The Paradox of Integration: A Model of Relative Group Standings*

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Abstract

The current paper provides a theoretical model of relative group standings. Individuals belong to one of two different social groups: either to one that is overrepresented or to one that is underrepresented on a given high-tier hierarchy level. In order to signal their ambition, they engage in a two-audience cheap-talk game. One audience is the sender's social group; the other is a decision maker. If promoted by the latter, individuals have to decide whether or not to conform to the organizational culture shaped by the overrepresented group. They experience both peer pressure from their own group and direct costs from acting against their social identity. A decline of the cultural gap between the under- and the overrepresented group makes advancing to the high-tier level more attractive for the former but can also deprive the high types amongst them of a signaling device. For indviduals from the underrepresented group, advancement is possible if the cultural gap between the two groups is either large or very small; but for gaps in between, advancing may become impossible ("Paradox of Integration"). Assimilation, that is, a narrowing of the cultural gap, improves chances for the less productive types and almost always impairs them for the most productive types in the underrepresented group.

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1 Introduction

Some social groups persistently lag behind others, both in business and politics. Most notably, women, blacks and Asians are constantly underrepresented on high-tier levels of hierarchies in the Western world.[1] The two most popular attempts at explaining this - pointing to human-capital differences or discrimination by superiors - have turned out to be insufficient (Gayle, Golan and Miller 2011, Gagliarducci and Paserman 2011, Giuliano, Levine and Leonard 2011, Fryer 2010, Hill and Thomas 2010, Yap and Konrad 2009).[2] Thus, economists have started to consider a third explanation: Cultural differences between social groups arguably have an impact on how far these groups can advance. However, little is known about the precise nature of this impact. To improve the understanding of the way in which cultural differences affect relative group standings is the purpose of this paper.

Many empirical studies suggest that culture can be a barrier to advancement for particular social groups, notably women (World Economic Forum 2010, Gagliarducci and Paserman 2011), blacks (Fryer and Torelli 2010), and Asians (Akimoto and Sanbonmatsu 1999, Xin 2004). Women and Asians, for instance, often find it difficult to act in the straightforward, self-assertive ways required in senior management in Western countries (Litzky and Greenhaus 2007, Ragins, Townsend and Mattis 1998). Theorists account for such

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[1] See, e.g., Bertrand and Hallock (2001) and Yap and Konrad (2009).

[2] For instance, both explanations fail to account for the fact that women in *top*-tier positions have significantly lower rates of survival in office than men, even when there are no differences in performance or task-related preferences between men and women in these jobs (Gagliarducci and Paserman 2011). Moreover, the recent empirical literature on the hiring of underrepresented groups into high-tier ranks tends to find a bias *in favor* of some of these groups. This contradicts the assumption of discrimination and lends little support to the hypothesis that all underrepresented groups consistently perform worse than the overrepresented group (Gayle, Golan and Miller 2011, Hill and Thomas 2010, Yap and Konrad 2009).

cultural barriers in two ways: They either model peer-pressure to conform to one's own social group (Austen-Smith and Fryer 2005, Battu, Mwale and Zenou 2007) or they model the direct psychic costs from violating the identity norms of one's social group (Akerlof and Kranton 2000, 2005, 2008, 2010). Both types of models imply that reducing cultural differences - and thus the conflict of norms - between the over- and the underrepresented group unambigously enhances parity. However, while this might be true in many contexts, there is also some puzzling evidence to the contrary. Figures 8 and 9 in Appendix B depict the representation of women at the top-tier levels in politics and business, respectively, depending on the country-wide cultural gap between men and women. (The more opposed gender roles are between men and women, the larger the cultural gap is, and the more traditional the gender-role attitudes are in the country.) Both figures exhibit similar - and surprising - patterns: Both the countries with very modern and with very traditional (though not extreme) gender-role attitudes provide the best opportunities for women to advance into top-tier positions. Strikingly, countries that lie in-between seem to offer much worse opportunities. Thus, perhaps it does not always increase parity between an over- and an underrepresented group if their cultural differences decline; it may even be that a decline of the cultural gap has a strong *negative* effect on parity.[3] I baptize this puzzle the "Paradox of Integration". If the Paradox really exists, it will be of immense importance both for the design of affirmative-action policies and the ongoing research on group inequalities.

The current paper provides a model that predicts the Paradox under weak, plausible and empirically justified assumptions. It also identifies the precise conditions for when the Paradox of Integration occurs. This becomes achievable by modeling *both* peer pressure to conform to group norms *and the* direct psychic costs from violating these norms. I model these two cost types in a two-audience cheap talk model with two groups of heterogeneous senders. One audience is the sender's social group, which is either over- or underrepresented at the targeted hierarchy level. The other audience is the decision maker who allocates the vacant position(s) at this level.

To see how peer pressure and direct costs from norm violation fit in such a model, consider a person (she) from the underrepresented group. Suppose that she sends a public message in order to advance to the targeted hierarchy level. (For instance, a women speaks up for herself on important meetings

[3] Additional evidence will be reported in the Discussion.

in order to get noticed as a possible candidate for senior management.) On this targeted level, cultural norms run contrary to those of the person's own group. (A senior manager is expected to "act masculine".) The larger the conflict of norms between the under- and the overrepresented group, the more likely it becomes that the person in question will feel the peer pressure and be ostracised by her group. The reason is that she, by attempting to advance into a different culture, signals her willingness to violate the norms of her own social group and thus becomes less valuable to the latter (Cooper 1997, Fordham and Ogbu 1986, Fordham 1996, Corwin 2001, Suskind 1998).[4] However, by taking the risk of being ostracised, this person can also signal something to the decision maker who allocates the desired positions, namely that she is highly motivated to obtain one, presumably because she is able to perform well. Hence, peer pressure to conform culturally with the underrepresented group can facilitate advancement for the group's highest types since provoking ostracism by one's peers can function as a signaling device.

Suppose now that the person from the underrepresented group is successful in her attempt to advance. Then, she must decide whether she actually wants to conform to the alien culture that now surrounds her. The more this culture differs from her own social identity, the larger the direct psychic costs from conformity with the alien culture become (Litzky and Greenhaus 2007, Ragins, Townsend and Mattis 1998, McKay et al. 2007). Only if her motivation to perform well is strong enough to outbalance these costs will the person decide to conform.[5] The decision maker, of course, advances a person only if he can be sufficiently confident that her motivation is strong enough for her to perform well.

In such an environment, it is easy to see that a decline of the cultural gap between the under- and the overrepresented group has a double effect: On the one hand, this decline reduces the direct psychic costs from conforming to the dominant culture and thus makes it more likely that a person from

[4] Cooper (1997) finds that women with traditional gender role attitudes evaluate female leaders negatively, especially when the latter exhibit assertiveness. Fordham and Ogbu (1986), Fordham (1996), Corwin (2001) and Suskind (1998) report analoguous evidence on peer pressure among blacks.

[5] Women perceive a lower congruence between their own personality characteristics and senior management than men; and this partly explains women's lower ambition to get a senior management position (Litzky and Greenhaus 2007). Moreover, women in management find it necessary to adapt to a masculine corporate culture (Ragins, Townsend and Mattis 1998). See also the World Economic Forum 2010. McKay at al. (2007) provide analoguous evidence on blacks.

the underrepresented group, once advanced, will perform well (direct cost effect). On the other hand, the decline of the cultural gap makes it less likely that this person will be ostracised by her own group when attempting to advance (indirect cost effect). However, while making such attempts more attractive, the decline in peer pressure can also deprive the high types in the underrepresented group of the possibility to reveal their types.

