Exposure to foreign cultural goods and people’s attitudes toward migration

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Abstract

This paper discusses the role of cultural factors in shaping people’s attitudes towards immigration. In particular, it introduces the idea that a possible channel through which cultural heterogeneity can emerge in a society is the production and the consumption of cultural goods. It also analyses the impact that pattern of consumption of different cultural goods can have on public opinion over immigration. After presenting a simple static general equilibrium model in which migration and trade in cultural goods are complement, the paper provides some empirical evidence on the possibility that, controlling for potential endogeneity, enhanced exposure to cultural heterogeneity positively affects attitudes towards immigration. In doing so, it joins data on individual attitudes from all four rounds of the European Social Survey and data on trade flows from UN-Comtrade database.

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1 Introduction

How should European countries manage immigration? Which policies need to be adopted to handle the phenomenon? These two questions are among the most debated issues on today’s political agenda. Aside from purely economic considerations, a growing attention is paid to issues such as national identity and culture. Recent statements by the German cancellor Angela Merkel about the death of multiculturalism have put integration strategies at the forefront of the political debate over immigration. The German leader pointed out that it had been an illusion to think that Germans and foreign workers could "live happily side by side". Similarly in the UK, considered a symbol of liberalism, a debate over national identity is starting and "compared with a decade ago, the laissez-faire approach to immigration has fewer takers, even on the left." In fact, "unequivocal defenders of multiculturalism are now hard to find; even its advocates concede the need for newcomers to learn to speak English, and, to a degree, for values and institutions to bind together a diverse population." (The Economist, Apr 29th 2010). Many European political leaders thus argue the failure of multiculturalism, but few of them are making further effort to elaborate on the nature and causes of this failure. As Mr Cameron recently said at a conference in Munich, "the doctrine of state multiculturalism had encouraged Britons to live segregated lives. In its stead, he proposed a muscular liberalism that confronts extremism and promotes a British identity open to all" (The Economist, Feb 10th 2011). Multiculturalism is something that needs to be built and cannot simply happen. An ideal homogeneous society needs not to be supported to prosper peacefully, while cohabitation of different cultures in the same society need reciprocal understanding in order to avoid social tensions. What if the failure of multiculturalism is just a matter of lack of mutual comprehension? What if the biggest obstacle is the lack of means through which different cultures can dialogue among each others?

Along with this heated political debate, the scientific literature has suggested the idea that cultural diversity in society can influence in a number different ways both people’s attitudes towards immigration and people’s propensity to migrate. Pritchett (2006) points out that “of all ideas that limit migration, perhaps the most important is the idea that there is a national culture and that increased labor mobility threatens that culture”. Ethnic heterogeneity in economics is usually associated with positive effects on the supply side and negative effects on the demand side of the economy. The former are usually associated with enhanced productivity while the latter to welfare losses. Alesina & La Ferrara(2005), for example, consider a model where individual utility depends on the consumption of a public good (i.e. schools, roads, ecc.): high fragmentation of the society in ethnic groups causes conflict of preferences. On the production side, skills of different individuals are complementary in the production of a private good and thus the presence of a larger number of ethnic groups enhances productivity. Ottaviano & Peri (2006) con-

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1 At a rate that decreases with the number of individuals’ types available.
sider that cultural diversity could have an effect on agents’ utility, acting as a local disamenity in so far as multiculturalism may endanger natives’ own cultural values, or it could have a productivity effect associated with local diversity that depends on the interplay between intercultural frictions and complementarities. Kerr and Lincoln (2010) link directly high-skilled immigration and technology formation in US between 1995 and 2007: they show that increased admissions of highly skilled workers in US cities raised the total number of innovations and this happened mainly thanks to the contribution of immigrant inventors.

However, growing empirical evidence highlights the role played by a third channel through which people’s attitudes toward immigration can be shaped: cultural factors. Nevertheless, there is no clear discussion about the direction of the effect of enhanced cultural heterogeneity on those attitudes.

This paper contributes to the existing literature by introducing the idea that one possible channel through which cultural heterogeneity can emerge is the production and the consumption of cultural goods. In particular, it discusses the impact that the pattern of consumption of different cultural goods can have on public opinion over immigration. Indeed the simple theoretical framework introduced by this paper is a static general equilibrium model where trade and migration are complements to a certain extent. The basic idea of the model is that consumption of cultural goods can influence people’s attitudes towards immigration depending on different individual preferences for cultural heterogeneity. Ideally it combines a "love-for-variety" feature à-la-Krugman with the existence of cultural externalities introduced, for example, in Olivier et al (2008). In the latter, a cultural externality is defined in the following way: agents who share a common cultural identity benefit from a positive group externality when they engage in actions deemed appropriate by their culture (as in Akerolf & Kranton, 2000). It also exploits the Armington assumption of good differentiation on the basis of country of origin of production, but in this context the notion is slightly modified. In particular, since we are talking about cultural goods it is not the country of origin of the good that matters but the culture of origin that defines different varieties. Each country thus originates a culture but the production of its respective cultural good can be located in any country depending on the availability of factor endowments. Think of any of the cultural goods mentioned before: from products of the audio-visual industry to books, from restaurants to works of art. When one thinks about those goods, one can imagine they are potentially produced anywhere but they will differentiate one from the other depending on the culture that originated their content. Many books, for example, can be considered unequivocally the products of a specific culture because, through the main story, they give the reader a small taste of everyday life in the country the book’s narrative is set. It can tell something about that country’s habits, values, beliefs, socio-economic context and political situation. Everything, from characters’ names to the relationship between parents and children, from food people eat to the value they give to religion can be very different between an Italian writer’s story and a Japanese writer’s one. At the same time, though, this difference has nothing to do with the place where the book is physically printed and distributed. From the production point
of view, indeed, the goods are identical as long as they have the same physical characteristics (length, cover size, etc.). However, from the point of view of the "consumer", i.e. the reader, they can be very different depending on their taste for cultural heterogeneity and their ability to appreciate it. Similarly, individuals when considered as workers are homogeneous but when considered as consumers can differ between two types. In particular "open-minded" individuals are characterized by love for variety in their utility function while "closed-minded" individuals are characterized by a cultural externality as defined above. Open-minded individuals are thus those that like heterogeneity in consumption and they can appreciate it more the more open-minded individual (of all cultures) are present in the country they live in. Closed minded individuals, instead, consume only their own homogeneous cultural good but they want to consume it with people of their same type and culture. When countries open to trade, the love for varieties of open-minded people will lead to trade in ethnic goods. When migration is also allowed, each open-minded individual will choose whether to migrate or not depending on the balance of two factors. On the one hand all open-minded individuals will tend to cluster because they will appreciate more consumption of ethnic goods the more individuals of their type of all cultures are present in the country they live in, on the other hand they face instead an idiosyncratic cost of relocation that will determine its specific decision. Thus in equilibrium not all open minded individuals will migrate (only those with lower cost) but all of them will be willing to consume differentiated varieties and welcome other open-minded people. Closed minded individuals, instead, will not have any incentives to migrate from the country they were born in since in equilibrium they will consume only the homogeneous good and they will cluster with other closed-minded individuals of their same culture.

