Cultural Identity and Knowledge Creation in Cosmopolitan Cities

Gianmarco I.P. Ottaviano and Giovanni Prarolo

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Gianmarco I.P. Ottaviano, *Bocconi University, Fondazione Eni Enrico Mattei and CEPR*
Giovanni Prarolo, *University of Bologna and Fondazione Eni Enrico Mattei*

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Summary

We present a model in which multicultural cities emerge as the result of cultural diasporas when diversity fosters knowledge creation and endangers cultural identity. This danger is weakened when individuals are able to keep strong links with people of their own culture wherever they reside. Improvements in communication and transportation foster the emergence of multicultural cities in which diversity promotes productivity. Additional results concern the extent to which cultural identity relies on community rather than parental transmission. Materialism and parental transmission both favour multicultural cities.

Keywords: Cultural Identity, Knowledge Creation, Cosmopolitan Cities

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Address for correspondence:

Gianmarco I.P. Ottaviano
Bocconi University
Via Sarfatti 25
20136 Milan
Italy
E-mail: gianmarco.ottaviano@unibocconi.it

1 Introduction

In 2008 the share of world population living in cities has reached 50 per cent mainly due to urbanization in developing countries. Parallel to urbanization recent decades have seen the intensification of cultural diasporas. People have always moved across countries and large cities have often hosted multicultural crowds. Historically, however, cultural identity and territory have mostly tended to coincide. This is increasingly changing. Due to rapid improvements in communication and transportation technologies it is now possible for people belonging to the same culture to maintain close interactions even when geographically separated. They are thus able to maintain their cultural links even when finding their way in a globalized world. Since people are increasingly able to take their cultural identities with them wherever they move to, they can be "both here and there" at the same time (Beck, 2000). Many contemporary immigrants are what anthropologists call *transmigrants*, that is, people firmly rooted in their new country who still maintain multiple linkages to their homeland (Glick Schiller et al., 1995). This phenomenon has been linked to the fact that global modes of production necessitate transnational practices (Basch et al., 1994).

The aim of the present paper is to model the endogenous emergence of multicultural cities as the result of cultural diasporas and study its implications for urban economies. In so doing, it provides a novel microfoundation of the productivity gains from cultural diversity measured by Ottaviano and Peri (2005, 2006) in US cities as well as by Bellini, Ottaviano, Pinelli and Prarolo (2008) in EU NUTS3 regions. These gains have been identified by crossing the information contained in the spatial pattern of wages and rents. The fact that both these variables are positively correlated with various measures of cultural diversity reveals a positive correlation between diversity and total factor productivity. Instrumental variable analysis then highlights a casual link from the former to the latter. The basic idea of the microfoundation is that individuals belonging to different cultures have different ways of addressing the same problem. It is as if they gained access to different pieces of the same puzzle. As they possess complementary pieces of information, pooling them through informal communication channels can benefit everyone, hence the importance of proximity in cities.

In our model what works against the coexistence of different cultures within the same city is the dilution of cultural identities, whose defense is a costly activity. Quite naturally, costs are particularly high for minorities, which make individuals prefer to reside in cities where their culture is not minoritarian and peer effects are strong. This desire is weakened when individuals can keep strong links with their people no matter where they reside. Against this background, improvements in communication and transportation foster the emergence of multicultural cities in which diversity fosters productivity. The underlying assumption being that better communication and transportation facilitate interaction more within cultures than between them. Ancillary results concern the extent to which cultural indentity is 'materialistic' or relies on community rather than parental transmission. Materialism and parental transmission both favor multicultural cities. In this respect, Allen (2005) shows that in the Los Angeles metropolitan area the

rate of ethnic intermarriage is higher outside each ethnic group's residential cluster. This finding is interpreted as evidence that people that are relatively more inclined toward 'materialistic' goals (such as higher income and better jobs) rather than 'cultural' goals (the perpetuation of habits that are common to their culture) are more likely to move and settle in multicultural environments.

From a welfare point of view, the model generates situations in which segregation of different cultural groups in different cities is an equilibrium but is Pareto dominated by their integration in multicultural cities. This is the case when the relative importance of peer effects for cultural transmission is small and the relative importance of materialistic consumption is large. Viceversa, when the relative importance of peer effects for cultural transmission is large and the relative importance of materialistic consumption is small, segregation is not an equilibrium though it Pareto dominates integration. In both cases, market signals fail to assign the right weight to the positive impact of intercultural interactions on knowledge creation. The stronger this impact, the larger the inefficiency of the market outcome.

