Social division in the market: conspicous consumption with nationalist feelings

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Abstract

In this paper, we explore the effects of conspicuous goods as means of social division between native citizens and migrants. We push forward the hypothesis that choosing a particular good can confer a sense of place. We introduce this idea in an international vertical differentiation market with two variants and two social groups: migrants and natives. Natives are narrow-minded since they attribute a positive social value to the variant that complies with their own consumption culture. Migrants are open-minded. When consumers belonging to different groups meet, they exchange information about their consumption habits and consumption well-being that reveals their consumption culture: narrow-minded versus open-minded. Consequently, after meeting, some consumers may change beliefs (narrow-minded to open-minded or vice versa) and consumption choices. Using a dynamic model, we fully elucidate the steady state equilibrium and highlight the impact of nationalism on migrant integration.

Keywords: relative preferences; vertical differentiation; nationalistic consumption; dynamic duopoly.

JEL Classification: D11; F18 ; L13.

1 Introduction

"Goods are neutral, their uses are social; they can be used as fences or bridges" (Douglas and Isherwood, 1979, 12)

As a consequence of globalization, 258 million people were living outside of their country of birth in 2017. Nonetheless, nationalism is back. "A deepening fault line seems to divide cosmopolitans and narrow-minded, advocates of drawbridge down and drawbridge up. It seems that more and

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more people are opting for the latter—for closed over open. They do so, many commentators claim, because they feel threatened by something called 'globalism' and crave to have their particular national identities recognized and affirmed." (Jan-Werner Müller, 2019). The results of the European parliamentary election in 2019 testify to this trend. Fear of globalization can be expressed in several various dimensions of human behavior. The one we are interested here refers to conspicuous goods that become a means toward social division between native citizens and migrants.

Our analysis encompasses three main considerations.

The entry point is that the existence of significant differences in preferences across heterogeneous societies confirms that the idea of selfish human beings does not suffice to explain the economic behavior of consumers. In many cases, the "person's sense of self", their so-called identity, contributes to guide an economic agent's choices (Akerlof 1997, Akerlof and Kranton 2000).[1] Embracing this view leads to identifying the market not only as the place where goods are produced and exchanged but also where this identity takes on a social content (Bowles, 1998).

In addition, it is well known that in a globalized economy with goods made available worldwide, consumers are segmented by firms through the quality differentiation of products. Firms offering exclusive brands are positioned in niches populated by consumers with a high willingness to pay, while symmetrically, low-quality competitors meet the consumption demands of low-income consumers located somewhere else in the market. Quite often, different variants of the same good are viewed as a way to satisfy social needs: an exclusive brand confers on the buyer prestige and esteem among peers, thereby distinguishing her/him from those who cannot afford the same items. Along the same rationale, a cheap variant can testify to a sense of belonging to a particular social or cultural community. In some circumstances, the symbolic content of goods is even more relevant than their intrinsic quality, and consumption is changed in a conspicuous practice.[2] It is as if the quality ladder in the market finds a corresponding social ladder among social groups. Goods are used to confirm a *sense of place*.[3] In this globalized era with increasingly significant migration flows, conspicuous consumption is becoming a massive phenomenon. Not only do natives tend to define their own social identity, culture, and moral values through conspicuous goods, but immigrants also choose particular products for establishing themselves in a new country. Through consumption, they can declare to native neighbors that they are willing to assimilate into the local culture and

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[1] Harsanyi (1982) distinguishes between moral and personal preferences; Elster (1989) states that social norms are the main drivers of economic agents' behavior and are sustained by feeling of anxiety and guilt.

[2] Since Veblen (1899), this behavior has been well described by the theory of conspicuous consumption, in which the utility (or status) of a consumer depends at least partially on the comparison between her own consumption decision (and the quality of the product she buys) and that of others. In a related literature, the notion of social status is considered as a driver of social behavior. See, for example, Bagwell and Bernheim (1996), Bowles and Park (2005), Rege (2008), Kastanakis and Balabanis (2014), and Jinkins (2016).

[3] In a companion approach developed in the field of labor economics (Clark et al. 2010, Perez-Asenjo 2011), the relative happiness of workers depends on their financial status compared to that of others in their reference group.

accept the social values of the host country. At the same time, they may also feel stigmatized by fellow migrants who contrast the distinguishing cultural traits of their identity.

Finally, and in contrast with the second ingredient of our analysis, the resurgence of nationalism pushes forward the idea of a national identity and somehow justifies strict immigration laws, import quotas, and tariffs as a means to preserve the traditional values of a country. By preventing integration, it can generate diffidence and the refusal of others among both natives and immigrants. In a nationalist perspective, conspicuous goods can be a driver toward social division rather than toward social integration. Adding this further dimension to the analysis opens the door to unexpected market configurations. For example, it cannot be excluded a priori that a narrow-minded attitude experienced in a host country generates immigrant attachment to their own cultural heritage as a reaction. Alternatively, immigrants might be willing to assimilate into the local culture in spite of the attitude of contempt among natives, possibly inducing the latter to question their stance.

In order to formalize the above considerations, we define a dynamic model with a country composed of two groups of people with different cultural traits, natives and migrants, and where two firms produce two vertically differentiated goods. We assume that native consumers attribute a social content to the goods. Specifically, they derive additional satisfaction when consuming a branded good that is in line with the dominant culture of their country and as a such can satisfy their sense of place. In contrast, they suffer a psychological penalty or frustration if they consume the unbranded good, seen as a good representing a foreign culture and consumed by the other group—the migrants. We call this attitude *narrow-mindedness*. Migrants, when first entering the destination country, do not have any concern with respect to brand and only judge the intrinsic quality of variants. We call this attitude *open-mindedness*. In our setting, *social division* is measured by the attitudes, narrow- vs. open-minded, and consumption choices, branded vs. unbranded goods, within the migrant population and the native population. Social division is high whenever a very high number of natives remain narrow-minded in spite of encounters with open-minded people or when a high number of migrants become narrow-minded. It turns out to be extremely high when, due to the attitude toward narrow-mindedness, natives and migrants switch to the variant that better complies with their own culture: the high-quality variant in the case of natives and the low-quality variant in the case of migrants.

We describe a dynamic setting where consumers from the two groups meet and exchange experiences about consumption. These interpersonal encounters may induce a change in beliefs about consumption. Natives may cease to attribute a symbolic value to goods and become open-minded, or migrants may start attaching social content to consumption, becoming narrow-minded. If a change in beliefs takes place, then the individual consumption choice may change, with effects on the equilibrium configuration.

This dynamic process is represented through a multi-period game. We assume that in the first

period, the market solution is obtained before any meeting takes place. In the second period, consumers meet. Meeting can either be segmented so that only consumers purchasing the same variant meet, or it can be mixed such that consumers purchasing different variants meet. In this period, changes in beliefs may occur. In the third period, consumers may change their consumption choice so that a new market configuration appears. Finally, we show that from a certain period on, no attitude changes occur, and therefore, the market solution has reached the steady state.