Depending on the relative sizes of the two effects just described, three entirely different outcomes might result from the cultural convergence of the two groups: Either peer pressure will remain sufficiently high to still provide high types in the underrepresented group with a possibility to separate themselves from the lower types. Then, the total effect of cultural convergence will turn out to be positive and an increasing number of types from the underrepresented group can advance. Or peer pressure will decline so much that it loses its signaling function. Then, the total effect of cultural convergence will depend on the size of the direct cost effect: If the direct psychic costs from conforming to the culture of the targeted hierarchy level decline sufficiently, the decision maker can be confident that almost all members of the underrepresented group will perform well, once advanced. Then, a signaling device will no longer be needed for the decision maker to advance members from the underrepresented group. In this situation, all types can advance with positive probability. If, however, those direct costs did not decline sufficiently, then the underrepresented group will be caught in a trap: On the one hand, the conflict of norms between them and the overrepresented group will still be high enough to impair the performance of so many of them that the decision maker would only select the most motivated. On the other hand, peer pressure within the underrepresented group will have declined already so much that the most motivated among them will lack the necessary signaling device to reveal their type to the decision maker. Thus, the decision maker will no longer advance any member from the underrepresented group. If this latter situation occurs, the Paradox of Integration will materialize.

I will identify the conditions under which these three outcomes emerge. Given an innocent equilibrium-selection assumption (the most informative equilibrium is played), the following turns out to hold: Starting from an extremely wide cultural gap between the over- and the underrepresented group, a decline of the gap increases the number of types in the underrepresented group that will advance. However, at some point a further narrowing of the gap can lead to the Paradox of Integration so that no-one from the underrepresented group can advance any more. This happens if the decision maker's cost from selecting a wrong type is high. If the cultural gap between the two groups keeps shrinking further, then at some point all types in the underrepresented group will advance with positive probability again; however, there will be no advantage for high types. The pattern of relative group standings that results from this comparative-static analysis nicely matches the empirical pattern that can be observed from Figures 8 and 9. Other implications of the model that I will discuss in the last section of this paper are also in line with empirical evidence.

It is important to emphasize that the model can be applied to virtually *all* social groups. Moreover, the comparative-static analysis of how a declining cultural gap between an over- and an underrepresented group affects the prospects of the latter applies to any assimilation process in which a minority converges toward the culture of the host country's elites. It is very well-known that oftentimes a sudden revival of long-receded discrimination hits ethnic or religious minorities that are already well-assimilated into the dominant culture of the host country's establishment. A prominent historic example is the so-called Dreyfus-affair that evolved in France at the turn of the 19th century. It marked a reinvigoration of antisemitic discrimination that is particularly puzzling to historians since the French Jews were very well-assimilated at the time. As the Sociologist Richard Alba puts it, "...even initially great success [of assimilation; the author] may be followed by discrimination and exclusion." (Alba (2006), pp. 348-349.) This application of the model is carried out in more detail in section 6 where I extend the model to account for taste discrimination. The extended model predicts that taste discrimination most hits minorities that are either very little or very much assimilated. Thus, my model applies to a variety of phenomena that are characterized by non-monotonic effects of converging social identities on parity.

The remainder of the paper is organized as follows: In Section 2, I relate the paper to the existing theoretical literature. Section 3 presents an introductory example of how peer pressure can function as a signaling device. The full model is presented and solved in Section 4. In Section 5, I discuss an extension of the model in which the culture of the targeted sphere depends on how forcefully the upcoming group enters this sphere. In Section 6, I present a different extension of my model that accounts for taste discrimination; and I apply the extended model to ethnic and religious minorities. Section 7 discusses the model in the light of existing empirical evidence. Most proofs are relegated to Appendix A.

2 Related Theoretical Literature

The current paper contributes to the growing literature on cultural economics[6] and bridges the gap between two different strands. The first strand is the literature on social identity starting with Akerlof and Kranton (2000) and best represented by the later work of these authors.[7] With this literature, the current paper shares the idea that social identity implies certain norms the violation of which imposes direct costs on individuals who have this identity.

Second, the current paper relates to the literature on oppositional cultures within minority groups. The well-known starting point of this literature is Austen-Smith's and Fryer's 2005 seminal paper on "acting white". Other important contributions are, for instance, Bisin et al. (2011) and Battu, Mwale and Zenou (2007).

Like Austen-Smith and Fryer (2005), I consider a two-audience signaling quandary. However, in my model this quandary is complicated by the fact that two different groups of senders compete for the same set of vacant positions.[8] Apart from this, both the underlying mechanism and the results of my model are very different. First, my results crucially depend on my modeling both peer pressure *and* direct psychic costs from norm violation, while Austen-Smith and Fryer consider only peer pressure. Second, in my model there is no exogenous "social type". By contrast, what individuals in my model signal to their group is their endogenous future decision whether or not to respect the group norms. Third, in my paper the signaling value of a sender's message stems from the anticipated reaction of her social group alone, not from direct signaling costs. Fourth, in my model all costs from conforming to the culture of the overrepresented group depend on the cultural gap between the latter and one's own group. These modeling differences explain why my framework allows for investigating the effects of a continuously declining cultural gap between the over- and the underrepresented group, which is impossible in the model of Austen-Smith and Fryer, and why my

[6] Important contributions are, e.g., Akerlof and Kranton (2000, 2005, 2008, 2010), Austen-Smith and Fryer (2005), Battu, Mwale and Zenou (2007), Benabou and Tirole (2010, 2011), Bisin, Patacchini, Verdier and Zenou (2011), Fershtman, Gneezy and Hoffman (2011), and Levy and Razin (2012a, b and c).

[7] For an overview of this literature with an application to gender, see Bertrand (2010).

[8] For another applied cheap-talk paper in which both senders and receivers are heterogeneous, see, e.g., Mechtenberg (2009).

model predicts the Paradox of Integration.

Battu, Mwale and Zenou (2007) and Bisin et al. (2011) develop models of oppositional culture in which minority individuals are mindful of their social network when choosing which group they want to conform to. None of these models includes signaling. Moreover, they imply that an oppositional culture within the minority group unambiguously lowers the chances for minority members to advance into the majority culture. Similar results are obtained in other models of peer pressure and group conformity, like in Akerlof (1980), Akerlof (1997) and Patacchini and Zenou (2012). By contrast, in my model *some* degrees of oppositional culture have a *positive* effect on advancement opportunities for high types in the minority group.

3 An introductory example

Let G_1 and G_2 be the two social groups; and let G_2 be underrepresented on the level of hierarchy concerned. The difference between the social identities of the two groups, i.e., their cultural difference, is measured by $d \in \mathbb{R}^+$. Group G_1 is overrepresented on the level of hierarchy in question and coins the latter's organizational culture C. Thus, d also measures the difference between the organizational culture C and the social identity of individuals in the underrepresented group G_2. G_2 is composed of a large number of individuals i with an individual motivation $\theta_i \in \{\theta_L, \theta_H\}$. Motivation is private information. The share of highly motivated individuals $\theta_i = \theta_H$ among those from G_2 who are possible candidates for advancment is $\alpha \in (0, 1)$.

All candidates i from the underrepresented group send a public message $m_i \in \{m_L, m_H\}$. Then, a decision maker updates his belief about the motivation of i. He *advances* i if and only if his posterior belief that i is highly motivated weakly exceeds $\beta > \alpha$; otherwise, he *does not advance* i. Thus, in this example we assume that a candidate from the underrepresented group can only gain a position if she credibly signals high motivation. This assumption captures the idea that a cultural gap between G_2 and G_1 adversely affects G_2 so that too few individuals in G_2 are motivated to adapt to a culture shaped exclusively by G_1. The underrepresented group G_2 *excludes* i with probability $p(d) \leq 1$ if i has advanced and with probability p_0 otherwise.[9] Let $p'(d) > 0 \; \forall d$, $p''(d) < 0$ and $\lim_{d \to \infty} p(d) = 1$. Thus, the higher the cultural difference between the two social groups, the more likely it is that the underrepresented group excludes its members if they advance.[10]

Payoffs of individual i from the underrepresented group are as follows: She earns u_j, $j \in \{L, H\}$, if advanced and $u_0 < u_j$ otherwise. If $\theta_i = \theta_H$, then $u_j = u_H$; and if $\theta_i = \theta_L$, then $u_j = u_L < u_H$. Thus, both the highly and the lowly motivated earn more if advanced; but the gain is larger for the highly motivated. Both types have the same interest in remaining accepted by their own social group and suffer a utility loss $c > 0$ if the latter excludes them.