The remainder of the paper is organized in five additional sections. Section 2 surveys some related literature. Section 3 presents the model. Section 4 characterizes its equilibrium properties. Section 5 studies some welfare implications while Section 6 concludes.

2 Literature review

The implications of diversity for economic performance have been investigated empirically at different levels of aggregation. Alesina and La Ferrara (2005) survey how ethnic diversity ('fractionalization') is related to economic performance at country, city and community levels. At country level, they recognize a negative effect of fractionalization on the provision of public goods, while they do not find conclusive evidence about the effect of diversity on growth. In particular, they estimate the effect of ethnic and linguistic fractionalization on long term growth and find diversity measures to be negatively correlated with growth only in poor democratic or low income countries, while for richer and fully democratic countries the relation turns out not to be significantly different from zero. At city level they report results from Glaeser et al. (1995) and Ottaviano and Peri (2006) about US cities. In the former there is no evidence of any effect of racial fragmentation on population growth, while in the latter a positive effect of the share of foreigners in the population is found to positively impact on productivity (see, also, Ottaviano and Peri, 2005). Alesina and La Ferrara (2005) note that, after adding to Glaeser et al. (1995)'s specification an interaction term of initial per-capita income and fragmentation, the results turn out to be similar to those presented across countries: the effect of fragmentation is negative for low-income countries and insignificant (and in some cases positive) for high-income countries.

Another line of research looks at production diversity in the context of industrial districts and cities. Duranton and Puga (2001) model why and how firms find it optimal to locate in a 'diverse' environment at initial stages of the production, when trial and error is important for

research activity, while in later stages they prefer to move to more productively homogeneous areas, where they can exploit economies of scale and a labor pool with specific skills. This is consistent with evidence of "nursery effects" found by Harrison et al. (1996) as well as by Kelley and Helper (1999) showing that skill heterogeneity in employment contributes to the development of new production processes. The limited importance of diversity at later stages of the product cycle is, instead, consistent with the findings reported by Henderson (1999) showing that the agglomeration of firms belonging to the same sector enhances overall productivity. Looking at city rather than firm level, Glaeser et al. (1992) validate the hypothesis of Jacobs (1969), according to which cities showing higher diversification in production innovate more because of cross-fertilization across different sectors. Such cross-fertilization process arise because of the high mobility of workers within a city who carry with them the knowledge learnt around or because of face-to-face contacts that, as Storper and Venables (2004) argue, are a unique feature of cities.

The impact of cultural diversity on long run growth has been recently studied by Ashraf and Galor (2007) who analyze the "reverse of fortunes" between China and Europe. The former, more culturally homogeneous because of geographical location, had been richer for a long period, while the latter, much more vulnerable to the cross-fertilization brought by the influx of foreign people, finally leap-frogged shifting from a regime of production based on agriculture to a new regime characterized by the adoption of new manufacturing technologies. Although not microfounding the process leading different cultures to mix, Ashraf and Galor (2007) show that cultural homogeneity is a blessing in early stages of development when static incremental technologies have to be developed on a local basis. However, in later stages of development characterized by human capital intensive technologies, cultural diversity fosters the exchange of new ideas and knowledge allowing steady growth to arise.

Against this background, Berliant and Fujita (2006, 2007) argue that time is ripe to open the the black box of the benefits of knowledge diversity. In so doing, they develop models in which they analyze how a mix of common and individual types of knowledge determines equilibrium knowledge creation. They find that for a large set of initial conditions the equilibrium process of knowledge creation converges to the most productive state, where the population splits into smaller groups of optimal size. Fujita (2007) draws on these results to propose a new research agenda in which the standard agglomeration and diffusion forces already in place in location models should be supplemented by a deeper analysis of knowledge creation.

While subscribing to this agenda, the present paper focuses on its cultural dimension by assuming that individual knowledge is culture specific and cultural identity (and in the end diversity itself) is under strain in multicultural environments. We model this pressure in the wake of Bisin and Verdier (2000, 2001) and Bisin et al. (2006). These authors are interested in the way culture evolves, both at the individual and the aggregate levels, when indivuals care about the cultural environment in which they and their offsprings will live. In their models the cultural environment shapes preferences, due to the substitutability between parental pressure

and peer effects in transmitting certain cultural traits from one generation to the next. As long as substitutability is in place, cultural traits may remain heterogeneous even in the long run and even after introducing evolutionary selection affecting payoff-maximizing cultural transmission choices.

