economic impacts (pressure on land resources, increasing costs for local roads, waste and utilities, transport needs and environmental degradation). For most poles, the demographic declines (especially pronounced in core cities) reveal shrinking urban areas profiles rather than growth areas. This asks for specific needs assessment instruments and policy interventions aiming at understating the causes and alleviating the impacts of such trends.

32. **Firm revenue analysis still reflects a positive trend which suggests that the situation is not that dramatic**. However, it is important to mention that growth in firm revenues has been a tendency recorded at the overall national level and only few of the poles registered a growth rate larger than the national average, as discussed above.

33. **As said earlier in this section, it is yet too early to determine the effectiveness of the growth poles policy.** By July 2013, only a handful of projects were finalized in all of the growth poles (the largest number in Brașov, Timișoara, Cluj-Napoca), and even these did not have enough time to show their impact. In fact these projects were thought of as parts of an integrated development plan, so their impact should be considered with the full project package in mind. In terms of absorption, all growth poles are relatively even, with around the full amount of allocated funds being contracted.

Table 6. Performance of the growth poles under the ROP 2007-2013 (by July 2013)

Growth Pole	Allocated Funds (ERDF and State Budget)	Projects submitted		Share of allocated funds	Contracted projects		Share of allocated funds
	Mil. EURO	Nr.	Value (Mil. EURO)	%	Nr.	Value (Mil. EURO)	%
Iasi	111.25	16	171.98	154.59	10	108.68	97.69
Constanţa	90.32	36	92.64	102.57	27	58.04	64.26
Ploieşti	97.00	16	121.58	125.34	14	93.19	96.07
Craiova	95.5	17	122.75	128.54	15	94.9	99.37
Timişoara	70.49	28	92.14	130.73	23	76.94	109.15
Cluj-Napoca	82.41	23	97.51	118.32	17	86.88	105.42
Braşov	74.3	26	95.44	128.45	23	76.16	102.50
TOTAL	**621.27**	**162**	**794.04**	**127.81**	**129**	**594.79**	**95.74**

Source: The Ministry of Regional Development and Public Administration

34. **The fact that the absorption of ROP funds still leaves to be desired has to do with the fact that the approach for Axis 1 of the ROP took some time to complete.** In particular, it took some time to draw up a growth poles policy, it took some time for the Inter-communal Development Associations to form, and it took some time for the Integrated Development Plans to be drafted.

35. **This report however is not an assessment of the performance of the growth poles under the ROP 2007-2013, but rather an analysis of the growth poles policy itself, of its relevance, and of the opportunity to continue this policy in the 2014-2020 programming period.** The following sections will discuss this in more detail.

36. **It is important to note though, that while the performance of the growth poles cannot be assessed right now, it is key to have monitoring mechanisms in place that track the effectiveness of ROP Axis 1 investments.** This requires on the one hand a good understanding of what kind of impact is expected, and a good understanding of how this impact can be achieved. These topics will be treated in more detail in the *Project Selection Models* report, with a number of concrete recommendations on how growth pole investments can achieve a high development impact.

A New Urban Systems Approach for Romania

37. **A new urban systems approach is currently being prepared by DG Regional Development**. It is expected to inform the way the growth poles policy will be drafted for the 2014-2020 programming period (if decision-makers will choose to continue with this policy). At this point, an early draft was available for preliminary feedback and analysis. The methodology used for categorizing cities is more refined than previously and also includes recommendations for the

allocation of resources for the next programming period. Some of the other key features of the new urban systems approach are described below.

38. **Notably, the new urban system draws significantly more from the EU's thinking on the subject**. While there are no formal urban system arrangements at the EU level (as the next section shows), there are a number of position and discussion papers that tackle the issue and present several frameworks for thinking about cities and categorizing them according to different criteria. Thus, the proposal for Romania's urban system now includes 8 categories of cities, within two large groups:

1. **METROPOLITAN POLES**
   - with international potential
   - with supra-regional and inter-regional potential
   - with regional potential
   - with limited regional potential

2. **URBAN POLES/URBAN CENTERS**
   - sub-regional with urban functional area potential
   - with zonal influence
   - with a specialized profile and diffuse territorial influence
   - of local importance

39. **The criteria for ranking cities in these different categories follow a number of indicators**. Population is once again one of the key indicators and metropolitan poles must have, generally, above 40,000 inhabitants. Other indicators look at key city features that may increase the center's attractiveness for people living in the area, the region, the country, and even beyond Romania's borders. Such indicators include: key administrative functions present in the city (e.g., the city is a county capital, drawing in people who seek to solve their administrative and fiscal issues); economic make-up (to determine whether the economic mass of the city is powerful enough to attract commuters from the surrounding area); accessibility (looking at the transport systems and infrastructure serving the city); presence of key public services (e.g., universities, large hospitals); presence of innovation centers; geographic position and distance relative to other cities; and the ranking from the National Spatial Plan (Section IV – Settlements Network, as approved by Law 351/2001).

40. **Acknowledging that merely classifying cities is not enough to help urban areas become more competitive, sustainable, and inclusive, DG Territorial Development (now DG Regional Development) has also established an investment profile for all these types of cities.** This is an attempt to outline some key ways for enhancing cities' roles and performance relative to the measured indicators. There has also been an attempt to prioritize investments based on their anticipated impact. For example, investments in higher education would make more sense in an established university center than in a small town with limited regional potential. Similarly, investing in public education infrastructure, such as primary schools and high schools, makes more sense in urban areas with more limited financial resources (e.g., cities in lagging areas)

than in established metropolitan poles that generate sufficient resources for investments locally.

41. **Still, dynamics in time are still insufficiently covered in this urban system assessment framework**. This may lead to failure of grasping valuable insights in terms of development trends and challenges foreseen, with an impact on the efficiency and effectiveness of policies and interventions proposed.

42. **In addition, DG Regional Development has looked at a number of key EU strategies that influence the prioritization of EU structural funds for the 2014-2020 programming period**. These strategies include: *The 2020 Strategy, the 2020 Territorial Agenda, the Leipzig Charter on Sustainable Urban Development.* The authors of the document indicate, however, that in addition to EU-level priorities it is critical to identify local priorities.

43. **In this respect, drafting a full-fledged urban development strategy for Romania would require close consultations with local stakeholders and an in-depth engagement of those people who will be directly affected by proposed measures.** This endeavor is complex, costly, and lengthy, requiring a mix of skills, capacity, and resources for successful implementation. Time, above all, can become the critical factor in this process, as 2014 is getting near. Despite such difficulties, DG Regional Development considers consultations to be most important for a proper planning of the 2014-2020 exercise.

44. **The preliminary analysis of key performance indicators and EU priorities has enabled DG Territorial Development to produce a menu of options for each of the 8 types of urban areas**. For example, for metropolitan poles with international potential, the authors consider that it may pay off to extend airport/port infrastructure, to develop inter-modal transport nodes, to rehabilitate transport infrastructure, to improve connections and accessibility to new industrial platforms, to rehabilitate and extend ring-roads, to develop and extend innovation centers/incubators, to promote centers of excellence in research and development, to develop industrial parks and business centers, to strengthen links between universities and private companies, to improve the quality of tertiary education, to fund scholarships and internships for students, to equip research labs, to modernize university campuses, to encourage the creation of new study majors, to equip hospitals, and to rehabilitate and equip cultural institutions. This is a long list of potential investments and, naturally, cities will need to ensure some degree of prioritization based on actual needs and potential impact.

45. **In drafting this list of potential projects, DG Regional Development has also looked at the preferences of local authorities.** Thus, they have compiled together the vision, objectives, and proposed projects included in the *integrated development plans* prepared by the growth poles. The integrated development plans are a precondition for accessing EU funds available under the Regional Operational Programme. As can be seen in the table below, transport projects

ranked highest on the list of preferences for most growth poles.[5] The list of preferences was followed by investments in business support infrastructure and urban development projects (e.g., investment in parks, pedestrian areas, rehabilitation of building exteriors, etc.). However, this ranking must be seen in the context whereby the Ministry of Regional Development and Public Administration has had a significant engagement in supporting local authorities in the process of drafting the IDPs. Actors involved in the elaboration process suggest that, for instance, a high ranking of business support centers has been pushed forward by the government authorities interested in reaching programming goals in this sense.

Table 7. Growth Poles funded projects under the ROP (in million RON)

	Braşov	Cluj-Napoca	Constanţa	Craiova	Iaşi	Ploieşti	Timişoara	**TOTAL**	% of TOTAL
Transport Infrastructure	161.6	220.6	33.7	377.4	457.7	43.9	88.7	**1,383.6**	37.54%
Business Support Centers		88.2	25.5	138.6	84.2		190.4	**526.9**	14.30%
Improvement of Urban Spaces	68.1	40.1	90	76.1		93.7	75.7	**443.7**	12.04%
Tourism Infrastructure	20		20.4	86.1	229.3			**355.8**	9.65%
Microenterprises	34.9	47.6	41.4	66.7	63.6	39.1	56.2	**349.5**	9.48%
Cultural Heritage	11		10.6	82.3	90.3	7.9		**202.1**	5.48%
Educational Infrastructure	14.8	13.1	8.3	71.1	66.5			**173.8**	4.72%
Social Services	26.3	26.3	20.7	18.3	10.6	21.2	6.7	**130.1**	3.53%
Health Services		5.9	33.6	34.5	3.1		7	**84.1**	2.28%
Tourism Promotion	7.1	5.4	6.6	3.8	2.8	10.4		**36.1**	0.98%
TOTAL	**343.8**	**447.2**	**290.8**	**954.9**	**1,008.1**	**216.2**	**424.7**	**3,685.7**	100.00%
% of TOTAL	9.33%	12.13%	7.89%	25.91%	27.35%	5.87%	11.52%	100.00%	

Source: Ministry of Regional Development and Tourism. 2012. *Posibilităţi de identificare a profilurilor investiţionale ale polilor metropolitani şi urbani (prima versiune de lucru, 5 septembrie 2012).*

46. **When developing the next set of integrated development plans, local authorities in the growth poles should study the lessons learned in the 2007-2013 Programming Period**. This includes both a look at what has worked well and less well, and an analysis of ways in which projects that were started in 2007-2013 can be carried on or enhanced in the 2014-2020 exercise.

[5] These figures need to be double-checked, as they do not always correspond to the figures included in the integrated development plans. For example, the IDP indicates a need of RON 536 million in ROP funding, and 71% of these seem transport-related. Also, not al IDPs have cost estimates for projects to be financed by the ROP.

The EC's Perspective and Policies on Urban Growth Poles

47. **It is important to note upfront that the EU has no legal basis for elaborating and implementing urban development policies**. Such measures are usually left at the discretion of individual Member States, following the principle of subsidiarity. Nonetheless, the EU has a long tradition in promoting and urban development and re-development and, as such, has played a major role in supporting cities to promote economic competitiveness and economic, social, and territorial cohesion. Many of these efforts have been part of the cohesion policy.

48. **At the same time, it is important to make a distinction between the urban development promoted by the European Commission under the Cohesion Policy, and the urban development promoted as part of inter-governmental cooperation** (e.g., Territorial Agenda, the European Spatial Development Perspective, etc.) At a basic level, two different models have shaped regional development policies over the last several decades. The first one revolves around the benefits of concentration around leading areas and growth poles, which in the long run spill over toward lagging areas, thereby increasing convergence. By contrast, the second model emphasizes the role of the state in promoting more even development across regions and addressing the negative externalities of agglomeration.

49. **The European Union (EU) has not adopted a single, "pure" model for regional development**. Generally, the EU prioritizes investments that aim to increase the convergence between Member States, both politically and economically. In that regard, the EU's success to date has been unprecedented. At the same time, since the 2000 Lisbon strategy, the EU has refocused some of its key efforts on prompting economic growth and competitiveness. As a 2009 report put it, "Regional Policy is no longer seen as a means to help regions catch up with the Union's average, important as this is. Competition is increasingly taking place along regional lines in the world market and successful regional economies are those that have become real players in global production networks."[6] Similarly, the first priority of the Territorial Agenda of the European Union 2020 (TA 2020) – adopted in 2011 as the key document guiding the EU's regional development effort – is to promote polycentric and balanced territorial development.[7] On the one hand, the TA 2020 notes the importance of major urban centers as drivers of economic growth in their regions and for the entire EU. At the same time, the TA 2020 also emphasizes the importance of developing smaller cities to reduce territorial polarization of economic performance. Such messages suggest that the EU's regional development framework has evolved with time toward a more complex mix of interventions targeting sustainable, balanced growth.

[6] http://ec.europa.eu/regional_policy/sources/docgener/presenta/international/external_en.pdf

[7] http://www.eu-territorial-agenda.eu/Reference%20Documents/Final%20TA2020.pdf

50. **This is also reflected in the EU's current cohesion policy, which has three objectives: convergence, regional competitiveness and employment, and European territorial cooperation**. Convergence still captures most of the EU's funding (€283.3 billion) and promotes balanced development by channeling structural funds toward regions where Gross Domestic Product (GDP) per capita is less than 75% of the EU's average. Under the convergence framework, the Cohesion Fund targets Member States with a Gross National Income (GNI) lower than 90% of the Community average. As for the second objective, competitiveness and employment, the EU dedicates a significantly smaller share of the total budget (16% vs. 81.5% for cohesion) and focuses on helping leading regions perform even better "with a view to creating a knock-on effect for the whole of the EU."[8] As such, both theoretical models of regional development, as described above, are present in the EU's current policies.

Framing the Growth Poles Policy within the framework of the Europe 2020 Strategy

51. **EU's Regional Policy must be seen in the broader perspective of Europe 2020 Strategy**. This sets a series of bold targets for all EU member states spanning employment, RDI, education and poverty as well as climate change and energy. Each member state assumes a set of national targets, as contribution to reaching the EU level targets (see table below).

Table 8. Romania and EU targets towards the Europe 2020 Strategy

	Employment rate (in %)	R&D in % of GDP	CO2 emission reduction targets (compared to 1990 levels)	Renewable energy	Energy efficiency – reduction of energy consumption in Mtoe	Early schoolleaving in %	Tertiary education in %	Reduction of population at risk of poverty or social exclusion in number of persons
Targets - RO	70%	2%	19%	24%	10 Mtoe	11.3%	26.7%	580,000
Current situation - RO	63.8% (2012)	0.48% (2011)	51.84% (2011 compared to 1990 levels)	20.79 (2012)	16.6 Mtoe (2012)	17.4 (2012)	21.8 (2012)	240,000 (2011 compared to 2008 levels)
Targets - EU	75%	3%	-20%	20%	368 Mtoe	10%	40%	20,000,000

Source: Romania – EU Partnership Agreement (2014-2020)

52. **The Europe 2020 Strategy is a commitment for growth to be "smart", through more effective investments in education, research and innovation; sustainable, thanks to a decisive move towards a low-carbon economy; and inclusive, with a strong emphasis on job creation and poverty reduction"**[9]. These three pillars are to be implemented by a set of seven flagship initiatives (Digital Agenda for Europe; Innovation Union; Youth on the Move;

[8] http://ec.europa.eu/regional_policy/how/index_en.cfm#2
[9] http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/index_en.htm

Resource Efficient Europe; An Industrial Policy for the Globalization Era; An Agenda for New Skills and Jobs and European Platform Against Poverty).

53. **While none of the initiatives above emphasize a specific territorial approach, all are significantly relevant for the potential as well as challenges posed by growth poles support policies**. For instance, Romanian growth poles are home to the country's largest and most performing higher education institutions. More than 80% of firms having RDI as a main activity (NACE class 72) are located in București, Cluj, Iași, Timiș and Brașov, which shows that RDI and higher education sectors record a high degree of spatial concentration. This indicates that growth poles investments can help reach policy objectives under the Innovation Union, Youth on the Move and/or the Agenda for New Skills and Jobs.

54. **Europe's 2020 energy efficiency and climate change targets are highly linked to the growth poles challenge of urban sprawl, intensifying transit in metropolitan areas, and increased energy consumption**. The Resource Efficient Europe initiative emphasizes the need to increase efficiency of the transport systems, with special attention to clean urban mobility and multimodal transport solutions. It also acknowledges that cities and urban areas consume up to 80% of energy, being seen as both "part of the problem and part of the solution to greater energy efficiency"[10]. Growth poles policy is well aligned to this Europe 2020 initiative by targeting investments where such challenges are most prominent.

55. **Last but not least, growth poles are best positioned to host industrial development initiatives.** It is the growth poles, and other places with large economic mass (such as București) where private companies can benefit most from externalities associated with agglomeration economies. Transport and business support investments via the growth poles policy may act as stimulus to new industrial developments as well as job growth.

56. **Finally, Romania's commitment to the Europe 2020 Strategy and setting the frame for the 2014-2020 programming cycle is detailed in the Romania – UE Partnership Agreement**, issued in a consultation version just before the date of the present report. The Romanian Government seized the opportunity offered by the introduction of new implementation instruments and budgetary approaches, by considering applying integrated territorial investments in growth pole areas, following a multi-fond approach.

Approaches to Regional Development

57. **At the level of individual Member States, each government has a unique approach to regional development, in line with contextual factors** (e.g., the specific governance and administration framework of each country). In countries like Bulgaria, Latvia, Greece, and to a lesser extent, Poland and

[10] http://ec.europa.eu/energy/publications/doc/2011_energy2020_en.pdf

Romania, the capital city dominates the economy with a significant share of the total GDP. A growing conversation has emerged around the benefits of concentrating resources only on capital cities versus encouraging the broader development of "second-tier cities" and their surrounding areas. In response, a few countries (e.g., the Czech Republic, Slovakia, and Romania) have adopted in recent years specific policies targeting major cities beyond the capital.

58. **As there is no single, universally accepted regional development model across EU Member States, the applicable terminology also varies**. For instance, a number of EU documents – particularly those issued by the European Observation Network for Territorial Development and Cohesion (ESPON), a program adopted by the European Commission in November 2007 – use the term "second-tier cities" over "growth poles," possibly because the latter can have multiple meanings at different levels (including, for instance, countries as growth poles of the global economy).[11] At the same time, the Regional Operational Programme, Priority Axis 1, clearly targets "urban growth poles" in those regions "with a lower level of development in terms of GDP and unemployment."[12] Ultimately, regardless of the preferred term, what is more noteworthy is the increased focus on urban agglomerations beyond the capital city as additional drivers of sustainable and inclusive growth in EU regions.

59. **The European Commission does acknowledge the importance of the urban dimension, and has stressed this both in the 2007-2013 Cohesion Policy and in the 2014-2020.** Most notably for the 2014-2020 Cohesion Policy, the EC puts an even stronger emphasis on urban development, and encourages countries to use integrated territorial investments for this purpose.

60. **Integrated Territorial Investments (ITI) are basically a new territorial development instrument, which allow the implementation of a territorial strategies in an integrated manner, with funding from at least two priority axes, from within one or more operational programmes.** Initially, the EC has recommended that at least 5% of EU funds (primarily the ERDF, the ESF, and the Cohesion Fund) be used for it is. This recommendation was not adopted in subsequent negotiations, but the general spirit remains. Generally, ITIs were designed for implementation in urban areas. Examples of territories where it is could be implemented include:

- metropolitan areas;
- urban systems formed by several close-by cities;
- neighborhoods with specific issues within large urban areas;
- a system of small cities;
- cross-boundary territories.

61. **The delineation of territories where it can be implemented has to take a number of factors into consideration.** On the one hand, the territory should

[11] Jonathon Adams-Kane and Jamus Jerome Lim, "Growth Poles and Multipolarity," The World Bank, June 2011, p.3
[12] http://ec.europa.eu/regional_policy/country/prordn/pdf.cfm?gv_PGM=1041&lan=7

have relatively homogeneous territorial characteristics. The delineation of such a territory should not necessarily follow administrative boundaries, but it should have an integrated development strategy. This means that there should be an administrative structure in place to manage it is, and this administrative structure should have a funding source. Financing for the management of ITI could be drawn from technical assistance funds (the way intermediary bodies are now funded in Romania), but should ideally have multiple sources of funding.

62. **Ideally, ITIs should not only be seen as an instrument for attracting EU funds, but as an instrument for leveraging territorial synergies and fostering regional development.** If it is only seen as a tool for attracting EU funds, the sustainability and efficiency of realized investments may be jeopardized. For example, a metropolitan transport system may be created to attract EU funds, and then be disbanded as soon as funds are not available anymore – or because operational and maintenance costs cannot be covered by constituent localities. Consequently, ITIs should come to serve more general needs of a defined territory, not just serve as a vehicle for leveraging EU funds.

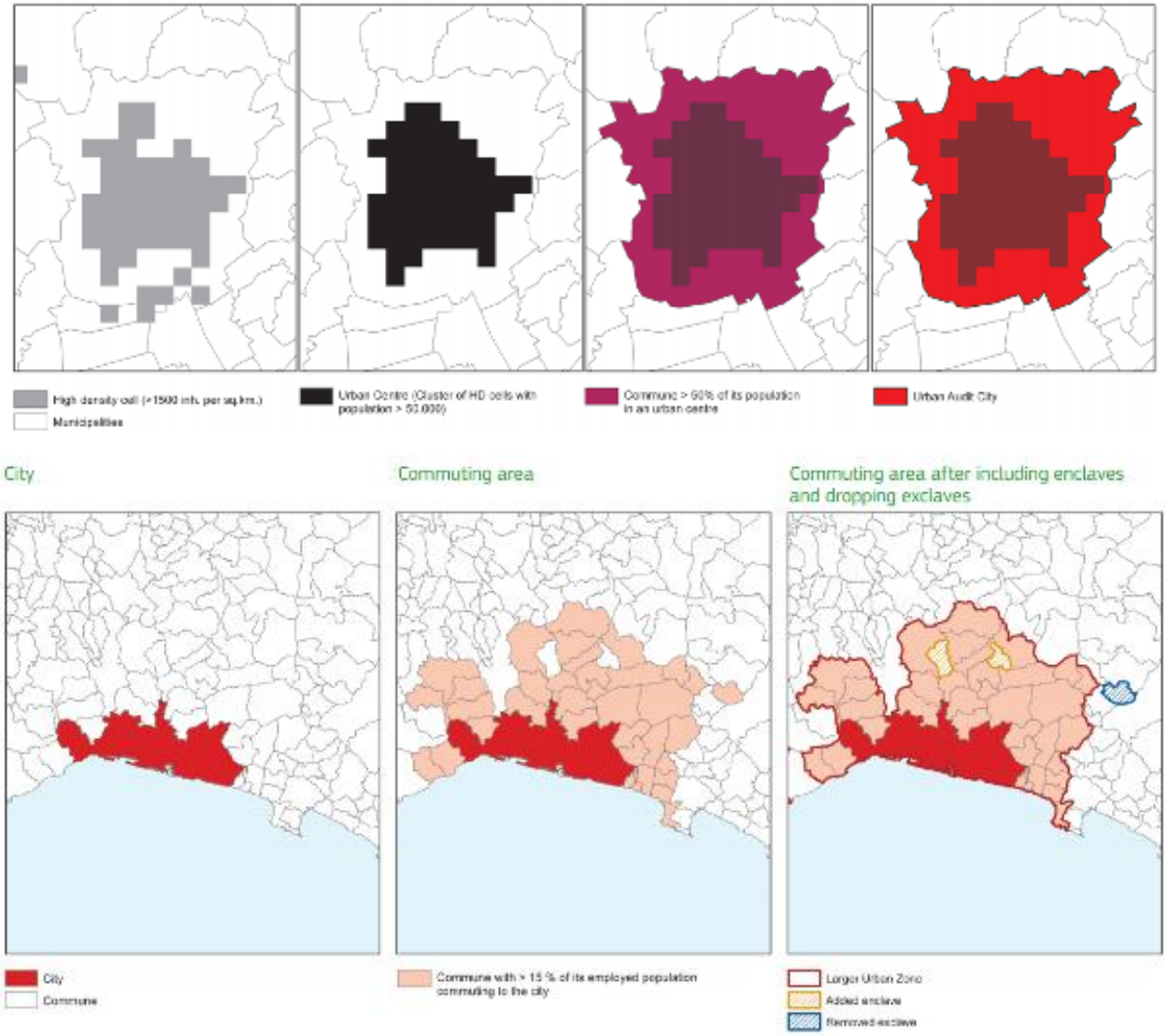
63. **The Ministry of Regional Development and Public Administration is working with the World Bank to develop an ITI instrument for the Danube Delta and one for the Constanța growth pole.** Particularly the ITI study for Constanța is hoped to provide an institutional management model which can then be taken over by other growth poles.

EU definitions of cities and surrounding areas

64. **The EU and the OECD have recently harmonized their definition of cities.**[13] Specifically, this new method entails several steps: select all grid cells with a density of over 1,500 inhabitants per square kilometer; cluster contiguous high-density cells, filling gaps using the majority rule iteratively, and keeping the urban center as only those clusters with a minimum population of 50,000; and select municipalities with at least half their population in the urban center to become part of the city. Further, the methodology also defines commuting zones as the result of the following procedure: identify all surrounding municipalities where at least 15% of the employed people work in the city; include municipalities surrounded by a single functional area and drop non-contiguous municipalities.

[13] http://ec.europa.eu/regional_policy/sources/docgener/focus/2012_01_city.pdf

Figure 3. How to define a city (Graz) and a commuting zone (Genova)



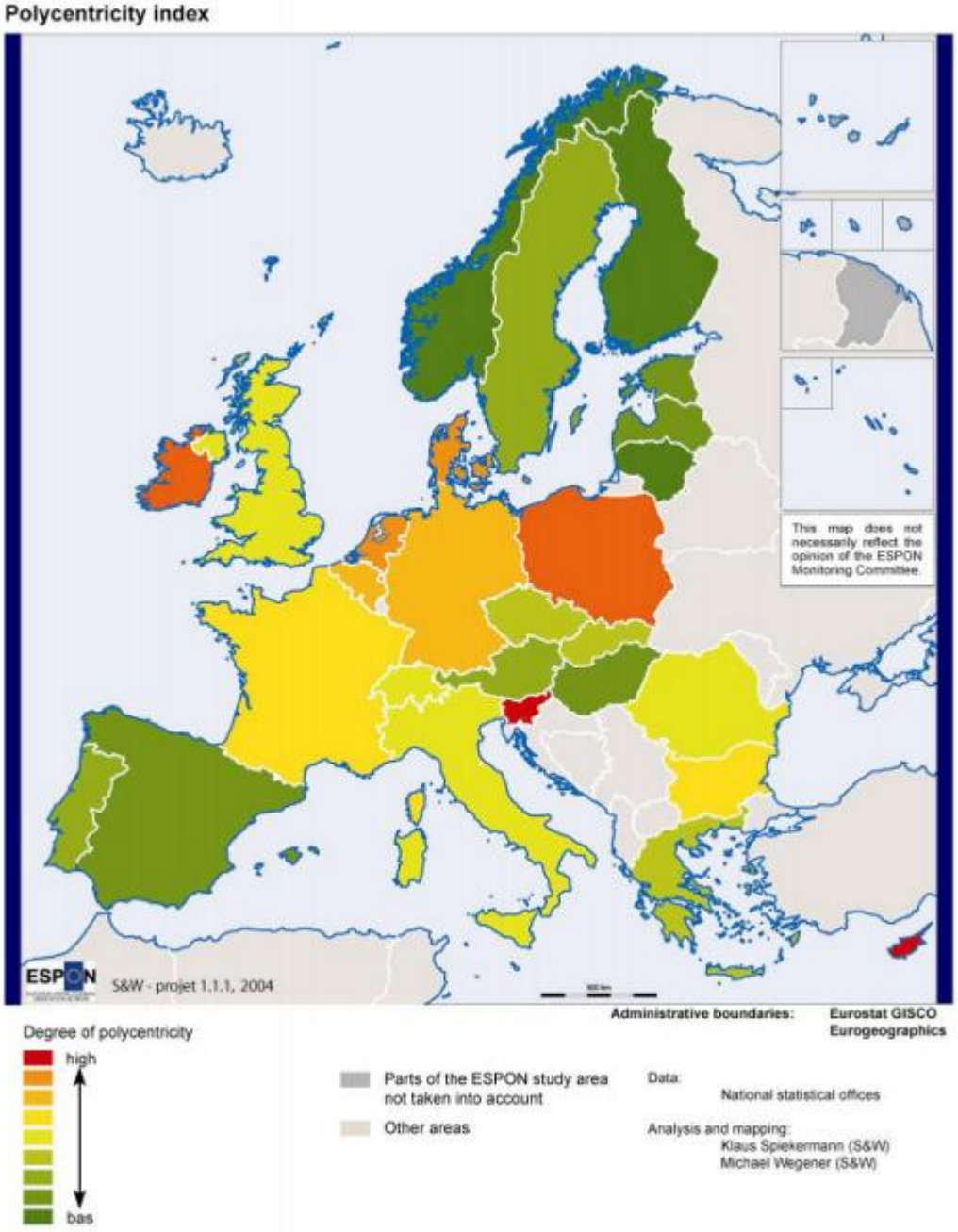
Source: http://ec.europa.eu/regional_policy/sources/docgener/focus/2012_01_city.pdf

65. **The terms "commuting zone," "metropolitan area," "larger urban zone (LUZ)," and "functional urban area (FUA)" generally refer to the same basic concept**. Specifically, they designate an area that is connected to the urban center in geographic and functional terms. In general, the EU defines metropolitan regions as "NUTS-3 regions or groupings of NUTS-3 regions representing all urban agglomerations of more than 250,000 inhabitants."[14]

14

http://ec.europa.eu/regional_policy/sources/docgener/focus/2009_01_metropolitan.pdf

Figure 4.Degree of polycentricity in national urban systems



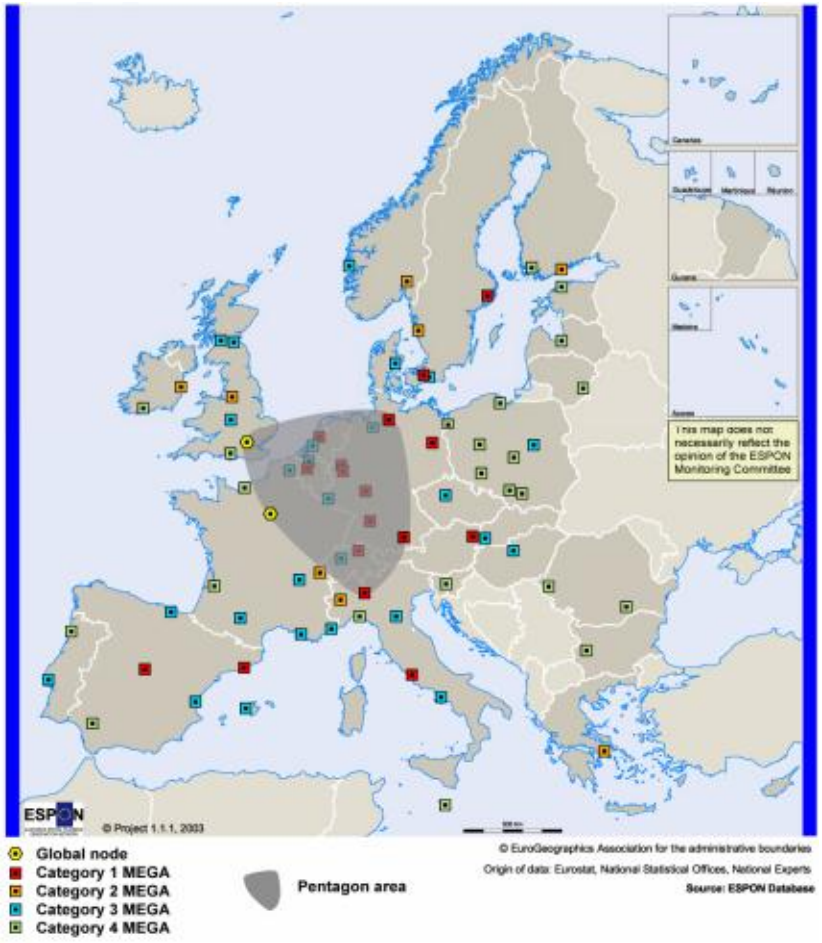
Source: ESPON 1.1.1

66. **Some studies, including Eurostat's Urban Audit, define larger urban zones (LUZ) based on the number of people commuting into the city and use administrative boundaries to approximate the functional urban region**.[15] The advantage of this method is typically the greater availability of data collected at

[15] http://www.urbanaudit.org/help.aspx

the locality level. The ESPON 2013 database, on the other hand, focuses on Functional Urban Areas (FUAs) and Morphological Urban Areas (MUAs), where FUAs are defined as "labor basins of MUAs, which are themselves defined as densely populated areas, all this independently from any national, administrative, or political definitions, but based instead on pure statistics."[16] In some sense, such data are richer and more insightful because they are not limited to administrative boundaries. The downside is that data collection is sometimes problematic; for instance, the ESPON 2013 did not have access to commuting data in Romania.

Figure 5.MEGA typology and the core "pentagon" growth area



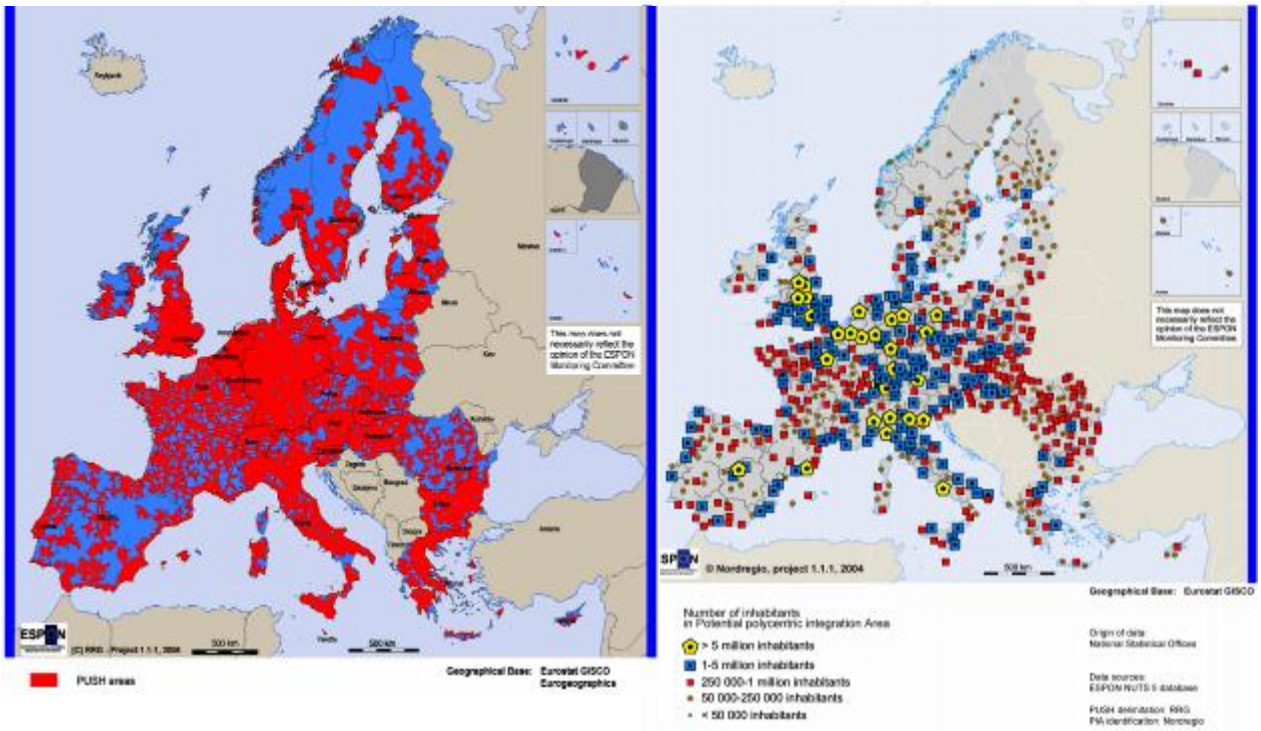
Source: ESPON 1.1.1

67. **In terms of exact methodologies to identify and categorize these different areas, there are no universally accepted thresholds at the EU level** (e.g., a set distance from the core city or a set share of commuters). In many

16 http://www.espon.eu/export/sites/default/Documents/ToolsandMaps/ESPON2013Database/3.7_TR-FUAs.pdf

cases, exceptions to the rules are allowed based on context-specific data. Arguably the most comprehensive study on the EU's polycentric development is ESPON 1.1.1, finalized in August 2004 and revised in March 2005. This study introduced and defined multiple key concepts at the EU level: functional urban areas (FUAs), metropolitan European growth areas (MEGAs), potential urban strategic horizons (PUSH), and polycentric integration areas (PIAs). First, FUAs in larger countries of over 10 million inhabitants are defined as "having an urban core of at least 15,000 inhabitants and over 50,000 in total population."[17] Interestingly, the study defines and scores polycentricity as a function of three elements: size of cities, location/distribution of centers, and connectivity.[18]

Figure 6.PUSH areas (left) and PIAs (right)



Source: ESPON 1.1.1

68. **Second, ESPON 1.1.1 ranks different functional urban areas across the EU on seven indicators: population; transport/connectivity; tourism; manufacturing; knowledge; decision-making in the private sector; and decision-making in the public sector**.[19] The 76 highest-ranking FUAs are identified as

[17] http://www.espon.eu/export/sites/default/Documents/Projects/ESPON2006Projects/ThematicProjects/Polycentricity/fr-1.1.1_revised-full.pdf

[18] These elements are similar, but not identical, to those referenced by the World Bank's World Development Report in 2009. Notably, division (defined as the "thickness" of borders between countries) is missing from the EU framework, but is also less relevant given the level of integration between Member States.

[19] The full list of specific indicators is found in ESPON 1.1.1 on pages 27-28. Among others, some examples include: slope of regression line of the rank-size distribution of FUA

Metropolitan European Growth Areas (MEGAs). There are four different categories of MEGAs based on: mass, competitiveness, connectivity, and knowledge basis.[20] Bucureşti and Timişoara are the only MEGAs in Romania and score as a Category 4 (lowest).

69. **Two related concepts are potential urban strategic horizons (PUSH) and polycentric integration areas (PIAs).** For each of the FUAs, ESPON 1.1.1 identified municipalities of which at least 10% of the area is within 45 minutes from the nearest FUA centers – essentially, these are PUSH areas around each FUA. Further, PIAs were delineated based on the premise that "neighboring cities with overlapping travel-to-work-areas can be functionally integrated and can gain from cooperation."[21] The basic principle underlying these typologies is that urban agglomerations across Europe stand to gain from planning and implementing projects that take advantage of opportunities to expand their economic mass.

70. **At the same time, a key insight of this brief analysis of EU-level thinking on regional and territorial development is that concepts and methodologies are constantly evolving.** For instance, a 2007 ESPON study on urban functions separates FUAs into large (over 250,000 inhabitants), medium (100,000-250,000 inhabitants), and small (more than 50,000 inhabitants). Very large FUAs (over 500,000 inhabitants) are labeled as metropolises, and conurbations of large FUAs can form poly-FUA structures. In terms of identifying morphological areas (MAs) of cities, criteria include: population higher than 20,000 or density above 650 inhabitants/square kilometer; contiguity (possible inclusions); and identity (possibly FUAs with multiple morphological areas). One implication of these different methodologies is that EU Member States have some flexibility in how they define, identify, and categorize major economic centers. Beyond criteria and thresholds *per se*, more important are the principles of regional development that place increasing focus on centers of growth beyond the capital city.

71. **One EU-level framework close to the "growth poles" concept, as defined in the Romanian context, refers to *second-tier* cities and their metro regions**. A 2011 summary of regional typologies used in the 5th Cohesion Report distinguishes between capital city regions, second-tier metro regions, and smaller metro regions. Second-tier metro regions are "clustered close to or just below the capital city in terms of their population size."

72. **In Romania, second-tier regions identified by ESPON were Cluj-Napoca, Timişoara, Craiova, Constanţa, and Iaşi**. Galaţi and Braşov were considered smaller-metro regions.[22] Interestingly, Ploieşti – the second most

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populations; GINI coefficient of the FUA accessibility; presence of university and number of students; presence of company headquarters; number of hotel beds, etc.

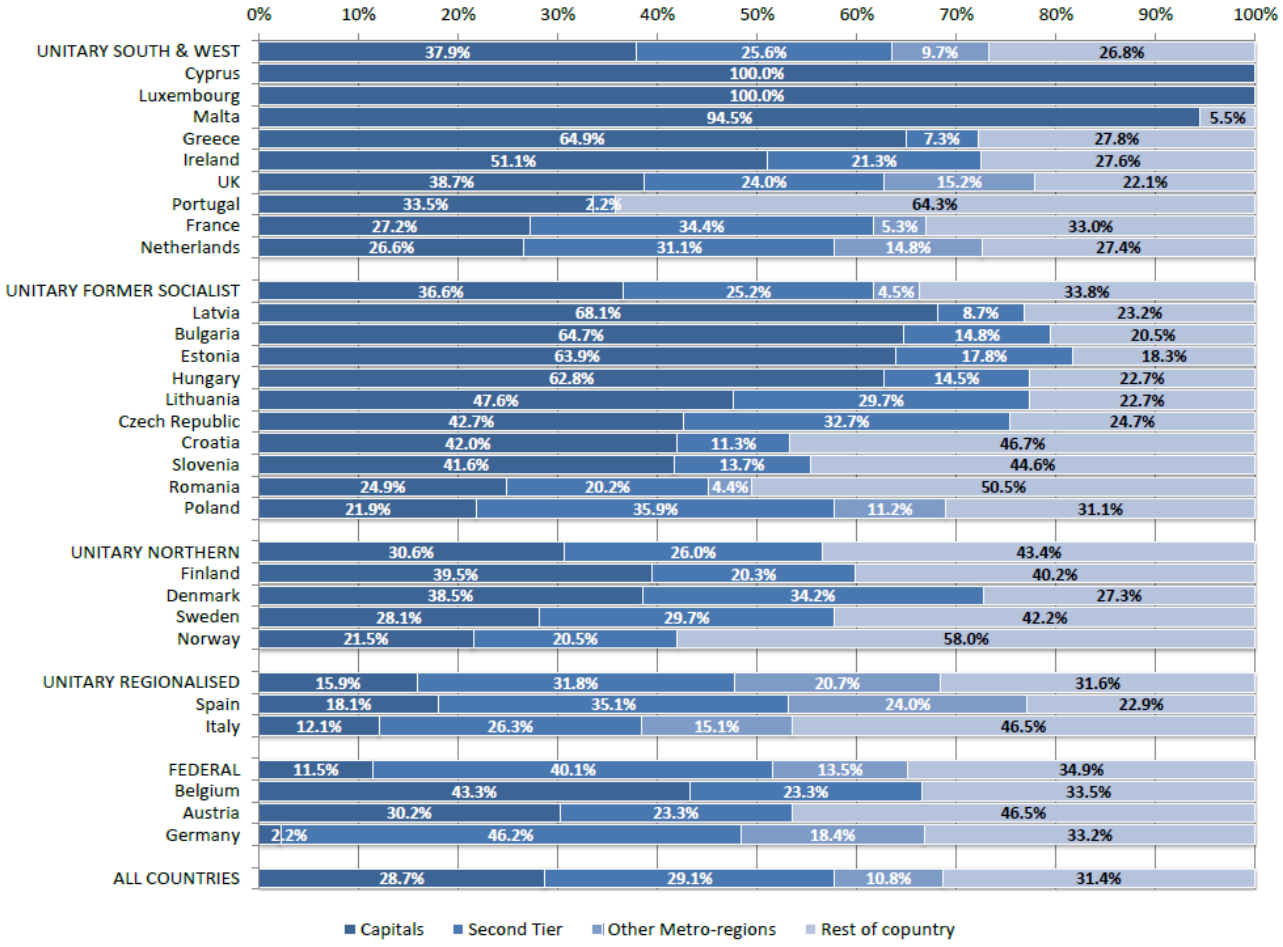
[20] *See* ESPON 1.1.1, p. 11

[21] *See* ESPON 1.1.1, p. 15

[22] http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/SGPTD/SGPTD_Final_Report_-_Final_Version_27.09.12.pdf

important growth pole in Romania based on the amount of EU assistance available through the ROP[23] – is missing from the ESPON list, probably because of its proximity to Bucureşti. Indeed, the main criterion used for identifying second-tier cities was based on their cumulative share of the total metropolitan population; since the București and Ploiești metropolitan areas overlap, this methodology effectively excludes Ploiești. Once again, however, this study shows that thresholds are flexible: based on feedback from experts, it includes four cities originally excluded – Edinburgh, Belfast, Genova, and Bologna. As before, the conclusion is that policymakers in EU Member States have flexibility in how they define second-tier cities (or growth poles, for that matter) and are neither formally nor informally bound by any EU-wide criteria or thresholds.

Figure 7.Share of growth in total GDP (%), 2000-2007



Sources: ESPON and Eurostat

73. **The sources of GDP growth in Europe, as the table above shows, are on average equally attributable to the capital city, on one hand, and second tier**

[23] http://www.fonduri-structurale.ro/detaliu.aspx?t=Stiri&eID=3512

cities, on the other hand. The ESPON study reveals wide differences between countries, with a more prominent role of capital cities in former socialist states but also in small unitary states (e.g., Cyprus, Malta, Luxembourg). Regionalized and federal state structures seem more conducive to a more balanced development. Within the block of former socialist states, Romania registers the lowest cumulated contribution of capital plus second tier cities to GDP growth. This may be linked to the fact that such cities have been most affected by economic restructuring but also reveal that Romania records a relatively balanced growth, from a territorial perspective. Overall, most other countries in the EU have more concentrated economies (i.e., a higher share of the overall GDP is generated by a few large cities) and seem to be more territorially un-balanced.

74. **As indicated in the *Competitive Cities Report,* the fact that imbalances between regions are growing is a sign that development is actually happening**. Economic growth is usually driven by a limited number of economic engines – i.e., growth poles. The fact that Romania is among the least developed EU countries, and the fact that it is one of the most territorially balanced countries, is a potential indication that regional discrepancies will grow in the future. In fact, as data in the *Competitive Cities* report has shown, the distance between București-Ilfov (the leading region in Romania) and the other regions has been continuously growing in the past years, and will probably continue to do so in the future. As such, the fact that Romania has a growth poles policy is a very good thing, particularly if we consider that this is not standard practice in the EU.

75. **The EU has yet to define comprehensive programs for supporting second-tier cities in its Member States**. The Romanian Regional Operational Programme is one of the few examples that specifically target funding at „growth poles" beyond the capital city. More broadly, one of ESPON's key messages to the European Commission is to „take second-tier cities and their leadership more seriously […] [because] many insist that *EU 2020* does not have a sufficiently explicit territorial focus and does not locate its targets or investment actions in particular places."[24] On the one hand, this suggests that Member States have more flexibility in terms of how they design regional development policies and specific programs to promote the growth of second-tier cities. On the other hand, many new EU members have inherited centralized systems with very prominent capital cities (see figure above). Given their lack of experience and the overall complexity of economic and governance challenges involved in supporting growth poles beyond the capital region, Member States could benefit from further EU assistance, not only in terms of financial resources, but also specialized expertise and knowledge sharing.

The Challenge of Institutional Frameworks

76. **The challenge of designing a proper institutional setting for governing growth pole areas has brought again in discussion the role and functionality of inter-municipal cooperation**. As seen in the broader EU context, the increased

[24] Ibid., p.60

interest and awareness of territorially functional areas spanning administrative borders and jurisdictions have necessitated the development of new territorial governance structures. Referring to the specific case of metropolitan areas, the challenge is even more important, as it involves the task of bridging the interests of urban and peri-urban authorities, as well as dealing with power imbalances.

77. **Inter-municipal cooperation is one of the institutional answers to the need of developing new forms of collective action and horizontal partnerships** among local authorities located in functional urban areas. Such structures are relatively new and innovative in the Romanian context and more needs to be done in terms of generating an enabling environment to enhance their functionality.

78. **In any case, it must be noted that inter-municipal cooperation represents just one section of territorial governance processes** that should also include complex forms of cooperation and public participation engaging equally public and private stakeholders.

79. **Growth poles in Romania have mixed governance implying both inter-municipal cooperation structures as well as delegated personnel within the Regional Development Agencies, both presented in the following**.

Legal framework setting out the growth pole governance structures

80. The institutional structure of growth poles is clarified by two regulatory acts, namely:

- GD 1513/2008 amending the GD 998/2008 designating the 7 growth poles;
- The tripartite agreements, corresponding to each growth poles, concluded between the Ministry of Regional Development and Tourism, the Ministry of Economy and Finance (through its Agency for Coordinating the Structural Instruments) and each Regional Development Agency of regions where growth poles are located.

81. **GD 1513 / 2008 introduces the necessity for each growth poles to be assigned a designated coordinator** that will oversee both the elaboration as well as the implementation of the integrated development plan. The attributions designated are as follows (Art. 4):

a) *Contributes to the elaboration and implementation of the integrated development plan corresponding to the growth pole;*
b) *Establishes a relation of permanent cooperation and consultation at central and local level with the institutions involved in the elaboration and implementation of the integrated development plan;*
c) *Takes part in the technical reunions organized during the elaboration and implementation processes of the integrated development plan;*
d) *Participates in the monitoring of the timeline for implementing the integrated development plan;*
e) *Elaborates regular reports and informative papers on the status of implementing the integrated development plan;*

The law also clarifies that the growth pole coordinator undertakes his/her activity in the regional development agency of the region where the respective growth pole is located.

82. **The second set of acts, namely the tripartite agreements, has been concluded following the provisions introduced by GD 1513/2008.** These agreements have been signed during 2009 having the same content for all 7 RDAs involved. Their role is to coordinate the rights and obligations of parties engaged as well as to clarify the inter-institutional cooperation procedure with regards to the selection and activity of pole coordinators. In this sense, the agreements set out the recruitment procedure, attributions, and funding sources corresponding to the activity of the pole coordinator. An extract list of the attributions of growth pole coordinators, as included in these tripartite protocols, is presented in Annex 3.

83. **An important provision of these agreements regards the leader of the growth pole** which is referred to as the president of the inter-municipal associative structure, which consists of an Inter-communal Development Association (IDA) constituted at the level of the growth pole. The growth pole coordinator is required to establish a permanent collaboration and consultation process with the growth pole leader. However, no further comments or provisions are made with reference to the role of IDAs in these agreements. In essence, it is the IDAs that are in charge of implementing projects and policies at the level of growth poles, and their roles and attributions should be much better defined.

Legal framework setting out the functioning of IDAs in Romania

84. **IDAs are, according to Law 215 on 2001 on the local public administration "cooperation structures**, with own juridical personality, governed by private law, established by territorial administrative units for the joint execution of development projects of regional or local interest or joint provision of public services". The IDAs are by default given the status of associations of public utility. This further grants the IDAs the right to be endowed public goods, for free use.

The law of local public administration defines two distinct types of IDAs, namely:

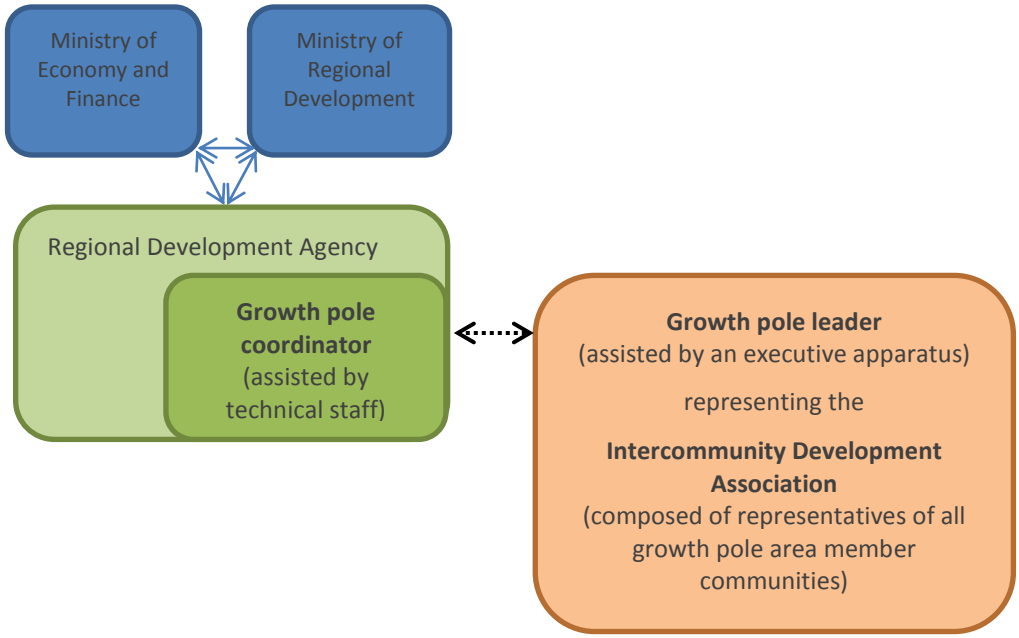
a) Urban agglomerations, referring to IDAs based on partnership between municipalities or towns with the peri-urban territorial administrative units;
b) Metropolitan areas, representing IDAs based on partnership between rank 0 (the capital București) or rank I cities and their peri-urban territorial administrative units (TAUs).

As all growth pole central cities are rank I cities, the IDAs gathering all localities included in growth pole areas should, by consequence, fall under the latter category.

85. **The IDAs are governed by an "administration council"** composed of representatives designated by all member territorial administrative units. This administration council can set up a technical apparatus whose functioning should be funded by own IDAs resources. The responsibilities of both these governing bodies are to be set out in the statutory acts of the IDAs.

86. **Although it is the Law 215/2001 that introduces the possibility for territorial administrative units to partner and forms IDAs, the actual functioning provisions are those by Government Ordinance 26/2000 on associations and foundations, as for all non-profit entities in Romania**. This aspect applies to the provisions regarding funding mechanisms as well. According to Law 215/2001, the IDAs can be funded by "contributions from the local budgets of member TAU, as well as from other sources, according to the law (Art. 11^1). However, no further specific provisions regarding IDA funding are included in other distinct laws, except for those which apply to all associations (Government Ordinance 26/2000). In brief, these consist of donations; resources form the state/local budgets, member contributions, dividends or other alike.

Figure 8. Governance structure of growth poles



87. **The current legal framework does acknowledge the need for central authorities to stimulate and support inter-municipal cooperation, however no significant funding mechanism and program has been implemented so far in this sense.** More specifically, Law 215/2001 provides that the government is mandated to stimulate and support the "association of territorial administrative units through national development programs [...] funded annually by the state budget and directly stipulated in the Ministry of Administration and Internal Affairs, complying to the law of local public finance" (Art. 12, Pc. 2). Adding to

this, Law 51/2006 on public services stipulates that "national and territorial administrative structures for regional development, together with non-governmental associations of local public administration will support and encourage the formation of inter-communal development associations" (Art. 10, Pc. 9). These are very important provisions as we shall see in the following that institutional sustainability is all reliant on the design and implementation of proper funding mechanisms.

88. To sum up, the governance structure looks as in the figure below, with the mention that no hierarchical ratios are formally set between the growth pole coordinator and the growth pole leader.

Growth pole coordinators

89. **The activity of growth pole coordinators has been supported by Regional Development Agencies**, with the use of funds obtained from the Operational Program of Technical Assistance. Growth pole technical assistance projects, coordinated by growth pole coordinators, have mostly commenced during 2010, with the exception of Cluj, where the technical assistance commenced in 2011.

90. **These funds have been generally allocated to finance the salaries of the growth pole coordinator and of a technical team of four**. General activities include monitoring of IDP implementation, different short term expertise necessary to cope with different challenges incurred during IDP implementation, office costs, events, best practice exchange visits, etc. The projects have been elaborated and submitted for funding by each of the RDAs.

Table 9. Technical assistance projects supporting the activity of growth pole coordinators offices

No	Growth Pole	Total budget requested (in RON)	Total eligible expenses (in RON)	Total solicited and approved eligible expenses (up to May 2013)	%
1	*Brașov*	3.579.459	3.262.309	1.340.961	41,10
2	Cluj	2.583.310	2.386.080	696.781	29,20
3	*Constanța*	4.044.874	3.629.125	1.536.389	42,33
4	Craiova	2.324.990	2.087.881	813.721	38,97
5	*Iași*	3.462.592	3.109.660	1.354.182	43,55
6	*Ploiești*	4.058.816	3.626.877	1.451.426	40,02
7	Timișoara	1.776.405	1.650.491	622.362	37,71

Source: data processed from www.poat.ro, valid by May 2013
Note: in italic - the growth poles that do not correspond with the location of the main headquarters of RDAs.

91. **The differences between budgets requested (as noted in the table above) are significant**. A share of extra costs may be attributed to setting up a growth pole coordinator's office in cases where this could not be arranged at the RDAs main offices. However, this cannot explain the full scale of variation and indicates that some RDAs had set from start broader expectations with regards to capacity and activities required.

92. **The majority of growth pole coordinators have been recruited from within the RDAs own personnel**, with the exception of Constanța, Ploiești and Brașov, where the coordinators came from within city hall administrations within the growth pole areas or from within other local institutions.

93. **Discussion with growth pole coordinators offices have shown a general perception that resources are scarce and more can/could have been done with more funds**. For instance training as well as best practice exchange among the growth pole coordinators has been noted as one of the aspects that needs improvement.

The growth pole leaders

94. **The growth pole leaders are presidents of the growth pole area IDAs and in most cases they are the mayor of the main city**. Their time and effort dedicated to IDA matters certainly depends on the executive capacity that supports their function. In this sense, an analysis of IDA performance indicators is highly relevant and data illustrate striking differences between growth poles.

Table 10. Performance Indicators of Growth Poles IDAs

No	Growth pole	Name of IDA	Year of establishment	No of employees (full time contracts)	Total revenues (RON)	Total expenditure (RON)	Fixed assets (RON)
1	Brașov	Metropolitan Agency for Sustainable Development Brașov	2006	25	2.937.098	2.908.505	738.195
2	Cluj Napoca	Intercommunity Development Association Cluj Metropolitan Area	2008			*no balance sheet recorded*	
3	Craiova	Intercommunity Development Association Craiova Metropolitan Area	2009	3	62	67.679	-
4	Constanța	Intercommunity Development Association Constanța Metropolitan Area	2007	14	2.170.595	1.912.124	40.942
5	Iași	Iași Metropolitan Area Association	2004	7	697.468	733.072	4.828
6	Ploiești	Intercommunity Development Association "Ploiești-Prahova Growth Pole"	2009	8	733.606	568.477	34.154
7	Timișoara	Intercommunity Development Association "Timișoara Growth Pole"	2009	-	7.071	15.472	7.770

Source of data: MFinante.ro, as per the last reporting documents recorded (2011)

95. **Some of the growth pole area IDAs have been established before the ordinance designating the growth poles policy was issued** (e.g. Iași, Brașov), while others have been set up after the ordinance and this is reflected in the denomination chosen (e.g., Ploiești Growth Pole, Timișoara Growth Pole). Transparency also largely differs. While some IDAs have their own individual websites, posting organizational structures, personnel, statutory acts or even annual reports (as in the case of Iași), others are only to be found as mentions in different articles or on different other websites (e.g., of the RDA, growth pole coordinator section, etc.).

96. **In general, the IDAs consist of:**

- A general assembly composed of mayors (or other designated representatives) of all component cities and communes.
- The president of the general assembly, who is generally the mayor of the growth pole central city.
- An executive apparatus run by an executive director.

97. **In some cases, the IDAs succeeded to access funds for capacity development**. For instance, the Iași Metropolitan Area Association has finalized in 2012 the implementation of the "Qualified personnel for an efficient administration in Iași Metropolitan Area" project (SMIS 15893), funded via the Operational Program Increased Administrative Capacity. The project has even been declared a best practice by the Managing Authority.[25]

98. **Common collaborative initiatives among metropolitan areas (including growth pole areas) have long been discussed** (even since before 2008, when the growth pole ordinance has been issued). Eventually, the National Federation of Metropolitan Areas and Urban Agglomerations in Romania (FZMAUR) has been formed and a first project has already been initiated (POLICENTRIC). Not all growth pole IDAs are represented in FZMAUR, which reflects once again the different levels of capacity and engagement of these organizations.

99. **The capacity of IDAs does correlate with the number of IDP projects addressing localities other than the central city of growth pole areas and also the number of projects with direct IDAs engagement, as beneficiary** (see Annex 4). This indicates that the exercise of partnership and gradual increase in IDA capacities may be the solution for addressing the excessive concentration of IDP initiatives within growth pole central cities.

100. **However, the exercise of partnership when partners engage from very different power positions is a difficult task**. This requires effort, demonstrative projects showcasing advantages of collaboration, and dedicated personnel. While the central government, as seen in the previous section, is mandated to support the formation and functioning of such structures, no significant and systemic initiatives in this sense have been recorded.

[25] http://zmi.ro/prezentare/index.html.

International experience

101. **When it comes to inter-communal cooperation, the most frequently mentioned country is France, this being also the example followed when first such structures were created in Romania**. Inter-communal structures date in France since the late 19th century, when the possibility of creating a single-purpose inter-communal structure was first established. The latest legal framework improvements are marked by the Chevènement law (1999), which is perceived as having greatly simplified and improved inter-communal structures.

102. **The Chevènement law has established two types of inter-communal structures**, defining their attributions as well as designing a series of funding mechanisms that could both support their financial sustainability as well as act as stimulating factor for local authorities to partner in such structures. Inter-communal structures in France as thus divided in:

- Structures lacking fiscal attributions, which are considered the simplest form of inter-communal structures having one or multiple purpose vocations.
- Structures with own fiscal attributions, composed of three sub-categories:
    1. Communities of Communes (composed of mainly rural localities);
    2. Communities of Agglomerations (aimed at small and medium cities with their peri-urban localities); and,
    3. Urban Communities (targeting larger cities and their peri-urban localities).

103. **The Chevènement has been deemed very successful, as in less than 10 years, the vast majority of rural and urban communities in France had joined such a structure**. On January 1st 2008 there were 2,583 registered inter-communal structures with own fiscal attributions, 92% of all city halls having joined such a structure[26]. It is the particular case of urban communities that is of interest for the current analysis, as it sets the frame of how metropolitan areas are being governed in France. These regard the largest functional urban areas of France (recommended to have a population of a minimum 500,000 inhabitants) except for Paris. Currently there are 15 such structures in France, however only 6 of them complying with the minim population threshold (Lyon, Lille, Marseille, Bordeaux, Toulouse, and Nantes).

104. **Inter-communal structures can retain competences in several fields that were initially in the mandate of constituting localities** (such as drafting local economic development strategies, implementing housing or environment protection projects). The type or attributions assigned to an inter-communal structure is clearly set by law and depends on its category. Urban Communities, for example, take over several attributions in different intervention fields, which leads to a diminishment of the autonomy of composing localities. This is a critical aspect which is not regulated in Romanian legislation and implies the more or

[26] *L'intercommunalite en question*, David Gueranger, La documentation francaise, No. 951-951, August – Septembrie 2008: Paris.

less symbolic role of IDAs. The principle is rather straightforward – the purpose/joint activity for why such structures are beneficial should be jointly delegated by each composing locality to the IDA and not retained in parallel by both the IDA and its members.

105. **Localities within Urban Communities in France are required to share the following competences**: spatial planning; social, economic and cultural development planning; housing; management of services of collective use (e.g., waste management); and, environment protection.

106. **Another critical aspect left uncovered in the Romanian framework legislation is the engagement of central governments in stimulating and funding IDAs**. The French Government offers subventions to IDAs based on the number of inhabitants in order to stimulate the formations of such structures. The subventions vary depending on the type of IDA and are indirectly proportional with the level of autonomy retained by the constituent members. In this sense, the largest subventions are offered to the Urban Communities so as to encourage the formation of such structures even though they imply limitations in competences and autonomy. This is an acknowledgement of the challenge of partnership between local authorities, as politically-led governing bodies, and bridging power ratios among communities of very different scale within a metropolitan area.

107. **Adding to this funding incentives, IDAs with own fiscal attributions can charge taxes directly on residents of constituent members**, supplementary to those already levied by the member city halls or can opt for a single professional tax. One again, the degree of fiscal power depends on the type of IDAs and Urban Communities have the right to levy more taxes straight from residents without the intermediation of constituent city halls.

108. **With no specifically designated funding instruments and incentives, other than those accessible by regular civil society organizations, and lacking also the mandate to resume specific public services/functions, the IDAs in Romania are deemed to have a largely symbolic role**. This is not to ignore the successful experience of different IDAs in Romania, however the projects implemented so far have had a rather soft nature and the potential of such structures has certainly not been fully exploited.

109. **It may pay, as mentioned earlier, to consider the establishment of growth pole development agencies.** Such an agency would take on the lead role for the implementation of projects at the metropolitan level, and funding could be assured from EU sources, from the state budget, and from the local budgets of the constituent localities.

Correlation with Other Sectoral and Spatial Policies

110. **Romania's Growth Poles Policy cannot be planned in a vacuum – it has to be correlated with other sectoral policies.** As a start, given that cities are the economic growth engines in almost every economy, any national or regional development strategy should also include a component on urban development. Similarly, it is cities that generate some of the largest environmental and social problems, and where targeted environmental and social strategies/policies can have the biggest impact.

111. **The fact that cities are paramount to economic development does not necessarily mean that all development strategies squarely address this issue.** The following discussion will include a quick overview of some relevant national and supra-national strategies/policies/plans that may inform a Growth Poles Policy.

112. **The Position of the Commission Services on the development of Partnership Agreement programmes in Romania for the period 2014-2020 acknowledges the importance of growth poles in generating growth and jobs.** The Position Paper indicates that better accessibility to growth poles also translates into better accessibility to opportunities. The easier it will be to access these growth poles, the more people will have access to jobs that ted to concentrate in larger cities. Furthermore, the more cities grow, the more attractive they become to potential investors.

Correlations with national strategic and spatial planning documents

113. **At the national level, the framework development document is the National Development Plan.** The Plan for 2014-2020 has not be released officially yet, but the Plan for 2007-2013 directly discusses urban development issues and also has a section dedicated squarely to spatial and territorial planning. It will be useful to include an in-depth discussion of the urban dimension in the next iteration of the Plan.

114. **The National Sustainable Development Strategy 2013-2020-2030 also lends a particularly significant importance to cities.** It not only acknowledges the potential of cities to drive gains in energy efficiency and pollution reduction, but it also has a special section that deals with spatial and territorial development issues.

115. **The National Spatial Plan (NTDP) is one of the key documents informing the drafting of a growth poles policy for Romania.** Section IV of the plan (on the Settlement Network) creates an urban hierarchy for the country and provided some of the key elements used for selecting the growth poles for the 2007-2013. Given the recent changes in Romania in recent year (pre- and post-Crisis), it is imperative, however, that this section of the NSP be revised. Another section of the NSP that has great relevance for the Growth Poles is Section I (on

the National Transport Network). This section draws the proposed highway and express network for the country and it strategically links growth poles to each other, to other places of important in and outside the country.

116. **The Ministry of European Funds serves a key coordinating function for all EU funded programs.** One of the main attributions of the Ministry of European Funds is to ensure that EU investments are done in a complementary and coherent way. This role applies to growth pole investments too, as it is set out in Government Ordinance 998/2009.

117. **Most importantly, the regional development strategies and plans that are now being developed by the Regional Development Agencies for the 2014-2020 Programming Period, strongly emphasize the urban dimension.** These plans reflect the development needs of individual regions, as identified by regional, county, and local authorities (as well as other vested stakeholders), and provide a key thrust for the next phase of the growth poles policy.

Correlation with economic development policy

118. **From a conceptual perspective, the growth pole policy correlates with some key precepts of the new economic geography,** whereby economic agents tend to agglomerate in different geographical areas to benefit from positive externalities of geographic proximity. In this sense, the cities selected as growth poles can be seen as those which record the largest economic agglomerations in the country (not counting, of course, the capital).

119. **In parallel to the growth pole policy, the Ministry of Economy has initiated its first endeavor for supporting industrial agglomerations** consisting of companies and RDI institutions, in the form of poles of competitiveness and clusters. This initiative has been operationalized via two designated funding lines under the Sectoral Operational Program Increased Economic Competitiveness, namely ”Development of national and international business support structures – Poles of Competitiveness” (Operation no. 131) and ”Support for the integration of enterprises in supply chains and clusters” (Operation no. 133).

120. **The Ministry of Economy has defined clusters and poles of competitiveness in a similar way**, as representing networks of companies, RDI institutions and other catalyzing organizations, situated in a certain geographical area and undergoing collective business development and innovation initiatives. The difference between the two is first of all one pertaining to funding mechanisms (the type of projects funded, direct beneficiary, etc.) and secondly to the expectations set. Poles of competitiveness are considered to be of national importance, being expected to submit portfolios of projects of minimum 4 million Euros, while clusters are designed to have a regional outreach, being able to access up to 1.2 million Euros.

121. **The reason why such an initiative of the Ministry of Economy is highly relevant and should be seen in complementarity with the growth pole policy is that they both see development in a territorial perspective while having two different target groups**. The MRDPA, through Axis 1 of the Regional Operational

Programme funds mainly public sector initiatives that are meant to enhance the competitiveness and quality of life in the seven growth poles. The ME, through SOP IEC, financially supports the private (business) sector which actually represents the competitiveness driver of growth poles.

Relevant international experiences of economic development policies

122. **Other countries in the EU have long designed and implemented private sector development policies based on clusters and industrial agglomerations**. In France, for instance, such a policy has first been developed by DIACT – the Inter-ministerial Department for Spatial Planning and Territorial Competitiveness at the end of the 90s. In its first stage, the policy was based on the notion of local productive systems, referring to groupings of enterprises and institutions located in proximity of one another and activating in the same industrial field. After almost a decade, 160 of such local productive systems have been funded by DIACT, with the scope of enhancing the competitiveness of local industries in the global market.

123. **Starting in 2004, France has launched a new industrial policy based on poles of competitiveness**. Such structures aim to foster innovation and generate jobs in key sectors of the French economy, at the level of each region. French poles of competitiveness are located in a clearly defined territory and activate in a certain economic field, consisting of both SMEs and large companies, RDI labs and training and education organizations.

124. **This main vocation to support collaborative RDI initiatives is also reflected in the funding lines designated which cater mainly to RDI projects** (financial allocation of 1.5 billion EUR for 2009-2011). A certain limited amount of the financial allocation is partially supporting the management of such poles, which is co-financed by the local/regional authorities as well as through member contributions.

125. **Currently there are 71 poles of competitiveness in France, grouped in different categories (labels) relevant for their economic potential (i.e., global or national importance).** An important aspect of the funding mechanism of poles of competitiveness is the labeling system used. The poles need to report periodically on certain relevance and performance indicators in order to maintain a specific label assigned by central authorities. Such a label allows projects initiated by companies in a certain pole to gain access to a designated fund.

Current context in Romania

126. **The current initiatives of the ME are the first of their kind in Romania**. It is also important to clarify that up the date of the present report, the cluster funding line has not been launched yet, while the poles of competitiveness funding line has just completed a second stage of submission, therefore the final evaluation of submitted projects being planned for the next months.

