



GUVERNUL ROMÂNIEI



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2007 - 2013

# COMPETITIVE CITIES

## Reshaping the Economic Geography of Romania

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ROMANIA  
REGIONAL DEVELOPMENT PROGRAM



THE  
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## Typology of scale economies

Type of economy of scale		Example
Internal	Technological	1. Pecuniary Being able to purchase intermediate inputs at volume discounts
		2. Static Technological Falling average costs because of fixed costs of operating a plant.
		3. Dynamic technological Learning to operate a plant more efficiently over time.
External or agglomeration	Localization	4. "Shopping" Shoppers are attracted to places where there are many sellers.
		5. "Adam Smith" specialization Outsourcing allows both the upstream input suppliers and downstream firms to profit from productivity gains because of specialization.
		6. "Marshall" labor pooling Workers with industry-specific skills are attracted to a location where there is greater concentration of people with similar skills.
	Urbanization	7. "Marshall-Arrow-Romer" learning by doing Reductions in costs that arise from repeated and continuous production activity over time and which spill over between firms in the same place.
		8. "Jane Jacobs" innovation The more different things are done locally, the more opportunity there is for observing and adapting ideas from others.
		9. "Marshall" labor pooling Workers in an industry bring innovations to firms in other industries; similar to no. 6 above, but the benefit arises from the diversity of industries in one location.
	Urbanization	10. "Adam Smith" division of labor Similar to no. 5 above, the main difference being that the division of labor is made possible by the existence of many different buying industries in the same place.
		11. "Romer" endogenous growth The larger the market, the higher the profit; the more attractive the location to firms, the more jobs there are; the more labor pools there are, the larger the market - and so on.
		12. "Pure" agglomeration Spreading fixed costs of infrastructure over more taxpayers; diseconomies arise from congestion and pollution.

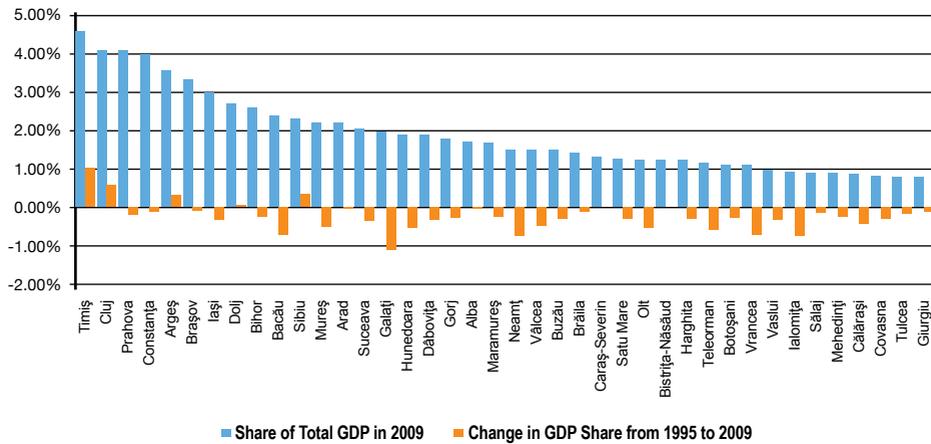
Source: Adapted in WDR '09 from Kilkeny, Maureen. 1998. "Economies of Scale", Lecture for Economics 376: Rural, Urban and Regional Economics. Iowa State University. Ames, IA.

Key lessons from economic theory teach that

**growth happens when people can reach their full potential through creative, productive pursuit.**

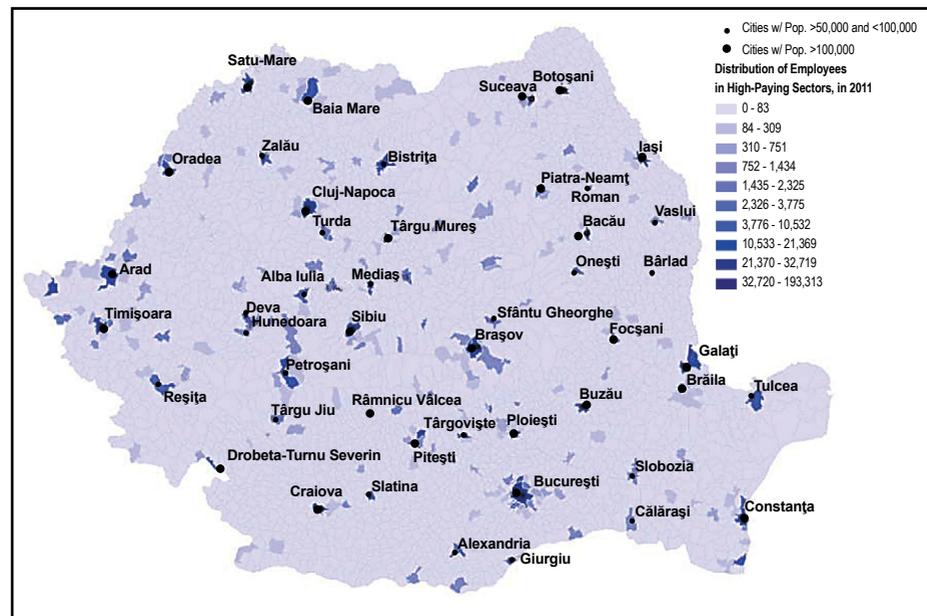
Under optimal conditions, cities concentrate **economic resources and human talent** in a virtuous cycle of increasing urbanization that **generates a diverse range of opportunities, enabling people to find better-paying jobs, companies to recruit employees with the right set of skills, and capital and ideas to flow across space more efficiently. The benefits of agglomeration** kick in rapidly, increasing the attraction of cities as **living and working spaces**. As more resources concentrate around certain centers, vibrant local economies emerge, and **growing, denser cities pull the country's economy forward with more strength and resilience than ever before.**

### Most counties have become less prominent in Romania's economy



Source: EuroStat

### Distribution of employees in high-paying sectors, by locality, 2011



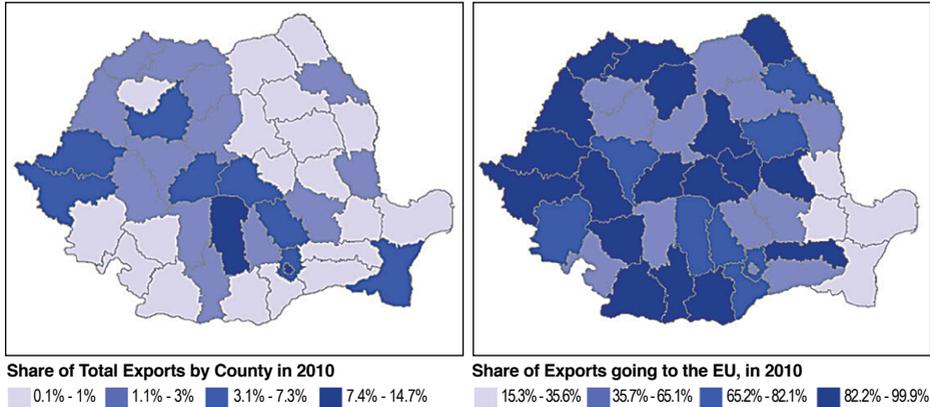
Data Source: National Institute of Statistics and ListăFirme

In the short term, **uneven development across regions** is both a **normal** and an **inevitable phenomenon.**

Regrettably, many policymakers tend to resist growing internal divergence, trying to artificially spread the benefits of growth evenly across space. In practice, however, such policies rarely have the intended effects, often **wasting resources and slowing down the economy.** Instead, policymakers should embrace uneven development and accept that rapid economic growth happens through “**leading areas**” that concentrate economic mass as a result of market dynamics.