Now define d_j as the level of cultural difference between G_1 and G_2 (i.e., C and G_2) at which an individual from G_2 of type θ_j is just indifferent between advancing and not advancing:

$$u_j - p(d_j) c = u_0 - p_0 c, \text{ with } j \in \{L, H\}.$$

Thus, the highly motivated individuals from the underrepresented group want to advance if and only if $d < d_H$; and the lowly motivated want this if and only if $d < d_L$, with $d_L < d_H$.

Consider now the Perfect Bayesian Equilibria in pure strategies. For $d > d_H$, the only existing pure-strategy equilibrium is a pooling equilibrium without advancement of G_2; i.e., both highly and lowly motivated individuals from the underrepresented group pool on the same message (for example, m_L), and none is advanced. The reason is that if cultural difference d exceeds d_H, then no individual from the underrepresented group wants to be advanced into the organizational culture C for fear of being excluded by their own social group.

If d drops below d_H, the situation changes. For $d \in [d_L, d_H]$, we have the following situation: While the lowly motivated still do not want to advance, the highly motivated do, since for them the corresponding gain outweighs the risk of being excluded by their group. This is because the risk of exclusion has been diminished together with the cultural difference, and the gain from advancing is higher for the highly motivated. Thus, for $d \in [d_L, d_H]$, a

[9] In the full model presented below, the decision-maker and the sender's group make their decisions simultaneously. The sequential timing here simplifies the solution.

[10] Exclusion stands for any form of ostracism that imposes psychological costs on the individual concerned.

separating equilibrium exists in addition to the pooling equilibrium described above. In this separating equilibrium, the highly motivated individuals from the underrepresented group send a different message, e.g., m_H, than the lowly motivated, who, for instance, send m_L; and only the highly motivated are advanced.

However, the situation changes again when the cultural difference d declines even further: For $d < d_L$, *advancement of* G_2 *breaks down again.* Only the pooling equilibrium exists in which the decision-maker does not advance anyone from the underrepresented group. The reason is as follows: For $d < d_L$, both the highly motivated and the lowly motivated want to advance. The risk of being excluded is so low now that even the relatively small gain that the lowly motivated can expect from advancing is sufficient to outweigh this risk. But the decision-maker wants to advance only those who signal high motivation, since α, the share of highly motivated individuals in G_2, is too low to advance individuals from G_2 blindly. Thus, the lowly motivated send the same message as the highly motivated. As a consequence, the highly motivated cannot separate themselves from the lowly motivated any more and are unable to advance. Hence, if d drops below d_L, the Paradox of Integration materializes. The Paradox consists in the fact that the highly motivated from the underrepresented group can advance at higher levels of cultural difference between the social groups but not at lower levels.

At this point, a remark about the assumption of costless signaling is in order. This assumption should *not* be read to imply that the decision maker has no means to screen individuals for talent or instrinsic motivation. Instead, my assumption has two other readings both of which capture common situations in reality and explain why I can abstract from screening and costly signaling in the current context. The first reading is as follows: Someone is of the high type θ_H if and only if he or she is *both* highly talented or motivated *and* able to adapt to the organizational culture that prevails on the higher hierarchy level. However, while it is possible to screen for talent and task-related intrinsic motivation before advancing someone, it is impossible to find out whether this person will retain his high-effort level when transferred into a new organizational culture that is very different from his own social identity. This problem arises only with regard to individuals from G_2 since individuals from G_1 will not have to act against their own social identity if they are advanced. Signals with indirect costs that are related to the social difference between the two groups are indeed the best available method for the decision maker to find out which individuals from G_2 are disposed to adapt to the alien working culture on the higher hierarchy level. Hence, only this signaling device has to be modeled. The alternative reading of the costless-signaling assumption says that the effort costs of performing well on the higher hierarchy level are larger for individuals from G_2 than for those from G_1 since only the former have to invest energy into adapting to a culture that is alien to them. Thus, the decision maker must rather screen out higher types in G_2 than in G_1 when looking for possible candidates to advance. However, monitoring is imperfect to the extent that resources for costly signaling (e.g., possible *observable* effort levels of individuals) are too restricted to allow for a separation of those types in G_2 whom the decision maker would be willing to advance. An additional, verbal signal ist needed; hence, only this has to be modeled. Both readings of my costless-signaling assumption are justified in many real-world settings - interestingly, mainly in those in which evidence for the Paradox of Integration is to be found. In the political context, imperfect monitoring of effort is prevalent: Voters often have nothing else to rely on other than verbal statements when they decide between two equally qualified candidates for a political office. Large corporations, too, often rely on cheap talk in addition to observable achievements, especially when it comes to identifying the "best fit" for a top-tier job. Kumra and Vinnicombe (2008) who conducted a micro-study of career paths in management report that "[t]he need to self-promote one's achievements was viewed as important by three-quarters of the interviewees. The advice here is to ensure that senior organizational members are *made aware* of achievements and interests" (p S70, the emphasis is mine). And they cite a senior manager giving the following advice: "Get involved in something, anything, just to get on the radar screen." (p. S69) With regard to women, Ragins, Townsend and Mattis (1998) who conducted a similar but larger study point out: "Many of the women in our study reported that they often had to explicitly signal their willingness to take on unusual or challenging assignments, since otherwise managers may assume they are not interested."(p. 31) Also, an overwhelming number of advice books teaches women to stop waiting to get noticed and to begin calling attention to themselves by communicating their talents and ambitions.

In the subsequent section, I will present the full model which extends the example of the current section in several ways. First, I will endogenize the share α of highly motivated individuals in the underrepresented group. The reason is that psychologically, dedication to a job or community increases if the difference between its culture and one's own social identity declines. Second, and as a consequence of this, the full model will allow for a comparison between advancement opportunities of the overrepresented group G_1 and the underrepresented group G_2. Relatedly, if the cultural difference between the two social groups is zero, parity of both groups will be obtained. Third, the full model will consider scarcity of vacancies and the resulting externalities that the candidates from the two different groups exert on each other if advanced. Fourth, I will spell out the preferences that determine the decision of the sender's group.

4 A two-audience cheap talk model with two culturally different groups of senders

The basic structure of the full model is borrowed from the literature on cheap talk with two audiences as introduced by Farrell and Gibbons (1989). The candidate (she) sends one and the same message both to her own social group and the decision-maker who simultaneously update their beliefs about the candidate's type. Then, the candidate's group decides whether to exclude her, and the decision-maker simultaneously decides whether to advance her. Thus, contrary to the example from the previous section, the decision-maker and the candidate's social group act simultaneously, not sequentially. Apart from being in line with the literature, this modification also makes the model more natural: Attempts to impress superiors from a culturally different group often prompt immediate reactions from peers. However, it is possible to obtain similar results in a model with sequential moves of the audiences, as the example from the previous section already demonstrates.

4.1 The model

Again, let G_1 and G_2 be the two social groups; and let G_1 be the overrepresented and G_2 the underrepresented group. As before, the parameter $d \in \mathbb{R}^{\geq 0}$ represents the level of cultural difference between these two groups.