Our main results can be described as follows. When meetings are segmented, consumers buying the low-quality variant are open-minded in both groups at the steady state market solution, whereas consumers buying the high-quality variant are narrow-minded. In contrast, when meetings are mixed, open-minded natives and narrow-minded migrants buy the low-quality variant at the steady state market solution, whereas narrow-minded natives and open-minded migrants buy the high-quality variant. When meetings are segmented, nationalism affects the evolution of consumption culture in the migrant group. More specifically, nationalism defines the number of migrants that quit being open-minded, mimic the native population, and start being narrow-minded. In contrast, when meetings are mixed, nationalism affects the natives' consumption culture. In particular, nationalism increases the number of natives who continue to be narrow-minded.

2 Related literature

Our analysis develops along several research lines. The key concept of consumers having a social identity stems from Tajfel and Turner's (1979) pioneering contribution to psychology. They formulate a three-step process for a social identity to be defined: people are first placed into categories, then they associate themselves with particular groups, and finally, these groups are contrasted with other groups, thereby generating a sense of place. This perspective is at first sight far from the mainstream view in economics postulating the existence of a rational and selfish agent with given preferences. Still, it has brought forth a lot of interest among economists in the role (if any) of social interaction in shaping collective values, preferences, and economic behavior. In the 1990s, Akerlof introduced the notion of social decision in economic theory and advanced the idea that "each person chooses her respective position in a social space". Later, Akerlof and Kranton (2000) introduced the identity, a person's sense of self, in the utility function and showed how the standard economic configurations change when the traditional selfish agent is replaced by a social economic agent. In a companion stream of literature on endogenous preferences, Bowles (1998) analyzes the effects of institution on preferences, which are considered to be endogenously determined, and discusses the mechanisms through which people define their own preferences over time. Later, Benabou and Tirole (2003 and 2006) emphasized the role of beliefs and cognitive processes that lead to pro-social

behaviors.[4]

Although our paper shares this interest, the two other ingredients in the analysis—globalization and nationalism—shift the focus to the effect of social identity on economic choices under cross-cultural influences, thereby linking our analysis to recent contributions on cultural integration. Central to these (Kuran and Sandholm 2008, Mason 1993) is the statement that under cross-cultural exchange and migration movements, people may change their feelings with respect to consumption: ethnocentric positions can be exacerbated, thereby fueling anti-globalization movements; economic behavior can be directed by the willingness to protect the in-group social identity, or rather, to accommodate the cultural traits of the outgroup.[5] Although close in spirit to these contributions, our modelling strategy places our analysis far away from them. More precisely, we combine the view that goods are used by consumers to contrast their own habits with those of migrant neighbors with the notion of relative preferences adopted by Ben Elhadj et al. (2015).[6] In their setting of vertical differentiation à la Mussa and Rosen (1978), consumers value a good along a relative dimension: its relative quality, namely the quality gap with respect to another adjacent variant, determines its ranking along a social ladder and thus its economic price. We add to this formalization a further component that captures consumers' ethnocentric feelings, and we assume that this component is group-specific, meaning it changes depending on whether natives or migrants are considered.

3 The model

Consider a country composed of two groups of individuals with different consumption culture traits, natives N and migrants M, and where two firms (or sectors) produce two vertically differentiated goods. The two firms and the two goods are labelled, by slightly abusing the notation, h and l. The h (resp. l) firm produces the high-quality variant u_h (resp. low u_l). In each group, heterogeneous

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[4]Several contributions disentangle the roles of social norms and moral motivations as a drivers of worthwhile behavior (Elster 1989). On this, see Brekke et al. (2003) and Janssen and Mendys-Kamphorst (2004). Some interesting insights have been provided in the literature on impure altruism introduced by Andreoni (1990).

[5]The idea that consumers may be reluctant to buy foreign products is not recent. It was introduced by Shimp and Sharma (1987) through the notion of ethnocentrism. In their seminal paper, the authors emphasize the role of in-group affiliation and belief in the morality of domestic consumption. "Ethnocentrism represents the universal proclivity for people to view their own group as the center of the universe, to interpret other social units from the perspective of their own group, and to reject persons who are culturally dissimilar while blindly accepting those who are culturally like themselves (Booth 1979; Worchel and Cooper 1979)." The symbols and values of one's own ethnic or national group become objects of pride and attachment, whereas symbols of other groups may become objects of contempt (Levine and Campbell 1972). Empirical analyses on the cultural integration of migrants have recently been developed inter alia by Constant et al. (2006), Zimmermann et al. (2007), and Nekby and Rödin (2007).

[6]There are several papers dealing with specific relative preferences, such as Akerlof (1997), where the satisfaction of a consumer increases with the gap between their personal status and that of others. See also Alexopoulos and Sapp (2006) and Riechmann (2006) for an analysis of these relative preferences from the viewpoint of firms. These preferences are also labeled "other-regarding preferences".

consumers are indexed by θ and uniformly distributed over the interval $[a, b]$, with $a \geq 1$.[7] The parameter θ captures the consumers' heterogeneous willingness to pay for the good: the higher is θ, the higher the utility obtained when consuming the good, whatever the group. Each consumer buys one unit of a given commodity.

In only one group, say N, consumers may present feelings of attachment for good h. We can imagine that good h is a well-known and well-reputed good that natives are accustomed to consuming; for instance, a well-known brand versus an unbranded medicinal product. In fact, many examples can be considered that constitute a certain lifestyle. We assume that this style is in line with the dominant culture of the natives and contrasts with the cultural, social, and racial traits of the other group, the migrants. We refer to the attitude of putting a social value on consumption as *narrow-mindedness*. By contrast, we refer to a consumer who derives satisfaction from the quality of the good and does not attribute any social meaning to consumption as *open-minded*.

Formally, native consumers derive additional satisfaction when consuming variant h rather than l. In contrast, they suffer a psychological penalty if they consume the unbranded good l.[8] To formalize these ideas, we use a vertical differentiation model *à la* Mussa and Rosen with relative preferences nested within a *social segmentation* component. Thus, the utility function of an *native* consumer is given by

$$U^N(\theta) = \begin{cases} \theta u_h - p_h + \lambda(\gamma_b u_h - u_l) & \text{if she buys } h \\ \theta u_l - p_l - \lambda(\gamma_p u_h - u_l) & \text{if she buys } l \end{cases} \tag{1}$$

where $\theta > \gamma_b > \gamma_p > 1 > \lambda \geq 0$. The native consumer who consumes good h has an additional utility benefit given by $\lambda(\gamma_b u_h - u_l)$ whereas when she buys l, she suffers frustration measured by $\lambda(\gamma_p u_h - u_l)$. Parameter $\gamma_i, i = h, l$ magnifies the social component independently whether it is a benefit or a frustration. Parameter λ captures the intensity of social feelings in consumption. We assume that the social benefit component $\lambda(\gamma_b u_h - u_l)$ is different from the psychological penalty when consuming the unbranded good.[9] This formulation adds to the traditional utility function a social component $\lambda(\gamma_i u_h - u_l)$, $i = h, l$ nested within a *social segmentation* component $\gamma_i u_h$, $i = h, l$.