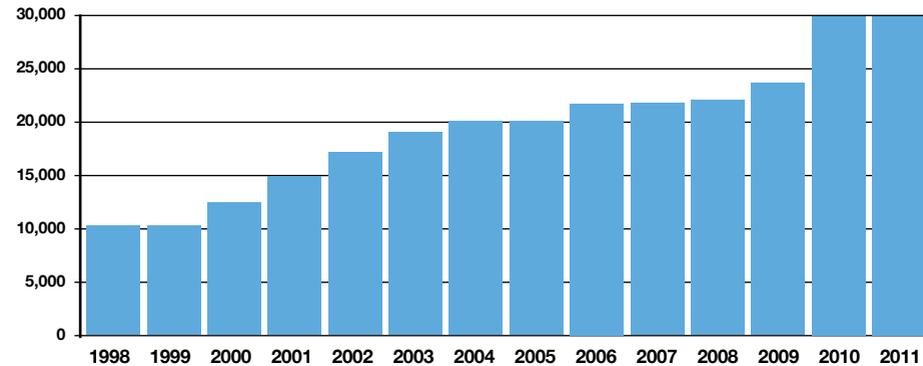
The basic solution for “**lagging areas**” is to **connect people living there to opportunities in growing cities** and offer them access to basic infrastructure for encouraging short-term working mobility and discouraging depopulation/peremptory migration in favor of **intra- and inter-county commuting.** In the long run, convergence in living standards will occur as **benefits from leading areas spill over** to surrounding communities and people who had left lagging areas bring back **capital, jobs, and ideas.** Rural and small town poverty does not have to constitute an entrenched situation. They can benefit from spillover effects from urban growth centers.

## Exports may benefit from connective infrastructure to the EU



Source: Romanian National Institute of Statistics

## Total number of Romanian students abroad, 1998-2011



Source: UNESCO Outbound Mobility Data, 1998-2011

## Cluj-Napoca International Airport is currently expanding.

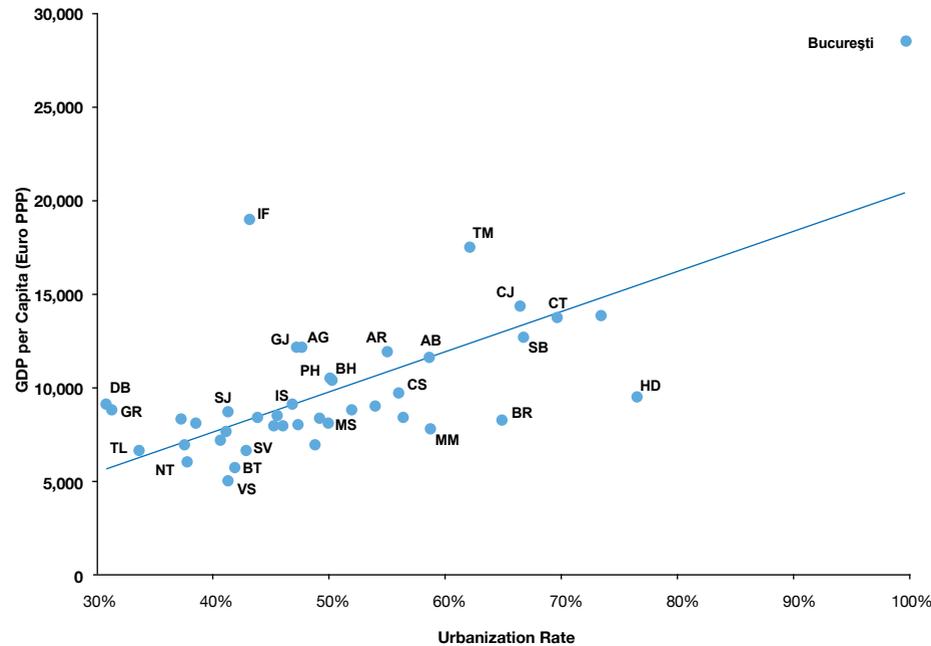


Similar principles apply at the international level, where

**facilitating cross-border flows enables people and goods access to larger markets.**

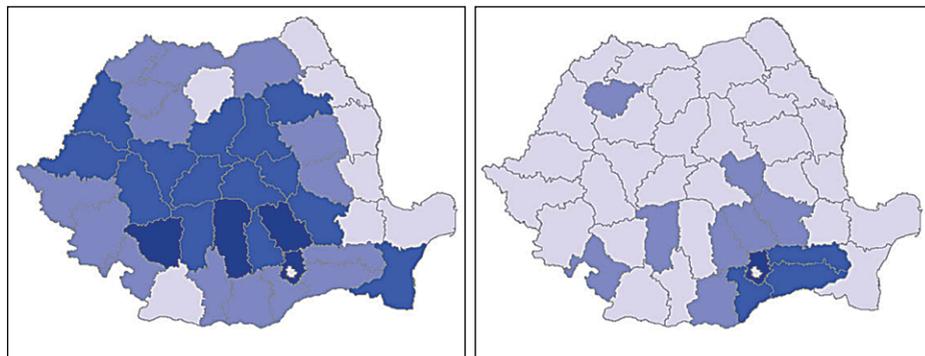
Despite some **conceptions about the negative consequences of migration and opening up economies, the benefits typically outweigh the costs**, as better connected countries have access to **cheaper imports, more competitive exports, and remittances from nationals working abroad**. As such policies should not deal only with the **negative consequences of migration (e.g. aging, labor market decline, brain drain)**, but also find ways to **encourage positive externalities of migration (capital inflow, brain regain, and improved connections to global markets)**.