Table 11. List of poles of competitiveness submitted for funding

No	Growth pole	Economic profiles, as set by IDP	Name of pole of competitiveness initiated (application submitted to MA SOP IEC)	Economic profile of pole of competitiveness
1	**Brașov**	technologies for sustainable development, tourism	*no project submitted*	*n/a*
2	**Cluj**	energy industry, ITC, business support services, specialized medical services, biotechnologies	TREC - Transnational Renewable Energies Cluster*	Renewable energies
			Transylvanian Furniture Cluster	Furniture
			POLARIS	ICT
			EXCELSIOR – EXCELency in Information Systems Oriented Towards Results	ICT
3	**Craiova**	IT and high technologies	ICT – Regional Competitiveness Pole	ICT
			Automotive Sud Vest Oltenia Pole	Automotive industry
			INOVTRANS	Rolling stock manufacturing
			TurOlt InTT – Innovation and traditions in Oltenia	Tourism
4	**Constanța**	Maritime industry, tourism, energy industry, agro-food	*no project submitted*	*n/a*
5	**Iași**	ITC, new/creative industries	*no project submitted*	*n/a*
6	**Timișoara**	automotive industry and ICT	AUTOMOTIVEST Association	Automotive industry
			ICT Regional Cluster	ICT
			Romanian Sustainable Energy Cluster*	Green energy (manufacturing of equipment)
			El Camino	Constructions
7	**Ploiești**	oil industry, energy industry	CREVIS	ICT
			Pole of competitiveness in the field of automatic systems and robotics	Aircraft production

Source: data processed from MA SOP IEC and IDPs of each growth pole
Note: TREC (Cluj Napoca) and ROSENC (Timișoara) have joined MedGreen to submit a common application for MA SOP IEC. For this reason, they do not show up as standalone applicants on the MA SOP IEC list.

127. In this context, the further analysis will refer mainly to the latter, having in mind that the final results (namely the list of poles of competitiveness that will receive funding) is not available. Of all 27 applications submitted, 17 came from locations other than growth pole areas. The other 10 poles of competitiveness initiated are presented in the table above as well as further discussed below.

Brașov

128. **The IDP set an economic profile for Brașov linked to technologies for sustainable development, but also logistics and tourism**. The former also represents the highest innovation potential, linked to the Transilvania University new RDI infrastructure (investment of almost 25 million EUR, completed in 2012). The IDP includes a rather impressive list of a business support projects consisting of planned business centers, technological and industrial parks as well as logistical parks, but with no mentions of desired economic profile of those. No poles of competitiveness initiatives have been recorded; however there is a number of emerging cluster structures that may apply for the cluster funding line.

Constanța

129. **The IDP of Constanța highlights an economic profile built on two main fields – the maritime industry and other harbor-related economic activities, but and also the tourism industry**. The IDP also mentions the energy field, due to the proximity of wind energy plans in Dobrogea but also the large oil refinery north of city, however it does not clearly envision how this sector may be developed or could further contribute to the local economy. The MedGreen pole on green energy equipment and technologies, submitted by the South East RDA did benefit from a consistent engagement of the Ovidius University in Constanța, however the economic agents and investment project do not address the territory of the growth pole. It is however important to mention that the maritime industry (including ship building and sea transport), was not eligible under the poles of competitiveness funding line, otherwise the Romanian Maritime Cluster active in Constanța may have applied for this funding.

Cluj-Napoca

130. **In the case of Cluj Napoca, the RDA has implemented last year a project that researched the economic potential in the region and supported the initiation of a series of cluster structures** (including on green energy, ITC and furniture). While the energy industry and ITC do also show up in the growth pole profile, the IDP also includes business support services, specialized medical services and biotechnologies, as economic engines of Cluj. However, the poles of competitiveness initiated reflect the capacity built, with support of the RDAs, within the clusters active in the three fields mentioned above.

Craiova

131. **Craiova enlists the largest number for applications for poles of competitiveness.** The RDA has had an instrumental engagement in coordinating and catalyzing these networks, which reflect more or less all economic fields highlighted as relevant for the growth pole.

Iași

132. **The Iași growth pole envisions, in its IDP, a profile based on ITC and new/creative industries**. The largest business support project enlisted in the IDP is of private initiative and funding. Unfortunately, it seems that it is well lagging commencement (Iasi Business and Technology Campus). No initiative of setting up a pole of competitiveness in this field(s) has been recorded.

Timișoara

133. **The Timișoara IDP envisions an economic profile based on automotive and ICT**. The RDA West has coordinated both initiatives of setting up cluster structures in these fields[27]. Adding to this, a further initiative – of a more bottom up nature - led to the establishment of ROSENC, the Romanian Sustainable Cluster. ROSENC joined MedGreen in forming a national pole of competitiveness in this field[28].

Ploiești

134. Ploiești is one of the growth poles with the most prominent economic profile based on oil and related industries (petrochemical, oil extraction engineering, energy industry etc.). The IDP envisioned a pole of competitiveness in the energy field, capitalizing on the local knowledge to further mark the transition to clean energy and fossil fuel free era. However, the two poles of competitiveness recorded in Ploiești are in IT and aerospace industries.

135. **The analysis above reveal that the growth poles with best correlation between growth pole profiles (as set in the IDP) and poles of competitiveness profiles are Cluj, Craiova and Timișoara**, all three having had a consistent engagement of the Regional Development Agencies at different stages of projects preparation. In the cases of Craiova and Timișoara the RDAs even assumed coordination positions of the poles of competitiveness submitted (e.g., the automotive and ITC poles in Timișoara and the automotive and tourism poles in Craiova).

136. **Interestingly, all three locations where such correlation occurred most correspond to growth poles which also host the central offices of the RDAs**. It may be inferred that this may have facilitated the interaction with the local business environment as well as the collaborative action necessary for the setup of such structures. In all three cases where no applications have been submitted, the growth pole is different of the RDAs offices of the respective region. This also applied for Ploiești, where there have been two applications but on very different fields than those highlighted in the economic profile of the growth pole.

137. **The international experience reveals indeed that the public sector support, both as funding body as well as catalyzer is of utmost importance especially as a part of a first generation of cluster policy.** At the same time, the

[27] http://www.adrvest.ro/attach_files/15_Comunicat_de_presa.pdf
[28] http://rosenc.ro/ro/strategia-de-dezvoltare-a-polului-de-competitivitate-pentru-economie-verde-medgreen-a-fost-aprobata-pentru-participarea-la-etapa-ii-a-operatiunii-1-3-1/

European Commission stresses that the market driven nature of cluster development is essential[29] and may be a prerequisite for their long term sustainability.

138. The analysis above further raises the question onto the relationship between cluster/poles of competitiveness policies and growth pole policies. **Such a relation can be set if both these policies are seen as part of a broader regional development policy of the respective states**.

139. **Indeed, the opinions are mixed, across different states of the EU**. A review of different cluster policies in EU showed that approximately one in four of the analyzed programs are related to the cohesion policy[30]. Most cluster programs are subsumed the industrial, innovation or export promotion policies. Another research on a sample of 16 cluster programs in 9 European countries sets three categories of cluster programs[31]:

1. Cluster programs that focus on regional economic development;
2. Cluster programs that focus on the development of national industries;
3. Cluster programs that focus on the commercial exploitation of the R&D potential of a country's economy.

140. **Cluster programs in the first category are mainly led by regional/federal bodies and aim to foster the competitiveness of the local economic base while the latter two categories seem to be put forward by national/RDI bodies**. There are also countries which run two distinct support programs in parallel, one with a regional development vocation and the other aimed development of national industries (e.g., Norway)[32].

141. **It is important to note that the tendency in terms of EC policy narrative emphasizes the global innovative character of clusters**. However, this must be seen in the context whereby many EU countries are currently at the second or third generation of cluster support policies, gradually migrating from an enhancement of the local productive system approach to fostering innovation and global competitiveness.

142. **Romania is at its first generation of cluster/poles of competitiveness support initiatives and the degree of refinement of the current initiatives makes it difficult to discuss on what are the goals of such policy in Romania**. There has indeed been a differentiated marking based on economic profiles (with high tech industries having been awarded more points than medium tech and

[29] European Commission, 2008. *Conclusions on the Commission communication "Towards world-class clusters in the European Union: implementing the broad-based innovation strategy".*
[30] Europe Innova, 2008. *Cluster policy in Europe: A brief summary of cluster policies in 31 European countries, p.7.*
[31] The Danish Ministry of Research, Innovation, and Higher Education, 2011. *Clusters are Individuals: Creating Economic Growth Through Cluster Policies for Cluster Management Excellence*
[32] Ibid, p.45.

low tech) but this has not been preceded by a determined endeavor of identifying nationally or regionally relevant industries. The territorial perspective, while valued and brought forward as principle, has not been fully integrated in the design and evaluation of these funding lines.

143. **From a regional development perspective, the cluster policy can be seen as the necessary instrument for enhancing the local economic base of the Romanian regions, in general, and the growth poles in particular**. This is an essential piece of the growth poles policy puzzle, considering the decoupling of policies and corresponding funding instruments based on type of beneficiary. The MRDPA is funding growth poles via directing funds to public authorities while the ME is funding poles of competitiveness via directing funds to private agents. For the current programming cycle there has been an insufficiently capitalized opportunity to generate further synergies between what could have been funded as publicly-supplied business support services/infrastructure and business sector needs and initiatives. A different sequencing of such initiatives might have helped in ensuring a better correlation – that is having poles of competitiveness emerged at the level of each growth pole and IDPs design and implement public sector support initiatives correlated with the needs and specificities of the respective business sectors.

144. **Such a decoupling of policies is highly relevant considering the weak economic mass of growth poles in Romania, both compared to the capital as well as other metropolis across Europe** and private sector support instruments are essential to increase the economic relevance of Romanian growth poles.

Should the Growth Poles Policy be Continued

145. The simple answer to the question above is: **Yes.**

146. **The basic principle behind the growth poles policy is sound.** More specifically, economic growth in a country usually happens in places with large economic mass. Another report prepared for the Ministry of Regional Development and Public Administration – *Competitive Cities: Reshaping the Economic Geography of Romania* – analyzes in more detail why growth poles are critical for Romania's development. That report shows that most of the growth in a country is generated by a small number of cities. Moreover, the closer one is to such a growth pole, the better off one is, as development benefits spill over. For example, the most developed localities in Romania include peri-urban localities adjacent to growth poles such as București, Timișoara, or Cluj-Napoca. A third argument that is being made is that proximity to large markets matters. Thus, cities that are close to Western European markets (where 70% of Romanian exports go) tend to be more developed than the relatively more distant cities in the East and South of the country.

147. **However, the growth poles policy should not only be subsumed to the Regional Operational Programme and designed solely for attracting EU funds.** As will be argued in the following sections, growth poles (i.e., functional

metropolitan areas) should be established because they serve a clear functional purpose (e.g., help manage connectivity, planning, and transport at the metropolitan level), not because they can help attract EU funds. Moreover, investments at the growth pole level should not only rest on EU sources, but should be complemented with investments from the state budget, from local budgets, and from other sources (e.g., PPP arrangements).

148. **The following sections will provide some further recommendations for the 2014-2020 growth poles policy,** as they pertain to the hierarchy of cities, to a more efficient definition of functional urban areas, to a different approach to growth poles, and to individual growth pole profiles.

PART II – Recommendations for the Growth Poles Policy for the 2014-2020 Programming Period

149. **The decision to continue or discontinue the Growth Poles Policy ultimately rests with the Ministry of Regional Development and Public Administration, following consultations with the Regional Development Agencies and other entities**. Depending on the priorities that will be identified for the 2014-2020 Programming Period, depending on overall available funds, and depending on the administrative implementation structure, dedicated financing for projects in growth poles (either those that exist currently, or others, as they defined by the Ministry of Regional Development and Public Administration) may or may not be available.

150. **Given the importance that was given to growth poles in the current programming period, it is likely that the policy will be continued for 2014-2020.** Of the around €4.4 billion available for ROP projects in 2007-2013, 32% were allocated for Axis 1 on Urban Development projects , with dedicated financing for growth poles and urban development poles, and with funds available on a competitive basis for all other urban areas. Axis 1 received the largest allocation of all 6 axes (e.g., the next axis in line, Axis 2, on Regional and Local Transport Infrastructure, received 20% of ROP funds), and within Axis 1, the most generous allocation (37% of all Axis 1 funds) was for growth poles.

151. **Many of the key tenants of the growth poles policy directly address some of Romania's most pressing development challenges.** Thus, the growth poles policy acknowledges that cities play a critical role in development. In most countries, cities are the growth engines that push the national economy on an upward path – it is cities where most innovation happens, where the largest productivity increases are registered, and where most of the new jobs are created. As such, it is critical for Romania to have a coherent and comprehensive urban development strategy. This means that Romania will not only benefit from continuing the ROP growth poles strategy, but also from having a larger view and approach to urban development.

152. **The way the growth poles policy was designed was forward-thinking, with a number of very good elements**. First and foremost, the policy acknowledged the role growth poles can play in catalyzing the economy of their respective regions. As such, a growth pole was selected for each region, based on its potential as the main regional economic engine. Second, the policy called for a view beyond city borders, focusing on metropolitan areas. It was understood that cities do not function in a vacuum, but they are part of larger functional (economic, social, environmental, and cultural) areas, which require planning and management beyond administrative borders. A third key trait of the growth poles policy was that it called for integrated approaches. It acknowledged that rather than having projects be implemented in a piecemeal fashion, it was important to take advantage of synergies and develop projects which would

mutually enhance each other's value. Fourth, the policy called for a multi-sectoral approach, focusing not just on socio-economic development, but also recognizing the importance of spatial planning in ensuring sustainable urban development. Fifth, the policy encouraged local authorities to think beyond ROP funds when developing integrated development plans. The IDPs should ideally address comprehensive, cross-sectoral development challenges faced by metropolitan and urban areas.

153. **While the 2007-2013 Growth Poles Policy had many good elements, there also is room for improvement.** The following sections will therefore look at how the Growth Poles Policy could be improved for the 2014-2020 Programming Period.

A different kind of balancing act

154. **The two main objectives of the EU's 2014-2020 Cohesion Policy (also called the Regional Policy) are: Investment for Growth and Jobs, and European Territorial Cooperation**. 96.5% of the Cohesion Policy budget is allocated for achieving the Investment for Growth and Jobs goal, with the largest chunk of funding (48.25%) going to less developed regions. For the 2014-2020 programming period, Less Developed Regions are considered to be those that had a GDP per Capita (at Purchasing Power Parity) of less than 75% of the EU-27 average, between 2006 and 2008. In addition to Less Developed Regions, funding is also made available from the Cohesion Policy budget for Transition Regions (10.76% of the entire budget), which have a GDP per capita between 75% and 90% of the EU-27 average; and, for More Developed Regions (16.35% of the entire budget), which are those regions with a GDP per capita higher than 90% of the EU-27 average. The rest of the Cohesion Policy budget will be distributed through the Cohesion Fund (20.87%) and for the outer most regions (0.27%). Currently, all of Romania's regions, with the exception of București-Ilfov, are considered to be Less Developed.

155. **For the current Programming Period, investments in growth poles, as well as other ROP investments have as one of their main targets balanced regional development.** In fact, the ROP 2007-2013 has two strategic objectives: (1) create 15,000 new jobs by the end of 2015; and, (2) prevent any further widening of inter-regional disparities between 2007 and 2015 (in terms of GDP per inhabitant). The fact that some regions in Romania are developing faster than others is seen unfavorably by the current ROP thinking.

156. **In reality, however, unbalanced growth in a developing country is to be expected, and is actually a sign that the country is indeed developing.** As history teaches,[33] no country has managed to reach a developed status without actually experiencing uneven growth. This is in fact one of the key tenants of economic development theory: for a country's economy to grow, some regions have to grow faster than others. This is needed because development often requires economies of scale and scope and large markets (usually enabled by

[33] See for example *The World Development Report 2009: Reshaping Economic Geography* and *Competitive Cities: Reshaping the Economic Geography of Romania.*

large cities). To benefit fully from economies of scale, it is important for resources to concentrate in a few places rather than having them spread all over a country's territory. For example, if a country would only be composed of small towns and villages, large companies (which are traditional exporters) could not take shape because they would not have a large enough labor pool to draw on. Small cities also do not allow large economic diversity that can offset external risks (e.g., the largest employer in a town may go bankrupt because of an international crisis).[34] As Figure 6 clearly shows, a disproportionate amount of wealth in developed EU countries is produced by a small number of large cities – usually the largest cities and/or the cities closest to large markets (e.g., part of large urban agglomerations).

157. **Romania is actually one of the most regionally balanced countries in the EU, and also one of the poorest.** The most developed countries in the EU are also among the most unbalanced. As such, if Romania wants to follow in the footsteps of developed EU countries, it should actually accept and encourage unbalanced growth rather than try to reverse it. This does not mean that resources should be taken away from lagging regions and given to leading regions. Rather, one should have a better understanding of how growth in leading regions can also help drive growth in lagging regions. As was shown in *Competitive Cities: Reshaping the Economic Geography of Romania,* although regional disparities have grown in recent years, there has been a profound external convergence. Basically, all regions in Romania have grown rapidly (some of the fastest growth rates in the EU) and have drawn closer to the EU average, particularly before the 2008-2009 onset of the global financial crisis.

158. **For the 2014-2020 programming period, the ROP should continue encouraging this external regional convergence, and not be afraid of the growing internal divergence.** These two processes are normal and they simply reflect that Romania is on the right path. As the experience of developed countries show, although initially resources may disproportionately locate in a limited number of places (e.g., the capital București and other large cities), with time welfare benefits will spread to surrounding regions and ultimately to the rest of the country. The spread of welfare benefits can already be felt in areas close to the largest growth poles. For example, Ilfov County now has a higher GDP per Capita than București itself, and many communities in adjacent counties have also benefited greatly from the proximity to the capital.

159. **For the growth poles policy, the growing internal regional divergence also has deep implications.** Most importantly, there is likely to be a re-shuffling of city ranks, as some of the growth poles will develop faster than others. Owing to over 40 years of centralized planning, Romania had in 1989 seven cities with a population of around 300,000 – an occurrence that, as we will see, is unlikely in a country that has developed organically. Already, as the 2012 Census data shows, some cities (most notably those close to the large markets in the West) have grown (both in term of population and economy) much faster than other cities

[34] There is a rich literature that describes in more detail many of the benefits of agglomeration economies.

(those that were more distant from profitable markets). This dynamic is likely to continue in the near-to-medium-term (i.e., through 2020), and no amount of public investments is likely to reverse the trend.

160. **It is therefore important for the new growth poles policy to do a different kind of balancing act.** Rather than trying to reduce regional imbalances, and implicitly trying to keep all seven growth poles at the same development level, the new growth poles policy should look at how growth in the leading cities could benefit development in cities that are developing at a slower pace. Ultimately, the fact that some cities will be growing faster than others is a good thing for everybody. Higher growth in some cities means that more endogenous sources will be generated and could be redistributed to help with key public investment projects in slower-growth areas. Truly balanced growth should not require regional equality, but rather a seamless regional integration, which ensures that the benefits of high growth in leading regions will more easily permeate to lagging regions.

161. **The implications for how the ROP, and the Growth Poles policy in particular, should be designed for the 2014-2020 programming exercise, are relatively clear.** As was detailed in the *Competitive Cities* report, for a country that is at Romania's development stage, one of the key priorities should be connective infrastructure. The investments that are likely to have the highest development impact are those that connect the large markets in Romania (București and the growth poles) to the large markets in Western Europe (where 70% of Romanian exports go to). Corridor IV and the Transylvania Highway are in this respect of strategic importance, as they bring several important growth engines (București, Ploiești, Brașov, Sibiu, Târgu Mureș, Cluj-Napoca, Timișoara, Arad) closer to the rich markets in the West.

162. **As a second step, it is important to allow the most dynamic growth poles to enlarge their demographic and economic mass.** As will be discussed later on, there is a new hierarchy emerging among the growth poles, with Timișoara and Cluj-Napoca benefiting from their proximity to the West and distancing themselves from the other growth poles. For these two growth poles, some of the most needed investments within the context of current economic dynamics are the improvement, rehabilitation, and extension of connective infrastructure to enlarge the growth poles' functional areas. More specifically, these two growth poles have been among the most dynamic in attracting new investments and encouraging new firm formation. As new firms are attracted to an area, they will require access to large and diverse enough labor pool. In turn, people living in the area will want to be closer to the new opportunities these firms bring with them. The easier these new centers of activity will be to reach, the more economic synergies will be created.

163. **As a third step, as will be discussed later on, it is important to think some growth poles outside simple urban boundaries.** For example, București, Ploiești, and Brașov, form a growth corridor with significant economic synergies and tremendous economic potential. Consequently, planning should be done at the regional level for these three growth poles, with an eye to how they could be

better connected, so that each could benefit from what the other has to offer. In essence, investments such as the Comarnic-Brașov highway, or a rapid rail connection from București to Brașov, can help enlarge the regional labor pool and increase trade and exchanges in the area.

164. **For growth poles like Iași, Constanța, and Craiova, priorities have to be decided locally.** There are however, from the analysis that is presented later on, a number of issues that could be taken into consideration. For example, for Iași, it will be important to focus on investments that will make the growth pole a catalyst for urbanization in the region. The North-East Region is one of the densest populated regions in Romania, and also one of the least urbanized. Development will always go hand in hand with urbanization, and as the region will become more developed, more and more people will move to urban areas – and Iași is likely to be the most significant beneficiary in this respect. As such, local authorities in Iași may consider focusing on investments that will benefit the urbanization process, such as the extension of basic public services infrastructure (e.g., water, sewage, heating, solid waste management, street lighting) to areas adjacent to the City of Iași. This will make the growth pole as a whole more attractive for people and firms wanting to move there. A similar strategy can be adopted by Craiova and Constanța. Craiova may also improve connective infrastructure to surrounding areas (it has a large demographic pool) to enable an easier access to labor to large investors such as Ford. Constanța has one of the largest economic bases of all the growth poles, and also a large metropolitan area and it would also benefit from better connective infrastructure in the metro area (particularly better connections to the resorts on the Black Sea).

165. **To make a long story short, the implications for the 2014-2020 Growth Poles policy can be summarized as follows:**

- The Growth Poles policy should not be focused only on the growth poles themselves, but rather attempt to understand growth poles within an interconnected system, where synergies can be achieved.
- The investments that will benefit the growth poles the most are not those that are done within the growth poles themselves, but rather larger scale investments that bring growth poles closer to larger markets, while at the same time allowing them to grow their own demographic and economic mass.
- Not all seven growth poles are created equal (some of them have stronger economic dynamics than others), and all of them are likely to have different priorities and should be treated differently. For example, some growth poles have a national polarization potential, while others have only a regional polarization potential. Similarly, some growth poles have an economic base which would benefit from investments in quality of life (e.g., Cluj-Napoca); others have an economic base which would benefit from the development of metropolitan transport networks (e.g., Timișoara and Constanța); while others would benefit from investments that would encourage the urbanization process (e.g., Iași).

166. **From a budgetary perspective, there are also a number of relatively clear implications:**

- Given that there is an evolving growth poles hierarchy, with some growth poles being more economically dynamic than others (e.g., Timișoara, Cluj-Napoca, Constanța), ROP 2014-2020 funds should be allocated with these dynamics in mind. More specifically, for growth poles where the center cities have larger local budgets, a higher share of allocated ROP funds could go for projects that benefit relatively poorer peri-urban localities (i.e. for investments that these localities could not complete with their own budgetary resources). For growth poles that have relatively smaller investments budgets, a higher share of ROP funds could be allocated for projects in the center city and the immediately adjacent localities.
- Given that allocated EU funds will only cover only a part of developmental needs, it will be important to focus primarily on those projects that are likely to generate the highest impact at the regional level. How this can be ensured will be treated in more detail in the *Project Selection Models* report.
- As was the case for the 2007-2013 programming period, relative allocations should be higher for less developed growth poles. More specifically, the growth poles that have less of their own resources for investment projects, should receive higher relative allocations (e.g., funds per capita).
- Funds allocations should be contingent on the existence of a comprehensive development strategy. Unlike the current Integrated Development Plans however, these comprehensive development strategies should indicate how different sources of funding (other operational programmes, state budget funds, local budget funds, private sources, PPP arrangements) will be drawn upon to achieve regional objectives. ROP funds should merely complement an integrated investment plan, rather than being the sole driver of the investment plan.
- While allocations for the growth poles themselves should be scaled according to the individual level of self-sufficiency (i.e. more for growth poles that have a smaller local investment budget, and less for growth poles that are more prosperous), it is absolutely critical that higher level investments (i.e. investments that cannot be completed by a locality on its own) be allocated proper funding according to clear national and regional priorities. For example, critical infrastructure investments, such as Corridor IV and the Transylvania Highway cannot be completed by the growth poles themselves, but the benefits to the growth poles are indisputable.
- Each region should prepare a Regional Development Plan that properly takes the growth pole policy into consideration. More specifically, each region should assess the role played by growth poles in the regional economy, and determine ways in which regional investment projects can help improve the performance of these growth poles. For example, some region may determine that the regional economy would benefit if a larger labor pool has easier access to the regional growth pole (e.g., through improved road connection, high-speed rail, or better public transport links).

From regions and cities to people

167. **Regional development strategies, both within Romania and at the EU level, disproportionately focus on regions and cities, and in the process have missed the real source of economic growth – people**. The *Competitive Cities* report, prepared by the World Bank for the Romanian Ministry of Regional Development and Public Administration, has provided an overview of economic growth theory (along with the latest developments in the field), indicating that an economy is the sum of its people. The more productive people in an economy are the better off the country is. This of course also applies to the economies of growth poles.

168. **The more productive people in growth poles are the better off the growth pole will be.** When people are doing well, cities and regions are doing well as well. As such, regional and urban development strategies should not focus on regions and cities per se, but rather on the people living there. This paradigm shift has some key implications.

169. **A primary implication is that people often become more productive when they move to places with more opportunities.** Under a balanced growth approach, the natural inclination is to try to keep people from relocating. The reasoning is that a key local resource (labor and skills) should be kept locally to help fuel future economic growth. However, opportunities within a country (e.g., jobs, higher-education, and key amenities and public services) are not evenly distributed – especially if a country is at a developing stage. Some places will have more jobs than others, some will receive more investments, some places have key educational and health facilities that some people need, some have a concentration of economic sectors that some people are looking for. With opportunities spread unevenly across space, it is normal to expect people to migrate to these places of opportunity, and to ultimately experience unbalanced growth. As indicated earlier, however, this unbalanced growth is a good sign – it shows that people are relatively mobile and have access to places of opportunity that allow them to achieve higher productivity rates. Ultimately, more productive people mean a more productive economy, even when these people are more productive beyond and across borders.

170. **While it may be a hard pill to swallow, it is to be expected that some of the current growth poles will continue to lose population.** This does not necessarily mean that their competitive edge is fading, but rather that their people are more productive somewhere else. In the long-term, both cities that lose and those that gain population stand to benefit from this dynamic. When people go to work and/or study abroad, they amass knowledge, capital, and business relationships. They become in effect richer both from a pecuniary and non-pecuniary point of view, and more often than not, they share this richness with the community they come from – they send money in the form of remittances, they invest back home, they bring new ideas and views, and they bring a roster of business and personal relationships.

171. **In an environment where overall population is decreasing, and with a reshuffling of the country's economic geography, some places will gain while the large majority will lose population.** All large cities in Romania have lost population between 2002 and 2012, even as their suburbs were growing. This population decline and loss of density has not only spatial implications, but also impacts the dynamic of local economies and communities.

172. **Consequently, a growth poles policy that attempts to encourage balanced growth in all seven growth poles is likely to fail.** Similarly, a narrow focus on the cities (e.g., trying to boost local employment by a certain amount) is likely to garner unsatisfactory results and may lead to a squandering of public resources.

173. **Rather than targeting public investments and programs at cities, these should be targeted at the people living there.** As such, performance indicators should also attempt to measure individual performance rather than the performance of a particular place. The fact that a person has moved to a different city, or abroad, to look for better opportunities, may be perceived as a net loss for the place the person has left behind, but in the long-term, and for the country as a whole, this often turns out to be a net gain. Of course, this does not imply that public authorities should encourage people to move elsewhere, but rather enable people to reach their full potential wherever they can do it most efficiently. Surely, in some strategic areas, such as the often-cited example of Romania's health system, the mass emigration of skilled professionals can have negative side-effects, in the aggregate. But, generally, the principle of targeting people and enabling them to pursue opportunities does hold and leads to improved individual and collective outcomes.

174. **In a nutshell, it is easier to enable access to opportunities than to create opportunities from scratch.** For example, a person who hopes to become a world-class conductor has more opportunities to do so in a city with a world-class opera. As such, rather than developing a world-class opera in the place where that person happens to live, it is much easier to create the conditions that will allow that person to gain access to one of the world's premiere operas. This may entail investments in the education sector, which will enable that individual to gain access to a music school, it may entail investments in airport infrastructure and connective infrastructure to airports (to enable easy access to operas abroad), it may entail a scholarship to study abroad. Similarly, an IT engineer will benefit more from being part of a large IT market where she can exchange ideas with other developers, have access to a larger and more diverse pool of IT companies, and take advantage of continuous learning courses and workshops designed specifically for the IT sector.

175. **A focus on people within the growth poles and ROP policy will ensure that a zero-sum game, in which some cities/regions will win and some will lose, is avoided**. Most local authorities want their cities to grow bigger and most of the strategies they devise follow this goal. Of course, in an environment where the overall population is stagnating or declining it will be nearly impossible to have all cities grow. A few cities will indeed grow, but they will do so at the

detriment of others. Such a process is inevitable and hard to reverse – no matter how much public money is spent to this end. Thus, if the success of the growth poles policy is predicated on all growth poles performing well (e.g., having a growing population and more powerful local economy), it may be doomed to fail from the start. If, however, it will focus on the performance of the people living in the growth poles, it may very well have a meaningful impact.

176. **This recommendation should not be understood as a plea to disregard the territorial dimension of the growth poles policy – quite the contrary.** It is rather a plea for framing and understanding the performance of a territorial unit in a more comprehensive way. For example, an investment in a regional airport may lead to more people leaving the area, with potential negative effects on the local economy. Thus, such an investment may have, on paper, a negative short-term and medium-term impact. However, if a long-term approach is taken into consideration, and if one looks at the gains in individual productivity enabled by the development of that airport, it may way well turn out that this was a positive impact investment.

177. **From a budgetary point of view, funds should still be allocated to defined territorial units.** It is important however to consider the impact of these funds beyond the boundaries of these territorial units. As was shown earlier, only three growth poles had an economic performance at the national level that would justify the growth poles tag – Timișoara, Cluj-Napoca, and Constanța. All the other four growth poles had an economic performance that was below the country average (i.e., they were not national growth engines). Consequently, it may be perceived that investments in these four growth poles are not justified, because of the lack of impact. However, if one considers for example that investments in connective infrastructure have helped people in Iași become more productive in București, or in a Western European city, and that in the long term this may have positive repercussions on Iași's economy (e.g. people returning to Iași to open businesses), it is easier to justify such investments.

178. **In practical terms, without a paradigm shift of the type recommended above, the growth poles policy is justified only for a handful of cities.** More concretely, when one will look at the performance of Iași, Craiova, and Ploiești, it will most likely come out that the investments carried out there between 2007 and 2013 have not really managed to even out regional discrepancies. Between 2007 and 2013, București, Timișoara, and Cluj-Napoca, have grown at a faster pace than these cities, and will likely continue to do so in the short- and medium-term. As such, the Growth Poles Policy 2007-2013 may be considered a failure, and one may call for it to be focused only in a couple of cities with prove growth engine potential. However, if regional benefits of the growth poles policy are considered from the vantage point of the people living there (i.e. the individual productivity gains that may be made possible by investments in growth poles), it is much easier to justify a growth poles policy for each individual region.

More meaningful growth pole functional areas

179. **The fact that project planning for growth poles is done beyond city boundaries is ideal, but the way growth poles functional areas have been defined is suboptimal**. Even without knowing anything about the growth poles, a look at the growth pole metropolitan areas in Figure 1 shows that these are likely to not have been defined following clear functional criteria (e.g., synergies that could be achieved through integrated planning). For example, the metropolitan area of Craiova, as it is defined right now, is not even a contiguous mass. The metropolitan area of Timișoara misses a locality to the North-West that is immediately adjacent to the city, but includes localities that are more distant (although urban expansion should ideally happen in areas closer to the city than in more distant areas). The metropolitan area of Ploiești misses some key localities in the South-East, which are high-density and which, based on population numbers alone, should be part of integrated planning efforts.

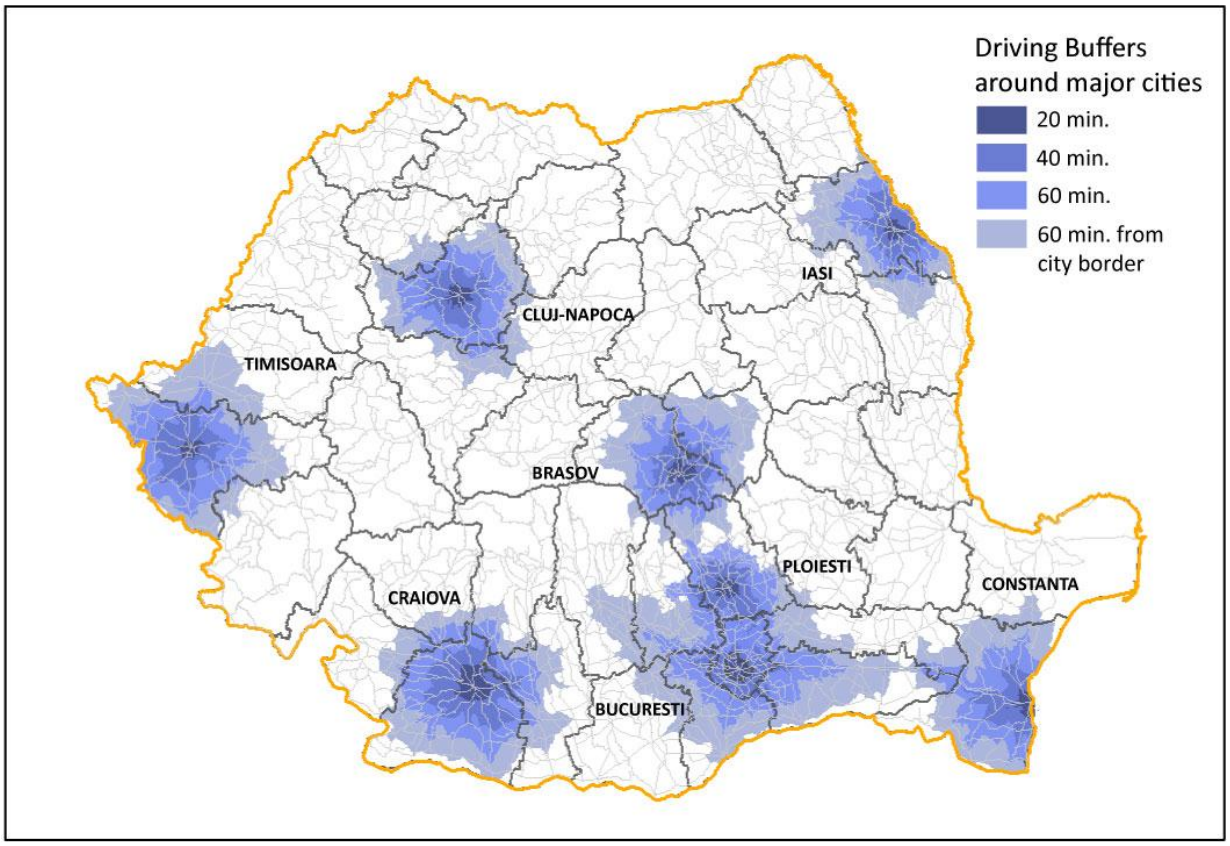
180. **Defining more meaningful growth poles functional areas is often hindered by unclear legislation, politics, and lack of strategic planning.** The growth poles metropolitan areas were formed following Law 215/2001 on public administration. However, this law does not give any clear criteria on how metropolitan areas should be formed, but only indicates that localities have the option of forming inter-municipal associations. Law 351/2001 (the National Spatial Plan) specifies that large urban areas can form voluntary agreements with surrounding localities that are 30 km or closer, but does not specify why the 30 km buffer was used. Politics also plays a role in how these metropolitan areas are formed and often influences mayors' ability to reach voluntary agreements on joining the metropolitan areas, despite potential economic benefits. Finally, there is often no strategic thinking in the way metropolitan areas are formed.

181. **Overall, a more meaningful way of defining metropolitan areas would be to look at functional synergies.** Such an exercise does not need to involve lots of data or complicated methodologies. For example, the National Institute of Statistics collects data on commuters (i.e., people that live in one locality but work in another). Such data can provide a better picture of the most active metropolitan areas and the gravitational pull of center cities. Beyond actual commuter data, it is also useful to look at the potential commuter shed – i.e., the area around a large urban center that is likely to attract commuters. From international practice, it is known that people are willing, on average, to commute for around an hour, or less, to work. As such, doing one-hour driving buffers around key urban centers can provide a better picture of the potential functional area to be taken into consideration.

182. **To this end, we have computed one-hour driving buffers for all the seven growth poles and București.** First, we looked at one hour driving buffers from center cities and one hour driving buffers from the municipal boundary of cities. Next, we calculated 20 minute and 40 minute driving buffers, for a more refined picture (see map below). For some of the growth poles, the metropolitan area, as defined now, roughly corresponds to the 40 minute driving buffer from the center of the growth pole. (Annex 6 includes individual maps for the growth

poles, with all the localities that fall within these 20, 40, and 60 minutes driving buffers.)

Figure 9.Potential functional areas are larger than the currently defined metropolitan areas



183. **Of course, any changes in infrastructure (e.g., through the addition of express roads or highways), may significantly change the potential functional areas of growth poles**. As Figure 7 clearly shows, the potential functional area of București, which has highway links to the West, East, and North of it, is much larger than the potential functional areas of the other growth poles. It includes a population of over 4 million people (21% of the national population) and generates over 50% of all firm revenues.

184. **Table 7 also shows that different growth poles have different strengths at different sizes**. For example, considering a 20-minute driving buffer (which usually includes the center city and immediately adjacent localities), Cluj-Napoca appears as most prominent by having both the largest population of the seven growth poles, and the highest share of firm revenues. Within a 40-minute driving buffer, it is Constanța that appears largest. At the 60-minute driving buffer (both from the center city and from the city border), Timișoara dominates in economic terms (with the largest share of firm revenues), while Craiova dominates in

demographic terms (with the largest population in the area). Interestingly, both Craiova and Timișoara have some of the smallest defined metropolitan areas right now, due to some of the legal and political reasons described above.

Table 12. Key indicators for different-sized growth pole functional areas (2011)

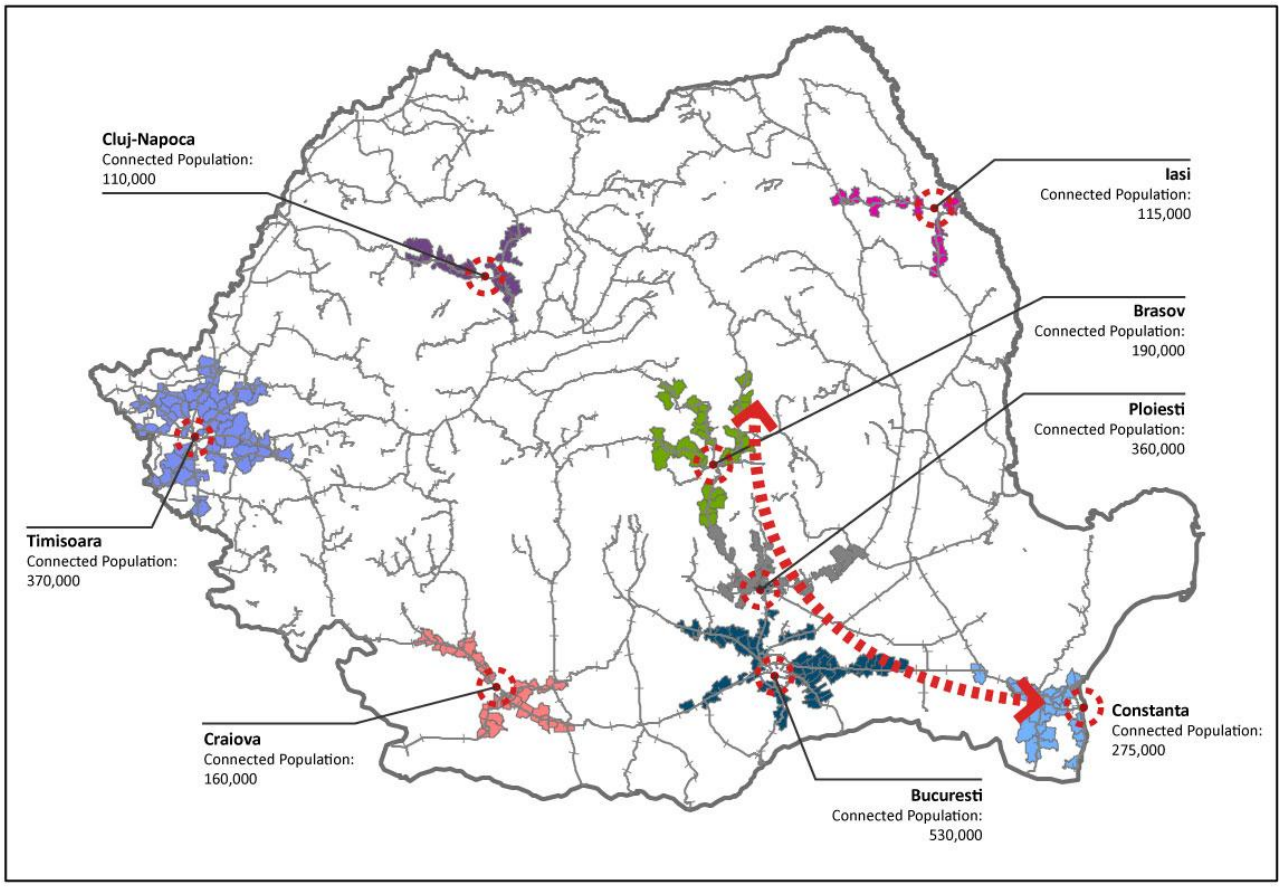
		Driving time buffer from city center			60 min. from
		20 min.	40 min.	60 min.	city border
Timişoara	*Population*	350,000	452,000	767,000	945,000
	% of National Firm Revenues	3.16%	3.41%	5.43%	6.00%
Cluj-Napoca	*Population*	360,000	482,000	620,000	905,000
	% of National Firm Revenues	3.29%	3.48%	3.71%	4.47%
Iaşi	*Population*	328,000	423,000	582,000	943,000
	% of National Firm Revenues	1.47%	1.52%	1.60%	2.20%
Craiova	*Population*	302,000	470,000	787,000	1,080,000
	% of National Firm Revenues	1.43%	1.60%	2.70%	2.94%
Constanţa	*Population*	312,000	492,000	620,000	716,000
	% of National Firm Revenues	2.51%	4.12%	4.54%	4.67%
Braşov	*Population*	328,000	485,000	615,000	868,000
	% of National Firm Revenues	2.65%	2.83%	2.98%	3.54%
Ploieşti	*Population*	305,000	556,000	2,724,000*	3,554,000*
	% of National Firm Revenues	2.89%	3.44%	43.17%*	47.24%*
Bucureşti	*Population*	1,842,000	2,150,000	2,525,000	4,020,000
	% of National Firm Revenues	37.82%	41.15%	41.61%	50.58%

Data Source: National Institute of Statistics and ListăFimre
*Includes figures for București and its surroundings

185. **Looking beyond road infrastructure, we have also calculated one hour rail access buffers.** Figure 8 indicates the total population that would have easy access to the growth poles within a one-hour train ride. Obviously, the more developed the rail infrastructure, the more people can reach the growth pole by train. Of the seven growth poles, the best-connected by train are Timișoara, Constanța, and Ploiești. It may pay therefore for these cities to see how they can better take advantage of this infrastructure endowment.

186. **A better definition of functional areas for growth poles can also help improve integrated planning**. For example, a look at population densities and population flows may lead to better decisions on the development of integrated transport solutions. Many of the growth pole authorities have considered the development of metropolitan public transport networks. It is not always clear, however, if their decisions were also supported by hard numbers. If we simply look at population densities, it becomes immediately clear that few of the existent growth poles could truly benefit from metropolitan transport networks.

Figure 10. Population within a one hour train ride to growth poles



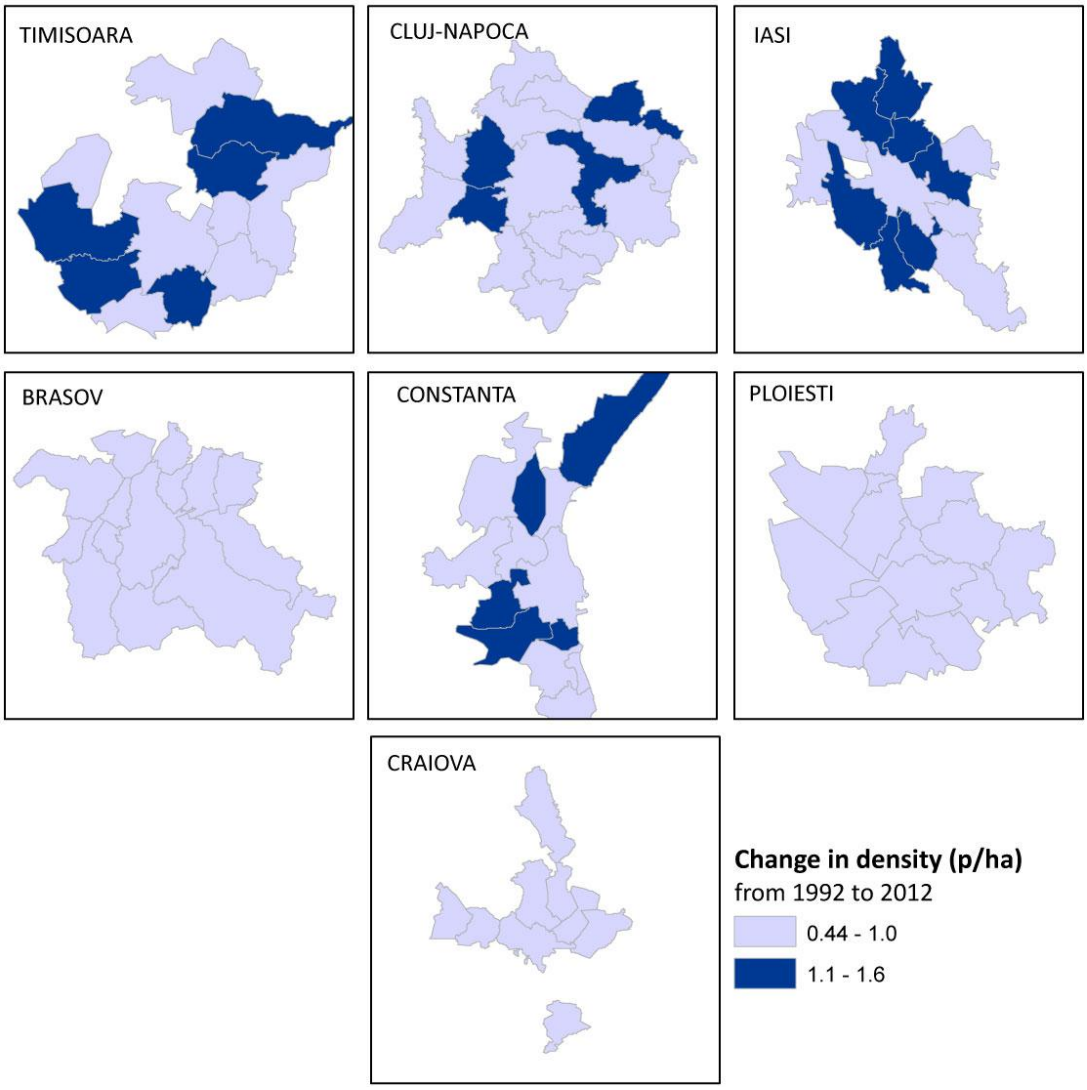
187. **The development of a simple public transport system (e.g., bus system) would generally require built-mass densities of at least 30 people per hectare.** We have therefore calculated the densities of the actual built mass[35] for all the growth poles and their constituent localities. Based on this measure, the only growth pole where a metropolitan public transport network may help is Brașov. The other growth poles simply do not have the minimum population densities required to make such a system viable.

[35] This is different than the usual way densities are calculated – i.e., dividing total population in the locality by the area of the locality. Built-mass density is a more reliable measure because it does not include tracts of open or unused land, such as forests, agricultural land, lakes, etc.

Figure 11. At this point, an integrated transport network only seems to make sense in the Brașov metropolitan area

188. **However, if we look at density changes over time, the picture becomes a bit more nuanced**. Thus, from 1992 to 2012, the peri-urban areas of several of the growth poles (Timișoara, Cluj-Napoca, Iași, and Constanța) have become much denser (see Figure 10). Cluj-Napoca in particular has two peri-urban localities that now have densities close to the 30 p/ha threshold: Florești with 27 p/ha and Baciu with 21 p/ha. As such, plans to create and expand metropolitan transport systems should take into account such dynamics, which are likely to continue.

Figure 12.Many peri-urban localities have been gaining density in recent years



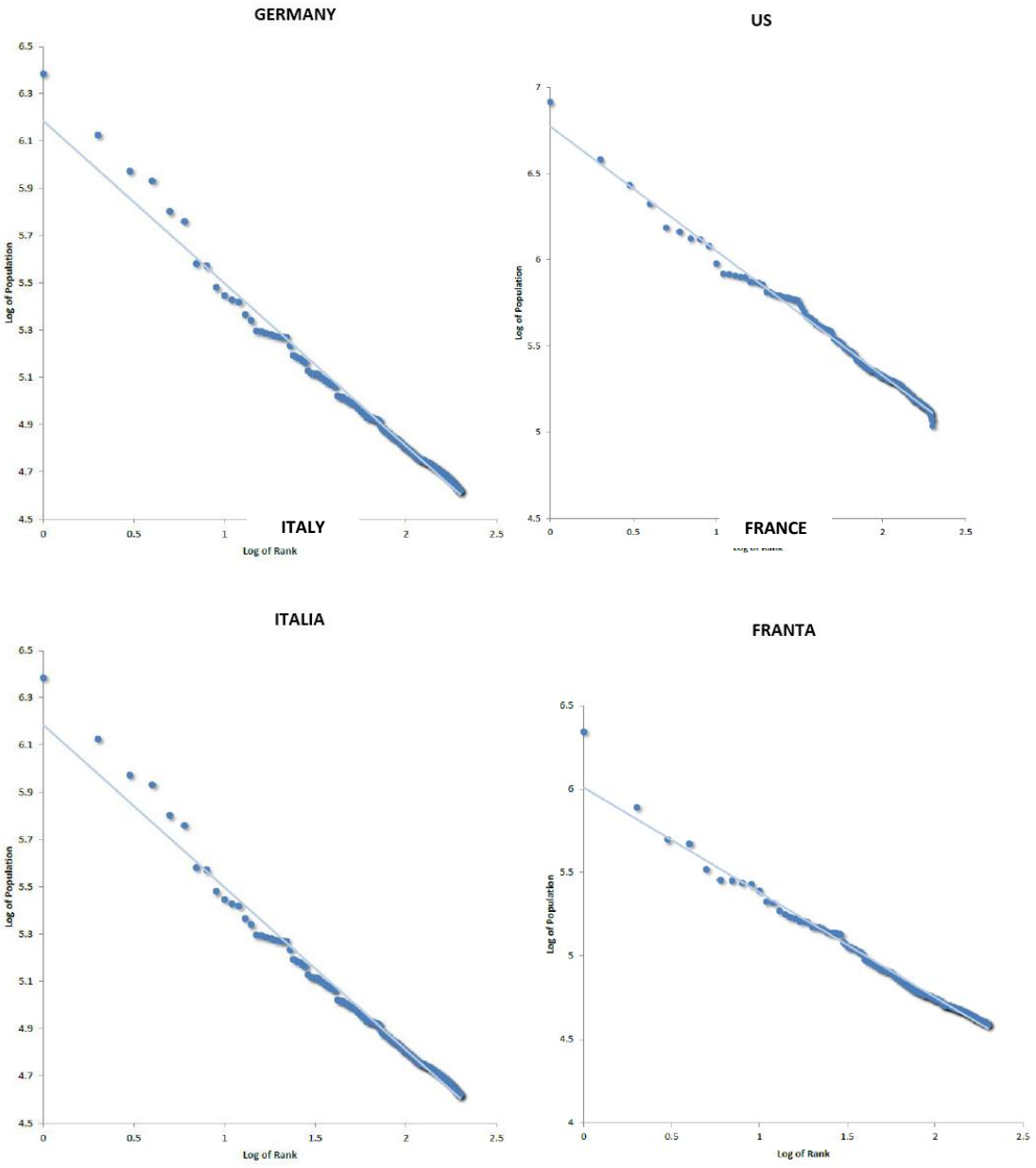
189. **Integrated planning should focus not only on transport**. For example, it is clear that spatial planning cannot be done separately for adjacent localities whose socio-economic life has become increasingly intertwined in recent years. Similarly, key public services such as education, health care, and administration serve larger populations than just those of central cities, and should be managed with those functional areas in mind (e.g., thinking of how people living further away could more easily benefit from those key services).

Not all growth poles are created equal

190. **When planning for the growth poles was initially done, the seven selected cities were roughly the same size of about 300,000 inhabitants** (only Ploiești was somewhat smaller). This means that the planning for these seven cities, including budget allocations, followed somewhat similar principles. All in

all, growth poles from less developed areas received a higher budget allocation, while growth poles from more developed areas received a smaller allocation. Thus, Iași received the largest amount (€91 million), while Timișoara received the smallest amount (€58 million).

Figure 13. Zipf distribution in selected countries, for 2010

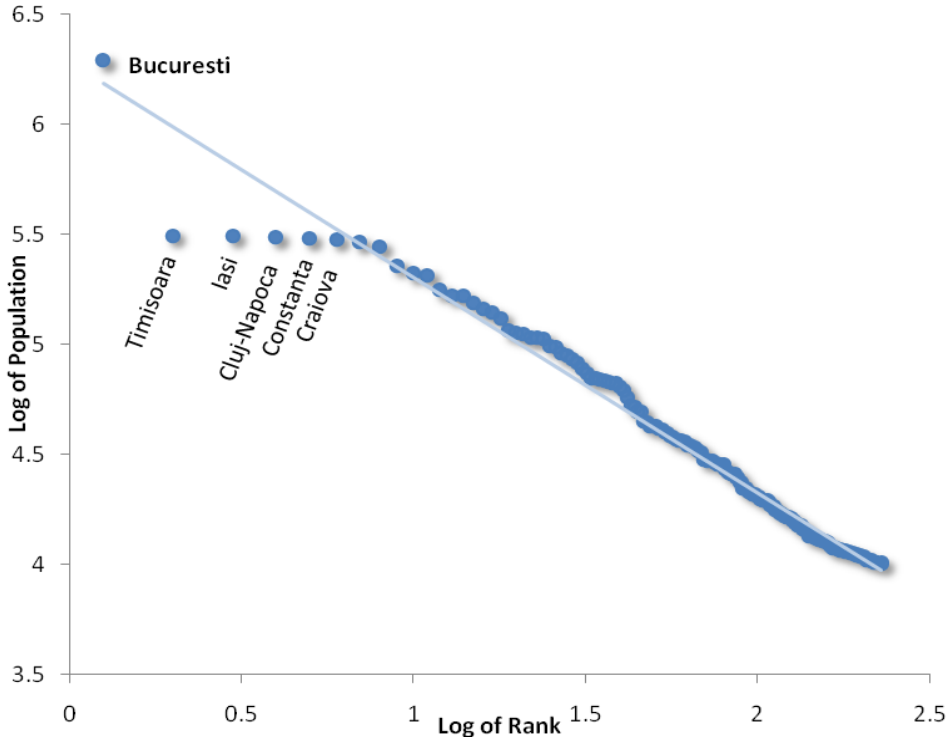


191. **However, the distribution of these rank 2 cities does not follow an organic pattern.** In most countries that have developed organically, cities follow

a uniform distribution pattern – a statistical oddity known as the Zipf Rule or the Rank-Size Rule. According to this, if one were to plot on a graph the log of the rank and the log of the population of cities in a country, cities would be tightly packed around the trend-line. In more approachable terms, in most countries that have developed organically, a rank 1 city will usually be followed by 1-2 cities of about half the population, then by 2-3 rank 3 cities of about a third the population, and so on. The graphs above show how this distribution of cities looks in six countries that have developed around market principles in recent decades.

192. **Over 40 years of centralized planning have left Romania with a relatively skewed system of cities**. As the graph below indicates, estimated population data for 2010 show that there are no real Rank 2 cities in the country – i.e., a city with a population of around 900,000 and a city with a population of around 600,000. București is, according to these data, six times larger than the second-largest city – Timișoara. This skewed distribution may hint that as Romania will more deeply align itself around market principles, true Rank 2 cities may emerge.

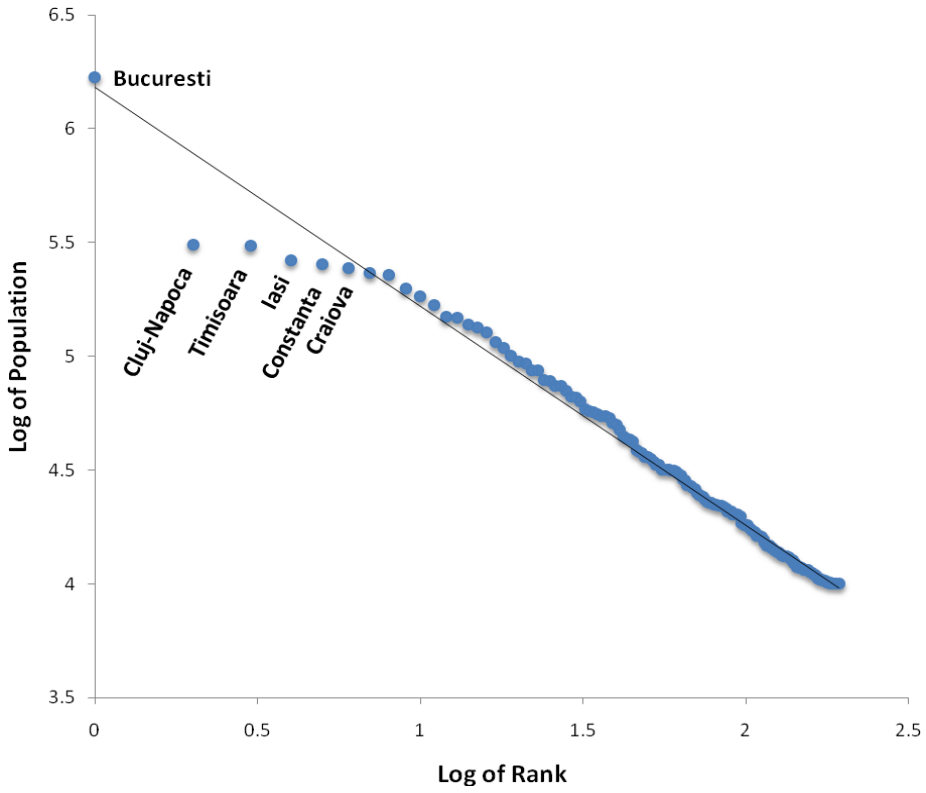
Figure 14. Zipf distribution in Romania, for 2010



193. **And indeed, the latest Census data (2011) show that cities in Romania are realigning themselves around a city distribution that one would expect to see in a market economy.** Several dynamics can be observed. On the one hand, the primate city, București, has lost around 13.3% of its population over the values it had registered in the previous census (2002). In practice, however, the population decline in București has not been as dramatic – it rather depicts a

migration of the population to the suburbs. The suburbs of București have, in fact, registered one of the most significant population growths in the country, in an environment where overall population has been declining. A similar dynamic (population decline in center cities and population growth in suburbs) can be observed in most large cities in Romania.

Figure 15. Zipf distribution in Romania, for 2011



194. **Between 2002 and 2011, Cluj and Timișoara managed to only experience small decreases in their populations**. These two cities may in fact establish themselves as Rank 2 cities in Romania. It is still premature to issue a final verdict on this, but preliminary data, and the favorable geographic position of these two cities (i.e., proximity to the rich markets in the West), may in fact propel Cluj-Napoca and Timișoara in a different category than the other growth poles. Banking on the size of their economy and their population, these two cities may develop a larger gravitational pull and, taking advantage of circular and cumulative causation, they may potentially continue to grow apart from the other growth poles, and get closer to București.

195. **Consequently, a new growth poles policy for 2014-2020 should be mindful of these dynamics**. Even at this early stage in the reshuffling of the urban system in Romania there is a considerable distance in population numbers between the two largest growth poles and the next largest – a difference of around 50,000. Moreover, some of the growth poles have seen a dramatic population decline over the past decade. **Should these trends continue, there**

will be a need to design relatively different urban development strategies for cities with population growth and cities with population decline.

Table 13. Demographic shifts in the largest Romanian cities

	Census Population		% Change
	2002	2012	
București	1,934,449	1,677,985	-13.26%
Cluj-Napoca	318,027	309,136	-2.80%
Timișoara	317,651	304,467	-4.15%
Iași	321,580	263,410	-18.09%
Constanța	310,526	254,693	-17.98%
Craiova	302,622	243,765	-19.45%
Galați	298,584	231,204	-22.57%
Brașov	283,901	227,961	-19.70%
Ploiești	206,527	197,522	-4.36%

Source: National Institute of Statistics, preliminary Census data

196. **The practical implications of this hierarchical re-shuffling were discussed in more detail above.** As far as the individual growth poles are concerned, the allocation of funds should continue to be more generous with growth poles that have fewer resources for investment projects. However, for larger scale, regional-level or national-level infrastructure projects, funds that will directly or indirectly benefit individual growth poles should be allocated according to a clear set of national and regional priorities. For example, the completion of Corridor IV and Transylvania Highways will bring more direct benefits to growth poles such as Timișoara, Cluj-Napoca, Brașov, Ploiești, and Constanța; and less so to Iași and Craiova. National indirect benefits from the completion of these two highway project will however spill-over to most corners of the country. Similarly, the allocation of funds for basic services infrastructure (e.g., water, sewage, gas) should be more generous in regions from the South and East of Romania, which have a significant deficit in this respect.

197. **The fact that some growth poles are more developed than others also has implications with respect to how the funds will be allocated.** For example, Timișoara, Cluj-Napoca, and Constanța, are likely to have more of their own resources that can be dedicated to investments within the center city. As such, a higher share of allocated growth poles funding should go to projects that benefit less developed localities within the growth pole (e.g., connective infrastructure that allows these dynamic urban centers to enlarge their demographic and economic mass, and enables people in the area an easier access to the opportunities that the center city offer). On the other hand, for cities with smaller local investment budgets, a higher share of allocated growth poles funding should go to the center city and immediately adjacent localities (e.g., investments that encourage the urbanization process).

198. **A third practical implication of this urban re-shuffling concern the absolute volume of funding allocated to each growth pole.** While in relative terms (e.g., allocated funds per capita), less developed growth poles should receive more, in absolute terms, more developed growth poles may receive a larger funding for 2014-2020. If one looks at the 2011 Census numbers, it

becomes clear that there is not only an economic rift that is growing between leading cities like Timișoara and Cluj-Napoca, and less developed growth poles like Iași and Craiova, but also a population rift. Cluj-Napoca and Timișoara now have at least more 50,000 people than the other growth poles. Of course, the way the boundaries of the growth poles will be drawn will affect the overall population of the growth pole, but the population of the center city should be a key criterion in determining the absolute funding volume for each growth pole. Currently, growth poles receive 50% of allocated funds under Axis 1 of the Regional Operational Programme. Given the differences between individual growth poles, this may not be the best option for the 2014-2020 programming period.

199. **A fourth implication concerns the actual size of the growth pole.** From the current programming exercise, it became clear that some of the growth poles were over-sized, while others were under-sized. (Commuting patterns, which can be obtained from the 2011 Census data, can provide more insight into actual functional urban areas.) An over-sized growth pole would typically include localities where not much happened (i.e., they registered population decline and had a small economic base), and which had difficulties to identify the resources necessary to co-finance ROP projects. As a comparison, Ilfov County, which surrounds the City of București, is now fully part of the functional urban area of București, and has a GDP/capita that is higher than that of the capital. As such, Ilfov County cannot only be considered to be fully part of București's functional urban area, but also has the necessary resources to finance and co-finance metropolitan level projects. Consequently, for the 2014-2020 programming period, more attention should be paid to the synergies that actually exist between different localities within a growth pole, and funding should primarily be allocated for projects that enhance these synergies, or projects that help generate new synergies.

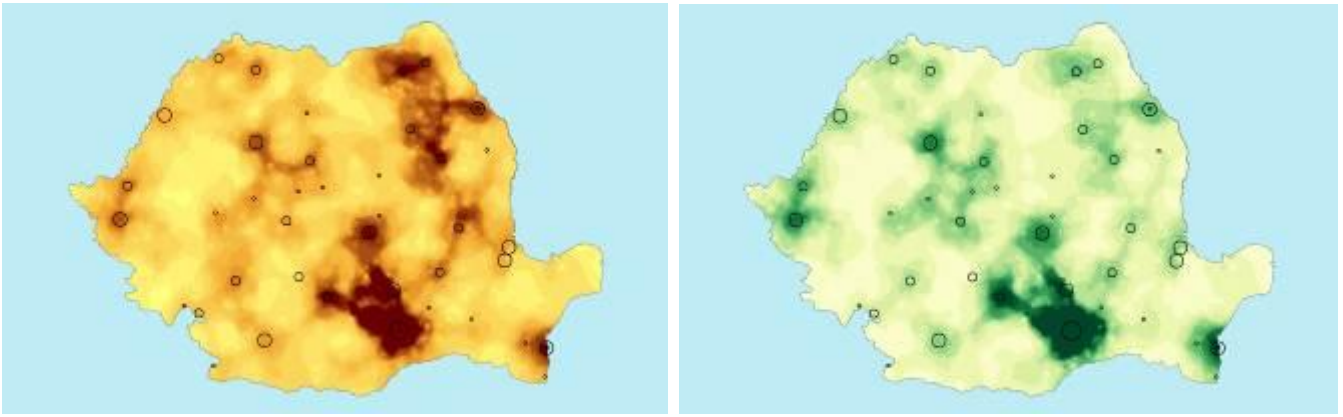
From Growth Poles to Growth Areas

200. **Places with larger economic mass, or closer to economic mass, tend to be more developed**. The seven designated growth poles were determined to be among the places with the largest economic mass outside București. As such, they benefit the places close to them (e.g., peri-urban communities and close-by towns and smaller cities). However, the reverse is also true. Larger growth poles benefit from having places with higher population and economic density close to them. This means they have easier access to a larger labor pool and easier access to markets.

201. **Consequently, planning for growth poles should be done beyond defined metropolitan boundaries.** There are a number of con-urbations and systems of cities that could benefit more from proximity to each other. Brăila-Galați is the most well-known con-urbation, because of the close proximity of the two cities. There are however other con-urbations where two major cities are less than a one-hour drive away: București-Ploiești, București-Pitești, Timișoara-Arad, Suceava-Botoșani, or Baia Mare-Satu Mare.

202. **Gravitational models usually give a better picture of existent or potential con-urbations.** Such models build on the laws of physics and assume that places that have a large mass (e.g., population or firm revenues) and are close to other places with large mass will exert a bigger gravitational pull (increased flow of people, capital, and ideas) than places with smaller mass and located at longer distances from each other. To map potential con-urbations in Romania, we have developed two gravitational models – one looking at demographic mass (in yellow) and the other looking at economic mass (in green), as per the images below.

Figure 16. Population (left) and economic (right) gravitational models



Note: The population gravitational model used Census 2012 population numbers, while the economic gravitational model used firm revenues data for 2011. Data was obtained from the National Institute of Statistics and ListăFirme.

203. **As the gravitational maps show, areas with demographic density do not always coincide with areas that have economic density**. There are two growth corridors around București (București-Ploiești-Brașov and București-Pitești), which seem to enjoy both population density and economic density. In the North-East of Romania, the area framed by Iași, Botoșani, Suceava, Piatra Neamț, and Bacău has high population densities and would benefit from policies and investments that enable urbanization (i.e., a higher concentration of people in urban centers). For example, more flexible land and housing markets (to allow for easy transactions between owners and buyers), connective infrastructure, and the extension of public services infrastructure (water, sewage, solid waste management) could help the Iași growth pole reap economic benefits from higher demographic mass and higher population density.[36] This is particularly important in light of the recent dynamics which show that Iași has lost significant population between the 2002 and 2012 Census In the heart of Transylvania, there is an area framed by Cluj-Napoca, Târgu-Mureș, Sibiu, and Alba-Iulia, which seems to enjoy relatively high economic density. The Timișoara-Arad growth corridor is the largest economic area outside București, and could also benefit from integrated planning and investments. Constanța is one of the few existent

[36] Of course, much of this growth may in fact take place in peri-urban areas (the way it has happened in recent years), with the center city continuing to lose population, or stabilizing.

growth poles that should be treated in relative isolation – i.e., looking solely at its metropolitan area and reaping the benefits of its strategic location on the Black Sea coast.

204. **Enlarging the economic and demographic mass of growth poles should be one of the key priorities of a new growth poles policy.** This means thinking beyond metropolitan borders, and identifying ways in which growth poles can benefit from their proximity to other places with high demographic and economic mass. This is easier said than done. As the experience for the 2007-2013 Programming Period has shown, even at a metropolitan level it is hard to get localities to cooperate and work together. This will be even harder when dealing with more distant localities and growth corridors. It will also be difficult to identify an administrative entity that would be in charge of such joint projects.

205. **Nonetheless, if competitiveness will be one of the goals of the new growth poles policy, it will be important to assess ways in which growth poles can take full advantage of what is around them – and not just in their immediate peri-urban areas.** This may require investments that could be financed from different sources (e.g., the Regional and Local Axis of the ROP, or the Transport OP), but it is critical to have a fuller understanding of how growth poles impact and interact with surrounding areas. This will require some thinking in terms of growth poles, growth corridors, and growth areas.

206. **For some growth poles, looking beyond metropolitan borders will be a sine-qua-non condition.** Ploiești, for example, is the designated growth pole for the South Region. However, it is well known that București has the most powerful influence in that region. In essence, Ploiești itself gravitates around București, and most of the developmental benefits for the South Region can be attributed to the capital. As such, Ploiești should not be analyzed in isolation, but as part of a larger growth area.

Truly integrated programs

207. **A truly integrated approach should not only look at geographic coverage, but also at functional coverage and sectoral synergies**. Thus, integrated development plans (IDPs) should both identify ways in which ROP investments can benefit larger metropolitan areas, and also ways in which investments in one sector could benefit other sectors. Identified projects in most of the IDPs seem to have been designed in isolation, with little assessment of how potential synergies could be enabled. Also, funds have largely benefited the central city, with little attention paid to peripheral areas. Consequently, the next phase of the growth poles policy should ideally consider ways in which less developed communities around growth poles could take advantage of the opportunities growth poles offer (e.g. by developing good connective infrastructure and improving accessibility – express roads, commuter rail, integrated public transport systems).

208. **By the same token, the integrated development plans should not be a laundry list of projects to be financed by the ROP.** Ideally, IDPs would include a

comprehensive action plan, with a list of projects to be financed from the ROP, from other EU sources, as well as from the local and national budget. Moreover, it may also be good to mention major private investments that would have an impact (positive or negative) on public investments. To be fair, several of the current IDPs have done project planning this way, and they have done it quite well. For the next Programming Period, however, all growth poles should prepare comprehensive IDPs to indicate how ROP funds could help achieve larger outcomes.

209. **To generate good integrated approaches, it is also critical to look at the spatial component.** In fact, the 2007-2013 ROP document clearly states this as being one area that should be given more attention in the future:

> *It is strongly recommended to strengthen the relationship between the regional policy objectives and those for the **spatial development**. For this reason the tools for spatial planning and regional development should be adapted and fine-tuned in such a way that the available potentials can be better utilized for the region as a whole. Also closer relations should be built between the authorities that are responsible for these policy areas.*

And, indeed, determining how synergies between different investment projects can be tapped requires a good understanding of space and spatial planning tools.