Peer effects in education are stressed by the literature on neighborhood effects. Benabou (1993) models the links between residential choices, education, and productivity in a city composed of several communities. Local complementarities in human capital investment induce occupational segregation, although efficiency may require identical communities. The reason is that residential choices do not internalize the negative externality of segregation on education costs and labor force participation. De Bartolome (1990) obtains the mirror result in terms of efficiency in a community model with public expenditures set by voting. Here the tension is between the tendency to segregate due to the different taste for public inputs and the tendency to integrate due to the different taste for peer groups. In the decentralized equilibrium communities may become heterogeneous in composition and inefficient when the peer group effect is neither "too strong" nor "too weak".

3 The model

We model a spatial economy characterized by two cities, called A and B, and two types of individuals belonging to two different cultural groups, called 1 and 2. Each individual is endowed with one unit of labor and the overall numbers of individuals of the two types is exogenouly given by L_1 and L_2. We assume that the two groups are equally sized and set their sizes to one by choice of units ($L_1 = L_2 = 1$) so that the total number of individuals in the economy is $L_1 + L_2 = 2$. Accordingly, we can call l_{jk} both the number and the share of individuals of type k in city j so that $l_{jk} + l_{ik} = 1$. Individuals are freely mobile between cities and their location will be endogenously determined.

3.1 Preferences

Each individual ('parent') is endowed with one unit of time that she divides between working and putting effort in passing her type ('cultural trait') to her child.[1] Her utility comes from consumption of a standard good (y_{jk}) and a cultural good (C_{jk}) whose fruition is possibile only if the child shares the same cultural trait as the parent. The consumption levels of both goods depend on the parent's type $k \in \{1, 2\}$ and the city $j \in \{A, B\}$ where she lives. Utility is assumed to take the following Cobb-Douglas functional form

$$U_{jk} = \beta \log y_{jk} + (1 - \beta) \log C_{jk} \tag{1}$$

[1] When needed, we simply refer to "educating".

where β is the degree of 'materialism': the larger β, the more the parent prefers the consumption of the final good to sharing her culture with her child.[2] Following Bisin at al (2006), the probability that the child ends up with the same trait as her parent depends positively both on the time e_{jk} the parent devotes to cultural transmission and on the share l_{jk} of individuals of the same type in the city ('peer effect'). In addition, to capture the links associated with cultural diasporas, it also depends on the share of individuals of the same type in the other city l_{ik} (with $l_{jk} + l_{ik} = 1$), though their peer effect may be weakened by distance related obstacles. Specifically, let $p(e_{jk}, d(l_{jk}, l_{ik}))$ be the probability that the parent succeeds in transmitting her trait. The following properties of $p(e, d)$ hold: $0 < p < 1$, $p_e > 0$, $p_{e,e} < 0$, $p_d > 0$, $p_{d,d} < 0$, $p_{e,d} > 0$. The last property entails some degree of substitutability between familiar effort and neighborhood composition exists in facilitating the transmission of cultural traits from parents to children. For concreteness, we assume $C(p(e_{jk}, d(l_{jk}, l_{ik}))) = e_{jk}^{\lambda} \left(l_{jk} + \phi l_{ik}\right)^{1-\lambda}$ with $\lambda \in (0, 1)$ and $\phi \in [0, 1)$. In this formulation λ represents the relative importance of individual education for the probability that the child has the same cultural trait as the parent while $1 - \lambda$ represents the relative importance of the peer effect. The communication parameter ϕ measures instead the relative importance of distant cultural links with respect to localized peer effects. It is bounded below one because we assume that peer effects are always more important than distant cultural links.

The expected net labor income I_{jk} of an individual of type k living in city j is determined by time spent working, i.e. individual labor endowment (one unit of time) net of time devoted to cultural transmission (e_{jk}) and time lost in commuting $\Gamma(L_j)$. As I_{jk} is spent for the consumption of the standard good y_{jk}, the individual's budget constraint is:

$$P_j y_{jk} = I_{jk} = w_j \Gamma(L_j)(1 - e_{jk}) \tag{2}$$

where P_j is the price of the standard good and w_{jk} is the wage per unit time for individuals of type k in city j. The factor $\Gamma(L_j)$ captures congestion costs and it is a decreasing function of the total working population in city j: $L_j = l_{j1} + l_{j2}$. In the wake of Duranton and Puga (2001), we assume $\Gamma(L_j) = (1 - \tau L_j)$, where $\tau > 0$ accounts for commuting time costs (see Fujita (1989) for details).