The link between urbanization and level of development across Romanian counties



Sources: National Institute of Statistics and Eurostat

Commuting patterns in Romania, by county, in 2002



Intra-county commuting, in 2002  
 0.7% - 8.5% 8.6% - 13.3% 13.4% - 21% 21.1% - 32.7%  
 Inter-county commuting, in 2002  
 0.6% - 2.6% 2.7% - 5.6% 5.7% - 10.1% 31.5%

Data Source: National Institute of Statistics

The dynamics described above relate to the

**three**

**key dimensions of economic development:**

**density**

as concentration of economic resources;

**distance**

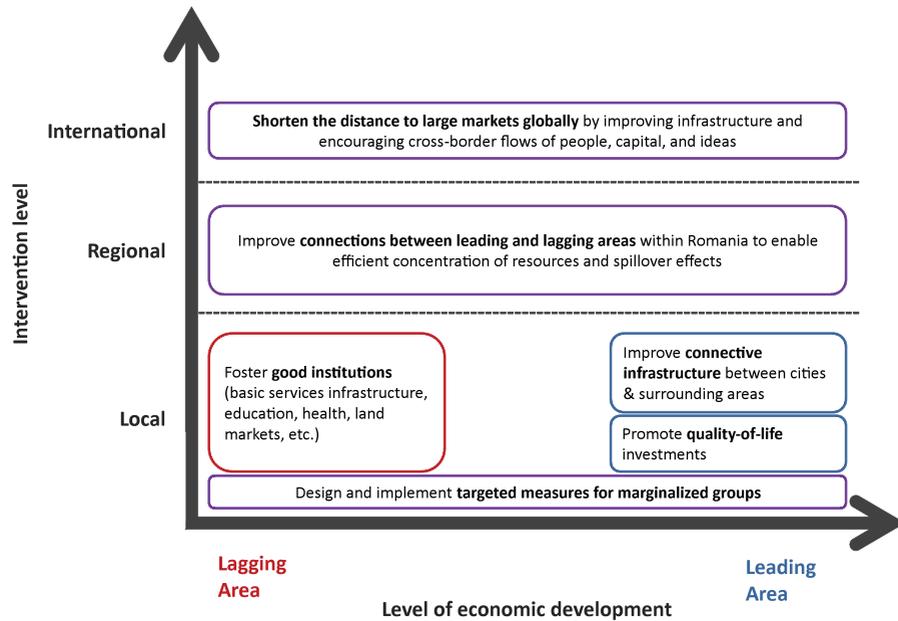
as connectivity of areas within the country to centers of economic growth;  
 and

**division**

as the ease of cross-border exchanges with international markets.

In practice, these elements manifest themselves through market forces that actively shape urbanization trends and patterns, namely: **scale economies and agglomeration; factor mobility and migration; and transport costs and specialization.**

Key investment priorities in Romania differ across leading and lagging areas



Quality of life investments in Romanian cities: 1. Palace of Culture, Iași; 2. Old Town, Timișoara; 3. Council Square, Brașov; 4. Museum Square, Cluj-Napoca.



1



2



4



3

In this vein, **four critical priorities are key for Romania** in the short and medium-term:

- 1 good **connective infrastructure**, internally and with European/global economic centers;
- 2 **stronger institutions** in lagging areas (e.g., education, healthcare, land markets, water and sewage system, etc.);
- 3 measures targeted at **marginalized communities** throughout the country
- 4 **quality of life investments** in the most dynamic and competitive cities.

These priorities are summarized in the graph on the opposite page based on geographic reach and the development level of different areas in Romania.



# recommendations

A summary of the key recommendations is provided below, with the important caveat that the priorities mentioned are not meant as a prescriptive list of recommended investments, but as examples of a potential path to achieve Romania's sustainable and inclusive development.

# INTERNATIONAL LEVEL

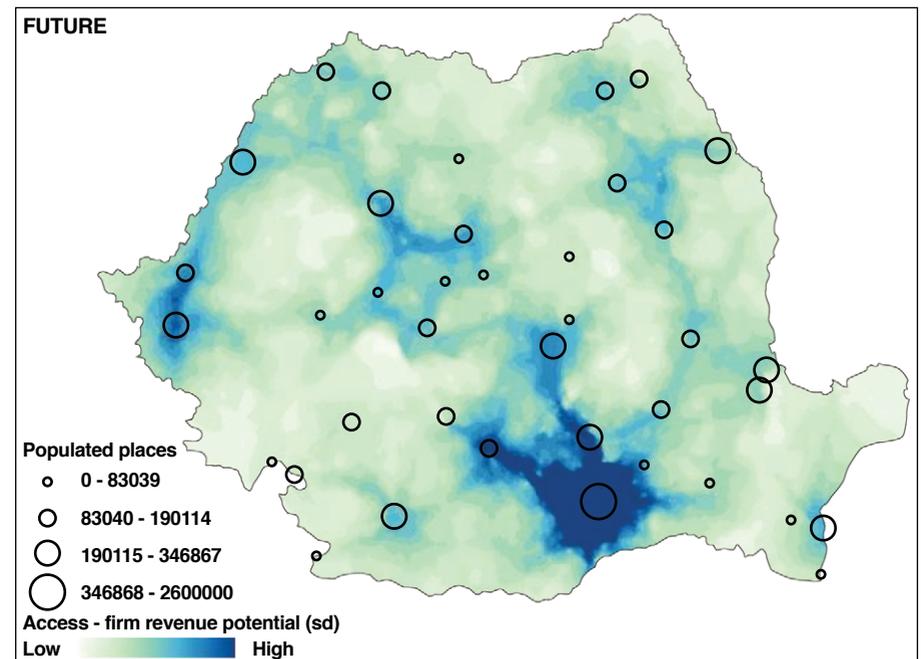
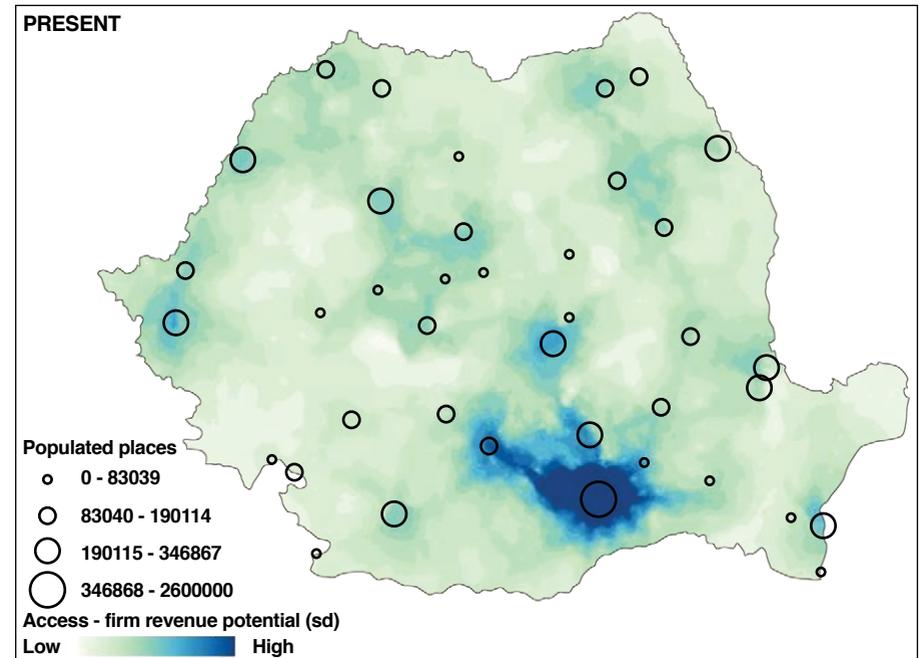
– shorten the distance to large markets globally by improving infrastructure and encouraging cross-border flows of people, capital, and ideas.

