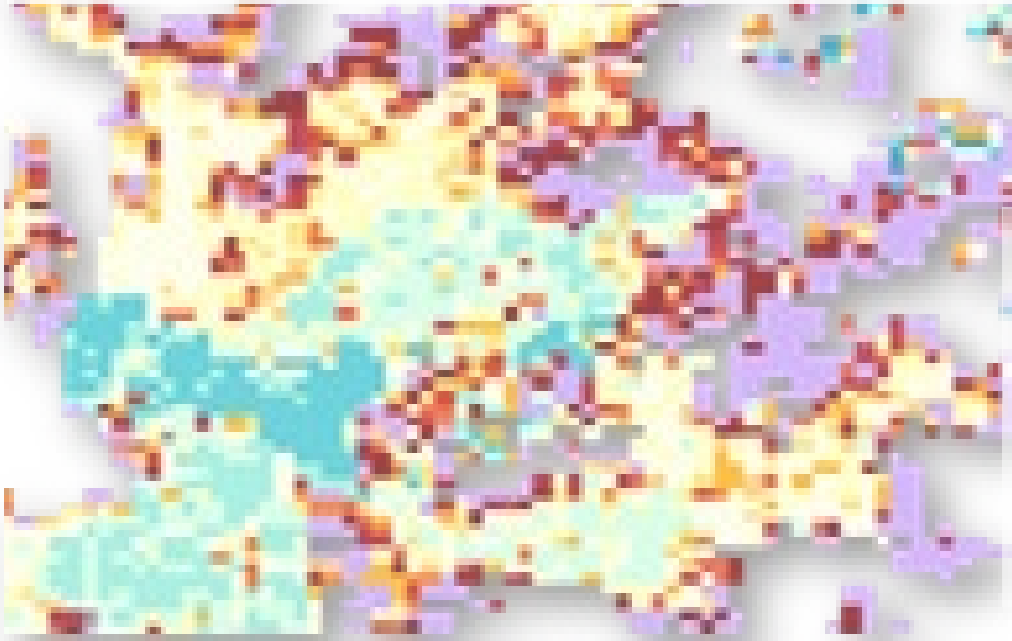


ABSORBING URBAN GROWTH:
DEMOGRAPHIC PRESSURE AND HOUSING QUALITY IN SERBIA'S PERI-URBAN SETTLEMENTS



Marija Drobnjaković
Geographical Institute "Jovan Cvijić" SASA
Vlasta Kokotović Kanazir
Geographical Institute "Jovan Cvijić" SASA
Dejana Đorđević
Statistical Office of the Republic of Serbia

Settlements and Housing

- Publication of the Statistical Office of the Republic of Serbia with summarized and processed results of the 2022 Census
- A new Typology of Settlements in the context of recent spatial transformations, local and regional specificities and position within the settlement network

- HOUSING PROFILE

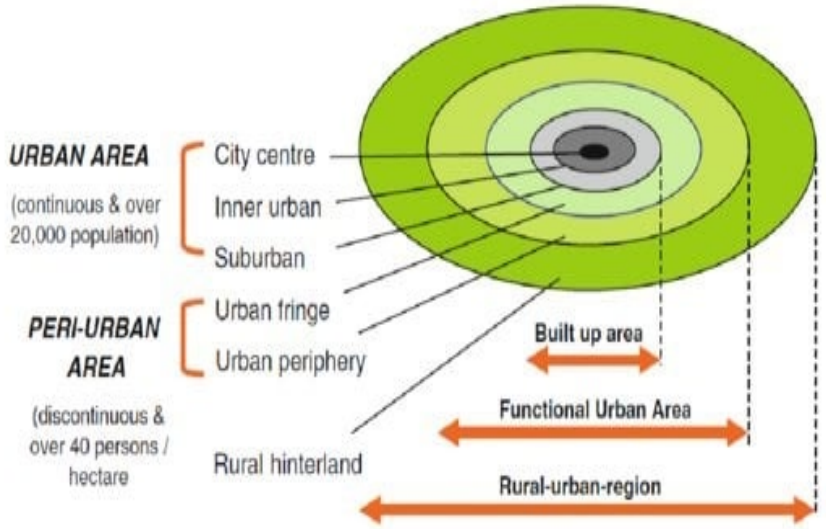
  (housing stock, occupancy, type of residential buildings, construction period)
- HOUSING QUALITY

  (occupancy, residential comfort and infrastructure)



Peri-urban settlements - *definition*

- Dynamic and transitional spaces between urban and rural contexts.
- Geographical edge of the city; urban fringe outside the formal city-limits (Dupont, 2005).
- A "third space" and an interconnected continuum between urban and rural areas and beyond administrative boundaries (Camagni, 1994).



Source: Piorr et al., 2011

- Area of discontinuous built development, with diameters of 30-50km, containing settlements of less than 20,000 inhabitants (Simon, 2008; Cattivelli, 2021).
- A product of the urbanization process, that affects the countryside in concentric spheres of differentiated influence (Antrop, 2004)
- The interface between rural and urban activities, norms, legislation and institutional settings (McConville, 2014).

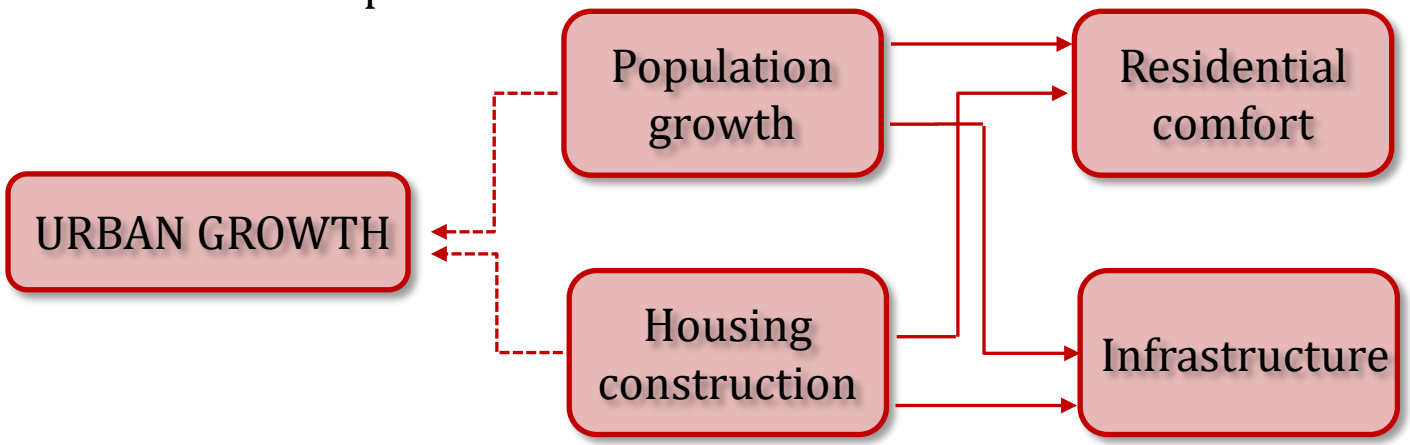
- Characterized by heterogeneity and development vitality (Cash, 2014; Vizzari & Sigura, 2015)
- Spatial patterns and processes of urban land-use change reflect the intensity of urban-rural flows (Cattivelli, 2012)

Absorbing urban growth sustainably?