To guarantee that the utility level of a native consumer buying good l is a priori positive (i.e. $\theta u_l - \lambda(\gamma_p u_h - u_l) > 0$), it must hold that

$$\frac{\lambda + \theta}{\lambda} \frac{u_l}{u_h} > \gamma_p.$$

In addition, we assume that $2u_l - u_h > 0$, namely the quality gap is not extremely significant.[10]

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[7]This assumption is necessary to keep the utility function in line with the vertical differentiation model.

[8]Note that this assumption is not essential. The additional satisfaction may not necessarily be aligned with the quality of the good.

[9]We can nevertheless easily recover the case when $\gamma_b = \gamma_p$.

[10]For the implications of this assumption, see the third period under the segmentation scenario.

Finally, migrants do not perceive any social segmentation when choosing what to consume. Thus, the utility function of a migrant is

$$U^M(\theta) = \begin{cases} \theta u_h - p_h & \text{if she buys } h \\ \theta u_l - p_l & \text{if she buys } l \end{cases}.$$

In the following, we describe a dynamic setting where consumers from the two groups meet and exchange experiences about consumption. We assume that in each period, every consumer from group N meets at least one consumer from group M.[11] These encounters may induce a change of preference in goods. A necessary condition for this change in preference to arise is that citizens belonging to different groups meet. A sufficient condition for the change is a utility benefit. For instance, if a migrant meets a native consumer whose level of utility is higher, then the migrant decides to change his beliefs incorporated in his utility function and starts putting a social value on consumption, as the natives do. In a way, meeting someone who is better off induces mimicking that may bring a higher utility level. This implies that encounters may cause an expansion or a reduction of narrow-mindedness, and similarly for open-mindedness. Ultimately, as a consequence of these changes in belief, the actual individual consumption choice may change, leading to changes in the market.

For the model to be tractable, we make two important assumptions. First, we separate the periods of meeting from the periods of market decision. More specifically, our modelling framework is as follows. In the first period, the market solution is obtained before any meeting takes place. In the second period, consumers meet and exchange experiences. In this second period, changes in belief may occur. Natives may change their beliefs about the branded good, or migrants may start attaching a social value to consumption. As we will clarify in Section V, as a consequence of meeting, in some future periods two different beliefs may appear within the same group. For instance, some natives may keep their consumption culture while others change their beliefs and stop putting a social value on consumption, becoming open-minded. Whenever this occurs, the behavior that is mimicked by the other group, namely migrants, is again the behavior giving the highest payoff.

Second, for the sake of generality, we allow both meetings between consumers buying the same variants (segmented meetings) and meetings between consumers choosing different variants (mixed meetings). In each case, the same meeting rule applies for every future period. If at $t = 2$ consumers buying the same variant meet, in every future meeting period, only consumers buying the same variant meet.[12]

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[11] We do not need to impose much structure on the number of individuals who meet.

[12] We could study abrupt changes of this rule. For instance, we could assume that for n periods, citizens consuming the same good meet, and then at some future period, consumers buying different goods meet. This change would not qualitatively change our results in the steady state analysis.

It is worth noting that the amount of consumers buying a particular variant changes in every period before the steady state is reached (if it exists) because prices change.

Finally, we show that from a certain period on, neither beliefs nor prices change anymore. We call this market equilibrium a steady state. More specifically, *a steady state is reached when (i) no changes in attitudes occur, despite the fact that meetings continue to take place in each period; and (ii) consequently, optimal prices remain invariant for any future period.*

4   Entry period analysis: the benchmark

At the first period *entry* of migrants takes place. Inter-group meetings have not taken place so that consumers may only exchange intra-group. By assumption, intra-group meetings bring no changes in beliefs since each group shares a homogenous consumption culture. The market structure at this period is the *benchmark*.

In line with the traditional model of vertical product differentiation, the marginal consumer in each group $\theta_N (p_h, p_l)$ and $\theta_M (p_h, p_l)$, respectively write as

$$\theta_N (p_h, p_l) = \frac{p_h - p_l - \lambda \left(u_h \left(\gamma_b + \gamma_p\right) - 2u_l\right)}{u_h - u_l}$$

$$\theta_M (p_h, p_l) = \frac{p_h - p_l}{u_h - u_l}$$

If $\lambda = 0$, we recover the traditional expression of the marginal consumer in the vertical differenitation model. In this framework, the demand functions faced by firms h and l write, respectively, as:

$$x_h = (b - \theta_N (p_h, p_l)) + (b - \theta_M (p_h, p_l))$$

$$x_l = (\theta_N (p_h, p_l) - a) + (\theta_M (p_h, p_l) - a).$$

Maximizing the profit function of firm i, $\Pi_i = x_i p_i$, with $i = h, l$ we get the optimal price at the first period p_i^* :

$$p_h^* = \frac{2b - a}{3} (u_h - u_l) + \frac{\left(\left(\gamma_b + \gamma_p\right) u_h - 2u_l\right) \lambda}{6}$$

$$p_l^* = \frac{b - 2a}{3} (u_h - u_l) - \frac{\left(\left(\gamma_b + \gamma_p\right) u_h - 2u_l\right) \lambda}{6}$$

and the price difference as

$$p_h^* - p_l^* = \frac{(a + b)}{3} (u_h - u_l) - \frac{\left(2u_l - \left(\gamma_b + \gamma_p\right) u_h\right) \lambda}{3} \tag{2}$$

It can be noticed that the higher the social component of preferences, both for the social benefit γ_b as well as the frustration γ_p, the higher the price gap. The economic intuition underlying this features can be captured as follows. This social component enables consumers to appreciate the social benefit coming from the branded variant behind the material needs which are traditionally met, while condeming consumers purchasing the unbranded one to a frustration. The former benefit pushes upward the price of the branded variant p_h^*, which thus is fixed at higher level than in a setting without social preferences, while the frustration moves downward the price of the unbranded variant p_l^*. The effect of γ_b and γ_p on the price of the low quality variant passes also through the strategic interaction between firms. Because prices are strategic complements, the price of the low variant increases as p_h^* increases. It follows that p_l^* also raises with γ_b and γ_p. Nonetheless, the social downward pressure is more significant than the strategic upward one.

At the first period, the profit functions for each firm evaluated at optimal prices are:

$$\Pi_h^* = \frac{1}{18} \frac{\left(2\left(u_h - u_l\right)\left(a - 2b\right) + \lambda\left(2u_l - \left(\gamma_b + \gamma_p\right)u_h\right)\right)^2}{u_h - u_l}$$

$$\Pi_l^* = \frac{1}{18} \frac{\left(2\left(u_h - u_l\right)\left(2a - b\right) - \lambda\left(2u_l - \left(\gamma_b + \gamma_p\right)u_h\right)\right)^2}{u_h - u_l}$$

Notice that as far as Π_h^* (resp. Π_l^*), both price and demand at equilibrium raise (resp. decrease) with the social components γ_b and γ_p. This explains why Π_h^* (resp. Π_l^*) raises (resp. decrease) with γ_i, $i = b, p$.