This model thus proposes an economic channel through which favourable attitudes towards immigration are closely linked to consumption of foreign cultural goods. In the model just described, indeed, the presence of immigrants amplifies the utility that open minded people can enjoy when consuming varieties of the differentiated good (ethnic sector). This theoretical framework is supported by an empirical analysis where "active" exposure to foreign cultural goods is shown to significantly increase the probability of being pro-immigration. This empirical analysis based on data from the European Social Survey on individual attitudes towards immigration and data from UN-Comtrade on cultural goods' imports. Results show that controlling for individual relevant characteristics and country level unobserved heterogeneity, exposure to higher cultural diversity increases people's tolerance towards immigration. This effect is stronger when considering immigrants of a different race/ethnicity and is shown to depend on immigrants' ability to enrich cultural life in their host country.

The rest of the paper is organized as follows: section 2 briefly reviews the existing literature on the link between immigration and culture, section 3 in-
introsuces a simple theoretical framework that links cultural heterogeneity and attitudes toward immigration, section 4 presents some empirical results and section 5 concludes.

2 Literature review

This paper draws on different strands of literature. First of all it build on the debate over cost and benefits of increased immigration. Traditionally the impact of immigration is discussed in terms of labor market outcomes, as immigrants change the skill composition of the labor force, or in terms of welfare burden. As far as the labor market impact of immigration is concerned a wide literature has distinguished different channels through which host economies can adjust to immigration. Indeed, immigration inflows can change wage or employments level or they can cause an adjustment in the output mix of host economy or in production technologies adopted (see Dustman et al., 2008, for a review of existing literature). As far as the public finance impact of immigration is concerned, instead, the channels usually considered are mainly two: the impact of immigration on tax burden or its consequences on benefit adjustment. Empirical results in this regards are mixed and often depend on the country considered (see for example Borjas et al., 1996, and Borjas , 1999, for United States and Boeri et al. 2002 for the case of European Union member states). Considering more closely the effect of welfare-state considerations on individual attitudes towards migration, Facchini and Mayda (2009) support the idea that adjustment to immigration is realized through changes in tax rate. More specifically, they control for labor market determinants and other individual characteristics and they show in a cross-country analysis that high income individuals oppose unskilled immigration while favoring skilled one.

This paper, however, focus on the role of cultural impact of immigration. A growing empirical literature, indeed, tries to distinguish the economic factors just described from non-economic determinants of attitudes towards immigration: all these contributions, controlling for labor market and welfare concerns, introduce an important role for cultural factors, values and beliefs in shaping attitudes towards immigrants. Citrin, Green, Muste and Wong (1995) use US data to provide evidence that, conditioning on noneconomic factors, the correlation between attitudes towards immigration and economic characteristics is much weaker. Dustmann & Preston (2007) show for UK that preference for tight immigration policy is more strongly associated with racial prejudice than job insecurity or tax concerns when considering immigrants of different ethnicity from the majority. In a more recent paper (Card et al., 2009), they also broaden those results developing a reduced form model in which consumers distinguish between economic effect of immigration on the one side and "compositional amenities" effect on the other. In particular they identify the latters with characteristics of the society the individual lives in: preferred degree of homogeneity in customs, traditions, religion and language spoken, as well as perceived impact of immigrants on cultural life, social tensions and crime. Using answers to 10
questions from the European Social Survey (ESS), they identify the relative importance of the two channels described above in shaping individual preferences over immigration policy and they show that cultural effects are far more significant than economic effects in driving individual concerns over immigration. Bisin, Patacchini et al. (2010) discuss the idea that immigration’s perceived impact is not only associated to an economic cost and benefit analysis, but also to cultural diversity and to the degree of integration of immigrants in host societies (civic identity, segregation along both economic and geographical lines & labor market outcomes).

Moreover, a number of recent contributions, concentrate specifically on the crucial role of cultural considerations over national identity and integration costs in assessing the impact of immigration, defining individual attitudes and consequently shaping immigration policies. Hainmueller & Hiscox (2007), for instance, show that the effect of education on individual attitudes towards immigration depends on its link to anti-racist inclinations and preferences for cultural diversity. Facchini et al. (2009) consider US citizens in 2006 and, controlling for possible endogeneity and individual specific characteristics, they show that media exposure affects significantly public opinion on illegal immigration. Jain and Mukand (2010) propose a model that introduces the role of cultural factors in driving migration policy. The idea they start from is that "what is distinctive about the politics of migration is that in popular perception it has the potential to affect a country’s culture and identity." They build a dynamic political economy model where countries differ in their ability to culturally assimilate migrants. Countries with poor cultural assimilation will take advantage of short term foreign workers programs while more culturally diverse and tolerant countries will rely more on permanent migration. Interestingly, in the model’s framework migration policy crucially depends on individual attitudes towards cultural heterogeneity.

This link between attitudes toward cultural heterogeneity and public opinion on immigration is the focus of my paper. In particular I want to analyse the possibility that one channel through which cultural heterogeneity can emerge is the production and the consumption of cultural goods and that enhanced cultural heterogeneity may positively affect attitudes towards immigrants. Indeed, the consumption of cultural goods is likely to represent one of the so much needed bridges between different cultures because it could indirectly affect people’s attitudes towards immigrants. Thus, another fundamental strand of literature this paper draws on is trade in cultural goods. Ethnic (or cultural) goods and services are defined as the products of those sectors that embody habits and values from a specific culture/society, such as, for example: the art sector, the audiovisual industry (music, movies, television programs) or the publishing sector (newspapers, books), the food industry (restaurants) or education (private language and culture schools). Disdier et al. (2010a) analyse the importance of trade in cultural goods in overall trade arguing that the specificity of this type of trade flows lies in its ability to impact values and perceptions in the importing country. The existence of a link between cultural goods and individual preferences on the one side and between immigration inflows and diversity of
production on the other side is also supported by two recent papers. The first is a contribution by Disdier et al. (2010b) that investigate whether exposure to foreign media affects naming patterns as a proxy national cultural traditions. The second is a paper by Mazzolari & Neumark (2010) that studies the effect of immigration on the diversity of consumption choices. This paper draws form all these different strands of literature. Its novelty lies in the introduction of a different perspective to look at non purely economic determinants of individuals’ attitudes. The mechanism through which exposure to cultural goods affects individual opinions over immigration is explained providing a simple theoretical framework and it is sustained with some empirical evidence.