- Faced to continuous demographic and spatial transformation
- Often experience infrastructure that struggles to keep pace with population growth
- Focal research point: **Matching or Discrepancy**?

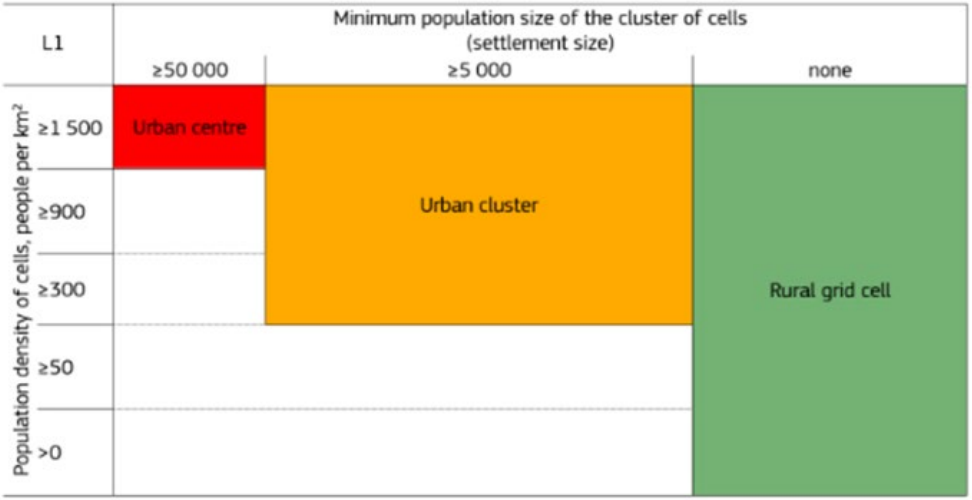
  To what extent have housing construction and infrastructure provision kept pace with population growth and in-migration?

  1. Did housing construction correspond with the timing and intensity of in-migration?
  2. Did the expansion of housing construction coincide with adequate infrastructure provision?

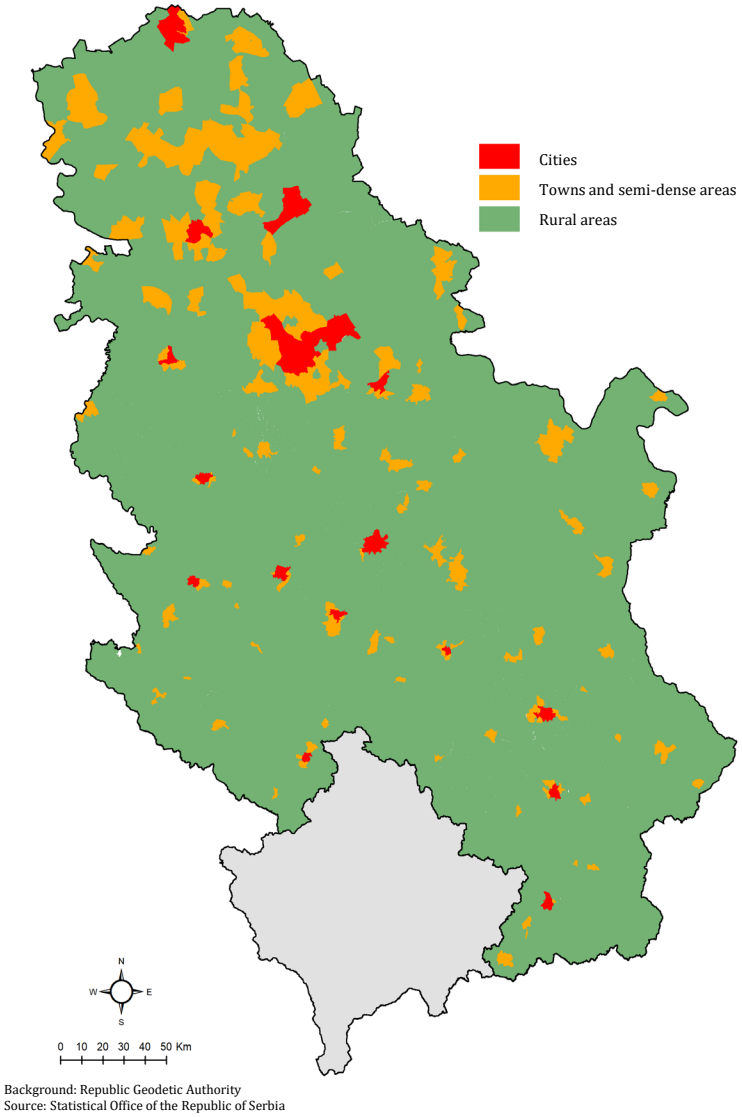


Identifying peri-urban settlements

- DEGURBA-based typology developed for Serbia
- Settlements located within the urban continuum
- Towns and semi-dense areas (level 1)



Source: Eurostat, 2021; European Commission, Joint Research Centre and Directorate – General Regional and Urban Policy.

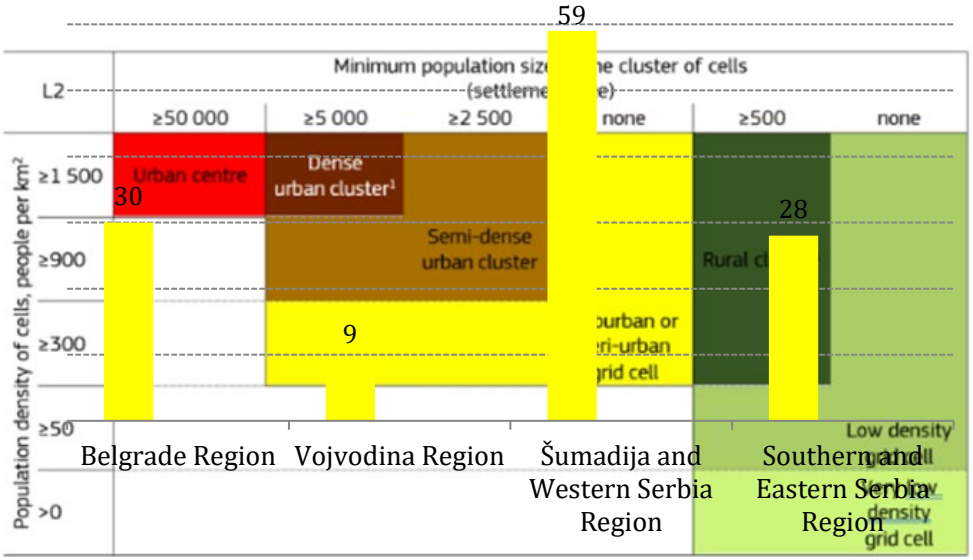


Background: Republic Geodetic Authority
Source: Statistical Office of the Republic of Serbia