Each social group consists of a large number of individuals i with talent θ_i that are uniformly distributed on the unit interval, $\theta_i \sim U[0,1]$. The cultural difference δ_{ij} of individual i from social group G_j is zero if i belongs to G_j and is $d \geq 0$ otherwise.

Each person i creates a social value v_i for her own group. This means that a social group has utility v_i from acknowledging a person i that belongs to it. If a person's social group acknowledges her, its utility from the person is $v_i = x_i + \varepsilon_i$. If, by contrast, a group excludes a person that belongs to it, its utility from this person becomes zero. The random component ε_i of an individual's value for her own social group is identically and independently distributed according to a distribution F on support $\mathbb{R}$, with mean $E[\varepsilon_i] = 0$ and $F'(x) > 0 \; \forall x \in \mathbb{R}$. For reasons of both simplicity and realism, I assume that the random component of the utility that a person creates for her group is unobservable for the person herself but is observed by her group.(For instance, a person does not know how likeable others find her.)[11] This assumption guarantees that the group's collective decision about whether or not to exclude a given member i contains an element of uncertainty for i.

4.1.1 The game

For all individuals i, nature draws the random component ε_i of i's social value v_i. The realization of ε_i is observed by i's social group. Then, nature randomly draws $n_1 \geq 1$ individuals from G_1 and $n_2 \geq 1$ individuals from G_2. These $n = n_1 + n_2$ individuals are the candidates for m vacant positions that are characterized by an organizational culture C. I assume that $m \geq \max\{n_1, n_2\}$. Thus, vacancies can become scarce only if they are available to candidates from both groups. The difference between the culture C and the social identity of candidate i is measured by $d_{iC} \in \mathbb{R}^{\geq 0}$ which is defined as follows: If candidate i belongs to G_2, then $d_{iC} = d \in \mathbb{R}^{\geq 0}$. By contrast, if candidate i belongs to G_1, then $d_{iC} = 0$.[12] The random draws of candidates from G_1 and G_2 represent any unmodeled selection processes prior to the cheap-talk game that are not based on talent.

Choices

- A candidate (she) sends a message $m_i \in \{m_L, m_H\}$ to both her own social group and the decision-maker.

[11] One straightforward interpretation of this assumption is (a) that all members $h \neq i$ of a group G_j observe the value-component ε_i of a person i that belongs to the group, (b) that each member $h \neq i$ has utility $v_i = x_i + \varepsilon_i$ if all members h unanimously decide to acknowledge i and (c) that all h have zero utility from i otherwise.

[12] I will modify this definition in an extended version of the model in section 4.

- The candidate's social group and the decision-maker simultaneously update their beliefs about the candidate's type θ_i, given the message m_i.

- Next, the decision-maker decides whether or not he wants to allocate one of the $m \geq 1$ vacancies to the candidate, i.e., whether he wants *to advance* her ($a_i^A = 1$) or *not to advance* her ($a_i^A = 0$). Simultaneously, the candidate's social group G_j decides whether *to exclude* her ($a_{ji}^E = 1$) or *to keep* her ($a_{ji}^E = 0$).

- If the decision-maker does not advance the candidate, then the game ends for both. If, by contrast, the decision-maker advances her, then the candidate has to make yet another decision, namely whether to reciprocate with *high dedication* ($a_i^D = 1$) or whether to exhibit only *low dedication* ($a_i^D = 0$) to the newly acquired position. After this decision has been made, payoffs are realized and the game ends.

4.1.2 Payoffs

Payoffs of the decision-maker If the decision-maker does not advance a given candidate, then he gets Π_0. If, by contrast, the decision-maker advances the candidate, then he either gets $\Pi_H > \Pi_0$ if the candidate exhibits high dedication or only $\Pi_L < \Pi_0$ if the candidate exhibits low dedication. Note that the decision-maker has no preference for or against any of the two social groups as such. Formally, whether the candidate belongs to G_1 or G_2 has no direct effect on the decision-maker's utility.

Payoffs of the candidate If the candidate is not advanced, she gets $u_0 - c_i$. If she is advanced, her payoff depends on her choice of dedication. She gets $u(\theta_i) - e(d_{iC}) - c_i$ if she exhibits high dedication and $u_L - c_i > u_0 - c_i$ otherwise, with $u_L \in (u(0), u(1))$. I assume that $u(\theta)$ is continuous and that $u'(\theta_i)$ is defined and strictly positive for all θ_i. Thus, the more talented i is, the more she profits from exhibiting high dedication. The effort function $e(d_{iC})$ is continuously differentiable, zero if $d_{iC} = 0$, i.e. if i belongs to G_1, and positive and strictly increasing in d_{iC} otherwise: $e(0) = 0$ and $e'(d_{iC}) > 0$. Thus, $e(d_{iC})$ measures the *effort costs of assimilation* that a candidate i from the underrepresented group incurs when exhibiting high dedication to a position that culturally differs by d_{iC} from her own social identity. Finally, a candidate incurs costs c if her group excludes her; i.e., $c_i = c > 0$ if $a_{ji}^E = 1$, and $c_i = 0$ if $a_{ji}^E = 0$.

Payoffs of the social groups The social group of candidate i appropriates i's social value v_i if and only if it keeps i. Thus, a candidate's social group wants to exclude this candidate if and only if her value for the group is negative. A candidate's social value is $v_i = \varepsilon_i - \rho(m_i)\,\eta(m_i)\,\phi(d_{iC})$. The dummy $\rho(m_i)$ determines whether the candidate's social value is reduced by her message. It equals 1 if candidate i sends a message that increases her probability of being advanced. Thus, $\rho(m_i) = 1$ if $\Pr\left\{a_i^A = 1 \mid m_i\right\} > 0$ and $\rho(m_i) = 0$ otherwise. This dummy is multiplied with the probability $\eta(m_i)$ that the candidate i, if advanced, will exhibit high dedication, i.e., $\eta(m_i) = \Pr\left\{a_i^D = 1 \mid m_i, a_i^A = 1\right\}$. Thus, the product $\rho(m_i)\,\eta(m_i)$ measures the candidate's *intention to assimilate* to the organizational culture C. The "intention term" $\rho(m_i)\,\eta(m_i)$ is multiplied with the "violation term" $\phi(d_{iC})$. I assume that $\phi(d_{iC})$ is continuously differentiable, with $\phi(0) = 0$ and $\phi'(d_{iC}) > 0$. Thus, the "violation term" $\phi(d_{iC})$ measures the extent to which candidate i would violate her social identity by assimilating to culture C. Therefore, signaling a willingness to exhibit high dedication to a position characterized by G_1's culture C does *not* change the social value of the candidate if she belongs to G_1 ($d_{iC} = 0$ if $i \in G_1$), but it *decreases* her social value if she belongs to G_2 ($d_{iC} = d$ if $i \in G_2$). Moreover, it does so the more, the larger the cultural difference d is.

The time structure of the game is depicted in Figure 1. Note that *ceteris paribus* all individuals want to advance ($u_L > u_0$), while the decision-maker wants to advance only those that will reciprocate by exhibiting high dedication ($\Pi_H > \Pi_0 > \Pi_L$). Importantly, the decision-maker has no preference for one group or the other. Moreover, he is indifferent about culture C , e.g., he would not suffer any loss in utility from a "neutralizing" of the organizational culture. He only cares about dedication. Note furthermore that while *ceteris paribus* all individuals want to remain part of their own group, a group might want to exclude a member since her social value v_i might be negative. If, and only if, a candidate belongs to the underrepresented group, the risk of exclusion is augmented if the group believes her to be likely to advance and then exhibit high dedication. In this case, the risk of exclusion increases in the cultural difference between the two social groups.