3 The model

The simple theoretical framework that will be presented in this section and gives scope for the subsequent empirical analysis is a static general equilibrium model. The basic idea of the model is that trade in cultural goods and migration are complements to a certain extent and consumption of cultural goods can influence both attitudes toward immigrants and people’s propensity to migrate, depending on different individual preferences for cultural heterogeneity. More precisely, consider a world where there exist $M$ different countries indexed by $z = 1, \ldots, M$. Each country originates a culture and consequently a population that share that culture. In each country there exist two sectors in which cultural goods are produced: an homogenous good sector (i.e. local culture) characterized by perfect competition and constant returns to scale and a (horizontally) differentiated good sector that is characterized by monopolistic competition and increasing returns to scale. This sector can be thought as representing ethnic production, where each variety is defined on the basis of the country of origin of the culture it represent. Each of the two sectors requires only one production input: labor. Labor is mobile across sectors and across countries. As already mentioned, individuals, when considered as workers are homogeneous, but when considered as consumers can differ between "open-minded" individuals $L_o$ and "closed-minded" individuals $L_c$.

3.1 Closed Economy

3.1.1 Demand side of the economy

In each country, each open-minded individual $k = 1, \ldots, L_o$ wants to maximize a quasi-linear utility function of the form:

$$U_{okz} = q_k^H + \sum q_{ik} - \frac{1}{2} \sum q_{ik}^2 - \frac{1}{2} \delta_{oz} \left( \sum q_{ik} \right)^2 - \Gamma(c_k)$$

subject to a budget constraint

$$p_k^H q_k^H + \sum p_i q_{ik} = I_k^o$$
where $k = 1, \ldots, L_o$ indexes individuals, $i = 1, \ldots, n \leq M$ indexes varieties and $z = 1, \ldots, M$ indexes countries. Moreover:

- $q^H_k$ is the quantity consumed by individual $k$ of the homogeneous good $H$;
- $q_{ik}$ is the quantity consumed by individual $k$ of the single variety $i$ of the differentiated good, with $i = 1, \ldots, n \leq M$;
- $-\frac{1}{2} \sum q_{ik}^2$ is a term that penalizes uneven distribution of consumption across varieties;
- $-\frac{1}{2\delta_{oz}} \left( \sum q_{ik} \right)^2$ is a term that penalizes excessive consumption of the differentiated good with respect to the homogeneous good;
- $\delta_{oz}$ is a parameter that defines the substitution pattern between the homogeneous good and the differentiated varieties by determining the size of the penalty for excessive consumption of differentiated good in "open-minded" individuals utility function. This parameter depends directly on the cultural externality as described below, so indirectly on the number of open-minded individuals living in country $z$;
- $\Gamma(c_k)$ is a function of the form $\Gamma(c_k) = \begin{cases} c_k & \text{if individual } k \text{ emigrates from its origin country} \\ 0 & \text{otherwise} \end{cases}$, where $c_k$ is the individual specific cost (disutility) of migration. This cost can be thought as embodying both the economic cost of relocation and the psychological cost of leaving family and friends behind;
- $p^H$ is the price of the homogeneous good;
- $p_i$ is the price of the differentiated good;
- $I^c_k$ is the income of an open-minded individual $k$.

Each closed-minded individual of culture $z$: $j = 1, \ldots, L_{cz}$ wants to maximize a quasi-linear utility function of the form:

$$U_{czj} = \alpha_{cz} q^H_j$$

subject to a budget constraint

$$p^H q^H_j = I^c_j$$

where

- $q^H_j$ is the quantity consumed by individual $j$ of the homogeneous good $H$;
- $\alpha_{cz}$ is a parameter that embodies the so called "cultural externality" as explained below, so it depends on the number of closed-minded individuals of culture $z$;
- $p^H$ is the price of the homogeneous good;
- $I^c_j$ is the income of a closed minded individual $j$.

At this point, to capture the main mechanism at work in this model, I need to introduce the concept of cultural externality and endogenize $\delta_{oz}$ and $\alpha_{cj}$. Considering the easiest case of closed-minded people, as in Olivier et al (2008), let’s assume that agents derive utility not only from individual consumption, but also from social exchange with other agents of their same type. Social exchange is defined as in Olivier et al (2008): within each country a matching process takes place. As far as closed-minded agents are concerned, social exchange is possible only if the two closed-minded individuals matched together share the same culture. For open-minded individuals, instead, a social exchange takes place only if they match with other open-minded individuals, regardless of their culture. In this alternative case, social exchange modifies the substitution pattern between the homogeneous good and the differentiated varieties by shaping the importance of the differentiated good in "open-minded" individuals utility function. In particular, consider that for ethnic cultural goods consumers must learn how to appreciate them and develop their taste (as an example, one can think especially to the case of different art, but also for instance to books and movies).\(^3\)

For all individuals matching is random, thus people match with certain probabilities $x_o$ and $x_{cj}$ that depend on the number of individuals of each type and culture living in the country and on their distribution in space. In general, if individual are homogeneously distributed within countries the probabilities will be defined as follows: $x_o = \frac{L^o}{L}$ and $x_{cj} = \frac{L^c_j}{L}$. Consequently, the cultural externalities can be defined as $\delta_{oz} = \left[1 + \frac{L^o}{L} (SE - 1)\right]$ and $\alpha_{cj} = \left[1 + \frac{L^c_j}{L} (SE - 1)\right]$, where $SE > 1$ is the so called "social exchange coefficient" (Olivier et al., 2008).

Setting the price of the homogeneous cultural good as numeraire ($p^H = 1$) and solving the two maximization problems defined above, leads to the following demand system:

- for the open-minded individuals

\[
\begin{align*}
q_{ik} &= 1 - p_i - \frac{n}{1+n} + \frac{np_i}{1+n} \\
q^H_k &= I^o_k - \sum p_i q_{ik}
\end{align*}
\]

where $\bar{p} = \frac{\sum p_i}{n}$

- for the closed minded individuals

\[
\begin{align*}
q_{ij} &= 0 \\
q^H_j &= I^c_j
\end{align*}
\]
Thus the total demand of each good will be:

\[
q_i = L_o \left[ 1 - p_i - \frac{n}{1+n} + \frac{n}{1+n} \right]
\]

\[
q^H = L_o I^c + L_o \left( I^k - \sum p_i q_{ik} \right)
\]

3.1.2 The supply side of the economy

The homogeneous good is produced in a perfectly competitive sector with a production technology that exhibits constant returns to scale. As a result profit maximizing firms face a market price that equals their marginal cost. The latter coincides with wages given that labor is the only production input: \( p^H = MC = w = 1 \) (given that the price of the homogeneous cultural good is taken as the numeraire, i.e. \( p^H = 1 \)).