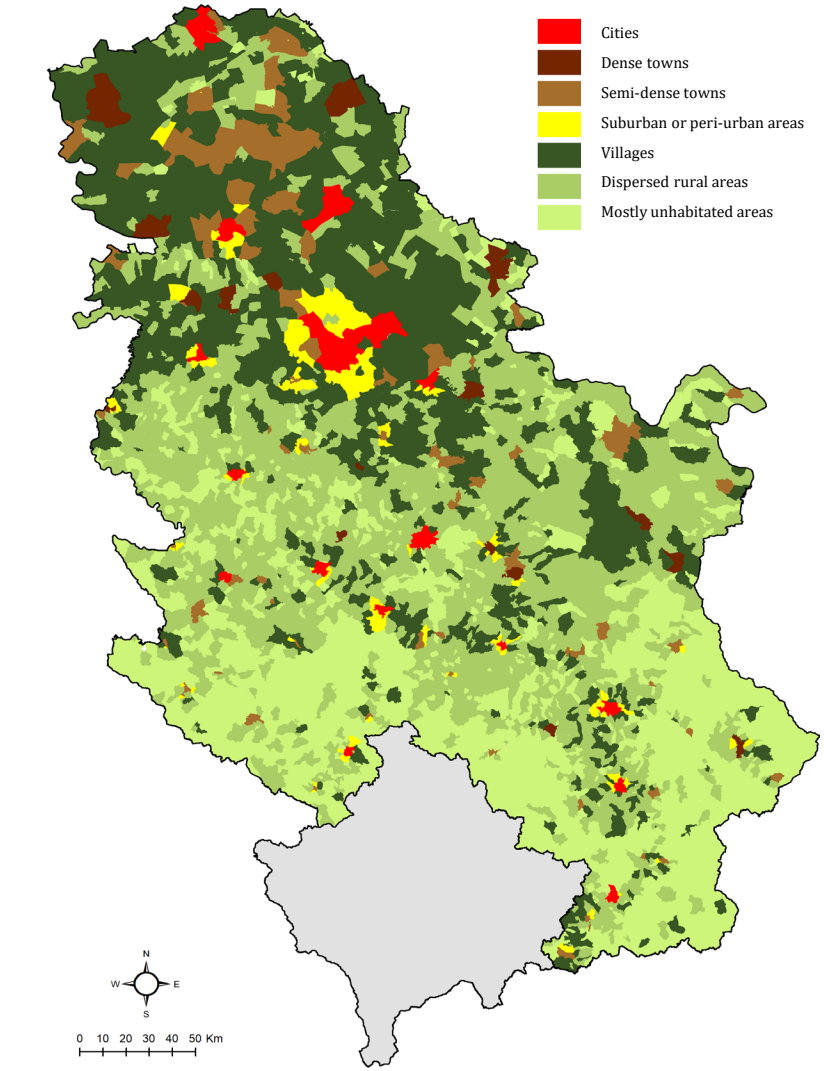
Source: Drobnjaković, Kokotović Kanazir (2025). Serbia between the village and the city - settlements and their structural features. Belgrade: SORS

Identifying peri-urban settlements

- Settlements located outside the core cities
- 126 peri-urban settlements
- Located in the vicinity of the cities, with considerable differences in size and regional context



Source: Eurostat, 2021; European Commission, Joint Research Centre and Directorate – General Regional and Urban Policy.



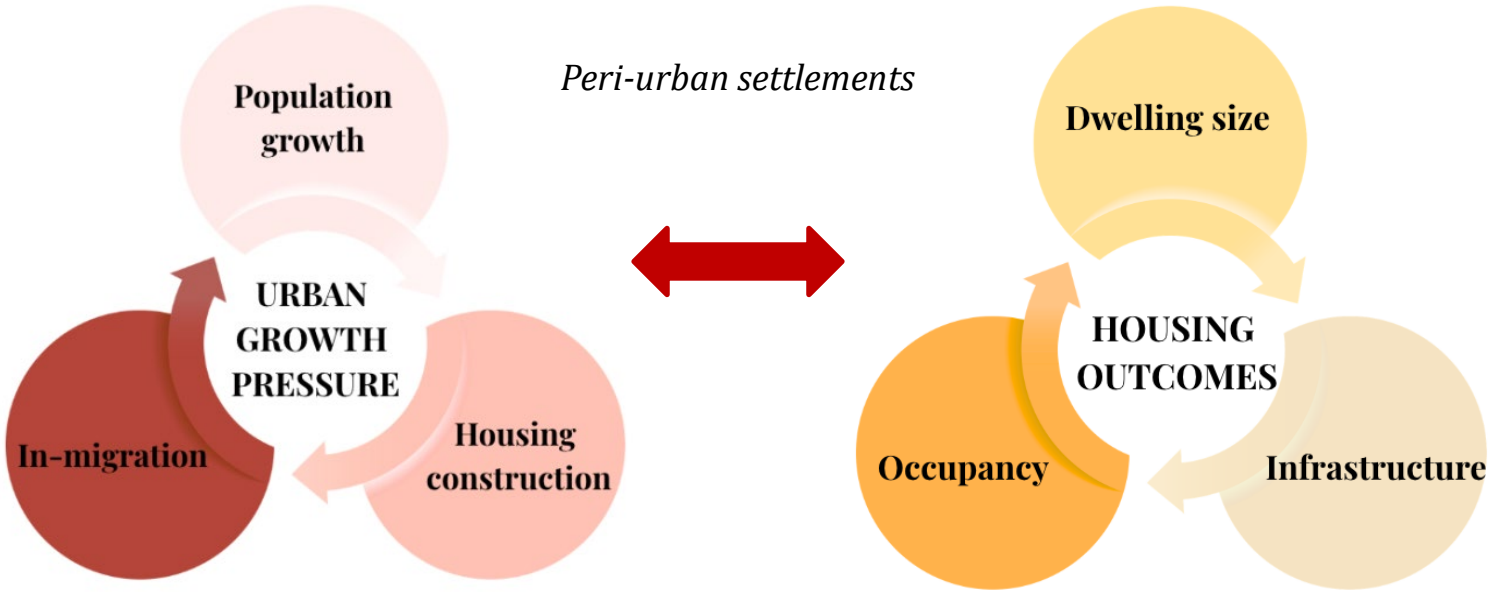
Background: Republic Geodetic Authority
Source: Statistical Office of the Republic of Serbia