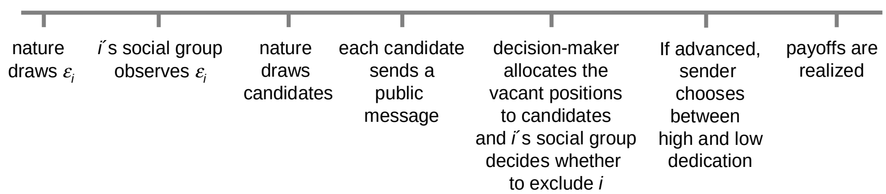

Figure 1: Time line

The equilibrium concept that applies here is Perfect Bayesian Equilibrium, i.e., all players choose optimal strategies, given their own beliefs, and beliefs are updated according to Bayes Rule whenever possible. In the following subsections, the analysis will proceed as follows. First, I will analyse the last stage of the game at which the promoted candidates must decide between high and low dedication. Then, I will derive the separating and pooling equilibria in pure strategies. I will show that in the separating equilibria, candidates in G_2 exhibit three types of strategies: First, the most highly motivated send the "high message", are advanced and exhibit high dedication. Second, candidates with medium motivation send the "low message" and thereby eschew advancement although they *would* have liked to exhibit high dedication. I will refer to this strategy as induced by an *oppositional culture* since these medium-motivated types are held back by a risk of group-exclusion that is inefficiently high. Last, candidates with low motivation send the "low message", are not advanced and would have exhibited low dedication anyway. I will show that such separating equilibria exist for a medium range of cultural difference d between G_1 and G_2. Moreover, I will show that two kinds of pooling equilibria exist: pooling equilibria in which no candidate from G_2 is advanced and pooling equilibria in which candidates from G_2 are advanced with positive probability. As I will demonstrate, the Paradox of Integration consists in the fact that a pooling equilibrium in which no candidate from G_2 is advanced can become a unique equilibrium both at very high and very low levels of cultural difference. The pooling equilibrium with advancement of G_2-candidates exists if cultural difference d is close to zero.

4.2 How cultural difference affects dedication

Consider a candidate i that belongs to G_2 and has been advanced. Define $\theta(d)$ to represent the degree of talent that would make this individual just indifferent between high and low dedication for given cultural difference d:

$$u(\theta) - e(d) = u_L \tag{1}$$

Since $u_L \in (u(0), u(1))$ and since $e(d)$ is continuously differentiable, an interior solution $\theta(d)$ exists for an interval of d with a lower bound of zero and positive measure. If i's talent θ_i exceeds $\theta(d)$, i prefers high dedication; otherwise, she prefers low dedication. Let $\alpha(d)$ denote the share of individuals in G_2 that would, if advanced, exhibit high dedication, i.e., $\alpha(d) = \max\{1 - \theta(d), 0\}$. Since $u'(\theta) > 0$ and $e'(d) > 0$, we have $\theta'(d) > 0$, too, and consequently $\alpha'(d) < 0$ for $u(\theta) - e(d) > 0$ and $\alpha'(d) = 0$ for $u(\theta) - e(d) \leq 0$. Thus, if the cultural difference d between G_1 and G_2 declines, the share $\alpha(d)$ of those in G_2 that would exhibit high dedication increases.

Consider now for comparison an individual i that belongs to the over-represented group G_1 and who, after being advanced, has to choose between high and low dedication. The degree of talent $\overline{\theta}$ that would made her just indifferent is given by

$$u\left(\overline{\theta}\right) = u_L.$$

Let $\overline{\alpha}$ denote the share of individuals in G_1 that, if advanced, would exhibit high dedication, i.e., $\overline{\alpha} = 1 - \overline{\theta}$. Then, we have:

Lemma 1 For all positive levels of cultural difference d between G_1 and G_2, there are more individuals in G_1 than in G_2 that would exhibit high dedication: $\overline{\alpha} > \alpha(d)\ \forall d > 0$. The group difference in the number of individuals willing to display high dedication increases in d.

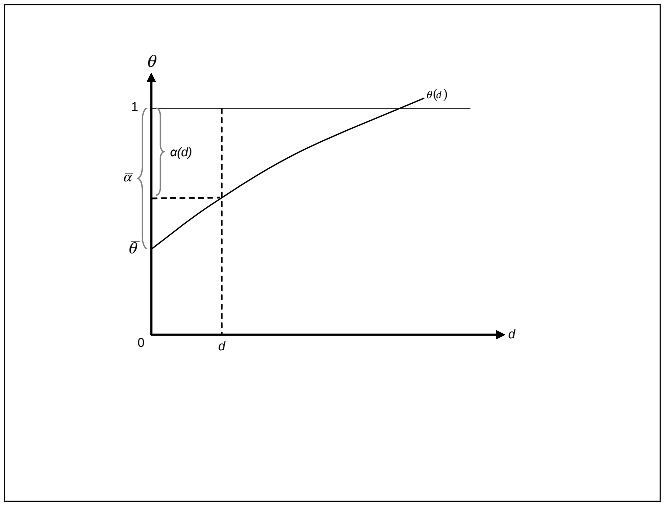

Figure 2: Social difference and dedication: If social difference is d, a given candidate from G_2 is highly motivated (i.e., willing to exhibit high dedication) with probability $\alpha(d)$.

4.3 A pooling equilibrium without advancement of the underrepresented group

Suppose that messages m_i do not convey any information about the individuals' types, independently of the group to which the individuals belong. Consider now the decision-maker who has to decide whether or not to advance candidate i. The only information that he can use in this situation is his knowledge about the social group to which i belongs. Consider first an individual i that belongs to G_2; and let d_0 denote the level of cultural difference between the two groups at which the decision-maker is just indifferent between advancing and not advancing i. Then, d_0 is given by

$$\alpha(d_0)\,\Pi_H + (1-\alpha(d_0))\,\Pi_L = \Pi_0,$$

or, equivalently, by

$$\theta(d_0) = \frac{\Pi_H - \Pi_0}{\Pi_H - \Pi_L} < 1.$$

At levels of cultural difference that fall below d_0, the decision-maker wants to advance the candidates from G_2; but if the cultural difference exceeds d_0, none of the candidates in G_2 are advanced. To include both possible cases in the analysis, I assume $d_0 > 0$.

For comparison, consider now G_1. Since $d_0 > 0$, we have $\overline{\alpha} > \alpha(d_0)$, i.e. $\overline{\alpha}\Pi_H + (1 - \overline{\alpha})\Pi_L > \Pi_0$. Consequently, the decision-maker always wants to advance candidates from G_1.

Proposition 1 For all $d > d_0$, there exists a babbling equilibrium with the following properties: (a) Messages are uncorrelated with types. (b) the decision-maker advances all candidates from G_1 but (c) no candidate from G_2. (d) Both groups exlude their candidates with probability $F(0)$.

The important insight at this point is that if cultural difference between the two social groups exceeds a certain level d_0, then the willingness to exhibit high dedication and to assimilate to the organizational culture is taken for granted only for individuals who belong to the overrepresented group. This is because at levels of cultural difference higher than d_0, the share of individuals in the underrepresented group that would actually display high dedication falls too far below the required share. Thus, if these individuals are not able to credibly signal their high motivation, they are unable to advance.

4.4 Oppositional culture in the underrepresented group

The previous subsection has shown that at some point, a large cultural difference between G_1 and G_2 creates a situation in which no individual from G_2 can advance within a pooling equilibrium, as opposed to individuals from G_1. The question now arising is under which conditions a separating equilibrium exists for senders in G_2. For which levels of cultural difference are there individuals in G_2 that are willing to advance and to exhibit high dedication, and when are they able to credibly signal this?

