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Amenity complexity and urban locations of socio-economic mixing

Keywords: urban mobility, economic complexity, amenities, social mixing, segregation

Extended Abstract

Cities host diverse people and their mixing is the engine of prosperity. In turn, segregation and inequalities are common features of most cities and locations that enable the meeting of people with different socio-economic status are key for urban inclusion. In this study, we adopt the concept of economic complexity (Hidalgo and Hausmann 2009) to the intra-urban scale to quantify the ability of locations – on the level of neighborhoods and amenities – to attract diverse visitors from various socio-economic backgrounds (Athey et al. 2021, Moro et al. 2021). Using data from the Google Places API, we utilize the spatial distribution of point of interests inside the city of Budapest, Hungary, and construct the measures of amenity complexity based on the local portfolio of diverse and non-ubiquitous amenities. We identify home, work and third place visits (Oldenburg 1999) in daily mobility trajectories of individuals inside Budapest for 24 months by clustering GPS pings in geographical space and over time. We combine the predicted home location of individuals with real estate prices at the census tract level. This allows us to infer the socio-economic diversity of visitors to each urban neighborhoods and to each actual amenity.

Results suggest that measures of ubiquity and diversity of amenities do not, but amenity complexity correlates with the diversity of visitors to neighborhoods and to actual amenities alike. We demonstrate that, in this monocentric city, amenity complexity is correlated with the relative geographic centrality of locations, which in itself is a strong predictor of socio-economic mixing. Our work combines urban mobility data with economic complexity thinking to show that the diversity of non-ubiquitous amenities, central locations, and the potentials for socio-economic mixing are interrelated.

References

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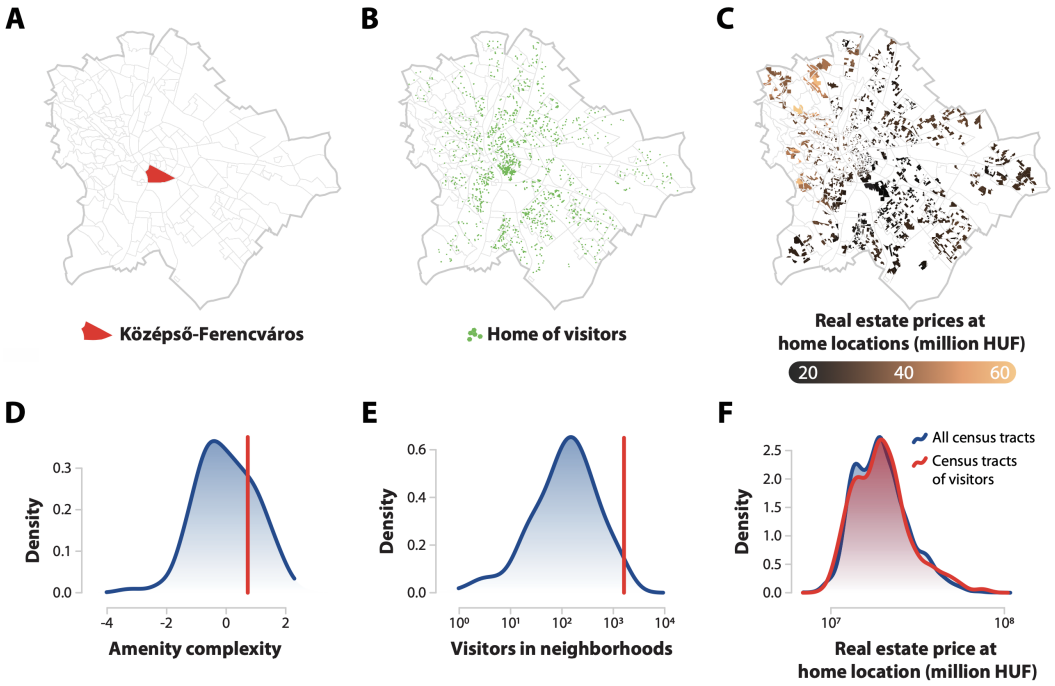

Figure 1: Amenity complexity of a selected example neighborhood and its visitors in January 2020. **(A)** Selected urban neighborhood of Középső-Ferencváros, Budapest. **(B)** Home location of devices visiting Középső-Ferencváros, Budapest. **(C)** Real estate prices at the home location of visitors. **(D)** Distribution of amenity complexity at the level of neighborhoods. The red vertical line indicates the complexity of the selected neighborhood of Középső-Ferencváros. **(E)** Distribution of observed visitors in neighborhoods. The red vertical line indicates the number of visitors in the selected neighborhood. **(F)** Distribution of real estate prices across all census tracts and at the home census tracts of visitors to the selected neighborhood.