Source: Drobnjaković, Kokotović Kanazir (2025). Serbia between the village and the city - settlements and their structural features. Belgrade: SORS

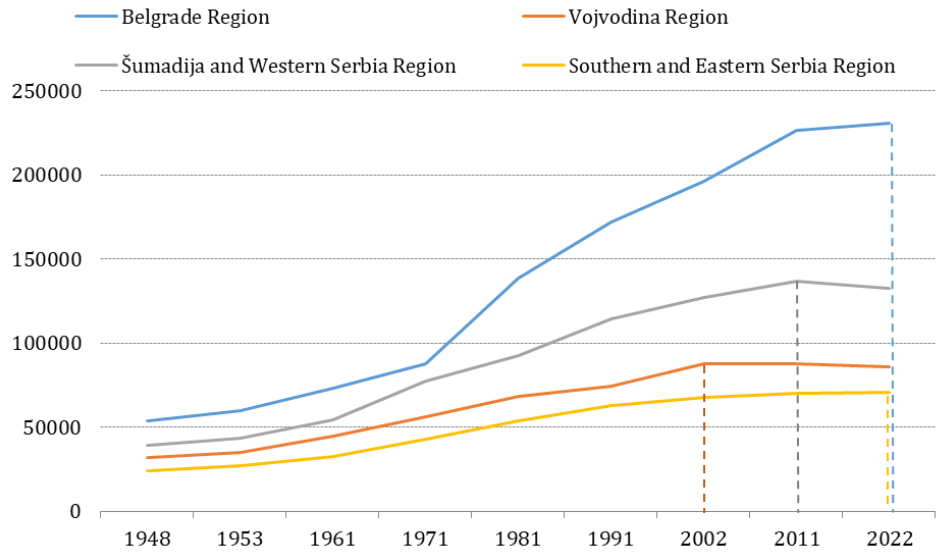
Data and analytical framework

- Data sources:
  - ✓2022 Population, Households and Dwellings Census
  - ✓Population data, 1948–2022
  - ✓DEGURBA methodology (Statistical Office of the Republic of Serbia)
  - ✓Settlement-level indicators (Drobnjaković, Kokotović Kanazir, 2025)

- Analytical framework



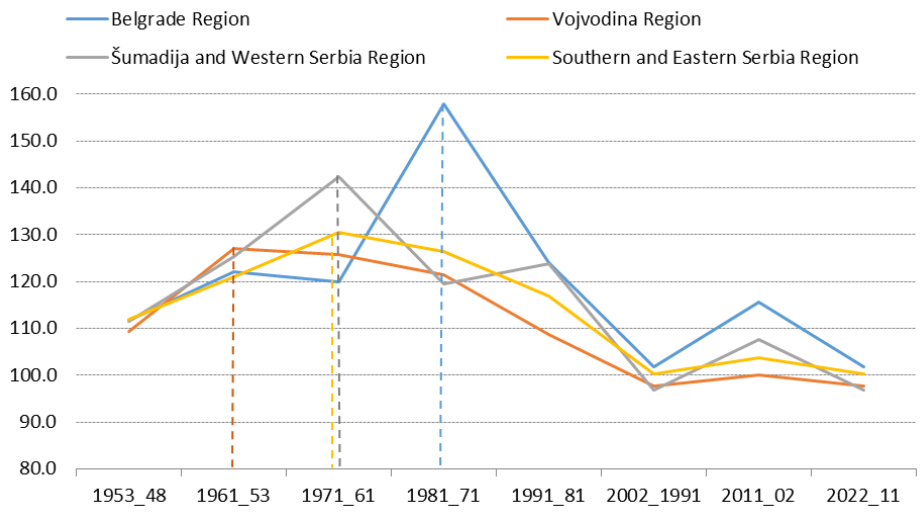
Peri-urban settlements as demographic growth zones



- Population increased **3.5 times**
- Growth is spatially concentrated around major and regional urban centres.
- 33 settlements with population increase

51862 inhabitants
Borča (Belgrade)

371 inhabitants
Mićunovo (Bačka Topola)

