The role of social networks in cultural assimilation☆

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ABSTRACT

We develop a model where, in the first stage, minority individuals have to decide whether or not they want to assimilate to the majority culture while, in the second stage, all individuals (both from the majority and the minority group) embedded in a network have to decide how much effort they exert in some activity (say education). We show that the more central minority agents are located in the social network, the more they assimilate to the majority culture. We also show that denser networks tend to favor assimilation so that, for example, it is easier to assimilate in a complete network than in a star-shaped network. We show that the subgame-perfect equilibrium is not optimal because there is not enough activity and assimilation. We then endogeneize the network and show under which condition the ethnic minorities either assimilate to or separated themselves from the majority group.

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1. Introduction

An intense political and intellectual debate is taking place in Europe around migration issues. Rather than being centered on the economic costs and benefits of such inflows, the debate has instead focused on the perceived costs and benefits of cultural diversity. The attention paid to this issue is relatively novel in Europe and does represent a departure from the long-standing debate which has tended to emphasize racial discrimination as the key explanation of ethnic disadvantage. This is well illustrated by the hot debate in Europe about the veiling among Muslim women and the recent votes in Switzerland against the construction of Muslim mosques and against immigrants. Many European countries are concerned about the *cultural integration* and the (*lack of*) *assimilation* of immigrants, that is whether the basic norms and values of the majority society are adopted by existing minority groups.[1] For example, recently, the European eastern countries such as Hungary or Poland have clearly expressed their reluctance to welcome Syrian refugees fleeing war, who are mostly Muslims, arguing that their integration and assimilation to the European culture will be very difficult (see e.g. Mangin and Zenou, 2016).

The *assimilation* outcomes of second generation youths have also been hotly debated amongst scholars, especially in the United States (Alba et al., 2011; Haller et al., 2011) where the immigrant population's growth in recent decades has raised questions about whether and how their children, the second generation, will integrate into American society. Current perspectives on second generation integration have evolved and are varied. Some scholars adhere to the segmented assimilation framework in which the second generation will assimilate into different segments of American society based on structural barriers and prejudices (Portes and Rumbaut, 2001; Portes and Zhou, 1993). Other scholars believe that the outcome between immigrant and mainstream culture is less dichotomous, and that immigrants and the American mainstream will eventually coalesce as lifestyles and patterns gradually become similar over time (Alba and Nee, 2003). Different studies have shown distinct significant influences on the assimilation process for immigrants: the quality of immigrant cohorts (Borjas, 1985),

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[1] For an overview of these issues in Europe, see Kahanec and Zimmermann (2011).

country of origin (e.g. Beenstock et al., 2010; Borjas, 1987; 1992; Chiswick and Miller, 2011), ethnic concentration (e.g. Edin et al., 2003; Lazear, 1999) and personal English skill (e.g. Chiswick and Miller, 1995; 1996; Dustmann and Fabbri, 2003; McManus et al., 1983).

An often overlooked structural factor of assimilation of ethnic minorities is the role of *immigrant networks* in the assimilation process. This is what we study in this paper.

To be more precise, we develop a model where all individuals, native and minorities (or immigrants), are embedded in a network. The network we are interested in is the one that forms, in the host country, between immigrants and natives but also between immigrants. As a result, we are not modeling the migration process and the role of network in migration (for such a model, see, e.g. Giulietti et al., 2014). Instead, we examine the role of networks in the host country on assimilation choices and outcomes. In this network, immigrants and natives possess different positions in the network and have different productivities.

There are two stages. In the first stage, minority individuals (immigrants) have to decide whether or not they want to assimilate to the majority culture while, in the second stage, all individuals (both from the majority and the minority group) embedded in a network[2] have to decide how much effort they exert in some activity (say education or work on a job). Here both minority and majority workers belong to the same network. In this network, links can represent social or working relationships between people. There is a trade off for minority workers. If they choose assimilation, they will be more productive (in terms of education or in terms of skills on the job) because they are more adapted to the social norms of the host country (they know better the language and the habits of the host country). However, they need to pay a fixed cost of assimilation because it is costly, for example, to learn a new language. On the other hand, if they choose not to assimilate, they do not need to pay this cost but end up with a lower productivity, which decreases their outcomes (for example, their education level or their wage). As a result, the incentives for an individual belonging to the minority group to assimilate and adopt the culture of the majority are directly related to the expected gains and costs that such a strategy implies. We consider a model where efforts are strategic complements. If, for example, we think of education, then if someone that I'm linked to studies hard then I enjoy more utility to study hard myself. Similarly, if we think of productivity on the job, then if I'm linked to someone who works hard, then I enjoy more utility from working hard.