As for the differentiated good sector, it is characterized by monopolistic competition and technology exhibiting increasing returns to scale as in Krugman (1980). Firms are perfectly symmetric and technology is described by the following total cost equation: \( TC_i = (F + bq_i)w \). This means, as in Krugman, that each firm in this sector incurs in a fixed cost of production \( F \) and a marginal cost of production \( b \) that depends on the quantity produced\(^4\). Profit maximization in this case involves equating marginal revenue and marginal cost, thus leading to the following optimal price for any differentiated variety:

\[
p_i = \frac{b + 1}{2}
\]  

As in Krugman (1980), exploiting the free entry condition, profits must equal zero, thus the optimal quantity produced will be

\[
q_i = \frac{2F}{1 - b}
\]  

The balance of demand and supply instead will define the number of varieties produced in equilibrium:

\[
n_z = \frac{L_o}{F \delta_{oz}} \left( \frac{1 - b}{2} \right)^2 + \frac{1}{\delta_{oz}}
\]  

3.1.3 Autarkic equilibrium

In autarky, open-minded people’s indirect utility will thus be defined in the following way:

\(^4\)The idea that ethnic production face higher costs than local cultural sector is quite realistic. This can be due to difficulty of "creating" a consumer base for products that are not well known in the host country since they belong to a different culture (i.e. marketing cost) or to the difficulty of finding the right production inputs.
V_{okz} = 1 + \frac{1}{2\delta_{oz}} \left[ \left( \frac{1-b}{2} \right)^2 - \frac{F}{L_o} \right] - c_k \quad (6)

Welfare of open minded individuals will thus increase with the total number of open minded individuals present in the country $L_o$, because they will constitute a larger demand for the differentiated good that in its turn will determine a higher number of varieties to be produced in equilibrium. At the same time it will increase also through the term $\delta_{oz}$, that directly depends on $L_{oz}$, i.e. the number of open-minded individuals living in the country $z$ since $\delta_{oz}$ directly depends on $L_{oz}$.

Closed minded people’s indirect utility will be defined instead as:

$$V_{cj} = L_{cj} \quad (7)$$

thus it will be higher the higher is the number of individuals of their own type and culture in the country where they live.

### 3.2 Open economy

The extension of this closed economy model to the case of countries perfectly integrated through trade and where costly migration can take place is straightforward since the only difference between the two cases is that the balance between supply and demand will not need to be achieved within each single country but considering the world as a whole. Free trade will thus correspond to an increase in market size for firms that will consequently lead to an increase in the number of varieties and an increase of welfare for open-minded people. Costly migration, instead, as anticipated, will lead to movement of only those individuals that bear a lower cost of displacement. Consequently, in equilibrium, not all open minded individuals will migrate but all of them will be willing to consume differentiated varieties and welcome other open-minded people to the country they’re living in. Closed minded individuals, instead, will not enjoy any welfare improvement from opening of the economy, since they neither consume differentiated varieties nor they have incentives to migrate from the country they were born in. Indeed, they want cluster with other closed-minded individuals of their same culture.

Consider an initial situation in which all individuals of both types live in the country their culture originates form. When economies open to trade and migration individuals can make two choices: their consumption choice and their location choice. Consumption choices will be the same as in autarky, except for the fact that in open economy the number of varieties produced depend on the total number of open minded individuals alive, $L_o$ and not on the specific

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5 Note that in autarky $L_{oz} = L_o$ because production vector and consumption vector must coincide within each country.

6 This is true as long as $\left( \frac{1-b}{2} \right)^2 > \frac{F}{L_o}$. This condition is satisfied as long as the fixed cost of production are sufficiently amortized or marginal costs are closed to 1.
presence in one country, so the following analysis will concentrate on the location choice. Assume for simplicity that the decision to migrate is taken once and forever observing the initial distribution of the population before countries open to migration. Given this assumption the choice of each individual will depend on initial conditions: \( L_{oz} \) and \( L_{cz} \), where \( z = 1, \ldots, M \). Let’s consider first the case of closed minded individuals: those individuals’ level of welfare, see eq. (7), depends entirely on the presence in the country they live in of closed minded people belonging to their same culture. For this reason they have no incentives to change the initial situation where they are perfectly clustered by cultural group.

Considering instead the location choice of open minded individuals, it is important to take into account the interplay between the cost of migrating and the possible benefit given by the cultural externality. Consider the simplest case in which \( M = 2 \), i.e. there exist only two countries: \( z = 1, 2 \). Note that open minded people will leave their own country only if the additional utility they can obtain in the other country is higher than their idiosyncratic cost of migration. Note that all individuals of the same type have symmetric preferences, increasing in the number of open minded individuals living in the country they reside in. For this reason migration will occur only in one direction, i.e. from the country endowed with lowest number of open minded individuals to the country with the highest. Assume for instance that in autarky country 2 has the largest population of open minded individuals. Then its inhabitants will have no incentive to migrate since they cannot enjoy any higher level of welfare. Some people originating from country 1, instead, will decide to move to country 2 (call them \( L_{o2} = \) people living in country 2 that are foreigners\(^7\)) because their increase in utility from migration is higher than their cost.

In particular there exist a threshold level of cost \( c_k \) for which individuals that are natives in country 1 will be indifferent between leaving or staying:

\[ V_{o1} = V_{o2} \]

Individuals whose idiosyncratic cost of migrating is above this threshold will not move from their origin country 1, the others will migrate.

\[
c_k = \frac{L(L_{o2} - L_{o1})(SE - 1)}{[L + L_{o2}(SE - 1)][L + L_{o1}(SE - 1)]} \frac{1}{2} \left[ \left( \frac{1 - b}{2} \right)^2 - \frac{F}{L_{o1}} \right]
\]

Now, given this threshold \( c_k \) of migration costs\(^8\), assume that individuals are

\(^7\)Note that \( L_{o2} = L_{o2}^N + L_{o2}^F \), i.e. the final population of open minded individuals living in country 2 will be the sum of natives and foreigners that migrated from country 1.

\(^8\)In the symmetric case in which country 1 has a higher initial endowment of open minded individuals, the threshold level of costs for individuals that were born in country 2 and want to migrate is:

\[
c_k = \frac{L(L_o - 2L_{o2})(SE - 1)}{[L + (L_o - L_{o2})(SE - 1)][L + L_{o2}(SE - 1)]} \frac{1}{2} \left[ \left( \frac{1 - b}{2} \right)^2 - \frac{F}{L_{o2}} \right]
\]
indexed by their idiosyncratic cost of migrating. Assume also that the migration cost \( c_k \) has a uniform distribution over the interval \([0, c_{\text{max}}]\). It is thus easy to define the number of individuals from country 1 that leave:

\[
L_{o2}^F = L_{o1} \times \frac{c_k}{c_{\text{max}}} = \frac{L(L_{o2} - L_{o1})(SE - 1)}{[L + L_{o2}(SE - 1)] [L + L_{o1}(SE - 1)]} \frac{L_{o1}}{2c_{\text{max}}} \left[ \frac{(1 - b)}{2} - \frac{F}{L_{o1}} \right]
\]

The number of individuals from country 1 that stay:

\[
L_{o1}^1 = L_{o1} \times \frac{c_{\text{max}} - c_k}{c_{\text{max}}} = L_{o1} - \frac{L(L_{o2} - L_{o1})(SE - 1)}{[L + L_{o2}(SE - 1)] [L + L_{o1}(SE - 1)]} \frac{L_{o1}}{2c_{\text{max}}} \left[ \frac{(1 - b)}{2} - \frac{F}{L_{o1}} \right]
\]

Note that initial conditions are given, i.e. \( L_{o1} \) and \( L_{o2} \) are known, and \( c_{\text{max}} \) is observed. Moreover \( L_o = L_{o1} + L_{o2} \).