210. **Last but not least, integrated approaches require specially designed instruments**. In this sense, the next EU programming cycle announces new mechanisms such as integrated territorial investments and multi-fund budgeting, whose application on growth pole areas funding should be strongly considered.

Increase synergies with economic development policies

211. **The recent initiatives of the Ministry of Economy to territorially target funding for the business environment in Romania are a type of policy that has been used for decades in other EU countries**. This has resulted in funding lines designed for poles of competitiveness, clusters or poles of excellence (this latter one having been cancelled recently) under the SOP IEC.

212. **The territorial perspective, while valued as principle, has not been fully integrated in the design and evaluation of these funding lines**. This has allowed for distortions in policy results such as having two poles of the same economic field in the same city. So far, the ME funding lines generated both bottom up business-led initiatives as well as RDAs supported poles of competitiveness. In three of the growth poles, however, no poles of competitiveness have been recorded.

213. **The correlation with growth pole profiles, as set in the IDPs are most prominent in the cases where there was engagement of the RDAs and less marked in the case of initiatives generated from the bottom up, by different business agents**. While the engagement of RDAs is certainly valuable, it is too

early to say which of these structures will be deemed successful and will become more sustainable in the long term.

214. **On the other hand, there has been a decoupling of policies based on the type of beneficiary**. The MRDPA has been funding growth poles via directing funds to public authorities while the ME has been funding poles of competitiveness by directing funds to private agents. Such a lack of correlation is important to keep in mind, given the weak economic mass of growth poles in Romania, both compared to the capital as well as other European metropolitan areas. Private sector support instruments are essential to increase the economic relevance of Romanian growth poles.

215. **Recommendations stemming from the above refer first of all to a need of more frequent and meaningful interaction between the MRDPA and ME in order to foster synergies between the policies as well as funding instruments that these institutions can dispose**. **A next stage of the growth policy may well benefit from a complementary cluster run by the ME fostering the competitiveness of the growth poles' economic base.** This may also encourage growth poles governing structures to adopt a more refined approach towards local development policy of the growth pole areas, beyond the overtly used industrial parks and infrastructure, as sole answers to private sector needs.

216. **Such a joint thinking should be adopted, to enable a better approach towards the territorial targeting of funds in 2014-2020**. It is important for action to be taken in terms of policy correlation as there are four strategies in elaboration, namely the National Regional Development Strategy, the National Territorial Development Strategy, the Strategy for Reindustrialization, and the Competitiveness Strategy.

217. **Orienting the cluster policy over the next cycle towards a regional development aim, as recommended above, does not exclude the possibility of the ME to design two different cluster funding instruments as response to different desiderates**. One instrument could retain a more prominent territorial targeting (which may be focused on, but not limited to growth poles), while the other could focus on the highest potential industries in the country.

218. **New funding lines should be preceded by a coherent set of policy documents and guidelines helping local stakeholders develop a better awareness and understanding of the utility and opportunity of funding such initiatives**. Best practices abroad include, for instance, the French portal explaining the philosophy and implementation stages of Poles of Competitiveness in France.[37] Such an approach can help clarify and help avoid further confusion and inconsistencies in the official public discourse with regards to the different policy aims and concepts.

219. **Metrics and evaluation tools need to be developed jointly by the MRDPA and ME** in order to allow for a common monitoring and evaluation of

[37] http://competitivite.gouv.fr/

the economic impact of territorial targeting of funds via growth poles and poles of competitiveness/clusters.

How many growth poles for the 2014-2020 Programming Period?

220. **If the growth poles policy will be continued for 2014-2020, one of the key issues to be solved will be of which will be the actual growth poles that will be included in the policy.** Will it be the same growth poles? Will there be more than one growth pole per region? Will there be less growth poles? Ultimately, it is the job of the Ministry of Regional Development and Public Administration, in close consultation with the Regional Development Agencies, to answer these questions. Ideally, given that the growth poles are supposed to serve as regional growth engines, the decision on the poles selection should be done at the regional level based on estimated potential to drive the regional economy.

221. **If national performance would be a criteria for choosing growth poles, than only three of the seven would fit the bill: Timișoara, Cluj-Napoca, and Constanța.** These are the growth poles that have managed to register growth rates above the country average. The other four growth poles grew slower than the economy as a whole. However, it is not national performance that is considered here, but regional performance.

222. **Within their respective regions, the current growth poles do indeed serve as the largest economic engines.** This was the case in 2009 when they were designated, and it still is the case today. Moreover, in addition to the growth poles, each region had a number of urban development poles which also received dedicated funding. Thus, it does not make much of a difference if a city is designated a growth pole or an urban development pole, especially if they would receive the same amount of funding. The real fight would normally be over the designation of urban development poles and urban centers, as the latter do not receive dedicated funding, but rather have to compete for limited funding with other urban centers.

223. **For the sake of continuity, it therefore seems to make sense to continue with the same growth poles for the 2007-2013 programming period, if the regions remain the same as they are now.** Obviously, the current set-up is perfectible. For example, Ploiești has a much lower polarization potential in the South Region then București has (technically, it is București that serves as a growth engine for the South Region). Similarly, Cluj-Napoca has stronger economic links with cities in the Center region than with cities in the North West Region. Constanța has a lower polarizing effect around the area of the Galați-Brăila con-urbation. And the examples can continue. But any set-up would normally leave room for improvement, and in the end would be perfectible.

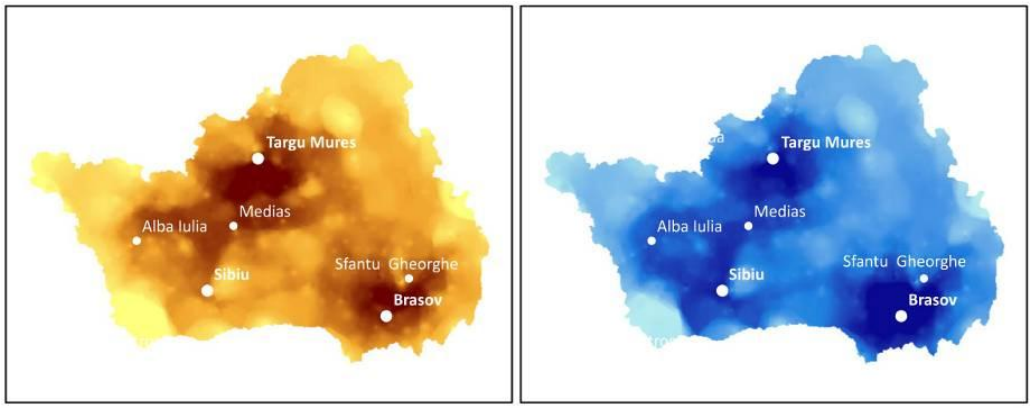
224. **As long as dedicated funding for growth poles and urban development poles follows clear criteria, the designation itself matters less.** What matters is that investments in the growth poles themselves help spur regional and national synergies. Ultimately, the scope should be to have the growth poles becomes economic engines not only for their respective regions (they already are), but for the country as a whole, and longer term for the EU.

225. **In what follows, we will look at the performance of different cities at the regional level, to determine which of them actually drive economic growth at the regional level.** The analysis is not meant to be a substitute for an in-depth regional analysis, but to provide a number of issues for consideration. As will be seen, the current seven growth poles (more specifically the center cities of the growth poles) generate the most substantial firm revenues within their respective region – usually around 20% or more of regional firm revenues. For comparative purposes, we have also selected the cities that have generated more than 5% of regional firm revenues. It has to be noted here that as opposed to earlier in the analysis, these data were collected at the city level, and were not aggregated at the growth pole level.

Center Region

226. **The gravitational maps below give a clear indication of the strongest growth centers in the Center Region.** Braşov is clearly the regional leader, followed by other important centers, such as Târgu Mureş and Sibiu. The synergies are stronger at the economic level and they reflect a number of investments in the localities around Braşov (e.g. a number of new industrial facilities). At the same time it is clear that Braşov is somewhat detached from the other important economic centers in the region, and it does not have the force to polarize development in the region as a whole. As such, it is important to pay attention to how urban development poles (Târgu Mureş and Sibiu) and other important urban centers (e.g., Mediaş, Alba Iulia, or Sebeş) can help drive growth and development in the region.

Figure 17. Demographic (left) and economic (right) gravity model for the Center Region



227. **Since the gravitational maps above provide only a static image of urban performance at the regional level, the table below provides a performance snap-shot over the 2006-2011 time period.** What becomes immediately evident is that the share of the City of Braşov in the regional economy is decreasing. More specifically, while the region as a whole has grown at a compound annual growth rate of around 6% between 2006 and 2011, Braşov has grown at a rate of only 1.7%. Part of the reason for this occurrence is that some of the economic activity of Braşov has moved to peri-urban areas as

Ghimbav or Predeal. And indeed, if we look at the Brașov growth pole as a whole (with all the constituent localities), the compound annual growth rate (CAGR) between 2006 and 2011 was 4.2% - still smaller than the regional growth rate.

Table 14. Performance of key economic centers in the Center Region

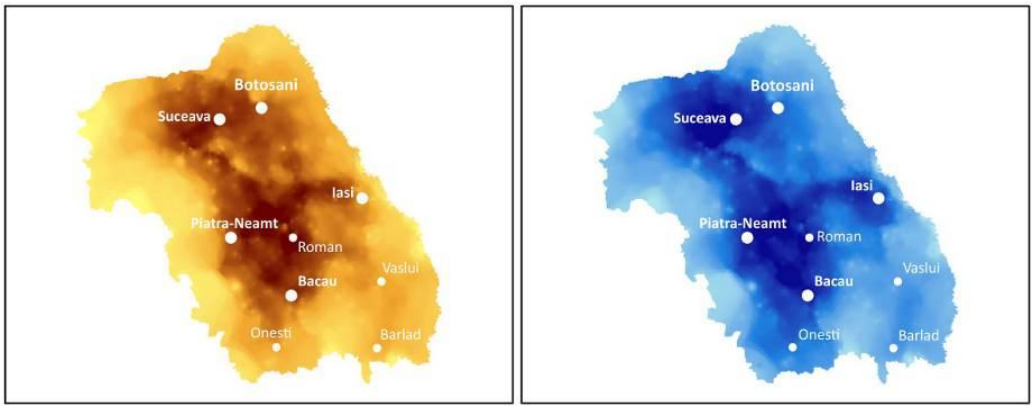
	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
Center Region	**16.4**	**21.9**	**100.0%**	**100.0%**	5.97%
Brașov	3.8	4.2	23.5%	19.1%	1.69%
Târgu Mureș	2.0	2.8	12.5%	12.8%	6.48%
Sibiu	1.8	2.8	10.7%	12.6%	9.55%
Mediaș	1.5	1.8	9.2%	8.2%	3.42%

228. **Sibiu and Târgu Mureș had growth rates above the regional average, and all other localities had a CAGR of 7.5%.** This brings to the fore the importance of other large cities and smaller localities in driving growth in the Center Region. Of course, Brașov continues to be the main contributor, in absolute terms, to the regional economy, being responsible for 19.1% or regional revenues in 2011 The Brașov Growth Pole, with all the constituent localities, was responsible for around 27% of regional firms' revenues in 2011.

North-East Region

229. **The gravity models for the North-East Region paint an interesting picture.** For one, the polarizing potential of the region's growth pole, Iași, is not as evident as one would expect. The triangle formed by Bacău, Piatra Neamț, and Roman seem to have a larger demographic and economic potential, and Suceava and Botoșani also form a significant con-urbation.

Figure 18. Demographic (left) and economic (right) gravity model for the North-East Region.



230. **And indeed, a look at the table below indicates that the North-East Region is relatively evenly developed.** Bacău, Piatra Neamț, and Roman generate around 24% of all firm revenues in the region (higher than Iași on its own), while Suceava and Botoșani generate around 11% of regional firm revenues.

Table 15. Performance of key economic centers in the North-East Region

	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
North-East Region	**9.9**	**12.9**	**100.0%**	**100.0%**	5.31%
Iași	2.4	2.5	24.2%	19.6%	1.00%
Bacău	1.4	1.7	14.2%	13.1%	3.62%
Piatra Neamț	0.8	1.0	8.3%	7.7%	3.97%
Suceava	0.6	0.7	5.9%	5.4%	3.60%
Botoșani	0.5	0.7	5.3%	5.3%	5.40%

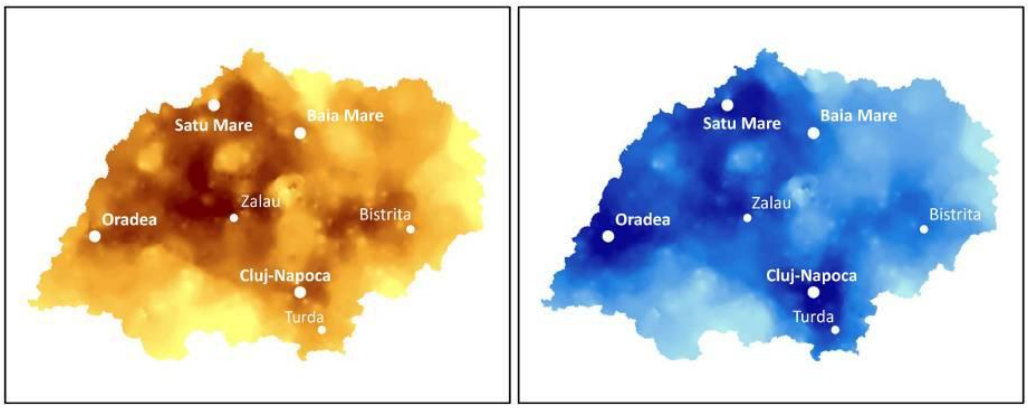
231. **Interestingly, the share of Iași in the regional economy has been decreasing in recent years.** Thus the compound annual growth rate (CAGR) for 2006-2011 was 1%, as compared to 5.31% at the regional level. Of course, part of the reason for this occurrence is that some of the economic activity has actually moved outside the city to peri-urban areas. If we look at aggregated data for the Iași Growth Pole, we see that the CAGR was 4% (still smaller than the regional growth rate), and the growth pole was responsible for 24% of regional firm revenues.

232. **Of the key economic centers in Iași, only Botoșani has managed to grow faster than the region.** Moreover, smaller cities and the other localities in the region have grown at a rate of 8.4% annually. Nonetheless, while the share of Iași in the regional economy is diminishing, it is still the largest absolute contributor to the regional economy.

North-West Region

233. **The gravity models for the North-West Region indicate that the region is relatively balanced.** Cluj-Napoca, Oradea, and Satu Mare are the most important economic areas in the region. As was shown earlier, and as was evidenced in the *Competitive Cities* report, Cluj-Napoca has more important economic synergies with localities in the Center Region – e.g., Târgu Mureș, Alba Iulia, or Sebeș. As such, it has a polarizing potential that crosses regional boundaries.

Figure 19. Demographic (left) and economic (right) gravity model for the North-West Region



234. **In 2011, the City of Cluj-Napoca was responsible for 31% of regional firm revenues, while the Cluj growth pole was responsible for 34%.** Oradea generated around 13% of firm revenues in the region, and Baia Mare and Satu Mare taken together were responsible for around the same share. Bistrița, in the west of the region, generated around 5.2% of firm revenues.

235. **As the table below evidences, none of the larger economic centers in the North-West region had a compound annual growth rate higher than that of the region as a whole – not even the Cluj-Napoca Growth Pole.** Smaller cities and other localities grew at around 11% annually between 2006 and 2011, but they were responsible together for only 38% of firm revenues generated in the region. Cluj-Napoca continues to be the main contributor, in absolute terms, to the regional economy. Overall, the Cluj-Napoca growth pole was responsible for 32% of the growth registered by the region between 2006 and 2011.

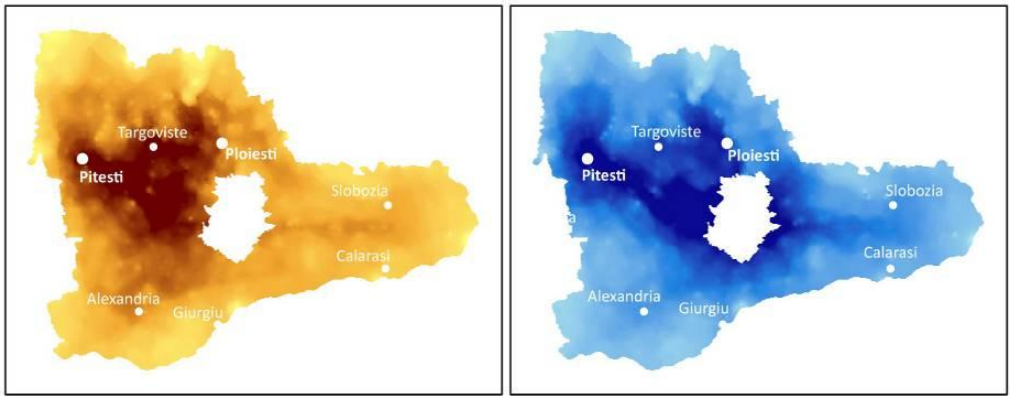
Table 16. Performance of key economic centers in the North-West Region

	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
North-West Region	**13.8**	**20.9**	**100.0%**	**100.0%**	8.65%
Cluj-Napoca	4.4	6.5	32.2%	31.0%	7.86%
Oradea	1.9	2.7	13.6%	12.7%	7.24%
Baia Mare	1.1	1.4	7.7%	6.6%	5.25%
Satu Mare	1.0	1.3	6.9%	6.2%	6.25%
Bistrița	0.8	1.1	5.6%	5.2%	6.98%

South Region

236. **The gravity models for the South Region give a clear picture of how important București is for the economy of the South Region.** While Ploiești is the designated growth pole for the region, and it is supposed to polarize growth there, it is itself benefiting from being close to Romania's most important economic center. The two models also indicate that the south and the east of the region are both relatively sparsely populated, and with a lower economic potential.

Figure 20. Demographic (left) and economic (right) gravity model for the South Region



237. **The area west of București, framed by Ploiești, Târgoviște, and Ploiești, has both the most significant demographic and economic potential in the region.** However, while the population seems to be predominantly clustered to the east of București, economic activity seems to be clustered around the center city. Thus, a development strategy for the region cannot be designed without taking București into consideration.

238. **The table below shows that of all key economic centers in the region, only Mioveni managed to grow faster than the region as a whole.** In fact, Pitești and Mioveni form the most prolific con-urbation in the region, being responsible for around 28.5% of all firm revenues generated in the region – as opposed to 20.4% in Ploiești.

Table 17. Performance of key economic centers in the South Region

	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
South Region	**15.9**	**24.7**	**100.0%**	**100.0%**	9.17%
Ploiești	4.1	5.0	25.9%	20.4%	4.02%
Mioveni	2.3	4.7	14.4%	19.1%	15.59%
Pitești	1.7	2.3	10.9%	9.3%	5.89%
Târgoviște	0.9	1.1	5.6%	4.3%	3.54%

239. **However, when Ploiești is considered as a growth pole, it is more prolific in the regional economy.** If taken together with the other localities in the growth pole, Ploiești is responsible for around 25% of all firm revenues generated in the region and it had a compound annual growth rate between 2006 and 2011 of 5.5%.

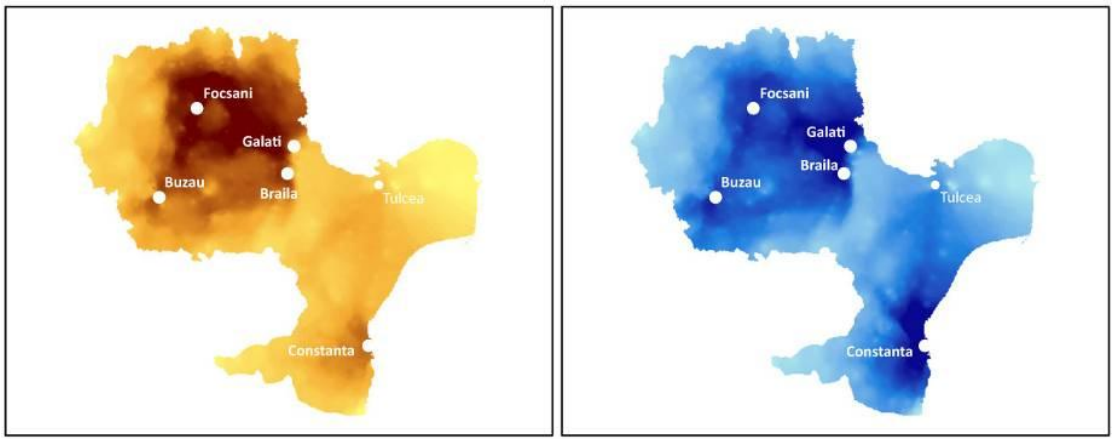
240. **Unlike the other growth poles, Ploiești was not the main source of growth in the South Region.** Between 2006 and 2011 Ploiești generated around Euro 0.9 billion in additional firm revenues, whereas Mioveni (where Dacia, Romania's main car manufacturer is located) was responsible for an additional Euro 2.4 billion.

South-East Region

241. **The gravity models for the South-East Region indicate two areas of interest.** On the one hand there is the Constanța area, which has a significant economic potential, and on the other hand there is the area framed by Galați, Brăila, Focșani, and Buzău, which has a larger demographic potential.

242. **Constanța is the largest economic center in the region, but Galați is close behind.** Moreover, if the Galați-Brăila con-urbation is taken into consideration, it has the largest economic mass within the region, being responsible for around 26% of the regional firm revenues. At the same time, when the Constanța Growth Poles as a whole is considered (including Năvodari with its oil refinery), it is the largest economic center by far, being responsible for around 38% of regional firm revenues.

Figure 21. Demographic (left) and economic (right) gravity model for the South-East Region



243. **The table below indicates that the cities that have grown faster than the region are secondary cities – Buzău, Năvodari, and Brăila.** The City of Constanța has grown slower than the region as a whole, and Galați is one of the few key economic centers in Romania that has actually registered an economic decline in recent years. When considered as a growth pole however, Constanța has registered a compound annual growth rate of around 7.7% - higher than the regional rate. Smaller cities and other localities had an annual growth rate of around 7.9%.

Table 18. Performance of key economic centers in the South-East Region

	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
South-East Region	**15.9**	**22.1**	**100.0%**	**100.0%**	6.73%
Constanța	3.5	4.7	21.9%	21.3%	6.14%
Galați	4.2	4.1	26.1%	18.6%	-0.31%
Buzău	1.4	2.8	8.9%	12.6%	14.55%
Năvodari	1.8	2.8	11.6%	12.6%	8.43%
Brăila	0.8	1.6	5.3%	7.2%	13.51%

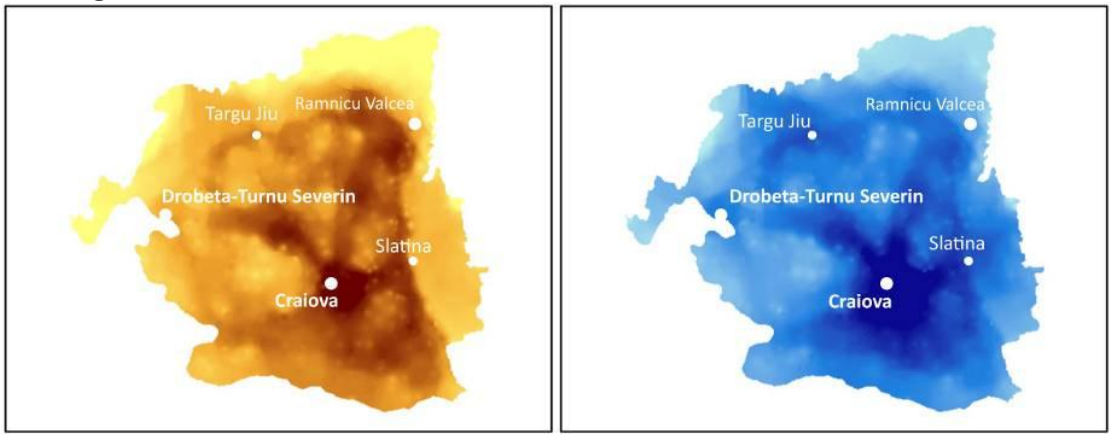
South-West Region

244. **From a demographic and economic perspective, the South-West Region is relatively balanced.** The City of Craiova is the main economic center, being responsible for 26.3% of regional firm revenues, but other economic centers like Slatina and Râmnicu Vâlcea also rank relatively high – being responsible for 18.4% and 17.1% respectively of regional firm revenues.

245. **The table below indicates that smaller cities like Slatina and Drobeta Turnu Severin have managed to have annual growth rates higher than the regional average.** The City of Craiova had an annual compound growth rate of 3.26% between 2006 and 2011 – lower than the region as a whole. Given that

the Craiova Growth Pole was relatively small (with only a few peri-urban localities included), its economic performance was not much different from the economic performance of the City of Craiova.

Figure 22. Demographic (left) and economic (right) gravity model for the South-West Region



246. **Smaller cities and other localities had a compound annual growth rate of around 7.7% between 2006 and 2011, and they generated less than 25% of regional firm revenues**. The largest contributor to the growth of the region was not Craiova, as one would expect, but Slatina. Between 2006 and 2011 the economy of Slatina grew by 0.6 billion Euro, whereas Craiova grew only by 0.4 billion Euro.

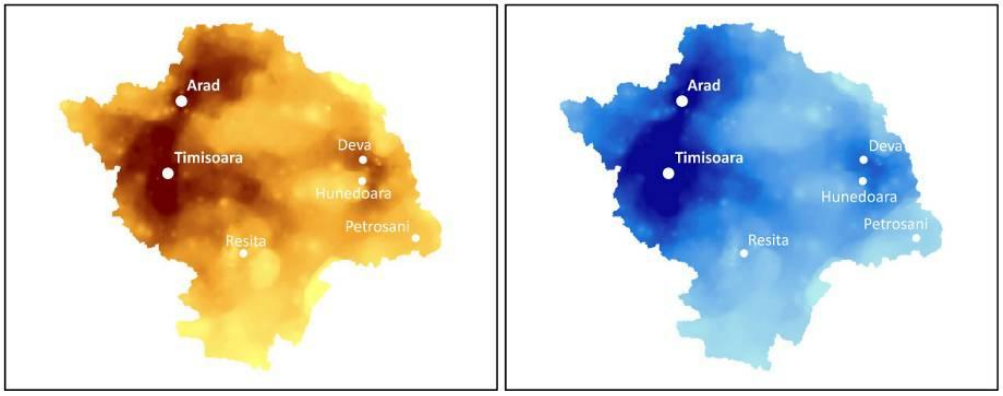
Table 19. Performance of key economic centers in the South-West Region

	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
South-West Region	**8.0**	**10.2**	**100.0%**	**100.0%**	5.04%
Craiova	2.3	2.7	28.6%	26.3%	3.26%
Slatina	1.3	1.9	16.6%	18.4%	7.19%
Râmnicu Vâlcea	1.6	1.7	20.1%	17.1%	1.71%
Drobeta Turnu Severin	0.5	0.7	6.8%	6.9%	5.16%
Târgu Jiu	0.5	0.7	6.0%	6.6%	7.14%

West Region

247. **The Timișoara-Arad growth area is the dominant economic force in the West Region.** Together, these two cities generate around 54% of regional firm revenues. Taken on its own, Timișoara is responsible for 35% of regional firm revenues, and the Timișoara Growth Pole accounts for 42% of regional firm revenues.

Figure 23. Demographic (left) and economic (right) gravity model for the West Region



248. **Unlike the other growth poles, Timișoara has grown faster than the region between 2006 and 2011.** In fact, the City of Timișoara has grown faster than the Timișoara Growth Pole, indicating economic concentration within the main city. Apart from Deva, there were few other cities in the West Region that have managed to significantly contribute to the growth of the region in the past years. This can be partly explained by the fact that the West Region is smaller than other regions, being made up of only 4 counties.

Table 20. Performance of key economic centers in the West Region

	Firm Revenues (in bln. Euro)		Share of Regional Firm Revenues		Compound Annual Growth Rate:
	2006	2011			2006-2011
Center Region	**10.4**	**16.2**	**100.0%**	**100.0%**	9.26%
Timișoara	3.5	5.7	33.2%	35.0%	10.42%
Arad	1.8	3.0	17.7%	18.6%	10.30%
Deva	0.6	0.8	5.4%	4.8%	6.54%

The Growth Poles for 2014-2020

249. **As indicated in the analysis above, the current growth poles continue to be the dominating economic engines in their respective regions, and for the sake of continuity they should be kept as growth poles for the 2014-2020 programming period.** All of the growth poles generated around 20% or more of regional firm revenues, and they usually had the most significant absolute contribution for the growth of their respective regions. There are some cases, such as the South and South-West regions, where the largest contributors to regional growth were smaller cities: Mioveni in the South Region and Slatina in the South-West Region. Both of these cities are relatively small, but they are home to large industrial conglomerates – Dacia and Alro Slatina respectively.

250. **The key issues for the 2014-2020 programming period, seems to be the selection of the urban development centers.** Since the urban development centers receive dedicated funding, several cities will want to be included in this category. As the analysis above has shown, there are 23 cities, outside the

growth poles, that generate more than 5% of regional firm revenues. All of these cities hold a significant development potential for their respective region.

251. **Apart from these 23 secondary growth centers, there are a number of other cities with significant development potential.** Some of these cities include Alba Iulia, Sebeș, Hunedoara, Vaslui, Zalău, Slobozia, Călăraşi, Tulcea, Focșani, or Reșița. These cities may not necessarily be regional economic engines, but they do have an important polarizing potential for their respective counties.

252. **Thus, it may pay to have dedicated funding not just for growth poles and urban development poles, but also for all the other county capitals.** This will ensure a somewhat more equitable distribution of development funds, and will enable smaller cities with large economic mass (e.g., Slatina) to be taken into consideration

253. **To ensure that these smaller cities make the most of accessed funds, they should be encouraged to form poles with larger economic mass.** More specifically, smaller cities should be encouraged, whenever possible, to form Inter-communal Development Associations with other nearby economic centers of importance. Such IDAs could include Alba Iulia-Sebeș, Pitești-Mioveni, or Deva-Hunedoara. Larger cities (e.g., Brăila and Galați) should also be encouraged to join forces, and even cities that are further away (e.g., Timișoara and Arad, or Cluj-Napoca and Târgu-Mureș) should at least coordinate their development plans.

Learning from the București Growth Pole

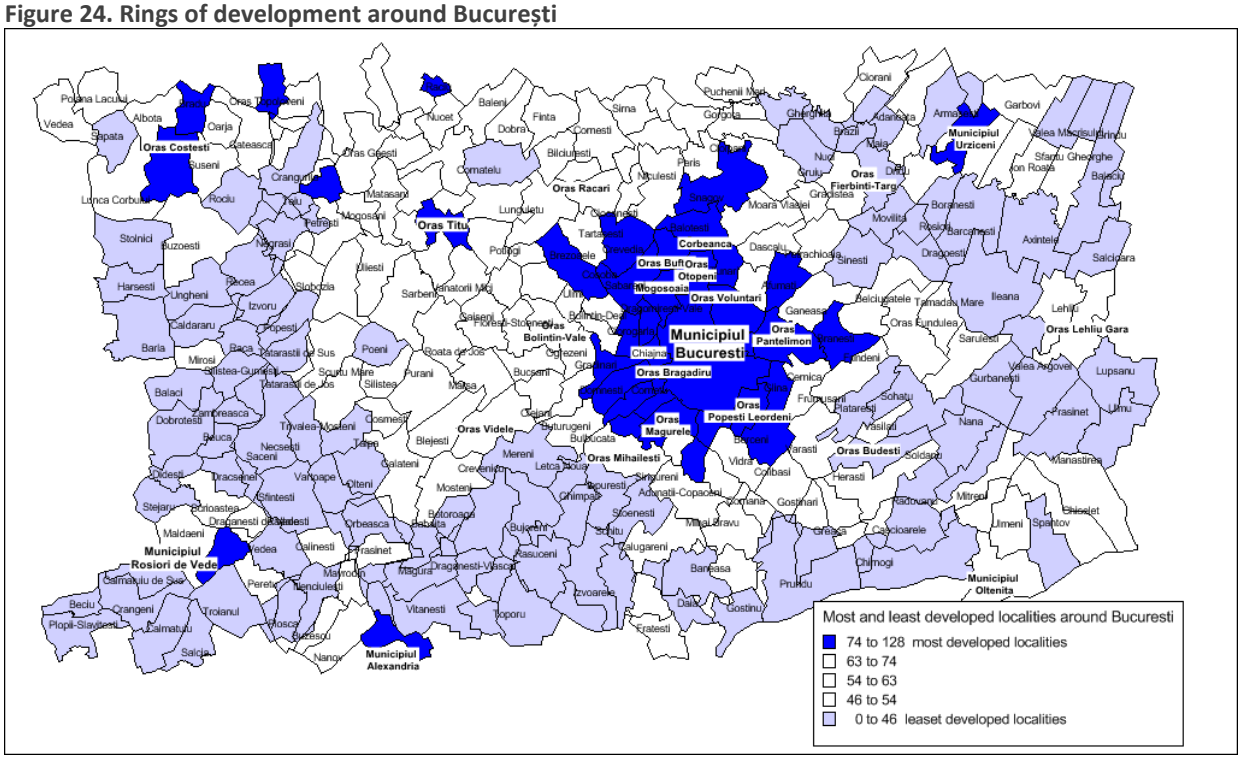
254. **București is Romania's premier growth pole.** It accounts for around 25% of the country's GDP, and the 1-hour access area around it produces around 50% of all firm revenues in the country. The București-Ilfov region is the economic heart of the country, and it offers many lessons to the other growth poles.

255. **The first lesson is that growth tends to spill-over to neighboring localities, but not equally, and not everywhere.** At the height of the economic boom in Romania, Ilfov County had a higher GDP/capita than București. In fact, it had the highest GDP/capita in the country. However, Ilfov also registered a significant gain in terms of its overall human development.

256. **Thus, growth poles do not only contribute to the economic growth of peri-urban areas, but also to their social development.** Dumitru Sandu, one of Romania's premier sociologists, has developed the Local Human Development Index, which draws on the UN HDI methodology, but adapts it for computation at the local level, and for use with data that is readily available in Romania. (The methodology behind the Local Human Development Index - LHDI - is included in Annex 7.) Sandu has computed the LHDI at the locality level using 2002 Census data and 2011 Census data, and looking at measures of education, healthcare, welfare, and demographic change. This has allowed him to determine relative performance of Romanian localities over time. One thing that he observed is that

over a decade of development, virtually every poor and very poor county in Romania made the transition to a higher level of development – lower-middle developed or middle-developed. Ilfov County made the transition from a lower-middle developed area in 2002, to an upper developed area in 2011 – a jump of four development classes (middle-developed, upper-middle developed, developed, upper developed) in just a decade. Another dynamic observed by Sandu was the very rapid advancement in ranking of localities adjacent to growth poles. If in 2002, there was only one such locality among the top 20, in 2011 there were 11. Most notably, there were 8 localities from Ilfov County (e.g., Corbeanca, Chiajna, or Mogoșoaia) that were among the 20 localities with the highest LHDI in Romania. Other notable localities in this top 20 are Dumbrăvița and Giroc around Timișoara, Florești next to Cluj-Napoca, and Valea Lupului close to Iași.

Figure 24. Rings of development around București



257. **For growth poles to serve their purpose and "spread development" around them, it is important to have strong institutional links between the center city and adjacent localities.** In 2002 the localities of Ilfov county were practically absent in the top of most developed communities. Their strong emergence by 2011 could be put in relation with the development of Bucureşti but also with the existence of cooperation forms between Ilfov and Bucureşti within the development region they are forming. The deep poverty of large areas from Teleorman, Giurgiu, Călăraşi and Ialomiţa, located also in the proximity of Bucureşti is an example of a non-cooperative interaction. All these counties have very few forms of institutional cooperation. As the map below highlights, not all localities around București have benefited equally from being close to the

country' premier growth pole, but it is evident that proximity to a growth pole ultimately translates into economic and human development.

258. **Another lesson that the București growth poles teaches is that localities found between two different economic engines have a higher chance of benefiting from development spill-overs than localities that are just gravitating around a growth pole.** In the case of București, the adjacent localities that have developed the most are those that are found between the capital and other growth engines like Ploiești or Pitești. The fact that there are strong synergies between București and these two cities is also confirmed by the gravity models that were presented and discussed above. Individual growth poles can use the gravity models prepared here to determine the areas around them they have the strongest synergies with, and prioritize investments in those areas. (*The Competitive Cities* report also provides regional level gravity models, which provide a more refined picture of synergies between different localities.) Ultimately, this is what will bring the largest benefits to not only the center city, but also to surrounding localities.

Making București a growth pole?

259. **While București is the country's premier growth pole, it has not received growth pole funding for the 2007-2013 programming period.** The reasons for this occurrence include:

- initially, the growth poles were designed to be growth engines for their respective regions, and București-Ilfov was both its own region and a growth pole. As such, it already receives a regional allocation of ROP funds, which it can use for a host of projects.
- both București and Ilfov County have significant resources for investment projects. The București-Ilfov Region now has a GDP/Capita that is above the EU average.
- București, unlike other cities in the country benefits from significant investment funds from the State Budget – e.g. the allocations for the extension of the metro network.
- the functional area of București extends beyond the boundaries of Ilfov County, which would have made the establishment of a București Growth Pole difficult, as projects would have had to be managed across regional boundaries.

260. **Nonetheless, the same way other growth poles drive regional economies, so does București-Ilfov drive development for a larger region than the one defined right now.** A look at the gravity models in Figure 12 indicates that even when you take București-Ilfov outside the picture, its influence it unmistakable. Basically, the most developed areas in the South Region are those around the capital city. Although Ploiești was designated the growth pole for the South region, with the intention to serve as a polarizing factor there, it is obvious that București has in fact the strongest polarizing effect.

261. **This begets the question of whether București should actually become part of the South Region, the same way Warsaw (Poland) was made part of the Mazovia Region.** It is quite obvious that the South Region is deeply interconnected with București, and as such regional development projects should have the capital at their core. Developing a regional strategy without considering București (or cutting it out, the same way it was done in the maps above) is not the ideal way to go.

262. **Whether București will become part of the South Region or not, is still to be decided.** The benefits of such a move may go beyond economical and functional aspects though. On the one hand, there is the possibility of București still being eligible for convergence funds, as its GDP/capita may be "diluted" within the region. This means that it will be easier to promote growth pole projects that go beyond the limits of Ilfov, and may help spur development in a number of localities that are quite poor now. Moreover, București would be an ideal testing ground for growth poles investments that go beyond the boundaries of the center city, and it could offer valuable lessons in real time for the other growth poles.

What type of growth pole investments for 2014-2020?

263. **As the analysis above has shown, there are significant differences between individual growth poles.** As such, different types of investments may be called for, for individual growth poles. Ultimately however, it should be the decision of growth pole leaders on what types of investments would best serve their development needs. The last chapter discusses individual recommendations for each growth pole, which may serve as an input for drafting integrated development plans. In what follows, we will include a number of principles that may be taken into consideration when deciding what to fund within growth poles.

264. **First, before deciding what to focus on within the growth pole, it is important to also look outside the growth pole.** As indicated earlier, the investments with the highest potential impact for growth poles are investments that cross growth pole boundaries (e.g., connective infrastructure to large markets, or connective infrastructure that enables the expansion of demographic and economic mass). It is critical therefore that the next growth pole policy be not designed in a vacuum, but have the larger picture in view – the national level, regional level, and global level.

265. **Second, it is very important to establish a base-line of what a growth pole needs, and then ensure the respective base-line is met before financing other projects.** For example, if such a base-line includes the fact that 90% of the people in the growth pole should have access to running water, and 75% have access to a sewage system, than a priority should be given to achieving these standards before focusing on other types of investments. Section IV of the National Spatial Plan includes a number of quantitative indicators to designate urban areas. These indicators could serve as a first cut to establish a number of base-line indicators for growth poles. Thus, a priority will be given to investments

that help all localities in the growth pole meet these basic base-lines. This will also have an effect on how growth poles will be defined, avoiding the addition of rural communities with little potential of contributing to the economic dynamism of the growth pole.

266. **Third, it is important to differentiate investments within growth poles based on their individual profiles.** These profiles will require a careful local analysis, and priorities also have to be decided locally. A number of key issues may be taken into consideration though:

- for growth poles with a growing population (such as Cluj-Napoca and Timișoara), it will be important to consider the development of connective infrastructure and integrated public transport networks, to ensure proper access to opportunities for all these new people.
- for growth poles with a shrinking population it will be important to determine how the existent infrastructure can be consolidated with an eye to efficiency. For example, a decrease in population density will make public transport systems less profitable, and may have unwanted long-term consequences (for example the tramway systems in Brașov and Constanța were eliminated). Similarly, a drop in population density will affect efficiency in water and sewage systems, sanitation systems, and public lighting.
- growth poles with growing innovative and high-end service sectors (e.g., Cluj-Napoca) may choose to focus on quality of life investments (e.g., pedestrian areas, bike paths, public transport, parks, city beautification projects, investments in cultural spaces, etc.), which would act as magnets for highly skilled individuals.
- growth poles with a dominant manufacturing sector (e.g. Craiova or Brașov), should focus investments on improved accessibility measures to the new and existent industrial platforms. It should be as easy as possible (including additional public transport lines) to reach these platforms.
- for each growth pole it is important to map marginalized communities, as such communities may represent significant population pockets with un-tapped productivity potential. Targeted and integrated measures should be crafted to ensure that these communities have improved access to opportunities.
- other priorities, such as environmental priorities (e.g., investments in energy efficiency), social priorities (e.g. improvements of social infrastructure), or economic priorities (e.g., enlargement of economic mass), constitute a decision that is taken by public authorities with the consultation of EU counterparts and key documents. Ideally though, priority should be given to projects that achieve a triple-bottom line approach – i.e., focusing on economic, social, and environmental sustainability. For example, investments in public transport can achieve triple-bottom line outcomes, allowing firms access to a larger labor pool, bringing opportunities closer to poorer people, and discouraging the use of private cars.
- the types of investments that are now funded under Axis 1 of the ROP do not necessarily have to be changed for the 2014-2020 programming period, but a better integration with other investments (e.g., from other OPs, from local budgets, from the state budget, from private sources, or from PPP arrangements) should be encouraged. The ITI approach is within the spirit of

this recommendation. The fact is, the gamut of investments that public authorities can undertake is relatively limited, and EU funds cover most of them – with some notable exceptions (e.g., social housing).

267. The last chapter includes a more detailed discussion, for each growth pole, of potential investments in regional infrastructure, business infrastructure, and the need for proper integrated planning. The *TRACE* reports provide a number of recommendations for energy efficiency interventions. The reports on *Poor and Marginalized Communities* will provide more recommendations for social interventions in urban areas. The *mobility plans* to be prepared by EBRD, will provide more insights into transportation investments within growth poles.

Proper monitoring and evaluation of the Growth Poles Policy

268. **Proper monitoring is key in any type of investment, and even more so for investments that are done with public money.** Public expenditures are done with key objectives in mind, and their effectiveness hinges on the degree to which these objectives have been achieved.

269. **Consequently, a first step for the Growth Poles Policy 2014-2020 should be to set-up clear objectives and performance indicators.** For the 2007-2013 Programming Period, the objectives of the Growth Poles Policy were more or less sub-summed to the overall ROP objectives – i.e. to help balance development across regions, and to help create more jobs. The first objective was missed off the bat, and the reasons for this were discussed above. The second objective is likely to be missed too because of the effects of the Crisis and because of the overall demographic decline.

270. **Since growth poles are meant to drive regional growth, a simple key performance indicator for the effectiveness of the growth poles policy should be the Regional GDP/capita.** Of course, economic output is a factor of much more than just a growth poles policy, but so is job growth for that matter. Most importantly though, if GDP/capita fails to grow over the implementation period of a growth poles policy, then one would have to question the effectiveness of such a program.

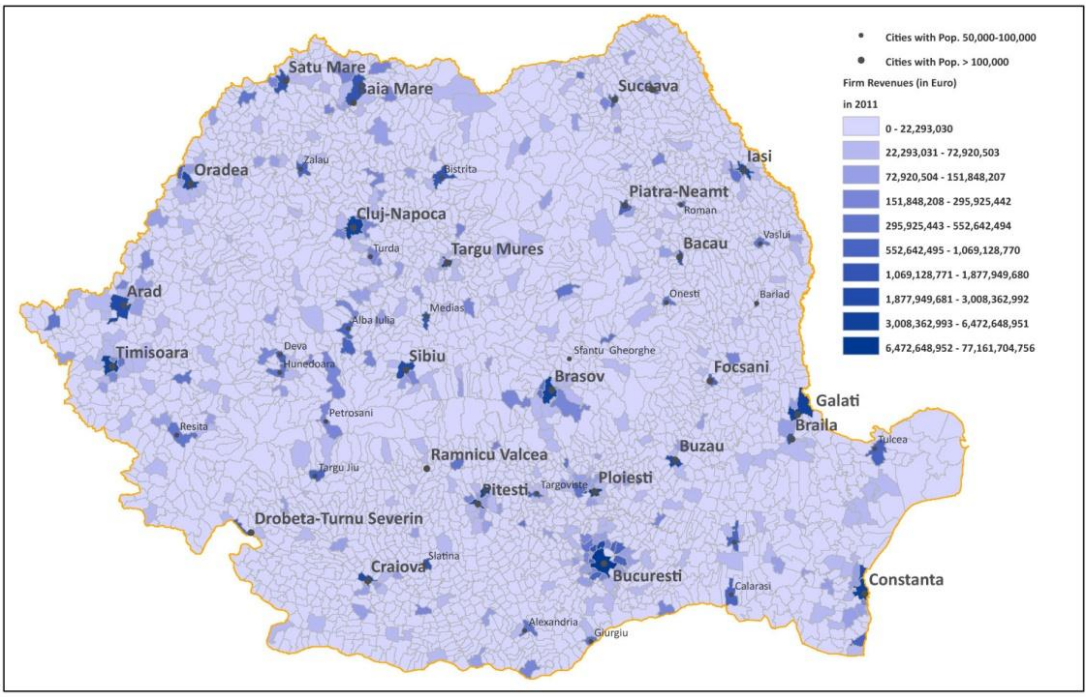
271. **Of course, there are more refined ways to assess the performance of a growth poles policy.** For example, one could look at the extent to which the growth pole has managed to polarize growth – i.e., enable other localities in the region to share in on the wealth and growth of the growth pole. This would of course require that a performance indicator such as the local GDP/capita can be easily computed and monitored. In practice however, this is hard to do.

272. **As an alternative to the local GDP/capita, public authorities could look at firm revenues.** While this measure has its shortcomings (e.g., many companies perform their work in one locality and declare their revenues in another), it also has a number of advantages. For one, such data is collected yearly by the Ministry of Finance and is easily available, being compiled and organized in streamlined databases by a number of private companies. This measure is also

an improvement over looking at job growth figures, as an overall decrease in the number of jobs may go hand in hand with a rise in productivity. Thus, although there are less people working regionally, they are producing more. Also, simply looking at job growth figure cannot really capture growth performance and future potential. If all the new jobs created are minimum-wage jobs, one could hardly talk about development.

273. **Another advantage of looking at firm revenues is that the polarization effect of growth poles can be tracked relatively easily.** As the map below indicates, the highest firm revenues are generated by large cities and their surrounding localities. An effective growth poles policy would ideally enable the increase in firm revenues not only in the center city, but also in surrounding localities.

Figure 25. Firm Revenues by District in Romania, in 2011



Data Source: National Institute of Statistics

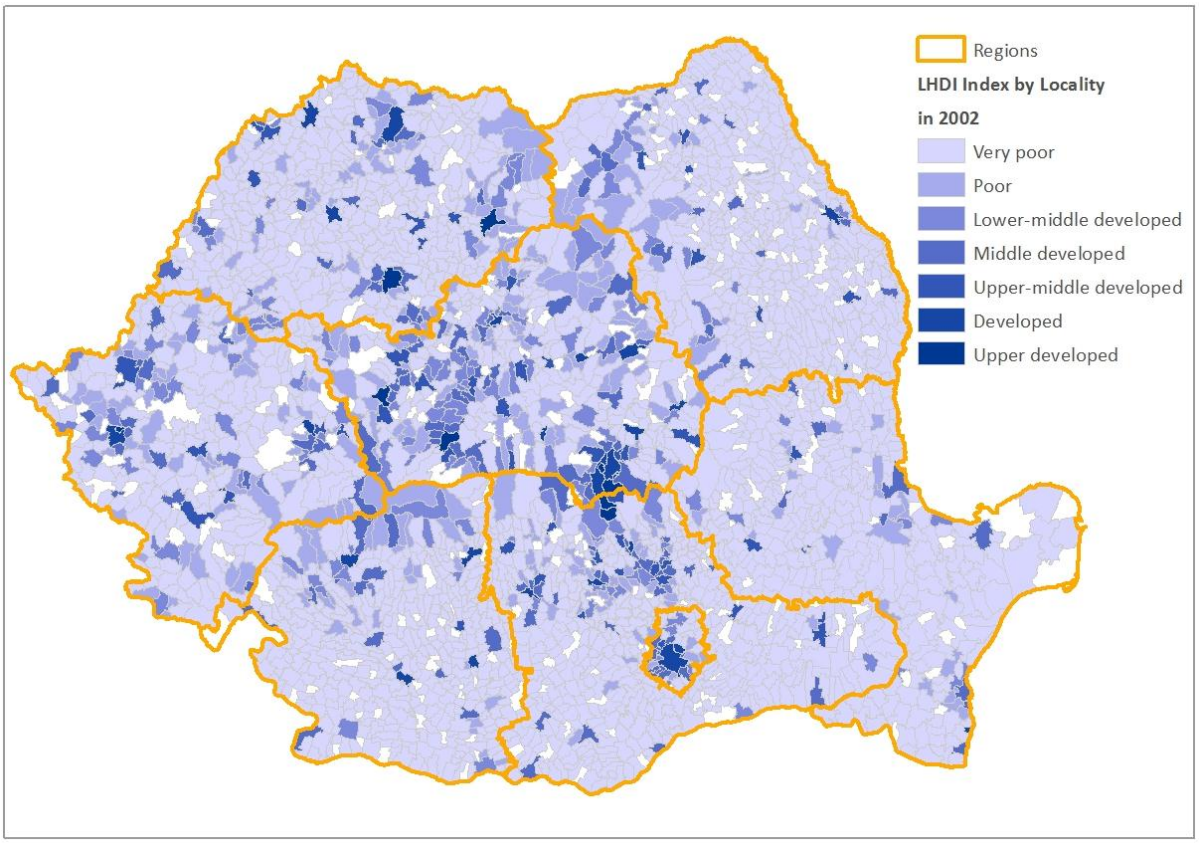
274. **Of course, a good growth poles policy does not only drive growth, but also helps drive development.** For example, cities with a growing economy also create more opportunities for people living in the area, they enable the extension of public utility infrastructure (e.g., water, sewage, sanitation, public transport), and they can help improve educational attainment, healthcare, and general welfare for a larger population.

275. **Thus, in addition to growth indicators, one could also look at composite development indicators.** One such indicator was developed by Dumitru Sandu, and it is calculated at the local level – the Local Human

Development Index (LHDI). Annex 7 includes a more detailed analysis of the methodology behind the LHDI. In essence, the LHDI draws on Census data and looks at measures of education, healthcare, welfare, and demographic change.

276. **A look at the LHDI for 2002 and the one for 2011 shows how effective growing cities are in polarizing development.** For one, it is clear that most of the localities in Romania have benefited from the overall growth of the previous decade. However, localities adjacent to growth poles have been the net benefactors. Of the top 20 localities with the highest LHDI in 2011, 12 represent suburbs of the following growth poles: București (Corbeanca, Otopeni, Voluntari, Chiajna, Bragadiru, Mogoșoaia, Popești-Leordeni), Timișoara (Dumbrăvița, Giroc), Iași (Valea Lupului), Cluj-Napoca (Florești), and Brașov (Predeal). Of course, among the localities with the highest LHDI in 2011 one also finds some center cities of growth poles: Cluj-Napoca, București, Brașov, and Timișoara.

Figure 26. The LHDI for 2002

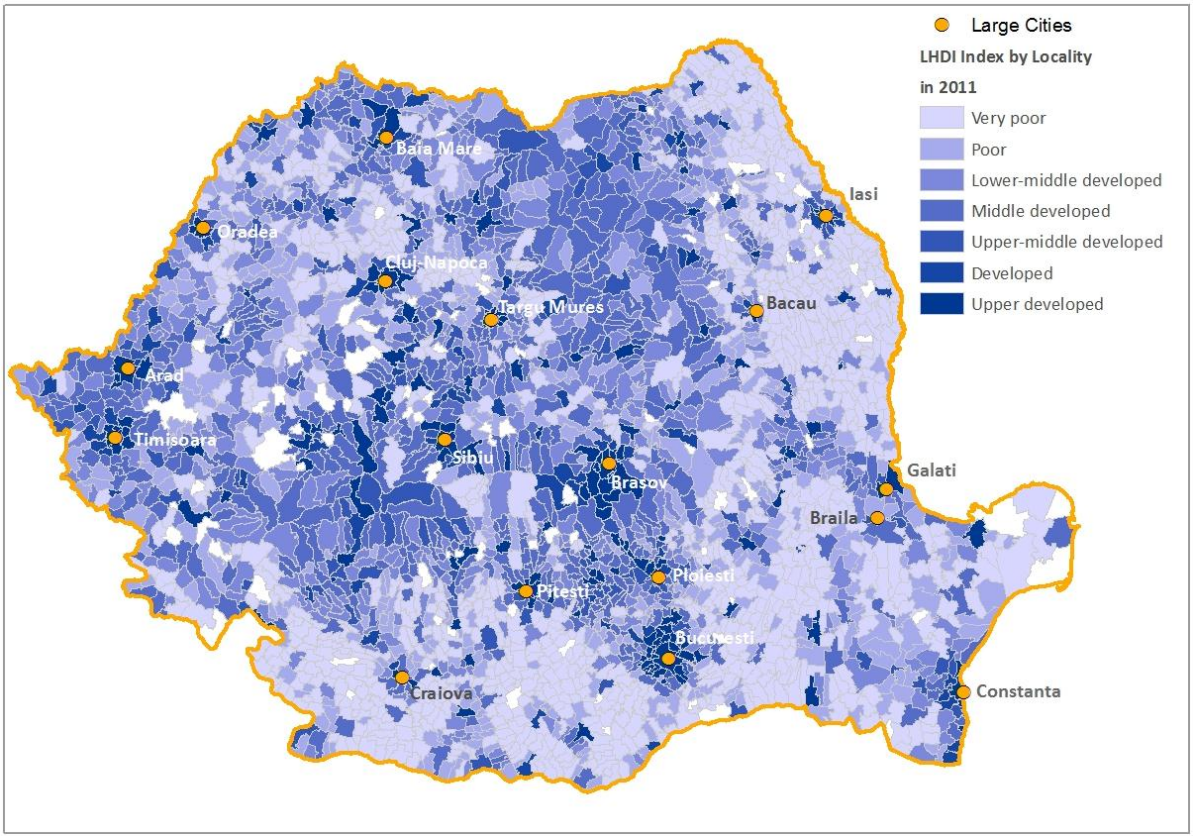


Data source: Dumitru Sandu
Note: The blank spots indicate localities for which no data was available

277. **One of the shortcomings of the LHDI is that it is reliant on Census data.** This means that it is hard to do a year by year comparison and proper monitoring. This index is a wonderful tool however for monitoring overall long-term development performance. Also, there is the potential of adjusting the

methodology behind the index, to allow for its computation at shorter time intervals.

Figure 27. The LHDI for 2011



Data source: Dumitru Sandu
Note: The blank spots indicate localities for which no data was available

278. **To be truly successful growth poles need to enlarge their demographic and economic mass, and ensure that development spills over to neighboring localities.** As such, two simple performance indicators, which are easy to collect and track and which would enable a year-by-year comparison, are population growth and economic growth (as measured by growth in firm revenues). For one, it would be important to measure demographic change in the center city and adjacent localities. A successful growth pole is one that attracts people. At the same time, it is important to see to what extent economic activity in the center city is actually growing and spilling over to neighboring localities.

279. **Initially, the polarization potential of growth poles will be limited to a number of closely located localities.** Over time however, as the growth pole continues growing, more and more localities will benefit from the positive effects generated by the growth poles.

280. **Over the long term, a more complex development index like the LHDI should be used to measure the impact of the growth poles policy, as well as the impact of other public investment initiatives.**

Designing sustainable institutional frameworks for growth pole governance

281. **The analysis of growth poles governance structures revealed a young institutional structure which in many aspects is still a work in progress**. There are striking differences of capacity among the IDAs governing the growth pole areas – some IDAs have almost a decade of experience (e.g., Iași), have accessed funds for capacity building, have up to 25 employees and have actively engage in IDP implementation; other exist only on paper (or not event that, as they don't record any financial track at all – see Cluj Napoca). The above implies that each growth pole coordinator is faced with a different counterpart, from the side of the governing IDA.

282. **The designation and the activity of growth pole coordinators (as well as their assigned technical teams) has been extremely useful in supporting the implementation and monitoring of growth poles IDP**s. Growth pole coordinator profiles are as well different, some having been selected from within the RDA staff, others from within the city hall personnel. This may have allowed for different degrees/intensity of interaction and understanding of the local contexts of each growth pole area.

283. **All in all, there was a disproportionate attention to building capacity within the RDAs to support growth poles, rather than strengthening the collaborative/representative structures of growth pole members within city halls**. To this end, it can be argued that the growth pole policy has had quite a prominent top down approach.

284. **Last but not least, there are significant gaps in the legal framework of IDAs which makes capacity building and financial sustainability a difficult task**. Two major drawbacks of the legal framework governing the IDAs are to be underlined.

(1) There is no distinct law detailing the functioning, attributions and funding mechanisms of IDAs, including those governing metropolitan areas (and implicitly growth pole areas). This has several implications. The IDAs are registered in the General Registry of Associations and Foundations, together with all other non-profit units in Romania. Their functioning and funding mechanism is the same for all other associations active in all different fields in Romania with virtually no possibility to impose/expect specificities with regards to IDAs activity and role. For instance, a specific challenge of growth pole IDAs may refer to decision making power division and mechanism between composing territorial administrative units, with an implicit risk of decision take over by the main city. This may not be the case for IDAs set for different purposes or other associations set according to Law 26/2000, however is an important aspect dealt with in the national legislative

framework of other countries. The lack of a specially designed law also impedes the territorial administrative units to tap into other funding instruments, such as funds allocated for the public sector or fiscal instruments (as for the examples set by the international experience), which they are otherwise entitled to, considering their role, mandate, and responsibilities.

(2) Since IDAs are non-profit associations governed by the private law, the possibility to be delegated responsibilities by the component public entities is severely limited. Governing growth pole areas is a difficult endeavor and a clear division of mandates should be set in terms of the attributions of IDAs, on one side, and attributions of composing TAUs on the other side. As it is right now, the IDAs may only retain a symbolic role as well as a networking and collaboration platform among composing TAUs – with no clearly set stakes - which is a status much too weak if seen in the perspective of IDAs president as growth pole leader. As we have seen in the French experience, a major feature of IDAs is that they can be delegated different powers by the constituent member local authorities.

285. **Adding to the above, there are certain inconsistencies in different laws that include mentions to inter-communal cooperation, which need to be corrected**. The report on inter-communal associations of the Institute for Public Policy (2008) does a great job of inventorying and highlighting aspects such as for instance the fact the Law 51/2006 of local public services names these structures "Communal Development Associations" and defines them as "public institutions for inter-communal cooperation" (Art. 10).

286. **No coordinated support seems to have been offered to the growth pole IDAs by central authorities**, their role and attributions being rather poorly clarified in different regulatory documents related to the growth pole policy.

287. **Last but not least, there is insufficient awareness locally with regards to the role and expectations of growth poles.** In most cases, the IDPs are just seen in a limited and opportunistic way, as a funding instrument that needs to be tapped into.

288. **Recommendations drawn from the above analysis flow into two main directions**, the first having to do with the IDAs representing the interests of constituent localities, and the second regarding the function and capacity of growth pole coordinators.

289. **With regards to the IDAs, it is the legal framework developments which are essential for these structures to become functionally efficient**. First and foremost, there should be a distinctive law governing IDAs and thus separating such organizations of the general category of NGOs. Such a law should clarify attributions than can be transferred from local/county authorities to IDAs, clarify funding mechanisms (including fiscal powers), and allowing IDAs to access funds currently available only for public sector beneficiaries.

290. **With regards to the growth pole coordinators, these positions should continue in the next policy cycle, however with a slightly different role** – that is to gradually increase capacity and transfer responsibility to the technical apparatus of IDAs. New attributions may be thought of, in addition to this and capitalizing on their accumulated expertise, as for instance their potential engagement in implementing Integrated Territorial Investments over the next programming period.

291. **As for general recommendations, capacity building for both IDAs and growth pole coordinators is essential and the role of the MDRAP in this aspect is very important**. Adding to this, a better understanding of the role of/and expectations from growth poles should be developed. This should empower governance structures to have a more coherent and firm message as well as to more easily mobilize support from other stakeholders.

Alternative institutional solutions to IDAs

292. While it was not the scope of this report to provide recommendations on alternative institutional set-ups to manage growth poles in 2014-2020, this section will provide a number of ideas for consideration.

293. **First, it is obvious that the current Inter-communal Development Associations are not exactly working.** For one, the center cities tend to dominate these IDAs, smaller constituent localities often lack the needed co-financing for truly metropolitan projects, and there is no incentive structure to ensure proper management of these IDAs. Most often, the IDAs are staffed by public officials, for which the IDA work represents an extra task for a salary that is relatively low. This in essence means more responsibility for the same pay.

294. **Second, it is quite difficult to implement truly metropolitan projects within the current IDA set-up.** For example, a new connecting road at the metropolitan level would require that the General Urban Plans of different localities be coordinated with each other. It would also mean that budgetary exercises have to be coordinated, to ensure that when a road is finished in one locality, it is immediately carried over by the other locality. Metropolitan projects would also require a supportive national legislation. For example, a public transport network is hard to organize at the metropolitan level, because any public transport line that crosses a municipal boundary needs to be tendered by the County Council.

295. **Third, IDAs are not always sustainable because of political shifts and changes.** During one electoral cycle, the mayors of an IDA may agree on a set of common objectives and may undertake a set of projects to achieve these objectives. However, a new electoral cycle may bring changes among the leadership of the different localities, and with it, a new set of problems.

296. **Consequently, one alternative to the current IDAs may be stand-alone metropolitan development agencies, which function as special purpose NGOs.** The analysis carried on for the *MA-IB Collaboration* report has shown that the

Regional Development Agencies have done their job exceedingly well, benefiting from a flexible hiring and firing policy, offering higher salaries than the public sector, and usually being insulated from political interference.

297. **Metropolitan development agencies (MDAs) are quite common throughout the world, and they may emulate some of the positive aspects of the RDAs, while at the same time creating additional institutional tools for effective metropolitan development.** One of the key features of such a metropolitan development agency would be that it would exist outside the political space. Although the local councils of the different local authorities would have to initially agree on the establishment of such MDAs, the MDAs themselves would work independently to enable development at the metropolitan level. The MDAs will have more flexibility in their staffing plan, and could offer salaries that will be attractive for specialists in a variety of fields. Unfortunately, most IDAs today have a hard time attracting the skilled people they would need for project elaboration, implementations, and monitoring, so they outsource key functions most of the time. MDAs could help internalize much of the work that is now outsourced, and would be closer to the public administration officials than a consulting company.

298. **The same way RDAs were created as an artifice because of the lack of a regional administrative tier, MDAs could be created as an artifice for metropolitan administration.** Given the positive experience with the performance of the RDAs (see for example the results of the survey organized with ROP beneficiaries in the *MA-IB Collaboration* report), and given that it is unlikely that metropolitan governance will be introduced in Romania any time soon, MDAs may be one of the best alternatives for ensuring that metropolitan level planning and development will truly become a reality.

299. **The establishment of an MDA would also require a re-definition of the role of growth pole coordinators**. Thus, growth pole coordinator may continue to keep a liaising function between the Regional Development Agency and the growth pole, but could take a more active role in the implementation and monitoring of projects with EU funding. Or, the growth pole coordinators will take a key management function as part of the MDAs, being responsible not only for the implementation of ROP projects, but also of other Operational Programme projects (potentially taking advantage of an ITI tool), and of projects with state budget and local budget funding.

300. Again, the ideas presented above are primarily meant to stir a discussion. More concrete and elaborated recommendations on potential institutional set-ups would require a separate analysis, including a detailed scanning of current legislative and institutional frameworks, and in-depth interviews with relevant actors and stakeholders.

PART III - Recommendations for individual growth poles

301. **While the previous section looked at big picture issues, this chapter will zoom into the local level to identify some potential areas for intervention within the growth poles**. According to programming documents and discussions meant to prepare the 2014-2020 ROP, there are five major areas the Regional Operational Programme will look at in the next programming period:

1) urban development;
2) energy efficiency;
3) marginalized communities;
4) regional and local infrastructure; and
5) business environment.

The urban development component is where a potential future growth poles policy would be nested, but all of the other four components will have relevance for growth poles too – the same way that Axis 1 under the 2007-2013 period included investments that could have been nested under the other 5 ROP axes. In other words, investments in growth poles would also cover energy efficiency and issues pertaining to marginalized communities, local and regional infrastructure, and investments targeted at improving the business environment.

302. **Of the five areas listed above, this report will look in more detail at regional infrastructure and at the business environment, two areas where the need for assessment is highest.** As for the other areas, energy efficiency will be treated separately in the TRACE studies planned by the World Bank for the first half of 2013, while marginalized communities is the subject of another project currently implemented by the World Bank. Also, JASPERS is performing in-depth transport studies for all seven growth poles, which will also include recommendations for the development of local infrastructure.

303. **In addition to regional infrastructure and business environment, we will also look at the spatial component.** Good spatial planning is critical for sustainable urban development, and adequate attention to space in any economic analysis is key. At a basic level, it is known that denser cities tend to be less polluted (unless they are at a level where diseconomies of agglomeration outweigh the benefits), they allow a more efficient design of public transportation, and they enable a more cost-effective delivery of key public services (e.g., water and wastewater, solid waste management, street lighting, etc.). Similarly, a well-organized city structure enables more fluid economic flows and is more conducive to development. For example, cities with a compact, predominantly mono-centric structure enable lower average travel times to centers of activity, and create strong premises for continued urban growth. It is relatively well-known that people are on average willing to commute for about an hour to get to work every day. If average commuting times go up because of a poor city structure, local businesses lose some of their competitiveness. In essence, the harder it will be for people to reach a particular business (both

employees and customers), the less competitive will the business become. Location is important, and good spatial planning ensures that a roster of good locations is continually available for people, businesses, and capital.

304. **Similarly, investments in regional infrastructure and in local businesses require a clear understanding of what such measures hope to achieve.** For example, investments in regional infrastructure should primarily aim at increasing the economic and demographic mass of growth poles. The larger a city/area is, and the larger its economy, the easier it can take advantage of economies of scale and urbanization economies.[38] Regional infrastructure should enable growth poles easier access to larger markets and wider labor pools, while easing access of other people in the surrounding area to opportunities in the growth pole (jobs, educations, healthcare, shopping, entertainment, recreation). As such, regional infrastructure investments should aim to strengthen existing links (e.g., major commuting arteries) and to establish new connections between places with large economic and demographic mass.

305. **As far as the business environment is concerned, ROP investments should primarily look at ways to encourage job creation and larger revenues.** This may involve allocation of funds for small business investments (small and medium-sized enterprises are usually some of the most active job creators), or it may involve investments in infrastructure that benefits local businesses. For example, many start-ups have a hard time identifying an affordable space where they can conduct their business. As such, local authorities can help by creating business incubators, particularly by redeveloping brownfields in prime locations. Similarly, some cities may develop a competitive advantage in a particular sector, which may prompt local authorities to invest in infrastructure that comes to the aid of that sector. For example, a burgeoning IT sector will benefit from investment in IT infrastructure, such as a high-speed fiber-optic cable network and free Wi-Fi hotspots in the city.

306. **It is important to know, however, that in addition to encouraging local economic engines it is critical to encourage economic diversity.** Economic concentration encourages higher economic growth (banking again on agglomeration economies), but a local economy that is too homogeneous is also more susceptible to outside risks such as global market changes. In extreme cases, cities that are overly dependent on one particular sector run the risk of losing their competitive advantage if that particular sector faces difficulties. If half a city's employment base works for one particular firm, and if that firm goes bankrupt or decides to move elsewhere, the city is left with a big void that needs to be filled.

307. **Consequently, cities need both strong economic engines and a diverse economic base, and local authorities should encourage both.** The following sections will look at each growth pole in detail to identify these potential growth engines. The method of analysis is one that is standard in the local economic

[38] Some of these scale and agglomeration economies have been discussed in more detail in *Competitive Cities: Reshaping the Economic Geography of Romania.*

world and is based on a framework developed by the Nobel Prize economist Douglas North.

308. **As a first step, we have identified in each of the growth poles (the center cities and all constituent localities of the metropolitan area) the location quotient for each economic sector represented locally.** The location quotient (LQ) is a simple measure that identifies the sectors in which a locality may have a competitive advantage. The LQ is calculated by dividing the share of a particular sector in the local economy to the share of that sector in the national economy. Thus, if software production represents 10% of local employment in Iași, but only 5% of national employment, than the LQ for software production for Iași will be 2, and it indicates that this is a sector where Iași may have a competitive advantage.

309. **For all seven growth poles, we have selected all sectors that had an LQ higher than 1 – i.e., with a potential competitive advantage.** Of course, not all sectors that have an LQ higher than 1 are also economic engines. For example, if there are only 10 optical specialists in Romania, and seven of them are located in Craiova, that does not mean that Craiova should invest in developing infrastructure for the optical industry. It is not enough for a sector to have a higher representation locally than at the national level. It is also important for it to be well represented in terms of absolute employment numbers.

310. **A sector with a high LQ and large employment numbers is not only an important vector of the local economy, but also a sector with gravitational pool.** Contrary to conventional wisdom, firms in similar sectors tend to co-locate. Rather than searching for other locations (where maybe there is no competition), firms prefer to set-up shop in areas where several other similar firms are located. These areas are more competitive, but they also present a larger, more diversified, and more skilled labor pool, and the flow of ideas from company to company often sets the seeds for new innovations. People, of course, will locate in areas where they can find more, and a larger diversity, of the type of jobs they are interested in. If they do not like working for a company anymore, or if they want to choose a different field, it will be easier to find a new job or opportunity. In addition, capital usually looks for dynamic and burgeoning regions. In other words, firms follow other firms and the existent labor pool, people follow jobs and other people, and capital goes where the firms and people are. The more represented a sector is locally, the more it will be able to generate its own success.

311. **For local authorities, it is important to identify these local economic engines and determine ways to enhance the positive externalities they generate.** For example, a large manufacturing plant may require the presence of suppliers locally. To accommodate these suppliers, and to enable seamless flows between the big company and smaller ones, local authorities can help by providing key infrastructure investments (e.g., extending public transportation lines, developing connecting roads, linking to rail lines, bringing in electricity and water connections, etc.). Similarly, a well-represented sector that is made-up of many SMEs can be encouraged through investments in business incubators,

which provide affordable work space for companies. The "apartment-firm" phenomenon is widely spread in Romania and is a reflection of the dearth of suitable office space.