Note that an increasing cultural difference d does not only diminish the number of individuals in G_2 that would exhibit high dedication; it also diminishes the number of individuals in G_2 that are willing to risk group exclusion for the sake of advancement. Thus, at some point, cultural difference might create a situation in which no individual from G_2 *wants* to advance. An *oppositional culture* might emerge within G_2 that, if extreme, might prevent the existence of a separating equilibrium.

To see this formally, suppose for the sake of argument that the decision-maker advances an individual i from G_2 if $m_i = m_H$ and does not advance her if $m_i = m_L$. Consider now the highly motivated individuals with $\theta_i > \theta(d)$. If one of them sends m_H, she will be advanced. But G_2 will anticipate her high dedication and ensuing assimilation to culture C and will exclude her with probability $\Pr\{\varepsilon_i < \phi(d)\}$ which equals $F(\phi(d))$. If, by contrast, the same individual sends m_L, she will forego advancement but will also incur a possibly lower risk of group exclusion, since she will be excluded only with probability $\Pr\{\varepsilon_i < 0\}$ which is $F(0) < F(\phi(d))$.

Let $\widehat{\theta}(d)$ signify the degree of talent that makes a highly motivated individual $\theta_i > \theta(d)$ from G_2 just indifferent between sending m_H and sending m_L. Then, $\widehat{\theta}(d)$ is implicitly defined by

$$u\left(\widehat{\theta}\right) - e(d) - F(\phi(d))\,c = u_0 - F(0)\,c. \tag{2}$$

I assume that $u_0 \in (u(0), u(1))$. Moreover, I assume that $e(d)$ and $F(\phi(d))$ are well-behaved such that the interior solution $\widehat{\theta}(d)$ exists for an interval of d that is bounded from below by zero and has positive measure. Among the individuals with a talent above $\theta(d)$, only those whose talent also exceeds $\widehat{\theta}(d)$ send m_H despite the risk of group exclusion.

Let $\widehat{d}_H$ denote the level of cultural difference at which not even the individual with the highest talent $\theta_i = 1$ wants to send m_H any more:

$$\widehat{\theta}\left(\widehat{d}_H\right) = 1.$$

Then, we have

Lemma 2 If $d > \widehat{d}_H$, then there are no individuals in G_2 with $\theta_i \geq \theta(d)$ that want to signal their type by sending a different message m_i than individuals with $\theta_i < \theta(d)$.

Proof Lemma 2 is directly implied by the preceding argument. $\square$

Figure 3 below illustrates all situations in which individuals with talent $\theta_i \geq \theta(d)$, i.e., individuals that would exhibit high dedication, could be found in G_2 but are unwilling to signal their type for fear of group exclusion, i.e., $\theta_i < \widehat{\theta}(d)$. Note that for such a situation to occur, it must hold that $\widehat{d}_H > \widehat{d}_L$, with $\widehat{d}_L$ given by

$$\theta\left(\widehat{d}_L\right) = \widehat{\theta}\left(\widehat{d}_L\right).$$

Comparing $\widehat{\theta}(d)$ and $\theta(d)$, note that $u_L > u_0$ and $F(\phi(d)) > F(0)$, with $F(\phi(d))$ and $\phi(d)$ continuously increasing in d. Thus, we have $\widehat{\theta}'(d) > 0$, $\widehat{\theta}(0) < \theta(0)$, $\widehat{\theta}\left(\widehat{d}_L\right) = \theta\left(\widehat{d}_L\right)$ and $\widehat{\theta}(d) > \theta(d)$ for all $d > \widehat{d}_L$.

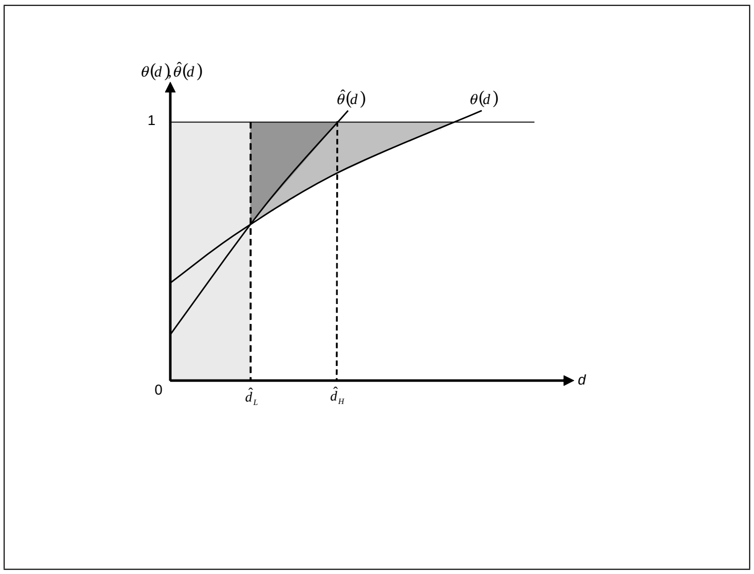

Figure 3: In the dark-shaded grey area, all types are highly motivated and willing to signal this. In the medium-shaded grey area, all types are highly motivated but unwilling to signal this (oppositional culture). In the light grey area, both highly and lowly motivated types want to signal that they are highly motivated.

As can be seen from Figure 3, a level of cultural difference $\widehat{d}_H$ or above precludes the existence of a separating equilibrium. At these extreme levels of cultural difference, no person belonging to G_2 wants to signal a willingness to exhibit high dedication, even if this willingness exists. They shy away from signaling because they do not want to be excluded by their group.

However, the oppositional culture in G_2 continuously weakens if cultural difference falls below $\widehat{d}_H$. With decreasing d, more and more individuals in G_2 that would exhibit high dedication become willing to signal this. (Note that for this, it is not necessary that $\widehat{\theta}(d)$ is everywhere concave as in Figure 3; it is sufficient that $\widehat{\theta}(d)$ is everywhere increasing in d.) Thus, the question arises whether a path of decreasing cultural difference, starting at $\widehat{d}_H$ and falling continuously, is paralleled by a path of separating equilibria with an increasing likelihood of candidates from G_2 advancing.

4.5 Separating equilibria and improving advancement of the underrepresented group

Suppose, again, that the decision-maker advances an individual i from G_2 if $m_i = m_H$ and does not advance her if $m_i = m_L$. This constitutes a separating equilibrium only if, anticipating this behavior, there are at least some highly motivated individuals in G_2, i.e., some indivduals with talent $\theta_i \geq \theta(d)$, that want to send m_H, while all individuals with $\theta_i < \theta(d)$ (and possibly also some individuals with $\theta_i \geq \theta(d)$) want to send m_L.

To see when these conditions are fulfilled, consider first the highly motivated individuals, i.e., $\theta_i \geq \theta(d)$. Let d_H signify the level of cultural difference at which no such individual can be found any more in G_2:

$$\theta(d_H) = 1.$$

Obviously, for a separating equilibrium to exist, it must hold that $d < d_H$.

Moreover, the oppositional culture in G_2, if existent, must not be so extreme that no highly motivated individual wants to signal her type any more; thus, it must hold that $d < \widehat{d}_H$. Since $\widehat{\theta}(d) > \theta(d)$ for all $d > \widehat{d}_L$, we have $\widehat{d}_H < d_H$. Therefore, for some individuals in G_2 to be willing both to exhibit high dedication *and* to signal this willingness, cultural difference must lie below $\widehat{d}_H$.

Consider now the lowly motivated individuals that would exhibit only low dedication, i.e., $\theta_i < \theta(d)$. Note that if $d = \widehat{d}_L$, then the critical individual that is indifferent between high and low dedication is also indifferent between sending m_H and m_L; i.e., $\theta\left(\widehat{d}_L\right) = \widehat{\theta}\left(\widehat{d}_L\right)$. At levels of cultural difference $d \geq \widehat{d}_L$, we have $\widehat{\theta}(d) > \theta(d)$, such that all individuals who would exhibit only low dedication if advanced are unwilling to advance and thus send m_L. If $d < \widehat{d}_L$, by contrast, then $\widehat{\theta}(d) < \theta(d)$, and all individuals that would display only low dedication want to advance nonetheless and therefore send m_H.