The expressions of the marginal consumers in each group at the optimal prices obtain as

$$\theta_N^* = \frac{1}{3}\left(a + b\right) - \frac{2\lambda\left(u_h\left(\gamma_b + \gamma_p\right) - 2u_l\right)}{3\left(u_h - u_l\right)}$$

$$\theta_M^* = \frac{1}{3}\left(a + b\right) + \frac{\lambda\left(u_h\left(\gamma_b + \gamma_p\right) - 2u_l\right)}{3\left(u_h - u_l\right)}$$

with $\frac{\partial \theta_N^*}{\partial \gamma_b} < 0$ and $\frac{\partial \theta_N^*}{\partial \gamma_p} < 0$ whereas $\frac{\partial \theta_M^*}{\partial \gamma_p} > 0$ and $\frac{\partial \theta_M^*}{\partial \gamma_b} > 0$. Finally, $\theta_N^* - \theta_M^* = \lambda \frac{2u_l - u_h\left(\gamma_b + \gamma_p\right)}{u_h - u_l} < 0$. As expected, a higher number of natives consume the high quality good as compared to migrant consumers.

At the next period 2, consumers only meet. The meetings can happen among people consuming the same good or different ones. If we assume that citizens consuming the same good meet at period 2, then in every future period of meetings t, only consumers buying the same good in $t - 1$, will meet. Similarly, if we assume that citizens consuming different good meet at period 2, then in every future period of meetings t, only consumers buying different good in $t - 1$, will meet.

In particular, we observe the following meetings: migrants and natives that meet consume the same good, either h or l; or migrants and natives that meet consume different goods, either h and l; or l and h. We start analysing the attitude change when consumers that meet are consuming the same good. For this scenario, we develop fully the analysis of transition to the steady state. Then, we turn the attention to the scenario where consumers buying different goods meet.

5 Segmentation scenario

In this scenario, only consumers consuming the same good meet. This means that natives and migrants consuming the low variant meet and the natives and migrants consuming the high quality good meet. Meetings are segmented according to the consumption habits.

5.1 Second period: attitude change

To describe the possible changes in preferences, we start by analyzing the scenario where natives buying good l meet with migrants consuming good l and natives buying good h meet with migrants buying good h. We check first the possible change in the meeting of consumers buying l and then consumers buying h. These two parts are complements and they are both necessary to characterize changes occuring in the whole population of both groups that we investigate in the following subsection.

5.1.1 Migrants and natives consuming l

A native consuming variant l with an utility $U_l^N(\theta) = \theta u_l - p_l - \lambda(\gamma_p u_h - u_l)$ meets a native consuming l with $U_l^F(\theta) = \theta u_l - p_l$. Although they buy the same good, their level of utilities are different because the second is open-minded and does not give a social component to consumption. The utility differential is given by

$$U_l^M(\theta) - U_l^N\left(\tilde{\theta}\right) = \theta u_l - \tilde{\theta} u_l + \lambda(\gamma_p u_h - u_l) \text{ for any } \theta \in [a, \theta_M] \text{ and } \tilde{\theta} \in [a, \theta_N]$$

and

$$U_l^M(\theta) - U_l^N\left(\tilde{\theta}\right) > 0 \text{ since } \theta_N^* < \theta_M^*$$

Thus, for any given level of willigness to pay, native consumers may increase their utility level only by ceasing to be narrow-minded. By abandoning the social feature of consumption, their utility function turns out to be $U_l^H(\theta) = \theta u_l - p_l$, while migrants do not change their consumption culture.

5.1.2 Migrants and natives consume h

A native consuming variant h with an utility $U_h^N(\theta) = \theta u_h - p_h + \lambda(\gamma_b u_h - u_l)$ meets a migrant consuming h with $U_h^M(\theta) = \theta u_h - p_h$. In this case

$$U_h^N\left(\hat{\theta}\right) - U_h^M(\theta) = \hat{\theta} u_h - \theta u_h + \lambda(\gamma_b u_h - u_l) > 0 \text{ for any } \theta \in [\theta_M, b] \text{ and } \hat{\theta} \in [\theta_N, b]$$

Thus, migrants mimic natives and become narrow-minded.

Lemma 1 *If natives and migrants consuming the same variant meet, then in both groups, in period two, open-mindess spreads among consumers buying variant l whereas narrow-mindness prevails among consumers buying variant h.*

5.2 Third period: consumption changes

At this period, firms h and l define their equilibrium prices taking into account the demand functions that encompass the attitude update generated by encounters at the second period. Consumers, in turn, modify the consumption choices in line with these prices and their attitude, as defined at period two.

In order to characterize the equilibrium configuration, we first define the marginal consumers thereby building the corresponding profit functions.

Following the result in Lemma 1, in this scenario, in period 3, the marginal consumer can be found by the equality $\theta u_l - p_l = \theta u_h - p_h + \lambda(\gamma_b u_h - u_l)$ in the native group. By constrast, in the migrant group, the narrow-minded migrant feels now frustration by consuming h because she perceives stigma from his own group of migrants. His utility is now $U_h^M = \theta u_h - p_h - \lambda(\gamma_p u_l - u_h)$. Therefore, the marginal consumer in the migrant group is given by $\theta u_l - p_l = \theta u_h - p_h - \lambda(\gamma_p u_l - u_h)$. Therefore, we have

$$\theta_N(p_h, p_l) = \frac{p_h - p_l + \lambda(u_l - \gamma_b u_h)}{u_h - u_l}$$

$$\theta_M(p_h, p_l) = \frac{p_h - p_l - \lambda(u_h - \gamma_p u_l)}{u_h - u_l}$$

It follows that for firm l and h, demand function write, respectively, as

$$x_L(p_h, p_l) = (\theta_N(p_h, p_l) - a) + (\theta_N(p_h, p_l) - a)$$

$$x_H(p_h, p_l) = (b - \theta_M(p_h, p_l)) + (b - \theta_M(p_h, p_l))$$

Maximizing profit function $\pi_i = p_i x_i$ wrt p_i, we get the optimal price p_i^{***} at the third period:

$$p_h^{***} = \frac{1}{3}(u_h - u_l)(2b - a) + \frac{1}{6}\lambda(u_h - u_l + \gamma_b u_h - \gamma_p u_l)$$

$$p_l^{***} = \frac{1}{3}(u_h - u_l)(b - 2a) - \frac{1}{6}\lambda(u_h - u_l + \gamma_b u_h - \gamma_p u_l).$$

Notice that under this type of encounters the optimal price of the high quality variant decreases with time (i.e. $p_h^{***} - p_h^* < 0$), whereas by contrast the optimal price of the low quality variant increases with time (i.e. $p_l^{***} - p_l^* > 0$).