4 Empirical analysis

The model just described thus predicts that production and the consumption of cultural goods, driven by different tastes for cultural heterogeneity, can positively affect attitudes towards immigrants because the presence of immigrants and consumption of cultural goods in a country are complementary. In particular, open minded individuals favour immigration precisely because immigrants can make them achieve higher welfare through the consumption of cultural goods. Thus open minded individuals in the model want more immigration to their country the more cultural goods they can consume. This mechanism highlight therefore the importance of cultural goods, which can represent one of the so much needed "bridges" linking different cultures: the pattern of consumption of cultural goods can enhance reciprocal understanding and favour coexistence of different cultures in the same society, i.e. the multiculturalism that politicians claim to be dead.

To inspect the potential of cultural goods and investigate the role of this channel in shaping attitudes towards immigrants in European countries, I link data on individuals’ attitudes toward migration to trade flows data on some specific categories of goods identified in existing literature as "cultural goods" (see for example Mayer et al., 2010), based also on UNESCO classification. More specifically I consider data from all 4 waves of the European Social Survey (ESS): 2002, 2004, 2006, 2008. The resulting pooled sample includes overall
individuals born in 32 European countries\textsuperscript{9}. Aside from a number of individual-specific characteristics, the survey provides individual answers to two questions which are relevant for the analysis that follows:

1. "To what extent do you think \([\textit{country}]\) should allow people of the same race or ethnic group as most \([\textit{country}]\) people to come and live here?"

2. "How about people of a different race or ethnic group from most \([\textit{country}]\) people?"

Following the approach of Facchini & Mayda (2009), on the basis of answers to these questions I built two dummy variables defined as follows:

- pro\_immig1 is a dummy variable that equals 1 if the answer to question 1 is either "allow many\textsuperscript{10}" or "allow some" and 0 otherwise\textsuperscript{10}
- pro\_immig2 is a dummy variable that equals 1 if the answer to question 2 is either "allow many" or "allow some" and 0 otherwise

I will use those two variables as dependent variables in the analysis that follows as a measure of attitudes towards immigrants in the specific context of this paper. Moreover I restrict the sample to natives only, excluding from the analysis immigrants of first and second generation\textsuperscript{11}. Following previous literature on attitudes towards immigration (O’Rourke & Sinnott, 2006; Mayda, 2006; Facchini & Mayda, 2009), a number of individual specific characteristics and controls have been included in the regressions, considering in particular demographic and economic variables for each respondent. First of all I considered the age of the respondent, on the basis of the consideration that on average the older a person is, the more adverse to immigration it is likely be. I also considered some demographic controls such as a dummy that equals 1 if the respondent is married and 0 otherwise, a dummy that equals 1 if she/he has children and 0 otherwise and one indicating gender. For these controls I do not have a priori, but it may be important to include them in order to take into account systematic differences for different groups. As for the economic variables, I considered the income of the household the individual belongs to and a dummy that equals 1 if the respondent is unemployed (actively looking for a job) and 0 otherwise. On the basis of existing literature, as discussed in section 2, I expect that individuals with higher income are more pro-immigration and those unemployed are instead oppose immigrants. I finally include a variable that indicates political preferences of the respondent on a left-right scale, where

\textsuperscript{9}The countries considered are: Austria, Belgium, Bulgaria, Switzerland, Cyprus, Czech Republic, Denmark, Germany, Spain, Finland, France, Greece, Croatia, Hungary, Ireland, Iceland, Israel, Italy, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Sweden, Slovenia, Slovakia, Turkey, Ukraine and United Kingdom

\textsuperscript{10}i.e. pro\_immig 1=0 if the answer is either "allow few" or "allow none" and the same criterion applies to pro\_immig2

\textsuperscript{11}Indeed, note that I focus my analysis on the sample of people that are born in the country of interest and whose parents are both natives of that country.
0 means the left and 10 means the right. What I expect, considering also the results of existing literature, is that the higher this variable, the higher the aversion towards immigration since right parties are usually associated to more conservative policies. Country dummies and year fixed effects are also included.

Data from the ESS have been merged with an "index of exposure to foreign cultural goods" build as an extensive margin of imports of cultural goods. In particular the paper uses data from UN-Comtrade database to build an index defined as the mean number of trading partners from which the country of interest imported cultural goods over the 3 years preceding the interview. In particular the following sectors have been identified: HS-9701 (Paintings, drawings and pastels, executed entirely by hand), HS-9703 (Original sculptures and statuary), HS-9706 (Antiques of an age exceeding one hundred years), HS-4902 (Newspapers, journals and periodicals) and HS-490199 (Printed reading books, excluding dictionaries). In order to build a counterfactual case also two non cultural goods has been take into account: HS-2702 (Lignite, except jel) and HS-2712 (petroleum in jelly, petroleum wax and other mineral waxes).

\footnote{Averaging over 3 years I want to mitigate the effect of possible time-specific shocks.}
Table 1: Descriptive statistics

<table>
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<tr>
<th>Variable</th>
<th>Obs</th>
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<th>Std. Dev.</th>
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<th>Max</th>
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Note that the pooled sample is composed by 186752 individuals living in 36 different countries. The majority of individuals are favourable to immigrants of the same race/ethnicity as the majority of the population but oppose immigration of different races/ethnicities. Moreover the larger part of public opinion believes that immigrants enrich the cultural life of the hosting country, but make the quality of life lower. Most individuals included in the sample are married but without children and they are employed or outside the labor force. Moreover note that females are more represented than males. The average individual belonging to the sample is middle-aged and it has completed 12 years of education. Considering more closely the case of education however, there is a large variation among individuals considered: there are 1876 people who have no ed-
ucation at all and 45 that completed more than 30 years of education. As far as the trade indices are considered, first of all note that classical goods are characterized by a much smaller number of importing countries than the cultural goods. This first evidence already suggests the importance of the origin country for the latter. In the case of books in particular, on average countries import from 73 different partners with a peak of 122 in the case of United Kingdom in 2008.