Maximizing (1) subject to (2) with respect to e_{jk} implies the optimal time spent on education is

$$e^* = \frac{\lambda(1 - \beta)}{\beta + \lambda(1 - \beta)} \tag{3}$$

which decreases with the individual's 'materialistic' orientation and decreases with the relative importance of peer effects $1 - \lambda$ in cultural transmission. It is, however, independent from both type and neighborhood composition. These affect instead the probability of transmitting the

[2] Since our model is a static one, we are not interested in the distribution on types among children, but rather on the time allocation of the parents and the aggregate economic characteristics of the *current* generation.

trait and therefore the consumption of the cultural good:

$$C(p(e^*, d(l_{jk}, l_{ik}))) = (e^*)^{\lambda} (l_{jk} + \phi l_{ik})^{1-\lambda} \tag{4}$$

3.2 Technology

The standard good is supplied by perfectly competitive firms. It is freely traded across cities and we take it as numeraire. Production employs labor as its only input under constant returns to scale. Different types of workers are perfectly substitutable but their productivity may differ depending on the cultural composition of cities. Let us call a_{jk} the (average) productivity of an individual of type k in city j. Then perfect competion and our choice of numeraire imply that the wage per hour worked is $w_{jk} = a_{jk}$ as more productive workers generate more output per hour worked, with aggregate production given by

$$Y_j = \Gamma(L_j)(1 - e^*) (a_{j1} l_{j1} + a_{j2} l_{j2}) \tag{5}$$

To produce the standard good individuals have to go through social interaction and their productivity depends on the surrounding cultural environment. Crucially, we assume that interaction between individuals belonging to different groups yields better outcomes and higher productivity than interaction within the same group. Formally, during social interaction individual productivity is assigned as a random draw from some underlying distribution of unit labor requirements c with support over $[0, c^M]$. When an individual interacts with someone of her same type, her productivity is determined by a single draw with expected value $c(1)$. When she interacts with someone of the other type, both parties take their single draws indipendently and pick the lowest, which yields expected unit labor requirement $c(2)$. Accordingly, $c(2)$ cannot be larger than $c(1)$.[3] Thus, the (ex-ante) expected unit labor requirement of an individual of type k in city j is $c(1)l_{jk} + c(2)(1 - l_{jk})$. This implies expected productivity equal to $[c(1)l_{jk} + c(2)(1 - l_{jk})]^{-1}$ and therefore

$$w_{jk} = a_{jk} = \frac{1}{c(1)l_{jk} + c(2)(1 - l_{jk})} \tag{6}$$

4 The equilibrium

The distribution $l_{Ak} \in [0, 1]$ is a spatial equilibrium when no individual of type $k \in \{1, 2\}$ may get a higher utility level by changing location. Given (1), (2), (3) and (4) the indirect utility of an individual of type k in city j is as follows:

$$V_{jk}(l_{A1}, l_{A2}) = \beta \log (w_{jk}\Gamma(L_j)(1 - e^*)) + (1 - \beta) \log \left((e^*)^{\lambda} (l_{jk} + \phi l_{ik})^{1-\lambda} \right) \tag{7}$$

[3] For example, the expected minimum of m independent draws from a uniform distribution of c with support $[0, c^M]$ is $c(m) = c^M/(1 + m)$. Accordingly, when an individual interacts with someone of her same type, the expected minimum is $c(1) = c^M/2$. When she interacts with someone of the other type, the expected minimum is $c(2) = c^M/3$.

Then a spatial equilibrium arises at $l_{Ak} \in (0,1)$ when

$$\Delta V_k (l_{A1}, l_{A2}) \equiv V_{Ak} (l_{A1}, l_{A2}) - V_{Bk} (l_{A1}, l_{A2}) = 0 \tag{8}$$

or at $l_{Ak} = 0$ when $\Delta V_k (l_{A1}, l_{A2}) \leq 0$, or at $l_{Ak} = 1$ when $\Delta V_k (l_{A1}, l_{A2}) \geq 0$.