Given that **70% of Romania's exports go to Western Europe**, it is critical to improve links to the West. An increasing share of Romania's trade is dependent on road infrastructure, yet the country still has **one of the least developed road networks in Europe**. Most importantly,

**in 2013, a highway connection to the Western border was yet to be established.**

The gravity models on the opposite page were developed to assess which infrastructure links are most needed, looking at synergies between different cities, taking the existent infrastructure into consideration (top map) and the road network proposed from the National Spatial Plan (bottom map). A **Priority 0** can be inferred from these figures.

Economic gravitational model, with existent infrastructure (top) and with proposed highway and expressway network (bottom)



Priority

0

## Completion of the A1 Highway (Corridor IV) and the A3 Highway

(the Transylvania Highway and the Comarnic-Braşov Highway)

As the map on the right shows, there are two West corridors that seem to be for a highest-ranking priority – the A1 and A3 highways.

Of the two, the

### A3 Highway

would make more sense from an

**economic efficiency**

point of view, as it connects some of Romania’s most dynamic urban centers – Bucureşti, Ploieşti, Braşov, Târgu Mureş, Cluj-Napoca, and Oradea (i.e., 3 of the 7 growth poles and 2 of the 13 urban development poles in Romania) – with each other and to the West.

From a

**financial efficiency**

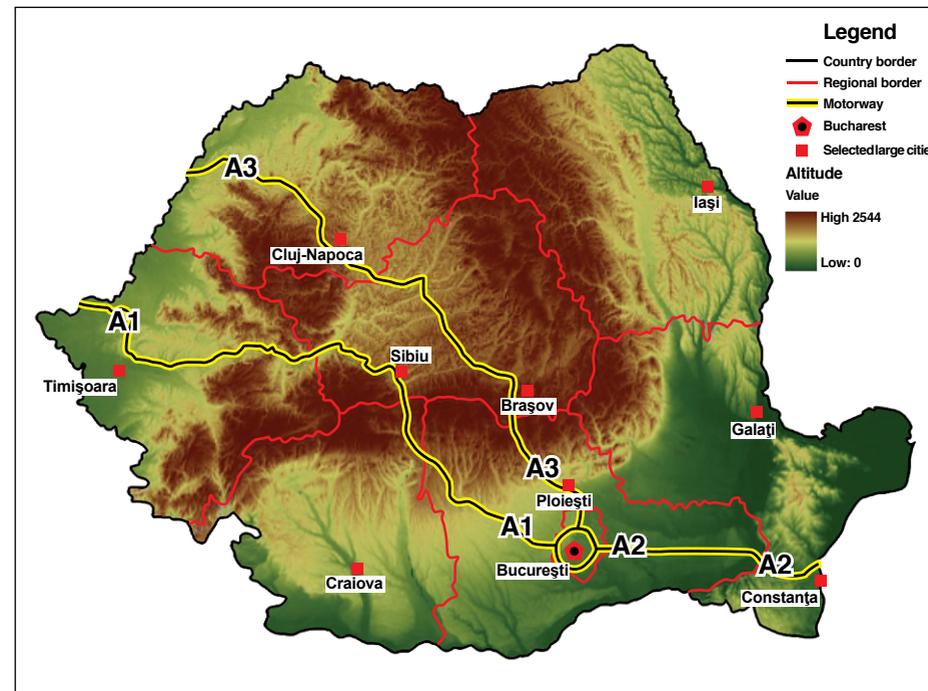
point of view, however, it is the

### A1 Highway

that makes the most sense, as it is part of the TEN-T network and is eligible for EU funding.

The map below indicates the course the A1 and A3 highways will follow and the topography they will cross once finished. It is important to note that A1 connects Piteşti to Sibiu through the Carpathian Mountains. However, the gravity model above indicates that a Braşov-Sibiu highway connection would be also needed to leverage the strong synergies between the two cities.

The A1 and A3 Highways



With respect to increasing exchanges with non-EU countries, Romania should aim to become a trade hub for the EU and beyond, overcoming current limitations deriving from its peripheral position within the European common market. The solution for encouraging growth in all directions (i.e., not just westward) is to **reduce divisions between Romania and neighboring countries like Moldova, Serbia, and the Ukraine, and further toward Turkey, Russia, and Central Asia.**

# REGIONAL LEVEL

– Improve connections between leading and lagging areas within Romania to enable efficient concentration of resources and spillover effects.

A second priority should be the

## development of connective infrastructure to the most dynamic areas in Romania

– i.e., the growth poles. On the one hand, improved accessibility to the growth poles will enable firms that invest there to leverage a **larger, stronger labor market**. On the other hand, better connections to these cities will **offer a larger pool of people better access to the opportunities** that these dynamic centers offer (e.g., jobs, education, healthcare, culture, entertainment, airports, etc.).

This connective infrastructure should be prioritized based on the actual economic density of the respective regions. The table

below gives an indication of the economic prowess of the largest functional urban areas in Romania (i.e., București and the 7 growth poles, and the areas around those cities that can be accessed within a 20-minute, 40-minute, and 60-minute drive). It is clear that **the functional urban area of București is the most important in Romania, with around 40%-50% of firm revenues reported there**. As such, a key priority going forward would be to **further improve connections to București**, in addition to the A1, A2, and A3 highways that radiate westward, northward, and eastward from the capital.