Thus, if the lowly motivated individuals in G_2 are to be willing to reveal their type by sending m_L, the cultural difference d between G_1 and G_2 must lie above $\widehat{d}_L$.

Consequently, separating equilibria exist for levels of cultural difference

$$d \in [\widehat{d}_L, \widehat{d}_H).$$

Proposition 2[13] A separating equilibrium for candidates from G_2 exists if and only if $d \in [\widehat{d}_L, \widehat{d}_H)$. It has the following properties: (a) With probability $1 - \widehat{\theta}(d) > 0$, a candidate from G_2 wants to advance. Then, she sends m_H. (b) With probability $\widehat{\theta}(d) > 0$, a candidate from G_2 does not want to advance. Then, she sends m_L. (c) The decision-maker advances all candidates from G_2 that send m_H and assigns the remaining positions to candidates from G_1. (d) If a candidate from G_2 has advanced, she exhibits high dedication with certainty.

Corollary 1 In all separating equilibria, a mass $\widehat{\theta}(d) - \theta(d) > 0$ of individuals would exhibit high dedication if advanced but sends m_L for fear of group exclusion if they become candidates. The mass $\widehat{\theta}(d) - \theta(d)$ increases in d. Group exclusion is strictly more likely for those $i \in G_2$ that send m_H than for any $i \in G_2$ that sends m_L or for any $i \in G_1$.

Corollary 2 There does not exist a separating equilibrium for candidates from G_1. For them, a babbling equilibrium in which all their candidates advance exists for all d.

As becomes apparent from Figure 4, a path of decreasing cultural difference within the range of $[\widehat{d}_L, \widehat{d}_H)$ is paralleled by a path of improving advancement of the underrepresented group. Within this range of d, a convergence of the two different social identities of G_1 and G_2, i.e., a declining d, has two effects. First, the risk of group exclusion decreases since high dedication becomes less of a disadvantage regarding one's social value. The second effect follows from the first: An increasing number of candidates in G_2 that would be willing to exhibit high dedication dare to openly signal this willingness by expressing their wish to advance. All candidates from G_2 who do so are in fact advanced.

Note that in the overrepresented group G_1, candidates advance in a pooling equilibrium. Thus, we observe overperformance of advanced candidates from G_2: While a candidate from G_1 that has been advanced exhibits low

[13] Here, as well as throughout the rest of the paper, I abstract from mirror equilibria in which the meanings of m_L and m_H are reversed.

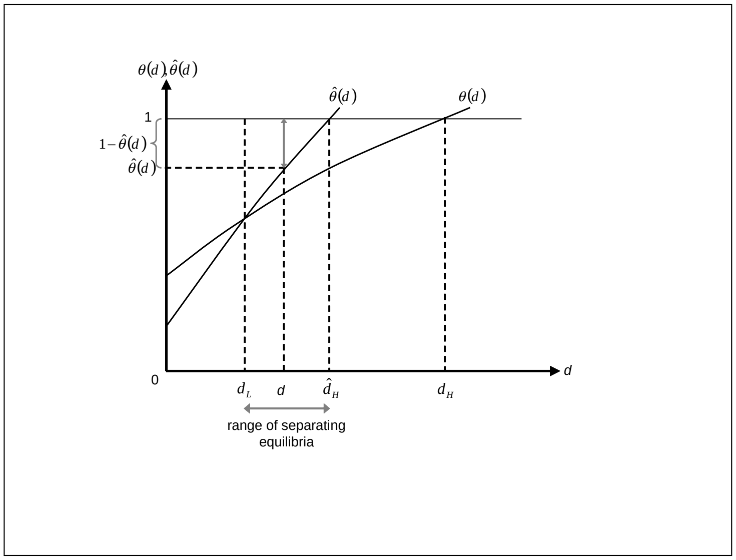

Figure 4: If social difference is d, then, with probability $\left(1 - \widehat{\theta}\,(d)\right)$, a candidate from G_2 signals her high motivation and is advanced. If d declines within the range of separating equilibria, this probability increases.

dedication with probability $1 - \overline{\alpha} > 0$, all candidates from G_2 that have been advanced exhibit high dedication. Overperformance leads to a competitive advantage for candidates from the underrepresented group that have sent m_H: The decision-maker assigns as many vacant positions as possible to m_H-senders from G_2. Thus, if vacant positions are scarce, i.e., if $n_1 + n_2 > m$, then it can happen that only candidates from G_2 that send m_H advance with certainty.

However, there still prevails an oppositional culture within G_2 that holds back some of their candidates. These candidates would display high dedication if advanced but fear group exclusion too much to signal this.[14] Advancement in the separating equilibria goes hand in hand with a risk of group exclusion that is much higher for those in G_2 who send m_H than for those who do not, and also higher than for candidates from G_1.

A decrease of cultural difference within the range of $[\widehat{d}_L, \widehat{d}_H)$ leads to a Pareto-improvement for candidates from G_2. However, such a decrease is to

[14] The sole exception is the equilibrium existing at $d = \widehat{d}_L$,

the disadvantage of candidates from G_1 if vacant positions are scarce. In any case, the decision-maker wants cultural difference to decline until it hits $\widehat{d}_L$.

The next question to be addressed concerns the transition to a pooling equilibrium with advancement of G_2. If cultural difference falls below the level $\widehat{d}_L$, does this necessarily lead to a pooling equilibrium in which individuals in G_2 can advance without having to signal high motivation? To answer this question, it is useful to first address the question of whether and when pooling equilibria with advancement exist for candidates from G_2.

4.6 A pooling equilibrium with advancement of the underrepresented group

As a plausible refinement, I exclude a pooling equilibrium with advancement of G_2-candidates from the analysis if a separating equilibrium exists in the relevant parameter space. Put differently, I assume that for any $d \in \left[\widehat{d}_L, d_0\right]$, if $\left[\widehat{d}_L, d_0\right] \neq \emptyset$, only the separating equilibria are played by candidates from G_2.

To derive the refined pooling equilibria, it is useful to re-consider the risk of group exclusion for individuals in G_2. Two points are of importance here. First, other than in a separating equilibrium, in a pooling equilibrium the risk of group exclusion is equal for all individuals within G_2. Second, if $d > 0$, the probability $\alpha(d) = 1 - \theta(d)$ with which a candidate from G_2 is highly motivated is lower than the corresponding probability $\overline{\alpha}$ with which a candidate from G_1 is highly motivated. Thus, in a pooling equilibrium, candidates belonging to G_1 have a competitive advantage. Third, the risk of group exclusion for candidates from G_2 in a pooling equilibrium is always lower than for m_H-senders from G_2 in a separating equilibrium. It amounts to

$$\Pr\{\varepsilon_i < \alpha(d)\,\phi(d)\} = F(\alpha(d)\,\phi(d)).$$

Taking this risk of exclusion into account, a sufficient and necessary condition for the existence of the refined pooling equilibrium is that

$$u_L - F(\alpha(d)\,\phi(d))\,c \geq u_0 - F(0)\,c, \text{ with } d < d_0.$$

Define the set $\widehat{D}_p$ of values of d for which the above condition is fulfilled:

$$\widehat{D}_p = \{d : u_L - F(\alpha(d)\phi(d))\, c \geq u_0 - F(0)\, c \wedge d \in [0, d_0]\}.$$

As is easy to see, $\widehat{D}_p \neq \emptyset$, since $u_L - F(\alpha(d)\phi(d))\, c > u_0 - F(0)\, c$ for values of $d \in [-\epsilon, \epsilon]$, with ϵ marginally close to 0. Now we are ready to determine the range of levels of cultural difference for which advancement of G_2-candidates is feasible in a pooling equilibrium:

Proposition 3 There exists a non-empty set $\widehat{D}_p$ such that a babbling equilibrium with advancement of G_2 exists if and only if $d \in \widehat{D}_p$. This equilibrium has the following properties: (a) Messages are uncorrelated with types. (b) The decision-maker advances all candidates from G_1; and he allocates the remaining positions to candidates from G_2. (d) G_1 excludes its candidates with probability $F(0)$, and (e) G_2 excludes its candidates with probability $F(\alpha(d)\phi(d))$. (f) $\forall d > 0$, exclusion is more likely for candidates from G_2.