312. **For each of the seven growth poles, we selected 30 sectors with the potential of local economic engines.** First, we selected all sectors that had an LQ higher than 1, excluding all sectors with an LQ lower than 1. From this pool, we separated the sectors with the highest absolute employment numbers. There are sectors, which based on their size and local potential, are likely to attract people from other areas. There are sectors with a large employment base locally, but without a competitive advantage. For example, sectors like retail or primary education may be well represented locally in terms of absolute employment levels, but these are rarely resilient economic engines. The retail and education sectors tend to be well-represented in most places, and as such have a lower gravitational pull. A shopping center may locate where other shopping centers have been successful, but ultimately the final decision will be based on the likelihood of attracting a high enough customer base. Similarly, people will not migrate to a place because there are lots of jobs in retail there – they could get a job in retail in almost every city.

313. **Of course, the fact that a sector is doing well at a particular point in time is not a guarantee that it will do well in the future too.** The example of Nokia in Cluj is a case in point. Initially, the presence of the company locally has not only helped Cluj gain a competitive advantage in the telecommunications field, but it has also generated a significant boost in employment and an even more significant boost in revenues. However, after just a couple of years, the company decided to move out. This means that a static analysis of the local economy should be doubled by a dynamic analysis – i.e., an assessment of the performance of sectors with a competitive advantage (LQ>1) over time. Such an analysis can help local authorities identify the sectors with "staying power."

314. **Shift-share analysis is one of the most popular ways of evaluating sectors' "staying power."** We used shift-share analysis to get a deeper understanding of the health of local economies in all seven growth poles. The rich dataset we obtained has enabled an analysis over two distinct and critical time periods: 2005-2008, the boom years before the global crisis; and 2008-2011, the recession years. This analysis offers a true stress test of the strength of local economies. In essence, the sectors that have managed to drive employment growth in both the boom and recession years are also the sectors that offer the most significant resiliency to the local economy, and they should also receive the most attention from decision-makers at the local, regional, and national level.

315. **The way shift-share analysis was used in the seven growth poles is simple and straightforward.** The key steps are described below:

1. We first secured a database with firm-level information (most importantly, employment and location) for all firms in Romania.
2. 2005, 2008, and 2011 sector-level employment (at the NACE 4 level) was separated out for the country as a whole, and for Romania's seven

designated growth poles. The growth poles include not only the center city, but also peri-urban localities that are part of the metropolitan area.

3. For each of the seven growth poles we computed the location quotient (LQ).
4. From among the sectors with an LQ higher than 1, we selected those with the highest employment base – usually 20-30 sectors which employed in 2011 around 40%-50% of all employees. These are the potential local "economic engines" as described above.
5. The performance of these economic engines was then tested before the crisis (2008) and after the crisis using the Shift-Share method.
6. The Shift-Share method looks at how a particular sector has performed over time compared to the national economy, and how that sector has performed at the local level (i.e., at the growth pole level) compared to the national level.
7. This information was synthesized in a number of graphs, which are included in all the individual growth poles analyses. On the X Axis, the graphs show how the local industries in the growth pole have performed compared to the same industries at the national level (more specifically, whether they have gained employment faster or slower locally than nationally). The Y Axis measures the performance of a particular industry/sector at the national level to the performance of the economy as a whole (i.e., whether the sector had gained employment faster or slower than the country as a whole).
8. **"Winner" sectors** are those sectors that have grown faster than the economy, and which at the local level have grown faster than the sector at the national level. For example, the fact that *Computer Programming* is a "Winner" in Cluj-Napoca, means that the sector *Computer Programming* has grown faster than the national economy (in terms of employment) and that the sector has grown even faster in Cluj-Napoca. In simple terms, this means that this sector has become increasingly concentrated in Cluj-Napoca.
9. **"Questionable Winner" sectors** are those that have grown faster at the local level, but at the national level have had a poorer performance than the overall economy. For example, the sector *Manufacture of footwear* has grown faster in Brașov (between 2005 and 2008) than the sector has grown at the national level. However, at the national level, the sector performed below average (i.e., it was not one of the national employment generators).
10. **"Loser" sectors** are those that have performed poorly both locally and nationally. In other word, these were sectors that grew slower than the national economy, and grew even slower at the local level.
11. **"Big Loser" sectors** are those that have grown slower at the local level, but have grown faster at the national level. This basically indicates that that particular growth pole had lost employment in that sector to other areas.

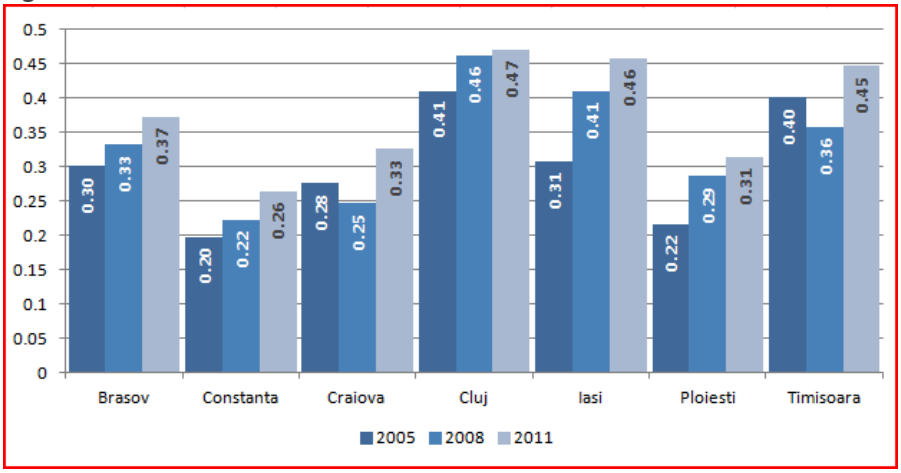
316. **Sectors deemed as "Winners" both before and after the crisis are those with the highest likelihood of being economic engines that can pull the local economy forward.** Of course, as noted earlier, the fact that one particular

sector has performed well locally before and after 2008 is not a guarantee that it will continue to do so in the future. The largest car manufacturer in Romania, Dacia, announced major lay-offs in the aftermath of the crisis, but ended up boosting employment when Germany's scrappage program took effect. Basically, the German Government put in place a stimulus program aimed at invigorating its auto industry (people could receive 2,500 Euro towards buying a new environmentally friendly car if they brought in their old car for scrappage). Indirectly, this also helped the Romanian car industry. Thus, Dacia avoided being a "Loser" sector after the crisis (although all signs pointed to that direction) largely thanks to a program by the German Government.

317. **All in all, the best way to avoid the risks posed by external shocks is to have a diverse enough economic base.** Thus, if a particular sector fails, others can come to the rescue and absorb the laid-off labor force. The more diverse a local economy is, the more resilient it is likely to be.

318. **Local economic diversity can be calculated using the Hachman Index.** The Hachman Index compares the diversity of the local economy to the diversity of the national economy on a scale from 0 to 1. The closer the Hachman Index is to 1, the more the local economy emulates the national economy. The closer the index is to 0, the more homogeneous the local economy is. The figure below shows the computed Hachman indexes for all seven growth poles, and for three distinct years: 2005, 2008, and 2011. As can be seen, with the exception of Timişoara and Craiova, all other growth poles have enjoyed continued economic diversification. Moreover, the crisis seems to have prompted increased diversification in all the growth poles.

Figure 28. Hachman Index for Romanian Growth Poles



Data Source: ListăFirme

319. **The growth poles with the highest local economic diversity in 2011 were Cluj, Iaşi, and Timişoara.** A diverse local economy is often a sign of economic maturity, but as we will later see, a large number of sectors does not always make up for the lack of true economic engines.

320. **In addition to an analysis of "economic engines" we have also performed a simple analysis of job creators.** When times are tough, local authorities, and people in general, care less about the presence of economic engines locally than they care about jobs. It does not matter if economic engines are well represented locally if they fail to also boost employment. Job creators may not always be as "attractive" as economic engines, but they help reduce public expenditures by creating opportunities in the private sector.

321. **These job creators can also benefit from strategic public investments.** As such, we have selected the job creators in each of the growth poles before and after the crisis. We have to caution again against seeing these sectors as economic panaceas. Nokia was a significant job creator before the crisis in Cluj, but it disappeared just as fast. As such, the observations that follow should be interpreted in this nuanced light.

322. **The table below highlights the main job creators in Romania before the crisis.** To a large extent, these are also the sectors that drove much of the growth in the country during those boom years – such as the construction sector, retail, or the manufacture of motor vehicles. The interesting thing is that almost all of these sectors lost employment in the post crisis-years. Some sectors, like brokerage activities or advertising agencies, contracted just as fast as they expanded. In others the contraction was less pronounced (i.e., they lost only a share of the jobs they created between 2005 and 2008).

Table 21. Main job creators in Romania between 2005 and 2008

Sector	Jobs created	Jobs created/lost between 2008 and 2011
Construction of residential and non-residential buildings	66,214	-31,126
Advertising agencies	58,562	-50,260
Security and commodity contracts brokerage	38,914	-38,152
Other retail sale of new goods in specialized stores	34,474	-29,089
Retail sale in non-specialized stores with food, beverages or tobacco predominating	34,260	-9,502
Private security activities	30,037	19,861
Extraction of crude petroleum	29,866	-7,295
Service activities incidental to land transportation	28,039	-3,034
Retail sale of flowers, plants, seeds, fertilizers, pet animals and pet food in specialized stores	21,005	-17,682
Freight transport by road	20,169	15,553
Engineering activities and related technical consultancy	17,898	-4,536
Manufacture of motor vehicles	17,534	-384
Construction of roads and motorways	17,029	-3,998
Manufacture of electrical and electronic equipment for motor vehicles	16,446	-249
Restaurants and mobile food service activities	13,198	8,692
Business and other management consultancy activities	12,505	6,686
Wholesale of wood, construction materials and sanitary equipment	11,820	-3,670
Wholesale of perfume and cosmetics	9,586	-9,782
Other business support service activities n.e.c.	8,845	2,027
Electrical installation	8,097	-1,948
Maintenance and repair of motor vehicles	7,711	3,388
Retail sale of clothing in specialized stores	7,655	-117

Dispensing chemist in specialized stores	7,172	4,372
Wholesale of metals and metal ores	7,067	-6,105
General cleaning of buildings	6,985	1,318
Computer programming activities	6,799	7,493
Plumbing, heat and air-conditioning installation	6,420	-3,459
Collection of non-hazardous waste	6,251	2,960
Accounting, bookkeeping and auditing activities; tax consultancy	6,222	631
Temporary employment agency activities	6,186	8,603
Non-specialized wholesale trade	6,055	-406
Manufacture of other parts and accessories for motor vehicles	5,855	1,824
Sale of cars and light motor vehicles	5,259	-2,737
Manufacture of bread; manufacture of fresh pastry goods and cakes	5,205	3,996

Data source: ListăFirme;

323. **Unlike the pre-crisis job creators, the post-crisis job creators proved reliable both before and after the crisis.** The sectors that have grown after the crisis have, by and large, registered higher employment rates before the crisis too. These are largely service sectors, and they mimic trends registered in other market economies. Many of these sectors with job growth before and after the crisis are not exactly sectors in which local authorities would necessarily want to invest in (e.g., gambling), but they represent nonetheless an important part of local economies. The performance of these sectors also gives an idea of how the economy mends itself when times are tough.

Table 22. Major job creators in Romania between 2008 and 2011

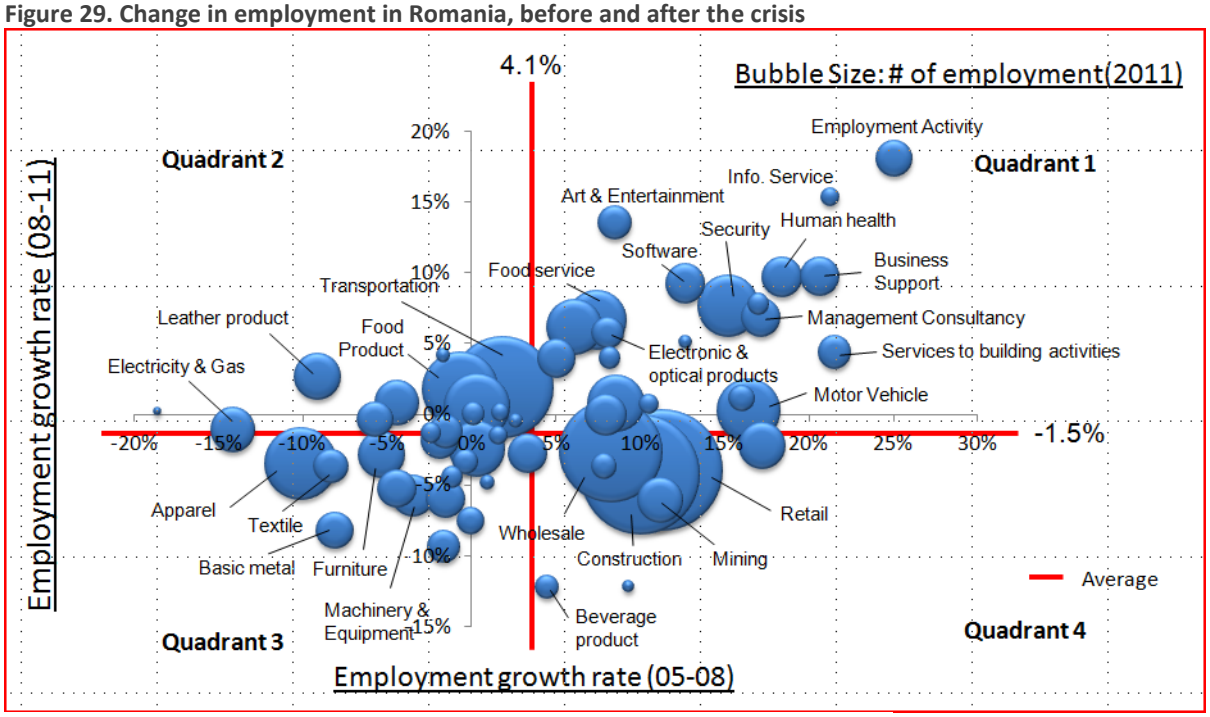
Sector	Jobs created	Jobs created/lost between 2005 and 2008
Private security activities	19,861	30,037
Freight transport by road	15,553	20,169
Restaurants and mobile food service activities	8,692	13,198
Temporary employment agency activities	8,603	6,186
Computer programming activities	7,493	6,799
Gambling and betting activities	7,159	2,133
Business and other management consultancy activities	6,686	12,505
Beverage serving activities	6,425	1,621
Water collection, treatment and supply	6,144	3,650
Activities of call centers	5,709	3,476
Specialist medical practice activities	4,544	4,567
Dispensing chemist in specialized stores	4,372	7,172
Manufacture of footwear	4,190	-17,383
Activities of employment placement agencies	4,073	2,515
Manufacture of bread; manufacture of fresh pastry goods and cakes	3,996	5,205
Processing and preserving of meat	3,691	2,804
Maintenance and repair of motor vehicles	3,388	7,711
Growing of cereals (except rice), leguminous crops and oil seeds	3,044	651
Collection of non-hazardous waste	2,960	6,251
Hairdressing and other beauty treatment	2,925	2,487
Other postal and courier activities	2,916	3,593
Production of meat and poultry meat products	2,516	4,072

Logging	2,443	2,291
Manufacture of wire products, chain and springs	2,429	550
Other transportation support activities	2,409	1,814
Landscape service activities	2,379	1,956
Data processing, hosting and related activities	2,373	2,177
Technical testing and analysis	2,161	1,851
Other credit granting	2,147	-788
Recovery of sorted materials	2,107	-34
Other business support service activities n.e.c.	2,027	8,845
Wholesale of grain, unmanufactured tobacco, seeds and animal feeds	2,003	-3
Wholesale of fruit and vegetables	2,001	599
Computer consultancy activities	1,929	1,595

Data source: ListăFirme;

324. **It should also be mentioned that the pre-crisis years saw a net job gain in Romania of over 461,000, while the post-crisis years saw a net loss of 173,000.** Only a few sectors managed to sustain significant job growth after the crisis, generally in areas that do not necessarily reflect economic health and resilience (e.g., private security or temporary employment agencies). There are however some success stories, like the IT industry, with sectors such as Computer Programming, Data Processing, and Computer Consultancy, registering continued employment gains. Such sectors may indeed become one of Romania's main sources of economic competitiveness.

Figure 29. Change in employment in Romania, before and after the crisis



Data source: ListăFirme; Data analysis: Kosuke Kanematsu

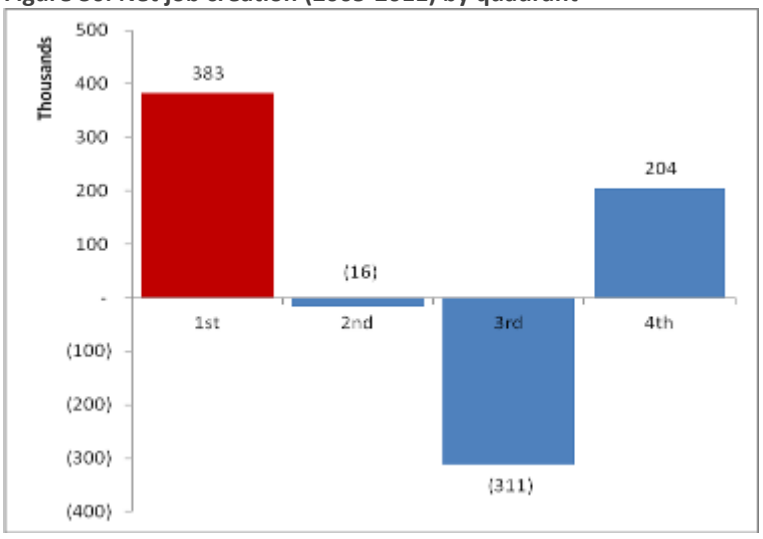
325. **The graph below more clearly shows that employment growth before and after the crisis is primarily driven by the services sector.** The graph also shows which sectors have performed poorly both before and after the crisis, and the sectors that had a mixed performance. Quadrant 1 includes the success stories. Largely, sectors that have grown before and after the crisis are smaller services sectors. Quadrant 4 includes the sectors that have lost jobs before and after the crisis – these are largely smaller manufacturing sectors.

326. **The questionable good performers are included in quadrant 2**. These are the sectors that have had job growth after the crisis, but have registered job loss before the crisis. Only a small number of sectors fall in this category, and they include primarily light manufacturing, like food production.

327. **The sectors that were most affected by the crisis are included in quadrant 4.** These are generally very large sectors (e.g., construction, retail, and wholesale), which were some of the largest job creators before the crisis. As consumption has contracted, so have these sectors.

328. **As the figure below indicates, the sectors in quadrant 1 (see figure above) have been the most significant job creators.** These mostly include advanced manufacturing and services: manufacture of motor vehicles; manufacture of computer, electronic and optical products; security; food and beverage service; repair of motor vehicles; human health activity; computer programming & consultancy; information service activities; business support activity; management consultancy; employment activities; services to buildings and landscape activities; arts, entertainment and recreation; legal and accounting activities; professional, scientific and technical activities; travel agency; education; other service activities.

Figure 30. Net job creation (2005-2011) by quadrant



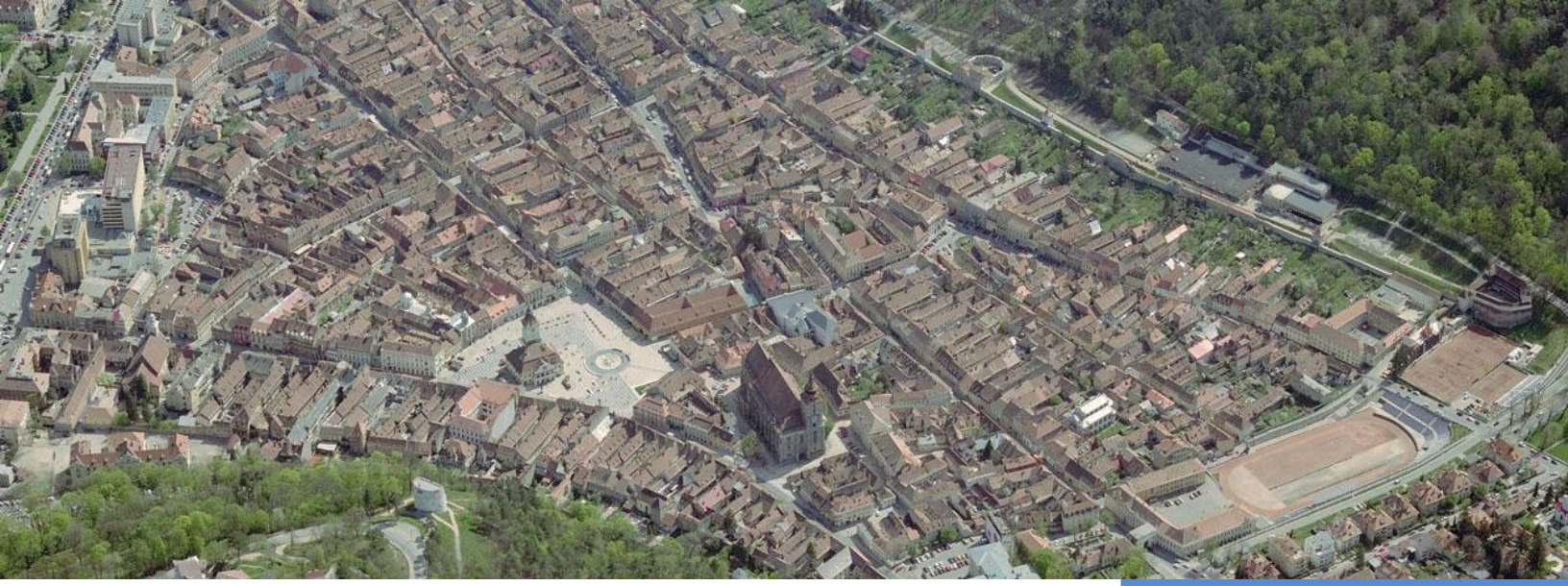
Data source: ListăFirme; Data analysis: Kosuke Kanematsu
Note: This figure should be read in conjunction with the previous figure.

329. **Firms in quadrant 3 have been responsible for most of the job loss between 2005 and 2011**. These predominantly include basic manufacturing companies: manufacturing of wearing apparel, manufacture of furniture, manufacture of basic metals, manufacture of textiles, and manufacture of electrical equipment. Unfortunately, among the big losers one also finds "scientific research and development," which is a critical component of sustainable, long-term gains in competitiveness.

330. **Firms in quadrant 4 have been the hardest hit by the crisis, but the numbers of jobs created before the crisis is higher in absolute numbers than the number of jobs lost after the crisis.** Thus, although large sectors like construction and retail have been hard hit by the crisis, overall they still remain net job creators. As the economy will rebound, it is likely that these sectors will resume their role as job creators.

331. **For the Regional Operational Programme, and for the Growth Poles Axis in particular, this national economic dynamic has several implications.** On the one hand, it is clear that advanced manufacturing and services are among the strongest job creators. As such, local and national authorities will have to think about how to respond to the demands of these sectors. Advanced manufacturing, for example, will increasingly require the availability of connective infrastructure (rail, roads, and particularly highways) to better access markets and lower transport costs. The services sector will be increasingly reliant on the availability of affordable, high-quality office space (which is still needed in most cities in Romania), as well as on good quality of life in the areas in and around cities to be able to attract and keep skilled labor.

332. **The next sections will discuss specific growth poles needs, focusing on regional infrastructure, business environment, and spatial planning.**



BRAŞOV

Regional Infrastructure

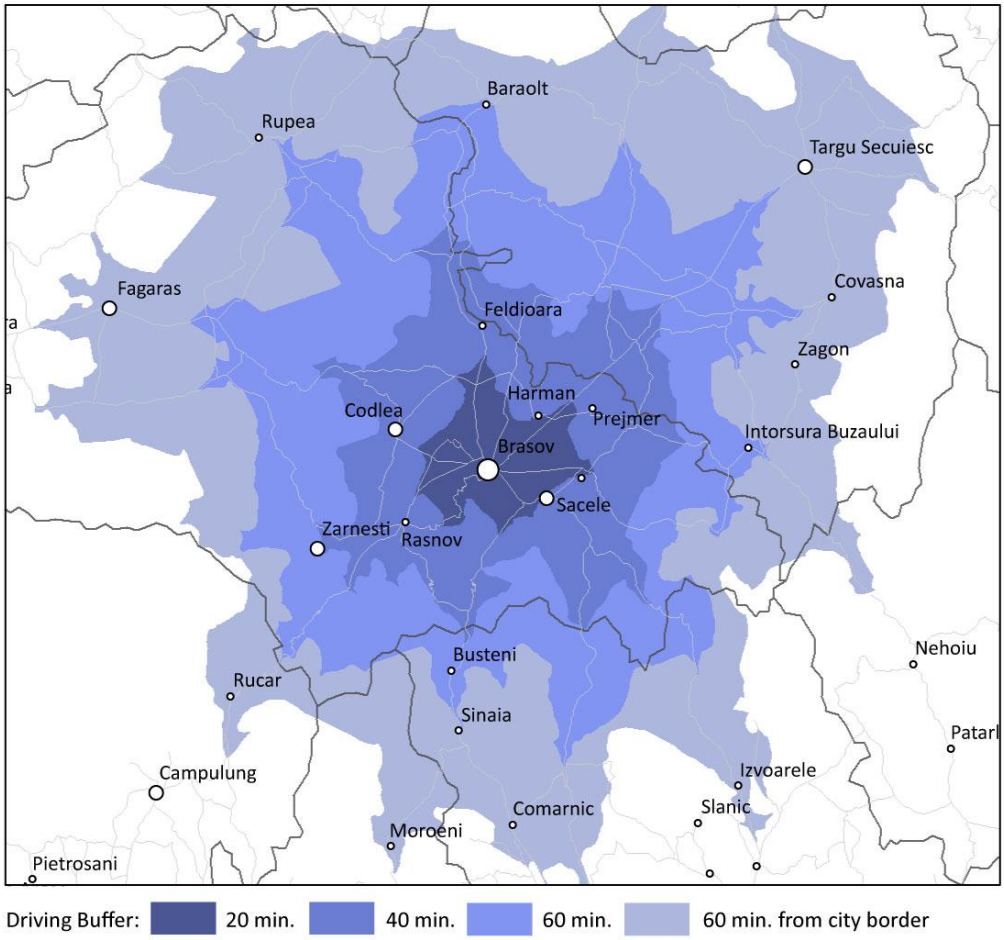
333. **The development of regional infrastructure around growth poles should have two key objectives: enlarge the economic and demographic mass of the growth pole and enhance access to opportunities for people in the region**. For growth poles, it is important to have easier access to a larger market and a larger labor pool. For people in the region it will be important to have easier access to the opportunities that Brașov offers (e.g., jobs, higher education, health services, arts and culture, entertainment, and recreation). At the same time, regional infrastructure can enable people's access to other points of attraction in the region – e.g., Sinaia, Bușteni, Prejmer, Râșnov, etc.

334. **At the same time, regional infrastructure development should look to profit as much as possible from Brașov's proximity to the București development area.** Brașov is already part of a key development corridor (București-Ploiești-Brașov), which does not only benefit from a high degree of urbanization and high density, but also benefits from one of the highest economic densities in the country. It is therefore important to determine ways in which regional infrastructure can help augment existent synergies. Such infrastructure does not necessarily have to be financed by the ROP, but it is important to be considered in the integrated development plan prepared for the area. Potential investments, some of which are already considered by Romanian authorities, could include a high-speed commuter rail line between Brașov and București, and the extension of the București-Ploiești highway to Brașov.

335. **Within the immediate area of influence for Brașov, regional infrastructure development should aim to "shorten" distances.** The easier it will be for people, capital, and ideas to flow from place to place, the more dynamic will the regional economy become. In essence, regional infrastructure connects people to people, people to opportunities, and capital to people. The larger the demographic and economic mass of a place, the stronger its gravitational pull will become, and the larger the need for good connective regional infrastructure.

336. The map below indicates the immediate influence area of Brașov. It basically shows how easy Brașov is to access by road (the travel method most used in Romania). We used several driving buffers and considered that the limit of the influence area of Brașov is within a 60-minute drive from the city's border. It is known that people are generally willing to commute for around an hour or less every day. Of course, that does not necessarily mean that, in the case of Brașov, people will spend one hour on the road, driving in from Făgăraș and Târgu Secuiesc, to access opportunities in Brașov. It does mean however that the flows of people, ideas, and capital between Brașov and Făgăraș are likely to be larger than between Brașov and cities similar to Făgăraș but in more distant areas.

Figure 31. The immediate influence area of Brașov



337. **In the area within a 20 minute drive of its center, Brașov had in 2012 a population of around 328,000, and generated around 2.65% of firm revenues in Romania**. The largest settlement within this area is Săcele, which now is a *de facto* suburb of Brașov. This is also the one settlement where investments in the improvement of connective infrastructure seem to make the most sense. The

population density of Săcele also seems to permit the development of an integrated public transport system, which would allow for a seamless movement of people to and from Brașov. Hărman is a significant cultural heritage center, also within an easy drive away from Brașov, and which could benefit greatly from the tourist pool attracted by the growth pole every year.

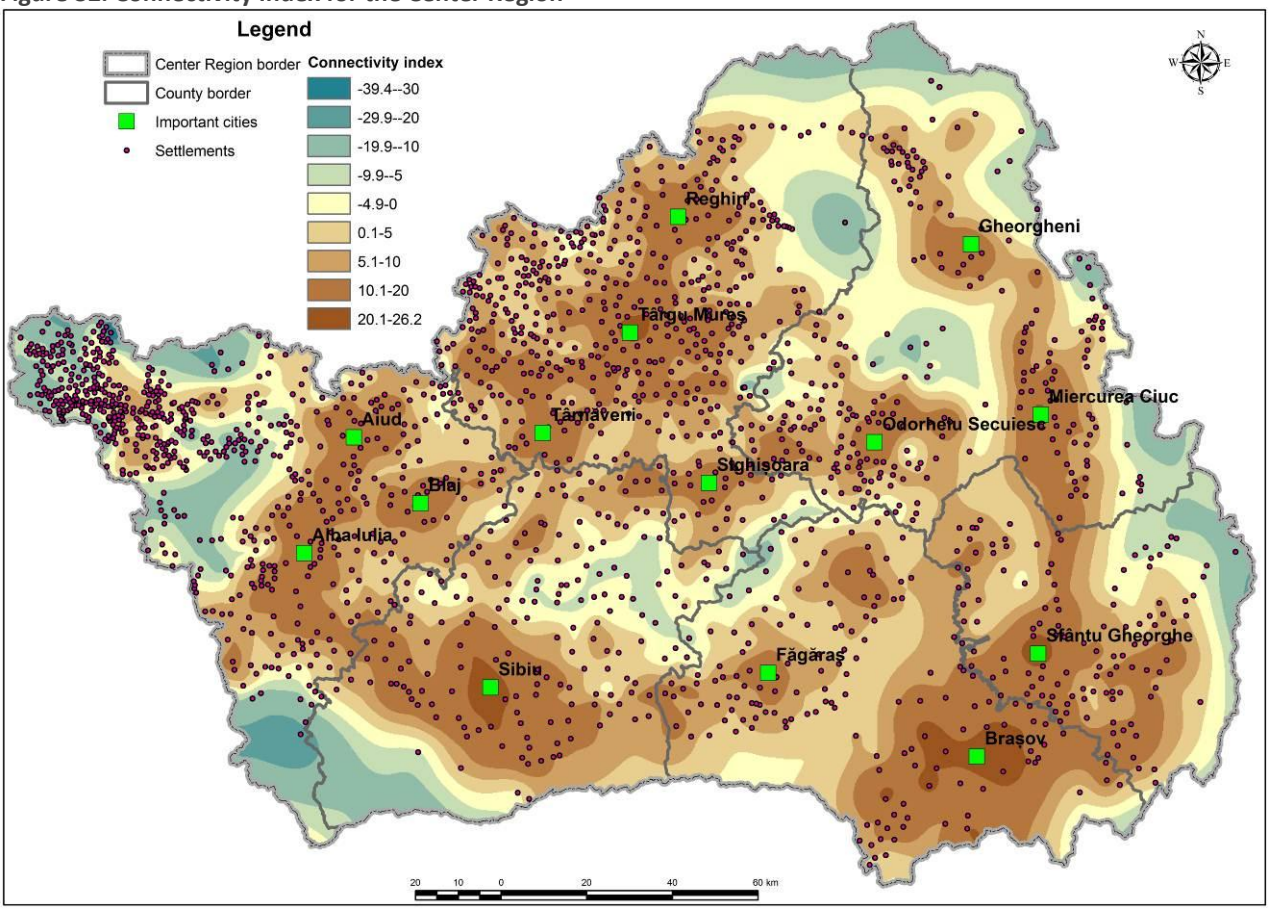
338. **The area within a 40 minute drive of Brașov's center has a population of 485,000 and generates around 2.85% of firm revenues in Romania.** Compared to the other growth poles, it is among the larger 40-minute areas in terms of absolute population, but less dominant from an economic perspective. As such, improvements in regional infrastructure could look to improve access to labor pools in places like Codlea and Zărnești. Also, cultural heritage sites like Codlea and Râșnov could look to profit from their proximity to Brașov and attract more tourists. They also have high enough densities and are close enough to Brașov to allow for the development of integrated public transport systems.

339. **Apart from Sfântu Gheorghe, there are few sizeable settlements within an hour drive from Brașov's city center.** In fact, population-wise, Brașov has one of the lowest catchment areas within this one-hour buffer. This suggests that there is less scope for regional infrastructure improvements going beyond the 40-minute buffer. To make such investments worthwhile at a larger scale, one would have to be able to connect Brașov to a place with either large population or large economic mass. Even when considering a driving buffer of one hour from the city border, the population that falls within this catchment area is relatively lower than in other growth poles. There are two larger settlements within this area – Făgăraș and Târgu Secuiesc – but these are not large enough to warrant sizeable investments in improved connectivity to Brașov.

340. **To get a better picture of regional infrastructure needs, beyond Brașov's influence area, we have prepared a connectivity map for the Center Region.** Annex 5 includes a more detailed description of the methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g., education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

341. **The map below indicates that the Center Region has a relatively well distributed network of urban centers.** There are however areas with a high density of settlements, but with poor connectivity – such as the Apuseni area, in the West of the Center Region, which is also one of the poorest areas in the Region.

Figure 32. Connectivity Index for the Center Region



342. **Of course, the decision on how to allocate resources for regional connective infrastructure should be based on a more in-depth local analysis.** Such an analysis would ideally look at transport and commuting patterns, as well as at potential synergies (e.g., tourism circuits). Nonetheless, planning for the growth poles should take the larger region into consideration, and determine how Brașov's mass can be enlarged by better connecting it to settlements within a 40-minute driving buffer.

Business Environment

343. **The first step in the analysis of Brașov's business environment is a look at its main economic engines**. As indicated earlier, these economic engines were selected by first identifying the sectors in the Brașov metropolitan area with a location quotient higher than 1 (a longer explanation of this is given in the introductory part of this chapter). Of these sectors, we selected the first 30 with the largest employment base. These 30 sectors comprise 49% of all companies in the metropolitan area, while employing 61% of the local labor force and generating 62% of overall revenues

Table 23. The economic engines of the Brașov metropolitan area, in 2011

		BRASOV				INDICATORS			
		No. of Companies	No. of Employees	Revenues (Euro)	Profits (Euro)	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
	Sectors	**8,950**	**75,906**	**4,394,230,150**	**171,729,615**				
1	Manufacture of other parts and accessories for motor vehicles	22	5,406	531,020,205	39,685,276	4.97	246	24,137,282	1,803,876
2	Manufacture of bearings, gears, gearing and driving elements	6	3,406	352,484,659	1,769,011	10.37	568	58,747,443	294,835
3	Freight transport by road	669	3,157	157,955,786	5,644,722	1.19	5	236,107	8,438
4	Repair and maintenance of other transport equipment	8	2,392	19,574,538	48,416	12.59	299	2,446,817	6,052
5	Manufacture of footwear	43	2,266	45,781,234	3,155,177	1.46	53	1,064,680	73,376
6	Manufacture of metal structures and parts of structures	125	2,014	75,251,571	2,167,129	1.98	16	602,013	17,337
7	Restaurants and mobile food service activities	265	1,918	22,452,452	779,896	1.06	7	84,726	2,943
8	Distribution of electricity	4	1,813	138,553,783	4,530,315	3.94	453	34,638,446	1,132,579
9	Non-specialized wholesale trade	304	1,604	148,726,776	8,162,592	2.07	5	489,233	26,851
10	Hotels and similar accommodation	130	1,533	23,312,196	957,416	1.55	12	179,325	7,365
11	Maintenance and repair of motor vehicles	288	1,449	42,318,503	2,039,526	1.19	5	146,939	7,082
12	Plumbing, heat and air-conditioning installation	213	1,380	36,287,165	2,566,369	1.18	6	170,362	12,049
13	Dispensing chemist in specialized stores	98	1,314	130,104,324	4,250,561	1.26	13	1,327,595	43,373
14	Service activities incidental to land transportation	28	1,259	21,571,679	2,368,684	1.56	45	770,417	84,596
15	Electrical installation	158	1,256	42,962,926	1,779,189	1.25	8	271,917	11,261

16	Urban and suburban passenger land transport	14	1,234	19,847,352	713,700	1.10	88	1,417,668	50,979
17	Manufacture of veneer sheets and wood-based panels	8	1,229	127,102,596	1,341,918	6.53	154	15,887,825	167,740
18	Engineering activities and related technical consultancy	358	1,218	27,623,619	3,444,476	1.03	3	77,161	9,621
19	Computer programming activities	216	1,103	29,039,433	2,631,192	1.37	5	134,442	12,181
20	Construction of utility projects for fluids	18	1,005	28,442,155	327,652	4.29	56	1,580,120	18,203
21	Agents involved in the sale of a variety of goods	387	971	115,768,864	3,533,265	2.48	3	299,144	9,130
22	Taxi operation	134	918	4,455,718	380,047	1.75	7	33,252	2,836
23	Manufacture of underwear	5	900	16,666,222	2,862	1.71	180	3,333,244	572
24	Other business support service activities n.e.c.	191	890	20,044,312	2,747,968	1.31	5	104,944	14,387
25	Recovery of sorted materials	28	880	296,409,416	2,069,942	2.38	31	10,586,051	73,927
26	Beverage serving activities	305	854	9,809,748	310,763	1.04	3	32,163	1,019
27	Advertising agencies	251	774	20,332,050	2,154,597	1.36	3	81,004	8,584
28	Passenger rail transport, interurban	2	760	52,204,069	2,007,038	24.40	380	26,102,035	1,003,519
29	Sale of cars and light motor vehicles	65	759	153,378,759	1,585,400	1.70	12	2,359,673	24,391
30	Manufacture of other knitted and crocheted apparel	14	741	10,728,559	701,201	2.42	53	766,326	50,086

Data source: ListăFirme

344. **The largest sector in Braşov is *Manufacture of other parts and accessories for motor vehicles* and *Manufacture of bearings, gearing and driving elements***. These two sectors employ around 8,800 people – or around 12% of the local labor force. Other large employers also come from manufacturing, or from service sectors that often cater to manufacturing firms (i.e., freight transport by road). This economic make-up builds on Braşov's tradition and legacy in the manufacturing sector.

345. **While Braşov has a tradition in manufacturing, the largest manufacturers and local employers represent foreign direct investments.** Schaeffler and Autoliv employ together around 6,400 people and represent recent German investments in the area. The manufacturing facilities for these two companies were raised outside the city on greenfields (one of them is located in Cristian, a locality close to Braşov). As these investments have gone up, other traditional manufactures in the area (such as Tractorul Braşov, which in 1990 employed 22,000 people) have gone out of business.

346. **This reshuffling of the area's economic fabric has significant implications.** For example, the largest industrial platform in the North-East of the city now houses a number of very large parcels of vacant and under-used land. Much of the city's infrastructure (e.g., public transport network) was designed to serve these large industrial platforms, and now much of it has to be rethought. In particular, local officials have to determine how local transport infrastructure can better serve the needs of new manufacturing companies – both in terms of making it easier for their employees to get there, and to enable the shipping and export of produced goods.

Figure 33. Economic changes require new spatial approaches in Braşov

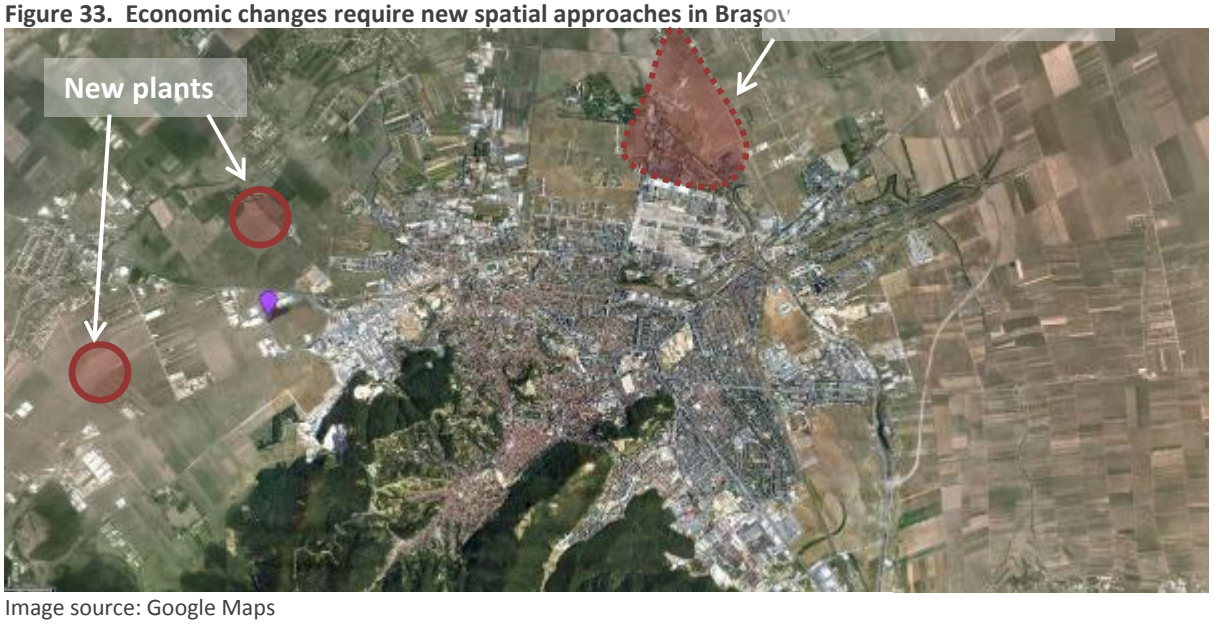


Image source: Google Maps

347. **Increasing the competitiveness of the Braşov Growth Pole will require integrated approaches that take advantage of the area's status as a manufacturing center.** This will require not only improving accessibility to the rich markets in the West (e.g., by establishing a highway connection to the Western border), but also improving accessibility within the metropolitan area, ensuring that the new centers of employment are well connected to local labor markets.

348. **It is also important to pay attention to trends and identify economic sectors that may benefit from strategic public investments.** As such, it helps to see which sectors are creating jobs and which are losing jobs. Of course, such an analysis is not as useful as a national level analysis, because cities are more prone to sudden spikes. For example, the largest job creating sector in Braşov between 2005 and 2008 is *Manufacture of bearings, gears, gearing and driving elements* (see table below). All of this added employment was created however by just one company that decided to invest in the area – Schaeffler. Should this company decide to move elsewhere, as Nokia did in Cluj, the job gain registered in this particular sector will disappear at once.

Table 24. Main job creators in the Braşov growth pole, between 2005-2008

Sector	Jobs created
Manufacture of bearings, gears, gearing and driving elements	3,486
Agents involved in the sale of a variety of goods	1,738
Non-specialized wholesale of food, beverages and tobacco	965
Private security activities	910
Construction of residential and non-residential buildings	750
Freight transport by road	692
Service activities incidental to land transportation	685
Non-specialized wholesale trade	539
Engineering activities and related technical consultancy	516
Electrical installation	493
Plumbing, heat and air-conditioning installation	487
Collection of non-hazardous waste	483
Manufacture of underwear	405
Manufacture of metal structures and parts of structures	392
Maintenance and repair of motor vehicles	385
Computer programming activities	380
Restaurants and mobile food service activities	378
Passenger rail transport, interurban	350
Manufacture of other pumps and compressors	336
Manufacture of luggage, handbags and the like, saddler and harness	322
Wholesale of wood, construction materials and sanitary equipment	304
Manufacture of other rubber products	301
Other business support service activities n.e.c.	294
Repair and maintenance of other transport equipment	285
Other specialized construction activities n.e.c.	265
Wholesale of dairy products, eggs and edible oils and fats	250
Recovery of sorted materials	248
Manufacture of basic pharmaceutical products	245
Accounting, bookkeeping and auditing activities; tax consultancy	243

Business and other management consultancy activities	241
Taxi operation	233
Manufacture of veneer sheets and wood-based panels	227
Production of meat and poultry meat products	226
Growing of vegetables and melons, roots and tubers	217
Advertising agencies	217
Manufacture of other taps and valves	215

Data source: ListăFirme

349. **Apart from *Manufacture of bearings, gears, gearing and driving elements,* most new jobs between 2005 and 2008 have been created by small and medium-sized service companies.** For example, the average firm in the sector *Agents involved in the sale of a variety of goods* has about 3 employees. The average firm in *Non-specialized wholesale trade* has about 5 employees, the same as for freight transporters or computer programming firms.

350. **Thus, although Braşov is a traditional manufacturing center, the services sector is becoming more and more important.** This also means that local authorities should determine how they can respond to the needs of these service providers. For example, retailers require space in high-density residential areas. Communist neighborhoods have very high population density, but unfortunately they have not provided adequate space for a variety of amenities (such as retail, entertainment, and office space). Consequently, it will be important to determine how the introduction of more mixed-use zoning in centrally planned neighborhoods can enable the creation of new spaces for services companies.

351. **The growing importance of the services sector can also be seen when looking at the performance of the local economy after the crisis** (see table below)**.** The services sector has been among the strongest job creators after 2008, although a number of manufacturing sectors have also brought their contribution to the local economy.

Table 25. Main job creators in the Braşov growth pole, between 2008-2011

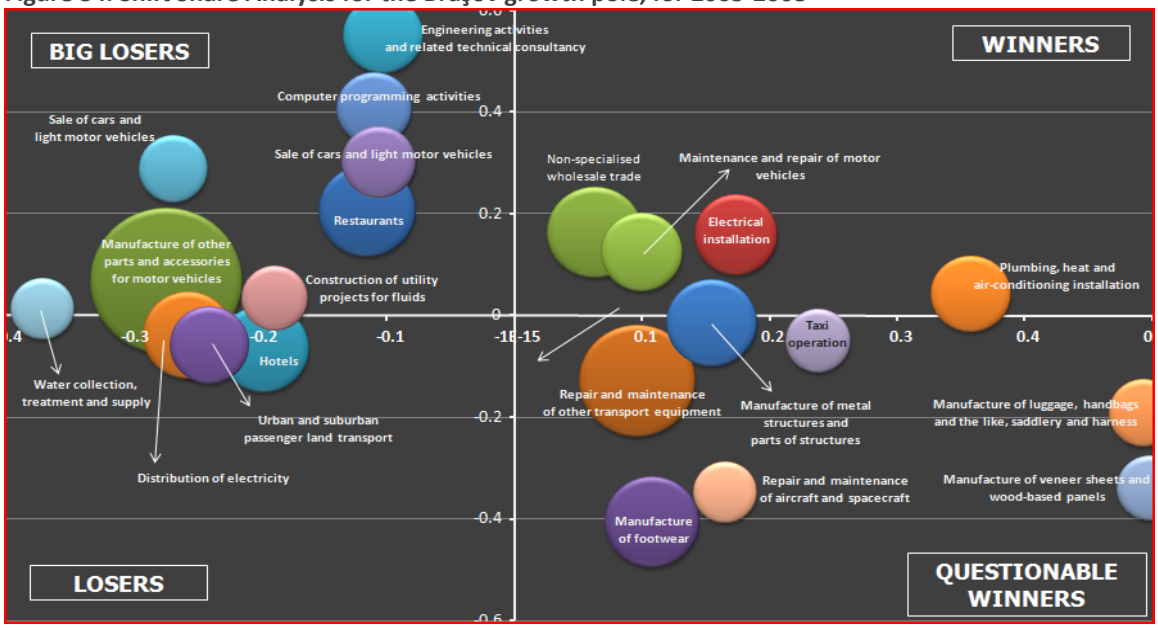
Sector	Jobs created
Dispensing chemist in specialized stores	658
Freight transport by road	542
Manufacture of electric motors, generators and transformers	542
Manufacture of electrical and electronic equipment for motor vehicles	528
Service activities incidental to land transportation	483
Private security activities	448
Passenger rail transport, interurban	378
Advertising agencies	302
Wholesale of fruit and vegetables	300
Manufacture of other rubber products	297
Computer consultancy activities	284
Beverage serving activities	282
Manufacture of footwear	282
Manufacture of computers and peripheral equipment	266
Temporary employment agency activities	256

Other human resources provision	255
Manufacture of other parts and accessories for motor vehicles	253
Recovery of sorted materials	246
Steam and air conditioning supply	243
Casting of light metals	239
Manufacture of veneer sheets and wood-based panels	236
Manufacture of electronic components	209
Manufacture of metal structures and parts of structures	203
Logging	197
Hospital activities	190
Activities of call centers	188
Event catering activities	187
Raising of poultry	181
Activities of employment placement agencies	178
Other human health activities	157
Manufacture of bread; manufacture of fresh pastry goods and cakes	150
Retail sale of bread, cakes, flour confectionery and sugar confectionery in specialized stores	150

Data source: ListăFirme

352. **An analysis beyond job creation indicates that the economy of the Braşov metropolitan area may not be as competitive as some of the other growth poles**. The shift-share analysis for 2005-2008 (boom years for the Romanian economy) indicates that only a handful of sectors performed better locally than nationally. *Manufacture of bearings, gears, gearing and driving elements* was the top performer in Braşov, but it could not be represented in the figure below, because it was literally off-the-charts. Since it is a sector that is highly localized (only a few firms operate in this sector), any change in employment will be more visible. The investment of Schaeffler turned this sector into a "Winner" sector in Braşov.

Figure 34. Shift Share Analysis for the Braşov growth pole, for 2005-2008



Data source: ListăFirme

353. **The other „Winner" sectors in the Braşov metropolitan area are in service areas that are not necessarily known for their economic growth potential**. Among these sectors one finds *Non-specialized wholesale trade, Maintenance and repair of motor vehicles, Electrical installation, Plumbing, heat, and air-conditioning installation.* These sectors are important job providers, but by nature they do not typically generate innovation and drive growth. The fact that they were among the top economic performers locally at a time of general economic expansion may be reason for concern for local authorities.

354. **In the „Questionable Winners" category one encounters a number of manufacturing sectors that seem to have performed well locally, but which have performed poorly at the national level.** This may be an indication that these are sectors that are losing competitiveness nationally, or it may be an indication that these sectors have not managed to keep up with the growth in the rest of the economy. In any case, „Questionable Winners" are usually not the type of sectors that drive long-term growth.

355. **Also problematic is the high incidence of „Big Losers" in Braşov.** Of the 30 largest local economic engines, 11 fell in this category. These are sectors that have performed more poorly at the local level, but which are economic growth engines at the national level (i.e., they have grown faster than the national economy).

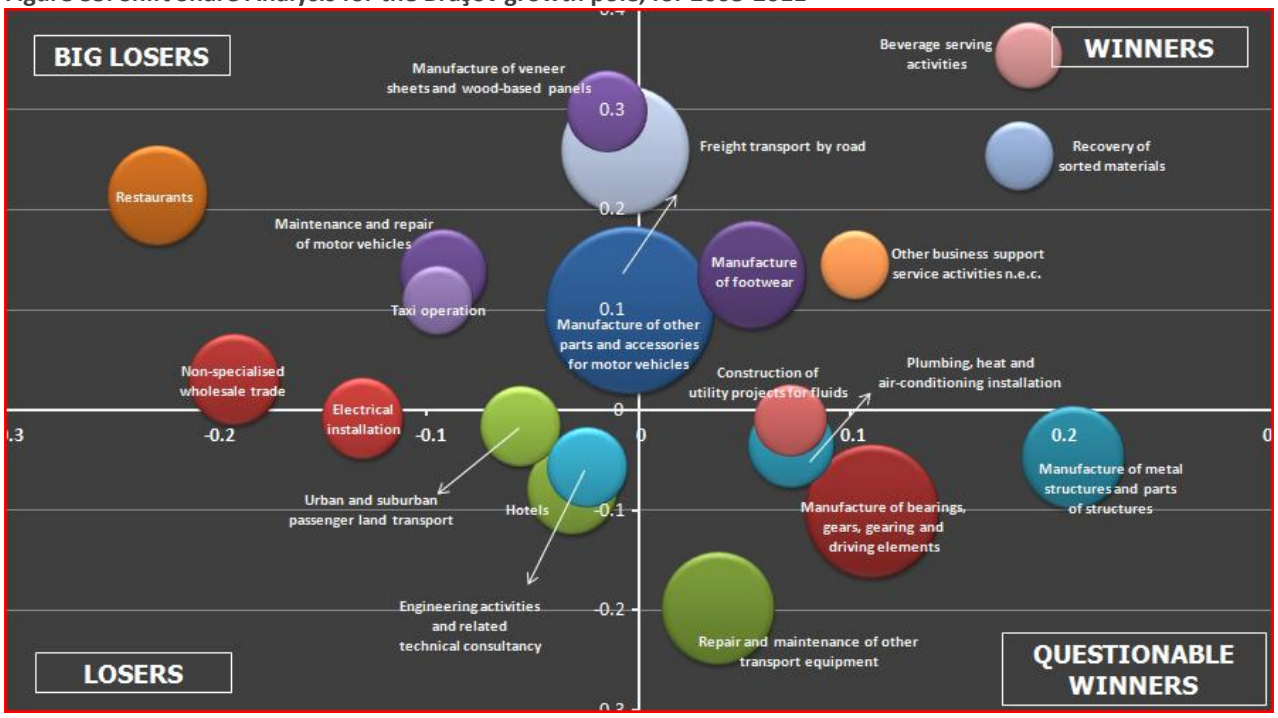
356. **Part of this loss of competitiveness could be explained by Braşov's proximity to Bucureşti.** The gravity pull of the capital is very strong, and it is quite possible that many skilled people migrated there in search of better opportunities. As people were allowed a higher degree of freedom after 189 (during Communism, migration was tightly controlled by the State), and as people have become more mobile, many have decided to move.

357. **In addition, Braşov's strength in manufacturing did not serve it well in an economy that increasingly drew its strength from services.** In 1989, much of Braşov's economy was centered around two large industrial platforms and Braşov was the second largest city in Romania. The transition years have not boded well for these large industrial conglomerates. Many have gone out of business, driving up unemployment. As a consequence of this economic reshuffling, Braşov's population has contracted by 30% in 20 years (between 1992 and 2012), and it is now only the eighth largest city in Romania, behind Galați.

358. **The Shift-Share analysis for 2008-2011 reveals a similar pattern as for the pre-crisis period.** The "Winner" sectors represent predominantly service activities. The only manufacturing sector among the "Winners" is *Manufacture of footwear.* This is a clear indication that this former large manufacturing center is going through a process of "rediscovery". Among the "Questionable Winners" one finds, as in 2005-2008, a number of manufacturing sectors that have performed well locally but not so well nationally, including a former "Winner" –

Manufacture of bearings, gears, gearing and driving elements. The "Big Losers" include a number of large manufacturing and services sectors, which although have registered a positive performance nationally, have performed poorly locally. "Loser" sectors, like *Hotels,* have performed poorly both at a national and at a local level.

Figure 35. Shift Share Analysis for the Braşov growth pole, for 2008-2011



Data source: ListăFirme

359. **This brief analysis indicates that the economy of the Braşov metropolitan area is going through a significant transformation**. On the one hand, large scale manufacturing has been replaced with smaller scale, more technology intensive manufacturing. On the other hand, the area has witnessed a shift towards services.

360. **It is not yet clear in which direction Braşov's economy is headed, and policymakers should refrain from making definitive predictions.** One large investment in one area or another could significantly alter the composition of the local economy, the way recent investments have done. It is clear however that the large-scale manufacturing that defined Braşov until 1989 is not a source of competitiveness anymore. Moreover, the dominance of large manufacturers can make the local economy more susceptible to risks. The disappearance of *Tractorul,* which used to employ 22,000 people in 1990, is a telling example in this respect. Braşov is not an exception – from Detroit in the US to the Ruhr Region in Germany, former large manufacturing centers have undergone dramatic restructuring processes.

361. **To prevent further decline locally, policymakers should consider ways in which current economic engines can be fueled, and new ones created.** For example, strategic investments in infrastructure could decrease distance to markets and increase access to regional labor pools. Similarly, policies and investments can allow a growing services economy to flourish. This may involve more permissive zoning that allows areas with single-uses (e.g., residential) to be converted into mixed-use areas, or it may involve investments in the development of spaces for small and medium-sized service companies (e.g., computer programming, business consulting, etc.).

362. **At the same time, local authorities should maintain realistic expectations and acknowledge that a further contracting of the local economy is possible.** The same way Rust Belt cities have declined in the US for several decades, and many continue to decline, so it is possible for Braşov to witness a similar phenomenon, which may require a distinct set of responses than for growing cities.

Spatial Planning

363. **Despite the dramatic population decline in the City of Braşov, the urban mass has been continuously expanding**. Thus, if the population decreased by 30% between 1992 and 2012, urban mass expanded by 24%. These twin factors have contributed to a significant decline in urban density, from 101 people per hectare (p/ha) to 52 p/ha. This has been the most dramatic decline of all the seven growth poles, and Braşov went from being one of the densest growth poles in 1992 (second only to Bucureşti), to being the least dense growth pole.

364. **The other localities in the metropolitan area of Braşov have also been losing density, although all have expanded their built mass.** As can be seen in the table below, some of these localities, like Ghimbav and Sânpetru, have expanded by almost 50% - double the expansion rate of Braşov. Others, like Cristian or Hărman, have also expanded rapidly.

Table 26. Built mass for localities in Braşov Metro Area

UAT	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Bod	254	264	298	17.46%
Braşov	**3,511**	**3,928**	**4,360**	**24.16%**
Codlea	526	530	568	7.97%
Cristian	216	227	294	36.19%
Ghimbav	144	152	212	46.59%
Halchiu	213	213	232	8.91%
Hărman	328	357	438	33.56%
Predeal	220	234	247	12.16%
Prejmer	597	613	633	6.01%
Râşnov	405	425	438	8.02%
Săcele	597	637	708	18.72%
Sânpetru	221	237	330	49.48%
Tărlungeni	475	507	557	17.26%

Vulcan	144	146	150	4.62%
TOTAL	**7,851**	**8,470**	**9,465**	20.6%

Data source: Author's calculations

365. **To a large extent, the expansion of these localities reflects a process of suburbanization**. While some of the localities have also accommodated new industrial and business facilities, much of the new growth of the built mass is represented by large, detached, single-family homes as in the picture below. These houses reflect people's appetite for larger homes and a patch of green, which are often hard to find in center cities.

Figure 36. Suburban developments in Ghimbav, Braşov

Source: Google Maps

366. **Suburbanization and loss of density have significant economic and social consequences**. On the one hand, suburbanization reflects a market need, and not responding to people's need for larger homes may in fact diminish an area's competitiveness – i.e., people will chose to build their large home somewhere else. On the other hand, uncontrolled suburbanization and loss of density can have severe economic consequences. For example, a dramatic loss in density can make public transportation less viable, it can raise the cost of public service provision, and it may decrease the profitability of businesses through a reduction and dispersion of the population base.

367. **Some of the aftereffects of the loss in density are already felt.** In 2006, the city of Braşov lost its tramway system. The city used to have a light rail system of 24 km where, at its peak, 85 trams were in operation (National Institute of Statistics). With the economic shift the city went through (many of the industrial areas served by the rail now employ a significantly lower number of people), and with the subsequent population and density loss, the light rail

system became less and less viable. In the transport world, it is known that an area needs a population density of around 90 p/ha to make light rail viable. In Braşov, the population density dropped from 101 p/ha to 52 p/ha.

368. **Thus, to prevent further negative economic consequences, local authorities have to carefully manage suburbanization and population density loss within the city.** Obviously, they cannot prevent people from moving to the suburbs. They can, however, make it more attractive for them to stay within the city. One of the ways they can achieve this is by making undeveloped, unused, or underused land more attractive for development and redevelopment.

369. **Brownfields redevelopment is in fact on the key ways former industrial cities in the Western World are fighting against population and density loss.** In simple terms, brownfields redevelopment presupposes turning former industrial, and potentially polluted lands, to similar or new uses (e.g., mixed use developments).

370. **Braşov seems to have a high incidence of brownfields which could be redeveloped.** A simple look at an aerial map of Braşov reveals that there are huge parts of former industrial land that now sit idle. The picture below gives an indication of how large these land parcels are. The North-Eastern industrial platform alone could now accommodate an entire city neighborhood. It is therefore important to have a full inventory of idle or under-used land parcels within Braşov and its surroundings, and determine how they could be best brought back to productive use. One such project is the redevelopment of the Tractorul Braşov industrial platform into a residential area, one of the largest in Eastern Europe. The ROP now has funds specifically dedicated for such projects, although requests for funding have been meek (mostly because local authorities do not really know how to best address such projects).

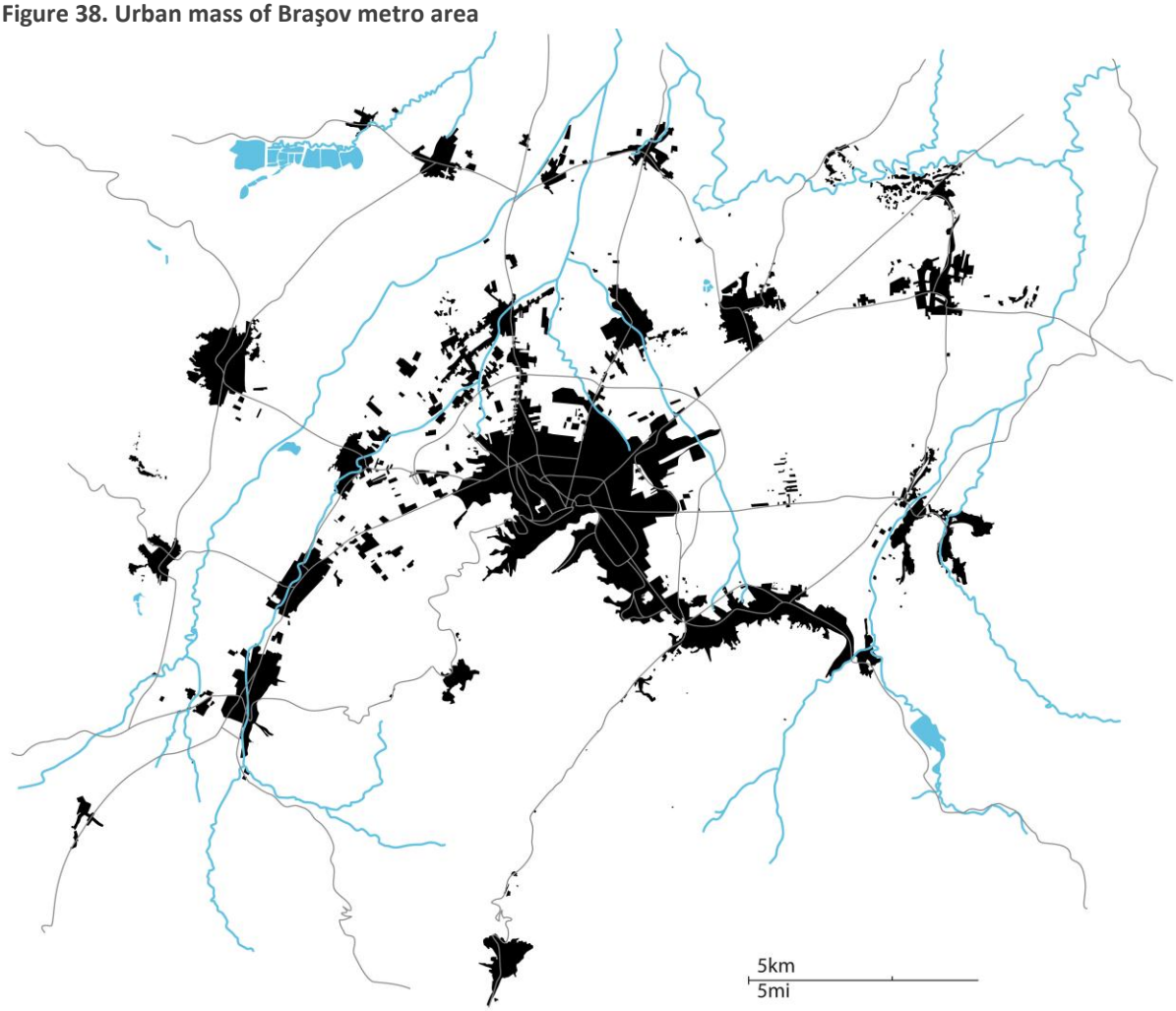
Figure 37. Brownfields in Braşov

Data source: Google Maps

371. **In addition to population density, local authorities also have to pay attention to urban structure**. The more compact a city is, the easier it will be to travel from point to point, and the more productive people and firms are likely to be. When travel times are lower, people spend less time commuting, and firms have access to a larger potential labor pool.

372. **Overall, Braşov has an urban structure that is more compact than other growth poles.** Peri-urban localities tend to be closer to the center city, and they are less scattered than is the case for some of the other growth poles (e.g., Iaşi or Cluj). The proximity of these localities, and their current density, would make an integrated metropolitan bus system viable.

Figure 38. Urban mass of Braşov metro area



373. **Nonetheless, the Southern area of the Braşov metropolitan area seems to be bent around an arc spanning from East to West**. This elongated

shape, and the lack of developments in the South, can easily be explained by looking at the area's topography. As the map below indicates, Braşov is straddled along the Tâmpa Mountain, forcing all new development to the North, East, and West of the City. Local authorities should work to guide these new developments in a sustainable fashion – i.e., tightly packed around the existent city core, and filling the space between the center city and peri-urban communities.

Figure 39. Topography of Braşov metro area

374. **Ideally, new developments should be kept as close to the old city center as possible**. City centers are usually centers of high activity (with a lot of jobs, amenities, entertainment, and other attractions) and the destination point for a large number of daily trips. Thus, when local authorities decide where next to accommodate new developments, they should use as a simple measure the average travel time from the new development to the city center. The lower the travel time is, the better the location. Of course, the best locations are those that represent unused or underused parcels within the city (e.g., brownfields).

CLUJ

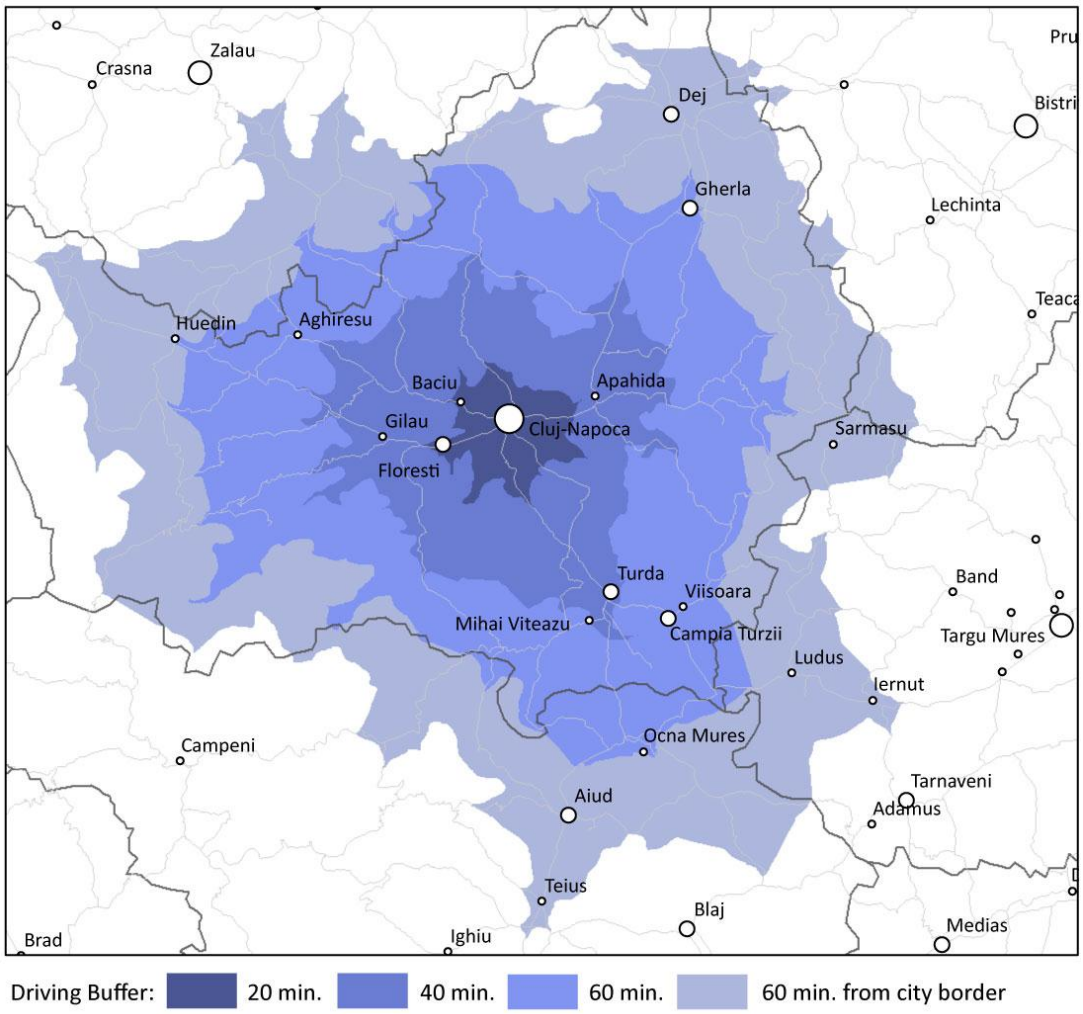
Regional Infrastructure

375. **Cluj has a localized economy**. Of the seven growth poles, it has the largest population and the highest economic output within a 20-minute driving range. It is also at the scale where regional infrastructure would make most sense, due to the strength of the center city, and based on the growing importance of high-end services sectors (e.g., computer programming), which generate higher salaries and drive localized growth. In effect, people with higher salaries can afford growing rents and property prices in center cities, and do not have to relocate to cheaper areas on the outskirts.

376. **At the 20-minute driving radius scale, the most important regional connections are from Cluj-Napoca to Florești and Baciu.** Florești is the fastest growing suburb in Romania. Between 1992 and 2002, it has almost quintupled its population, while its built mass grew by over 134%. The large majority of new settlers in Florești commute to work in Cluj-Napoca and, on a daily basis, clog an already busy national road. In fact, the small stretch of road between Florești and Cluj-Napoca was found by the Romanian Police to have the highest density of road accidents of any other stretch of road in the country. Part of the reason for this occurrence is the fact that, despite the rapid population growth in Florești, no alternative connection routes were created to the main city.

377. **As such, going forward, one of the key needs is an integrated transport masterplan,** which would look at what investments and policies are needed to improve flows between Florești and Cluj-Napoca. The masterplan may identify the need for additional roadways, for integrated public transportation, or for integrated spatial planning solutions. This document may also highlight the need to improve connections to other outlying areas such as Baciu, Apahida, or the airport.