Local and regional indicators for major cities in Romania

		Driving time buffer from city center			60 min. from city border
		20 min.	40 min.	60 min.	
Timișoara	Population	350,000	452,000	757,000	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%
Iași	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%
Constanța	Population	312,000	492,000	620,000	716,000
	% of National Firm Revenues	2.51%	4.12%	4.54%	4.67%
Brașov	Population	328,000	485,000	615,000	868,000
	% of National Firm Revenues	2.65%	2.83%	2.98%	3.54%
Ploiești	Population	305,000	556,000	2,724,000*	3,554,000*
	% of National Firm Revenues	2.89%	3.44%	43.17%*	47.24%*
București	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 ListăFirme

\*Includes figures for București and its surroundings

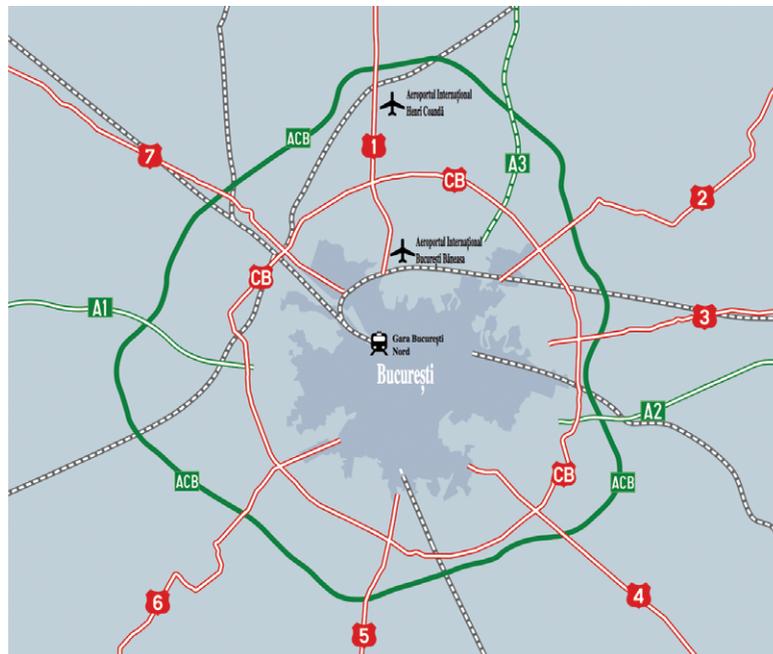
Priority

1

## Complete the București Ring Road

The second most developed area after București is **Ilfov County, which surrounds the capital**. To enable better connections between the communities in Ilfov and those in București, and to facilitate a full traffic bypass around the capital, it is critical to complete București's Ring Road. The ring road would allow **better access to the capital to the additional 2 million people that live within a one hour drive**.

### București Ring Road



Source: Creative Commons

Priority

2

## Extend București's Public Transport System to the wider metropolitan area

Because the cost of living and land prices have grown continuously in București, many people and companies have moved to the outskirts of the capital city, in Ilfov County. Ilfov is in fact one of the fastest growing areas (both in demographic and in economic terms) in Romania, and having better links in and with this area is critical. This could entail, for example, an **extension of the metro network (which has recently become eligible for EU funding)** and an **extension of the bus, tramway, and trolleybus networks from București to the metropolitan area**. The same argument could hold for other major cities, depending on their density profiles, flows of people/firms, etc. In addition, investments in **bicycle and pedestrian paths** would ensure the development of sustainable transport options in wider metropolitan areas.

In addition to better connections to the areas immediately surrounding București, it is critical to also **improve connections between the functional area of the capital and some of the lagging areas in Romania**. Such connections would enable people in those lagging areas an easier access to the key opportunities that București offers (jobs, education, healthcare, transport hubs, culture, entertainment, etc.). Obviously, connective infrastructure investments should be **prioritized based on the number of people who would get connected**.

The demographic gravitational maps below indicate the areas where the proposed highway and expressway network in the National Spatial Plan would enable the most significant synergies. It becomes immediately obvious that one of the areas that would benefit most from improved road networks is the **North-East Region**.

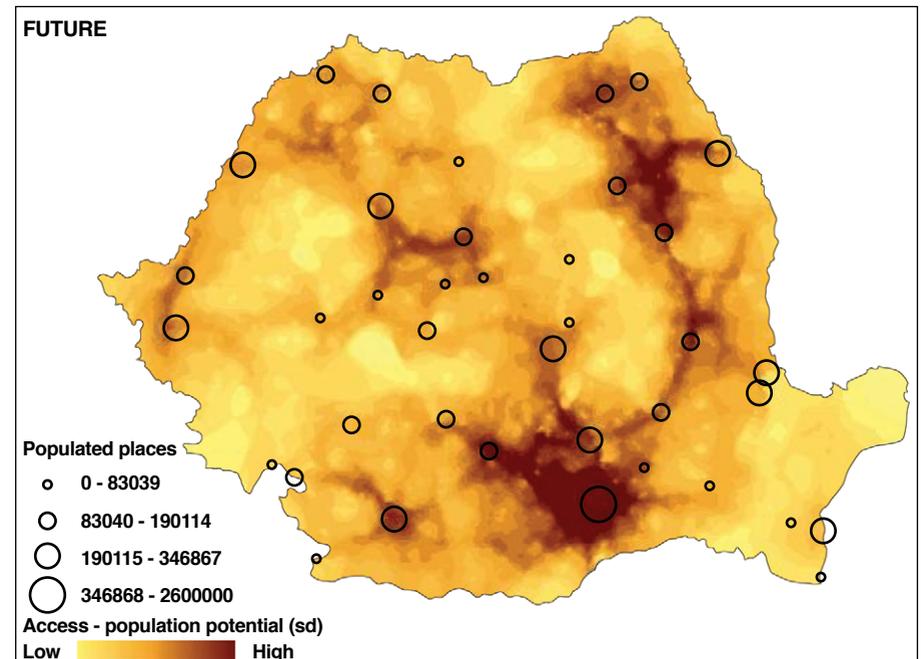
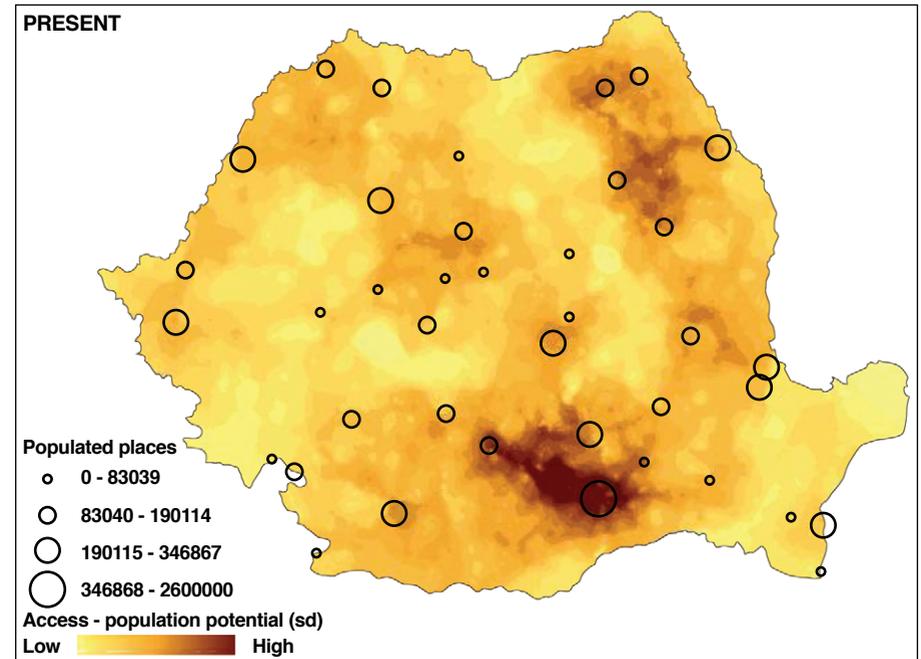
Priority

3

## Consider building the Moldova Highway

The North-East Region is one of the least developed regions in Romania, and also one of the regions with the highest population densities in the country. Developing a highway, or maybe an expressway in a first phase, **between București and Suceava-Botoșani**, would not only enable people in the North-East Region better access to the opportunities in the capital, but also function as a vehicle for the urbanization of the region. Although **the North-East Region is one of the most densely populated in Romania**, it is **also one of the poorest and least urbanized**. A potential Moldova Highway could enable key cities in the area (e.g., **Iași, Bacău, Vaslui, Piatra Neamț, Suceava, Botoșani, Roman**) to gain demographic mass through improved connections to the rural hinterland.