In order to study the stability of a spatial equilibrium, we assume a myopic adjustment process, that is, the driving force in the migration process is individuals' current utility differential between A and B:

$$\dot{l}_{Ak} \equiv dl_{Ak}/dt = \begin{cases} \Delta V_k (l_{A1}, l_{A2}) & \text{if } 0 < l_{Ak} < 1 \\ \min\{0, \Delta V_k (l_{A1}, l_{A2})\} & \text{if } l_{Ak} = 1 \\ \max\{0, \Delta V_k (l_{A1}, l_{A2})\} & \text{if } l_{Ak} = 0 \end{cases} \tag{9}$$

when t is time. Clearly, a spatial equilibrium implies $\dot{l}_{Ak} = 0$ for both $k = 1$ and $k = 2$. If $\Delta V_k (l_{A1}, l_{A2})$ is positive, some workers will move from B to A; if it is negative, some will go in opposite direction.

A spatial equilibrium is stable for (9) if, for any marginal deviation from the equilibrium, this equation of motion brings the distribution of individuals back to the original one. Therefore, distributions featuring $l_{Ak} = 0$ and $l_{Ak} = 1$ are always stable when they are an equilibrium while distributions featuring $l_{Ak} \in (0,1)$ are stable if and only if the slope of $\Delta V_k (l_{A1}, l_{A2})$ is locally nonpositive.

4.1 Agglomeration

To characterize the different equilibrium distributions, it is useful to rewrite (8) as

$$\Delta V_k (l_{A1}, l_{A2}) = \log \left\{ \left[\frac{l_{Bk} + \theta (1 - l_{Bk})}{l_{Ak} + \theta (1 - l_{Ak})} \right]^{\beta} \left(\frac{1 - \tau L_A}{1 - \tau L_B} \right)^{\beta} \left(\frac{l_{Ak} + \phi l_{Bk}}{l_{Bk} + \phi l_{Ak}} \right)^{(1-\lambda)(1-\beta)} \right\} \tag{10}$$

where $\theta \equiv c(2)/c(1) \in (0,1)$ and we have used (2), (4), (6) and (7).

Inspecting (10) reveals that the two agglomerated distributions involving the concentration of both types of individuals in the same city (i.e., $L_A = 0$ or $L_B = 0$) are always equilibria. The reason is that, absent local interactions, for an individual moving to the other empty city it would be impossible to produce the standard good and hence earn any wage as $L_j = 0$ implies $l_{jk} + \theta (1 - l_{jk}) = 0$. Such agglomerated distributions are, however, not stable. If an individual of a certain type were exogenously moved to the empty city, each individual of the other type would have an individual incentive to migrate as this would drastically cut her congestion costs while leaving her wage and her consumption of the cultural good unaffected. This would be due to unchanged probability of interacting with individuals of the other type as well as unchanged probability of trasmitting her cultural trait as both cities would have the same balanced cultural composition.

4.2 Segregation

Inspecting (10) also reveals that segregated distributions involving the concentration of the two types of individuals in different cities (i.e., $l_{A1} = 1$ and $l_{B2} = 1$ or viceversa) are equilibria whenever

$$\phi \leq \theta^{\frac{\beta}{(1-\lambda)(1-\beta)}} \equiv \phi_S \tag{11}$$

This is explained by the fact that an individual leaving the city where her type is concentrated faces a trade off between higher wage and lower consumption of the cultural good. The former advantage is due to higher probability of interacting with individuals of the other type. The latter advantage is due to lower probability of transmitting her cultural trait. Difficult distant interaction (small ϕ), low productivity gain (large θ), large importance of peer effects (low λ), large weight of cultural good consumption (low β) all foster segregation. Moreover, when (11) holds, segregation is not only an equilibrium but it is also stable. When (11) is instead violated, segregration is not an equilibrium configuration.