We show that the more central agents in the network tend to have higher productivity than the less central ones and thus, the ethnic minorities who are more central in the network tend to assimilate more than those who are less central because the gains of assimilation are higher. We also show that, when the strength of interactions in the network increases, social interactions become more valuable and, because it is costly not to assimilate (in terms of productivity), more people choose to assimilate. This highlights the fact that endogenous assimilation choices affect the contribution to equilibrium efforts. For example, when the cost of assimilation decreases, more agent choose to assimilate to the majority culture, which, in turn, increases social interactions in the network and thus equilibrium productive efforts and outcomes. Furthermore, we find that denser networks tend to favor assimilation so that, for example, it is easier to assimilate in a complete network than in a star-shaped network.

We also show that the subgame-perfect equilibrium is not optimal because there is not enough activity and assimilation. To re-

store the first best, we find that it is optimal for the planner to give higher effort subsidies (to all individuals) to more central agents in the social network. We also consider different communities that are not linked to each other and show that bridging them is always good for assimilation and also for total welfare.

We then extend our model to include network formation and, instead of having a binary choice of assimilation, we have a more "continuous" definition of assimilation, which is endogenously determined by the percentage of friends from the majority group each minority worker has. In this framework, the cost of forming links differ between intra-ethnic and inter-ethnic relationships. Due to cultural or language barriers, it is indeed always more costly to interact with someone from the other community than from own community. We assume that the cost of inter-ethnic relationships of two individuals negatively depends on the rate of exposure of these two agents to the other community. Indeed, the more an ethnic minority is "exposed" to the majority culture (by having an increasing fraction of friends from the majority group), the easier it will be for her to communicate and interact with other persons from the majority group and the lower will be the interaction costs between them. Using the concept of pairwise stability for equilibrium networks, we give conditions under which the two communities fully interact with each other (totally integrated communities) and when they do not interact at all (totally separated communities). We also provide some conditions for specific networks to be pairwise stable.

If we interpret the network as a city, then we have some interesting implications for urban economics. First, we show that the denser is the city, the more assimilated are the ethnic minorities and the more productive they are. Second, if a star network could be interpreted as a monocentric city while the complete network could be viewed as a polycentric city, then we show that for a monocentric city to emerge, the cost of interactions c and the labor-market opportunities α should have intermediate values while c has to be low enough and α has to be high enough for a polycentric city to emerge.

The rest of the paper unfolds as follows. In the next section, we relate our model to the relevant literatures and highlight our contribution. In Section 3, we expose the basic model, derive the two stages and characterize the subgame-perfect Nash equilibrium of this game. In Section 4, we illustrate our results with two specific networks: the star-shaped and the complete network. Section 5 is devoted to the welfare analysis and the subsidy policies aiming at restoring the first best. In Section 6, we consider separated communities and analyze how bridging them affects the outcomes of the individuals. Section 7 is devoted to network formation and assimilation choices. Finally, Section 8 concludes. In Appendix 1, we propose an alternative formulation of the utility function. In Appendix 2, we define the Katz–Bonacich centrality measure and give its value for the complete network. Appendix 3 provides all the proofs.

2. Related literature

2.1. Cultural transmission

There is a literature related to the assimilation of ethnic minorities and immigrants that has looked at the *cultural transmission*, in particular, at the transmission of ethnic identity from parents and peers to children. Indeed, based on some works on anthropology and sociology (see, in particular, Boyd and Richerson, 1985; Cavalli-Sforza and Feldman, 1981; Phinney, 1990), there is a literature in economics initiated by Bisin and Verdier (2000); 2001)[3] ar-

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[2] The economics of networks is a growing field. See Jackson (2008), Ioannides (2012), Jackson and Zenou (2015), Jackson et al. (2017) for recent overviews.

[3] For an overview, see Bisin and Verdier (2011).