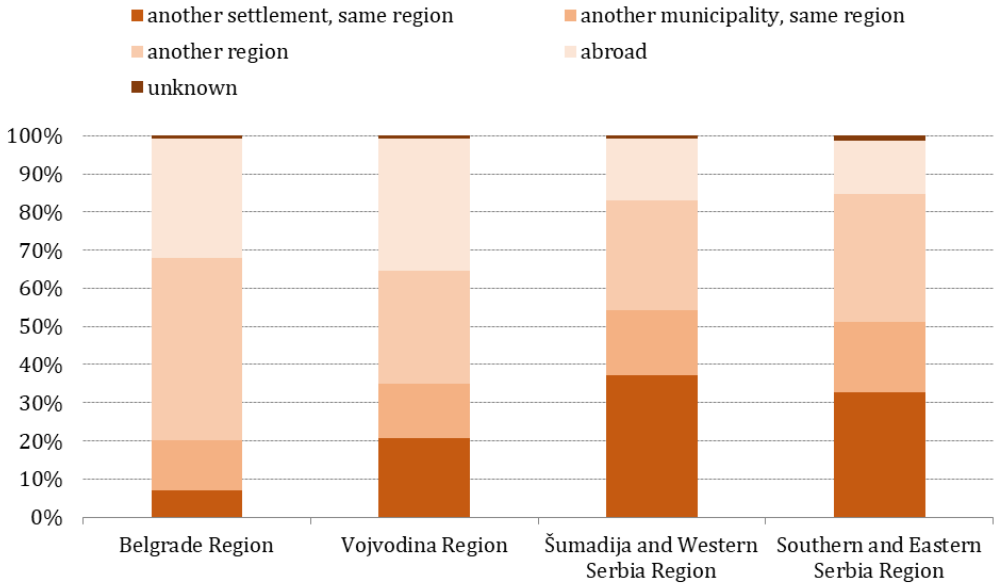


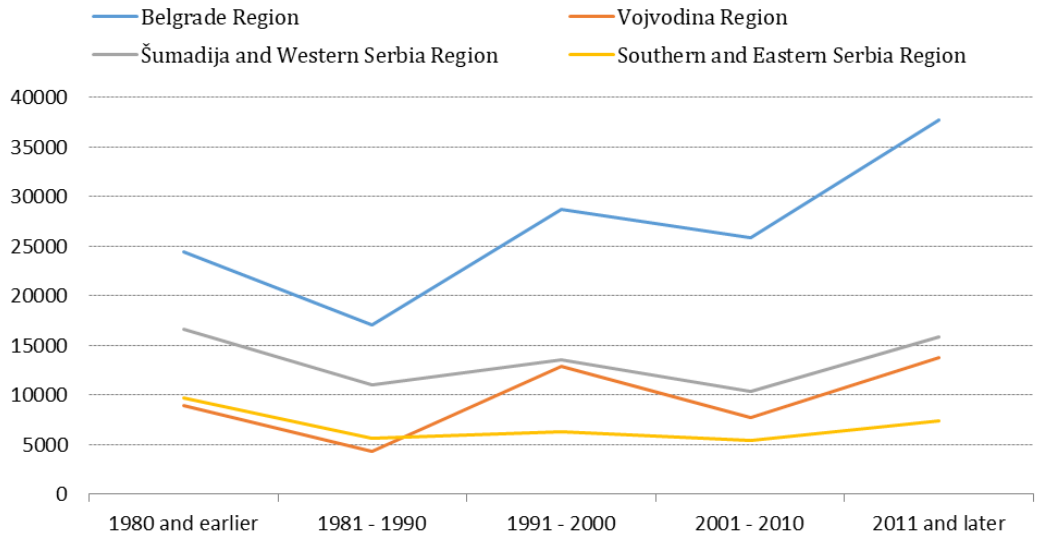
- 2022/1948 – population change index was 349
- Demographic expansion reflects both earlier urbanisation and recent suburbanisation.

3049 increase
Kaluđerica (Belgrade)

94 decrease
Aleksinački Rudnik

Migration-driven population growth

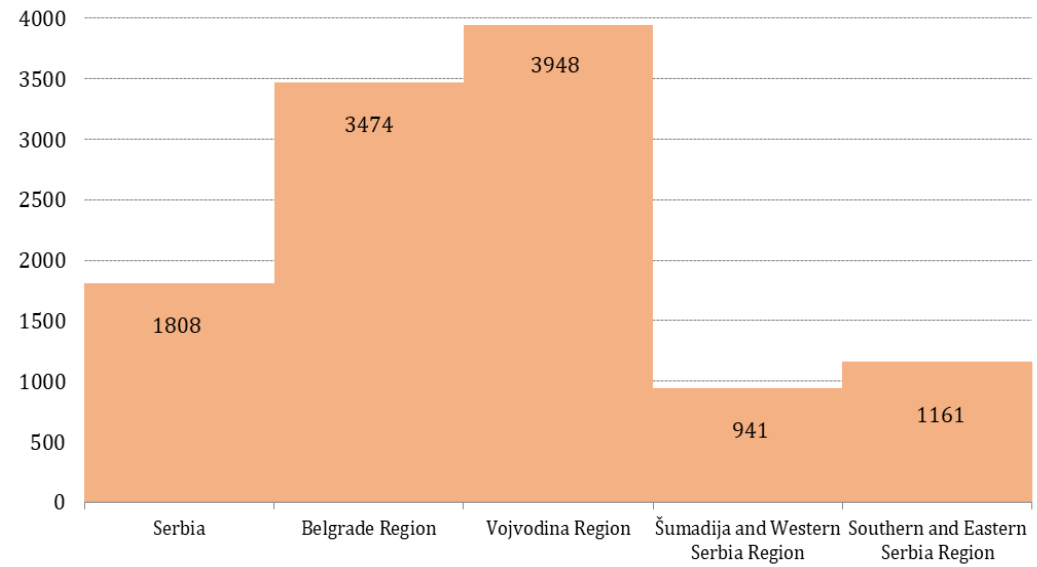




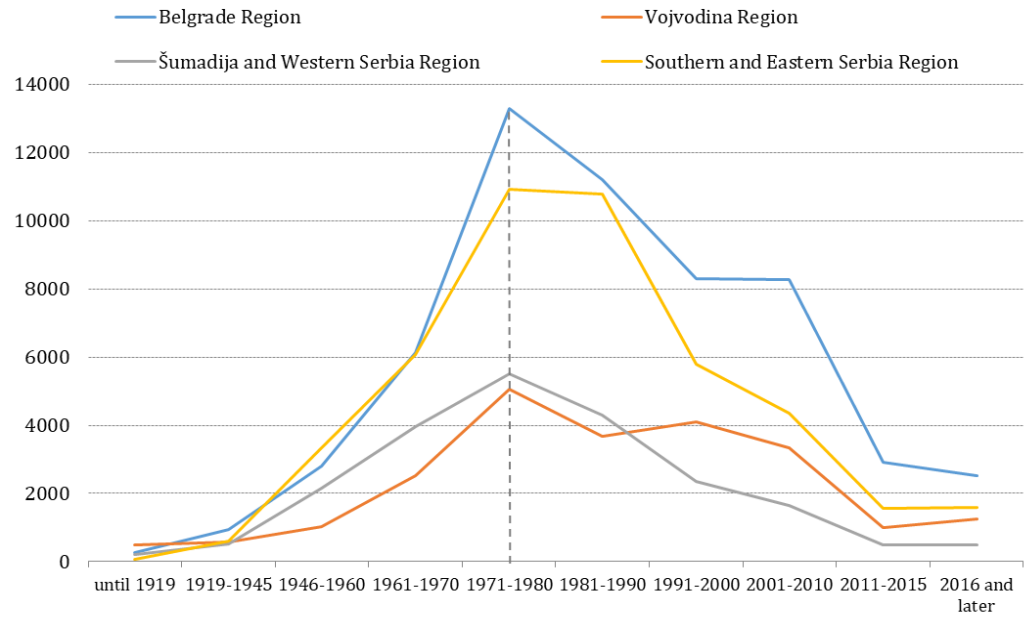
- **60.3%** of the population is in-migrants
- Internal migration accounts for **75%** of the in-migrant population.
- In-migration is particularly pronounced around the largest urban centres.

- The timing of in-migration varies within observed period and considerably by region.
- In the Belgrade Region, the most recent period is especially prominent.