4.3 Integration

Given the symmetry of our set-up it is straightfoward to see that $\Delta V_k\left(1/2, 1/2\right) = 0$ so that the symmetric multicultural outcome with the two groups evenly split between cities is always an equilibrium. However, it may be unstable. To check its stability we calculate the corresponding eigenvalues of the Jacobian associated with the dynamic system

$$\begin{cases} \dot{l}_{A1} = \Delta V_1\left(l_{A1}, l_{A2}\right) \\ \dot{l}_{A2} = \Delta V_2\left(l_{A1}, l_{A2}\right) \end{cases}$$

which turn out to be

$$r_1 = -4\frac{\beta\tau}{1-\tau} \quad r_2 = -4\frac{[(1-\beta)(1-\lambda)(1+\theta)+\beta(1-\theta)]\phi-[(1-\beta)(1-\lambda)(1+\theta)-\beta(1-\theta)]}{(1+\phi)(1+\theta)}$$

While the former eigenvalue is always negative, the latter is negative if and only if

$$\phi > \frac{\left(1-\beta\right)\left(1-\lambda\right)\left(1+\theta\right)-\beta(1-\theta)}{\left(1-\beta\right)\left(1-\lambda\right)\left(1+\theta\right)+\beta(1-\theta)} \equiv \phi_B \tag{12}$$

in which case the symmetric multicultural equilibrium is stable. Accordingly, the stability of the symmetric multicultural equilibrium is fostered by strong materialism (large β), large productivity gains (small θ), the importance of parental rather than peer-driven cultural transmission (large λ) and easy interaction within cultural types between cities (large ϕ).

Figure 1 depicts the phase diagram of the dynamic system. In the panel (a) ϕ is small, condition (12) is violated while condition (11) holds. In this first case $(l_{A1}, l_{A2}) = (1/2, 1/2)$ is unstable ('saddle') and stable equilibria imply that different cultural groups are 'segregated' in different cities. In panel (c) the opposite is true: ϕ is large, condition (12) holds while

condition (11) is violated. In this second case the 'integrated' equilibrium $(l_{A1}, l_{A2}) = (1/2, 1/2)$ is stable ('stable node') whereas segregation is not sustainable in equilibrium. Finally, in panel (b) both conditions hold simultaneously: both integration and segregation are stable equilibria. In this third case, there is 'hysteresis' in the cultural cultural composition of cities as only large enough exogenous migration shocks can drive the equilibrium from segregation to integration and viceversa.

In Figure 2 the bifurcation diagram summarizes the stability properties of spatial equilbria as a function of the communication parameter ϕ. Thick lines represent stable equilibria while thin lines represent unstable ones. In the figure ϕ_B identifies the value of ϕ, defined in (12), above which the integrated equilibrium is stable. Analogously, ϕ_S identifies the value of ϕ, defined in (11) above which segregation is not an equilibrium. Hence, a gradual improvement in distant communication (larger ϕ) allows individuals to increasingly rely on their enlarged community for identity transmission. This reduces the relative importance of localized peer effects fostering knowledge creation and productivity.

5 Pareto optimality

A key issue is whether decentralized location decisions lead to a suboptimal city composition from a Pareto point of view. Individuals are better off in the integrated outcome if their indirect utility is higher than in the segregated one. This is the case whenever :

$$\phi > 2\left(\frac{1+\theta}{2}\right)^{\frac{\beta}{(1-\lambda)(1-\beta)}} - 1 \equiv \phi_O \tag{13}$$

As (12) and (11), also (13) holds for strong materialism (large β), large productivity gains (small θ), parental rather than peer-driven cultural transmission (large λ) and easy interaction within cultural types between cities (large ϕ).

The threshold ϕ_O can be compared with the other threshold ϕ_S below which segregation is an equilibrium. When $\phi_O < \phi_S$, the values of ϕ in the interval (ϕ_O, ϕ_S) entail that segregation is an equilibrium whereas a shift to integration would be welfare enhancing from a Pareto point of view. Viceversa, when $\phi_O > \phi_S$, the values of ϕ in the interval (ϕ_S, ϕ_O) entail that segregation is not an equilibrium though it would Pareto dominate integration. The definitions of ϕ_S and ϕ_O in (11) and (13) imply that

$$\phi_O \geq (\leq)\phi_S \text{ if and only if } \left(\frac{1+\theta}{2}\right)^{\frac{\beta}{(1-\lambda)(1-\beta)}} \geq (\leq)\frac{1+\theta^{\frac{\beta}{(1-\lambda)(1-\beta)}}}{2}$$

Therefore, given $\theta \in (0,1)$, we have $\phi_O \geq (\leq)\phi_S$ if and only if $(1-\lambda) \geq (\leq)\beta/(1-\beta)$. In words, segregation is an equilibrium but Pareto dominated by integration when the relative importance of peer effects for cultural transmission is small (i.e. λ is large) and the relative importance of materialistic consumption is large (i.e. β is large). Segregation is not an equilibrium though it

Pareto dominates integration when the relative importance of peer effects for cultural transmission is large (i.e. λ is small) and the relative importance of materialistic consumption is small (i.e. β is small). As they are larger for smaller θ, the gaps between ϕ_O and ϕ_S are increasing functions of the productivity gains from intercultural interaction. When these are absent, $\theta = 1$ implies $\phi_B = \phi_S = \phi_O = 1$ so that segregation is the only stable equilibrium configuration and Pareto dominates integration.

