



Urban spatial structure, employment and social ties[☆]

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ABSTRACT

Consider a model where workers from the majority and the minority group choose both their residential location (geographical space) and the intensity of their social interactions (social space). We demonstrate under which condition one group resides close to the job center while the other lives far away from it. Even though the two groups have the same characteristics and there is no discrimination in the housing or labor market, we show that the majority group can have a lower unemployment rate whenever it resides close to or far away from the workplace. This is because this group generates a larger and better-quality social network.

1. Introduction

Economists have long been interested in how the socio-economic outcomes of individuals are shaped by their interactions with others around them. This question is especially important in urban areas where cities provide the homes, workplaces, and social environments for most individuals and where there is a substantial stratification across ethnic groups. The aim of this paper is to show how the size and the quality of social networks can cause large outcome discrepancies between urban minority and majority groups.

We develop a simple urban model with labor market frictions and job search where jobs are only found through social networks. Indeed, to find a job, workers need to commute to other workers to benefit from their social networks and increase their frequency of interactions and urban trips to other social network members. They balance their chance of finding a job with the additional time and travel cost of meeting others. We consider a closed and linear city where all jobs are located in the job center.

There are two populations, the majority and the minority group, with the exact same characteristics except for the sizes of their populations.¹ We analyze two types of spatial equilibria. In the first equilibrium (Equilibrium 1), the majority group chooses to live close to the job center while the minority group prefers to reside far away from it. This may correspond to a European city (such as Paris, London, Rome, Stockholm, etc.) where ethnic minorities tend to reside in the suburbs far away from jobs while the white majority group tend to live close to the job center located in the center of the city (see e.g. Fieldhouse, 1999; Åslund et al., 2010; Gobillon et al., 2011). This equilibrium also corresponds to a “new” American city such as Los Angeles, Atlanta, Houston, Dallas, Miami where jobs are provided in the suburbs and ethnic minorities reside at the (historical) city-center away from job providers.² In this equilibrium, ethnic minorities face both *ethnic segregation* because they are spatially separated from the other group and *spatial mismatch* because they are physically separated from jobs.

In the second equilibrium (Equilibrium 2), the opposite occurs so that the minority group resides close to the job center while the

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¹ We could easily interpret our model in terms of income groups with rich and poor households.

² Indeed, Glaeser et al. (2000, 2008) differentiate between old and new cities in the United States. *Old cities* in the United States are cities that were among the ten most populous U.S. cities in 1900. On the contrary, *new cities* are cities that have much smaller populations in 1990 compared to today. Glaeser et al. (2000, 2008) show that, in *older cities*, downtowns are more established and employment is centralized. In *newer cities*, employment is much more decentralized.

majority group live far away from it. This suggests an “old U.S. city” urban configuration such as New York, Chicago, Philadelphia, Detroit, Boston or San Francisco. In this case, ethnic minorities (Afro-Americans and Hispanics) reside close to the job center located in the city center whereas the majority group (Whites) lives at the periphery of the city.³ In this equilibrium, minorities face only *ethnic segregation* since they reside close to jobs.

We show that the majority group experiences a lower unemployment rate than the minority group *in any of those two equilibria*. This is one of our key results: a large enough majority population (e.g. white American community) may reside far away from jobs and still experience a higher employment rate than the minority population (e.g. Black community) who resides closer to jobs. In our model, this result stems from the trade off between residing far way from jobs, which implies higher commuting costs and lower work net-benefits, residing away from one’s own network community, which raises costs of interacting with peers and thus lowers search activities, and belonging to a larger network community, which increases network-size effects and thus search activities. In other words, the workers of the majority group compensate their urban location disadvantage by their bigger population and larger social network. Their larger social network allows them to search more intensively for jobs and get hired more often than minority workers. In turn, they obtain stronger employment experiences, which raises the quality of their social network in terms of likelihood of obtaining relevant job information. This is not the case for minorities when they reside far away from the job center since their network cannot compensate for their location disadvantage.

This result is quite unique as it can explain the *low employment rates of ethnic minorities in different cities*, a well-documented stylized facts both in the United States and in Europe.⁴ As stated above, the main reason for this result is the fact that the social network of the majority group is *large* and of *high-quality* while the opposite is true for the minority-group network.

We then extend our model in two different directions. First, we endogenize the social network sizes by letting workers from one group to socially interact with workers from the other group. We highlight the conditions under which the two groups choose not to interact with each other. In other words, we show how *ethnic segregation* endogenously emerges *in both the spatial and social space*. Second, we allow workers to direct their search and decide without uncertainty with whom they want to socially interact more in the city. In contrast to the benchmark model with random search, this favors social interactions with closer individuals in order to reduce travel costs. We show that the majority group may still experience a lower unemployment rate, even when they reside far away from jobs. Indeed, even though the two populations are *identical* in terms of their characteristics, we can demonstrate under which conditions (ethnic) minorities experience higher unemployment rates, socially interact mostly with people from their own group and even interact less than the majority group does.