Demographic gravitational model, with existent infrastructure (top) and with proposed highway and expressway network (bottom)



Priority

4

**Consider building the Craiova-Pitești Highway**

Two other regions that are more **poorly developed** compared to the rest are the **South and South-West**. The București-Constanța Highway, which was recently completed, provides a transport backbone for a number of key areas in the South Region.

The **București-Pitești Highway** provides another important link in the region, and it could be continued with a **connection to Craiova**. As the table above has shown, there are around **1 million people living within a one-hour drive of Craiova**, and they stand to benefit greatly from **improved connections to the capital**.

Priority

5

**Improve connective infrastructure to Cluj-Napoca and Timișoara**

Outside București, there are two cities that have set themselves apart in terms of their positive growth trajectories– Cluj-Napoca and Timișoara. The former is the only large city in Romania that has registered a growing population (albeit slightly) and it has the largest economic mass within a 20-minute access area. Timișoara forms, together with Arad, the second-largest economic zone in Romania (after București).

Priority

5.1

**Build a highway connection between Cluj-Napoca and Sebeș**

Cluj-Napoca has strong connections to Târgu Mureș in the east and to **Alba Iulia and Sebeș in the south**. The completion of the Transylvania Highway (covered under Priority 0) would significantly improve access times between Cluj-Napoca and Târgu Mureș. The Cluj-Napoca – Sebeș Highway would improve connections to a number of dynamic economic areas in **Alba County** and would also provide a **link between the proposed A1 and A3 motorways**.

Priority

5.2

**Develop a high-speed rail between Timișoara and Arad**

Timișoara and Arad form the largest economic zone outside București-Ilf. The two cities are **already connected by a highway** and it would make sense to **improve public transport connections** – e.g., through a **high-speed rail**.

## LOCAL LEVEL

- Foster good institutions in lagging areas (basic services infrastructure, education, health, land markets, etc.);
- Improve connective infrastructure between cities and their surrounding areas to expand their economic mass;
- Design and implement targeted measures for marginalized and minority groups to support their participation as active parts of the economy;
- Promote quality-of-life investments in leading areas to help attract and retain people.

Large scale, large impact investments need to be doubled by local projects that aim to **enable people's access to basic living standards and opportunities in their area**. Particularly in lagging areas, it is critical to provide good institutions that

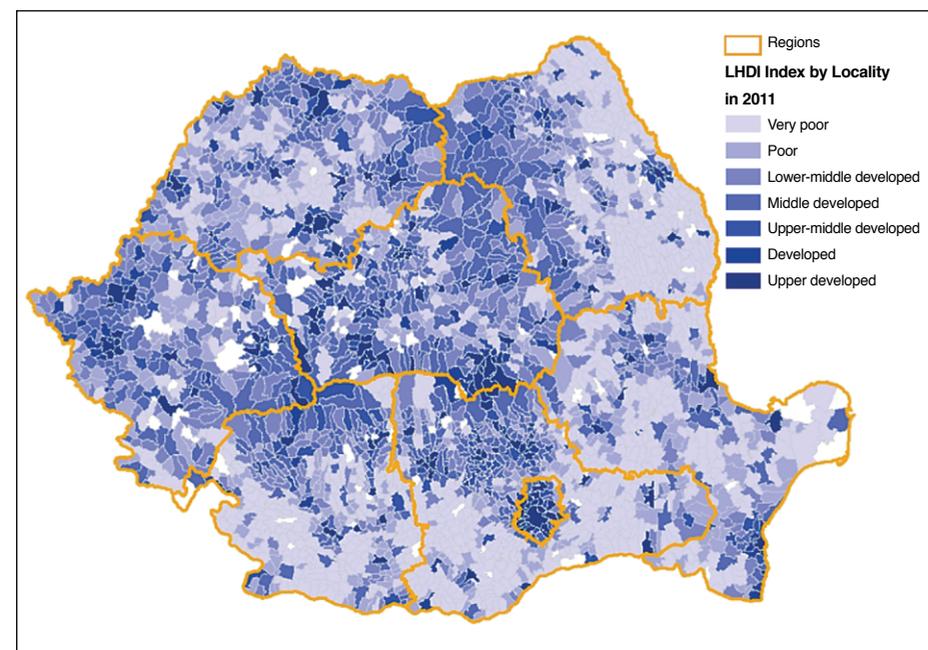
**provide the same start in life to all people in the country.**

While economic activity may not be spread evenly across space

(it is usually concentrated in a number of dynamic urban centers), it is critical that everybody has access to basic services such as **good quality education, good basic healthcare, functioning land markets, water and sewage, etc., regardless of location.**

The map below provides an indication of the location of the more developed and less developed areas in Romania. **The East and the South tend to be less developed, with a higher incidence of poor and very poor localities.** As public services data indicates, these areas tend to also have a lower share of people with access to water, sewage, electricity, or central heating. They also tend to have an educational and health infrastructure that is in need of maintenance and upgrade – usually because localities in lagging areas have fewer resources at their disposal for investments in the maintenance and upkeep of the infrastructure they manage.

**The 2011 Local Human Development Index at the locality level reveals poorer areas in the South and East, and wealthier areas around major cities**



Data source: Dumitru Sandu

Note: The blank spots indicate localities for which no data was available

Priority

6

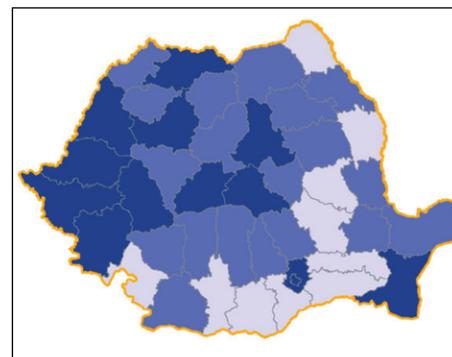
**Achieve basic life standards in lagging areas**

Ensuring that all people have access to quality public services is a critical way of creating the **premises for a more productive workforce**. If people do not have to spend additional time getting clean water, accessing healthcare, or getting to school, they have more time to dedicate to realizing their full productive potential. It is therefore critical to invest in educational and healthcare infrastructure, as well as in basic public services such as water, sewage, and sanitation.