At these optimal prices, the indifferent consumer θ_j^{***} in each group $j = N, M$ at the third period is found as:

$$\theta_N^{***} = \frac{(u_h - u_l)(a + b) + \lambda(u_h - 2\gamma_b u_h + 2u_l - \gamma_p u_l)}{3(u_h - u_l)}$$

$$\theta_M^{***} = \frac{(u_h - u_l)(a + b) + (\lambda\gamma_b - 2\lambda)u_h + (2\lambda\gamma_p - \lambda)u_l}{3(u_h - u_l)},$$

Let us define the threshold $\bar{\gamma}_p = \frac{2u_h - u_l}{2u_l - u_h}$ that equilizes $\theta_M^{***} = \theta_M^*$. Then,

Lemma 2 *In the third period, the market share for the high quality good among natives decreases, i.e.* $\theta_N^{***} - \theta_N^* > 0$; *whereas the market share for the high quality good among migrants decreases (resp. increases) i.e.* $\theta_M^{***} - \theta_M^* \gtreqqless 0$ *iff* $\gamma_p \gtreqqless \bar{\gamma}_p$.

Proof. The difference $\theta_N^{***} - \theta_N^*$ is equal to $\frac{1}{3}\lambda\frac{(2\gamma_p + 1)u_h - (\gamma_p + 2)u_l}{u_h - u_l}$. The numerator of this expression is positive iff $\frac{u_h}{u_l} > \frac{\gamma_p + 2}{2\gamma_p + 1}$. We can easily prove that $\frac{\gamma_p + 2}{2\gamma_p + 1} < 1$. It follows that $\frac{u_h}{u_l} > \frac{\gamma_p + 2}{2\gamma_p + 1}$ is always satisified being $\frac{u_h}{u_l} > 1$, implying that $\theta_N^{***} - \theta_N^* > 0$.

The difference $\theta_M^{***} - \theta_M^*$ is equal to $\frac{1}{3}\lambda\frac{(2u_l - u_h)\gamma_p + u_l - 2u_h}{u_h - u_l}$. Under the assumption $2u_l - u_h > 0$, we have $\theta_M^{***} - \theta_M^* \gtreqqless 0$ if $\gamma_p \gtreqqless \bar{\gamma}_p$. The threshold $\bar{\gamma}_p$ is not redundant because $\bar{\gamma}_p > 1 \Leftrightarrow 3(u_h - u_l) > 0$. ∎

Hence, with respect to the benchmark, encounters of natives and migrants consuming the same good reduces the consumption of the high quality variant among natives, while the effect of encounters on migrants consumption habits depends on the size of the frustration parameter γ_p. The share of migrants consuming the high quality decreases only if the parameter γ_p measuring social stigma is relatively high.

The largest group consuming h remains the native group because $\theta_M^{***} - \theta_N^{***} = \lambda\frac{\gamma_b u_h - u_h + \gamma_p u_l - u_l}{u_h - u_l} > 0$.

5.3 Steady state analysis

We turn now the attention to the steady state analysis. We show in the following that when consumers buying the same good meet, at the steady state the low willigness buyers in both groups become open-minded, whereas high willigness consumers in both groups are narrow-minded. This is true for high or low level of γ_p. Nonetheless, the magnitude of γ_p crucially defines how much the attitude of narrow-mindness is spread among migrants and ultimately it nails down to what extent social division persists in the steady state.

To ease the understanding, at the third period and the consequent ones, we present in Fig 1 the evolution of consumption culture (narrow vs open mindness) until the steady state is reached. Each line represents the heterogenous population of each group. Consumers (Narrow-minded N_l or Open-minded O_l) buying the low quality good are represented in blue and those (Narrow-minded N_h or Open-minded O_h) consuming the high quality good in orange. In each period, the graph
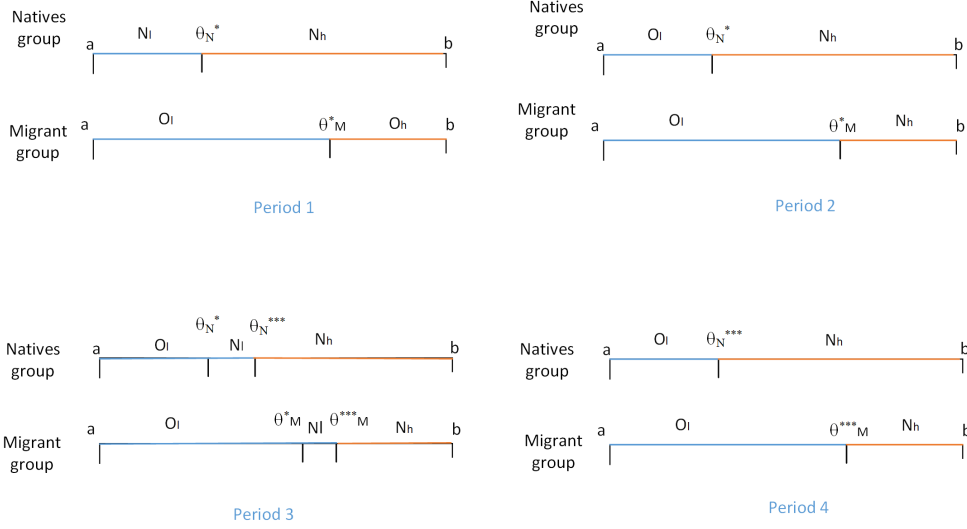
Figure 1: Dynamics of attitutes and preferences when $\gamma_p \geq \bar{\gamma}_p$

displays the marginal consumer in each group: θ_N^* and θ_M^* for the first period and the second one where only meetings take place; θ_N^{***} and θ_M^{***} for the third period on.

Assume first that γ_p is high, $\gamma_p \geq \bar{\gamma}_p$. Then, in period 3, we have among natives (a, θ_N^*) consumers buying l as open-minded; $(\theta_N^*, \theta_M^{***})$ consumers choose l as narrow-minded; while (θ_N^{***}, b) consumers choose h as narrow-minded. Rather, among migrants (a, θ_M^*) consumers choose l as open-minded; $(\theta_N^*, \theta_M^{***})$ consumers choose l being narrow-minded; finally (θ_M^{***}, b) consumers choose h as narrow-minded. Given this market segmentation at period 3, at period 4 meetings takes place. This means that open-minded natives consuming l and narrow-minded natives suffering a stigma, meet with migrants that can have both attitudes who consume l (see Fig1 for period 3). Following the rule that the preferences that diffuse are those giving the higher level of utility, then, the change in beliefs leads to the market structure shown in Fig 1 in period 4. Namely, open-minded natives consume l and narrow-minded natives consume h. In the migrant group the division is the same: open-minded migrants consume l and close-minded migrants consume h. This is exactly the market structure of period 2, hence in period 5 prices are those of period 3 that will define a market structure that is exaclty the same as the market structure of period 2. From now on, no changes occur anylonger in terms of perferences. The market is stable with l consumers that are open-minded and h consumers that put social value to consumption in each group.