Note that this trade index, which varies at country/year level only, has been interacted with the level of education of the individuals to obtain a proxy of the individual-level of exposure to foreign cultural goods. All cultural goods considered, indeed, require a significant level of cultural literacy and interest in order to be appreciated. Moreover I believe that a person’s education per-se is not able to determine her/his attitudes towards immigrants. On the contrary, education is a tool through which knowledge and awareness of the phenomenon can be gained and this crucially determines a person’s opinion. One of the channels through which this knowledge is acquired is the consumption of cultural goods. For this reason, the variable of interest for the analysis that follows will be the change in the impact of education on attitudes induced by the individual exposure to cultural goods. From the econometric point of view, this effect (call it $\gamma$) is identified as the interaction effect derived from the a probit model where the conditional mean of the dependent variable is defined as follows (for each individual $i$ living in country $c$):

$$
pr(pro\_immig_{ic}|x_{ic}) = \Phi[\alpha + \alpha_i + \alpha_c + \beta_1parents_{ic} + \beta_2female_{ic} + \beta_3age_{ic} + \\
+ \beta_4income_{ic} + \beta_5lr\_scale_{ic} + \beta_6education_{ic} + \\
+ \beta_7(education_{ic} * extensive\_marg_{in_c}) + \beta_8(extensive\_marg_{in_c})]
$$

The interaction effect, following Ai and Norton (2003), can thus be defined as:

$$
\gamma = \frac{\partial^2 \Phi(.)}{\partial education_{ic} \partial extensive\_marg_{in_c}} = \frac{\partial [\partial \Phi(.)((\beta_a + \beta_7extensive\_marg_{in_c}))]}{\partial extensive\_marg_{in_c}}
$$

Testing the sign and significance of this effect will answer to the question of whether exposure to foreign cultural goods can positively affect attitudes towards immigrants. As for all other variables, average marginal effects are computed in the usual way. In particular, using the command margins available in STATA11, it is possible to compute average marginal effects and related elasticities for each variable included in the regression. In particular in the case of education it is possible to take into account of both its direct effect and its indirect effect through the interaction term. Standard errors and statistics are then computed both using the delta method and using a linearization method. The latter

$\text{The latter belong mainly to the 2006 round of the ESS and they live in The Netherlands, Germany or United Kingdom.}$
allows for heteroskedasticity or other violations of distributional assumptions and for correlation among the observations belonging to the same cluster. For this reason, inference is robust to model misspecification and corrects for possible clusters in the data at regional level. Moreover, the estimation takes into account both design and population size weights.

The equation defined above has thus been estimated for different specifications of the dependent variable and considering separately different cultural goods. Tables 2 and 3 below report elasticities of the response variable to different regressors and the interaction effect as defined above. In the case of the extensive margin the interaction effect is reported. All estimations include country dummies and year fixed effects.

Table 2: Pro_immig1 (immigrants form the same race/ethnicity as the majority)

<table>
<thead>
<tr>
<th></th>
<th>9701</th>
<th>9703</th>
<th>9706</th>
<th>4902</th>
<th>490199</th>
<th>2702</th>
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t-statistics are reported below coefficients. *=significant at 10% level; **=significant at 5% level; ***=significant at 1% level

---

14Regional unit
15In general the elasticity if y with respect to x is defined as $\frac{dy}{dx} \cdot \frac{x}{y}$). Its economic interpretation will be discussed below.
16Defining the interaction effect as above, i.e. $\frac{\partial \Phi(*)}{\partial \text{extensive margin}}$, the respective elasticity will be defined as $\frac{\partial \Phi(*)}{\partial \text{extensive margin}} \cdot \frac{\partial \Phi(*)}{\partial \text{extensive margin}}$. Its economic interpretation will be discussed below.
First of all it is important to clarify the interpretation of the average elasticities reported in Table 2 and 3. Consider that, if the elasticity of y to x was equal to 1, then y would increase with x at a rate such that, if the rate were constant, y would double if x doubled. Having said that it is important to notice that all coefficients are of the expected sign in both groups of regressions. In particular, as far as economic variables are concerned: being unemployed slightly decrease the probability of being favourable to immigrants of any race/ethnicity, while having higher income , on average, increase the probability of approving immigrants. Both results are in line with previous studies, highlighting the perceived competition between immigrants and natives on the labor market. The difficulty in finding a job strengthens this perceived threat, while high income ease it.

The effect of political preferences also confirms the prior: since the higher the score on this variable, the lower the probability of favouring immigration. As explained before this could be explained by the fact that right parties are usually associated to more conservative policies. As far as demographic variables are concerned, as expected, increasing age is

<table>
<thead>
<tr>
<th></th>
<th>9701</th>
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<th>9706</th>
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<tr>
<td>R_squared</td>
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<td>0.09</td>
<td>0.09</td>
<td>0.08</td>
<td>0.08</td>
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<td>0.08</td>
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<tr>
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<td>94898</td>
<td>94898</td>
<td>114204</td>
<td>114204</td>
<td>95193</td>
<td>114204</td>
</tr>
</tbody>
</table>

t-statistics are reported below coefficients. *=significant at 10% level; **=significant at 5% level; ***=significant at 1% level
associated with adversion towards immigration and the other controls indicate that being married or having a child, when significant, increases the probability of opposing immigration.

Finally increasing education by 1% increases on average the probability of the respondent being favourable to immigration by more than 3% when considering foreign people of the same race/ethnicity as the majority of host country population and by around 5% when considering immigrants of different race/ethnicity.

The impact of education, however, can be amplified by individual exposure to cultural goods, as it is clear from the interaction effect reported at the end of tables 2 and 3. Indeed, considering all cultural goods previously described, an increase of 10% in the variety of cultural goods respondent are exposed to (i.e. the number of trading partners from whom those goods are imported) can increase between 1.2% and 3.8% the effect of education on preferences over immigration. The latter effect is stronger when considering attitudes towards immigrant of a different race/ethnicity.

Given that the model previously outlined predicts that the positive effect of exposure to cultural goods on attitudes towards migration depends directly on its ability to promote multiculturalism, is important to understand whether the positive opinion toward immigrants is actually mediated by the belief that they may enrich the cultural of the host country and increase its level of life’s quality. For this reason I estimate the same equation as above considering two new dependent variables. In particular the survey provides individual answers to two additional questions which can be relevant in this perspective:

3. "Would you say that [country]’s cultural life is generally undermined or enriched by people coming to live here from other countries?"
4. "Is [country] made a worse or a better place to live by people coming to live here from other countries?"

On the basis of these two questions I build two additional dummy variables defined as follows:

- pro_immig3 is a dummy variable that equals 1 if the answer to question 3 is >5 and 0 otherwise\(^{17}\)
- pro_immig4 is a dummy variable that equals 1 if the answer to question 4 is >5 and 0 otherwise\(^{18}\)

Tables 4 and 5 below reports elasticities of the two new response variables to the same regressors as defined above and the interaction effect of interest. Also in this case all estimations include country dummies and year fixed effects.