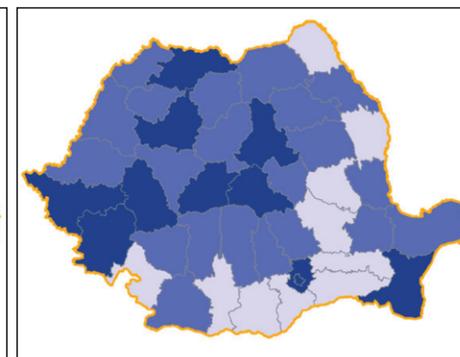
As the map above indicates, the regions where such investments are most needed are the North-East, the South-East, the South, and the South-West. There are, however, pockets of poverty in the other regions as well.

**Investments in achieving basic life standards should also take operation and maintenance (O&M) costs into consideration, and should be prioritized accordingly.** For example, if water and sewage networks cannot cover their costs through the tariffs they charge, they risk quick deterioration. In this respect, it is important to **take the polarizing force of cities into consideration**. For example, the extension of water and sewage networks should be prioritized around larger urban areas, as operating costs in peri-urban localities can be subsidized by the center city's budget.

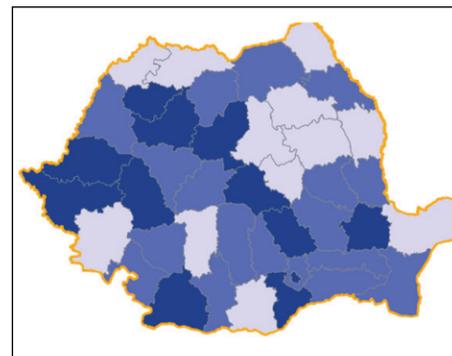
**Endowment with public service infrastructure**



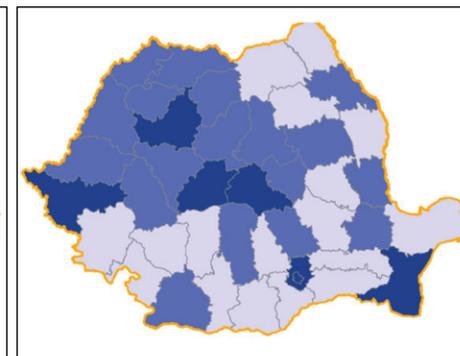
Share of housing units with water connection  
 36.8% - 50.8% 50.9% - 70.7% 70.8% - 96.8%



Share of housing units with sewage connection  
 30.5% - 47.7% 47.8% - 70.5% 70.6% - 96.6%



Share of housing units with electricity connection  
 93.7% - 95.6% 95.7% - 97.1% 97.2% - 99.7%



Share of housing units with central heating  
 16.3% - 32.4% 32.5% - 49.3% 49.4% - 96.1.3%

Data Source: National Institute of Statistics

Priority

7

## Improve the definition and administration of functional urban areas

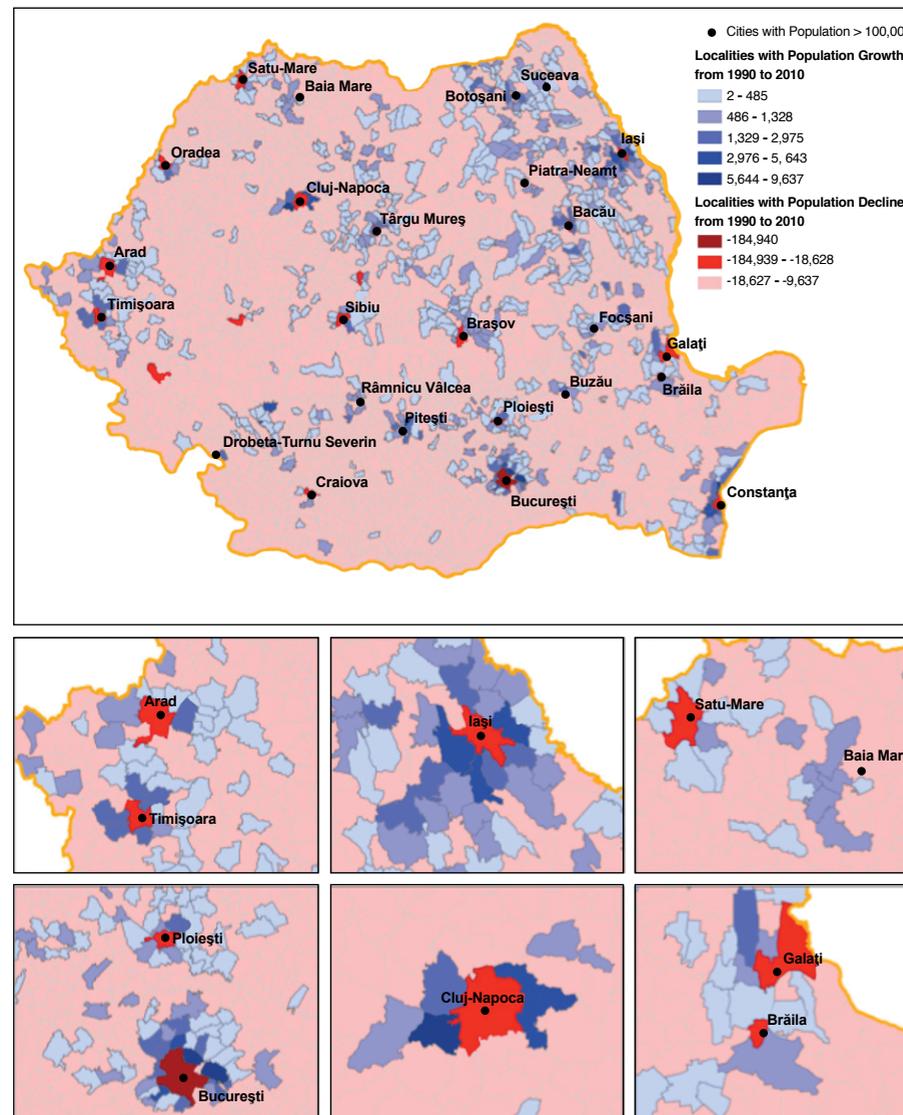
For cities to play a developing and polarizing role they need to be understood as **dynamic functional areas**. Cities, especially the most dynamic ones, are not self-contained. As the map below shows, the localities with the most significant population growth are those situated around large urban areas.