Figure 40. The immediate influence area of Cluj-Napoca



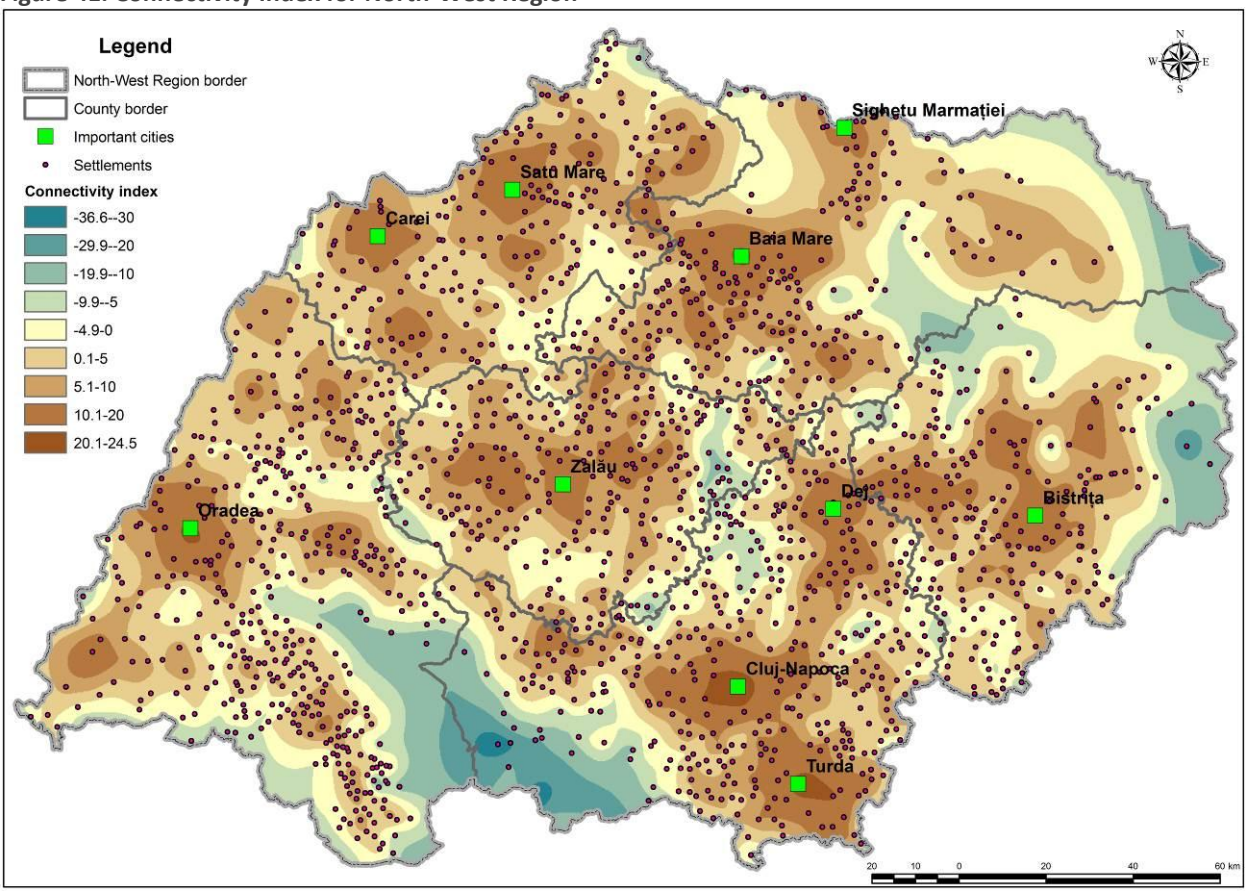
378. **At the 40-minute driving radius scale, Cluj continues to be well represented, second only to Constanța among the growth poles.**[39] Within this area there are 482,000 people, generating around 3.5% of all firm revenues in the country. The largest locality within the 40-minute buffer is Turda. Other large localities (over 5,000 people) are Gilău and Apahida. These last two examples are relatively well connected to the center city, and have benefited significantly from this proximity. Turda has also been brought "closer" through the development of an express road, and there are also plans to try to connect Turda to Cluj-Napoca by train. Right now, trains coming from Cluj-Napoca only stop in Câmpia Turzii, a bit further to the South-East.

[39] Ploieşti has a larger demographic pool within a 40-minute driving buffer, but it also overlaps with the area of influence of Bucureşti. As such, Bucureşti is considered to have the stronger gravitational pull.

379. **The largest settlements within a driving buffer of 60 minutes from the city center are Câmpia Turzii, Gherla, and Huedin**. These are also the localities and areas that would benefit most from improved connections to Cluj-Napoca. Better connections can enable people in Câmpia Turzii, Gherla, and Huedin easier access to key amenities in the center city (e.g., health care, cultural events, entertainment, higher education). By the same token, such investments would enable people in Cluj-Napoca easier access to recreational and tourist attractions in and around these three cities (e.g., Cheile Turzii, Beliş, or the Sic marshes). Moreover, increased accessibility will allow firms in this region to have better access to a larger labor pool. Better connections to Aiud and Dej seem to make most sense at the 60-minute driving buffer from the city border.

380. **In addition to these connections, one link that deserves particular attention is the one between Cluj-Napoca and Târgu Mureş**. We have run a number of demographic and economic gravity models and all seem to indicate that there is great potential from improving connections between these two cities. In particular, it would pay to consider expediting the development of the Transylvania Highway link that is supposed to connect these two key cities. The link itself cannot be financed from EU funds, but it will benefit other EU-funded regional infrastructure projects nonetheless.

Figure 41. Connectivity Index for North-West Region



381. **To get a better picture of regional infrastructure needs, beyond Cluj's influence area, we have prepared a connectivity map for the North-West Region.** Annex 5 includes a more detailed description of the methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g., education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

382. **As the map above details, there are areas in the North-West region with a lower incidence of large urban areas (e.g., the center area around Zalău), and a number of areas that are poorly connected.** Some of the most poorly connected areas are the mountainous zones in the north-east and the south of the Region.

Business Environment

383. **Cluj-Napoca is one of the most dynamic growth poles in Romania.** It is the only large city with population growth between 2002 and 2012, and one of the few cities that has registered continued employment growth, even after the crisis. Cluj benefits from its close proximity to Western markets, from the presence of a number of large universities, and from having an active business community.

384. **Cluj has managed the transition from a predominantly manufacturing town to a city with a strong and balanced economic mix.** While manufacturing companies were the main economic engines in the past, right now it is *Computer Programming* that is taking the prime spot. Over the years, the IT sector has grown continuously in Cluj-Napoca, attracting skilled people from all over Romania. Right now, this sector is the largest employer in Cluj, with the highest concentration of computer programmers among Romanian municipalities, and with the second highest absolute number of programmers (behind Bucureşti).

385. **While the *Computer Programming* sector in Cluj does include a number of large companies, the large majority of firms operating in this field are small.** On average, a software company in Cluj had around 9 employees in 2011. A total of 12 companies had more than 100 employees, while the rest of around 450 companies had less than 100 people working for them.

Table 27. The economic engines of the Cluj-Napoca metropolitan area, in 2011

		CLUJ				INDICATORS			
		No. of Companies	**No. of Employees**	**Revenues (Euro)**	**Profits (Euro)**	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
	Sectors	**23,803**	**116,930**	**7,136,023,457**	**327,311,578**				
1	Computer programming activities	467	4,261	113,961,876	14,008,046	4.94	9	244,030	29,996
2	Freight transport by road	966	3,863	200,583,898	8,014,605	1.35	4	207,644	8,297
3	Manufacture of electrical and electronic equipment for motor vehicles	3	3,438	70,995,052	387,047	1.97	1,146	23,665,017	129,016
4	Restaurants and mobile food service activities	432	2,590	32,118,439	1,073,211	1.33	6	74,348	2,484
5	Advertising agencies	348	2,328	33,600,101	2,839,401	3.81	7	96,552	8,159
6	Engineering activities and related technical consultancy	615	2,219	94,275,467	13,334,844	1.75	4	153,293	21,683
7	Manufacture of footwear	42	2,087	30,745,122	2,534,692	1.26	50	732,027	60,350
8	Distribution of electricity	5	2,016	123,946,718	6,736,723	4.09	403	24,789,344	1,347,345
9	Construction of roads and motorways	93	1,983	200,672,370	18,347,176	1.37	21	2,157,767	197,281
10	Manufacture of communication equipment	6	1,880	950,444,356	1,176	14.90	313	158,407,393	196
11	Electrical installation	241	1,777	162,897,819	16,221,469	1.65	7	675,925	67,309
12	Business and other management consultancy activities	1,114	1,773	57,464,520	8,758,438	1.42	2	51,584	7,862
13	Plumbing, heat and air-conditioning installation	355	1,726	52,055,081	2,324,272	1.38	5	146,634	6,547
14	Water collection, treatment and supply	3	1,712	29,243,844	2,908,934	1.55	571	9,747,948	969,645

15	Urban and suburban passenger land transport	26	1,693	27,628,368	413,011	1.40	65	1,062,630	15,885
16	Manufacture of underwear	12	1,519	25,377,372	356,288	2.70	127	2,114,781	29,691
17	Non-specialized wholesale trade	306	1,441	186,296,548	8,477,418	1.73	5	608,812	27,704
18	Maintenance and repair of motor vehicles	428	1,427	27,502,231	2,159,269	1.09	3	64,258	5,045
19	Hotels and similar accommodation	111	1,223	21,693,617	800,306	1.15	11	195,438	7,210
20	Beverage serving activities	515	1,197	19,808,830	1,014,085	1.36	2	38,464	1,969
21	Wholesale of wood, construction materials and sanitary equipment	269	1,191	153,532,895	4,711,010	1.05	4	570,754	17,513
22	Manufacture of metal structures and parts of structures	141	1,187	52,269,030	4,155,843	1.09	8	370,702	29,474
23	Non-specialized wholesale of food, beverages and tobacco	87	1,086	74,351,119	737,471	1.13	12	854,611	8,477
24	General cleaning of buildings	95	1,055	6,672,800	528,776	2.05	11	70,240	5,566
25	Wholesale trade of motor vehicle parts and accessories	164	1,030	97,469,067	1,483,744	2.14	6	594,324	9,047
26	Other software publishing	104	924	26,740,527	1,603,128	4.38	9	257,120	15,415
27	Taxi operation	516	891	8,909,188	456,882	1.58	2	17,266	885
28	Other printing	90	876	38,311,038	1,395,661	2.23	10	425,678	15,507
29	Renting and operating of own or leased real estate	410	875	59,562,083	9,319,291	1.28	2	145,273	22,730
30	Retail sale of clothing in specialized stores	303	872	31,526,614	624,356	1.37	3	104,048	2,061

Data source: ListăFirme

386. **Other large sectors in Cluj are manufacturing and service-related.** On the whole, services tend to be an amalgamation of small and medium-sized enterprises, while manufacturing tends to be composed of large, vertically integrated firms. For example, the second-largest economic engine in Cluj – *Freight transport by road,* is made-up of 966 companies, with an average size of 4 people. On the other hand, the third largest economic engine, *Manufacture of electrical and electronic equipment for motor vehicles*, is made up of three companies with an average employment base of 1,146. In fact, it is two large companies that dominate: a recent Japanese investment (Fujikura Automotive) with 2,760 employees and a recent German investment (Eckerle Automotive) with 678 employees.

387. **Other significant local economic engines include:** *Advertising agencies, Engineering activities and related technical consultancy, Manufacture of footwear, Manufacture of underwear,* and *Other software publishing.* It has to also be noted that one of major local economic engines, *Manufacture of communications equipment,* has now vanished from the local scene, as Nokia has decided to close its facility in the city. This is a good example of the dangers faced by cities that overly rely on large, vertically integrated companies. Such corporations do indeed generate substantial revenues locally (in 2011, Nokia generated 13% of local firm revenues, with only 1.6% of the local labor force), but they also entail risk associated with their disproportionate size. As such, it is important for local authorities, to the extent they can influence this, to encourage a mix of large and small companies, to a number of strong economic engines (which usually drive the local economy), but also a heterogeneous economic base – as a way of hedging against risks.

388. **Of the main job creators for the 2005-2008 period, the large majority have been in the services sector.** Of the 30 largest job creators, only 4 were manufacturing companies, and of these 4, one has in the meantime moved out the region – Nokia. As such, the boom years before the crisis have seen a surge of services in Cluj. This is a strong indicator that a similar pattern will likely continue in the future.

Table 28. Main job creators in the Cluj growth pole between 2005-2008

Sector	Jobs created
Manufacture of electrical and electronic equipment for motor vehicles	1,714
Construction of residential and non-residential buildings	1,306
Computer programming activities	1,213
Manufacture of communication equipment	1,154
Private security activities	901
Freight transport by road	871
Engineering activities and related technical consultancy	843
Advertising agencies	768
Construction of roads and motorways	751
Hotels and similar accommodation	741
Water collection, treatment and supply	692
Business and other management consultancy activities	670
Collection of non-hazardous waste	593

Wired telecommunications activities	530
Plumbing, heat and air-conditioning installation	525
Non-specialized wholesale of food, beverages and tobacco	525
Restaurants and mobile food service activities	525
General cleaning of buildings	484
Non-specialized wholesale trade	470
Electrical installation	427
Beverage serving activities	375
Sale of cars and light motor vehicles	333
Wholesale of wood, construction materials and sanitary equipment	319
Retail sale of clothing in specialized stores	307
Photocopying, document preparation and other specialized office support activities	302
Manufacture of pharmaceutical preparations	287
Architectural activities	285
Wholesale trade of motor vehicle parts and accessories	266
Freight rail transport	259
Other software publishing	259
Wholesale of electrical household appliances	257
Wholesale of other machinery and equipment	256
Gambling and betting activities	238
Painting and glazing	227
Manufacture of metal structures and parts of structures	220
Accounting, bookkeeping and auditing activities; tax consultancy	216
Specialist medical practice activities	211

Data source: ListăFirme

389. **After the crisis, the dominance of the service sector in the city has been cemented**. The four largest job creators were all in services, and the largest job creator – *Computer programming,* has added after the crisis more jobs than any sector added locally before the crisis. It is also important to note the relatively high incidence of services that offer high salaries, and which can contribute to increased localization. Basically, when people make higher salaries, they can offset the higher living costs that a growing economy brings with it, and can afford higher rents in center cities. Of course, a growing economy is a double-edged sword, negatively affecting those people that have small, stagnating, or decreasing salaries, particularly in sectors that are losing ground.

Table 29. Main job creators in the Cluj growth pole, between 2008-2011

Sector	Jobs created
Computer programming activities	2,051
Freight transport by road	1,224
Advertising agencies	946
Restaurants and mobile food service activities	723
Manufacture of communication equipment	603
Manufacture of electrical and electronic equipment for motor vehicles	582
Retail sale of telecommunications equipment in specialized stores	487
Engineering activities and related technical consultancy	462
Activities of call centers	430
Private security activities	385

Taxi operation	312
Other software publishing	307
Production of meat and poultry meat products	306
Specialist medical practice activities	300
Beverage serving activities	287
Gambling and betting activities	283
Freight rail transport	278
Manufacture of footwear	217
Business and other management consultancy activities	202
Retail sale of clothing in specialized stores	195
Other postal and courier activities	181
Manufacture of non-domestic cooling and ventilation equipment	176
Wholesale of pharmaceutical goods	171
Water collection, treatment and supply	168
Passenger rail transport, interurban	164
Combined office administrative service activities	155
Agents involved in the sale of a variety of goods	154
Maintenance and repair of motor vehicles	151

Data source: ListăFirme

390. **Consequently, measures to improve the attractiveness of the area for skilled labor should be doubled by measures aimed at marginalized and poor communities.** On the one hand, local authorities should invest both in quality of life (e.g., pedestrian areas, bike paths, parks and green areas, waterfront re-development, entertainment, art and culture, etc.) and in measures that allow poorer groups to take advantage of all these amenities (e.g., good and affordable public transportation, affordable housing, quality public services).

391. **For businesses in particular, investments that would be funded through the ROP should look both at how to encourage the burgeoning services sector and the still large manufacturing sector.** On the one hand, local authorities have to determine the needs for office space (and the type of office space), and figure out how to create additional spaces to accommodate new business development. Obviously, large office developments can be taken on by private companies (which do their own studies of local needs), but affordable office spaces for small and medium-sized companies often require public help. As far as new industrial developments are concerned, it is obvious that many have gone up away from the existing platforms. However, while the city's old industrial platform is well connected by public transport to the rest of the city, the new industrial platforms are less so. The new manufacturing facilities in and around Jucu are 25 km away from the city center (see figure below). Getting to these platforms is a challenge, especially if one lives in the large neighborhoods in the Western part of the city, as well as the Western suburbs in Floreşti, although it should be noted that some of the large companies (e.g., Emerson) now provide their own transportation for employees.

392. **The Shift-Share analysis for 2005-2008 also indicates the presence of a dynamic local economy in Cluj.** Of the 30 largest economic engines in the growth pole, 14 were "Winners" in this time period, 10 were "Questionable Winners", 2

were “Losers”, and 4 were “Big Losers”. This is the most favorable distribution out of all seven growth poles.

Figure 42. New industrial platforms move away from the center city

Data source: Google Maps

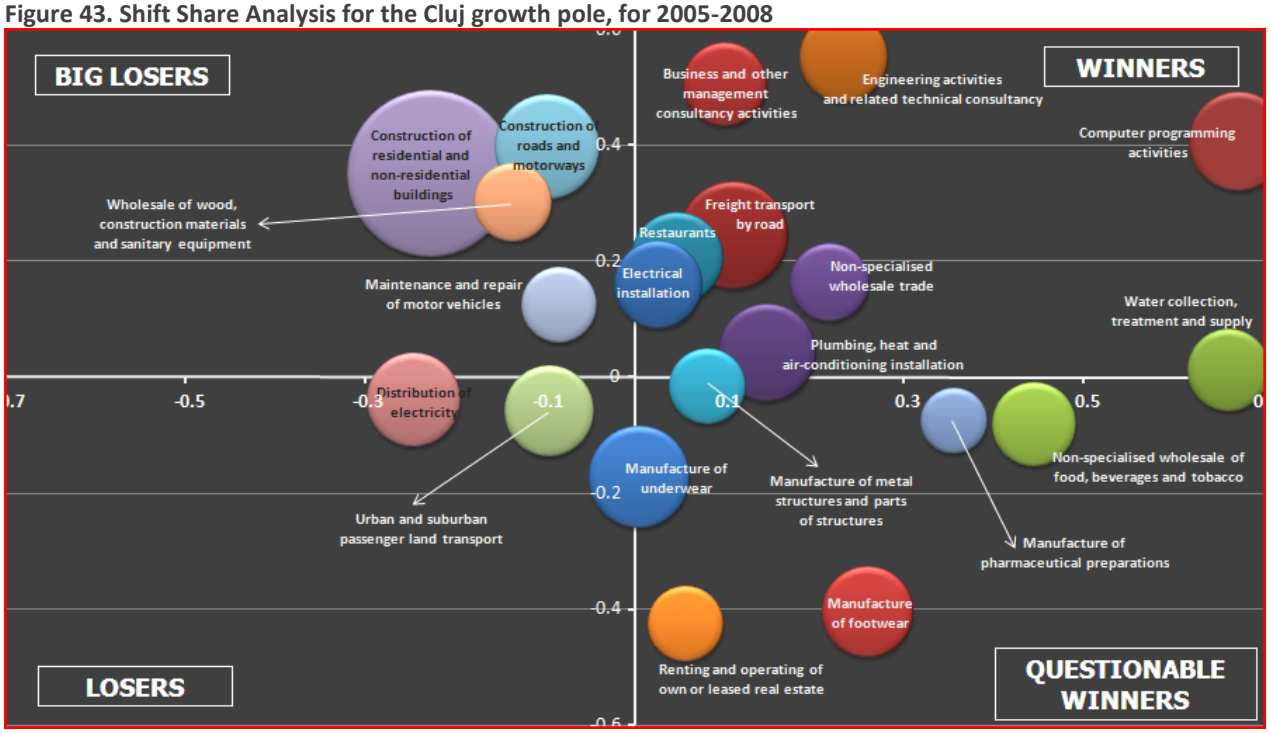
393. **Services sectors dominate among the “Winners”, with only two manufacturing sectors part of the mix**. Some of the key sectors in the “Winners” pool (i.e., sectors that offer high salaries and have a high innovation potential) are *Computer programming*, *Engineering activities,* and *Business and other management consultancy.* Among the manufacturing “Winners” we have *Manufacture of electrical and electronic equipment for motor vehicles* and *Manufacture of communications equipment.* As noted before, the latter is not in the “Winners” category anymore as it has disappeared from the region’s landscape.

394. **Generally, the “Winner” services sectors described above are made up of small and medium-sized enterprises which require affordable office space to operate**. There are also individual infrastructure needs, such as the availability of a good fiber-optic network to sustain IT activities, or the availability of e-Government options to allow for faster and more efficient business operations.

395. **The manufacturing “Winners” also have concrete infrastructure needs.** These represent large vertically integrated companies that require good connective regional infrastructure to access markets, and good connective local infrastructure to access a larger labor pool. Fujikura Automotive, the large manufacturer of electrical and electronic equipment for motor vehicles, is based in the old industrial platform of the city. As such, it has had an easier time branching itself to existent transport infrastructure and to the local public

transport network. Nokia (the main manufacturer of communications equipment), on the other hand, was based in Jucu, 25 km away from the city center (see image above). While the company is not operating there anymore, three other large manufacturers have plans to take its place soon. These new industrial facilities will of course benefit from continued investments in the improvement of accessibility.

Figure 43. Shift Share Analysis for the Cluj growth pole, for 2005-2008



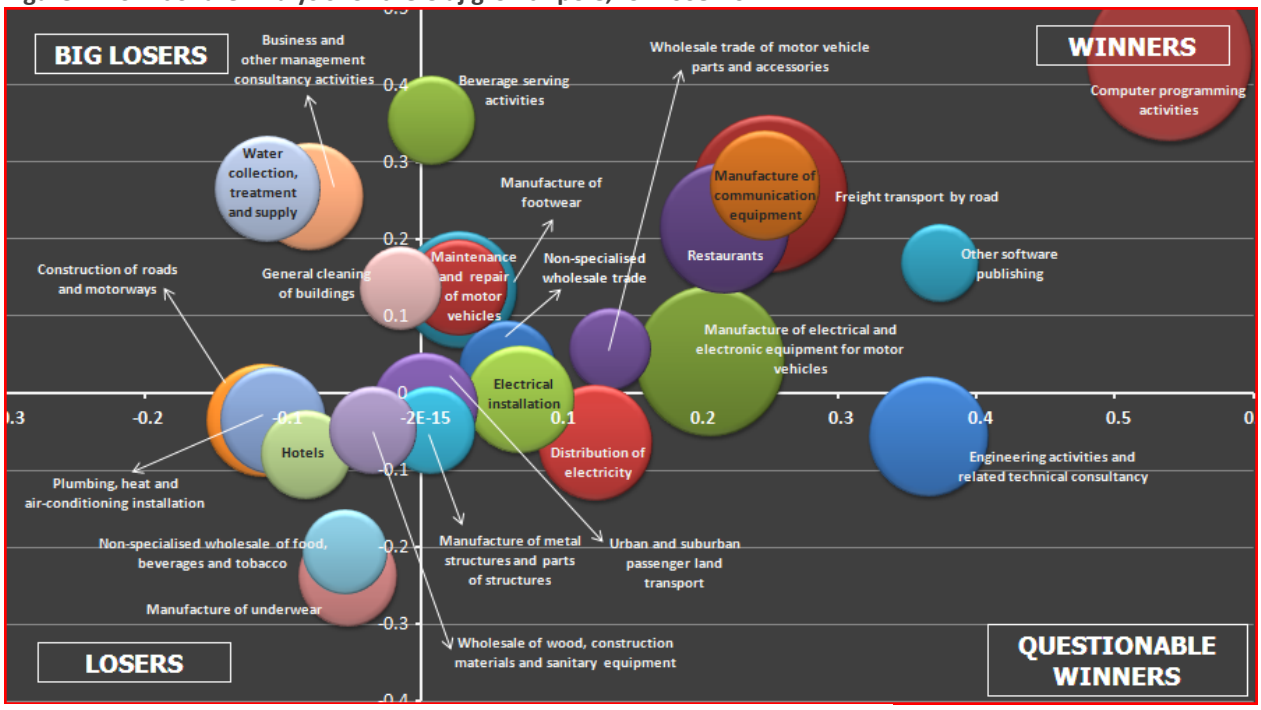
Data source: ListăFirme

396. **Most notable among the "Questionable Winners" are:** ***Manufacture of underwear, Manufacture of footwear, Manufacture of pharmaceuticals, and Manufacture of railway locomotives and rolling stock.*** These represent sectors that have generally performed well locally, but have had a poor performance at the national level. It is interesting to see the higher overall incidence of manufacturing sectors in this category. Overall, "Questionable Winners" need to be monitored closely, as they may be sectors that will lose competitiveness over time – in tune with the sector performance at the national level. Of course, this may also be a sign that local companies in these sectors have adapted much better to changing market situations. For example, one of the largest underwear manufacturers locally, Jolidon, has made the transition from predominantly lohn production (i.e., producing garments for another company, following their specifications, and using their materials), to the development of their own internal fashion line, which is now successfully distributed inside and outside the country. Similarly, Terapia, the largest local pharmaceutical producer, has managed to successfully respond to Western pharma companies, by developing its own brands, and by focusing on a number of products where it has a competitive advantage.

397. **The list of "Losers" and "Big Losers" is relatively small, and includes mostly large service providers.** Thus, in this category we have *Distribution of electricity, Urban public transport,* and *Construction.* To some extent, the performance of the "Big Losers" can be explained by the fact that growth in these sectors has been slower between 2005-2008 than in previous years, while the rest of the country has caught up (particularly in construction). Also, the poor performance of a sector like the *Construction of roads and motorways* can be explained by the difficulties Bechtel had in carrying its work on the Transylvania Highway.

398. **Cluj was also one of the few growth poles that have had a positive economic performance after the crisis.** Of the 30 largest local economic engines, 13 were "Winners" between 2008 and 2011; 7 were "Questionable Winners"; 7 were "Losers", while the remaining 3 were "Big Losers". For a crisis period, this is quite an achievement.

Figure 44. Shift Share Analysis for the Cluj growth pole, for 2008-2011



Data source: ListăFirme

399. **Among the "Winners," we again see the dominance of the services sector.** The software industry seems to be particularly prolific, with *Computer programming* and *Other software publishing* flourishing during this period. In fact, *Computer programming* has established itself as the largest sector in the area and the main economic growth engine. Other significant "Winner" sectors include *Freight transport by road, Manufacture of communications equipment,* and *Manufacture of electrical and electronic equipment for motor vehicles.*

400. **The "Questionable Winners" included a number of large service providers and booming knowledge sectors.** Thus, companies involved in the distribution of electricity and in public transport performed well locally, although at the country level they had a poor performance. New, knowledge-driven sectors such as *Engineering activities and related technical consultancy* and *Advertising agencies* also fell into this category.

401. **Among the "Losers" and "Big Losers" we encounter a mix of manufacturing companies, as well as large and small service providers.**

402. **This pre-crisis and post-crisis analysis gives a good indication that while the economy of Cluj is quite eclectic, there is a tendency to increasingly move towards services.** Of course, an analysis of a six-year time period is only a partial indicator of how the economy will look tomorrow. It is safe to say, however, that Cluj has benefited from having both a number of strong economic engines and an eclectic economic base. Similarly, it has benefited from having large companies (which generate the largest revenue increases) as well as small companies (which often drive employment growth and help hedge against external risks).

403. **Local authorities should therefore look at how the growing services sector can be encouraged.** This could involve, among others, investments in business incubators (which the Regional Development Agency North West is already implementing in the current Programming Period), investments in services-specific infrastructure (e.g., fiber-optics network and public Wi-Fi hotspots), investments in affordable office space, investments in quality of life (e.g., pedestrian streets, bike paths, public transport, green spaces, arts and culture, entertainment, etc.), and investments in airport-related infrastructure (which could allow people easier access to opportunities in the rest of the world, including in higher education, jobs, business connections, etc.).

Spatial Planning

404. **Cluj is also an interesting case study from a spatial planning perspective.** After Bucureşti, it was the most dynamic urban center in terms of new dwellings built. In 2008, at the height of the real estate boom, Floreşti (a suburb of Cluj-Napoca) has seen more dwellings go up than any other locality in Romania – including the capital. Between 1990 and 2011, Floreşti has added more new homes than any other locality in Romania, except for Bucureşti, Cluj-Napoca, and Constanţa. In the same time period, it more than doubled in size, and had a population that was higher than that of three of the six designated urban localities in Cluj County.

405. **Much of the new growth in the Cluj growth poles has taken place in only a few localities.** The most prolific is of course Floreşti, followed by Apahida, Cluj-Napoca, Jucu, and Gilău. Most of the other localities making up the growth pole functional area have seen only modest growth. From this point of view, the expansion of Cluj was much more compact than in other growth poles. In fact,

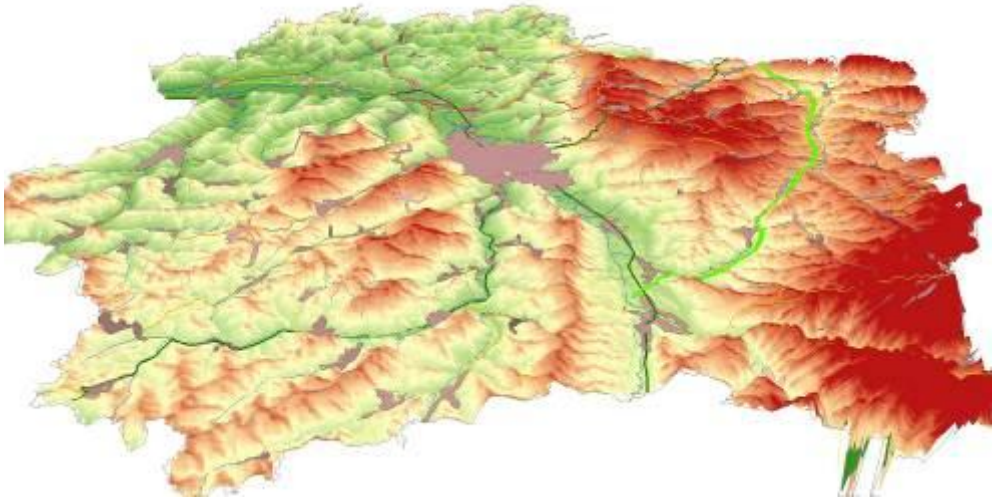
the city has had one of the slowest decrease in population density of all growth poles, second only to Timişoara.

Table 30. Built mass for localities in the Cluj Metro Area

UAT	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Aiton	202	232	217	7.17%
Apahida	720	766	945	31.25%
Baciu	440	445	471	7.05%
Bonţida	377	382	384	1.79%
Borşa	232	232	232	0.00%
Căianu	327	327	327	0.00%
Chinteni	366	379	395	7.97%
Ciurila	183	188	199	8.94%
Cluj-Napoca	**4,295**	**4,410**	**5,346**	**24.48%**
Cojocna	507	513	513	1.11%
Feleacu	528	536	568	7.53%
Floreşti	345	462	807	134.04%
Gârbau	264	264	264	0.00%
Gilău	511	543	613	19.85%
Jucu	471	508	571	21.25%
Petreştii de Jos	213	213	216	1.71%
Tureni	274	275	297	8.58%
Vultureni	190	190	190	0.00%
TOTAL	**10,445**	**10,865**	**12,555**	**20.20%**

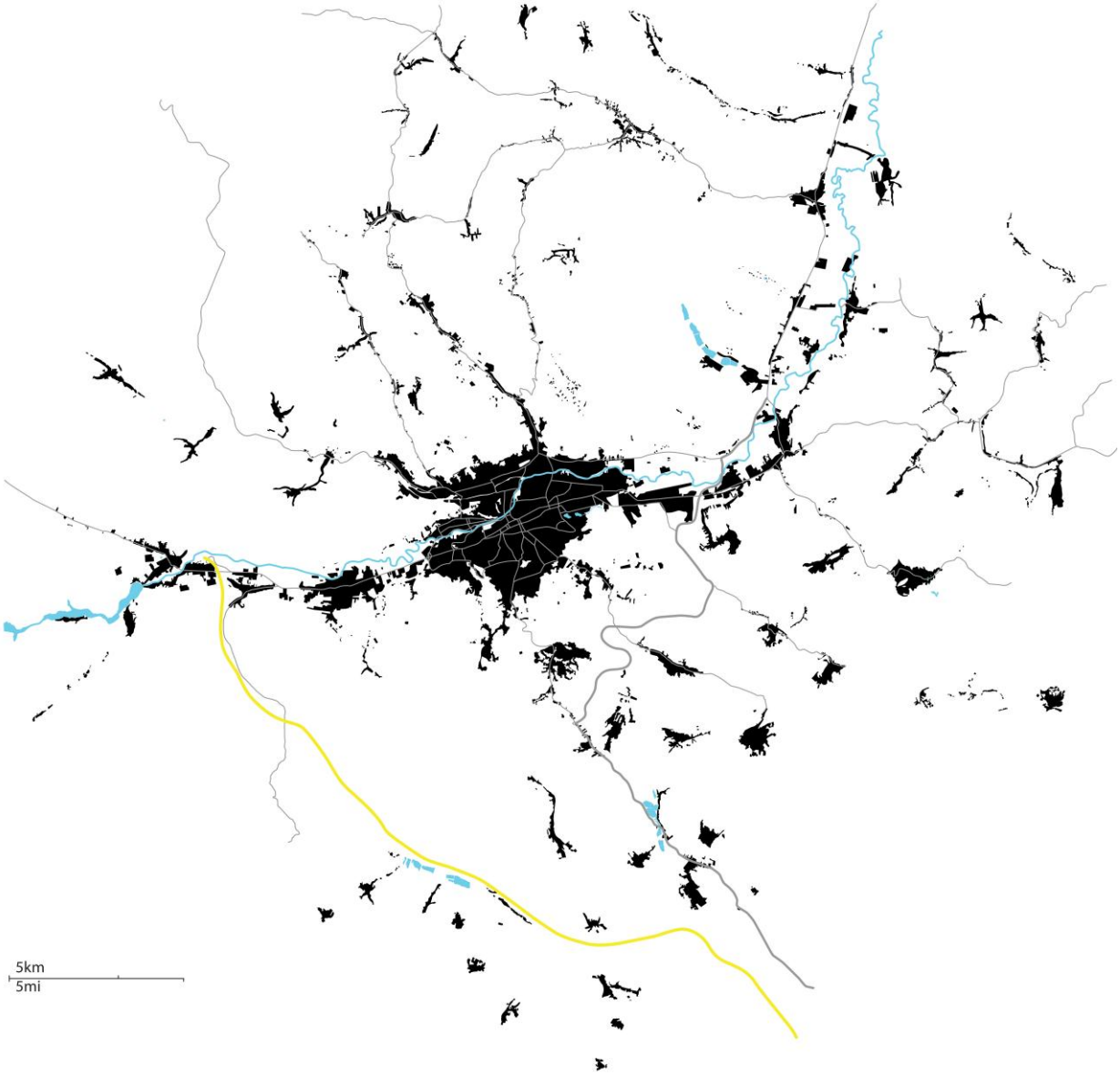
406. **The relatively dense development pattern of Cluj was to some extent driven by its topography.** As the figure below highlights, Cluj is bounded on two sides by hills. This rather difficult terrain has encouraged a lot of in-city development, prohibiting to some extent the uncontrolled expansion of the city outward.

Figure 45. Topography of the Cluj growth pole



407. **The topography has unfortunately also encouraged the development of a less-than-ideal city structure.** With few outlets for outside expansion, new developments have followed the easiest paths out. Thus, the area has expanded along an East-to-West axis, following the valley formed by Someş' river bed. This development pattern is not sustainable, and it is important to use public interventions to encourage a more compact urban structure.

Figure 46. The urban mass of the Cluj growth pole

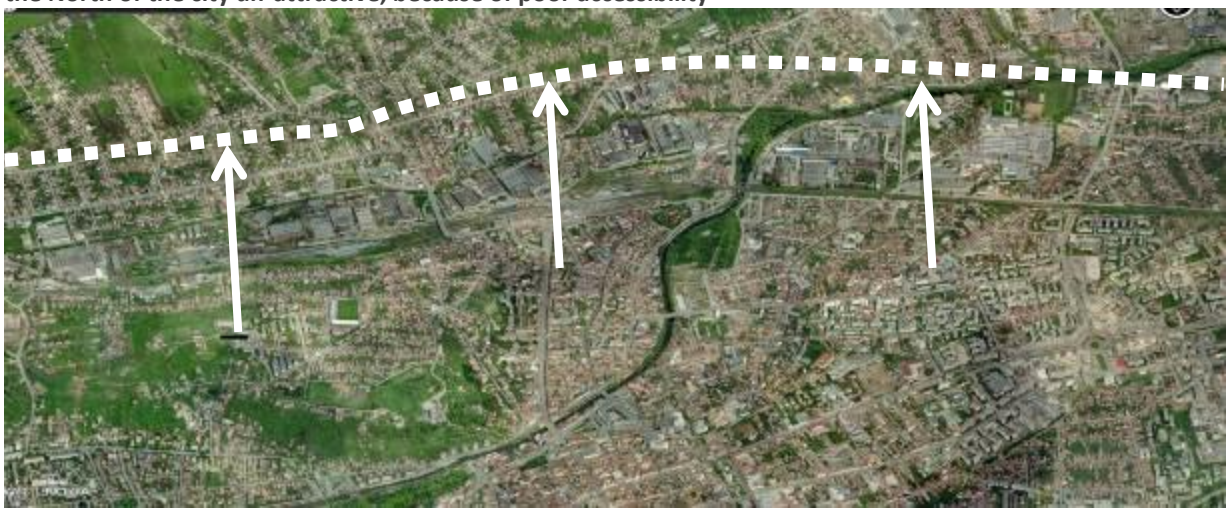


408. **The main way ROP funds can be used to encourage compact urban development is through the strategic use of regional infrastructure.** New roads, in conjunction with sound spatial planning, are one of the most effective tools for

guiding development in a sustainable way. For example, new road connections from Floreşti and Apahida to Cluj-Napoca, including ring roads, can encourage a North and South expansion, taking at the same time some pressure of the already busy main axis currently connecting these localities.

409. **Similarly, expansion in the city's northern area can be encouraged by improving accessibility within the industrial platform and across the railway line.** These two urban features basically isolate the northern part of the urban area from the rest of the city, and make investments there unattractive. Local authorities should therefore consider ways in which accessibility to that area can be improved through the development of additional connective roads and over-rail passages.

Figure 47. The industrial platform and the railway line make developments to the North of the city un-attractive, because of poor accessibility



CONSTANŢA

Regional Infrastructure

410. **Constanța is the most dominant growth pole at the 40-minute driving buffer level.**[40] It amasses a population of 492,000 and generates 4.12% of firm revenues in the country. It is also at this level where regional infrastructure would make most sense – particularly the connection North toward Năvodari, and the connection South (along the bank of the Black Sea) to Tuzla. The Sunshine Highway, recently completed in full, now connects the city to the West, going all the way to Bucureşti.

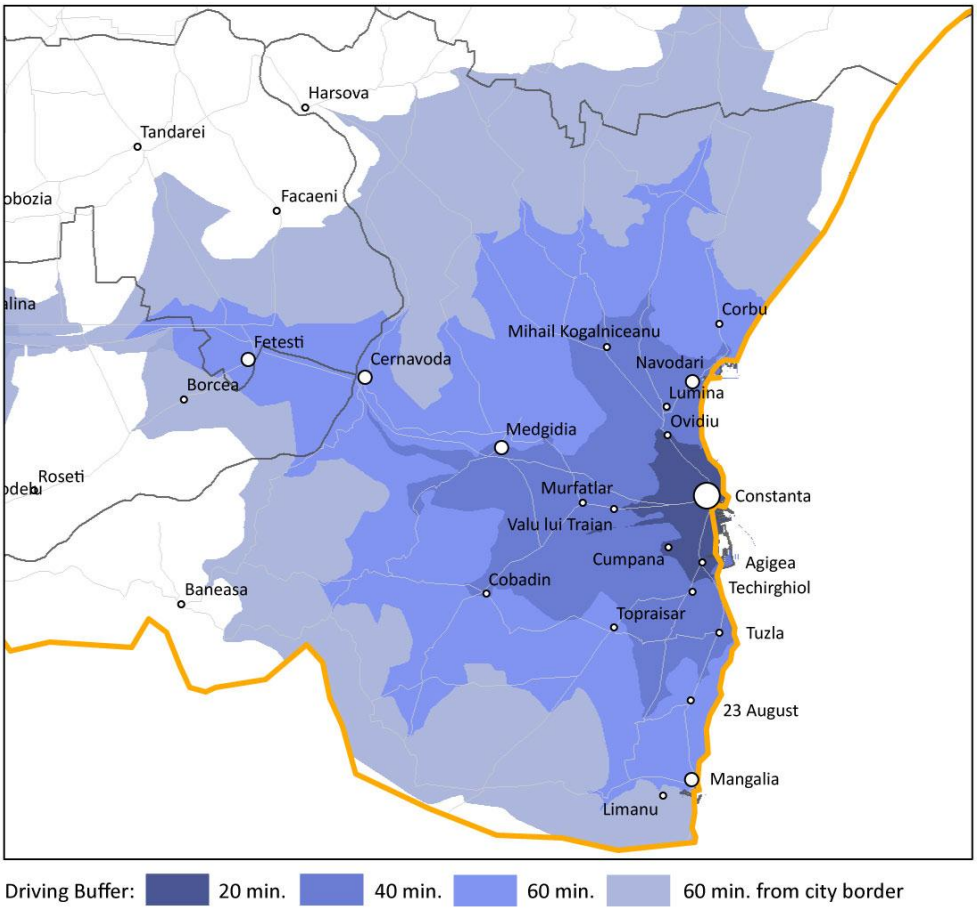
411. **Of particular importance is the connective infrastructure that links the City of Constanța to popular sea-side resorts to the South.** Tourism represents an important source of regional revenues and improved accessibility is key to ensuring regional synergies. For example, people may book a hotel in a quiet sea-side resort, but would prefer to enjoy the night-time in a more active town. Similarly, people may want to spend their vacation days on the beach, but also go enjoy an arts performance in Constanța or Mamaia.

412. **The largest localities within the 60-minute driving buffer from the city center are Feteşti, Cernavodă, and Mangalia.** Feteşti and Cernavodă are already situated along the Sunshine Highway, which has brought them "closer" to the economic heart of the region. Mangalia is along the Southern bank of the Black Sea, and represents the most important stopping point on the way from Constanța to the border with Bulgaria. Given the density of sea-side resorts and tourism spots between Constanța and Mangalia, it may pay to develop a transport masterplan that could look into the opportunity of developing an express road between these two locations, or maybe even a highway connection

[40] Ploieşti has a larger population at the 40-minute driving buffer, but it overlaps with Bucureşti's area of influence.

that would continue further South, to sea-side cities and resorts in Bulgaria (e.g., Varna). Broader plans for a "Black Sea highway" around the entire Black Sea do exist and have been supported by countries like Turkey but, given the high costs involved, their completion will have to wait.

Figure 48. The immediate influence area of Constanța

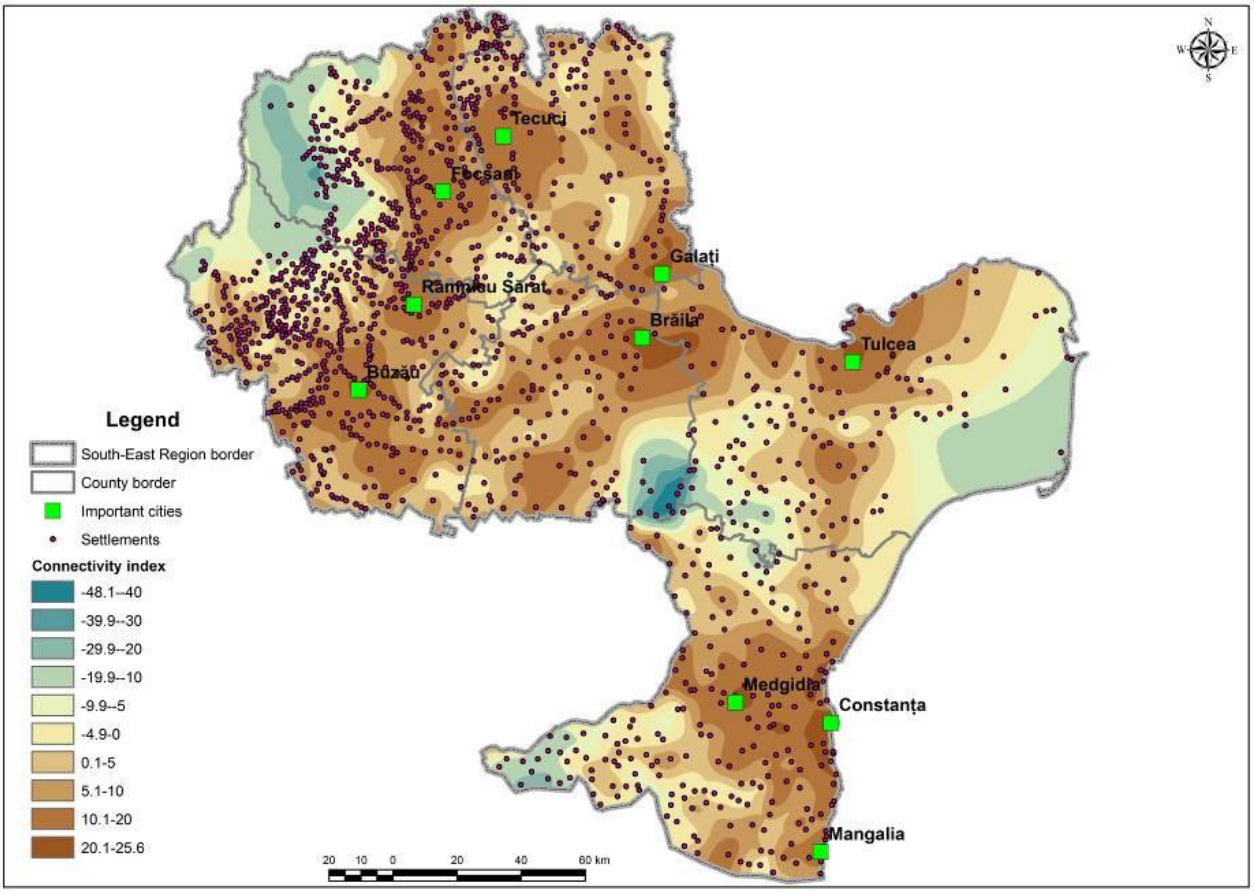


413. **At the 60-minute driving buffer from the city border, Constanța is the weakest represented growth pole in terms of demographics.** Basically, apart from Borcea, there is no other locality in this external buffer that exceeds 5,000 people. As such, there is also little economic activity in this area and little scope for investing in regional infrastructure to connect to this outer ring. However, local, county, regional, and national authorities may consider ways in which the beauty and richness of the Danube Delta (to the North of Constanța) may become easier and safer to explore. As such, regional investments could focus both on better access paths to the Delta and on infrastructure that enables easy and environmentally sound exploration of the nature preserve.

414. **To get a better picture of regional infrastructure needs, beyond Constanța's influence area, we have prepared a connectivity map for the South-East Region.** Annex 5 includes a more detailed description of the

methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g., education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

Figure 49. Connectivity Index for the South-East Region



415. **In terms of connectivity, the South-East Region performs relatively poorly compared to other regions.** For one, Constanța, the regional growth pole, is some distance away from other urban centers in the region. Secondly, the Danube Delta is among the least connected and more sparsely populated areas in Romania. Thirdly, and interestingly, the Brăila-Galați con-urbation is surrounded by a relatively sparsely populated area – i.e., they are well connected to each other, but connected to few other sizeable settlements in the area. Lastly, the most densely populated area in the north-west part of the region is also one of the least urbanized, with only one sizeable urban settlement – Buzău.

Business Environment

416. **Constanța has a business environment that plays on the city's strength as the largest port in Romania and the largest port on the Black Sea**. A number of port-specific sectors are thus among the growth pole's strongest economic engines – e.g., *Cargo handling, Water transportation, Freight transport by road, Building of ships and floating structures, Repair and maintenance of ships and boats,* or *Other transport support activities.* However, the most dominant sector in Constanța is oil processing. *Manufacture of refined petroleum products,* made-up largely of large oil refineries like RomPetrol, was responsible in 2011 for 29% of all firm revenues generated in the growth pole. This is a very high share, particularly if one considers that this sector only employed 11% of the local labor force.

417. **The dominance of oil refineries makes the local economy susceptible to external risks.** For example, fluctuations of oil prices may send the local economy into a downward spiral. Similarly, the dominance of this sector can create a mini "Dutch Disease" effect – where the growth of other potential economic sectors is discouraged. For example, most skilled people will look for a high-paying job in the oil refinery sector to the detriment of potentially emergent innovation sectors. Over the long-term, this may negatively affect the overall economy of the region, inhibiting its diversification, as was demonstrated in many other resource-rich areas around the world.

418. **Apart from port activities and oil processing, tourism-related service activities are also well represented.** *Restaurants* and *Hotels* are among the largest employers locally, but they also include a high number of seasonal employers. In effect, these sectors go through boom and bust periods throughout the year, employing more people in the high-summer season, and reducing employment in the low-season. Also, these sectors are weather sensitive. In a year with good weather, people will flock to the sea-side and business will be booming. In a season with bad weather, many people prefer other destinations.

419. **While tourism is an important revenue generator and a significant local employer, it is important for local authorities to realize that tourism alone cannot sustain long-term growth.** For one, tourism-related sectors usually provide low salaries and little innovation. On the other hand, there are dis-economies of scale in tourism that kick in once a sector has grown too big – for example, most vacationers do not like to spend their afternoon on an over-crowded beach; nor do people like to stay in a hotel that is too far away from the water.

420. **It is also interesting to note that the largest employer in the growth pole is represented by *Private sector activities.*** The high number of people working in this sector may be attributed to port- and tourism-related activities. Regardless of what has prompted such a high employment in this sector, it is clear that it is not a sector that generates high salaries or innovation.

Table 31. The economic engines of the Constanța metropolitan area, in 2011

		CONSTANTA				INDICATORS			
		No. of Companies	No. of Employees	Revenues (Euro)	Profits (Euro)	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
	Sectors	**20,382**	**104,892**	**8,299,453,162**	**266,923,336**				
1	Private security activities	84	4,113	26,590,858	1,526,093	1.42	49	316,558	18,168
2	Cargo handling	48	4,069	162,419,058	12,853,610	19.03	85	3,383,730	267,784
3	Restaurants and mobile food service activities	684	3,238	43,182,210	1,723,085	1.86	5	63,132	2,519
4	Service activities incidental to water transportation	208	3,044	155,027,322	25,151,812	22.62	15	745,324	120,922
5	Freight transport by road	925	2,704	160,813,972	4,650,923	1.06	3	173,853	5,028
6	Water collection, treatment and supply	4	2,558	48,105,471	2,826,039	2.59	640	12,026,368	706,510
7	Building of ships and floating structures	70	2,508	37,129,375	1,826,523	4.86	36	530,420	26,093
8	Activities of employment placement agencies	136	2,433	18,568,133	1,446,227	6.14	18	136,530	10,634
9	Hotels and similar accommodation	244	1,963	37,372,973	1,955,604	2.07	8	153,168	8,015
10	Repair and maintenance of ships and boats	95	1,946	47,192,633	5,394,851	21.74	20	496,765	56,788
11	Non-specialized wholesale trade	253	1,582	191,811,315	5,591,069	2.12	6	758,147	22,099
12	Maintenance and repair of motor vehicles	344	1,528	35,215,548	1,192,736	1.30	4	102,371	3,467
13	Other retail sale in non-specialized stores	663	1,435	45,796,406	774,501	1.31	2	69,075	1,168
14	Manufacture of metal structures and parts of structures	86	1,361	37,224,702	2,128,281	1.39	16	432,845	24,747
15	Plumbing, heat and air-conditioning installation	262	1,311	31,224,255	1,370,288	1.17	5	119,177	5,230
16	Collection of non-hazardous waste	36	1,270	30,298,467	3,448,791	1.61	35	841,624	95,800
17	Dispensing chemist in specialized stores	198	1,211	70,781,436	3,355,772	1.21	6	357,482	16,948
18	Manufacture of refined petroleum products	6	1,173	2,373,133,651	70,719	11.88	196	395,522,275	11,787
19	Wholesale of wood, construction materials and sanitary equipment	282	1,173	135,237,961	2,613,338	1.16	4	479,567	9,267
20	Renting and operating of own or leased real estate	375	1,112	41,430,675	7,502,463	1.81	3	110,482	20,007

21	Other human resources provision	33	1,069	3,268,072	406,896	6.85	32	99,032	12,330
22	Distribution of electricity	4	995	106,256,622	25,198,792	2.25	249	26,564,156	6,299,698
23	Hairdressing and other beauty treatment	288	954	3,610,477	229,208	1.60	3	12,536	796
24	Manufacture of grain mill products	15	940	60,068,382	192,320	2.60	63	4,004,559	12,821
25	Other transportation support activities	138	931	79,426,614	11,733,862	2.96	7	575,555	85,028
26	Non-specialized wholesale of food, beverages and tobacco	109	931	149,864,634	2,500,024	1.08	9	1,374,905	22,936
27	Growing of cereals (except rice), leguminous crops and oil seeds	214	921	97,238,520	12,771,678	1.03	4	454,386	59,681
28	Construction of other civil engineering projects n.e.c.	40	914	50,414,007	955,550	3.85	23	1,260,350	23,889
29	Steam and air conditioning supply	5	887	55,663,988	90,124	2.01	177	11,132,798	18,025
30	Recovery of sorted materials	109	838	217,904,231	6,232,635	2.36	8	1,999,121	57,180

Data source: ListăFirme

421. **It is important for local authorities to determine how the gradual shift of exports to the EU and to road-based transport will affect port activities in Constanța.** As the Romanian economy becomes more and more enmeshed in the economic fabric of the EU, the role of Constanța as a major transport hub may become less prolific – especially if one considers that it is one of the growth poles most distant from the Western border. Moreover, as more and more regions become connected by highway to the West of the country, there may be less and less scope for relying on shipping by sea from Constanța.

422. **The fact that port activities in Constanța are not doing so well may be inferred from the poor job performance of the *Cargo handling* sector.** While it is the second largest economic engine in the growth pole, it is not among the main job creators in the 2005-2008 boom years. In fact, few of the economic engines in Constanța were also job creators.

423. **To a large extent, jobs in the 2005-2008 time period were created by the services sector.** *Wholesale* and *Construction* where the largest job creators, followed by a number of other services sectors. Manufacturing industries were relatively poorly represented among job creators, and included among others *Building of ships and floating structures, Manufacture of metal structures and parts of structures,* and *Manufacture of concrete products for construction purposes.* Interestingly, among the large job creators we also encounter agricultural activities, such as *Growing of grapes* (connected to the local wine industry) or *Growing of cereals.*

Table 32. Main job creators in the Constanța growth pole, between 2005-2008

Sector	Jobs created
Non-specialized wholesale trade	884
Construction of residential and non-residential buildings	767
Collection of non-hazardous waste	737
Activities of employment placement agencies	719
Building of ships and floating structures	680
Growing of grapes	598
Private security activities	591
Freight transport by road	476
Restaurants and mobile food service activities	394
Manufacture of metal structures and parts of structures	389
Manufacture of concrete products for construction purposes	359
Plumbing, heat and air-conditioning installation	331
Dispensing chemist in specialized stores	326
Construction of other civil engineering projects n.e.c.	315
Maintenance and repair of motor vehicles	295
Technical testing and analysis	286
Water collection, treatment and supply	274
Hotels and similar accommodation	271
Travel agency activities	253
Growing of cereals (except rice), leguminous crops and oil seeds	241
Non-specialized wholesale of food, beverages and tobacco	222
Business and other management consultancy activities	216

Other business support service activities n.e.c.	208
Wholesale of wood, construction materials and sanitary equipment	204
Service activities incidental to water transportation	204
Other building and industrial cleaning activities	192
Other retail sale in non-specialized stores	178
Other specialized construction activities n.e.c.	174
Electrical installation	169
Accounting, bookkeeping and auditing activities; tax consultancy	167
Taxi operation	159
Hairdressing and other beauty treatment	156
Buying and selling of own real estate	150

Data source: ListăFirme

424. **The fact that there are few innovating sectors among the main job creators should be cause of concern for local authorities.** Long-term economic growth requires endogenous technological change, and there seem to be few sectors in Constanța that either generate innovation or import innovation for their continued growth.

425. **This picture is strengthened when looking at job creators after the crisis.** As the table below highlights, there were few jobs created in the Constanța growth pole after the crisis, and the large majority came from consumption-oriented services. By far the largest job creator was *Private security activities,* and it was followed by a number of commerce sectors, and basic services (e.g., *Hairdressing).*

Table 33. Main job creators in the Constanța growth pole, between 2008-2011

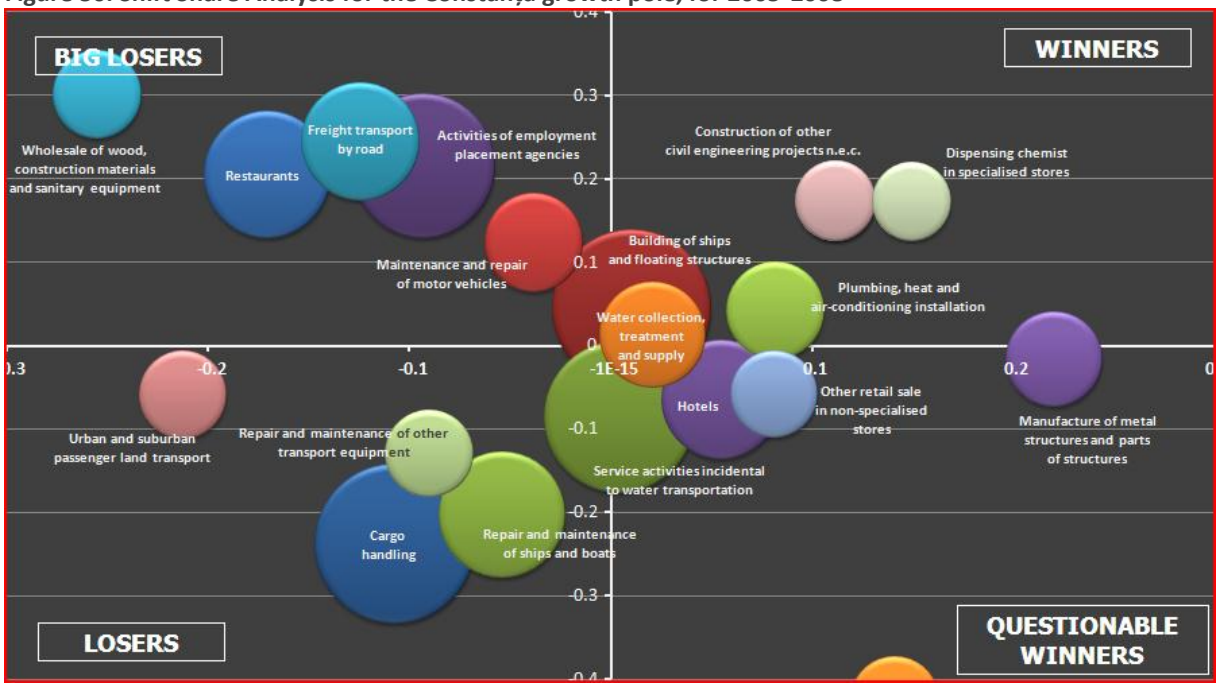
Sector	Jobs created
Private security activities	1,903
Water collection, treatment and supply	681
Other human resources provision	604
Restaurants and mobile food service activities	561
Freight transport by road	380
Production of meat and poultry meat products	237
Beverage serving activities	226
Temporary employment agency activities	188
Dispensing chemist in specialized stores	176
Technical and vocational secondary education	175
Wholesale of live animals	159
Hospital activities	157
Other amusement and recreation activities	155
Other retail sale in non-specialized stores	151
Wholesale of waste and scrap	135
Wholesale of grain, unmanufactured tobacco, seeds and animal feeds	132
Hairdressing and other beauty treatment	131
Other credit granting	130
Management of real estate on a fee or contract basis	126
Specialist medical practice activities	118
Gambling and betting activities	112
Business and other management consultancy activities	108

Data source: ListăFirme

426. **While local authorities should not necessarily go out of their way to encourage these job creators, they should not stay in their way either.** A local economy is the sum of a myriad of individual choices, and it is hard for the public sector to sway the economy in one direction or another. If the large majority of new jobs come from commerce, it is likely that there will be a need for space to accommodate such activities. For example, wholesalers will require large parcels of land and big spaces, while small retailers will require affordable spaces of a variety of sizes. To be close to customers, wholesalers will likely look to use available parcels of land within cities (e.g., former industrial lands, or unused parcels), while retailers will often convert ground floor apartments in Communist apartment blocks.

427. **It is important for local authorities to determine ways in which public funds could be used to encourage the local economy's competitive advantage.** For the Constanța growth pole, its competitive advantage is lent by the port activities, oil refining, and tourism. To the extent that these sectors seem to be performing well, it may pay for local authorities to determine ways in which this performance can be supported and encouraged. An easy way of studying local performance of individual sectors is the Shift-Share analysis. Of course, this type of analysis can only give an indication of past trends and it cannot always offer a reliable prediction of how the economy will look in the future. One individual's or one company's decision to invest locally may significantly alter local economic dynamics.

Figure 50. Shift Share Analysis for the Constanța growth pole, for 2005-2008



Data source: ListăFirme

428. **The pre-Crisis Shift-Share analysis gives an indication of the best performers in Constanța in the boom years.** Between 2005 and 2008 of the 30 largest economic engines 9 were "Winners". The most prolific sector among the "Winners" was *Building of ships and floating structures,* which is both a large local employer and which plays on the competitive advantage of the growth pole. Other "Winner" sectors include *Construction, pharmacies*, service providers like *plumbers*, or large public service providers (e.g., water delivery).

429. **"Questionable Winners" number 8 sectors from a variety of fields.** Two of these sectors (*Service activities incidental to water transportation* and *Hotels*) play on the competitive advantage of Constanța, and may reflect a concentration and strengthening of these sectors locally. Thus, while other ports in Romania may lose competitiveness, the one in Constanța may gain. The same could be said about the tourism industry, with *Hotels* performing better locally than in the rest of the country.

430. **There are 6 "Loser" sectors and three of those that play on the growth pole's competitive advantage.** *Cargo handling, repair and maintenance of ships and boats,* and *Repair and maintenance of other transport equipment* are sectors that most likely have benefited in the past from Constanța's privileged position as a major transit hub, but now seem to be doing less well. In effect, this may be a reflection of the reorientation of trade towards the EU, which has eroded Constanța's role in the Romanian trade flows.

431. **The 7 "Big Losers" also included sectors that draw strength from Constanța's position as a trade hub and tourism spot.** In particular, *Freight transport by road* and *Restaurants* stand out. The interesting thing is that while *Hotels* seem to have been performed better locally, *Restaurants* have been poor performers.

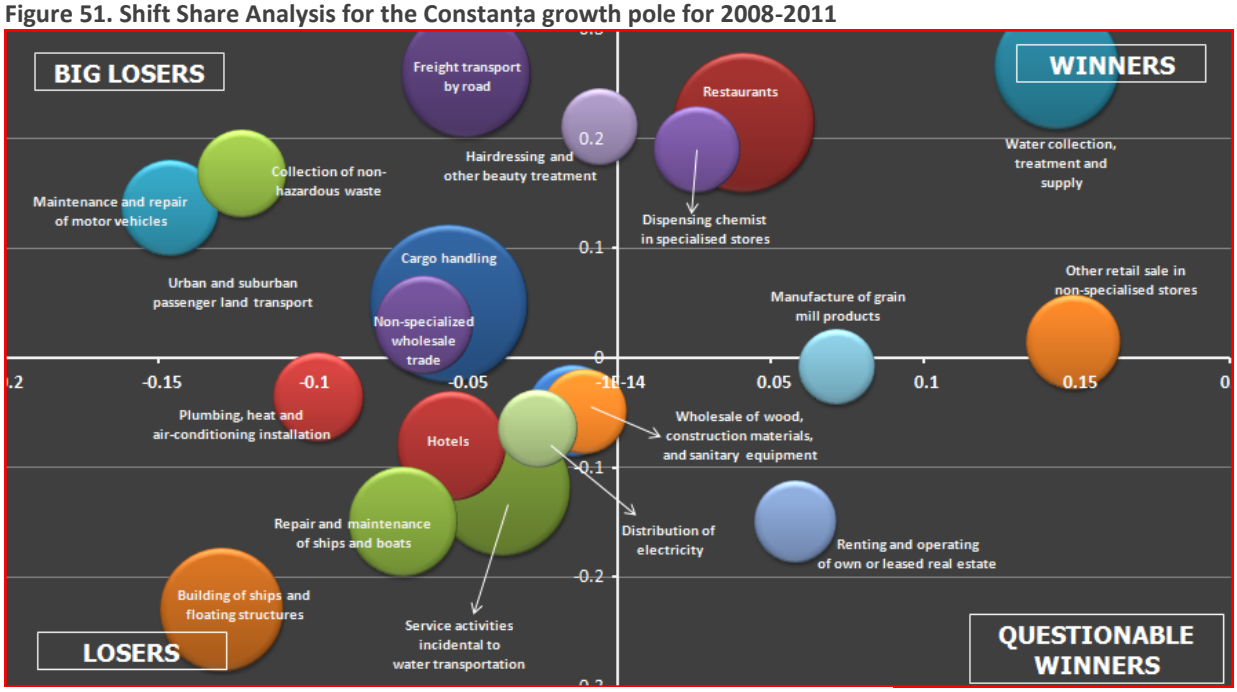
432. **The Shift-Share analysis for the post-crisis years shows a definite shift of local economic engines to the "Loser" and "Big Loser" quadrants.** It is clear that the crisis has had a negative effect on the economy of the Constanța growth pole.

433. **Of the 30 largest economic growth engines, only 6 were "Winners" between 2008 and 2011.** Of these, the only sector that plays on the competitive advantage of Constanța is *Restaurants.* The interesting thing is that between 2005 and 2008 *Restaurants* was a "Big Loser." This may be an indication of the volatility of the tourism industry, which is very sensitive to external factors such as weather, gas prices, and the cost of transport.

434. **Of the 5 largest "Questionable Winners," the only one that played on Constanța's competitive advantage was the *Manufacture of refined petroleum products.*** The good performance of this sector, despite a poor performance nationally, may be an indication of increased concentration locally. Other "Questionable Winners" included sectors from a wide array of fields.

435. **The 9 "Losers" and 10 "Big Losers" included a large number of sectors that traditionally play on the competitive advantage of Constanța.** Some of these sectors can be seen in the graph below.

Figure 51. Shift Share Analysis for the Constanța growth pole for 2008-2011



Data source: ListăFirme

436. **When considering how ROP funds can be used to encourage the local business environment, authorities should first commission in-depth studies that more accurately project local economic dynamics.** As the brief analysis above has shown, it does seem that Constanța's competitive edge as a trade hub may be waning. As trade flows become more and more oriented towards the EU, Constanța may end up decreasing in importance as a trade hub. On the other hand, tourism may continue to be an important economic engine (with distinct tourism infrastructure needs) and the exploitation of discovered oil reserves in the Black Sea may increase the performance and revenue of oil refineries.

Spatial Planning

437. **Overall, the spatial expansion of the Constanța growth pole has been rather modest.** Between 1992 and 2012, the area has grown by only 11%. Constanța is of course the locality that has registered the largest absolute built mass growth, but in relative terms it was surpassed by some of its neighbors – e.g., Ovidiu, Cumpăna, or Năvodari.

438. **Moreover, none of Constanța's peri-urban localities are very dense.** This means that there is little scope, for example, for the development of an integrated metropolitan public transport network. This is an interesting finding, as Constanța is quite prominent within a 40-minute driving buffer – it has both

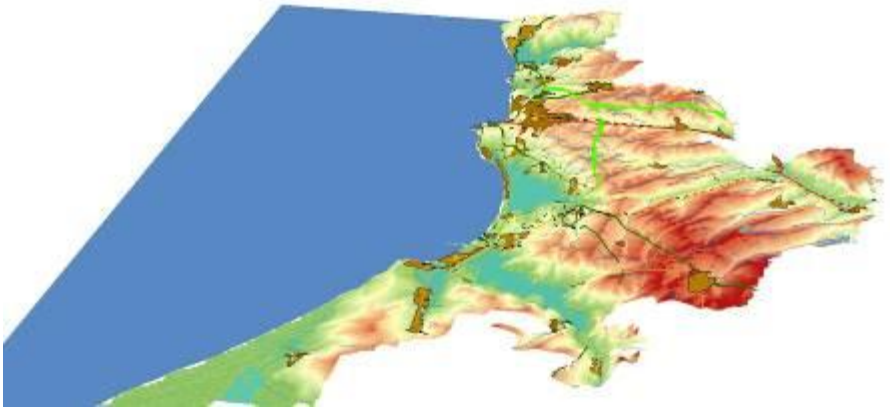
the largest population and the largest economic density of all seven growth poles. The economic density bump can be explained by the presence of the oil refinery close to Năvodari. The relatively high population, but low population density within the built mass, may be an indication of the predominantly rural character of much of the Constanța growth pole area, but also an indication of its tourism profile (e.g., in a locality like Eforie, much of the built mass is taken up by hotels, with few permanent residences).