\(^{17}\)In a scale ranging from 0 to 10 where: 0=Cultural life undermined and 10=Cultural life enriched

\(^{18}\)In a scale ranging from 0 to 10 where: 0=Worse place to live and 10=Better place to live
Table 3: Pro_immig3 (immigrants enrich cultural life in host country)

<table>
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<tr>
<th></th>
<th>9701</th>
<th>9703</th>
<th>9706</th>
<th>4902</th>
<th>490199</th>
<th>2702</th>
<th>2712</th>
</tr>
</thead>
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<td>married</td>
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<td>-0.0279***</td>
<td>-0.02722***</td>
<td>-0.02561***</td>
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<td>0.121059***</td>
<td>0.108544***</td>
<td>0.117288***</td>
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<td>0.09</td>
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<tr>
<td>Obs</td>
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<td>114204</td>
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<td>95193</td>
<td>114204</td>
</tr>
</tbody>
</table>

T-statistics are reported below coefficients. *=significant at 10% level; **=significant at 5% level; ***=significant at 1% level.
Table 4: Pro_immig4 (immigrants make the host county a better place to live)

<table>
<thead>
<tr>
<th></th>
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<th>9703</th>
<th>9706</th>
<th>4902</th>
<th>490199</th>
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<td>-0.00078</td>
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<td>female</td>
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</tr>
</tbody>
</table>

*t-statistics are reported below coefficients. *=significant at 10% level; **=significant at 5% level; ***=significant at 1% level

Considering more closely the cultural dimension and more generally the quality of life results are clearly confirmed. The positive role of education very similar in its importance as when considering attitudes towards immigrants of different race/ethnicity. This result suggesting the idea that tolerance towards ethnic diversity is linked to perceived cultural distance. Moreover, note that the interaction effect is much stronger in the latter two cases, especially when considering imported reading books. As far as the other variables are considered, demographic controls loose their importance, while age and political preference still significantly foster the probability of having a negative opinion about immigration. Higher income increases the probability of appreciating cultural enrichment brought by immigrants in their host countries, probably signalling that financial wealth is required to be able to take advantage of those potential benefits, given that they do not represent primary needs.

A final consideration needs to be made about the counterfactual case. When analysing the results on the interaction effect of trade in mineral fuels and derivatives (i.e. 2702 and 2712) there is no clear pattern. More precisely, the effect of the interaction is almost never significant and the effect of the extensive
margin alone has no stable sign.

5 Conclusions

This paper offers a unique theoretical and empirical contribution to the literature discussing attitudes towards immigration. In particular it focuses on the role of culture in shaping those attitudes. The basic idea of the paper is that, depending on different individual preferences for cultural heterogeneity, patterns of consumption of foreign cultural goods can influence attitudes toward immigrants. Cultural goods, indeed, can constitute one of the so much needed "bridges" linking different cultures: they can enhance reciprocal understanding and favour coexistence of different cultures in the same society, building the so called multiculturalism that recently has been claimed to be dead. Theoretical and empirical evidence support this view, showing that increasing interactions between cultures and fostering a greater exposure to foreign cultural goods can have a positive effect on attitudes towards immigrants because heterogeneity in consumption patterns can lead to higher tolerance towards a more heterogeneous population.

6 References

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Disdier A.-C. and Mayer T., “Je t’aime, Moi Non Plus: bilateral opinions
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Disdier A.-C., Head K. and Mayer T., “Exposure to foreign media and changes in cultural traits: Evidence from naming patterns in France”, Journal of International Economics 80 (2010b), 226-238


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24
7 Appendix

7.1 Consumers' maximization problem

Open minded individuals' maximization problem lead to the following Lagrangian:

\[ L = q_k^H + \sum_i q_{ik} - \frac{1}{2} \sum_i q_{ik}^2 - \frac{1}{2\sigma oz} \left( \sum_i q_{ik} \right)^2 - c_k + \lambda \left( I_k^H - p^H q_k^H - \sum_i p_i q_{ik} \right) \]

from which to derive the following FOCs:

1. \( \frac{\partial L}{\partial q_k^H} = 1 - \lambda p^H = 0 \quad \Rightarrow \quad \text{normalizing } p^H = 1 \text{ (numeraire) this condition leads to } \lambda = 1 \)

2. \( \frac{\partial L}{\partial q_{ik}} = 1 - 2p^H q_{ik} - 2\frac{1}{2\sigma oz} \sum_i q_{ik} - \lambda p_i = 0 \quad \Rightarrow \]

\[ p_i = 1 - 2p^H q_{ik} - 2\frac{1}{2\sigma oz} \sum_i q_{ik} \quad \text{(8)} \]

applying summation operator to both sides of the equation:

\[ \sum_i p_i = \sum_i \left( 1 - 2\frac{1}{2} p^H q_{ik} - 2\frac{1}{2\sigma oz} \sum_i q_{ik} \right) \quad \Rightarrow \quad \sum_i p_i = n - \sum_i q_{ik} - \frac{1}{\sigma oz} \sum_i q_{ik} \]

\[ \sum_i q_{ik} = \frac{n - \sum_i p_i}{1 + \frac{n}{\sigma oz}} \quad \text{(9)} \]

substituting 9 into 8 it is possible to write:

\[ p_i = 1 - q_{ik} - \frac{1}{\sigma oz} \frac{n - \sum_i p_i}{1 + \frac{n}{\sigma oz}} \quad \Rightarrow \]

\[ q_{ik} = 1 - p_i - \frac{1}{\sigma oz} \frac{n - \sum_i p_i}{1 + \frac{n}{\sigma oz}} \quad \Rightarrow \]

\[ q_{ik} = 1 - p_i - \frac{1}{\sigma oz} n \left( 1 + \frac{n}{\sigma oz} \right)^{-1} + \]

25
\[
\begin{align*}
\frac{1}{\sigma_{ox}}n\bar{p}\left(1 + \frac{n}{\sigma_{oz}}\right)^{-1} & \Rightarrow q_{ik} = 1 - \frac{n}{1 + \frac{n}{\sigma_{oz}}} - p_i + \frac{1}{\sigma_{oz}}n\bar{p}\left(1 + \frac{n}{\sigma_{oz}}\right)^{-1} \Rightarrow q_{ik} = \\
\frac{1}{1 + \frac{n}{\sigma_{oz}}} - p_i + \frac{1}{\sigma_{oz}}n\bar{p}\left(1 + \frac{n}{\sigma_{oz}}\right)^{-1}
\end{align*}
\]