6 Conclusion

We have presented a model in which multicultural cities emerge as the result of cultural diasporas when diversity fosters knowledge creation and endangers cultural identity. This danger is weakened when individuals are able to keep strong links with people of their own culture wherever they reside. Against this background, improvements in communication and transportation foster the emergence of multicultural cities in which diversity promotes productivity. The underlying assumption is that better communication and transportation facilitate interaction more within cultures than between them. Additional results concern the extent to which cultural indentity is 'materialistic' or relies on community rather than parental transmission. Materialism and parental rather than peer-driven cultural transmission both favor the emergence of multicultural cities.

From a welfare point of view, segregation of different cultural groups in different cities is an equilibrium but is Pareto dominated by their integration in multicultural cities when the relative importance of peer effects for cultural transmission is small and the relative importance of materialistic consumption is large . Viceversa, segregation is not an equilibrium though it Pareto dominates integration when the relative importance of peer effects for cultural transmission is large and the relative importance of materialistic consumption is small. In both cases, market signals fail to assign the right weight to the positive impact of intercultural interactions on knowledge creation. The stronger this impact, the larger the inefficiency of the market outcome.

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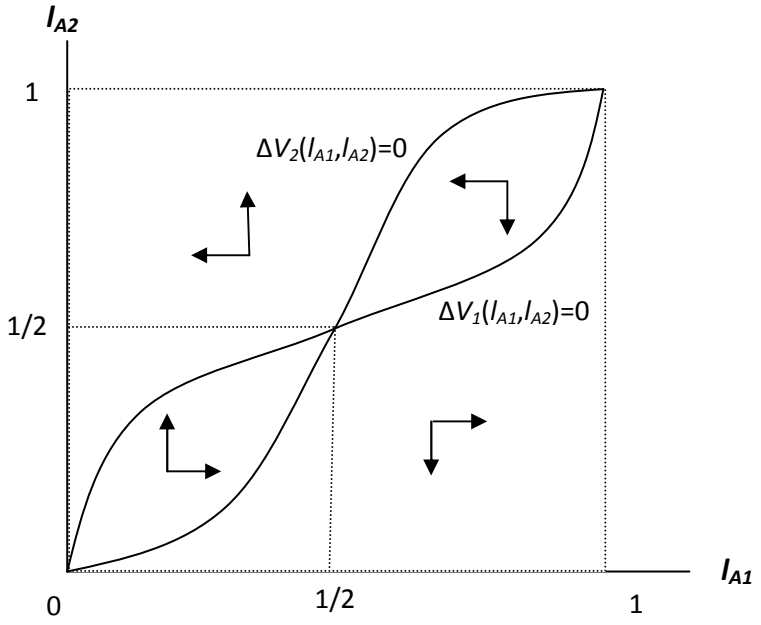
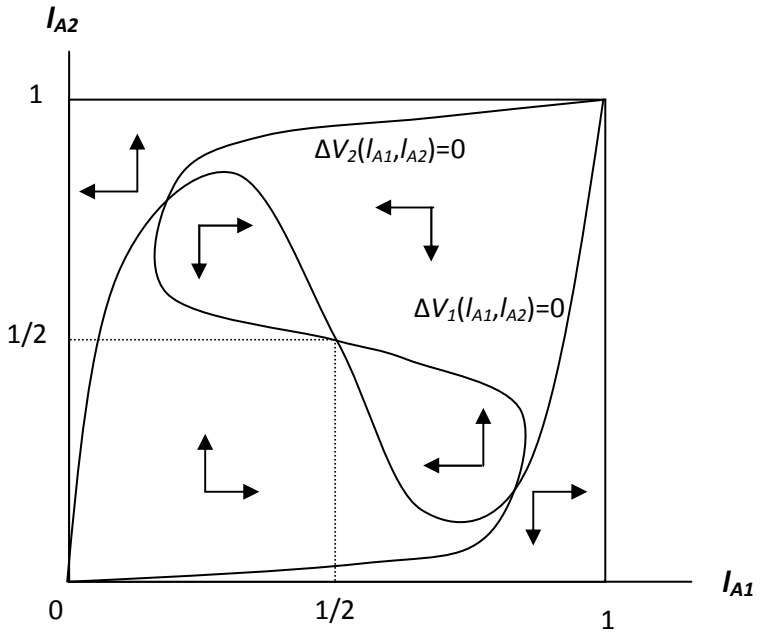
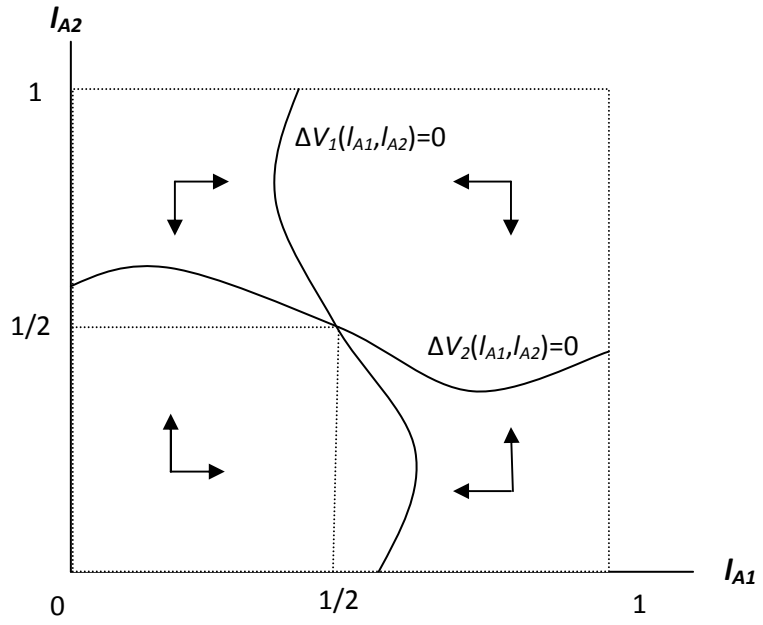