Table 34. Built mass for localities in the Constanța Metro Area

UAT	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Agigea	596	602	632	6.10%
Basarabi (currently Murfatlar)	398	417	417	4.85%
Constanţa	**4258**	**4382**	**4566**	**7.22%**
Corbu	538	538	564	4.77%
Cumpăna	592	611	726	22.61%
Eforie	504	518	547	8.33%
Lumina	599	627	683	14.14%
Mihail Kogalniceanu	628	640	692	10.17%
Năvodari	1088	1201	1268	16.49%
Ovidiu	366	431	517	41.29%
Poarta Alba	311	313	335	7.54%
Techirghiol	292	293	325	11.47%
Tuzla	300	302	339	13.02%
Valu Lui Traian	548	557	615	12.15%
TOTAL	**11,018**	**11,432**	**12,226**	**10.96%**

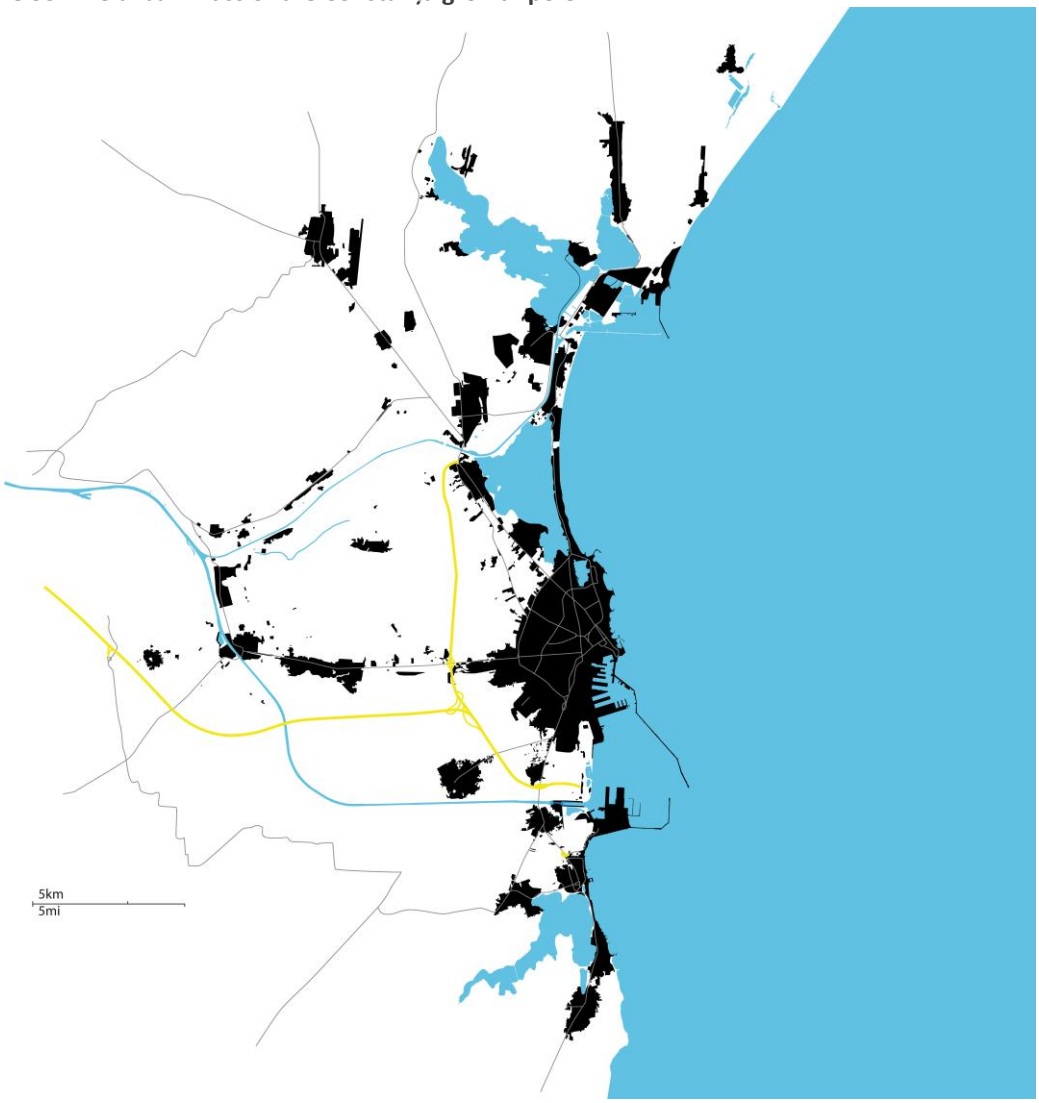
439. **The topography of Constanța is relatively flat, but the positioning of the growth pole along the Black Sea guides development along a longitudinal pattern.** This geographic feature of Constanța may push the development and improvement of connective infrastructure along a North-South axis, along the banks of the Black Sea.

Figure 52. Topography of the Constanța growth pole



440. **From a sustainability perspective, Constanța' development pattern is not ideal. From an economic point of view however, it makes sense**. As the image below indicates, travel times from different points of the growth poles to the center of Constanța are likely to be larger than if the growth pole would have developed tightly around the urban core. However, this pattern of urban location and expansion makes sense from an economic point of view, because it is the Black Sea coast that offers the most favorable locations for summer tourism and trade activities.

Figure 53. The urban mass of the Constanța growth pole



441. **ROP investments that will aim to drive development in the region may have to make a trade-off between environmental sustainability principles and economic growth desiderates**. It is ultimately up to citizens and their local representatives to decide which way to go or how to promote new investments in a way that promotes development in a sustainable fashion.

CRAIOVA

Regional Infrastructure

442. **Craiova functions at two different scales.** At a small and medium scale (20-minute and 40-minute drive from the city center), Craiova has both the smallest population and the smallest economy of all the seven growth poles. Within the 60-minute buffers (from city center and the city border), however, Craiova amasses the largest population of all growth poles, and its economy doubles.

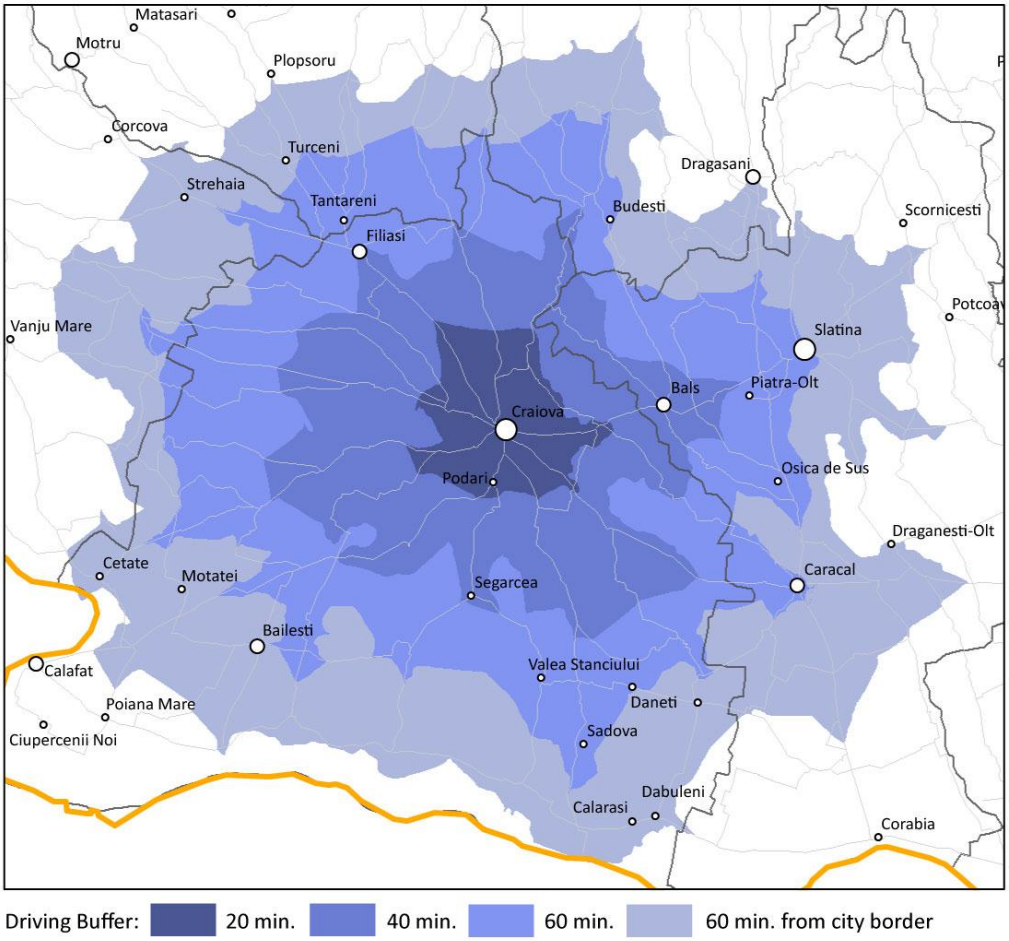
443. **Consequently, the development of regional infrastructure will be of utmost importance for the Craiova growth pole.** It is at a larger scale where Craiova gains more demographic mass and a larger economic mass – i.e., the population more than triples over the 20-minute driving buffer, while firm revenues double in size. Thus, a new investor in the region, like Ford, can potentially access a much larger labor pool if it looks at the region as a whole than if it looks solely at the City of Craiova and its surroundings.

444. **Obviously, accessing this large labor pool requires investments in connective infrastructure.** In fact, we ran a gravity model that includes the proposed system of highways and express ways in Romania, and Craiova came out as one of the areas that would benefit most from improved accessibility.

445. **The map below gives a better picture of Craiova's area of influence.** What becomes immediately obvious is that within the 20-minute and 40-minute buffers, there are only four localities outside Craiova that have a population larger than 5,000. Within the 60-minute buffers, there are a number of large localities like Slatina or Caracal, and a number of high density rural areas. From a regional development perspective, it makes sense to improve connections between Craiova and larger localities (e.g., through express ways), and at the

same time it would pay to improve accessibility to Craiova for people living in surrounding rural areas.

Figure 54. The immediate influence area of Craiova

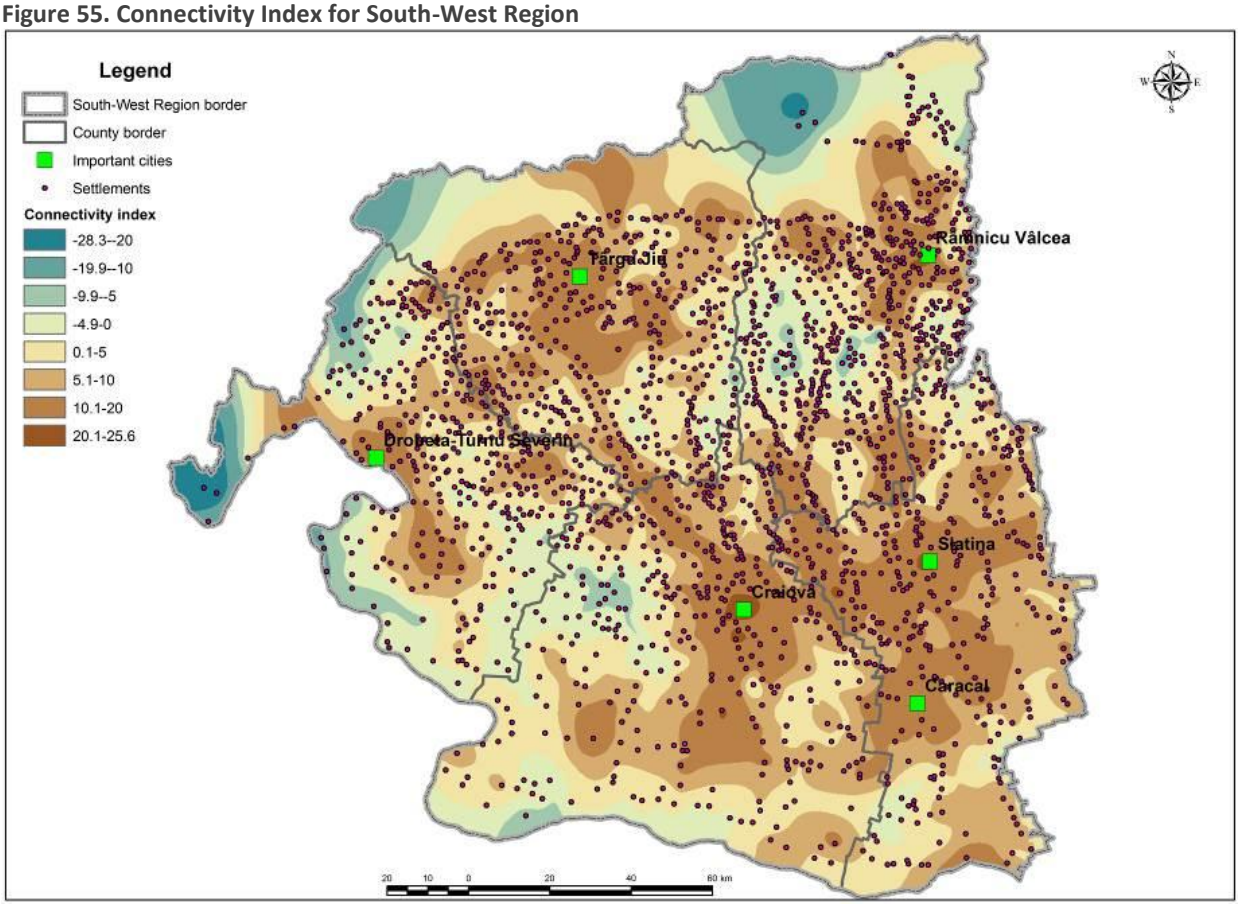


446. **Beyond connections to immediate surroundings, it is important to also consider connections further South, over the Danube to Bulgaria.** Currently, the entire stretch of the Danube River that separates Romania from Bulgaria is crossed by only one bridge – between Giurgiu and Ruse. In effect, two EU member countries, which in theory should become increasingly inter-connected, remain rather separated from each other. Bulgarian authorities have expressed interest in building another bridge over the Danube, and the project is now close to completion. To be fair, it is not clear if economic benefits will outweigh construction costs, but it is safe to assume that trade in the South of Romania will increase. For Craiova this is particularly important, as it may become a significant trade hub – both for North-South connections, and East-West connections.

447. **Also, to get a better picture of regional infrastructure needs, beyond Craiova's influence area, we have prepared a connectivity map for the South-**

West Region. Annex 5 includes a more detailed description of the methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g. education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

Figure 55. Connectivity Index for South-West Region



448. **The South-West Region, as the map above highlights, has a relatively small number of sizeable urban centers.** As such, it is somewhat less connected than other regions in Romania. Particularly the mountains areas in the north, the sparsely populated areas in the south-west, and the poorly urbanized area in the center, have a lower connectivity index.

Business Environment

449. **Craiova remains a large manufacturing center, building on its legacy industries.** For example, the Oltcit car manufacturer was bought-up after 1989

by the Korean conglomerate Daewoo. In the new millennium, the Korean giant faced financial trouble and decided to close its operations in Craiova. However, the factory was more recently bought up by Ford, which has plans to ramp up production after launching a new car model that is now developed in Craiova. Ford is also the largest employer in the growth pole.

450. **In addition to car manufacturing, Craiova also has a number of heavy and light industries.** Heavy industries include *Manufacture of machinery for metallurgy, Manufacture of metal structures and parts of structures,* or *Manufacture of concrete products for construction purposes.* Light industries include *Manufacture of other outerwear, Manufacture of other wearing apparel and accessories, Manufacture of electric motors, generators and transformers, Manufacture of bread, manufacture of fresh pastry goods and cakes,* or *Manufacture of builders' ware of plastic.*

451. **A number of services sectors have also taken shape in the local economy.** Most notable among the services sectors are *Business and other management consultancy activities* and *Computer programming.* Other significant service sectors include retailers, firms in commerce, and public service providers.

452. **Given its strong manufacturing profile, investments meant to improve Craiova's business environment would naturally focus on industrial producers.** Improving the competitiveness of these companies can be encouraged by various means. At a large scale, it is important to have good connective infrastructure to markets. Given that the large majority of exports in the growth pole go to the EU, it is important to improve connections to the West of the country (e.g., highways and expressways). At a regional scale, regional infrastructure (e.g., expressways and commuter rail), may improve manufacturers' access to a larger labor pool. At the local scale, it is important to improve existent connections to the old industrial platforms (e.g., light rail to the Ford plant), while at the same time developing new connections to emerging industrial platforms. In the 2007-2013 Integrated Development Plan, local authorities have expressed interest in improving access between the city's two largest industrial platforms, which are now at opposite ends of the urban area.

453. **Local authorities should also pay attention to the growing importance of the services sector.** While manufacturing industries are the largest local economic engine, they are not the largest job creators. It is true that *Manufacture of motor vehicles* shows up as the largest job creator between 2005-2008, but this can be wholly attributed to Ford's investment. Other significant job creators were *Construction, Retail, Wholesale, Private security activities,* and *Computer programming.*

Table 35. The economic engines of the Craiova metropolitan area, in 2011

		CRAIOVA				INDICATORS			
		No. of Companies	**No. of Employees**	**Revenues (Euro)**	**Profits (Euro)**	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
	Sectors	**12,222**	**65,566**	**2,753,045,840**	**142,642,589**				
1	Manufacture of motor vehicles	1	3,501	184,659,604	0	10.63	3,501	184,659,604	0
2	Manufacture of electric motors, generators and transformers	11	2,486	114,556,828	1,550,175	21.15	226	10,414,257	140,925
3	Manufacture of other outerwear	83	2,091	15,438,018	971,373	1.20	25	186,000	11,703
4	Manufacture of bread; manufacture of fresh pastry goods and cakes	135	1,817	36,336,811	453,447	1.77	13	269,162	3,359
5	Other retail sale in non-specialized stores	575	1,483	30,959,266	1,730,455	2.16	3	53,842	3,009
6	Distribution of electricity	2	1,345	187,372,180	30,200,896	4.87	673	93,686,090	15,100,448
7	Water collection, treatment and supply	5	1,238	16,077,708	409,853	2.01	248	3,215,542	81,971
8	Urban and suburban passenger land transport	15	1,023	10,059,355	444,180	1.51	68	670,624	29,612
9	Growing of cereals (except rice), leguminous crops and oil seeds	99	1,021	37,351,091	5,502,745	1.83	10	377,284	55,583
10	Taxi operation	243	934	3,575,499	163,241	2.96	4	14,714	672
11	Wholesale of wood, construction materials and sanitary equipment	119	825	124,281,873	2,659,950	1.30	7	1,044,385	22,353
12	Business and other management consultancy activities	284	800	16,113,504	2,505,760	1.15	3	56,738	8,823
13	Specialist medical practice activities	109	785	16,339,528	1,896,548	2.65	7	149,904	17,400
14	Manufacture of builders' ware of plastic	45	758	24,203,255	15,518	4.31	17	537,850	345
15	Plumbing, heat and air-conditioning installation	145	756	23,966,160	1,665,012	1.08	5	165,284	11,483
16	Maintenance and repair of motor vehicles	198	752	11,462,619	853,552	1.02	4	57,892	4,311
17	Steam and air conditioning supply	2	738	22,719,892	0	2.68	369	11,359,946	0

18	Dispensing chemist in specialized stores	175	736	62,901,646	4,188,610	1.17	4	359,438	23,935
19	Collection of non-hazardous waste	9	710	13,291,614	842,452	1.44	79	1,476,846	93,606
20	Manufacture of other wearing apparel and accessories	19	695	11,539,122	682,527	3.74	37	607,322	35,922
21	Manufacture of machinery for metallurgy	1	668	18,932,979	716,197	17.14	668	18,932,979	716,197
22	Manufacture of metal structures and parts of structures	56	666	20,661,143	1,577,251	1.09	12	368,949	28,165
23	Hotels and similar accommodation	42	615	13,994,030	1,955,755	1.04	15	333,191	46,566
24	Agents involved in the sale of a variety of goods	284	554	74,167,913	2,621,238	2.35	2	261,155	9,230
25	Renting and operating of own or leased real estate	103	551	12,236,401	3,069,196	1.44	5	118,800	29,798
26	Support activities for petroleum and natural gas extraction	2	520	24,733,598	2,495,888	4.87	260	12,366,799	1,247,944
27	Manufacture of concrete products for construction purposes	11	517	19,900,212	708	3.56	47	1,809,110	64
28	Computer programming activities	109	495	12,686,144	2,393,938	1.02	5	116,387	21,963
29	General cleaning of buildings	26	487	2,844,966	92,903	1.69	19	109,422	3,573
30	Hairdressing and other beauty treatment	154	487	3,003,909	137,922	1.30	3	19,506	896

454. **Over the long term, it is likely that services will play an increasingly important role**. Generally, job growth in services sectors tends to also be more predictable, as it is generally produced by a myriad of small and medium-sized companies. Job growth in manufacturing however tends to be more fickle. It is explosive when it happens (i.e., generated by one large investment in a new plant), but it can also vanish just as quick.

Table 36. Main job creators in the Craiova growth pole, between 2005-2008

Sector	Jobs created
Manufacture of motor vehicles	3,805
Retail sale of clothing in specialized stores	1,274
Construction of residential and non-residential buildings	1,151
Private security activities	893
Support activities for petroleum and natural gas extraction	684
Manufacture of builders' ware of plastic	625
General cleaning of buildings	424
Specialist medical practice activities	375
Growing of cereals (except rice), leguminous crops and oil seeds	344
Retail sale in non-specialized stores with food, beverages or tobacco predominating	247
Wholesale of wood, construction materials and sanitary equipment	235
Computer programming activities	234
Electrical installation	224
Manufacture of other wearing apparel and accessories	223
Temporary employment agency activities	210
Growing of tobacco	195
Manufacture of concrete products for construction purposes	191
Freight transport by road	174
Activities of call centers	172
Plumbing, heat and air-conditioning installation	148
Engineering activities and related technical consultancy	134
Other specialized construction activities n.e.c.	133
Manufacture of metal structures and parts of structures	120
Sale of cars and light motor vehicles	117
Other software publishing	109
Other human health activities	107
Other business support service activities n.e.c.	106
Manufacture of other builders' carpentry and joinery	101

Data source: ListăFirme

455. **A look at the main job creators in the post-crisis period can present a better picture of the sectors that provide local resilience.** And indeed, of the main job creators between 2008-2001, the only manufacturing sector that figures prominently is *Manufacture of other wearing apparel and accessories.* The rest are largely services sectors. Thus, the largest job creators is a public service provider (more specifically, solid waste management), followed by knowledge-based economy sector – *Business and other management consultancy activities.* Other job creators are mainly consumption driven, and are not exactly harbingers of long-term economic growth – e.g., *Taxi operation, Retail, Gambling, Restaurants, and Bars.*

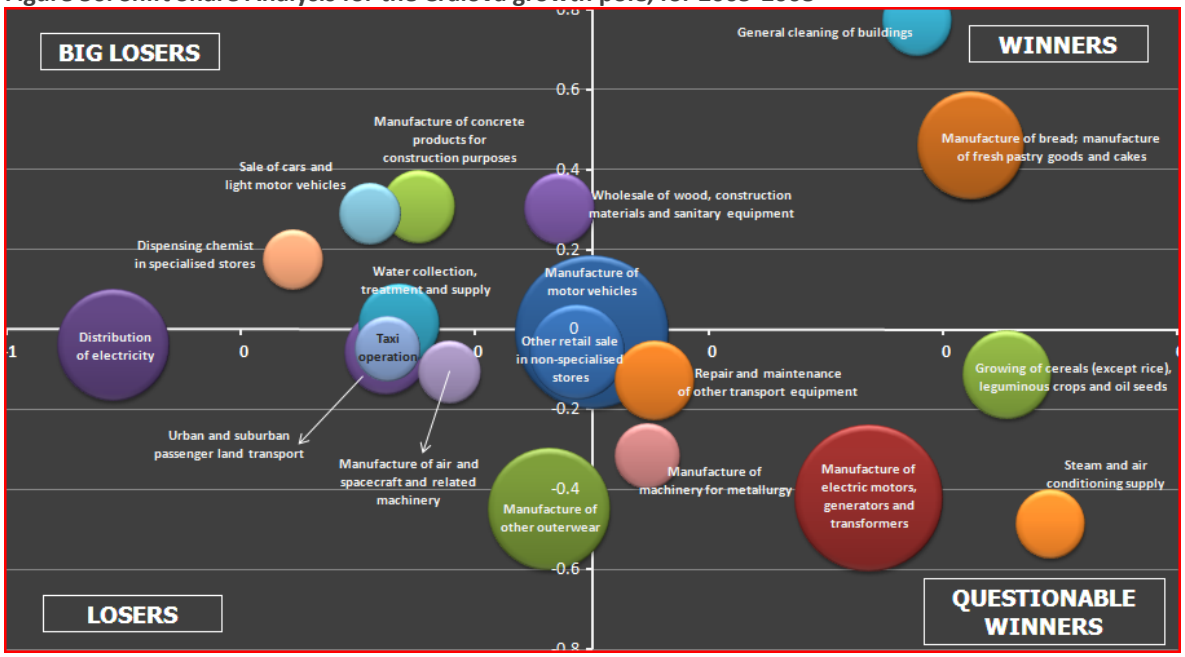
Table 37. Main job creators in the Craiova growth pole, between 2008-2011

Sector	Jobs created
Collection of non-hazardous waste	693
Business and other management consultancy activities	518
Taxi operation	243
Temporary employment agency activities	237
Retail sale in non-specialized stores with food, beverages or tobacco predominating	220
Gambling and betting activities	215
Restaurants and mobile food service activities	204
Manufacture of other wearing apparel and accessories	202
Beverage serving activities	179
Water collection, treatment and supply	169
Dispensing chemist in specialized stores	156
Plumbing, heat and air-conditioning installation	151
Specialist medical practice activities	142
Retail sale of telecommunications equipment in specialized stores	142
Maintenance and repair of motor vehicles	128
Hotels and similar accommodation	109
Freight transport by road	102
Silviculture and other forestry activities	100
Market research and public opinion polling	100

Data source: ListăFirme

456. **A look at the Shift-Share analysis gives a more nuanced picture of local economic dynamics.** Of the 30 largest economic engines in the area, 8 were "Winners" in the boom years 2005-2008. Most notably among them were *Manufacture of motor vehicles, Manufacture of bread; manufacturers of fresh pastry goods and cakes,* and *Manufacture of builders' wear of plastic.*

Figure 56. Shift Share Analysis for the Craiova growth pole, for 2005-2008

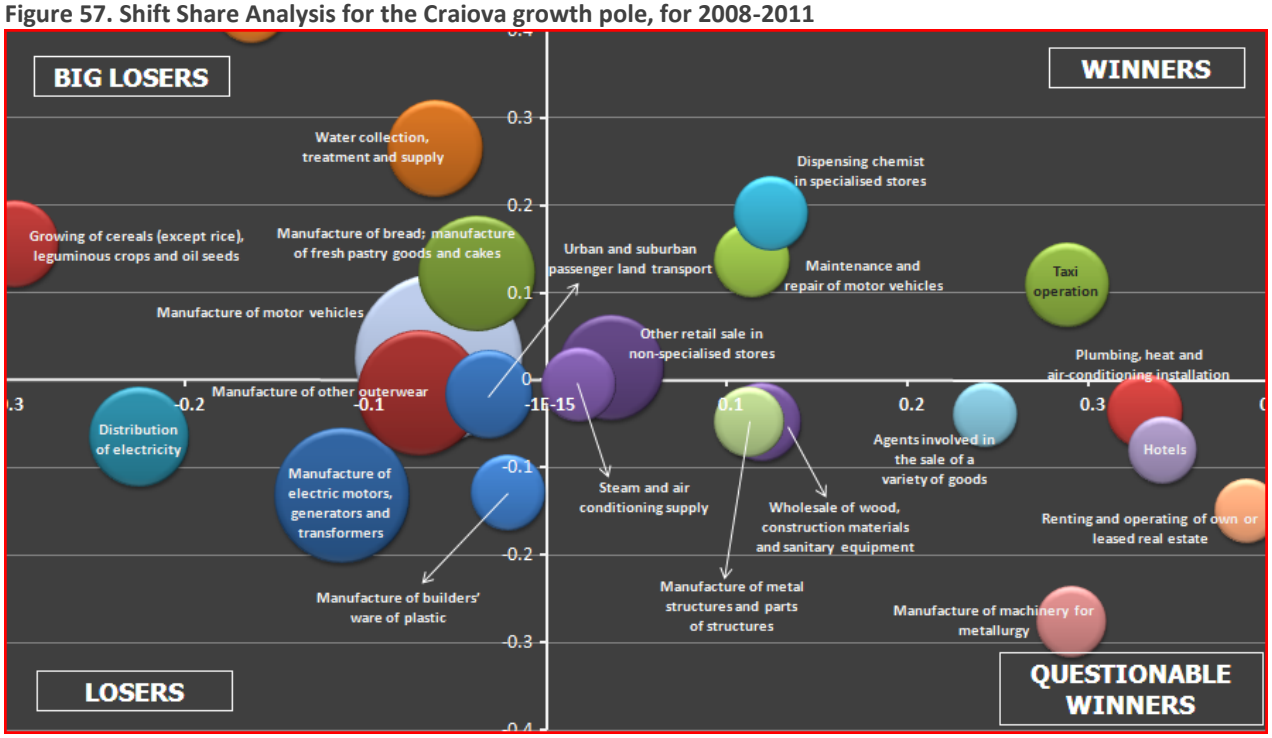


457. **A total of 7 "Questionable Winners" were among the 30 largest economic engines in Craiova.** The largest of these was *Manufacture of electric motors, generators and transformers.* Apart from another manufacturing sector (*Manufacture of other wearing apparel and accessories*), other "Questionable Winners" include a mix of retail, general services, and even agriculture (*Growing of cereals*).

458. **8 "Loser" sectors and 7 "Big Loser" sectors come to complete the picture.** These include a mix of secondary and tertiary sectors. An interesting occurrence is the poor performance of *Taxi operation.* While it was a net and important job creator in the post-Crisis years (as we have seen earlier), it was a "Loser" sector in the pre-Crisis years.

459. **And indeed, when we look at the 2008-2011 Shift-Share analysis, *Taxi operation* comes out as a "Winner" sector.** In fact, *Taxi operation* is one of those "safety valve" private sectors that absorb extra labor force in times of economic hardship. Other such "safety valve" sectors, encountered in most growth poles in Romania, include *Restaurants, Bars, Gambling, Private security activities, Retail, Wholesale, Pharmacies,* or *Maintenance and repair of motor vehicles.* These are not sectors that local authorities would necessarily want to encourage, and they do indeed reflect the lack of dynamism of the local economy, but they provide people with private sector wages in times of need.

Figure 57. Shift Share Analysis for the Craiova growth pole, for 2008-2011



Data source: ListăFirme

460. **Of the 30 largest economic engines in Craiova, only 6 were "Winners" between 2008 and 2011.** There were however a larger number of "Questionable Winners", including a mix of secondary and tertiary sectors. In the "Loser" and "Big Loser" category, one finds most large manufactures in the area. These were most likely affected by the Crisis and the subsequent contraction of national and international markets.

461. **Investments aimed at improving the local business environment should take into consideration both the manufacturing profile of Craiova and the growing importance of services.** Investments in connective infrastructure may thus be doubled by investments in business incubators and in quality of life.

Spatial Planning

462. **Craiova has the smallest and most poorly defined metropolitan area**. As such, the analysis of the growth pole's spatial performance is difficult to complete only by looking at the existent boundaries. Nonetheless, this is the area that was defined by local authorities, and it would be presumptuous to do the analysis for a different scale area.

463. **As it stands, the built mass of the Craiova metropolitan area has grown by 22% between 1992 and 2012** – a sizeable growth rate for Romanian circumstances. Some of Craiova's peri-urban localities, like Pieleşti and Breasta, have grown faster than the average, but the largest absolute growth was registered in Craiova.

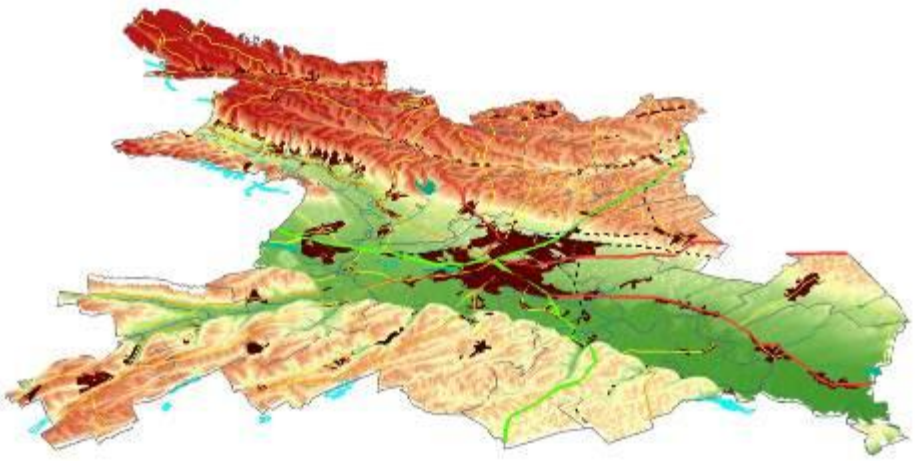
Table 38. Built mass for localities in the Craiova Metro Area

UAT	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Breasta	204	243	251	23.22%
Craiova	**4,045**	**4,628**	**5,152**	**27.39%**
Ghercești	271	271	277	2.06%
Mischii	259	259	264	2.11%
Murgaşi	343	344	347	1.24%
Pieleşti	271	331	450	66.19%
Pleşoi	202	202	208	2.87%
Predeşti	182	182	182	0.00%
Şimnicu de Sus	470	494	508	8.08%
Teasc	250	250	275	9.82%
TOTAL	**6,497**	**7,204**	**7,914**	**21.81%**

464. **While Craiova's topography is relatively flat, the urban expansion fronts have mainly focused along the Eastern and Southern fronts**. As such, public investments aimed at managing urban development in a more sustainable fashion should primarily focus on those areas. However, the urban structure of Craiova is not ideal. A simple look at the city's street grid indicates that much of the city's early expansion has happened in a haphazard way. Since city structures are very resilient (i.e., it is hard to completely change a city's street grid – this

usually stays the same even when the city has been bombed to the ground), it is difficult to drive new city growth in a sustainable way.

Figure 58. Topography of the Craiova growth pole



465. **The interesting thing about Craiova is that not only the urban center has developed in an un-sustainable way, but so have peri-urban localities.** A look at the urban mass map below indicates that many of the villages within the growth pole have developed in thin patterns along existent connective infrastructure – i.e. homes on either side of the road (see figure below).

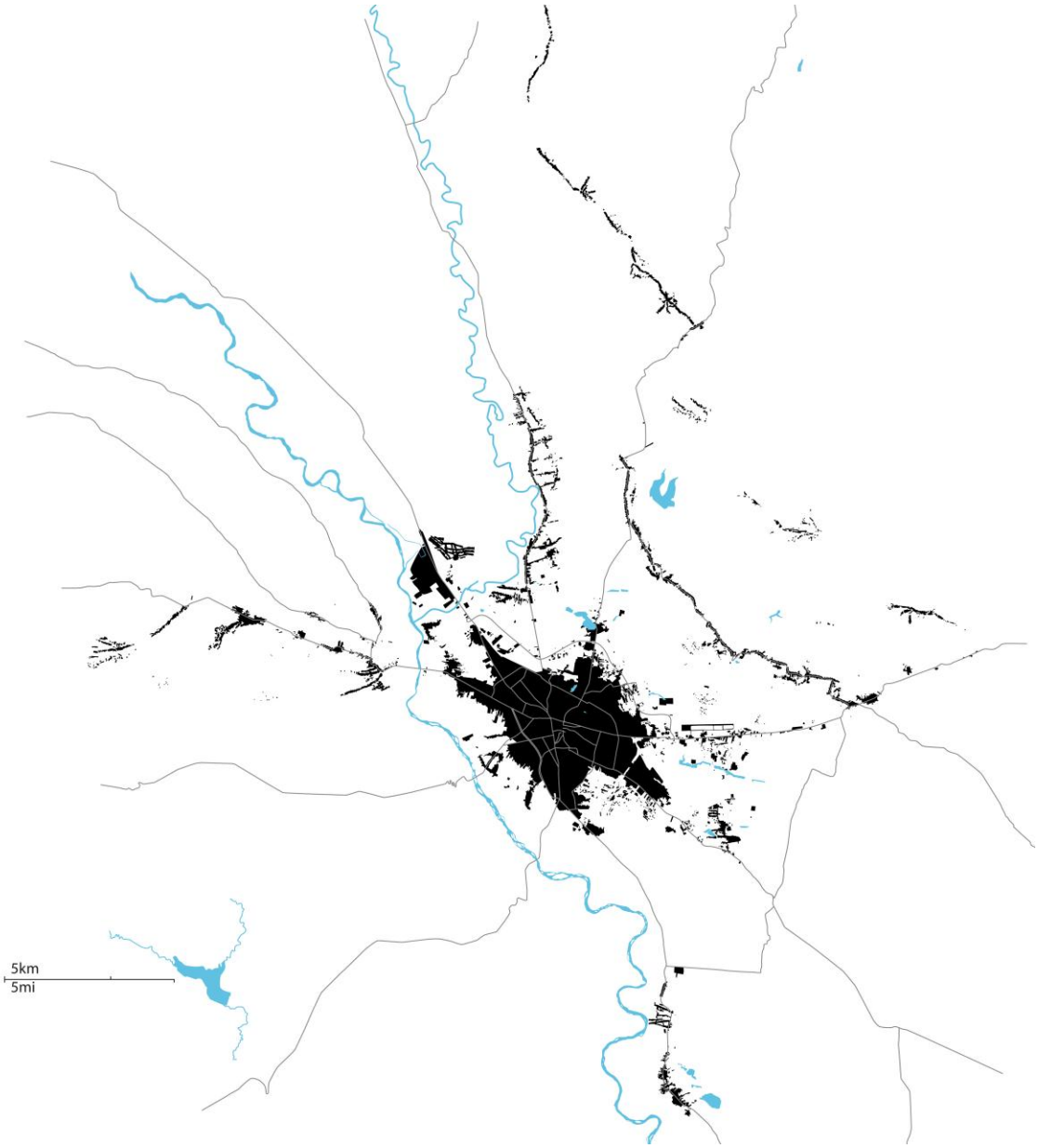
Figure 59. Infrastructure is a powerful spatial planning tool

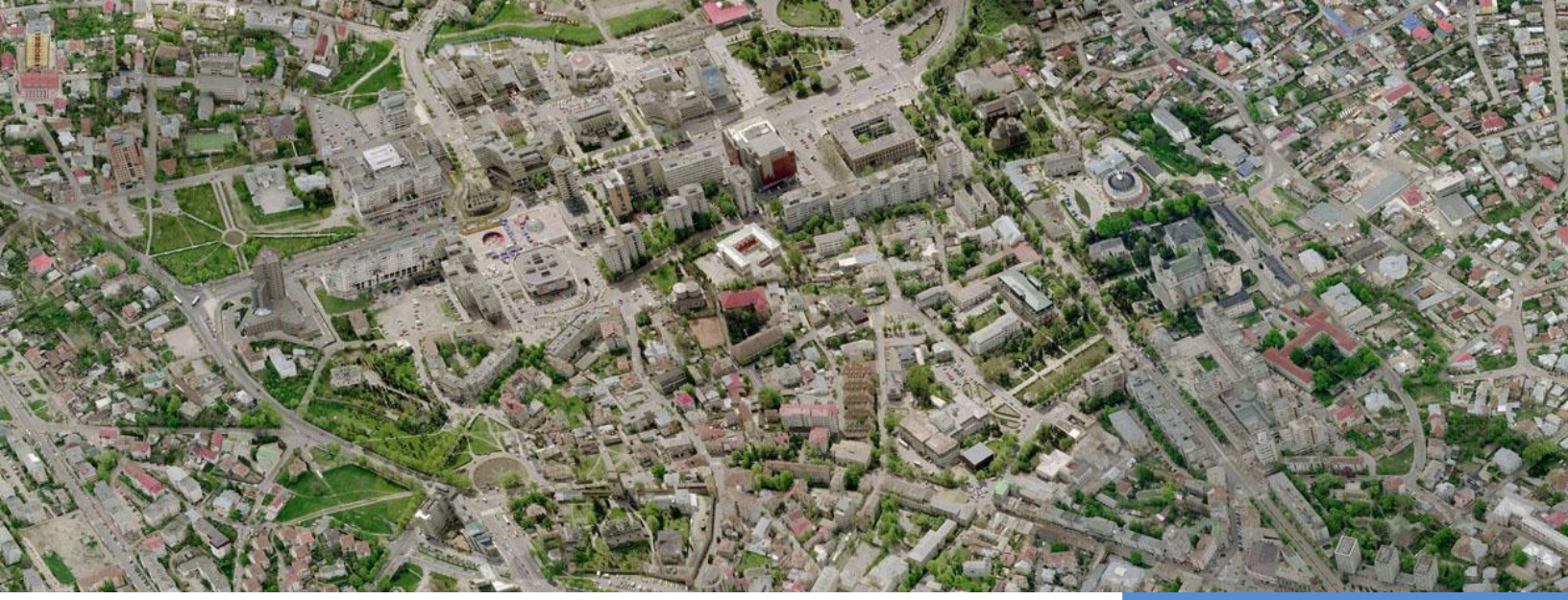
466. **This interesting development pattern shows once more how powerful infrastructure is in guiding spatial development.** Usually, new developments, especially those of a smaller scale, will look to locate close to existent infrastructure, because of the prohibitive costs the development of new infrastructure entails. Even large developments (e.g., a new neighborhood) may prefer to be located close to existent infrastructure, because accessibility to existent infrastructure means ease of access to amenities (e.g., schools, shops, entertainment) that the developers don't have to take care of, and which tend to grow the value of the properties they develop.

467. **In any case, few cities in Romania (e.g. Bucureşti) have seen in the last few years large scale developments go up – particularly in the residential sector.** For one, the demand is not high enough to justify such developments

(e.g., Craiova has registered a net population decline of 19% in the past 20 years), and even if the demand was there, the state of the economy would put new housing units outside the reach of many people. Therefore, it is imperative to use sound spatial planning and strategic infrastructure developments to encourage the expansion of the city in a sustainable way. For this to happen, it is also important to have well-functioning land and housing markets.

Figure 60. Urban mass of Craiova metro area





IAŞI

Regional Infrastructure

468. **Of the seven growth poles, Iaşi is the one that is not dominant at any scale, although still comparable in size to the other growth poles.** Iaşi suffers from being some distance away from the rich export markets in the West, and some distance away from Bucureşti – the wealthiest region in Romania. At its own scale, Iaşi is part of an area with a relatively low urbanization rate (i.e., there are few towns and municipalities in its proximity), but it is surrounded by rural areas with relatively high population density (as compared to the density of all rural areas in Romania).

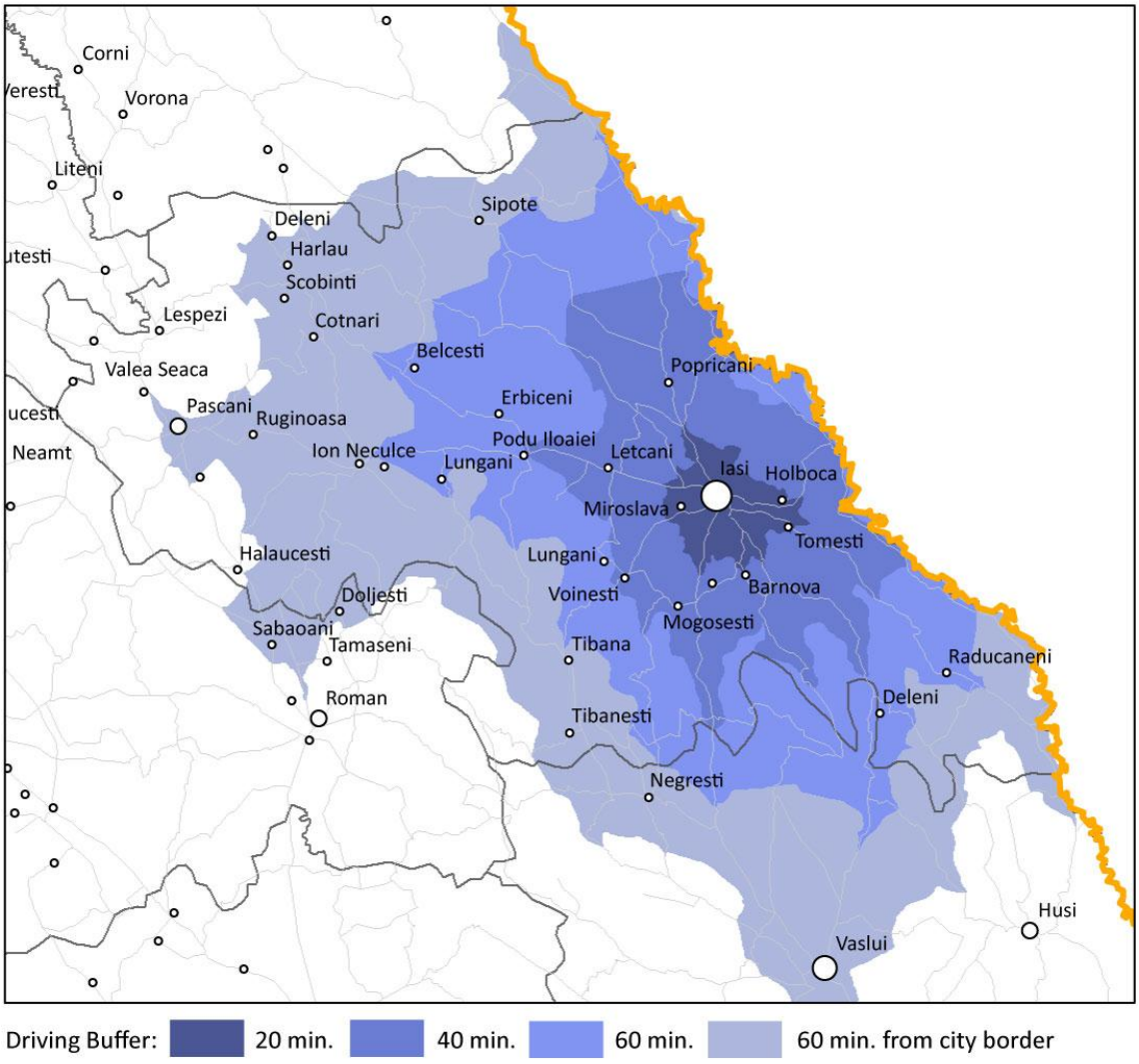
469. **At the 20-minute driving buffer, Iaşi has an influence area with 328,000 people, generating 1.47% of firm revenues in Romania.** From a demographic perspective, Iaşi was the 3rd most populous growth pole (of the designated 7), and 6th in terms of firm revenues. At this level, there is less need for the development of new connective infrastructure, as there is a need for improved connectivity for people living in surrounding villages (e.g. road repair and upgrade, new bus routes, upgraded rail and bus stations). In addition, there is a need to encourage a process of continued urbanization in the region. This can be enabled by having more flexible and dynamic land markets, by extending public services infrastructure (e.g. water, sewage, gas, solid waste management), and by enabling access to key amenities in the urban center (such as arts, culture, entertainment, administration, etc.).

470. **At the 40-minute driving buffer, Iaşi has an influence area with 423,000 people, generating 1.52% of national firm revenues.** At this level, Iaşi is both the least populous and least economic dynamic growth pole. The rural areas at this level are still relatively dense, but less so than the communes adjacent to the City of Iaşi. Consequently, investments in regional infrastructure at this level should primarily focus on improving accessibility through upgrades

and repair of existing infrastructure. In addition, localities in this area may benefit from larger infrastructure projects – e.g., highways and expressways between Iaşi and larger cities in the region (e.g., Vaslui, Roman, or Piatra Neamț), as well as the highway slated to connect the North of Moldova to Bucureşti.

471. **At the 60-minute driving buffer from the city center, Iaşi is again the least populous and least economically dynamic of the 7 growth poles.** The predominantly rural character of the area is responsible both for the lower population and lower economic density. The recommendations that were valid for the 40-minute driving buffer continue to be applicable at this level.

Figure 61. The immediate influence area of Iaşi

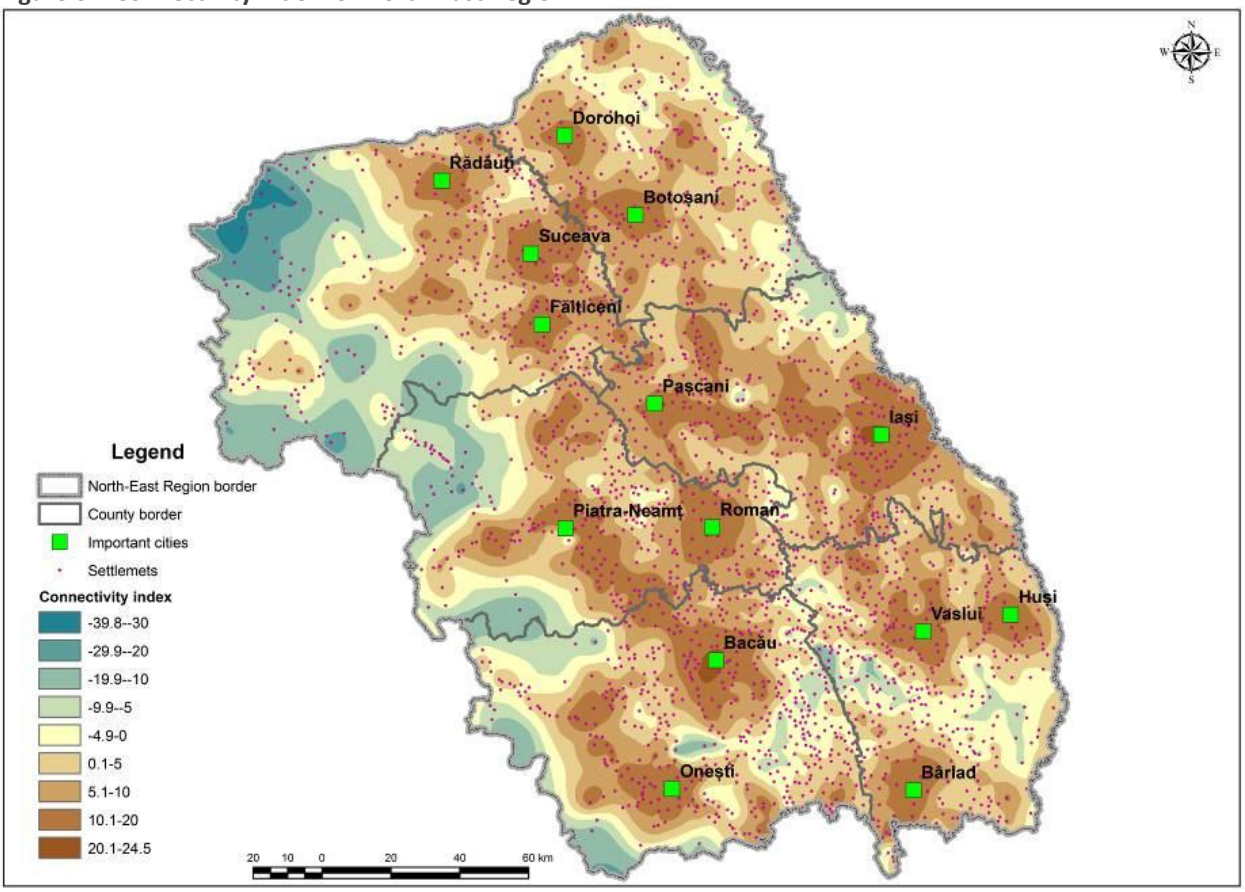


472. **At the 60-minute driving buffer from the city border Iaşi becomes more prominent.** At this level, we have an area with a population of 943,000 people (4th largest of the 7 growth poles), generating 2.20% of national firm

revenues (the poorest performance of all growth poles). Most notably at this scale is the access to two larger urban areas – Vaslui and Paşcani. Obviously, improving connections between Iaşi and these two localities should be a priority when it comes to the development of regional infrastructure.

473. **Also, to get a better picture of regional infrastructure needs, beyond Iaşi's influence area, we have prepared a connectivity map for the North-East Region.** Annex 5 includes a more detailed description of the methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g. education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

Figure 62. Connectivity Index for North-East Region



474. **The North-East Region is one of the most densely populated regions in Romania, but also one of the least urbanized.** The most sizeable urban settlements are Iași and Bacău. Other urban areas are relatively smaller, and

there is a high incidence of rural settlements. Nonetheless, with the exception of the mountainous areas in the west of the Region, most settlements are relatively well connected to an urban center (large or small).

Business Environment

475. **Although it has been surpassed by other growth poles in terms of economic output, Iaşi has a diverse economic base, with significant promise for the future.** Iaşi benefits greatly from being one of the most dynamic academic centers in Romania and Eastern Europe, which has helped contribute to the emergence of an eclectic economic base. The largest economic sector is *Construction* followed by *Manufacture of other outerwear, Restaurants,* and *Manufacture of electrical and electronic equipment for motor vehicles.* Other important sectors include *Manufacture of basic pharmaceutical products, Business and other management consultancy activities, Engineering activities and related technical consultancy, Computer programming activities, Manufacture of bearings, gears, gearing and driving elements, Specialist medical practices,* or *Other information technology and computer service activities.*

476. **The largest sector in terms of overall revenues was *Manufacture of electrical and electronic equipment for motor vehicles.*** In 2011, it generated 10% of all firm revenues in the growth pole, and it was represented by one company: Delphi Diesel Systems. This was a foreign investment, completed in 2007 by a consortium from Luxembourg and France. The high share of this company in the economy of Iaşi, as it is the case for other growth poles, underscores the importance of foreign direct investments in boosting the local economy.

477. **For Iaşi, such foreign direct investments are critical in order to remain competitive.** The encouragement of foreign direct investments requires improvements in the transport infrastructure (e.g., airport upgrades, good connective infrastructure to airports, increased air traffic) and good connective infrastructure to markets (e.g., highways). Of course, such investments should undergo a rigorous cost-benefit analysis, to ensure public funds are not squandered. At the same time, it is important to remember that economic growth usually happens in spurts. The decision of one individual to invest in the city may change for the better the city's economy. The easier it is for a potential investor to get to the area, the higher the likelihood that an investment will happen. Even for sectors that technically require low transport costs, distance from markets still matters. For example, Cluj, which has a similar profile to Iaşi, has an IT sector that is almost four times as large – banking on its proximity to the West.

478. **As discussed earlier, it is also important to be weary of the risks that often come with large investors.** As the example of Nokia in Cluj has shown, a foreign company that decides to invest in an area can decide just as fast to move somewhere else. As such, it is important to encourage the emergence of small and medium-sized enterprises and an eclectic economic base.

Table 39. The economic engines of the Iaşi metropolitan area, in 2011

		IASI				INDICATORS			
		No. of Companies	**No. of Employees**	**Revenues (Euro)**	**Profits (Euro)**	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
		14,459	**77,665**	**3,105,178,435**	**145,034,619**				
1	Construction of residential and non-residential buildings	594	5,602	214,227,909	8,412,591	1.54	9	360,653	14,163
2	Manufacture of other outerwear	108	3,125	37,582,286	2,164,543	1.52	29	347,984	20,042
3	Restaurants and mobile food service activities	267	2,303	29,703,821	808,736	1.78	9	111,250	3,029
4	Manufacture of electrical and electronic equipment for motor vehicles	1	2,070	305,003,411	11,039,193	1.78	2,070	305,003,411	11,039,193
5	Distribution of electricity	2	1,582	147,254,503	1,668,292	4.83	791	73,627,252	834,146
6	Urban and suburban passenger land transport	32	1,543	21,314,752	610,084	1.93	48	666,086	19,065
7	Manufacture of basic pharmaceutical products	3	1,521	67,328,671	4,710,810	21.55	507	22,442,890	1,570,270
8	Business and other management consultancy activities	483	1,441	39,451,970	4,012,980	1.74	3	81,681	8,308
9	Plumbing, heat and air-conditioning installation	160	1,383	63,783,429	6,916,207	1.67	9	398,646	43,226
10	Maintenance and repair of motor vehicles	223	1,211	30,229,195	832,452	1.39	5	135,557	3,733
11	Engineering activities and related technical consultancy	349	1,149	23,536,071	5,276,962	1.37	3	67,439	15,120
12	Taxi operation	216	1,134	4,954,399	74,279	3.03	5	22,937	344
13	Computer programming activities	202	1,123	22,664,024	2,443,117	1.96	6	112,198	12,095
14	Construction of roads and motorways	35	1,090	42,740,453	433,758	1.14	31	1,221,156	12,393
15	Activities of call centers	12	1,076	9,768,810	400,224	4.89	90	814,068	33,352
16	Water collection, treatment and supply	3	1,030	24,894,124	984,776	1.41	343	8,298,041	328,259
17	Beverage serving activities	289	926	12,344,566	773,806	1.59	3	42,715	2,678
18	Electrical installation	133	909	24,656,222	1,425,148	1.27	7	185,385	10,715

19	Hairdressing and other beauty treatment	160	888	3,345,699	160,848	2.01	6	20,911	1,005
20	Dispensing chemist in specialized stores	196	844	55,147,964	3,540,445	1.14	4	281,367	18,063
21	Renting and operating of own or leased real estate	281	832	24,965,425	3,651,588	1.83	3	88,845	12,995
22	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	3	746	83,260,168	54,971	6.60	249	27,753,389	18,324
23	Collection of non-hazardous waste	12	701	9,828,631	121,654	1.20	58	819,053	10,138
24	Sale of cars and light motor vehicles	57	579	46,673,348	823,177	1.82	10	818,831	14,442
25	Manufacture of bearings, gears, gearing and driving elements	4	563	31,247,796	1,383,998	2.41	141	7,811,949	346,000
26	Specialist medical practice activities	115	558	10,607,930	1,173,098	1.59	5	92,243	10,201
27	Wholesale trade of motor vehicle parts and accessories	102	542	42,216,311	2,122,803	1.69	5	413,885	20,812
28	Other information technology and computer service activities	53	480	13,163,235	1,674,611	4.45	9	248,363	31,596
29	Other printing	58	475	17,699,562	773,503	1.82	8	305,165	13,336
30	Landscape service activities	18	433	5,072,872	84,365	3.07	24	281,826	4,687

479. **Iaşi has a number of economic sectors with significant innovation potential.** Firms in *IT, Consultancy, Engineering,* or *Medicine* are well represented locally, and they can be significant sources of endogenous technological change in the future. These sectors are largely made of small and medium-sized companies, which may benefit from having public sector support.

480. **When it comes to job creation, the most prolific sectors are in public services.** Thus, in the boom years 2005-2008, around 3,600 new jobs were created by *Distribution of electricity* and *Urban and suburban passenger land transport.* The growth in employment in the *Public transport* sector may be a reflection of higher mobility in the area, and it may require further investigation to see if it could benefit from ROP funds.

481. **A number of sectors with significant innovation and creative potential have also been among the large job creators locally.** These include *Business and other management consultancy activities, Engineering activities and related technical consultancy, Computer programming, Specialist medical practice activities, Other information technology and computer service activities, Other business support activities,* or *Architectural activities.* The high incidence of knowledge and creative industries among the job creators is an indication of a larger potential for endogenous technological change in Iaşi.

Table 40. Main job creators in the Iaşi growth pole, between 2005-2008

Sector	Jobs created
Distribution of electricity	2,105
Urban and suburban passenger land transport	1,602
Business and other management consultancy activities	938
Construction of residential and non-residential buildings	876
Restaurants and mobile food service activities	671
Private security activities	584
Taxi operation	566
Manufacture of bearings, gears, gearing and driving elements	540
Maintenance and repair of motor vehicles	491
Engineering activities and related technical consultancy	478
Computer programming activities	453
Electrical installation	438
Freight transport by road	405
Plumbing, heat and air-conditioning installation	388
Wholesale trade of motor vehicle parts and accessories	288
Specialist medical practice activities	230
Dispensing chemist in specialized stores	225
Other information technology and computer service activities	201
Manufacture of electric domestic appliances	194
Other building and industrial cleaning activities	190
Other human health activities	178
Manufacture of metal structures and parts of structures	173
Other business support service activities n.e.c.	143
Hairdressing and other beauty treatment	139
Accounting, bookkeeping and auditing activities; tax consultancy	135

Wholesale of wood, construction materials and sanitary equipment	129
Manufacture of electrical and electronic equipment for motor vehicles	128
Collection of non-hazardous waste	128
Retail sale of books in specialized stores	127
Manufacture of oils and fats	120
Manufacture of bread; manufacture of fresh pastry goods and cakes	119
Other specialized construction activities n.e.c.	110
Architectural activities	110
Wholesale of beverages	104

Data source: ListăFirme

482. **Between 2008 and 2011, job creation in the Iaşi growth pole has been more modest.** Only a limited number of sectors managed to create more than 100 jobs in this time period. The most prolific sector was *Manufacture of electrical and electronic equipment for motor vehicle,* which has added almost 2,000 jobs. All of these jobs were created by one company – Delphi Diesel Systems.

483. **There were however also a number of knowledge and creative industries that have managed to weather the Crisis well.** For example, sectors like *Computer programming, Specialist medical practice activities,* or *other information technology and computer service activities,* were among those that pushed the economy forward in the post-Crisis period.

Table 41. Main job creators in the Iaşi growth pole, between 2008-2011

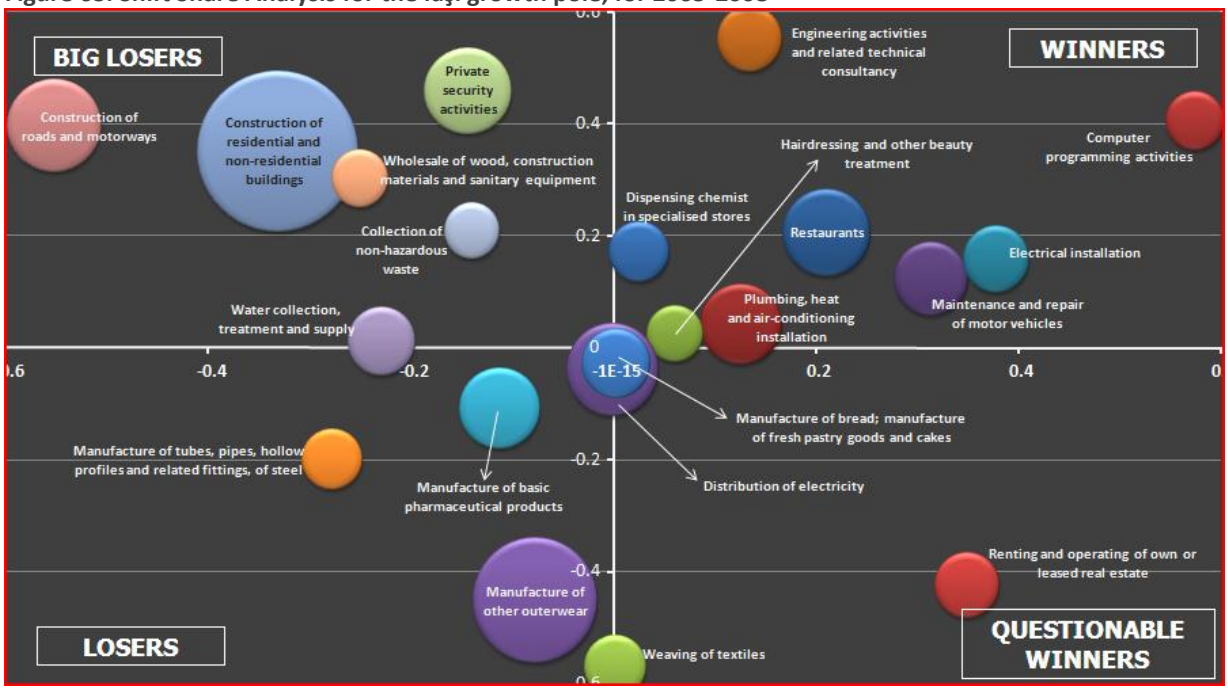
Sector	Jobs created
Manufacture of electrical and electronic equipment for motor vehicles	1,942
Activities of call centers	971
Restaurants and mobile food service activities	420
Landscape service activities	411
Hospital activities	292
Beverage serving activities	274
Computer programming activities	265
Specialist medical practice activities	231
Computer consultancy activities	219
Raising of poultry	189
Manufacture of concrete products for construction purposes	180
Activities of employment placement agencies	168
Other information technology and computer service activities	161
Other building and industrial cleaning activities	157
Manufacture of office and shop furniture	149
Hairdressing and other beauty treatment	130
Temporary employment agency activities	123
Gambling and betting activities	122
Other credit granting	118
Casting of light metals	110
Freight transport by road	109
Hotels and similar accommodation	101

Data source: ListăFirme

484. **While not as prolific as other growth poles, it is clear that Iaşi has the potential to develop as a hub for knowledge and creative economies**. As such, ROP investments aimed at improving the business environment in the city should aim to encourage these emerging sectors – e.g. through the development of IT infrastructure, by sustaining the development of airport infrastructure (which enables tech workers to travel more easily), by investing in quality of life, and by providing support (e.g., tech equipment) to universities and research and development centers.

485. **The Shift-Share analysis for 2005-2008 does indicate that knowledge and creative industries are among the area's main economic engines.** Of the 30 largest economic engines in Iaşi, 11 were "Winners" between 2005 and 2008. Among these we find *Computer programming, Engineering activities and related technical consultancy,* or *Business and other management consultancy activities.*

Figure 63. Shift Share Analysis for the Iaşi growth pole, for 2005-2008



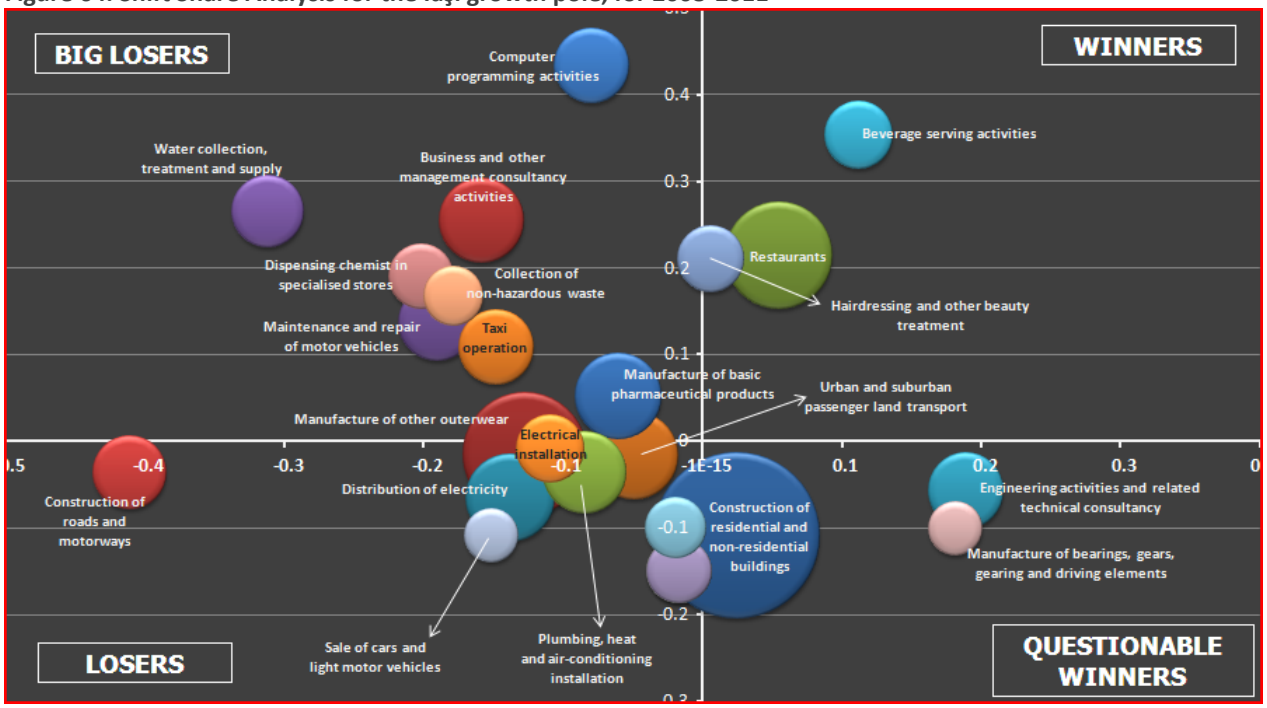
Data source: ListăFirme

486. **There were 13 "Loser" and "Big Loser" sectors, and these include both large sectors like *Construction* and smaller sectors like *Manufacture of tubes and pipes.*** The presence of the *Construction* sector among the "Big Losers" indicates that this sector has contracted locally, while it has expanded at the national level. This contraction may have been caused by rapid employment increase in previous years, and a subsequent contraction. For example, a number of large development projects before 2005 may have caused the sector to grow faster, and once these projects have been completed the sector has contracted.

487. **The Shift-Share analysis for 2008-2011 indicates that Iaşi's economy has been profoundly affected by the Crisis.** Among the largest economic

engines, only a few were "Winners", and these generally had a small employment base. Overwhelmingly, Iași's main economic engines fell in the "Loser" and "Big Loser" category. Particularly interesting is the fact that a sector like *Computer programming* was a "Big Loser" in this time frame. It may be a sign that Iaşi has lost some of its employment base in the sectors to other IT centers in the country, and outside the country.

Figure 64. Shift Share Analysis for the Iaşi growth pole, for 2008-2011



Data source: ListăFirme

488. **Despite the poor economic performance post-Crisis, Iaşi continues to hold a competitive advantage in the knowledge and creative industries.** The fact that Iaşi is a strong university center will provide local firms with a steady stream of knowledge workers. Of course, the presence of good universities alone is hardly a guarantee for sustained economic growth. There are several similar-sized cities in Romania, which have a less prolific university sector, but a more prolific economy.

489. **Public investments, such as those encouraged through the ROP, can aim to help improve the competitive advantage Iaşi has in the knowledge sector.** Several of these investments were discussed above. Of course, a full menu of recommendations should only come of an in-depth local analysis (e.g., part of the 2014-2020 Integrated Development Plan).

Spatial Planning

490. **Iaşi is one of the growth poles where sound spatial planning is mostly needed.** Much of this has to do with how the growth pole has developed after 1989.

491. **Overall, the built mass of the Iaşi growth pole has expanded by 17% between 1992 and 2012.** Much of the absolute growth took place in the City of Iaşi, although a number of peri-urban localities have grown faster in relative terms – e.g., Valea Lupului, Miroslava, Rediu, or Bârnova. As we will see, much of this new growth has not happened in a sustainable way.

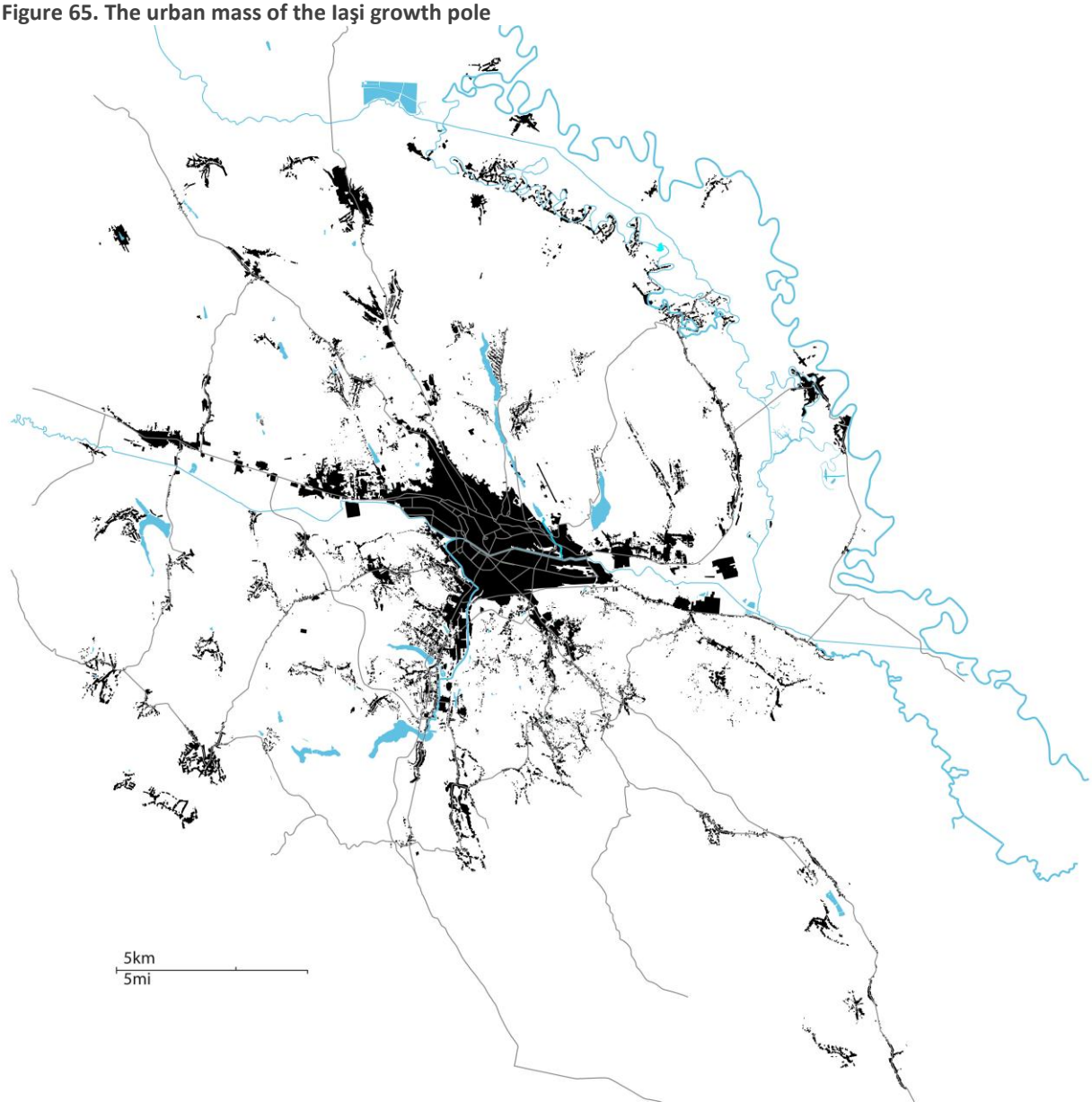
Table 42. Built mass for localities in the Iaşi Metro Area

UAT	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Aroneanu	278	284	287	3.11%
Bârnova	482	522	569	18.03%
Ciurea	771	850	888	15.17%
Holboca	645	671	696	7.81%
Iaşi	**3,596**	**3,966**	**4,224**	**17.49%**
Leţcani	418	420	474	13.37%
Miroslava	635	919	993	56.37%
Popricani	658	751	777	18.05%
Rediu	329	381	401	22.02%
Schitu Duca	540	568	570	5.65%
Tomeşti	449	481	506	12.67%
Ungheni	294	303	313	6.12%
Valea Lupului	95	105	167	75.55%
Victoria	443	443	443	0.00%
TOTAL	**9,633**	**10,664**	**11,308**	**17.39%**

492. **Many of the new developments, particularly in peri-urban areas look like the ones in the image below**. These are largely single-household, detached housing units, following a low-density development pattern.