Housing construction



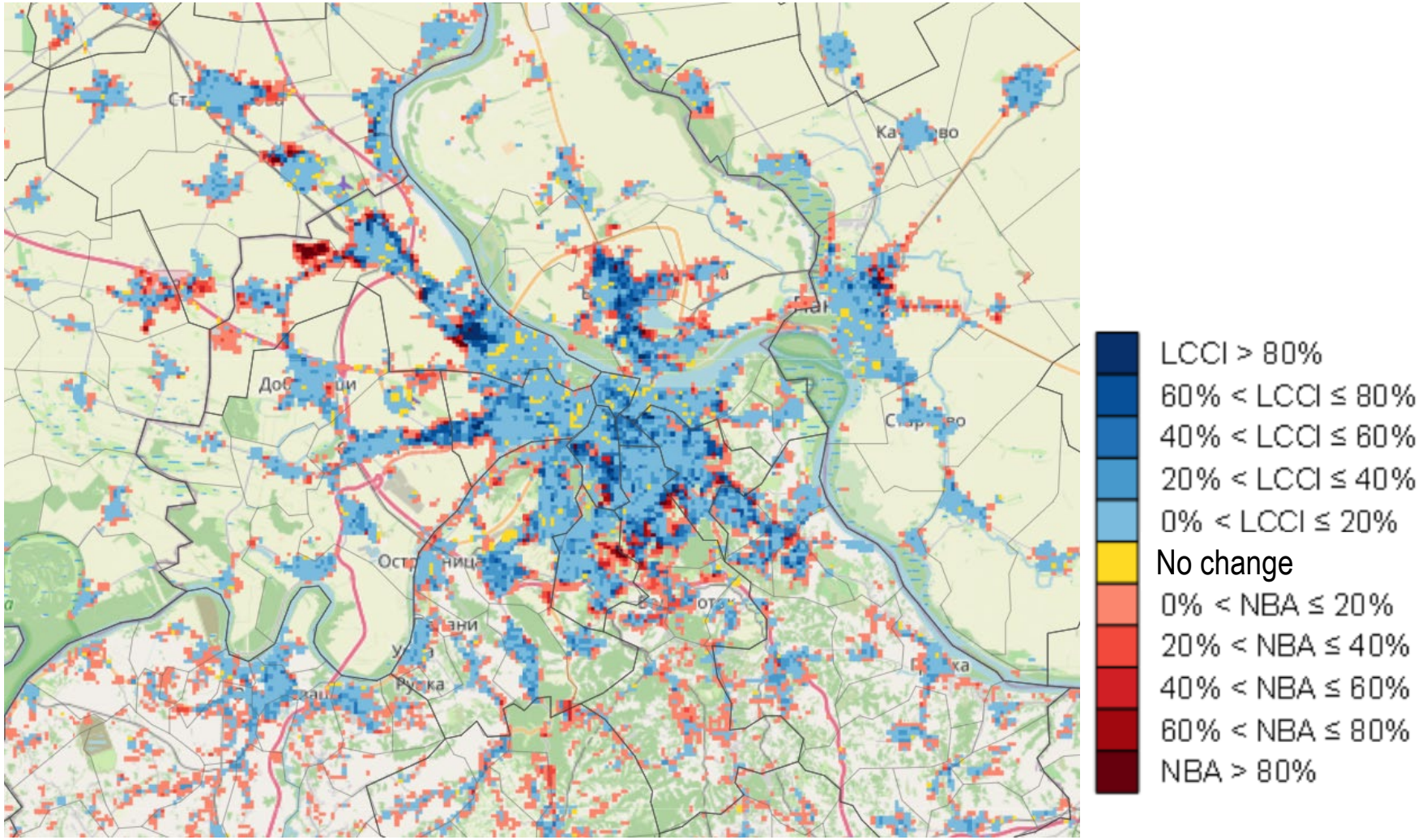
- **227772** dwellings in peri-urban areas
- Average **1808** dwellings
- Prominent construction around Belgrade and selected regional centers.



- 50.9% of the housing stock was built between **1961 and 1990**
- Construction increased approximately 25-fold.
- Around 18% was built after 2000.
- Similar constuction patterns in regional context.

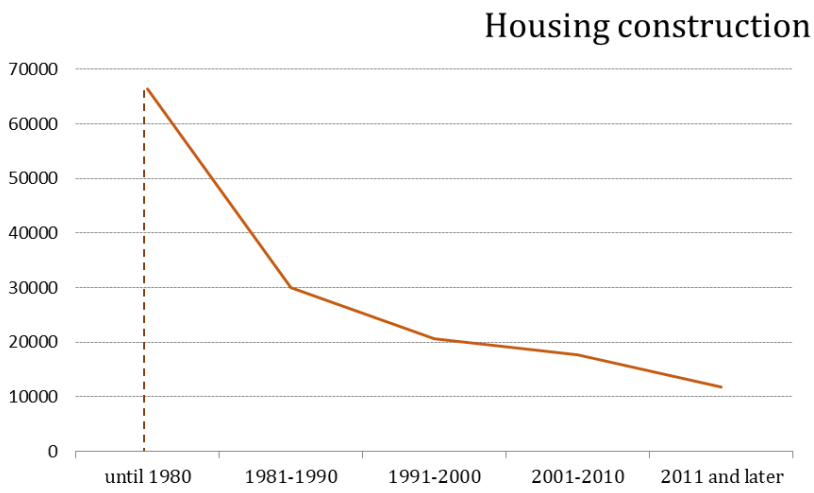
Belgrade – distinct case study

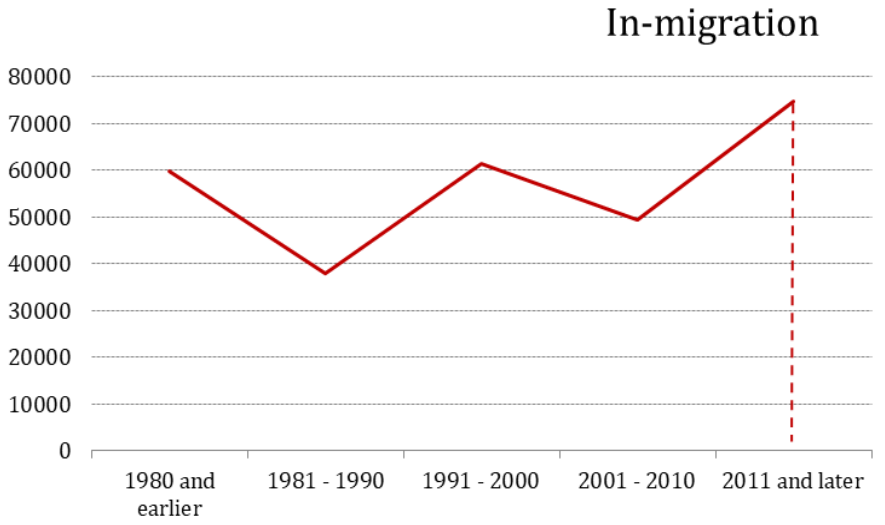
Lot of coverage change index in Belgrade, 1975-2014