Assume now that γ_p is low, $\gamma_p < \bar{\gamma}_p$, implying that $\theta_M^{***} < \theta_M^*$ (see Fig 2) In this range of values of γ_p, the attitude structure in the migrant group is as follows. In the third period, migrants consuming l are all open-minded, whereas those consuming good h are open-minded in the interval $(\theta_M^{***}, \theta_M^*)$ and narrow-minded otherwise. Nonetheless, in period 4 onwards, meetings make all migrants consuming l open-minded. It follows that the steady state is reached as in the case where
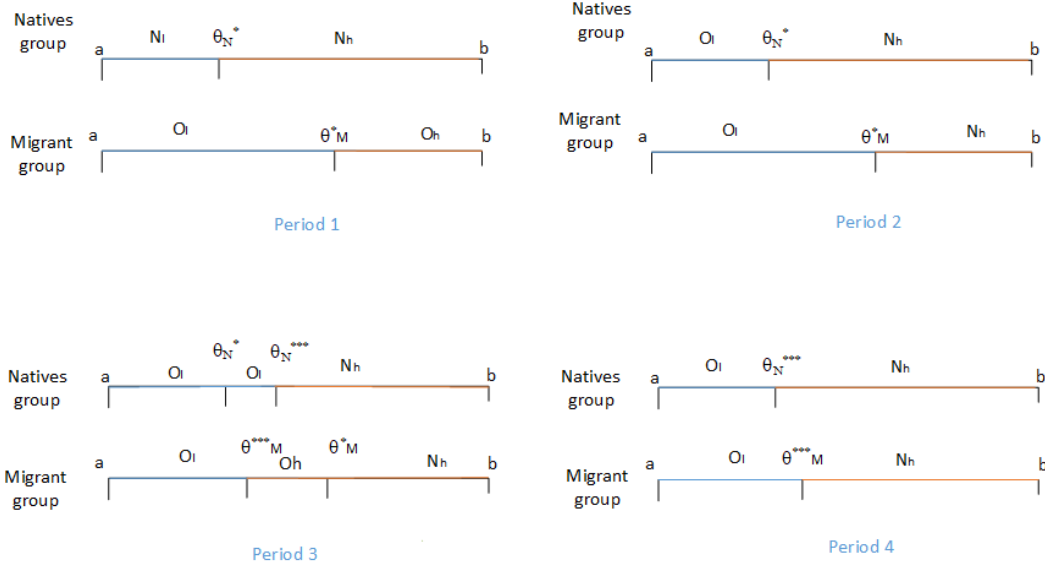
Figure 2: Dynamics of attitudes and preferences when $\gamma_p < \bar{\gamma}_p$.

γ_p is low. The difference between these two steady state conditions is that the steady state marginal consumer θ_M^{***} is smaller when γ_p is smaller. We can state the following result.

Proposition 3 *Assume segmented meetings. In the steady state market solution, consumers buying the low quality variant are open-minded in both groups, whereas consumers buying the high quality variant are narrow-minded. The lower the intensity of social stigma among natives, the higher the number migrants switching from open-mindness to narrow-mindness.*

Our model suggests that the lower the the social content of goods among natives (low γ_p), the higher the degree of social division among the two groups due to the switch of migrants from open to narrow-mindness. Recall that a measure of social division is the spread of narrow-mindness. Proposition 1 shows that the lower γ_p, and the higher number of narrow-minded migrants consuming h. This surprising result of migrants choosing variant h, in spite of their narrow-mindness is due to the twofold role played by γ_p : it captures not only the frustration of natives when consuming the low quality variant l, but also that of migrants when consuming the high-quality variant h. The role of γ_p among migrants explains why a low value of γ_p tends to push upward the equilibrium price of variant h, while moving downward the equilibrium price of variant l: migrants do not suffer too much when buying h, so that firm H can keep high p_h^{***} without losing consumers in the market. Along the same rationale, variant l has not an extremely strong social content for natives which are able to evaluate the intrinsic quality of this variant. It is as if a low value of γ_p would magnify the traditional drivers emerging in vertical prduct differentiation, while weaking the social component of preferences.

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6 Mixed scenario

We now analyse a different type of meeting. In this section, we assume natives consuming good l mix with migrants consuming h, and *vice versa*. We check for the possible changes in each type of meeting and then construct the changes in the total population of each group.

6.1 Second period: attitude change

As above, we check first the possible change in the meeting of natives consumers buying l and migrants buying h; and then natives consumers buying h and migrants buying l. These two parts are complements and they are both necessary to characterize changes occuring in the whole population of both groups that we investigate in the following.

6.1.1 Migrants consume h and natives consume l

In this case, the utility differential is

$$U_h^M\left(\hat{\theta}\right) - U_l^N\left(\theta\right) = \hat{\theta}u_h - p_h - \left(\theta u_l - p_l - \lambda(\gamma_p u_h - u_l)\right) \text{ for } \hat{\theta} \in [\theta_M, b] \text{ and } \theta \in [a, \theta_N].$$

To investigate the sign of the above difference, we substite for the expression of prices and we evaluate the difference for $\hat{\theta} = \theta_N$ and $\theta = \theta_M$. If the difference is positive for these values of θ, then, the difference is always positive for any feasible value of θ and $\hat{\theta}$. The difference boils down to the following expression

$$U_h^M\left(\hat{\theta}\right) - U_l^N\left(\theta\right) = \lambda\frac{\gamma_p u_h^2 - u_l^2 + (\gamma_b - 1)\, u_h u_l}{u_h - u_l} > 0$$

It follows that $U_h^M\left(\hat{\theta}\right) - U_l^N\left(\theta\right) > 0$.

6.1.2 Migrants consume l and natives consume h

In this case, the utility differential is given by

$$U_h^H\left(\hat{\theta}\right) - U_l^F\left(\theta\right) = \hat{\theta}u_h - p_h + \lambda(\gamma_b u_h - u_l) - (\theta u_l - p_l)$$

with $\hat{\theta} \in [\theta_N, b]$ and $\theta \in [a, \theta_M]$. Solving the inequality for γ_p, we get as solution $\check{\gamma}_p = \frac{1}{u_h^2}\left(u_l^2 + u_h u_l - \gamma_b u_h u_l\right) < 1$. Since by assumption, $\gamma_p > 1 > \check{\gamma}_p$, it holds that $U_h^H\left(\hat{\theta}\right) - U_l^F\left(\theta\right) > 0$. So, migrants change their beliefs and start being narrow-minded.

We have now all the necessary to claim the attitute changes in period 2 among natives and migrants.

Lemma 4 *Under segmented meetings, narrow-minded preferences disappear among consumers buying variant l, while narrow-mindness prevails among consumers buying variant h.*

Under mixed meetings, natives consuming l become open-minded similarly to migrants consuming h; whereas migrants consuming l become narrow-minded, as natives consuming h.