493. **How these peri-urban developments look like at the full scale of the Iaşi growth pole can be seen in the figure below**. It becomes evident that both new developments, and the villages developed before 1989, follow a scatter pattern. Expanding public services to these peri-urban areas (whether it is water, sewage, roads, public transport, gas, street lighting) will be very costly and energy intensive.

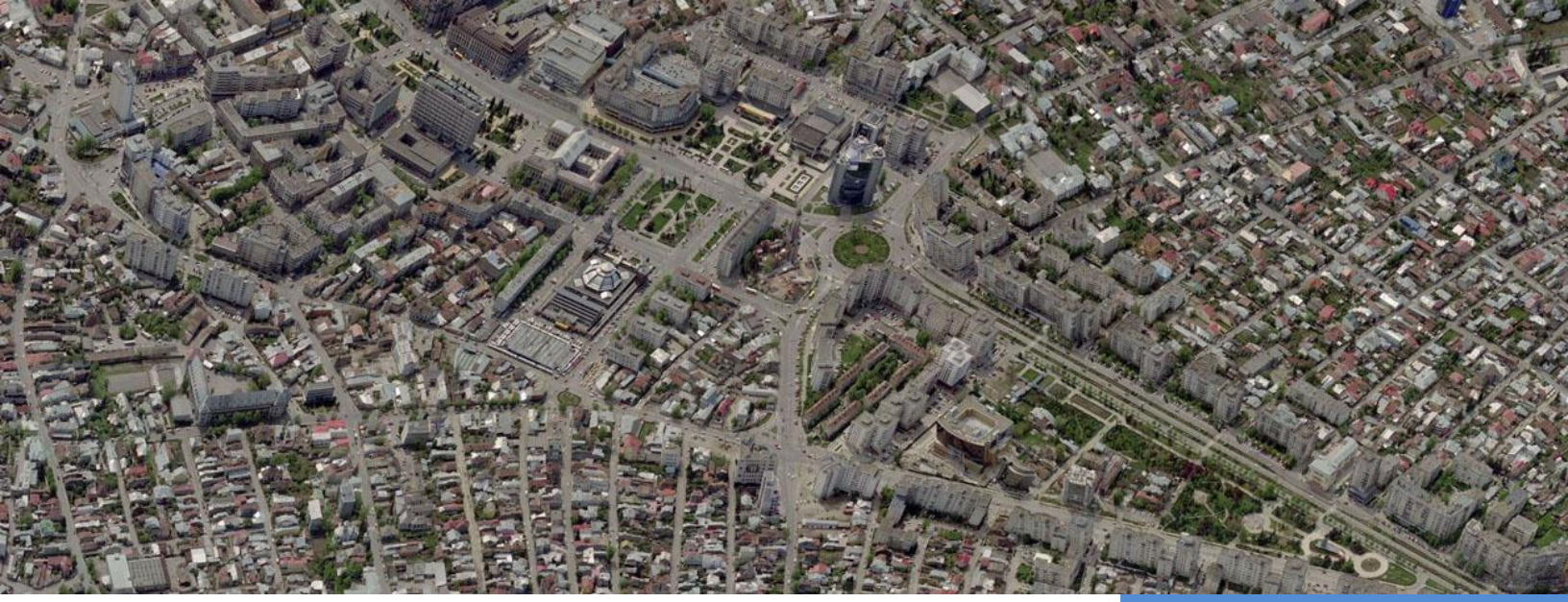
Figure 65. The urban mass of the Iaşi growth pole



494. **Therefore, it is important for future ROP investments to not only take advantage of sound spatial development patterns, but to also attempt to guide future spatial development in a sustainable pattern.** For most projects (e.g.,

public services infrastructure or investments in local businesses) a simple cost-benefit analysis is likely to show that focusing on dense and compact communities will more opportune than doing the same investments in a more sparsely developed area. At the same time, one has to take the area's topography into consideration, which has guided, and will likely continue to guide new urban growth along a number of growth corridors.

Figure 66. Topography of the Iaşi growth pole



PLOIEȘTI

Regional Infrastructure

495. **At a regional level, Ploieşti falls within the influence are of Bucureşti.** Moreover, its 60-minute driving buffer from the city boundary overlaps with Braşov's buffer. As such, it is rather difficult to determine what area falls squarely within the area of influence of Ploieşti, and what falls within the gravitational field of other cities.

496. **Nonetheless, it is clear that Ploieşti benefits from being close to these two cities.** In fact, Ploieşti should not be analyzed in isolation, but be considered as a key part of the Bucureşti-Ploieşti-Braşov growth corridor. The more inter-connected will Ploieşti become with these and other urban areas in the region (e.g., Târgoviște, Pitești, Buzău), the better off it is likely to be in the long term. In fact, Ploieşti is part of the largest and densest urban agglomeration in Romania – an area with around 4 million people, generating half of all firm revenues in the country.

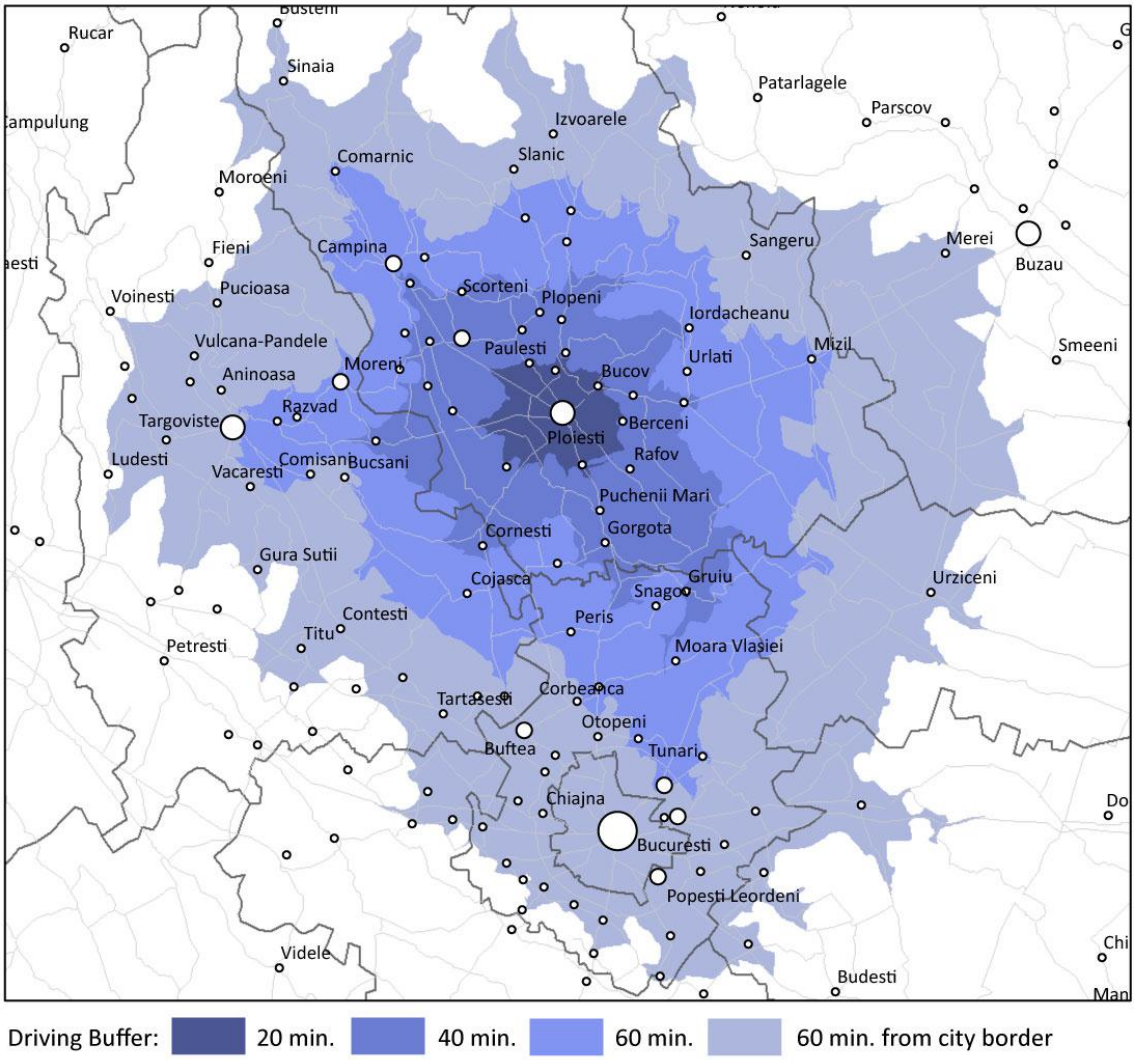
497. **Consequently, the development of regional infrastructure projects for Ploieşti will be of critical importance.** At all four driving buffer levels, Ploieşti stands to benefit from increased accessibility and improved connectivity.

498. **Within a 20-minute driving buffer from the center of Ploieşti, we have an area with a population of 305,000, generating 2.9% of all firm revenues in the country.** There are no larger towns within this area. But there are 6 localities with a population of over 5,000, and Ploieşti overall is surrounded by high-density rural areas. As such, improving accessibility of these areas to Ploieşti, and extending public services infrastructure and amenities to peri-urban areas can help continued urbanization in the area.

499. **Within the 40-minute driving buffer, we have an area with a population of 556,000, generating 3.44% of firm revenues in the country.**

Already at this scale, Ploieşti has garnered significant demographic and economic mass, being among the most prolific poles at this scale. The character of this area outside Ploieşti is predominantly rural, but it is generally high-density. It is one of the areas in Romania with the most concrete further urbanization potential, and it is likely that with further development the area will become more urban in nature (e.g. a system of inter-connected urban, suburban, and peri-urban localities).

Figure 67. Driving buffers around Ploieşti

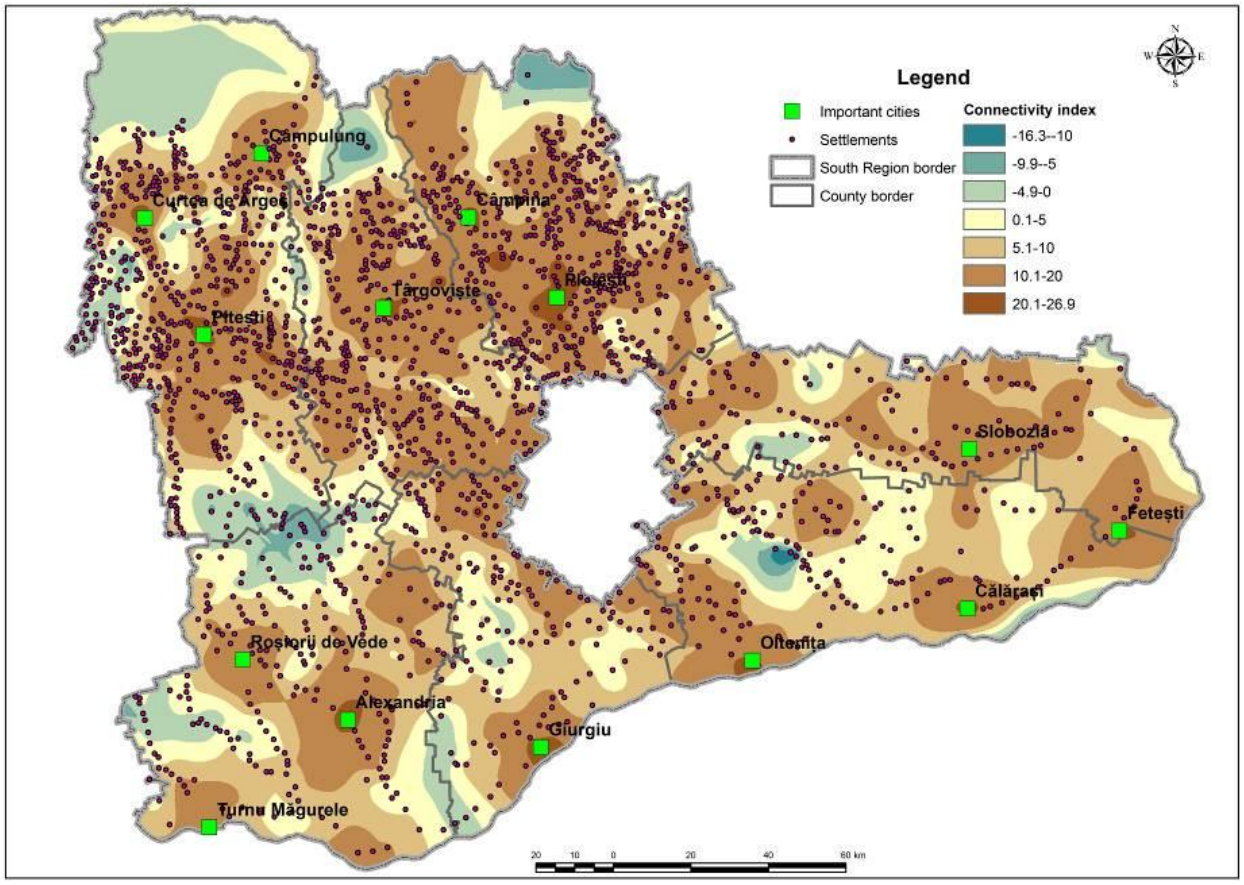


500. **At a larger scale, Ploieşti spills over into the Bucureşti-Ilfov metropolitan area, and connects to a number of larger cities in the region (e.g., Târgovişte, Câmpina, or Buftea).** At this scale a number of connective infrastructure projects have already been undertaken, such as the Bucureşti-Ploieşti highway, and a number of other ones are planned. Again, this is the one area in Romania where connective infrastructure is likely to provide the highest

dividends. It is up for local, county, and regional officials however, to determine what projects should receive priority attention.

501. **To get a better picture of regional infrastructure needs, beyond Ploiești's influence area, we have prepared a connectivity map for the South Region.** Annex 5 includes a more detailed description of the methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g., education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

Figure 68. Connectivity Index for South Region



502. **What immediately becomes evident from the map above is the dichotomy between the north and the south of the Region.** The northern part of the Region is more urban and better connected, whereas the southern part is less urbanized, and less connected. This southern area is also one of the poorest areas in Romania.

Business Environment

503. **Ploieşti is a city that has developed with and around the oil industry in the region.** While the oil industry is not a large employer anymore, it continues to be one of the largest local revenues generators. In 2011, the 8 companies in the *Manufacture of refined oil products* sector generated over 25% of all firm revenues in the growth pole. At the same time, the sector employed only 0.78% of the local labor force.

504. **There are other oil related sectors where Ploieşti has a competitive advantage.** These sectors include *Transport via pipeline* (represented by one large state-owned company – CONPET SA), *Support activities for petroleum and natural gas extraction,* and to some extent *Engineering activities and related technical consultancy.* Clustering these sectors together, the employment base of oil and oil-related sectors jumps to around 11%.

505. **Of the 30 largest economic engines, the largest in terms of employment was *Manufacture of other outerwear.*** It is made of a larger number of companies and it is part of a wave of foreign investments in textiles. Although the revenues generated in this sector are relatively small (only 0.67% of total firm revenues in the growth pole), the sector employed around 4.4% of the local labor force. Generally, the jobs offered in this sector are poorly paid, and unless the companies are engaged in the development of their own fashion lines (e.g. they work within lohn agreements), they also generate little innovation.

506. **The second largest economic engine in the growth pole is *Manufacture of electrical and electronic equipment for motor vehicles.*** The sector is represented by one company – Yazaki Group, a Japanese investment made in 2003. As such, although Ploieşti has a competitive advantage in this sector, it is also prone to future risks. If Yazaki decides to move its operations somewhere else, Ploieşti would lose its competitive advantage in this sector overnight.

507. **Public investments aimed to encourage the local business environment will obviously have to take the dominance of the oil industry into consideration.** To the extent that public infrastructure required by this industry is not available (e.g., connecting roads, public transport links), the ROP can take on such investments.

508. **At the same time, it is important to realize that a resource-based economy does not have a long-term future.** Resources like fossil fuels eventually run out. Ploieşti has along with Constanța one of the most homogeneous economic bases (as measured by the Hachman Index) of all the seven growth poles. It is therefore important for local authorities to encourage, whenever possible, the emergence of new sectors and promote SMEs.

Table 43. The economic engines of the Ploieşti metropolitan area, in 2011

		PLOIESTI				INDICATORS			
		No. of Companies	**No. of Employees**	**Revenues (Euro)**	**Profits (Euro)**	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
		7,938	**84,928**	**6,140,631,919**	**242,329,904**				
1	Manufacture of other outerwear	58	3,725	40,791,844	2,365,517	1.65	64	703,308	40,785
2	Manufacture of electrical and electronic equipment for motor vehicles	1	3,489	141,752,929	3,545,999	2.75	3,489	141,752,929	3,545,999
3	Freight transport by road	380	3,293	194,296,544	5,638,511	1.59	9	511,307	14,838
4	Retail sale of fruit and vegetables in specialized stores	38	2,388	397,253,807	26,765	22.53	63	10,454,048	704
5	Engineering activities and related technical consultancy	255	2,358	91,552,168	8,779,101	2.56	9	359,028	34,428
6	Distribution of electricity	4	2,079	158,747,851	15,606,364	5.81	520	39,686,963	3,901,591
7	Transport via pipeline	1	1,985	79,118,500	6,611,308	12.00	1,985	79,118,500	6,611,308
8	Support activities for petroleum and natural gas extraction	27	1,679	154,907,822	13,810,398	12.14	62	5,737,327	511,496
9	Other retail sale in non-specialized stores	356	1,601	60,319,961	1,582,835	1.80	4	169,438	4,446
10	Manufacture of bread; manufacture of fresh pastry goods and cakes	83	1,489	36,704,646	3,188,043	1.12	18	442,225	38,410
11	Manufacture of machinery for mining, quarrying and construction	3	1,477	15,805,534	10,354	9.29	492	5,268,511	3,451
12	Manufacture of metal structures and parts of structures	69	1,453	36,627,285	2,271,323	1.83	21	530,830	32,918
13	Water collection, treatment and supply	10	1,278	31,708,600	3,388,847	1.60	128	3,170,860	338,885

14	Maintenance and repair of motor vehicles	185	1,257	31,055,036	1,091,439	1.32	7	167,865	5,900
15	Plumbing, heat and air-conditioning installation	180	1,185	35,637,431	2,266,328	1.31	7	197,986	12,591
16	Urban and suburban passenger land transport	13	1,157	16,718,579	54,711	1.32	89	1,286,045	4,209
17	Raising of poultry	7	997	55,764,509	1,968,600	3.92	142	7,966,358	281,229
18	Construction of utility projects for fluids	13	973	46,999,403	3,537,949	5.34	75	3,615,339	272,150
19	Manufacture of bearings, gears, gearing and driving elements	2	852	81,438,970	20,012,438	3.34	426	40,719,485	10,006,219
20	Non-specialized wholesale trade	230	810	56,066,698	2,978,727	1.34	4	243,768	12,951
21	Electrical installation	108	780	33,231,091	3,259,972	1.00	7	307,695	30,185
22	Landscape service activities	7	677	6,387,504	219,210	4.39	97	912,501	31,316
23	Other specialized construction activities n.e.c.	92	665	20,433,770	1,849,047	1.66	7	222,106	20,098
24	Manufacture of refined petroleum products	8	663	1,538,747,984	37,640	8.29	83	192,343,498	4,705
25	Manufacture of other special-purpose machinery n.e.c.	7	651	14,263,807	900,159	6.89	93	2,037,687	128,594
26	Wholesale of sugar and chocolate and sugar confectionery	5	639	73,105,232	547,386	5.98	128	14,621,046	109,477
27	Renting and operating of own or leased real estate	121	537	16,717,914	3,404,432	1.08	4	138,165	28,136
28	Taxi operation	216	514	3,994,227	259,242	1.26	2	18,492	1,200
29	Manufacture of tobacco products	1	502	33,526,752	1,286,943	13.48	502	33,526,752	1,286,943
30	General cleaning of buildings	33	454	2,954,260	390,382	1.21	14	89,523	11,830

509. **Economic robustness is usually enabled by small and medium-sized companies that are started locally**. A sector is usually stronger when it is made by a larger number of firms. If one firm fails, another is likely to take its place. Similarly, a firm started by a local entrepreneur is likely to have stronger roots locally than a firm that comes in from somewhere else.

510. **While the largest job creator in Ploieşti was one single company, most jobs have been created in atomized sectors.** Yazaki Group started with a small investment in Ploieşti in 2003, hiring initially around 200 people. At the peak of the economic boom, the company had ballooned to around 3,900 employees. Overwhelmingly however, new jobs were created in atomized services sectors. This trend is even more obvious in the post-Crisis period.

Table 44. Main job creators in the Ploieşti growth pole, between 2005-2008

Sector	Jobs created
Manufacture of electrical and electronic equipment for motor vehicles	2,350
Construction of residential and non-residential buildings	1,766
Engineering activities and related technical consultancy	1,438
Retail sale of fruit and vegetables in specialized stores	1,232
Private security activities	1,121
Freight transport by road	751
Manufacture of weapons and ammunition	701
Construction of other civil engineering projects n.e.c.	392
Support activities for petroleum and natural gas extraction	378
Maintenance and repair of motor vehicles	375
Other retail sale in non-specialized stores	359
Manufacture of other parts and accessories for motor vehicles	358
Retail sale in non-specialized stores with food, beverages or tobacco predominating	354
Water collection, treatment and supply	351
Repair of consumer electronics	319
Electrical installation	317
Other business support service activities n.e.c.	305
Manufacture of bread; manufacture of fresh pastry goods and cakes	301
Restaurants and mobile food service activities	286
Freight rail transport	276
Other construction installation	248
Forging, pressing, stamping and roll-forming of metal; powder metallurgy	239
Roofing activities	222
Raising of poultry	213
Architectural activities	200
General cleaning of buildings	200
Installation of industrial machinery and equipment	193
Computer programming activities	191
Production of electricity	175
Wholesale of wood, construction materials and sanitary equipment	168
Taxi operation	167
Manufacture of concrete products for construction purposes	163
Business and other management consultancy activities	159
Distilling, rectifying and blending of spirits	158

Data source: ListăFirme

511. **Between 2008 and 2011 Ploieşti's local economy has taken a big hit**. There were only a handful of sectors that have managed to create more than 100 jobs, and most of these sectors were in light manufacturing and services. This may be an indication of where Ploieşti's economy will be heading in the future.

Table 45. Main job creators in the Ploieşti growth pole, between 2008-2011

Sector	Jobs created
Retail sale of fruit and vegetables in specialized stores	937
Landscape service activities	664
Support activities for petroleum and natural gas extraction	487
Manufacture of other outerwear	389
Restaurants and mobile food service activities	335
Manufacture of bread; manufacture of fresh pastry goods and cakes	261
Television programming and broadcasting activities	236
Freight transport by road	234
Manufacture of electronic components	213
Dispensing chemist in specialized stores	199
Specialist medical practice activities	166
Water collection, treatment and supply	149
Computer programming activities	146
Advertising agencies	127
Wholesale of furniture, carpets and lighting equipment	127
Temporary employment agency activities	127
Other amusement and recreation activities	121
Business and other management consultancy activities	117
Manufacture of other parts and accessories for motor vehicles	107
Other postal and courier activities	102

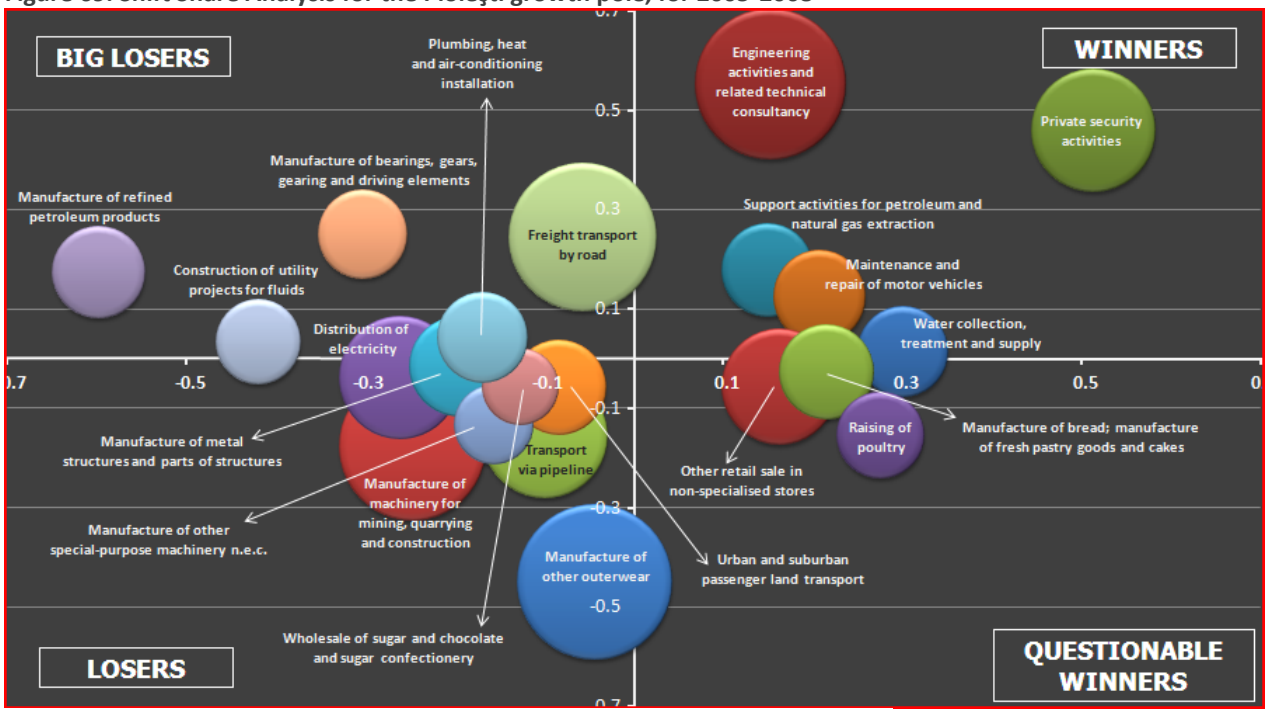
Data source: ListăFirme

512. **The Shift-Share analysis for 2005-2008 shows that most of the "Winner" sectors in the pre-Crisis period were in services**. Of the 30 largest economic engines, only 7 were "Winners" in the boom years, and the only oil-related "Winner" sector was *Support activities for petroleum and natural gas extraction.*

513. **There were 9 "Questionable Winners", and most of these were also in services.** One of the interesting sectors among the "Questionable Winners" is *Manufacture of weapons and ammunition.* At the national scale, this sector has decreased from 7,300 employees to around 4,000, while at the local level it increased from 204 to 900. The national decline can be explained by the obsolete technologies used and by the depletion of some of the traditional export markets (following the adherence to international treatises on weapons exports). At the local level, the increase in this sector can largely be explained by the good performance of the Mija Weapons Factory. Another interesting "Questionable Winner" is *Freight rail transport,* which at a national level has decreased from 22,700 employees to 5,400 – due largely to the restructuring of the sector. At the local level however, the sector has grown from 674 to 950, most likely banking on the trade with oil products.

514. **Among the "Losers" and "Big Losers" we see a number of large manufacturing sectors.** Most significant among those is *Manufacture of refined petroleum products* – a "Big Loser" between 2005 and 2008. At the national level this sector has grown 3,900 employees to around 5,000 employees, while in Ploieşti it has decreased from 1,660 to 1,180. If this resource-based sector with a strong competitive advantage locally has been decreasing during a boom period, it is likely that it will not be a strong economic engine in the future.

Figure 69. Shift Share Analysis for the Ploieşti growth pole, for 2005-2008



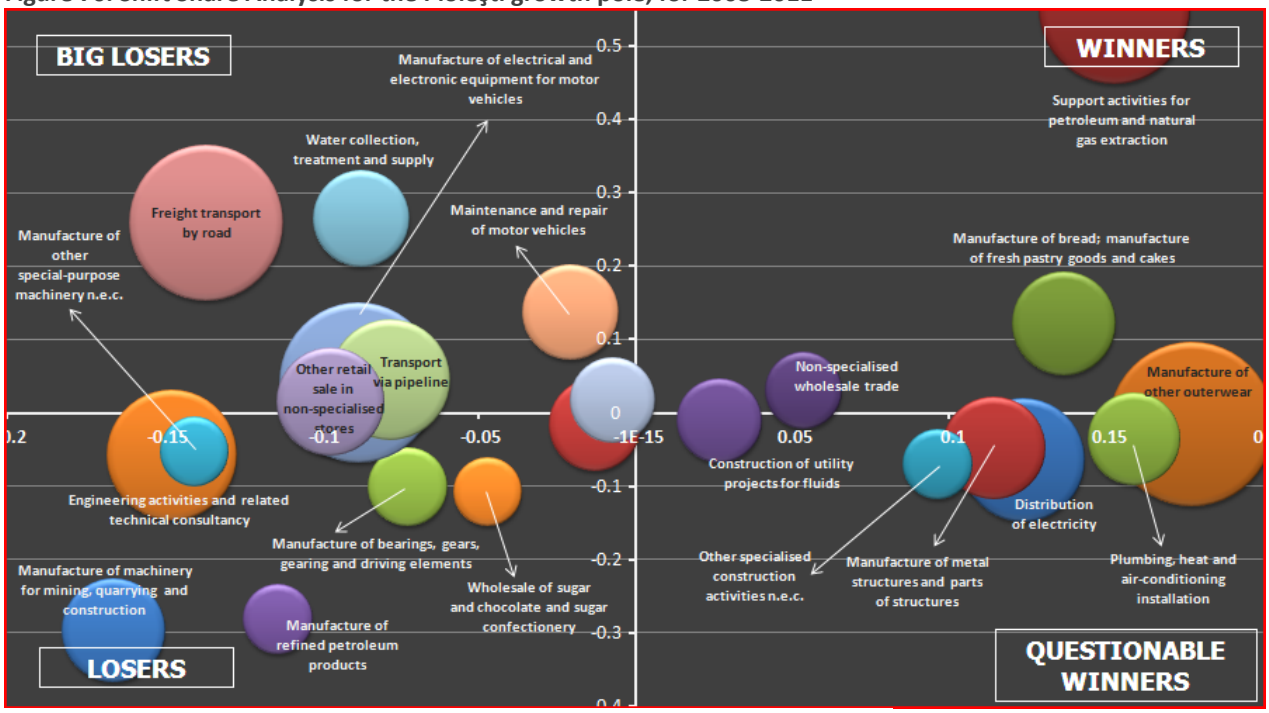
Data source: ListăFirme

515. **And indeed, in the post-Crisis period, the sector has continued to decrease – from 1,180 employees to 663.** This may be an indication of resources running out locally, or an indication of a less intensive exploitation level. The interesting thing is that while petroleum extraction has happened with a lower employment base, *Support services for petroleum and natural gas extraction* has been increasing steadily – from 1,190 employees in 2008 to 1,700 in 2011.

516. **In the post-Crisis years there were only 6 "Winners" and 6 "Questionable Winners".** The "Winners" were almost exclusively service providers, while the "Questionable Winners" presented a more interesting mix.

517. **Among the "Losers" and "Big Losers" we predominantly see large manufacturing sectors.** In addition to *Manufacture of refined petroleum products* we see among the poor performers a number of oil-related sectors, such as: *Manufacture of machinery for mining, quarrying, and construction, Transport via pipeline,* and *Engineering activities and related technical consultancy.*

Figure 70. Shift Share Analysis for the Ploieşti growth pole, for 2008-2011



Data source: ListăFirme

518. **It is relatively clear that Ploieşti will not be able to draw its strength from oil-exploitation in the long term.** The oil sector has been consistently performing poorly (as well as connected sectors), and it is likely to continue to do so as oil resources are being depleted. It is therefore important for local authorities to encourage the emergence of a more heterogeneous economic base, and shift from a focus on resource exploitation to a focus on people. Ultimately, it is people that drive economic growth, and the more opportunities they have locally, the more productive they are likely to be.

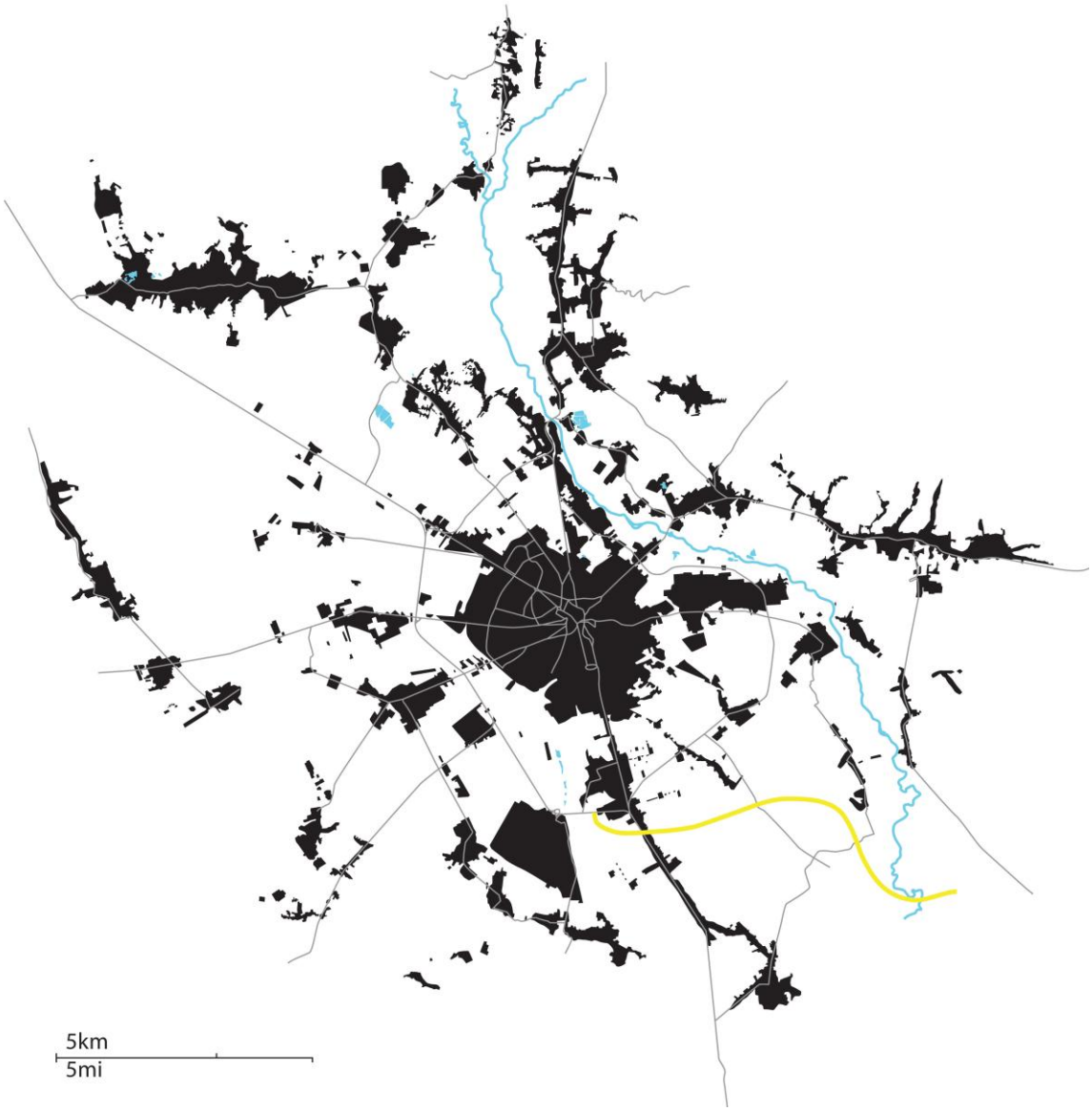
Spatial Planning

519. **The metropolitan area of Ploieşti is quite dense.** The City of Ploieşti is surrounded by a large number of rural and peri-urban communities. In fact, as was indicated earlier, Ploieşti is part of the densest and largest urban and rural agglomeration in Romania. Within a 40-minute driving buffer, Ploieşti amasses a population of 556,000.

520. **Obviously, the fact that Ploieşti has such a large population living around it, also has significant implications for its spatial development – especially related to metropolitan planning.** While in the past these surrounding localities were mostly rural communities with spurious links to the urban centers, with the expansion of the economy, these communities have become more and more integrated in a functional economic area. For one, the flows between these communities and Ploieşti have increased. On the other hand, these peri-urban

communities have accommodated an increasing share of the population in the region.

Figure 71. The urban mass of the Ploieşti growth pole



521. **Also, the map above gives only a glimpse of the density of the Ploieşti area.** The densest peri-urban communities are to the South and South-East of the city, towards Bucureşti. These areas are not included in the map here because they are not part of the Ploieşti metropolitan area (as it is currently defined). As such, it may pay to look into how this metropolitan area could be re-configured for the 2014-2020 programming period – particularly if benefits are found to outweigh costs, and provided of course there is political will to implement this change.

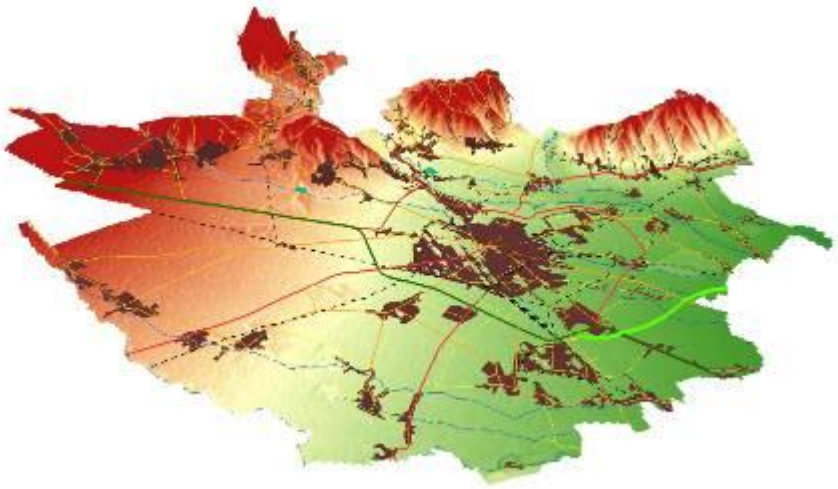
522. **As the table below shows, the growth of the Ploieşti metropolitan area, as it is defined now, has not been very pronounced – among the lowest of the 7 growth poles.** In fact, the City of Ploieşti itself has been among the slowest growing localities within the metropolitan areas.

Table 46. Built mass for localities in Ploieşti Metro Area

UAT	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Ariceştii Rahtivani	414	434	583	40.89%
Băicoi	957	966	1030	7.62%
Bărcaneşti	472	474	504	6.78%
Berceni	346	348	387	11.83%
Blejoi	383	437	524	36.70%
Boldeşti-Scăeni	673	677	714	6.21%
Brazi	830	835	859	3.49%
Bucov	459	484	533	16.08%
Dumbrăveşti	317	334	343	8.21%
Păuleşti	375	409	465	23.81%
Ploieşti	**3,039**	**3,120**	**3,238**	**6.55%**
Plopeni	141	141	152	7.66%
Târgşoru Vechi	397	437	690	73.72%
Valea Calugarească	569	583	606	6.45%
TOTAL	**9,372**	**9,679**	**10,628**	**13.40%**

523. **The metro localities with the most pronounced growth are located to the South of Ploieşti.** The fastest growing municipalities, which largely are not within the metro area, are also to the South of the city.

Figure 72. Topography of the Ploieşti growth pole



524. **The fact that the area's expansion fronts are towards the South can be explained by two main factors**. For one, Bucureşti is situated to the South and exercises a very strong gravitational pull – i.e., if people move to the South of Ploieşti they are also closer to the capital. On the other hand, the topography of the area pushes urban expansion Southward (see figure above). Ploieşti is flanked to the North by the Carpathian Mountains.

525. **To use spatial planning in a strategic way for the next programming period, it is important to both re-think the Ploieşti metropolitan area along more functional lines (i.e., capturing more localities to the South), and to try to promote integrated spatial planning to prevent un-sustainable development patterns – similar to what has happened in Iaşi and Cluj-Napoca.**

TIMIŞOARA

Regional Infrastructure

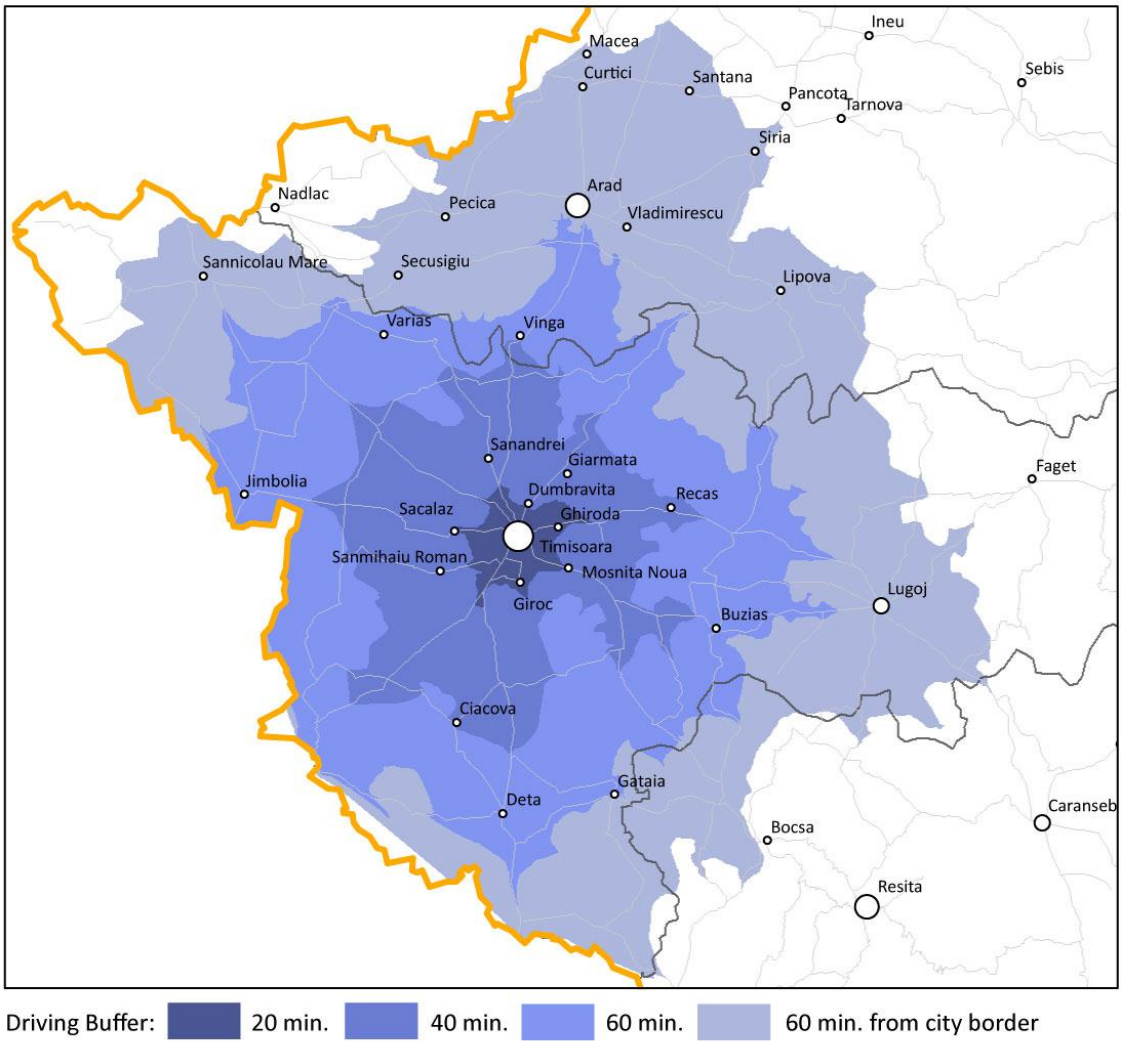
526. **Timişoara is part of the area with the largest economic mass outside Bucureşti.** Within a 60-minute driving buffer from Timişoara's city border, we have a population of 950,000 and firm revenues amounting to 6% of the national total. Within this area we find two medium-sized cities – Arad and Lugoj. From a connectivity perspective, given the economic mass of this region, the regional infrastructure that would make most sense are better connections between Timişoara and these two cities. And public authorities have already taken measures in this direction. There is now a highway connection between Timişoara and Arad, which significantly lowers the driving distance between these two places. Moreover, a highway link between Timişoara and Arad is under construction, as part of TEN-T Corridor IV.

527. **Beyond the 60-minute driving buffer, Timişoara could benefit from bringing other larger localities closer.** For example, Reşiţa and Caransebeş are relatively close to the core of the Timişoara area. The development of expressways to these cities could not only enable a larger market and labor pool for Timişoara, but also facilitate access to more opportunities for the people living in these cities. Furthermore, beyond the immediate access area, the Timişoara region would benefit from having a highway connection to Oradea. We implemented an economic gravitational model to see which of the highways and express ways proposed in the 2006 Transport Masterplan would make most sense. One of the strongest connections was between Timişoara and Oradea.

528. **Even at a smaller scale, it makes sense to invest in regional infrastructure.** Within a 20-minute driving buffer, Timişoara is the second largest growth pole, both from a demographic and an economic point of view. This may require improved and/or upgraded infrastructure to peri-urban localities, ring roads to take pressure of in-city traffic, or integrated public transport networks.

Within a 40-minute driving buffer, Timişoara is less dominant. It has only a modest firm revenue increase (i.e., there is little economic activity at this extra level) and from a population point on view, it is one of the smallest areas of all growth poles at this scale. Thus, there are few areas that need connecting with at this scale, but there are some places that will inevitably benefit from being along major thoroughfares that have been constructed, or are under construction – e.g. the highway links to Arad and Lugoj.

Figure 73. The immediate influence area of Timişoara

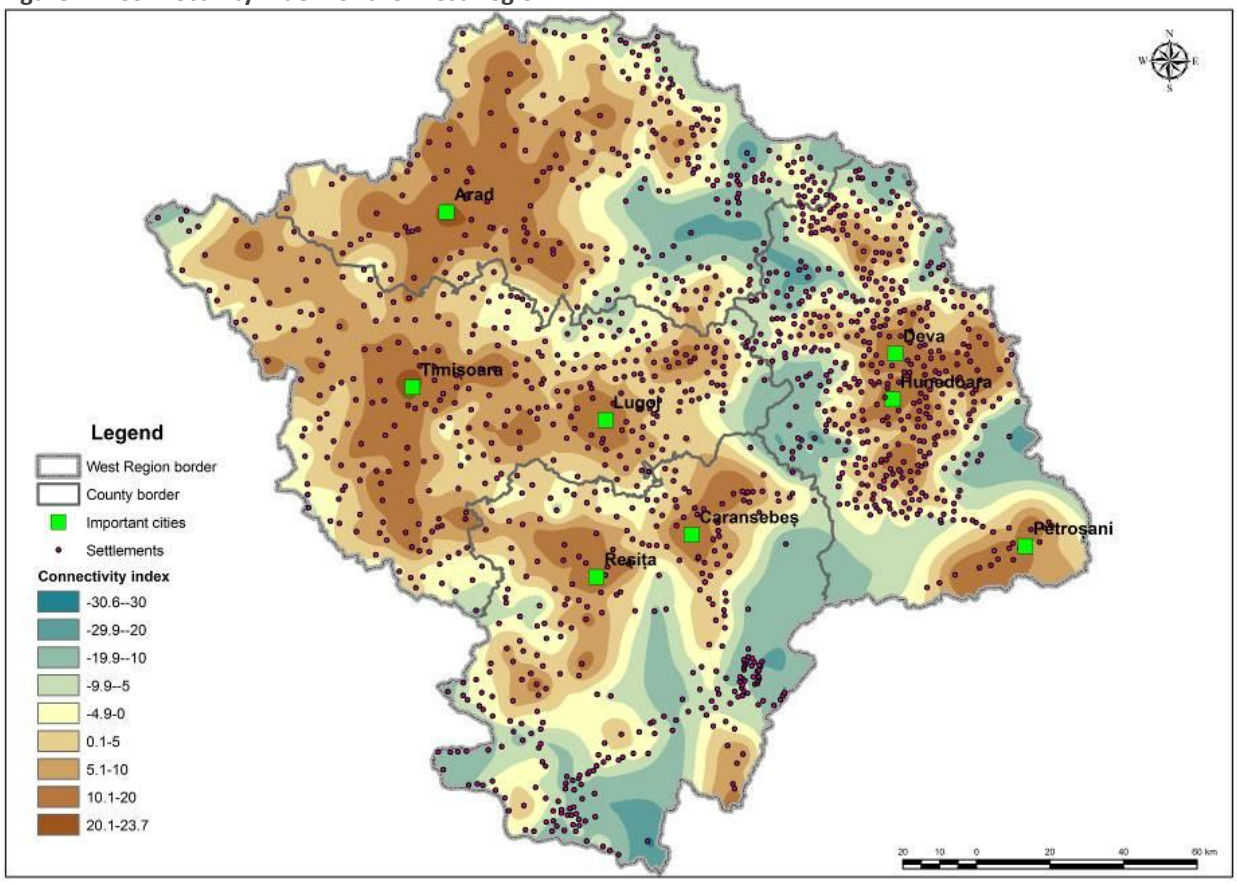


529. **After Ploieşti, Timişoara is one of the growth poles where the continued improvement of connective infrastructure would make most sense**. While the Timişoara area is not as dense as the Ploieşti area, it has a number of localities with large economic mass, which would benefit from being "closer" to each other. A number of such investments have already been made (e.g., highway systems), but it would pay to think of other things too. For example,

there have been talks of developing a larger airport that would be situated between Timişoara and Arad, and would serve both cities. There also have been talks about having high-speed rail connections to some of the larger localities in the region. For example, a high-speed commuter line between Timişoara and Arad could benefit both places. Of course, such an investment should only be made after a rigorous cost-benefit analysis.

530. **To get a better picture of regional infrastructure needs, beyond Timişoara's influence area, we have prepared a connectivity map for the West Region.** Annex 5 includes a more detailed description of the methodology used to calculate the regional connectivity index. The basic idea is to identify the key urban centers in a region, and determine how closely connected to these centers other settlements are. Urban areas provide key opportunities (e.g., education, health care centers, jobs), and the better connected they are to smaller settlements (which cannot sustain some of these key services), the better standard of life people in a region enjoy. Such a connectivity index provides insights not only into which regional roads should be rehabilitated, but also gives an overview of remote areas, which would benefit from increased connectivity.

Figure 74. Connectivity Index for the West Region



531. **While Timişoara and Arad form the wealthiest urban system outside Bucureşti, the Region does have a number of pockets of poverty.** Much of the eastern and southern areas in the Region are both poorly connected and relatively poor. These tend to be harder to access mountainous areas.

Business Environment

532. **Timişoara is one of the most dynamic economic centers in Romania.** Banking on its proximity to the West, Timişoara has managed to attract a lot of foreign investments in the past 22 years, and forms together with Arad the area with the second largest economic mass in Romania.

533. **The profile of the Timişoara growth pole is predominantly manufacturing based.** The area has actually developed a strong competitive advantage in the manufacturing of automobile components. Other economic engines include textile and footwear manufacturing, computer programming, engineering and consultancy activities, and meat processing.

534. **For much of the transition period Timişoara has been the second largest economic centers after Bucureşti.** However, its position has been challenged by Cluj-Napoca. Being largely manufacturing based, Timişoara finds it harder to sustain productivity increases. Unless the local manufacturing industries go through a continuous process of technological change, individual workers quickly hit a productivity plateau – i.e., unless they grow another pair of arms, or the day becomes longer, they will find it hard to produce an extra unit of what they produce. On the other hand, Cluj-Napoca has developed a series of strong services sectors, which enable larger and more sustained productivity increases. For example, a software program can be replicated and sold almost indefinitely, while a hard good (e.g., a shift gear for a car) can only be sold once. Thus a software programmer can increase her productivity manifold (e.g., from selling her software program to once client she can go to selling it to 3 billion), while someone working in a manufacturing factory will hit her productivity plateau quite quickly.

535. **It is therefore important for local authorities to determine how to best profit from the strong manufacturing base, while at the same time developing a strong services base.** Some services sectors are already economic growth engines, and they should be encouraged in the future too. Among these we find *Computer programming, Engineering activities and related technical consultancy, Specialist medical practices,* or *Advertising activities.*

536. **Similarly, it is important to encourage small and medium-sized enterprises.** Sectors that are atomized tend to be more resilient in the face of outside risks. Thus, if a company goes bankrupt or decides to move somewhere else, a new one can take its place.

Table 47. The economic engines of the Timişoara metropolitan area, in 2011

		TIMIŞOARA				INDICATORS			
		No. of Companies	**No. of Employees**	**Revenues (Euro)**	**Profits (Euro)**	Location Quotient	Employees per Company	Revenues per Company	Profit per Company
		21,601	**127,798**	**6,822,187,403**	**430,369,453**				
1	Manufacture of electrical and electronic equipment for motor vehicles	8	8,540	509,039,960	9,252,394	4.47	1,068	63,629,995	1,156,549
2	Manufacture of other parts and accessories for motor vehicles	20	5,496	440,095,276	33,487,679	4.32	275	22,004,764	1,674,384
3	Manufacture of footwear	68	4,292	69,672,092	4,272,661	2.36	63	1,024,590	62,833
4	Freight transport by road	650	3,742	255,914,690	6,575,139	1.20	6	393,715	10,116
5	Manufacture of electronic components	6	2,489	53,851,163	2,022,573	7.64	415	8,975,194	337,096
6	Restaurants and mobile food service activities	413	2,243	27,735,687	660,740	1.06	5	67,157	1,600
7	Construction of roads and motorways	63	1,969	181,700,793	5,077,578	1.25	31	2,884,140	80,596
8	Computer programming activities	287	1,915	49,955,704	4,015,775	2.03	7	174,062	13,992
9	Engineering activities and related technical consultancy	589	1,737	44,701,911	7,977,302	1.25	3	75,895	13,544
10	Hotels and similar accommodation	88	1,678	28,674,930	1,268,185	1.45	19	325,851	14,411
11	Processing and preserving of meat	27	1,662	165,441,389	563,568	2.71	62	6,127,459	20,873
12	Manufacture of instruments and appliances for measuring, testing and navigation	8	1,550	70,717,429	6,300,680	10.19	194	8,839,679	787,585
13	Wireless telecommunications activities	8	1,515	76,557,649	6,435,733	4.27	189	9,569,706	804,467
14	Plumbing, heat and air-conditioning installation	286	1,464	72,291,484	4,296,612	1.07	5	252,767	15,023

15	Manufacture of plastic plates, sheets, tubes and profiles	17	1,338	52,401,535	6,557,015	4.85	79	3,082,443	385,707
16	Distribution of electricity	3	1,232	135,676,966	51,035,183	2.29	411	45,225,655	17,011,728
17	Beverage serving activities	494	1,172	12,189,860	565,855	1.22	2	24,676	1,145
18	Hairdressing and other beauty treatment	208	1,077	3,446,677	132,540	1.48	5	16,571	637
19	Steam and air conditioning supply	3	1,055	48,278,682	1,584,545	1.96	352	16,092,894	528,182
20	Raising of swine/pigs	13	1,051	127,830,122	1,537,022	5.90	81	9,833,086	118,232
21	Renting and operating of own or leased real estate	473	1,034	84,183,906	18,455,095	1.38	2	177,979	39,017
22	Temporary employment agency activities	26	904	9,164,103	727,654	1.52	35	352,466	27,987
23	Specialist medical practice activities	163	881	25,960,347	1,164,992	1.53	5	159,266	7,147
24	Manufacture of underwear	4	879	17,705,022	1,738,555	1.43	220	4,426,256	434,639
25	Manufacture of communication equipment	3	864	66,874,614	4,869,745	6.27	288	22,291,538	1,623,248
26	Manufacture of electric lighting equipment	7	844	32,613,708	1,557,721	10.59	121	4,659,101	222,532
27	Advertising agencies	242	813	14,544,328	1,441,002	1.22	3	60,101	5,955
28	Accounting, bookkeeping and auditing activities; tax consultancy	448	798	12,845,515	3,465,019	1.27	2	28,673	7,734
29	Machining	63	785	20,327,164	2,440,901	2.18	12	322,653	38,744
30	General cleaning of buildings	88	763	8,517,978	1,225,674	1.36	9	96,795	13,928

537. **Encouraging the local business environment can be done in several different ways**. On the one hand, local authorities have to take into consideration the business profile of the area. With manufacturing dominating at the local level, it is important to determine how public investments can come to the aid of these industries. For example, many of the new manufacturing facilities have moved to areas outside the city – both because land for large-scale developments is often scarce within cities (unless the new investments represent brownfields redevelopment), and because EU regulations require that industrial enterprises be moved outside cities. On the other hand, it is important to pay attention to local economic dynamics, and encourage other emerging sectors.

538. **Before the Crisis, the main job creators in Timişoara were manufacturing centers; after the Crisis, most jobs were created by services sectors.** As the table below highlights, the five largest job creators (which together created over 9,200 jobs) were all manufacturing sectors – predominantly focusing on the manufacture of auto parts. Other important job creators included meat processing, the IT industry, research and consulting, general services, as well as activities that contribute to making Timişoara more accessible and more connected – i.e., *Passenger air transport* and *Construction of roads and motorways.*

Table 48. Main job creators in the Timişoara growth pole, between 2005-2008

Sector	Jobs created
Manufacture of electrical and electronic equipment for motor vehicles	4,556
Manufacture of instruments and appliances for measuring, testing and navigation	1,386
Manufacture of rubber tires and tubes; retreading and rebuilding of rubber tires	1,215
Manufacture of other parts and accessories for motor vehicles	1,148
Manufacture of electronic components	911
Raising of swine/pigs	872
Processing and preserving of meat	534
Computer programming activities	407
Wireless telecommunications activities	380
Machining	344
Manufacture of communication equipment	317
Manufacture of electric motors, generators and transformers	227
Other business support service activities n.e.c.	223
Other professional, scientific and technical activities n.e.c.	222
Floor and wall covering	200
Activities of call centers	198
Sale of cars and light motor vehicles	166
Painting and glazing	151
Manufacture of other plastic products	139
Other telecommunications activities	138
Passenger air transport	135
Landscape service activities	128
Manufacture of plastic plates, sheets, tubes and profiles	117
Other building and industrial cleaning activities	115
Retail sale of cosmetic and toilet articles in specialized stores	113
Construction of roads and motorways	108

539. **After 2008, only one manufacturing sector was among the main job creators – *Manufacture of other parts and accessories for motor vehicles.*** The main job creators were service based. It is true that the large majority of these sectors are not exactly drivers of innovation (e.g., retail, security, warehousing, transport, auto repair), but they provided an outlet for an economic base that was obviously affected by the crisis.

Table 49. Main job creators in the Timişoara growth pole, between 2008-2011

Sector	Jobs created
Retail sale in non-specialized stores with food, beverages or tobacco predominating	1,761
Manufacture of other parts and accessories for motor vehicles	1,435
Freight transport by road	1,219
Temporary employment agency activities	767
Private security activities	689
Warehousing and storage	557
Computer programming activities	540
Activities of call centers	519
Processing and preserving of meat	513
Beverage serving activities	438
Manufacture of soap and detergents, cleaning and polishing preparations	428
Business and other management consultancy activities	357
Specialist medical practice activities	347
Manufacture of communication equipment	345
Cargo handling	304
Technical testing and analysis	297
Restaurants and mobile food service activities	297
Advertising agencies	288
Manufacture of other electrical equipment	263
Manufacture of bread; manufacture of fresh pastry goods and cakes	247
Maintenance and repair of motor vehicles	230
Other reservation service and related activities	214
Hairdressing and other beauty treatment	211
Manufacture of other plastic products	193
Retail sale of cosmetic and toilet articles in specialized stores	190
Wireless telecommunications activities	158
Other human health activities	158
General cleaning of buildings	139
Manufacture of footwear	138
Raising of swine/pigs	131
Manufacture of other rubber products	130
Wholesale of pharmaceutical goods	118
Other retail sale not in stores, stalls or markets	117
Other amusement and recreation activities	109
Dental practice activities	108
Data processing, hosting and related activities	106
Treatment and coating of metals	104
Wholesale of fruit and vegetables	104

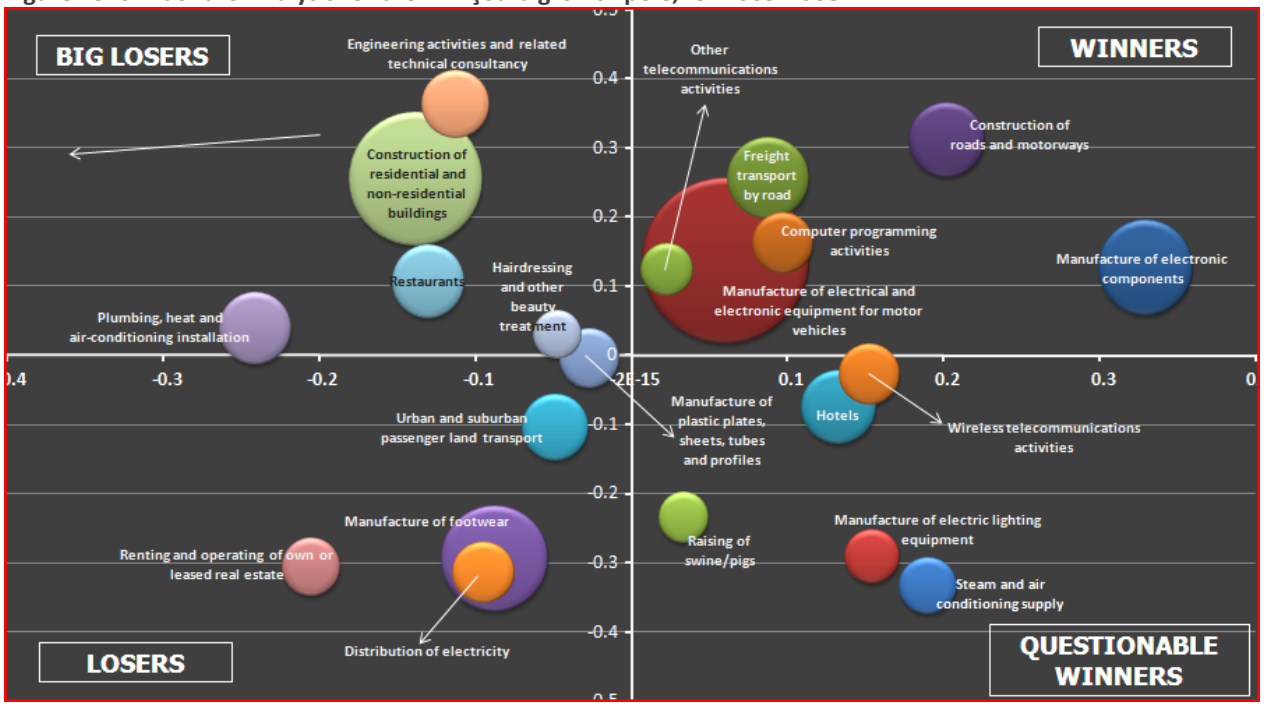
Data source: ListăFirme

540. **Interestingly, before the Crisis, there were a smaller number of sectors that created more than 100 jobs than after the Crisis.** In the pre-Crisis period employment growth was largely driven by a handful of manufacturing sectors (predominantly auto parts manufacturers), which were also the main economic engines in the area. These sectors helped create a strong competitive advantage in auto parts manufacturing, but they have also created some inherent vulnerabilities. Basically, as these sectors have expanded, they have taken away employees from other sectors – generating a more homogeneous economic base.

541. **From 2005 to 2008 the economy of the Timişoara growth pole has become less diverse.** The Hachman Index of economic diversity (calculated earlier) dropped from 0.40 in 2005 to 0.36 in 2008. This is troublesome for an expanding local economy. As discussed earlier, the less diverse a local economy is, the more prone it is to risks. And, as the 2008 Crisis has shown, the sectors that were net job creators during the boom were net job losers after.

542. **The Shift-Share analysis for 2005-2008 indicates that a number of large and growing sectors have progressively dwarfed other local sectors.** For example, *Manufacture of electrical and electronic equipment for motor vehicles* has added over 4,500 employees in this time-period. Many of these new employees are likely to have come from other regions (the net employment base of the growth pole has expanded substantially in these three years), but many were drawn from other local sectors. Thus, the local economic base has paradoxically become less diverse, although it has expanded.

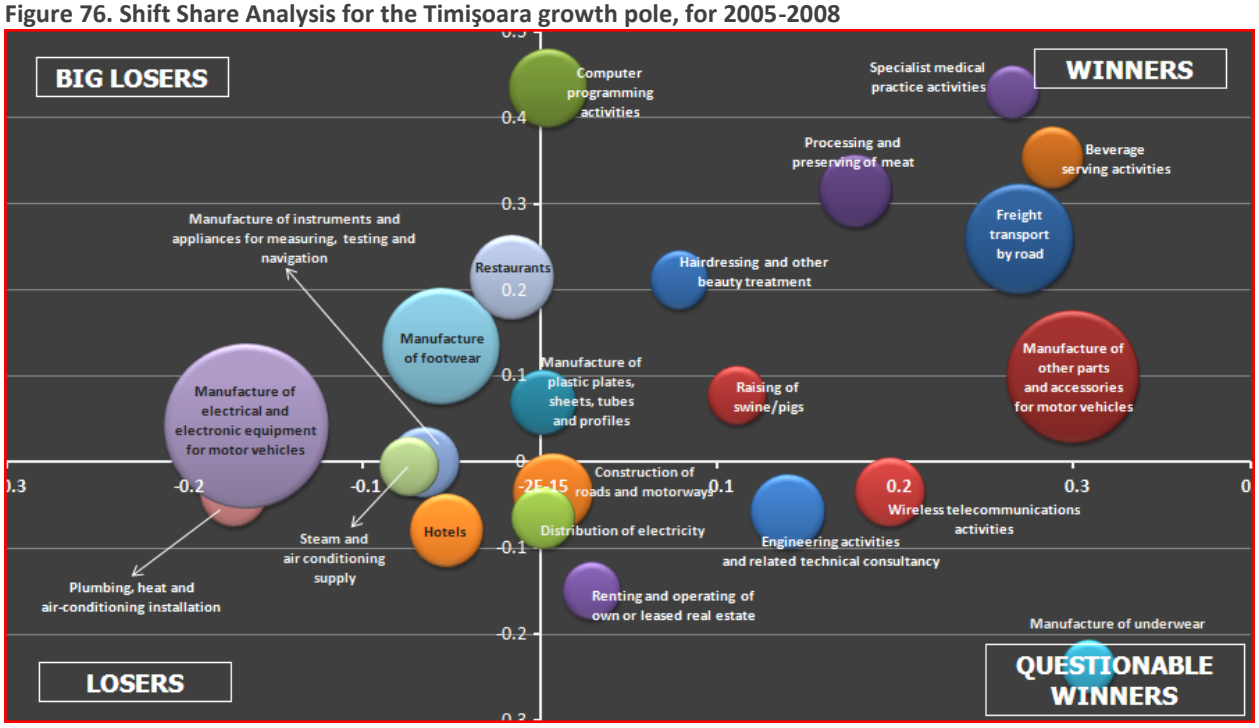
Figure 75. Shift Share Analysis for the Timişoara growth pole, for 2005-2008



Data source: ListăFirme

543. **Within the 30 largest economic engines in Timişoara, 16 were "Winners" and "Questionable Winners" between 2005 and 2008.** Of these 16 sectors, only a handful managed to keep their status between 2008 and 2011. Interestingly, the largest economic engine (*Manufacture of electrical and electronic equipment for motor vehicles*) has switched from being a "Winner" to being a "Big Loser." One of the few larger sectors that have managed to keep its "Winner" status was *Computer programming.*

Figure 76. Shift Share Analysis for the Timişoara growth pole, for 2005-2008



Data source: ListăFirme

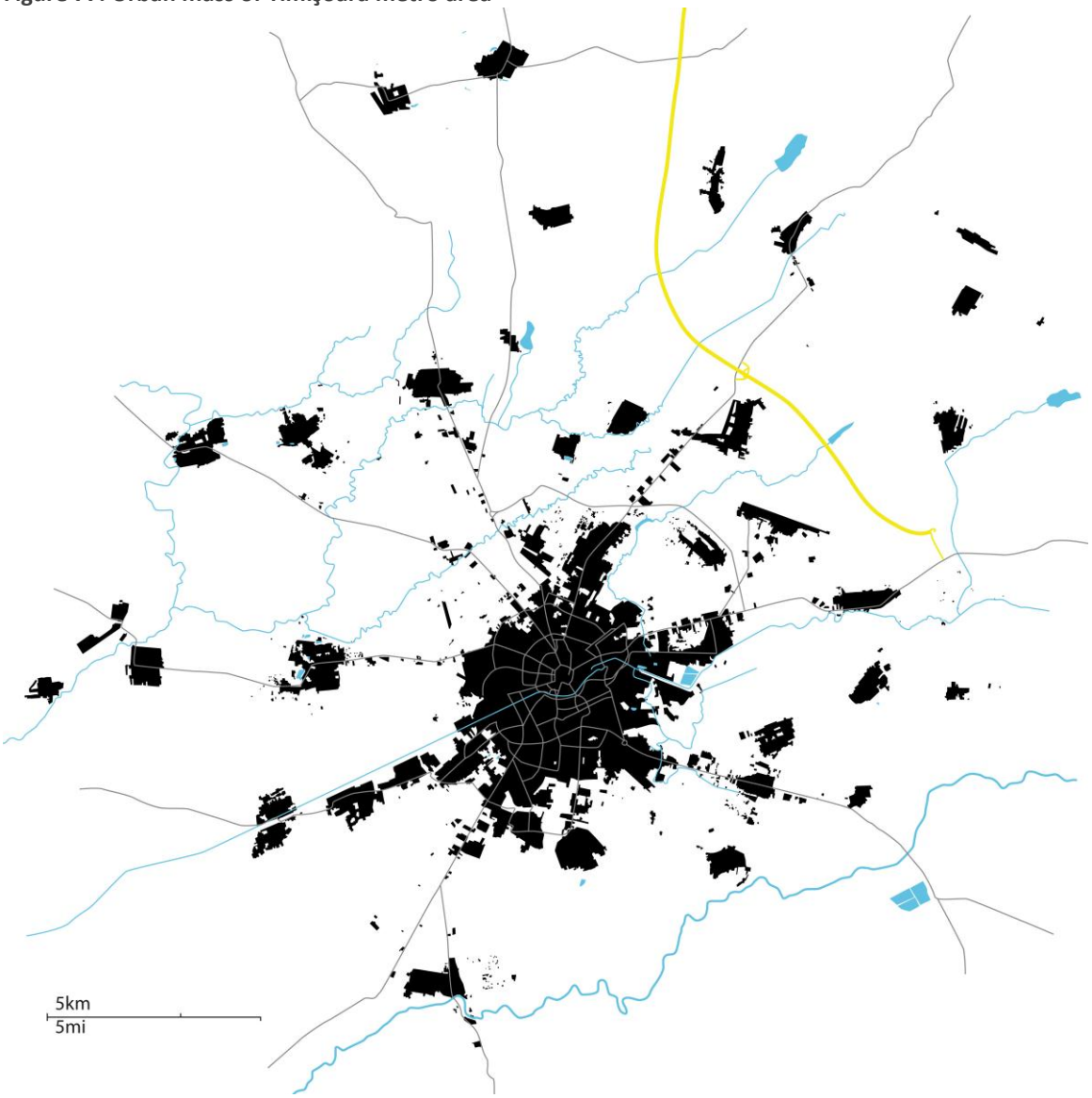
544. **Most likely, as the worst effects of the Crisis will wane away, Timişoara will continue to benefit from its position as a strong manufacturing center.** Consequently, public investments aimed at improving the local business environment will most likely have to determine how to respond to this dynamic. On the other hand, it is important to encourage the development of alternative economic engines and to promote a more eclectic economic base, as a way of hedging against outside risks. This may involve investments and policies that promote the development and creation of affordable business spaces and infrastructure for emerging services sectors.