The paper unfolds as follows. The next section highlights our contribution with respect to the literature. [Section 3](#) presents the benchmark model where we determine the employment rate, workers’ search activities and location decisions. [Section 4](#) analyzes the urban equilibria with two populations. [Sections 5](#) and [6](#) extend the analysis to the cases where workers can mix their social networks and where they choose the intensity of ties to each member of their own population (directed

³ Of course the reality is more complex but this gives a clear picture of these different cities. See e.g. [Cutler and Glaeser \(1997\)](#), [Cutler et al. \(1999\)](#), [Glaeser et al. \(2008\)](#) and [Hellerstein et al. \(2008\)](#).

⁴ For example, the unemployment rate in France is roughly 6 percentage points higher for African immigrants than for natives and, in the United States, the unemployment rate is approximately 9 percentage points higher for blacks than for whites ([Gobillon et al., 2014](#)). See also [Decreuse and Schmutz \(2012\)](#) and [Rathelot \(2014\)](#) who show that, in France, individuals of African origin have worse labor market outcomes than that of other groups.

search). Finally, [Section 7](#) discusses the policy implications of our model. All proofs of the propositions can be found in the Appendix. In addition, in an Online Appendix ([supplementary material](#)), we develop our model when there is only one population, analyze spatial equilibria with heterogeneous neighborhoods and provide further discussions of the numerical examples.

2. Related literature

Our paper contributes to the literature on “social interactions and cities”, which is a small but growing field.

2.1. Urban economics and economics of agglomeration

There is an important literature in urban economics looking at how interactions between agents create agglomeration and city centers.⁵ It is usually assumed that the level of the externality that is available to a particular firm or worker depends on its location relative to the source of the external effect – the spillover is assumed to attenuate with distance – and on the spatial arrangement of economic activity. This literature (whose keystones include: [Beckmann, 1976](#); [Fujita and Ogawa, 1980](#); [Lucas and Rossi-Hansberg, 2002](#); [Helsley and Strange, 2014](#); [Behrens et al., 2014](#)) examines how such spatial externalities influence the location of firms and households, urban density patterns, and productivity. For example, [Glaeser \(1999\)](#) develops a model in which random contacts influence skill acquisition, while [Helsley and Strange \(2004\)](#) consider a model in which randomly matched agents choose whether and how to exchange knowledge. Similarly, [Berliant et al. \(2002\)](#) show the emergence of a unique center in the case of production externalities while [Berliant and Wang \(2008\)](#) demonstrate that asymmetric urban structures with centers and subcenters of different sizes can emerge in equilibrium. More recently, Using a social interaction framework, [Mossay and Picard \(2011, 2013\)](#) determine under which condition different types of city structure emerge. All these models are different from ours since the labor market is not explicitly modeled and therefore the impact of social interactions on the labor-market outcomes is not analyzed.

2.2. Peer effects, social networks and urbanization

There is a growing interest in theoretical models of peer effects and social networks (for overviews, see [Jackson, 2008](#); [Ioannides, 2012](#); [Jackson and Zenou, 2015](#); [Jackson et al., 2017](#)). However, there are very few papers that explicitly consider the interaction between the social and the geographical space.⁶ [Brueckner et al. \(2002\)](#), [Helsley and Strange \(2007\)](#), [Brueckner and Largey \(2008\)](#), [Zenou \(2013\)](#) and [Helsley and Zenou \(2014\)](#) are exceptions but, in all these models either the labor market is not included or social interactions are exogenous. [Sato and Zenou \(2015\)](#) is the only paper that has both aspects but the focus is totally different since it mainly analyzes on the role of weak and strong ties in the labor market and explains why, in denser areas, individuals choose to interact with more people and meet more random encounters (weak ties) than in sparsely populated areas. Finally, [Schelling \(1971\)](#) is clearly a seminal reference when discussing social preferences and location. Shelling’s model shows that, even a mild preference against interaction with another community can lead to large differences in terms of location decision. In this framework, total segregation persists even if most of the population is tolerant about heterogeneous neighborhood composition. Our model is very different

⁵ See [Fujita and Thisse \(2013\)](#) for a literature review.

⁶ Recent empirical researches have shown that the link between these two spaces is quite strong, especially within community groups (see e.g. [Topa, 2001](#); [Bayer et al., 2008](#); [Ioannides and Topa, 2010](#); [Patacchini and Zenou, 2012](#); [Del Bello et al., 2015](#)). See also [Ioannides \(2012, Chap. 5\)](#), [Ross \(2012, Chap. 5\)](#) and [Topa and Zenou \(2015\)](#) who review the literature on social interactions and urban economics.

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