6.2 Third period: attitude change

At period 2 people consuming different variants have met. As a result, we know that at period 2 in market N, consumers buying h are narrow-minded while consumers buying l are open-minded. In market M, consumers buiyng l, put social value to consumption, while consumers buying h, do not. Recall that the migrant who switches behavior and starts putting social value to consumtion feels a social benefit when consuming l and a social stigma if consuming good h.

Thus, the marginal consumer in market N and M, solves the following indifference conditions, respectively:

$$
\begin{aligned}
\theta u_l - p_l &= \theta u_h - p_h + \lambda(\gamma_b u_h - u_l) \\
\theta u_l - p_l + \lambda(\gamma_p u_l - u_h) &= \theta u_h - p_h
\end{aligned}
$$

so that

$$
\begin{aligned}
\theta_N(p_h, p_l) &= \frac{p_h - p_l + \lambda\left(u_l - \gamma_b u_h\right)}{u_h - u_l} \\
\theta_M(p_h, p_l) &= \frac{p_h - p_l - \lambda u_h + \lambda\gamma_b u_l}{u_h - u_l}.
\end{aligned}
$$

Using the demand functions for firm L and H, from profit maximization, the optimal prices at period 3 are immediately found

$$
\begin{aligned}
p_h^{***} &= \frac{1}{3}\left(u_h - u_l\right)\left(2b - a\right) + \frac{1}{6}\lambda\left(u_h - u_l\right)\left(\gamma_b + 1\right) \\
p_l^{***} &= \frac{1}{3}\left(u_h - u_l\right)\left(b - 2a\right) - \frac{1}{6}\lambda\left(u_h - u_l\right)\left(\gamma_b + 1\right)
\end{aligned}
$$

So that

$$
\begin{aligned}
\theta_N^{***} &= \frac{\left(u_h - u_l\right)\left(a + b\right) - \left(2\gamma_b - 1\right)u_h + \left(2 - \gamma_b\right)u_l}{3\left(u_h - u_l\right)} \\
\theta_M^{***} &= \frac{\left(u_h - u_l\right)\left(a + b\right) + \left(\lambda\gamma_b - 2\lambda\right)u_h + \left(2\lambda\gamma_b - \lambda\right)u_l}{3\left(u_h - u_l\right)}
\end{aligned}
$$

Let us define the threshold $\tilde{\gamma}_p = \frac{u_l(4\lambda+\gamma_b-2)-u_h(1-2\gamma_b(1-\lambda))}{2\lambda u_h}$ that equilizes $\theta_N^{***} = \theta_N^*$, then

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Lemma 5 *The market share among natives consuming the high quality good in period 3, decreases (resp. increases), i.e. $\theta_N^{***} - \theta_N^* \gtreqqless 0$ iff $\gamma_p \gtreqqless \tilde{\gamma}_p$. By contrast, the market share of the high quality good among migrants certainly increases in period 3, i.e. $\theta_M^{***} - \theta_M^* < 0$.*

Proof. The difference $\theta_N^{***} - \theta_N^*$ is equal to $\frac{1}{3} \frac{2\lambda u_h \gamma_p + (u_h(2\lambda\gamma_b - 2\gamma_b + 1) - u_l(4\lambda + \gamma_b - 2))}{u_h - u_l}$. The sign of this expression is positive iff $\gamma_p > \tilde{\gamma}_p$. $\tilde{\gamma}_p$ is higher than one, iff $\gamma_b > \frac{-(2u_l(2\lambda-1) - u_h - 2\lambda u_h)}{(u_l + 2u_h(1-\lambda))}$, which in turn is higher than one iff $\lambda > 1/4$. Hence, if $\lambda > 1/4$ and $\gamma_b > \frac{-(2u_l(2\lambda-1) - u_h - 2\lambda u_h)}{(u_l + 2u_h(1-\lambda))}$, then $\theta_N^{***} - \theta_N^* \gtreqqless 0$ iff $\gamma_p \gtreqqless \tilde{\gamma}_p$. If $\lambda < 1/4$, then $\frac{-(2u_l(2\lambda-1) - u_h - 2\lambda u_h)}{(u_l + 2u_h(1-\lambda))} < 1$, hence for any γ_b, $\theta_N^{***} \gtreqqless \theta_N^*$ if $\gamma_p \gtreqqless 0$.

The difference $\theta_M^{***} - \theta_M^*$ is equal to $\frac{1}{3}\lambda \frac{-2u_h - \gamma_p u_h + u_l + 2\gamma_b u_l}{u_h - u_l}$. The numerator is negative if $\frac{(2\gamma_b + 1)}{(\gamma_p + 2)} < \frac{u_h}{u_l}$. This last inequality is always true because $\gamma_b > \frac{\gamma_p}{2}$ is always true by assumption, implying that $\theta_M^{***} - \theta_M^* < 0$. ∎

Finally, $\theta_M^{***} - \theta_N^{***} > 0$, showing that in period 3, the number of natives consuming the high quality remains larger than the corresponding number of migrants.

6.3   Steady state analysis

As we stated in Lemma 4, in this case, in the second period of meetings, the natives consuming l switch to being open-minded mimicing migrants consuming h; while migrants consuming l switch to being narrow-minded mimicing natives consuming h.

Assume first that γ_p is high, $\gamma_p \geq \tilde{\gamma}_p$. Optimal prices obtained in period 3, define two different consumption cultures among natives consuming l. The first group on the right of θ_N^* is open-minded, whereas on the right of θ_N^*, consuming either l or h they remain narrow-minded. In the migrant group consuming l, we have only narrow-minded. Whereas, we have two consumption cultures on the right of θ_M^{***}, as shown in Fig 3. In period 4, meetings occur again. Following the rule that the preferences that prevail are those giving the highest payoff, we conclude that natives buying l and migrants buying h are open-minded. Whereas, natives buying h and migrants buying l are narrow-minded.

Assume now that γ_p is low, $\gamma_p < \tilde{\gamma}_p$. It follows that θ_N^{***} is now smaller than θ_N^* (see Figure 4). Therefore in period 3, there are two types of culture among natives on the left of θ_N^{***}. No changes appear among migrants in this case as compared with the scenario where γ_p is high. Meetings in period 4, again define a similar structure as above: natives buying l and migrants buying h are open-minded; whereas, natives buying h and migrants buying l are narrow-mindeds. Nonetheless, there is an important difference, because the numerosity of narrow-minded natives is much higher when γ_p is low then when γ_p is high. We can state the following result.