Spatial Planning

545. **Timişoara follows an efficient radial development pattern.** Benefiting from a flat topography, the city has developed outward in concentric rings. From an urban structure point of view, this is one of the most efficient urban expansion ways. In addition, peri-urban communities are generally more

compact and more sustainable organized around the center city. There are of course several areas where new developments follow a low-density scatter pattern, but overall Timişoara seems to be guided by relatively sound spatial planning.

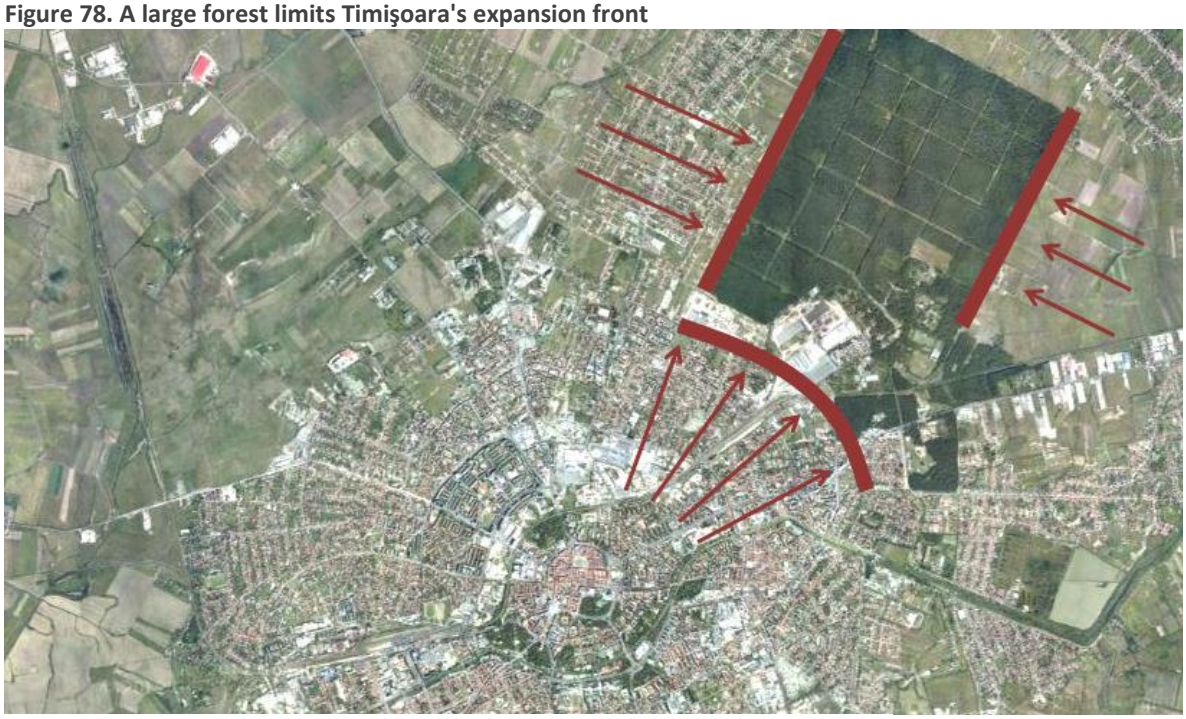
Figure 77. Urban mass of Timişoara metro area



546. **As the city will continue expanding, it is important to continue encouraging an expansion around concentric rings, and be mindful of potential growth barriers.** For example, in the North-East of the city there is a large forest, which was probably designed to give the city some breathing room. However, if the city will continue growing, it will have a limited expansion front. Moreover, if the city will develop around this forest, it will in effect cut part of the city in half,

leading to unsustainable travel patterns – i.e. getting from one of these neighborhoods to the other would require travelling around the entire forest.

Figure 78. A large forest limits Timişoara's expansion front



Source: Google Maps

547. **As it turns out one of the areas with the highest incidence of new developments is in fact in the North-East of the city.** Continued growth in that area may require at some point the identification of appropriate traffic solutions for getting through/around the forest. Other areas of metropolitan expansion are situated to the West and South of the City of Timişoara.

548. **In fact, peri-urban localities in the Timişoara growth pole have grown faster than the city itself.** If the city has expanded by 13% between 1992 and 2012, the growth pole as a whole has expanded by around 18%. Some of the peri-urban localities have under-gone a dramatic transformation. For example, Dumbrăvița has expanded by 138% in this time-frame. Other localities have expanded by 20%, 30%, or 50%.

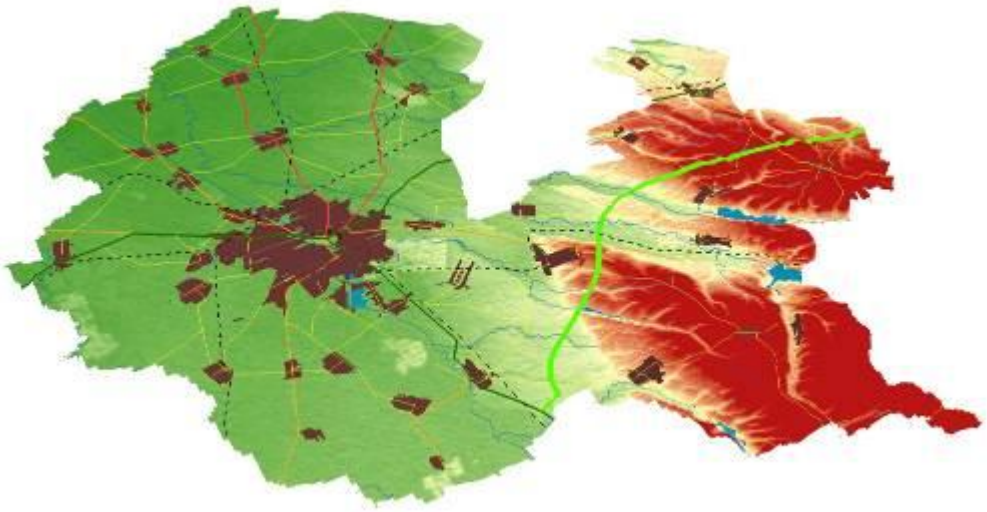
Table 50. Built mass for localities in Timişoara Metro Area

Territorial Administrative Unit	1992	2002	2012	% Change btw. 1992 and 2012
	(in hectares)			
Becicherecu Mic	245	248	255	4.12%
Dudeştii Noi	205	205	209	2.04%
Dumbrăviţa	266	282	633	137.88%
Ghiroda	454	470	560	23.36%
Giarmata	410	420	442	7.87%

Giroc	411	478	552	34.15%
Moşniţa Nouă	469	490	720	53.39%
Orţisoara	576	585	607	5.43%
Pischia	348	348	354	1.85%
Remetea Mare	467	479	503	7.76%
Săcălaz	652	660	750	15.02%
Şag	208	212	238	14.49%
Sânmihaiu Român	504	518	538	6.76%
Timişoara	**4,920**	**5,130**	**5,568**	**13.17%**
TOTAL	**10,135**	**10,525**	**11,929**	**17.70%**

549. **With continued economic growth, Timişoara is likely to continue expanding.** This expansion should be guided by efficient spatial planning, and future ROP investments should seek to both encourage such sustainable development patterns and profit from them – e.g. up-front and operation costs for ROP investments could be much lower if the city will keep its relatively dense and compact structure.

Figure 79. Topography of the Timişoara growth pole



Annexes

Annex 1 - Evolution of demographic size

Territorial administrative units	1992	2002	2012	% Change btw. 1992 and 2012
BRAȘOV				
Bod	4,111	3,907	3,771	-8.3%
Brașov	**325,057**	**285,712**	**227,961**	**-29.9%**
Codlea	24,013	23,604	19,836	-17.4%
Cristian	3,906	3,868	4,315	10.5%
Ghimbav	5,326	5,030	4,539	-14.8%
Halchiu	5,776	6,165	4,104	-28.9%
Hărman	4,123	4,163	5,202	26.2%
Predeal	7,275	5,617	4,433	-39.1%
Prejmer	8,289	8,190	8,114	-2.1%
Râșnov	16,414	15,520	14,081	-14.2%
Săcele	30,184	30,039	26,907	-10.9%
Sânpetru	3,365	3,263	4,585	36.3%
Tărlungeni	6,898	7,322	7,820	13.4%
Vulcan	5,406	5,592	4,440	-17.9%
Total	**450,143**	**407,992**	**340,108**	**-24.4%**
CLUJ NAPOCA				
Aiton	1,594	1,368	1,048	-34.3%
Apahida	7,499	8,410	10,072	34.3%
Baciu	7,792	8,058	10,065	29.2%
Bonţida	4,330	4,814	4,690	8.3%
Borșa	1,989	1,711	1,568	-21.2%
Caianu	2,693	2,551	2,282	-15.3%
Chinteni	3,036	2,876	2,926	-3.6%
Ciurila	1,704	1,595	1,522	-10.7%
Cluj-Napoca	**320,345**	**297,014**	**309,136**	**-3.5%**
Cojocna	4,532	4,526	3,914	-13.6%
Feleacu	4,087	3,677	3,835	-6.2%
Florești	6,003	7,482	21,832	263.7%
Gârbau	2,722	2,667	2,398	-11.9%
Gilău	7,808	7,967	7,973	2.1%
Jucu	4,080	4,101	4,152	1.8%
Petreștii de Jos	2,206	1,935	1,455	-34.0%

Tureni	2,680	2,634	2,208	-17.6%
Vultureni	1,793	1,517	1,486	-17.1%
Total	**386,893**	**364,903**	**392,562**	**1.5%**
		CONSTANȚA		
Agigea	4,365	5,281	6,436	47.4%
Basarabi (currently Murfatlar)	10,609	10,663	-	
Constanța	**346,558**	**312,010**	**254,693**	**-26.5%**
Corbu	4,267	4,958	5,431	27.3%
Cumpăna	7,764	9,064	11,658	50.2%
Eforie	9,318	9,212	3,360	-63.9%
Lumina	5,827	7,263	8,621	47.9%
Mihail Kogălniceanu	9,457	9,926	8,121	-14.1%
Năvodari	32,253	33,203	31,554	-2.16%
Ovidiu	12,524	13,025	9,739	-22.2%
Poarta Alba	3,839	4,439	12,342	221.5%
Techirghiol	7,125	7,040	4,956	-30.4%
Tuzla	7,550	5,980	6,845	-9.3%
Valu Lui Traian	7,057	8,561	6,471	-8.3%
Total	**468,513**	**440,625**	**370,227**	**-21.0%**
		CRAIOVA		
Breasta	3,714	3,889	3,577	-3.7%
Craiova	**301,486**	**300,487**	**243,765**	**-19.1%**
Ghercești	1,885	1,730	1,645	-12.7%
Mischii	2,098	1,718	1,696	-19.2%
Murgași	3,024	2,756	2,409	-20.3%
Pielești	3,842	3,564	3,513	-8.6%
Pleșoi	-	-	1,337	0.0%
Predești	3,887	3,596	1,803	-19.2%
Simnicu de Sus	4,324	4,175	4,424	2.3%
Teasc	3,493	3,322	3,187	-8.8%
Total	**327,753**	**325,237**	**267,356**	**-18.4%**
		IAȘI		
Aroneanu	2,437	2,787	3,261	33.8%
Bârnova	3,018	3,687	5,337	76.8%
Ciurea	7,593	9,645	10,970	44.5%
Holboca	11,123	11,791	11,126	0.0%

Iași	**337,854**	**303,714**	**263,410**	**-22.0%**
Lețcani	5,927	6,388	6,217	4.9%
Miroslava	5,960	7,363	11,100	86.2%
Popricani	5,557	6,625	7,103	27.8%
Rediu	5,480	6,493	4,237	-22.7%
Schitu Duca	4,092	4,534	4,224	3.2%
Tomești	11,230	11,729	10,309	-8.2%
Ungheni	3,682	4,026	4,006	8.8%
Valea Lupului	-	-	4,590	n/a
Victoria	3,868	4,420	4,102	6.0%
Total	**407,821**	**383,202**	**349,992**	**-14.2%**
		PLOIEȘTI		
Ariceștii Rahtivani	8,067	8,066	8,493	5.3%
Băicoi	20,753	19,964	17,358	-16.4%
Bărcănești	9,205	9,024	9,037	-1.8%
Berceni	5,890	5,987	6,027	2.3%
Blejoi	7,553	7,877	8,320	10.2%
Boldești-Scăeni	11,902	11,305	10,811	-9.2%
Brazi	8,232	8,033	7,946	-3.5%
Bucov	10,038	10,259	10,011	-0.3%
Dumbrăvești	3,713	3,657	3,478	-6.3%
Paulești	5,193	4,976	5,752	10.8%
Ploiești	**254,733**	**237,420**	**197,522**	**-22.5%**
Plopeni	10,306	9,986	7,509	-27.1%
Târgșoru Vechi	7,945	8,716	8,879	11.8%
Valea Calugărească	10,735	10,330	10,337	-3.7%
Total	**374,265**	**355,600**	**311,480**	**-16.8%**
		TIMIȘOARA		
Becicherecu Mic	4,719	4,646	2,651	20.8%
Dudeștii Noi	-	-	3,048	
Dumbrăvița	2,378	2,467	7,241	204.5%
Ghiroda	4,779	4,572	5,968	24.9%
Giarmata	5,312	5,328	6,009	13.1%
Giroc	3,894	4,005	8,125	108.7%
Moșnița Nouă	3,926	3,769	5,810	48.0%
Ortișoara	3,908	3,876	3,994	2.2%
Pischia	2,863	2,859	2,958	3.3%
Remetea Mare	3,349	3,027	2,168	-35.3%

Săcălaz	5,698	6,176	6,731	18.1%
Ţag	3,789	4,232	2,923	-22.9%
Sânmihaiu Român	3,719	4,197	5,695	53.1%
Timișoara	**325,704**	**308,765**	**304,467**	**-6.5%**
Total	**374,038**	**357,919**	**367,788**	**-1.7%**

Data source: INS Tempo (1992, 2002), INS Census data (2012)

Annex 2 - Evolution of built up areas

Territorial administrative units composing growth pole areas	1992	2002	2012	% Change btw. 1992 and 2012
BRAȘOV				
Bod	254	264	298	17,32%
Brașov	**3.511**	**3.928**	**4.360**	**24,18%**
Codlea	526	530	568	7,98%
Cristian	216	227	294	36,11%
Ghimbav	144	152	212	47,22%
Halchiu	213	213	232	8,92%
Hărman	328	357	438	33,54%
Predeal	220	234	247	12,27%
Prejmer	597	613	633	6,03%
Râșnov	405	425	438	8,15%
Săcele	597	637	708	18,59%
Sânpetru	221	237	330	49,32%
Tărlungeni	475	507	557	17,26%
Vulcan	144	146	150	4,17%
Total	**7.851**	**8.470**	**9.465**	**20,56%**
CLUJ - NAPOCA				
Aiton	202	232	217	7,43%
Apahida	720	766	945	31,25%
Baciu	440	445	471	7,05%
Bonţida	377	382	384	1,86%
Borșa	232	232	232	0,00%
Caianu	327	327	327	0,00%
Chinteni	366	379	395	7,92%
Ciurila	183	188	199	8,74%
Cluj-Napoca	**4.295**	**4.410**	**5.346**	**24,47%**
Cojocna	507	513	513	1,18%
Feleacu	528	536	568	7,58%
Florești	345	462	807	133,91%
Gârbau	264	264	264	0,00%
Gilău	511	543	613	19,96%
Jucu	471	508	571	21,23%
Petreștii de Jos	213	213	216	1,41%
Tureni	274	275	297	8,39%
Vultureni	190	190	190	0,00%
Total	**10.445**	**10.865**	**12.555**	**20,20%**

CONSTANȚA				
Agigea	596	602	632	6,04%
Basarabi (currently Murfatlar)	398	417	417	4,77%
Constanța	**4.258**	**4.382**	**4.566**	**7,23%**
Corbu	538	538	564	4,83%
Cumpăna	592	611	726	22,64%
Eforie	504	518	547	8,53%
Lumina	599	627	683	14,02%
Mihail Kogălniceanu	628	640	692	10,19%
Năvodari	1.088	1.201	1.268	16,54%
Ovidiu	366	431	517	41,26%
Poarta Alba	311	313	335	7,72%
Techirghiol	292	293	325	11,30%
Tuzla	300	302	339	13,00%
Valu Lui Traian	548	557	615	12,23%
Total	**11.018**	**11.432**	**12.226**	**10,96%**
CRAIOVA				
Breasta	204	243	251	23,04%
Craiova	**4.045**	**4.628**	**5.152**	**27,37%**
Ghercești	271	271	277	2,21%
Mischii	259	259	264	1,93%
Murgași	343	344	347	1,17%
Pielești	271	331	450	66,05%
Pleșoi	202	202	208	2,97%
Predești	182	182	182	0,00%
Şimnicu de Sus	470	494	508	8,09%
Teasc	250	250	275	10,00%
Total	**6.497**	**7.204**	**7.914**	**21,81%**
IAȘI				
Aroneanu	278	284	287	3,24%
Bârnova	482	522	569	18,05%
Ciurea	771	850	888	15,18%
Holboca	645	671	696	7,91%
Iași	**3.596**	**3.966**	**4.224**	**17,46%**
Lețcani	418	420	474	13,40%
Miroslava	635	919	993	56,38%
Popricani	658	751	777	18,09%
Rediu	329	381	401	21,88%
Schitu Duca	540	568	570	5,56%

Tomești	449	481	506	12,69%
Ungheni	294	303	313	6,46%
Valea Lupului	95	105	167	75,79%
Victoria	443	443	443	0,00%
Total	**7.457**	**8.337**	**8.868**	**18,92%**
PLOIEȘTI				
Ariceștii Rahtivani	414	434	583	40,82%
Băicoi	957	966	1.030	7,63%
Bărcănești	472	474	504	6,78%
Berceni	346	348	387	11,85%
Blejoi	383	437	524	36,81%
Boldești-Scăeni	673	677	714	6,09%
Brazi	830	835	859	3,49%
Bucov	459	484	533	16,12%
Dumbrăvești	317	334	343	8,20%
Paulești	375	409	465	24,00%
Ploiești	**3.039**	**3.120**	**3.238**	**6,55%**
Plopeni	141	141	152	7,80%
Târgșoru Vechi	397	437	690	73,80%
Valea Calugărească	569	583	606	6,50%
Total	**9.372**	**9.679**	**10.628**	**13,40%**
TIMIȘOARA				
Becicherecu Mic	245	248	255	4,08%
Dudeștii Noi	205	205	209	1,95%
Dumbrăvița	266	282	633	137,97%
Ghiroda	454	470	560	23,35%
Giarmata	410	420	442	7,80%
Giroc	411	478	552	34,31%
Moșnița Nouă	469	490	720	53,52%
Ortișoara	576	585	607	5,38%
Pischia	348	348	354	1,72%
Remetea Mare	467	479	503	7,71%
Săcălaz	652	660	750	15,03%
Șag	208	212	238	14,42%
Sânmihaiu Român	504	518	538	6,75%
Timișoara	**4.920**	**5.130**	**5.568**	**13,17%**
Total	**10.135**	**10.525**	**11.929**	**17,70%**

Data source: INS

Annex 3 - Attributions of the growth pole coordinator

- Represents the Parties in the process of elaborating and implementing the Integrated Development Plan of the growth pole;
- Is an employee of the Regional Development agency, thus respecting from this point of view the internal organization and functioning rules as well as the provisions of the collective work contract;
- Participates, as guest, to the reunions of the Intercommunity Development Agency (IDA) constituted at the level of the growth pole;
- Establishes a permanent collaboration and consultation process with the growth pole leader (namely the president of the IDA constituted at the level of the growth pole);
- Facilitates the connection between the central and local authorities involved in the elaboration and implementation of IDP;
- Supports the elaboration and implementation of the IDP;
- Supports the implementation of projects included on the IDP list;
- Supports, through the proposals regarding contracting short term expertise the IDP and connected projects implementation process;
- Takes part in the monitoring process of the IDP implementation timeline and fulfillment of indicators established in IDP;
- Contributes to the promotion and information campaign referring to the growth pole ensuring the transparency and visibility of activities financed within the pole;
- Elaborates periodical reports (quarterly/bi-annual/annual, by case) or ad hoc, regarding the implementation status of projects included in the IDP and sends them to the parties;
- Elaborates quarterly reports on the activity undertaken and sends them to the parties;
- Elaborates, at its initiative or the solicitation of involved parties, information regarding different problematic aspects relative to the growth pole and formulates proposals for solving these aspects;
- Fulfills any other attribution which results from provisions of documents referring to growth poles or following adjustments of these documents, by respecting the provisions of the present Protocol and internal procedures of the RDA.

Note: These provisions are extracted from Annex 1 to the Tripartite agreement signed between the Ministry of Regional Development and Tourism, the Ministry of Economy and Finance and each Regional Development Agency during 2009.

Annex 4 - Situation of IDP projects in implementation with funds from ROP (as of Feb. 2013)

	Brașov	Cluj Napoca	Craiova	Constanța	Iași	Ploiești	Timișoara
IDP projects in implementation/ implemented							
number	16	12	14	21	10	11	21
total budget values (eur)	80.331.130	82.074.319	119.028.992	69.426.913	115.576.820	91.424.413	102.551.901
IDP projects addressing the main city*							
number	11	12	13	10	10	8	21
% of total projects	69%	100%	93%	48%	100%	73%	100%
total budget values (eur)	45.038.215	82.074.319	118.304.756	45.253.653	115.576.820	86.146.624	102.551.901
% of total projects	56%	100%	99%	65%	100%	94%	100%
IDP projects addressing other peri-urban municipalities							
number	4	-	1	11	-	3	2**
% of total projects	25%	0%	7%	52%	0%	27%	10%
total budget values (eur)	34.675.171	-	724.235	24.173.260	-	5.277.790	5.715.915
% of total projects	43%	0%	1%	35%	0%	27%	6%
IDP projects implemented by IDAs							
number	1	-	-	5	-	-	-
% of total projects	6%	0%	0%	24%	0%	0%	0%
total budget values (eur)	617.744	-	-	4.363.212	-	-	-
% of total projects	1%	0%	0%	6%	0%	0%	0%

**the projects address the territory of the main city however have as beneficiary of funds either the main city municipality (most cases) or the country council*

***the projects address both the main city and another peri-urban locality, therefore are listed under both categories*

Source: data processed from www.inforegio.ro

Annex 5 - Methodology for calculating the connectivity index (RD)

The methodology was developed by Romanian geographer Raularian Rusu, and implemented for this report with the assistance of Ciprian Moldovan and Titus Man. In order to assess the connectivity and accessibility of settlements in each individual region in Romania, the approach considered the position of specific groups of people in specific locations (either rural or urban communities) and postulated the means by which they might access a set of services or facilities deemed socially necessary. The welfare of the communities depends to a large extent on standards of connectivity and accessibility to such services or facilities. A measure used with this scope in mind is the assessment of the space (distance) and time budgets needed for the population of every settlement to reach specific destinations (S.D. Nutley, 1980).

In order to achieve this, we have first taken into consideration all classified roads in Romania and all the settlements. Distances were calculated (using GIS) from each settlement to the nearest central place of every rank (except for rank 3, where distance to the county seat was considered). For this, a preliminary study is needed to determine the ranks of the settlements within the analyzed territory, and even in the neighboring areas. We relied our assessment on such a hierarchy, based on a previous analysis (R. Rusu, 2007), which classified the settlements into 12 ranks or levels, starting from the national capital, București (rank 0) down to the most underdeveloped villages or hamlets, with almost no inhabitants and no elementary services (rank 11). However, for the purpose of this study, we have only taken into account the first nine levels (rank 0 to rank 8, commune center), considering that smaller villages (ranked 9 to 11) are irrelevant as central places. Central places belonging to any rank are also included as central places for all the ranks below.

Table 1. Ranking of central places considered

Rank	Short description
0	National capital city
1	Regional center
2	Sub-regional center
3	County seat
4	Important middle-sized city
5	Small city or town with large area of influence
6	Small town with minor area of influence or urban-like commune center
7	High-grade commune center
8	Commune center

The values of distance were then aggregated for every settlement into a connectivity index using the following formula (R. Rusu, 2007):

$$RD = (3 - Dr0/150) + (3 - Dr1/75) + (3 - Dr2/40) + (3 - Dr3/20) + (3 - Dr4/12) + (3 - Dr5/8) + (3 - Dr6/5) + (3 - Dr7/3) + (3 - Dr8/2),$$

Where:

RD – road distance-based connectivity index;
Dr0 – distance from the settlement ranked 0;
Dr1 – distance from the settlement ranked 1;
Dr8 – distance from the settlement ranked 8.

The maximal value for each component of the formula is 3, at zero distance, meaning that the settlement belongs to a rank above or equal to the one considered. Therefore, the formula takes into account a highest possible value of 27 in the case of the capital city of Bucharest. All the other settlements nation-wide have smaller values of the connectivity index. Although most settlements have positive scores, values may be negative for each component and overall. Negative values are obtained for settlements located at more than 450 km of the capital (rank 0), more than 225 km from settlements ranked 1, more than 120 km from settlements ranked 2, more than 60 km from the settlements ranked 3, more than 36 km from the settlements ranked 4, more than 24 km from the settlements ranked 5, more than 15 km from the settlements ranked 6, more than 9 km from the settlements ranked 7, and more than 6 km from the settlements ranked 8 (commune centers).

As distances were calculated from every settlement using classified roads, one may face the issue that not all the settlements are actually located on roads, or at least the point representing the settlement is not on any road. Therefore, a range of 4 kilometers to the nearest road has been taken into consideration.

To calculate distances a network dataset was generated using ArcGIS Network Analyst Extension. This dataset included all the roads categorized by types and all the nodes (access points to the network). Based on these the shortest route from each locality to the nearest attraction point was calculated. The final step was to calculate the RD index. The RD value for each settlement was used as input point in interpolation process using ArcGIS Spatial Analyst resulting a raster dataset representing the spatial variability of RD.

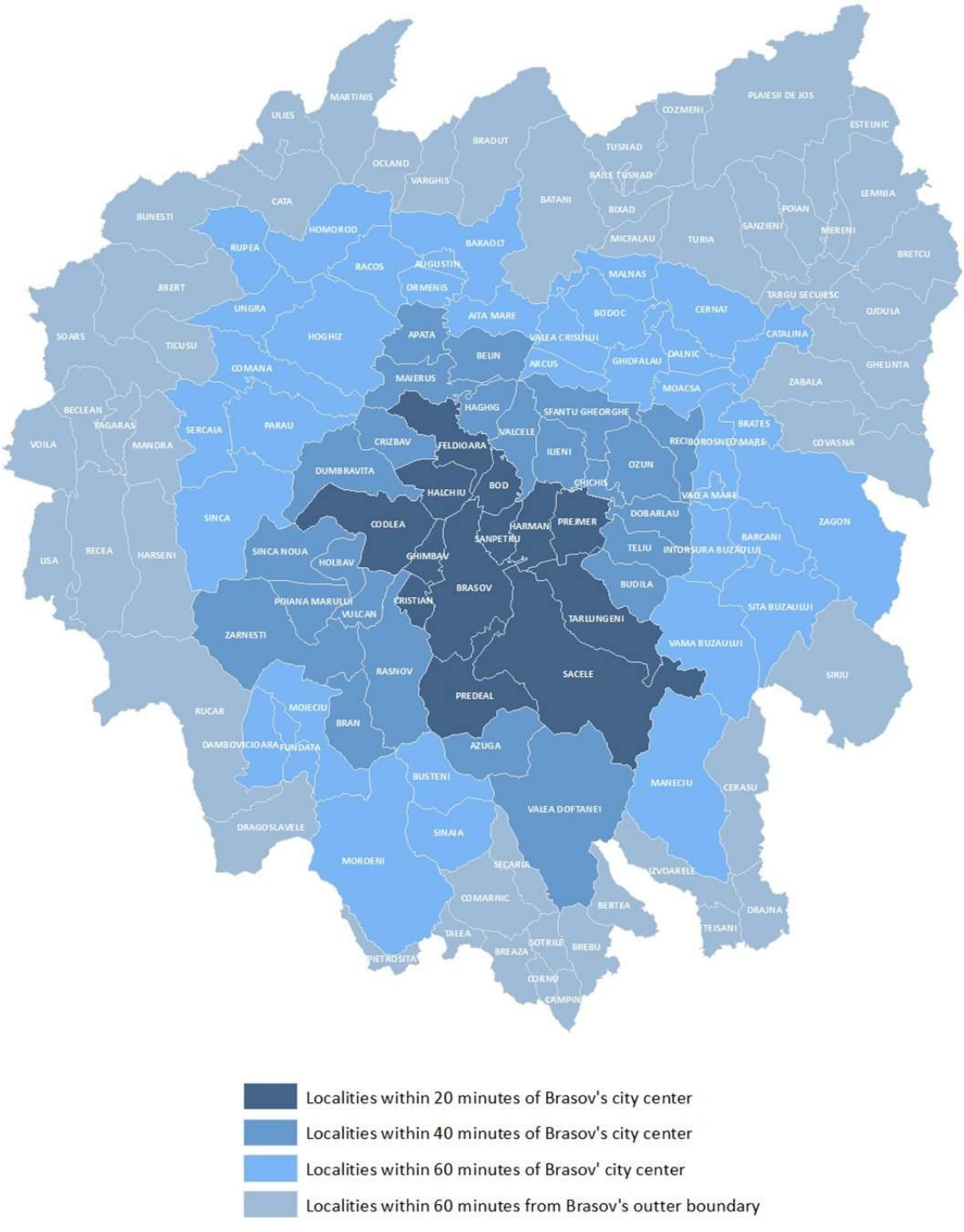
Table 2. Distances considered for a score of zero in every component of the formula

Rank	Distance (in km)
0	450
1	225
2	120
3	60
4	36
5	24
6	15
7	9
8	6

Obviously, the highest the rank, the better a settlement is classified, as 3 points are given for all the components equal or below the rank of the settlement. The overall values for each settlement have been interpolated to produce a map of the connectivity index for every region.

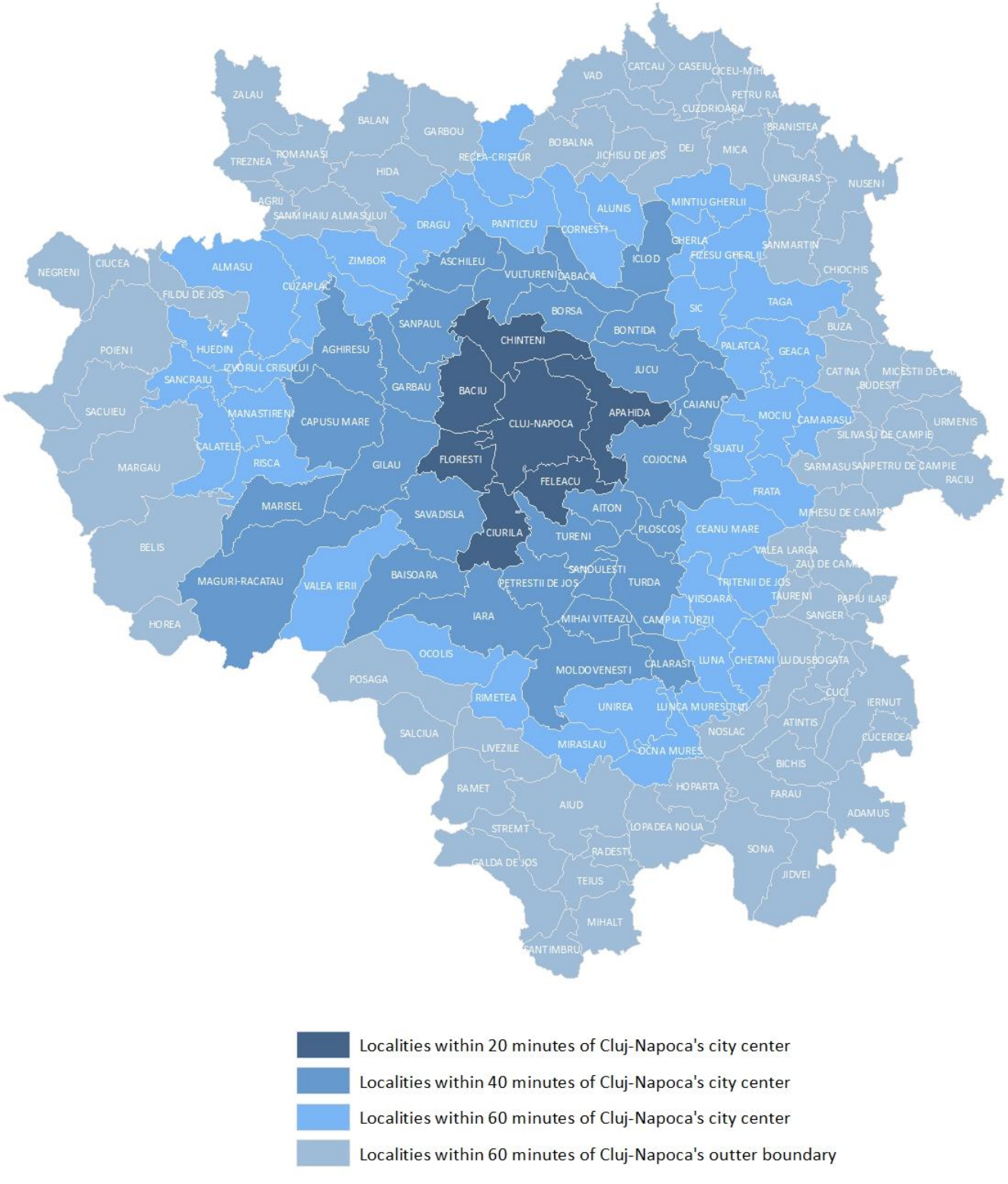
Annex 6 – Driving access areas by locality for each individual growth pole

Brașov

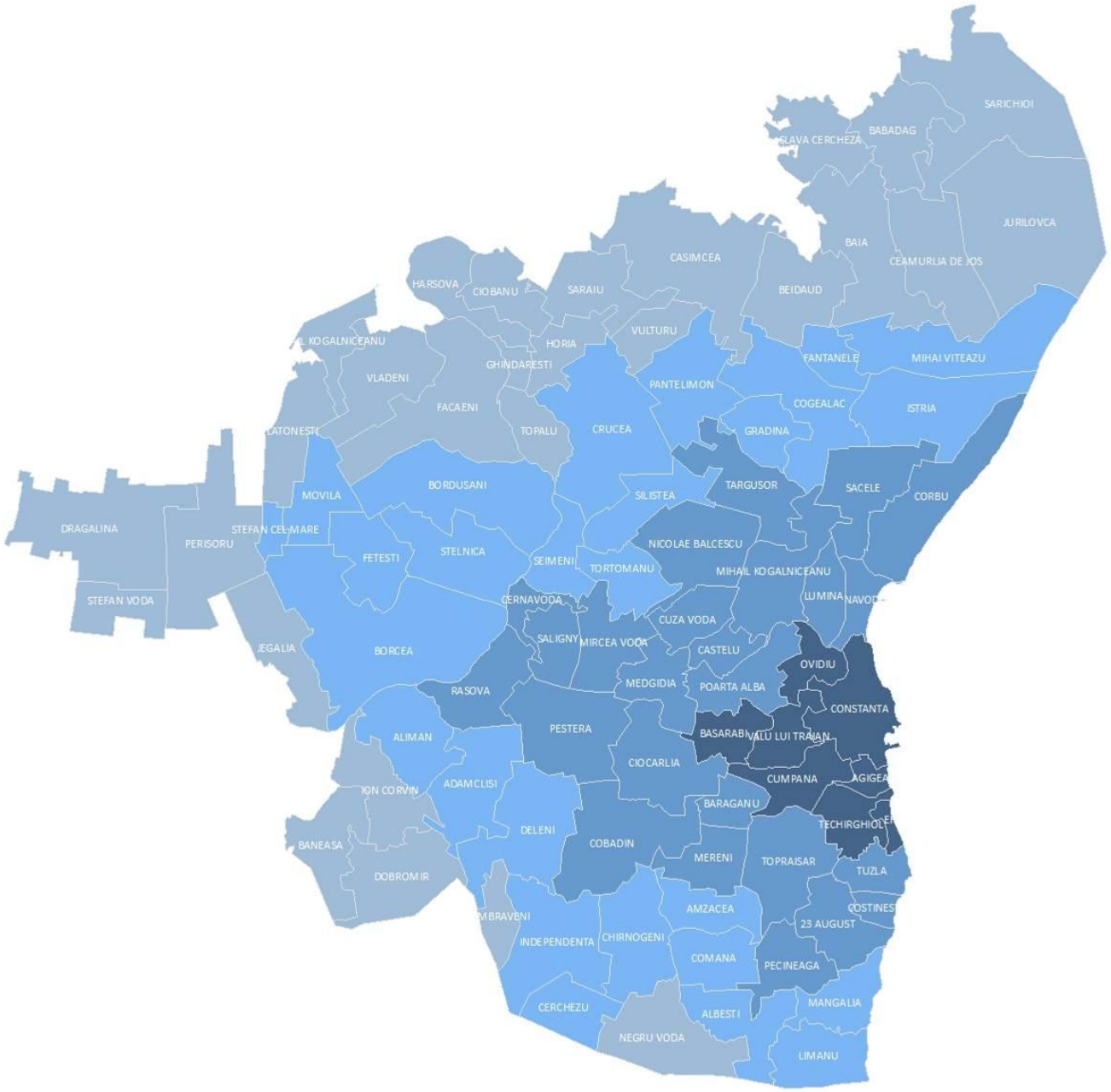


Localities within 20 minutes of Brasov's city center
Localities within 40 minutes of Brasov's city center
Localities within 60 minutes of Brasov' city center
Localities within 60 minutes from Brasov's outter boundary

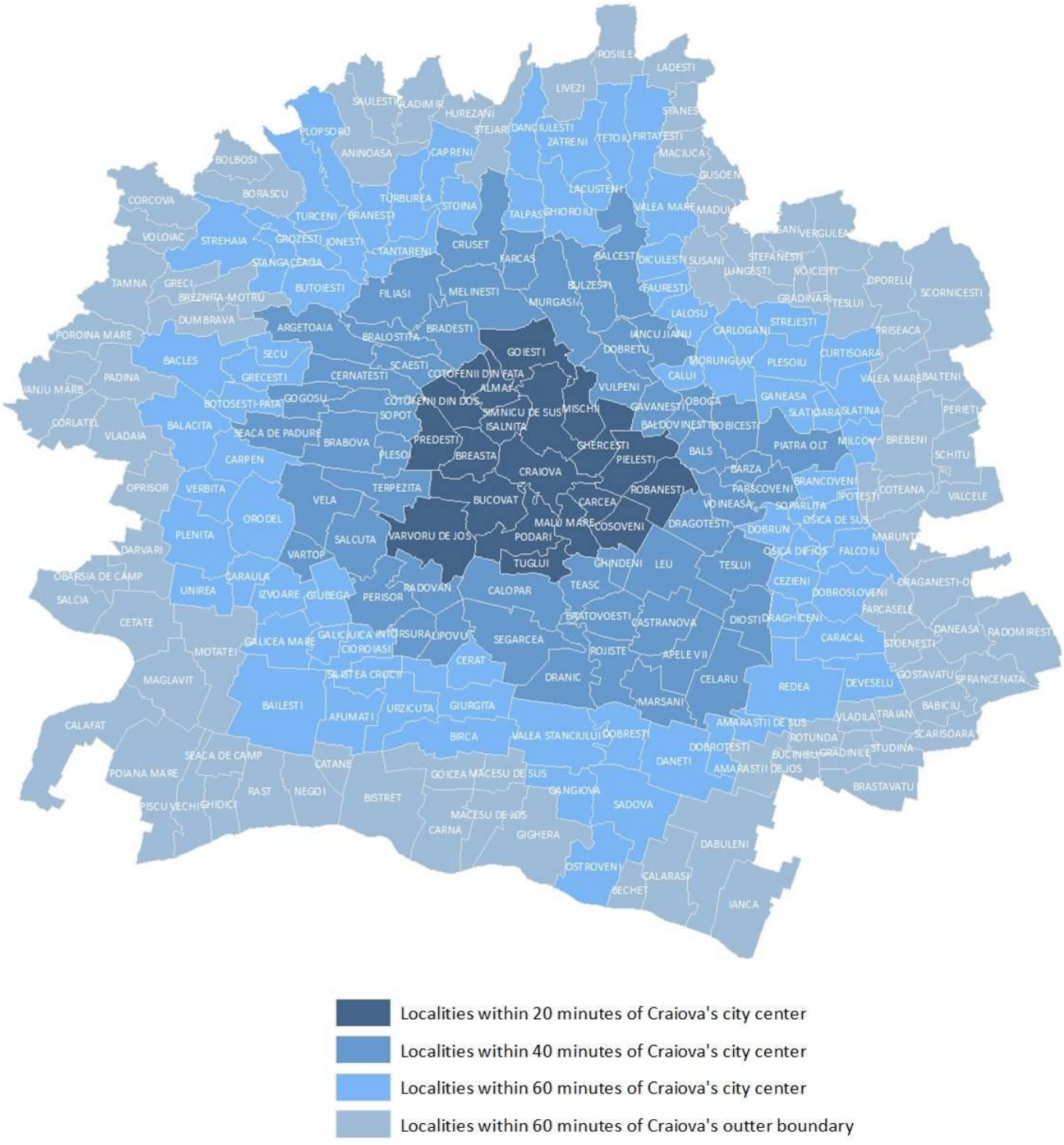
Cluj-Napoca


Localities within 20 minutes of Cluj-Napoca's city center
Localities within 40 minutes of Cluj-Napoca's city center
Localities within 60 minutes of Cluj-Napoca's city center
Localities within 60 minutes of Cluj-Napoca's outter boundary

Constanța


SARICHIOI
BABADAG
SLAVA CERCHEZA
JURILOVCA
BAIA
CASIMCEA
CEAMURLIA DE JOS
HARSOVA
CIOBANU
SARAIU
BEIDAUD
VULTURU
HORIA
GHINDARESTI
FANTANELE
MIHAI VITEAZU
VLADENI
PANTELIMON
COGEALAC
ISTRIA
FACAENI
TOPALU
CRUCEA
GRADINA
MOVILA
BORDUSANI
SILISTEA
TARGUSOR
SACELE
CORBU
DRAGALINA
STEFAN CEL MARE
PERISORU
NICOLAE BALCESCU
FETESTI
STELNICA
SEIMENI
TORTOMANU
MIHAIL KOGALNICEANU
STEFAN VODA
CERNAVODA
LUMINA
CUZA VODA
SALIGNY
MIRCEA VODA
CASTELU
OVIDIU
BORCEA
MEDGIDIA
POARTA ALBA
RASOVA
CONSTANTA
PESTERA
BASARABI
VALU LUI TRAIAN
ALIMAN
CIOCARLIA
CUMPANA
ION CORVIN
ADAMCLISI
BARAGANU
DELENI
TECHIRGHIOL
BANEASA
COBADIN
MERENI
TOPRAISAR
TUZLA
DOBROMIR
AMZACEA
23 AUGUST
INDEPENDENTA
CHIRNOGENI
COMANA
PECINEAGA
CERCHEZU
ALBESTI
MANGALIA
NEGRU VODA
LIMANU
Localities within 40 minutes of Constanta's city center
Localities within 40 minutes of Constanta's city center
Localities within 60 minutes of Constanta's city center
Localities within 60 minutes of Constanta's outter boundary

Craiova



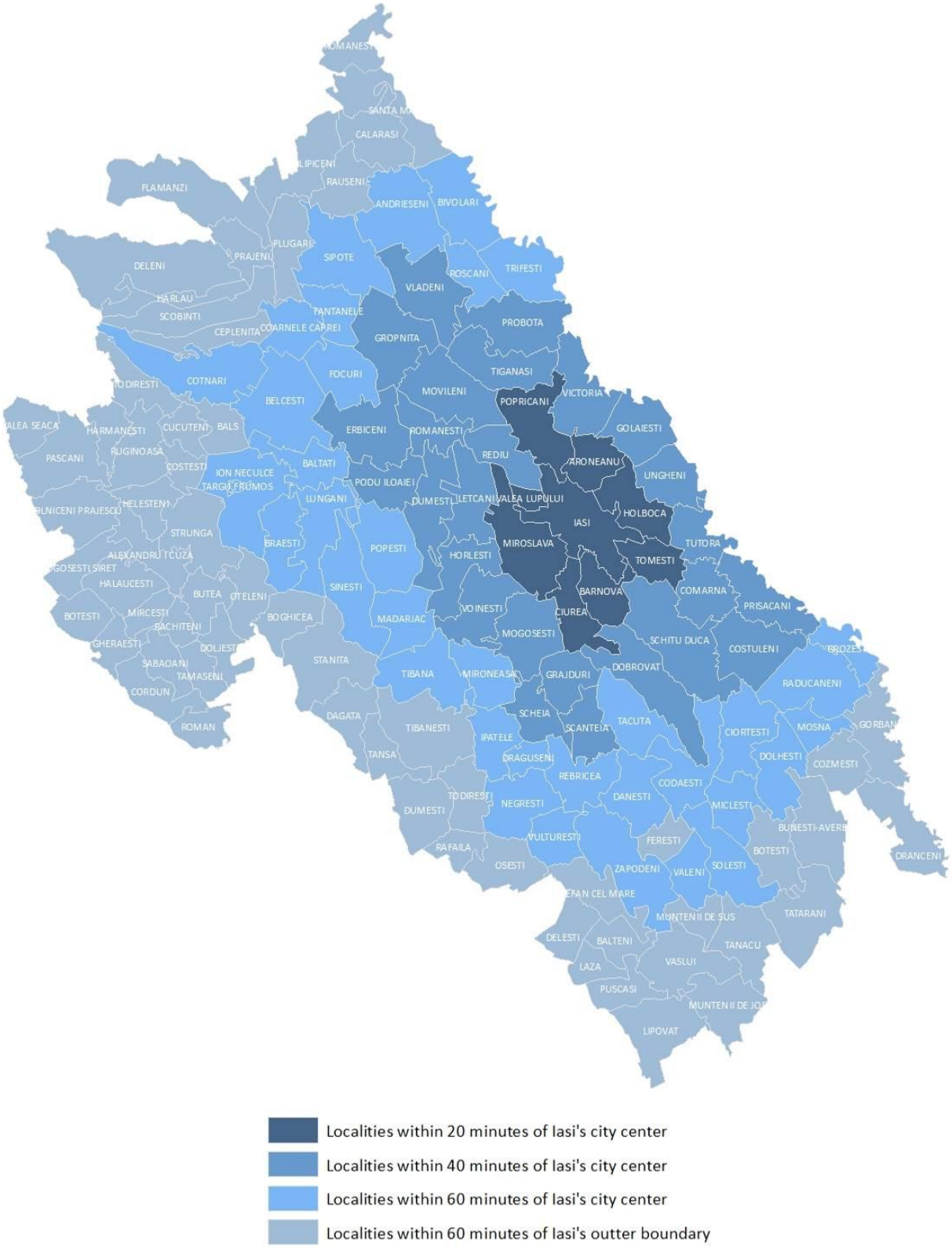
Localities within 20 minutes of Craiova's city center

Localities within 40 minutes of Craiova's city center

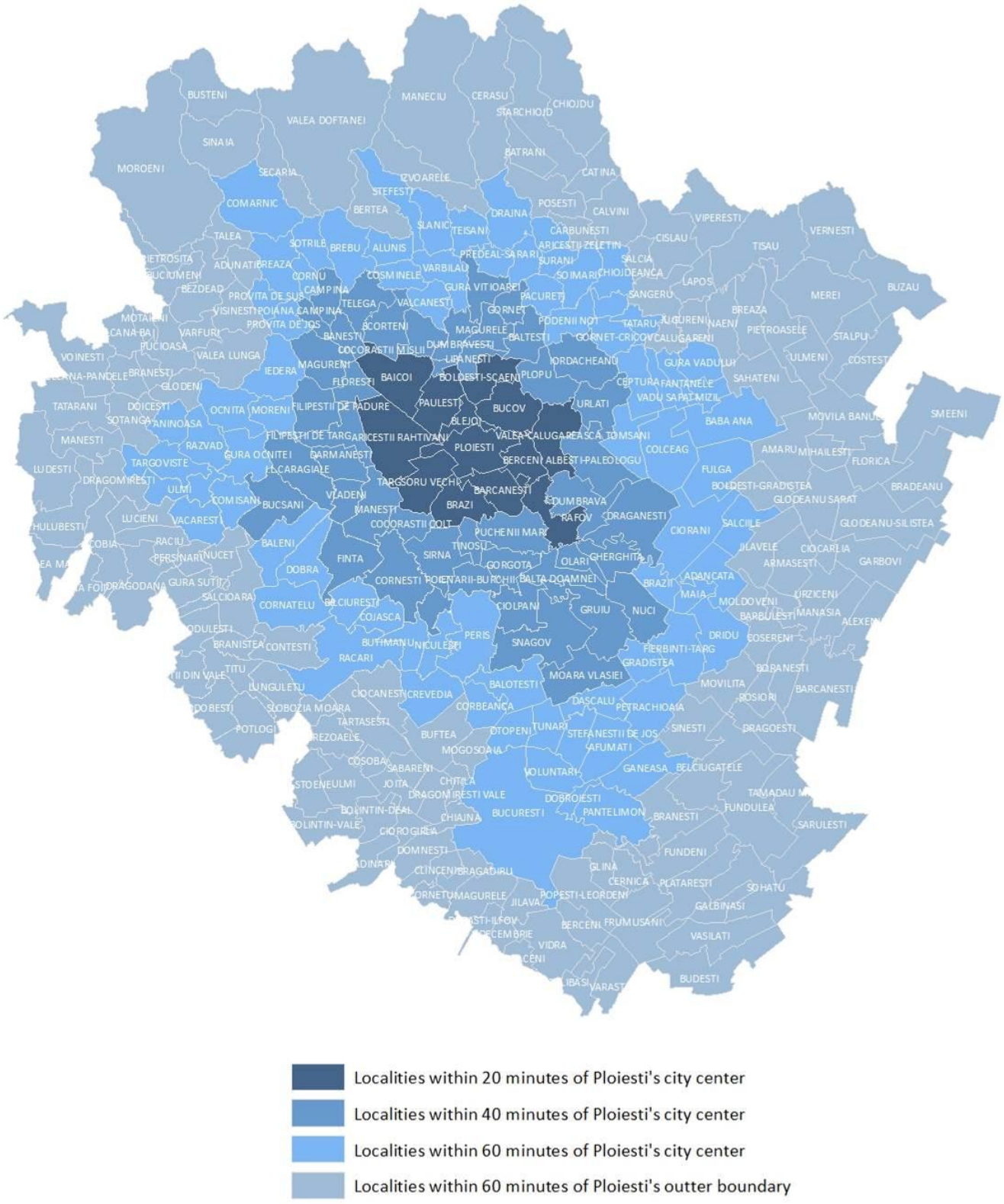
Localities within 60 minutes of Craiova's city center

Localities within 60 minutes of Craiova's outter boundary

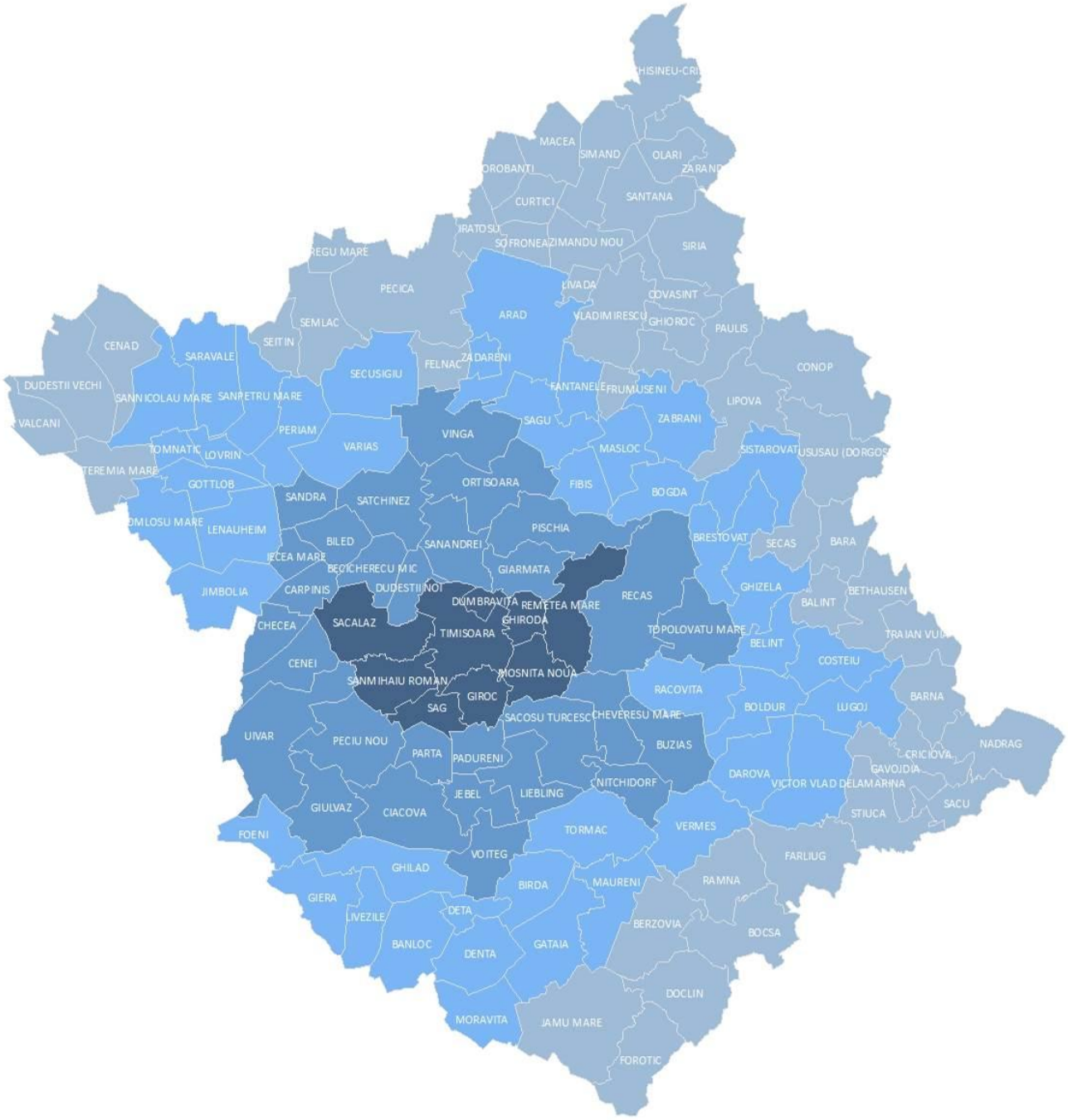
Iași


ROMANESTI
SANTA M
CALARASI
ILIPICENI
RAUSENI
FLAMANZI
ANDRIESENI
BIVOLARI
PLUGARI
PRAJENI
SIPOTE
DELENI
ROSCANI
TRIFESTI
VLADENI
HARLAU
SCOBINTI
PANTANELE
CEPLENITA
COARNELE CAPREI
GROPNITA
PROBOTA
TIGANASI
FOCURI
TODIRESTI
COTNARI
MOVILENI
VICTORIA
BELCESTI
POPRICANI
ALEA SEACA
HARMANESTI
CUCUTENI
BALS
ERBICENI
ROMANESTI
GOLAIESTI
PASCANI
RUGINOASA
REDIU
COSTESTI
ION NECULCE
BALTATI
ARONEANU
UNGHENI
TARGU FRUMOS
PODU ILOAIEI
HELESTENI
LUNGANI
DUMESTI
ILETCANI
VALEA LUPULUI
PLNICENI PRAJESCU
IASI
HOLBOCA
STRUNGA
BRAESTI
POPESTI
MIROSLAVA
TUTORA
ALEXANDRU I CUZA
HORLESTI
TOMESTI
SIRET
HALAUCESTI
SINESTI
BARNOVA
COMARNA
BUTEA
OTELENI
VOINESTI
PRISACANI
BOTESTI
MIRCESTI
BOGHICEA
MADARJAC
CIUREA
BACHITENI
MOGOSESTI
SCHITU DUCA
COSTULENI
GHERAESTI
DOLJESTI
STANITA
DOBROVAT
SABAOANI
TIBANA
MIRONEASA
GRAJDURI
TAMASENI
RADUCANENI
CORDUN
DAGATA
SCHEIA
TACUTA
ROMAN
TIBANESTI
SCANTEIA
CIORTESTI
MOSNA
IPATELE
DRAGUSENI
DOLHESTI
COZMESTI
TANSA
REBRICEA
CODAESTI
TODIRESTI
DANESTI
NEGRESTI
MICLESTI
DUMESTI
VULTURESTI
FERESTI
RAFAILA
BOTESTI
OSESTI
ZAPODENI
VALENI
SOLESTI
MUNTENII DE SUS
TATARANI
DELESTI
BALTENI
TANACU
VASLUI
LAZA
PUSCASI
MUNTENII DE JOS
LIPOVAT
Localities within 20 minutes of Iasi's city center
Localities within 40 minutes of Iasi's city center
Localities within 60 minutes of Iasi's city center
Localities within 60 minutes of Iasi's outter boundary

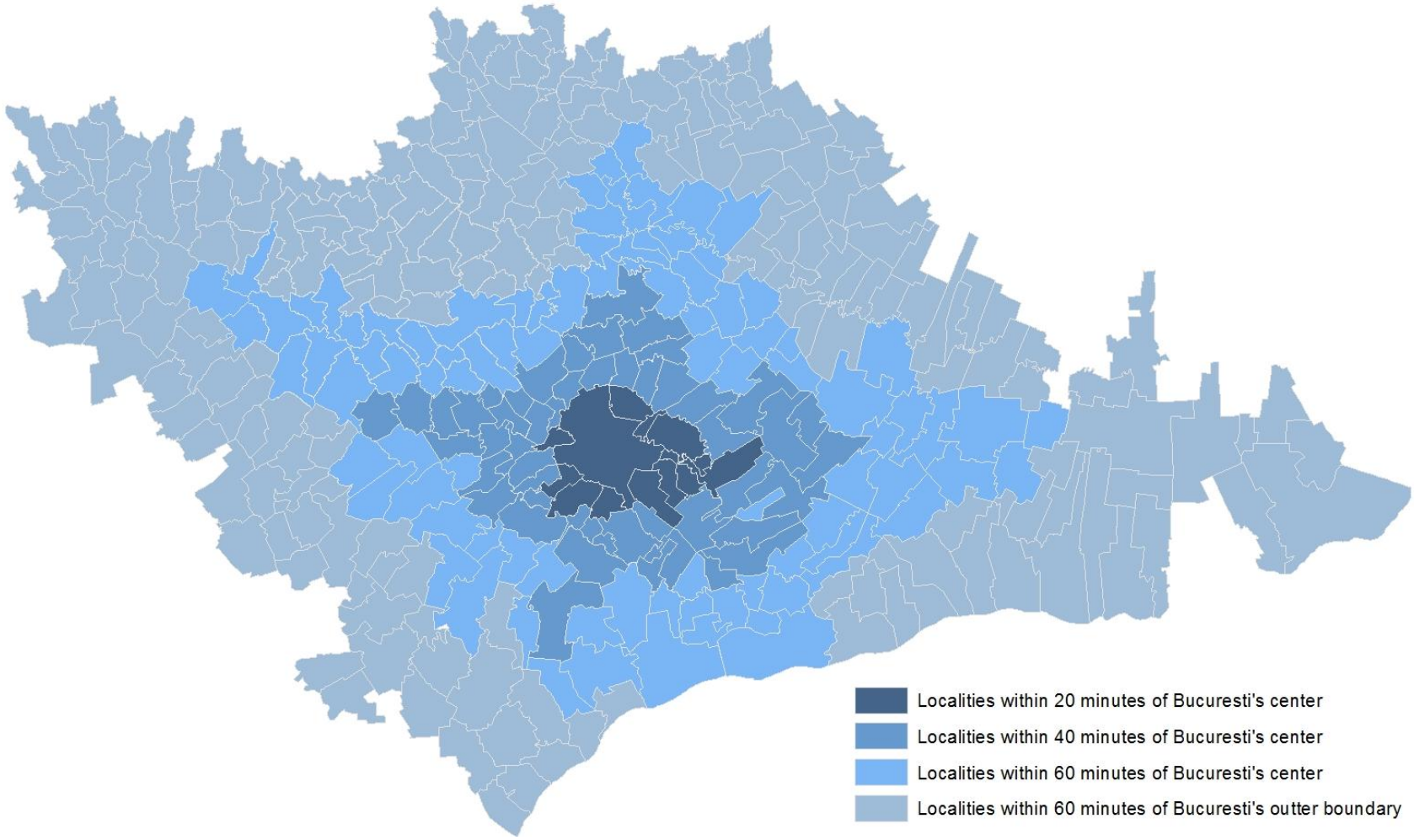
Ploiești


Localities within 20 minutes of Ploiesti's city center
Localities within 40 minutes of Ploiesti's city center
Localities within 60 minutes of Ploiesti's city center
Localities within 60 minutes of Ploiesti's outter boundary

Timișoara


HISINEU-CRIS
MACEA
SIMAND
OLARI
ZARAND
OROBANTI
CURTICI
SANTANA
IRATOSU
SOFRONEA
ZIMANDU NOU
SIRIA
REGU MARE
PECICA
LIVADA
COVASINT
ARAD
VLADIMIRESCU
GHIOROC
PAULIS
SEMLAC
SEITIN
CENAD
SARAVALE
ZADARENI
FELNAC
SECUSIGIU
CONOP
DUDESTII VECHI
SANNICOLAU MARE
SANPETRU MARE
FANTANELE
FRUMUSENI
LIPOVA
VALCANI
SAGU
ZABRANI
PERIAM
VINGA
VARIAS
MASLOC
SISTAROVAT
USUSAU (DORGOS
TOMNATIC
LOVRIN
TEREMIA MARE
ORTISOARA
FIBIS
BOGDA
GOTTLOB
SANDRA
SATCHINEZ
DOMLOSU MARE
LENAUHEIM
PISCHIA
BRESTOVAT
SECAS
BARA
BILED
SANANDREI
JECEA MARE
BECICHERECU MIC
GIARMATA
GHIZELA
JIMBOLIA
CARPINIS
DUDESTII NOI
RECAS
BETHAUSEN
DUMBRAVITA
REMETEA MARE
BALINT
CHECEA
SACALAZ
GHIRODA
TOPOLOVATU MARE
TRAIAN VUIA
TIMISOARA
BELINT
CENEI
COSTEIU
SANMIHAIU ROMAN
MOSNITA NOUA
RACOVITA
BARNA
GIROC
SAG
BOLDUR
LUGOJ
SACOSU TURCESC
CHEVERESU MARE
UIVAR
PECIU NOU
BUZIAS
NADRAG
PARTA
PADURENI
CRICIOVA
DAROVA
GAVOJDIA
VICTOR VLAD DELAMARINA
NITCHIDORF
JEBEL
LIEBLING
GIULVAZ
CIACOVA
STIUCA
SACU
FOENI
TORMAC
VERMES
VOITEG
FARLIUG
GHILAD
MAURENI
RAMNA
BIRDA
GIERA
LIVEZILE
DETA
BERZOVIA
BOCSA
BANLOC
DENTA
GATAIA
DOCLIN
MORAVITA
JAMU MARE
FOROTIC
Localities within 20 minutes of Timisoara's city center
Localities within 40 minutes of Timisoara's city center
Localities within 60 minutes of Timisoara's city center
Localities within 60 minutes of Timisoara's outter boundary

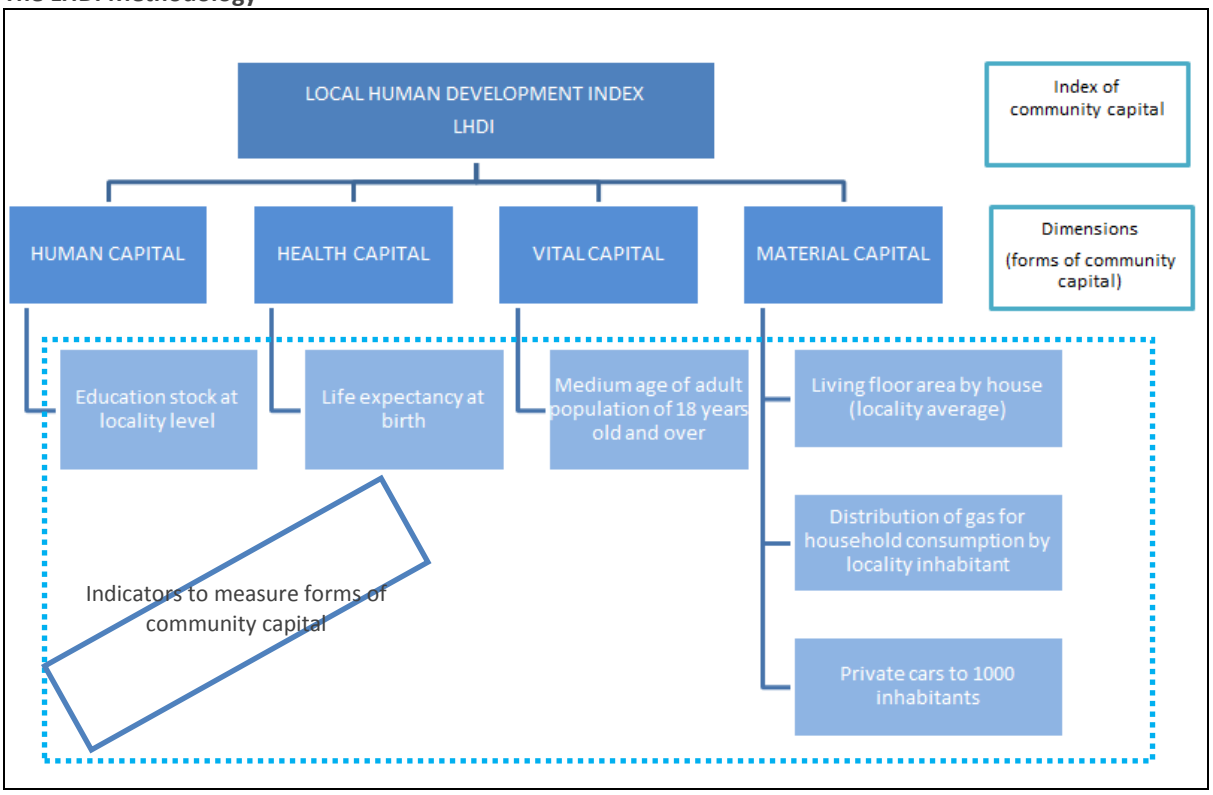
București


Localities within 20 minutes of Bucuresti's center
Localities within 40 minutes of Bucuresti's center
Localities within 60 minutes of Bucuresti's center
Localities within 60 minutes of Bucuresti's outter boundary

Annex 7 – The Local Human Development Index (LHDI) methodology

The index of local human development was developed by Romanian sociologist Dumitru Sandu and is meant to measure the total capital of localities, looking in particular at four dimensions: human capital, health capital, vital capital, and material capital. Single indicators are used to measure each of the first three stocks. Material capital is assessed as a factor score of three specific indicators that focus on living standards: dwelling space, private cars to 1000 inhabitants, and distribution of gas for household consumption in the referred territorial unit. The aggregation of the four measures of the dimensions of community capital is achieved by another factor score. One of the key advantages of LHDI is that it allows for comparison of very different localities, urban or rural, small or large.

The LHDI Methodology



The measure was proposed and tested tree years before[41] and worked in a slightly different form, with seven input indicators. The current form adopted three modification compared to the initial version of the index:

a) the indicators on material capital are integrated in an index before computing the final index;

[41] Sandu, D. (2011). Disparități sociale în dezvoltarea și în politica regională din România. *International Review of Social Research, I*(1), 1-30.

b) the indicator on the demographic size of locality was not included anymore into the computation for LHDI due to its very high variation (e.g. from over two million inhabitants for Bucureşti to only a few hundred for very small localities);

c) very small localities of less than one thousands inhabitants are not included into the data basis. All the localities (rural communes, especially) of less than one thousands are excluded from estimations.

The LHDI is similar to the Human Development Index (HDI) used by UNDP. Both of them include measures of education, economic performance and health. Only health is measured by life expectancy of birth in both indices. GDP that is specific for HDI is usually computed only for countries or large regional units.

The factor score aggregating the four LHDI indicators for the four forms of community capital is converted to take a variation from about zero to about 100 by the Hull score= 50+14* factor score.

The comparison between 2002 and 2011 data was assured by putting locality data for both years in the same data basis to generate different indices. LHDI values for counties or regions are generated as weighted averages of locality values, with population as a weighting factor.

HLDI is limited in the Romanian statistical system to measuring community capitals at census moments. This is due do the fact that data for measuring education stocks for each locality are available only at censuses.

All the primary data have been provided by National Institute of Statistics (NIS). NIS computed, also life expectancy at births for each locality (for periods of three successive years) average age of adult population.

The new index is a measure of local human capital if one expands the concept of human capital to include not only education but also health[42]. Adding the indicators of material capital and age structure makes the index a measure of community capital. Its validity was tested on large data sets and using the index as predictor and as dependent variable in different multivariate analyses[43].

Poverty as measured by LHDI is not to be confused with simple aggregations of individual or household poverty (headcount) indices. LHDI is a measure of the key stocks of community capital in its human, vital, health and material forms.

[42] Becker, G. S. 2009. *Human capital: A theoretical and empirical analysis, with special reference to education*: University of Chicago Press.

[43] See for example: Sandu, D. 2011. Disparități sociale în dezvoltarea și în politica regională din România. *International Review of Social Research, I*(1), 1-30; or Sandu, D. 2013. Disparități și fluxuri în fundamentarea social-economică a regionalizării administrative a României. Bucure;ti: Ministerul Dezvoltării Regionale și Administrației Publice.

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