a) Small ϕ



b) Intermediate ϕ

Figure 1 – The emergence of multicultural cities



c) Large ϕ

Figure 1 – The emergence of multicultural cities (continued)

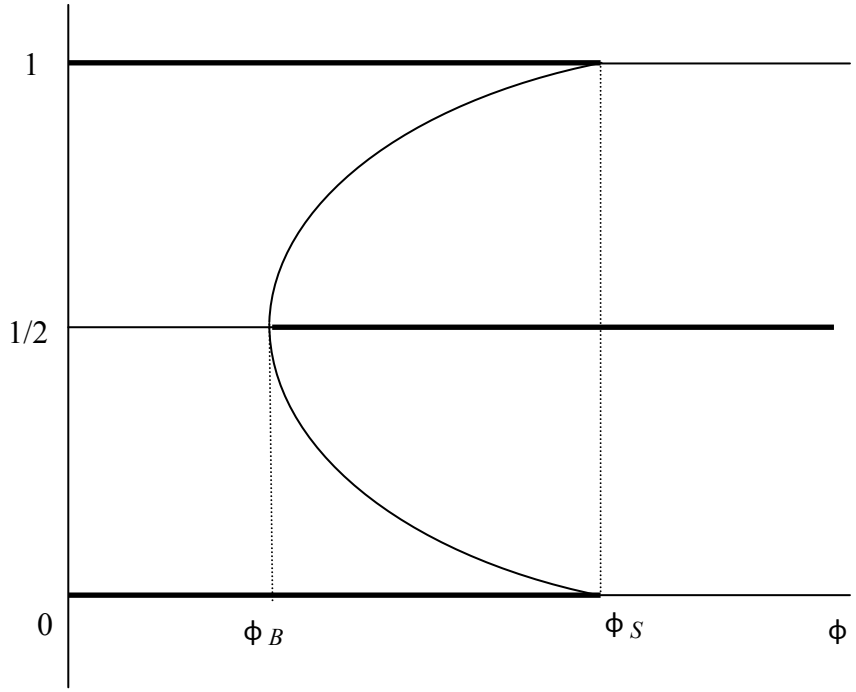


Figure 2 – Multiculturality and distant communication