Proposition 6 *Assume mixed meetings. In the steady state market solution, open-minded natives and narrow-minded migrants buy the low variant good, whereas narrow-minded natives and open-minded migrants buy the high quality variant. The lower the intensity of social stigma among natives, the higher the number of natives buying as narrow-minded.*
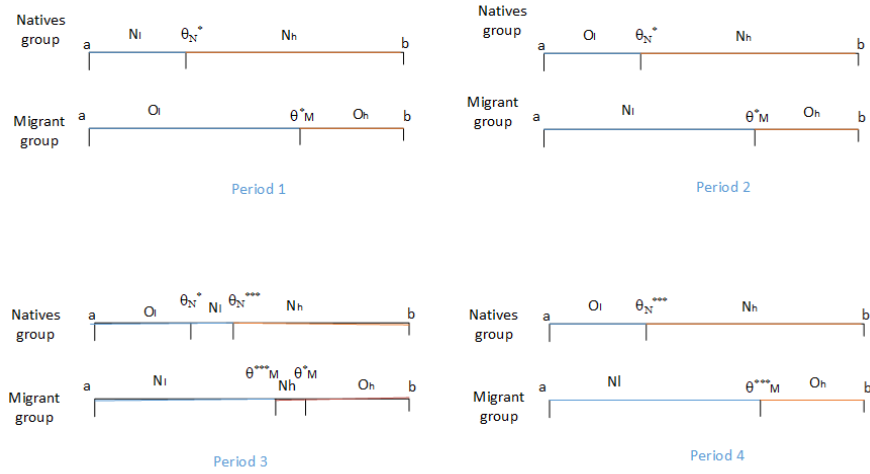
Natives group a |— N_l — θ_N^* — N_h —| b

Migrant group a |— O_l — θ^*_M — O_h —| b

Period 1

Natives group a |— O_l — θ_N^* — N_h —| b

Migrant group a |— N_l — θ^*_M — O_h —| b

Period 2

Natives group a |— O_l — θ_N^* N_l θ_N^{***} — N_h —| b

Migrant group a |— N_l — θ^{***}_M N_h θ^*_M — O_h —| b

Period 3

Natives group a |— O_l — θ_N^{***} — N_h —| b

Migrant group a |— N_l — θ^{***}_M — O_h —| b

Period 4

Figure 3: Dynamics of attitutes and preferences when $\gamma_p \geq \tilde{\gamma}_p$.

7 Discussion

It is interesting to highlight the different role of frustration γ_p embodied in the narrow-minded preferences.

When meetings are segregated along the consumption good, then the size of γ_p affects cultural evolution in the migrant group. More specifically, the size of γ_p defines the number of migrants who quit being open-minded, mimic the native population, and start being narrow-minded.

By contrast, when meetings are mixed according to consumption habits, then the size of γ_p affects the natives' consumption culture. More specifically, the intensity of frustration affects the number of natives who continue being narrow-minded and buy the high-quality variant, which better satisfies their sense of place.

In the first case, the lower γ_p is, the higher is the number of migrants who become narrow-minded. In the second scenario, the lower γ_p is, the larger is the number of natives who remain narrow-minded.

Interestingly, this result shows that when populations with conflicting social-cultural traits meet, the prevailing cultural attitude cannot be determined a priori. The diffusion of nationalism depends, on the one hand, on the intensity of the frustration of narrow-minded consumers when purchasing goods that do not belong to the set of national cultural values. On the other hand, it is also determined by the characteristics of the country where meetings take place. If under mild nationalism meetings take place in a country that is segregated in consumption, then migrants
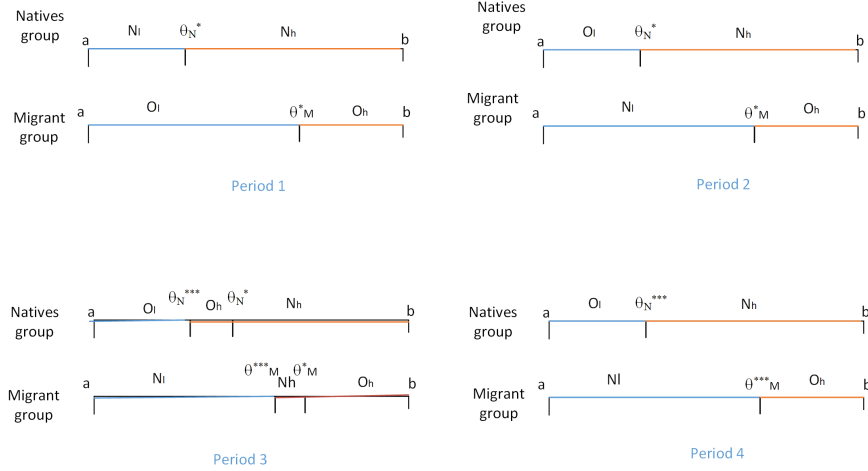
Natives group a —— N_l —— θ_N^* —— N_h —— b

Migrant group a —— O_l —— θ_M^* —— O_h —— b

Period 1

Natives group a —— O_l —— θ_N^* —— N_h —— b

Migrant group a —— N_l —— θ_M^* —— O_h —— b

Period 2

Natives group a —— O_l —— θ_N^{***} —— O_h —— θ_N^* —— N_h —— b

Migrant group a —— N_l —— θ_M^{***} —— N_h —— θ_M^* —— O_h —— b

Period 3

Natives group a —— O_l —— θ_N^{***} —— N_h —— b

Migrant group a —— N_l —— θ_M^{***} —— O_h —— b

Period 4

Figure 4: Dynamics of attitutes and preferences when $\gamma_p < \tilde{\gamma}_p$.

mimic mild nationalism and start being narrow-minded like the natives of the destination country. In this case, each population tends to protect its own culture, and perhaps even more relevant, to suffer when purchasing goods that are somehow close to the other culture.

By contrast, if mild nationalism exists in a country not segregated in consumption, then the arrival of migrants will leave the cultural attitude of natives relatively invariant, while at the same time keeping many migrants open-minded.

8 Conclusions

In this paper, we used a dynamic model to characterize the steady state market solution of two scenarios with different types of meetings. Starting from the idea that when goods are used to confirm a sense of place attitude and consumption habits may become a measure of social division, we have described the evolution of a market at first populated by narrow-minded natives and open-minded migrants. Based on the steady state configuration under segmented or mixed encounters, we can draw two final conclusions. Firstly, it is mild nationalism (low level of γ_p) and not strong nationalism that expands either among natives and/or migrants. Strong nationalism is too costly and thus is abandoned more often by initially narrow-minded buyers. Secondly, the expansion of mild nationalism contaminates migrants only when consumption habits are segmented.

Although our model is highly stylized, it provides some insight into relatively topical issues. For example, it identifies possible patterns of cultural integration depending on the host countries and the types of encounters that are possible.

As a natural by-product of these theoretical findings, casual observations confirm that in countries with a strong social identity where meetings typically take place between groups sharing the same income or living in the same area, e.g., France and Hungary, migrants tend to preserve the

cultural traits of their origin countries and, in some circumstances, to flaunt their social, consumption, and religious habits. These attitudes toward origin cultures are rather mitigated in the USA, however, where the ethnical mix is so strong that meetings do not develop along a unique dimension. These considerations open the door to an empirical research path that could inform future analyses.

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