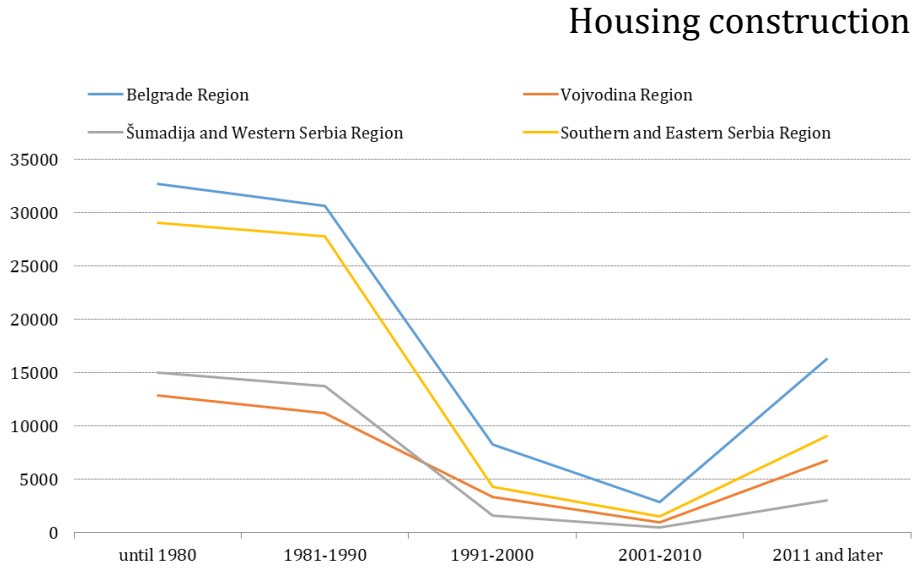


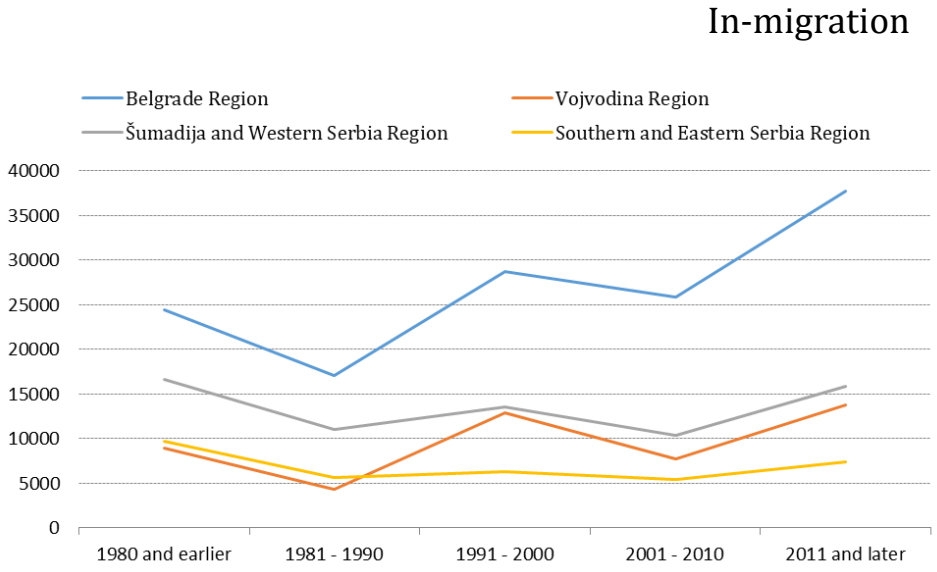
Source: www.depopulacija.rs

Trajectories of growth

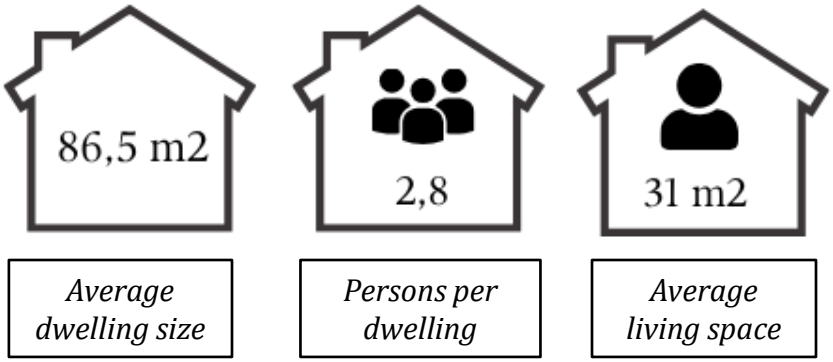




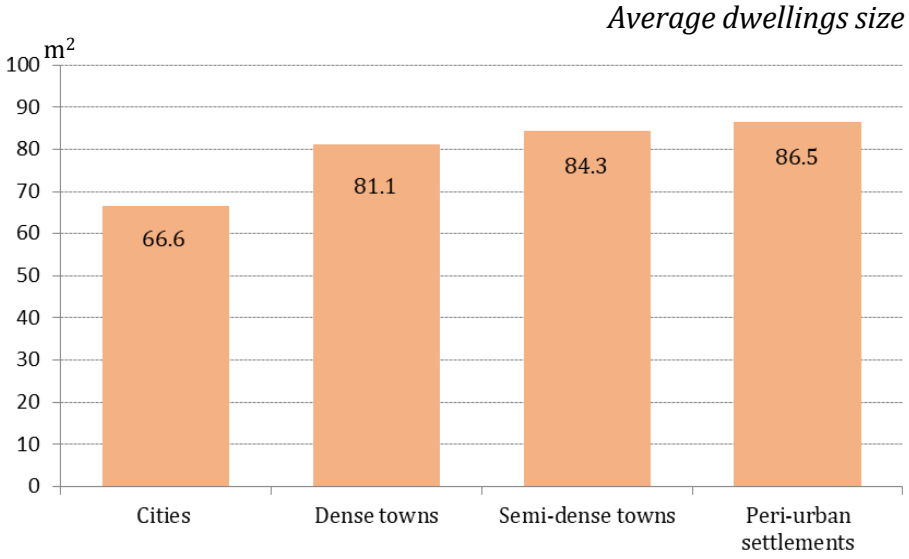


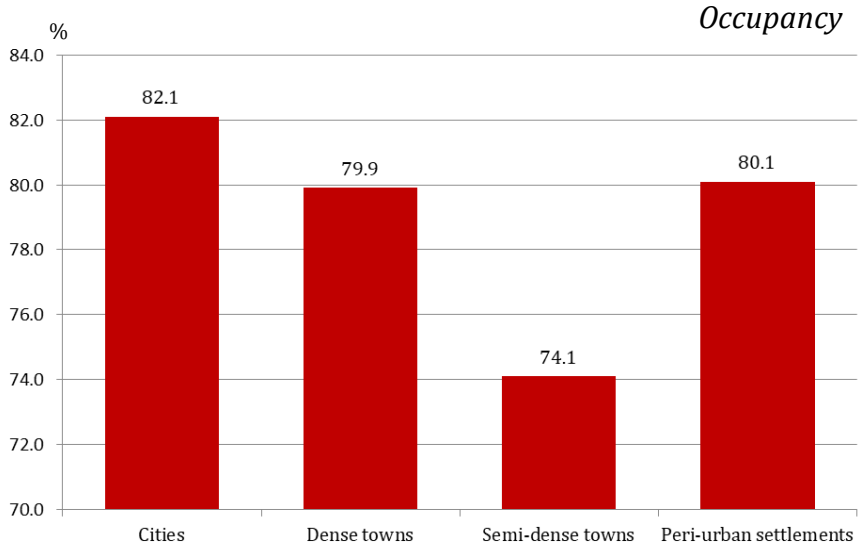


Residential comfort - spacious housing

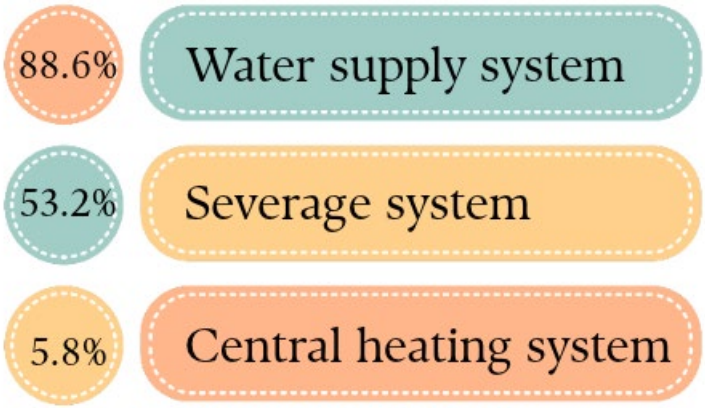


- Peri-urban settlements have on average 80.1% occupied dwellings.
- In 27 settlements, the average dwelling size exceeds 100 m^2.
- The housing pattern is dominated by individual, low-density residential construction.

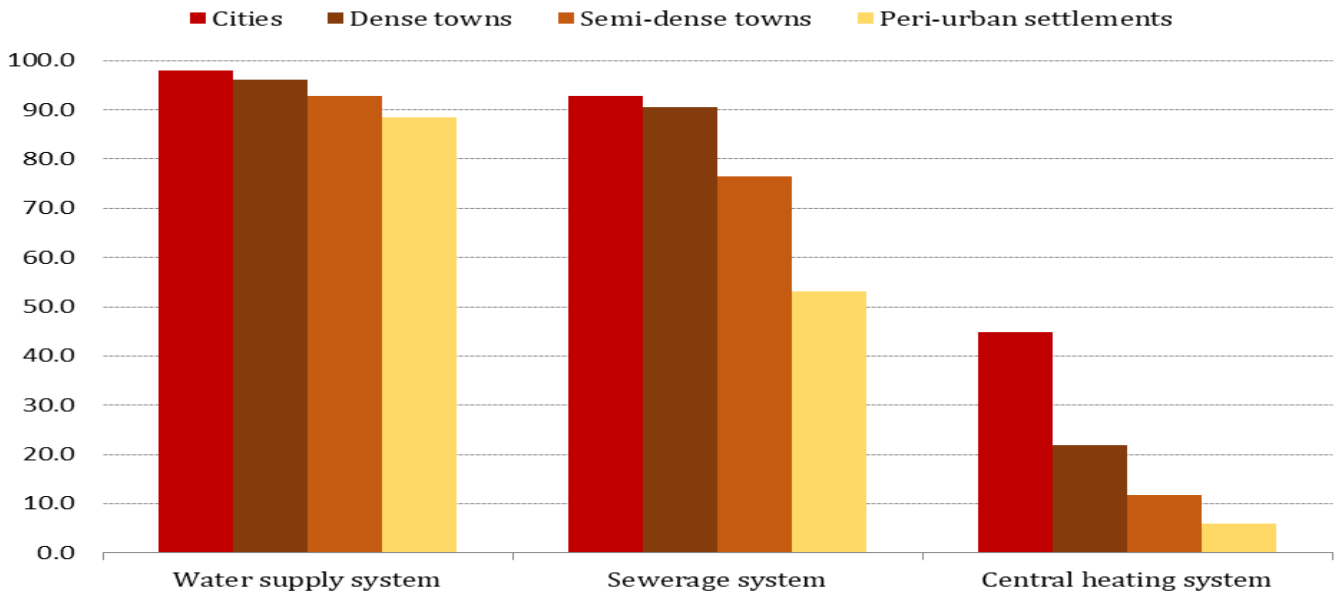




The infrastructure gap



- Alternative water supply remains important in peri-urban areas.
- Septic tanks and other individual solutions are widespread.
- Heating infrastructure shows the greatest deficit.



Peri-urban growth: absorbed, but not fully supported

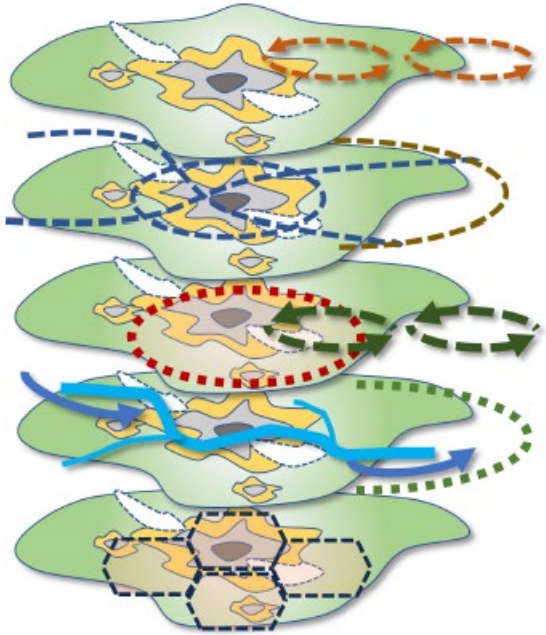
- Peri-urban settlements have absorbed substantial population growth and in-migration.
- Housing construction broadly followed major phases of demographic expansion, but with a discrepancy in the intensity in the recent period.
- Growth produced spacious, predominantly individually built dwellings.
- Collective infrastructure did not expand at the same pace, creating uneven housing quality.
- Planning and infrastructure gap.

- The key challenge is not the quantity of peri-urban housing, but the capacity of collective infrastructure to support it.

Policy implication

STATE: Peri-urban expansion is highly dynamic, informally driven, and institutionally fragmented, shaped by housing shortages, infrastructure deficits, and continuous in-migration.

PROCESS: The peri-urban as a discrete entity, a system that must possess the capacity to respond to the multifunctionality of this space of continuous transformation and adaptation.



An Integrated framework

Source: Ravetz, Sahana (2025). Where is the peri-urban? Mapping the areas 'around, beyond and between'. Frontiers Sustain. Cities 7:1436287.

RECOMMENDATION:

Peri-urban settlements should be recognised as a distinct planning and housing-policy category rather than treated as residual spaces between the city and the rural areas.

Peri-urban area development require an integrate framework!

Thank you!!



m.drobnjakovic@gi.sanu.ac.rs
v.kokotovic@gi.sanu.ac.rs
dejana.djordjevic@stat.gov.rs

Kaludjerica, Belgrade