This is thus the demand of each open minded individual \( k \) for variety \( i \). In order to obtain total demand for variety \( i \) must be multiplied by the total number of open minded individuals \( L_o \): \( Q_i = L_oq_{ik} = L_o \left[ \frac{1}{1 + \frac{n}{\sigma_{oz}}} - p_i + \frac{n\bar{p}}{\sigma_{oz}} \left(1 + \frac{n}{\sigma_{oz}}\right)^{-1} \right] = \\
L_o \left( \frac{1}{1 + \frac{n}{\sigma_{oz}}} - p + \frac{1}{\sigma_{oz}} + \frac{n\bar{p}}{1 + \frac{n}{\sigma_{oz}}} \right) \]

\[ Q_i = \frac{L_o \left[ 1 - p_i \left(1 + \frac{n}{\sigma_{oz}}\right) + \frac{n\bar{p}}{\sigma_{oz}} \right]}{1 + \frac{n}{\sigma_{oz}}} \quad (11) \]

3. \[ \frac{\partial L}{\partial \alpha} = I_k^0 - p^H q_k^H - \sum_i p_i q_{ik} = 0 \Rightarrow Q_H = L_o \left( I_k^0 - \sum_i p_i q_{ik} \right) \]

\[ Q_H = L_oI_k^0 - \sum_i p_iQ_i \quad (12) \]

Closed minded individuals’ maximization problem is trivial since their utility function is linear and increasing in \( q_H \) thus they will simply spend all their disposable income to buy the homogeneous good. The problem becomes more interesting in open economy as if they can choose where to live they’ll prefer to cluster with other closed minded individuals of their same culture.

### 7.2 Firms’ maximization problem

Let’s consider first the homogeneous good sector. The latter is characterized by perfect competition and constant returns to scale, with labor as the unique production factor. Technology will be thus described by a simple total cost function of the form: \( TC_H = wQ_H \). In the optimum price will equal marginal cost thus: \( MC_H = w = p_H (= 1 \text{ by normalization}) \)

Thus wages are defined in this sector as \( w = 1 \).

As far as the differentiated good sector is concerned, instead, the structure is the same as the seminal work by Krugman (1980). The sector is characterized by perfect competition and increasing returns to scale. Each firm produces 1 variety and they are perfectly symmetric with technology of the form: \( TC_i = (F + bQ_i)w \). Profit maximization leads to equate marginal revenues with marginal costs, i.e. \( MR = MC \Leftrightarrow p_i + \frac{\partial p_i}{\partial Q_i} = bw \)

Assuming symmetric firms/varieties \( p_i = \bar{p} = p, \forall i \) thus 11 becomes \( Q_i = \\
L_o[1 - p(1 + \frac{n}{\sigma_{oz}}) + \frac{n\bar{p}}{\sigma_{oz}}] = L_o[1 - p(1 + \frac{n}{\sigma_{oz}} - \frac{n\bar{p}}{\sigma_{oz}})] \Rightarrow \\
Q_i = \frac{L_o(1 - p)}{1 + \frac{n}{\sigma_{oz}}} \quad (13) \)

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Thus \( \frac{\partial Q_i}{\partial p_i} = -\frac{L_o}{1 + \frac{1}{\pi_o z}} \) and the expression form marginal revenues is \( MR = p_i + \frac{\partial p_i}{\partial Q_i}Q_i = p - \frac{L_o}{1 + \frac{1}{\pi_o z}} \left( \frac{L_o(1-p_i)}{1 + \frac{1}{\pi_o z}} \right) \Rightarrow \ MR = 2p - 1 \).

Equating marginal revenues and marginal costs \( (2p - 1 = bw) \) will thus lead to define the price as

\[
p = \frac{b + 1}{2}
\]

thus price of the differentiated variety is higher if the marginal cost of production is higher or if the differentiated good in open minded people’s utility function has a higher weight (lower substitutability with respect to the homogeneous good).

Free entry will drive profits down to zero: \( \pi_i = 0 \Rightarrow (p - bw)Q_i - Fw = 0 \)
\[
\Rightarrow Q_i = \frac{Fw}{p - bw} \Rightarrow Q_i = \frac{F}{2 - b} = \frac{2F}{b + 1 - 2b}
\]

\[
Q = \frac{2F}{1 - b}
\]

thus each firm need to produce more if it faces higher fixed costs and if the differential between its market power and the marginal cost it faces is lower.

Finally in equilibrium demand 13 must equal supply 14 and from this condition the number of varieties produced in each country is defined:

\[
\frac{L_o(1-p)}{1 + \frac{1}{\pi_o z}} = 2F \Rightarrow \frac{L_o(1 - \frac{1-b}{2})(1-b)}{2F} = 1 + \frac{n}{\delta_o z} \Rightarrow \frac{n}{\delta_o z} = \frac{L_o(2-b)(1-b)}{4F} - 1
\]

\[
\Rightarrow n = \frac{L_o}{4F} \left( \frac{1 - b}{2} \right)^2 \delta_o z
\]

Thus the number of varieties is higher if the consumer base is larger \( (L_o) \), if fixed costs are lower and if love-for-varieties feature of open minded individuals’ utility function is stronger.

### 7.3 Derivation of the threshold level of costs (migration decision)

The threshold level of cost \( c^*_k \) for which individuals that are natives in country 1 will be indifferent between leaving or staying is derived as follows:

\[
V_{ok1} = V_{ok2}
\]

\[
1 + \frac{1}{2\delta_{o1}} \left[ \left( \frac{1 - b}{2} \right)^2 - \frac{F}{L_o} \right] = 1 + \frac{1}{2\delta_{o2}} \left[ \left( \frac{1 - b}{2} \right)^2 - \frac{F}{L_o} \right] - c^*_k
\]

\[
1 + \frac{1}{2\delta_{o1}} \left[ \left( \frac{1 - b}{2} \right)^2 - \frac{F}{L_o} \right] = \frac{1}{2\delta_{o2}} \left[ \left( \frac{1 - b}{2} \right)^2 - \frac{F}{L_o} \right] - c^*_k
\]
\[
c_k^* = \left( \frac{1}{\delta_{o2}} - \frac{1}{\delta_{o1}} \right) \frac{1}{2} \left[ \left( \frac{1-b}{\frac{L}{2}} \right)^2 - \frac{F}{L_o} \right]
\]

\[
c_k^* = \left( \frac{1}{[1 + \frac{L-o2}{L} (SE-1)]} - \frac{1}{[1 + \frac{L-o1}{L} (SE-1)]} \right) \frac{1}{2} \left[ \left( \frac{1-b}{\frac{L}{2}} \right)^2 - \frac{F}{L_o} \right]
\]

\[
c_k^* = \left( \frac{L}{[L + L_o2(SE-1)]} - \frac{L}{[L + L_o1(SE-1)]} \right) \frac{1}{2} \left[ \left( \frac{1-b}{\frac{L}{2}} \right)^2 - \frac{F}{L_o} \right]
\]

\[
c_k^* = \frac{L(L-o2 - L-o1)(SE-1)}{[L + L_o2(SE-1)][L + L_o1(SE-1)]} \frac{1}{2} \left[ \left( \frac{1-b}{\frac{L}{2}} \right)^2 - \frac{F}{L_o} \right]
\]