Failing to define functional urban areas can undermine even the best local strategies and can ultimately lead to suboptimal development outcomes. For example, a city may have a very good General Urban Plan focusing on sustainable growth patterns with the aid of clear planning regulations. However, if surrounding localities do not also have the same planning regulations in place, the effects will be suboptimal, as development around the center city will continue in an unregulated manner. Similarly, **the fact that most suburban areas continue to be defined as rural areas can lead to the wrong policy solutions**. For example, the new Census results have prompted many to talk about policy measures aimed at tackling the reverse urban-to-rural migration that seems to be taking place in Romania. A look at the data shows, however, that **most of the urban-rural reverse migration is in fact the result of a suburbanization process** – i.e., people moving to the suburbs of București, Cluj-Napoca, Timișoara, Constanța, Iași, and Ploiești, with most of these suburbs still defined as rural areas.

Properly categorizing functional urban areas would also require the identification of adequate institutional solutions for their management. In this vein, it may be important to talk about the potential of having Metropolitan Development Agencies, which

would function in the same way as Regional Development Agencies do, and would focus on the planning and management of functional urban areas. These Metropolitan Development Agencies could be tasked to do the planning for functional urban areas and to implement projects at the metropolitan level.

### Romania has recently experienced a suburbanization process



Data Source: National Institute of Statistics

Priority

8

**Enable dynamic cities to enlarge their demographic and economic mass**

To work as economic engines at the regional level, dynamic functional urban areas should be helped to expand their economic and demographic mass. If a company decides to invest in an urban center but does not have access to a **large enough labor market**, it is important to enable easy access to the regional labor pool. At the same time, easier access to these center cities also means that a larger number of people have access to the opportunities that these cities offer (e.g., jobs, education, healthcare, culture, entertainment, etc.).

Growth poles in Romania have had positive economic dynamics with a **significant share of new investments being located in peri-urban areas**. For these cities it will be important to **expand metropolitan public transport systems** (ideally to areas with a high enough population density and with strong commuter flows), to invest in the **development of new connective infrastructure** (e.g. new roads and rail connections), and to invest in the **upgrade** (e.g. transforming a normal road in an expressway) and **proper maintenance of existing infrastructure**. Such investments should be prioritized based on careful analysis of local and regional trends, and prioritized according to a set of clear criteria (e.g. the availability of resources to maintain and operate the new or upgraded infrastructure).

Priority

9

**Target dedicated measures at marginalized and minority groups**

Economic growth essentially results from connecting people to opportunities and enabling them to realize their full potential. But everywhere around the world, and Romania makes no exception, there are people who face special challenges in sharing the benefits of development. They are marginalized, disenfranchised, and often overlooked by policies that are meant to promote growth. Interestingly, marginalization is not always proportional to distance from economic mass: indeed, **many poor communities reside in the proximity of large cities and sometimes right in the downtown areas** (e.g., historical centers). Still, **despite this fact, they remain unable to access educational and professional opportunities that would allow them to break the vicious cycle of poverty** and reap the benefits of truly inclusive, sustainable growth. Moreover, these marginalized groups often represent a significant share of the total population, and **enabling them proper access to opportunities would not only make social sense, but it would also make economic sense given their potential contribution to local, regional, and national development**.

To address the challenges faced by marginalized groups and integrate them into the larger Romanian economic system, it is important to go beyond investments in hard infrastructure (e.g., roads, public transportation, schools, hospitals, social housing). **Soft measures (e.g., anti-discrimination approaches, education, public media campaigns, etc.) have to complement infrastructure investments** to ensure that marginalized groups share the benefits of prosperity and ultimately shed the aura of marginalization. In addition, even for hard investments, it is critical to involve marginalized groups in the process of designing and implementing projects in order to **strengthen their sense of ownership and empowerment**.

Priority  
**10**

Promote  
quality of life investments  
in leading areas

**Innovation jobs** have a significant role in not only driving local and regional growth, but also in spurring in the development of other economic sectors (i.e., they have a high multiplier effect). As such, local authorities throughout the world undertake quality of life investments to attract firms and skilled people that do innovation work. Usually,

**a larger pool of innovating firms and people goes hand in hand with a more developed local economy.**

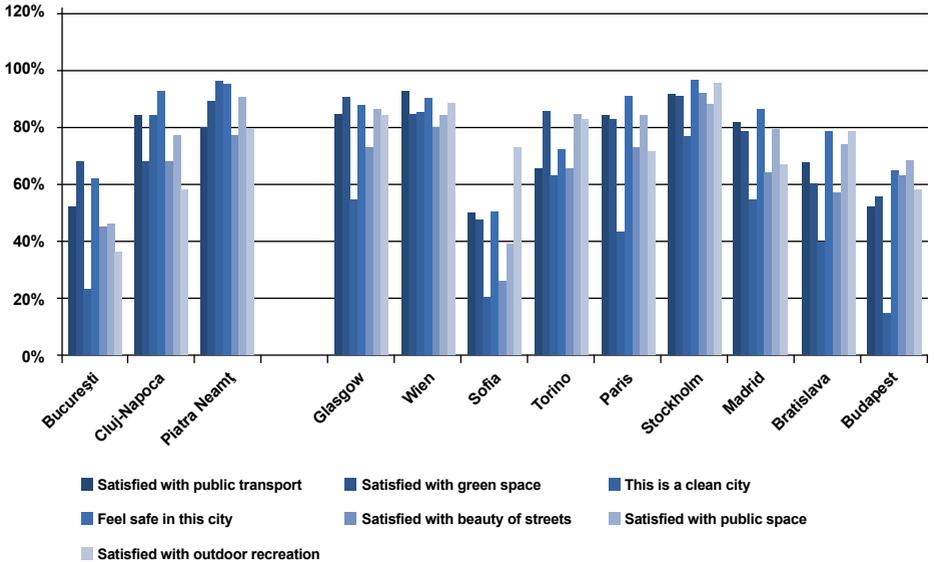
Within Romania, only a handful of cities (e.g., București, Cluj-Napoca, Timișoara, or Iași) have managed to encourage and sustain the growth of local innovation sectors. These cities are in a competition (internally, but also globally) for the country's brightest people. **These are also places where investments in quality of life (e.g., good public transport infrastructure,**

**parks, cultural buildings, pedestrian areas, or bike paths) would make the most sense.**

However, **quality of life investments** do not only have economic benefits (such as attracting and retaining qualified people and innovative firms), but **can also have social and environmental benefits.** For example, investments in pedestrian areas, energy efficiency, bike paths, and public transport networks can help discourage the use of private cars (thus decreasing greenhouse gas emissions from transport) and can enable easier access to opportunities for poor and marginalized groups. As such, **this type of investments can and should be considered by a larger range of cities, beyond just the most developed ones.**

That said, it is important to place investments in quality of life within a clear list of priorities. When a significant part of a city's or a metropolitan area's population still does not have access to running water and sewage, one would have to think twice about having as a top priority the development of, say, an integrated network of bike paths.

Quality of life indicators in selected European cities



Source: EuroStat