Thus, a pooling equilibrium with advancement of candidates from G_2 exists for sufficiently low levels of cultural difference between the groups. For candidates from G_2, advancement in a pooling equilibrium differs from advancement in a separating equilibrium in two important ways. First, advancement in a pooling equilibrium does not require any public message that signals high motivation. Thus, the associated risk of being excluded by G_2 is lower. Second, in a pooling equilibrium, candidates from G_2 cannot acquire any competitive advantage over the other candidates. On the contrary, if vacant positions are scarce, candidates from G_2 are disadvantaged. Thus, only the lowly motivated candidates from G_2 ($\theta_i < \theta(d)$) are always better off in a pooling equilibrium than in the separating equilibrium. For the highly motivated candidates from G_2 ($\theta_i \geq \theta(d)$), preferences are not so clear. If they could decide whether d were to decrease until a pooling equilibrium with advancement of G_2 came into existence, they would have to balance the trade-off between the higher risk of group exclusion in the separating equilibrium and the increased competition in the pooling equilibrium.

If, by contrast, the candidates from G_1 had to decide whether d should decrease such as to trigger a pooling equilibrium with advancement of G_2, their decision would depend on the availability of vacant positions alone. If $m \geq n_1 + n_2$, i.e., if there is no competition, candidates from G_1 are indifferent between the separating equilibrium and the pooling equilibrium with advancement of G_2. If, however, vacant positions become scarce, i.e., if $m < n_1 + n_2$, candidates from G_1 are strictly better off if candidates from G_2 play a pooling equilibrium.

The decision-maker, however, cares only about the quality of the candidates and the information he can obtain about this quality. Therefore, he always prefers a separating equilibrium over the pooling equilibrium.

4.7 The Paradox of Integration

The question to be addressed now is the critical question of the current paper: *Which* pooling equilibrium comes into existence if cultural difference falls marginally below the level $\widehat{d}_L$? Is it the pooling equilibrium *with* advancement of G_2 or the pooling equilibrium *without* advancement of G_2? To answer this question, note that at levels of cultural difference below $\widehat{d}_L$, all individuals in G_2 want to advance even if this requires signaling a willingness to exhibit high dedication. Thus, at levels of cultural difference below $\widehat{d}_L$, *all* individuals in G_2 are willing to take the risk of group exclusion that would prevail in a separating equilibrium. Consequently, $d < \widehat{d}_L$ implies that everyone in G_2 is also willing to take the - lower - risk of group exclusion that exists for candidates from G_2 in a pooling equilibrium with advancement.

When cultural difference between the two social groups falls below $\widehat{d}_L$, the issue is therefore not whether the individuals in the underrepresented group want to advance, but whether the decision-maker wants to advance them; and this depends on whether or not cultural difference has also fallen below d_0. Importantly, we cannot say anything *a priori* about the relative sizes of $\widehat{d}_L$ and d_0. However, d_0 declines with decreasing Π_L. Thus, the more serious is the negative effect of advancing someone who will exhibit low dedication, the more likely it becomes that d_0 falls below $\widehat{d}_L$. If $d_0 < \widehat{d}_L$, then the Paradox of Integration occurs.

Theorem 1: **Paradox of Integration** If cultural difference declines from level $\widehat{d}_L$ to a level $d \in \left(d_0, \widehat{d}_L\right)$, given that $\left(d_0, \widehat{d}_L\right) \neq \emptyset$, then the separating equilibrium at $d = \widehat{d}_L$ in which advancement of G_2 reaches a peak is replaced by a pooling equilibrium in which no candidate from G_2 is advanced. If d declines further such that $d \leq d_0$, advancement of G_2 is restored again within a pooling equilibrium.

Figure 5 below illustrates the path of declining cultural difference between the two social groups and the corresponding path of advancement of G_2 for the case of $d_0 < \widehat{d}_L$. Pooling without any advancement of G_2 prevails at extreme levels of cultural difference. At lower but still high levels of cultural difference, candidates from G_2 start to advance. For a while, advancement of G_2 improves with decreasing cultural difference. But then, at a medium level of cultural difference, any advancement of G_2 breaks down and is replaced again by a pooling equilibrium in which no candidate from G_2 can advance. This situation persists until eventually the cultural difference between the two social groups has become so low that advancement of G_2 becomes feasible in a pooling equilibrium. The Paradox of Integration shows that sometimes a convergence of the social identity of the underrepresented group and the culture of the targeted sphere can be to the disadvantage of the underrepresented group.[15]

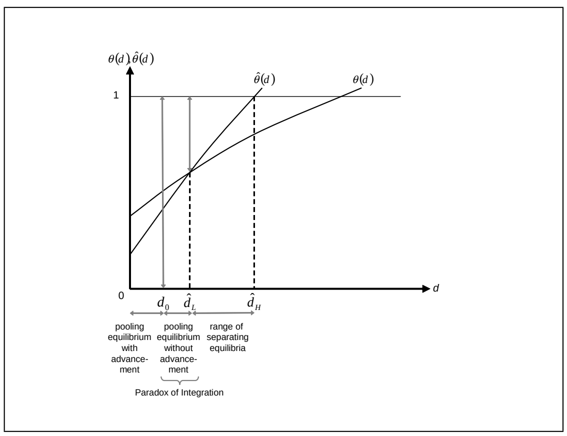

Figure 5: With decreasing d, the probability $\left(1 - \widehat{\theta}\,(d)\right)$ of advancing a given candidate from G_2 steadily increases up to $\left(1 - \widehat{\theta}\left(\widehat{d}_L\right)\right)$ and then jumps to zero for $d \in \left(d_0, \widehat{d}_L\right)$. For $d \leq d_0$, this probability becomes one if $m \geq n_1 + n_2$ and $\frac{m-n_1}{n_2}$ if $m < n_1 + n_2$. (Note that $\widehat{\theta}\,(d)$ need not be concave.)

[15] In section 5, I will argue that moreover, a society with $d \in \left(d_0, \widehat{d}_L\right)$ becomes vulnerable to an outbreak of taste-discrimination against G_2 that reaches the same high level as in a society with $d > \widehat{d}_H$.

5 Endogenous cultural difference and breaking the barrier to advancement

In this section, I endogenize cultural difference by re-defining d_{iC} as follows: If candidate i belongs to G_2, then $d_{iC} = d$ as in the sections above if the number m_2 of vacancies assigned to candidates from G_2 lies below a constant cut-off value $\overline{m_2}$, i.e., if $m_2 \leq \overline{m_2}$. However, and this is new, I now assume that for for any candidate i from G_2, d_{iC} becomes 0 if more than $\overline{m_2}$ vacancies are assigned to candidates from her social group. As before, if candidate i belongs to the overrepresented group G_1, then $d_{iC} = 0$ always. This modeling implies that the organizational culture is "neutralized" and becomes compatible with everyone's social identity if the representation of group G_2 at the targeted hierarchy level exceeds a given threshold,. Recent sociological literature provides ample historical evidence for this "neutralizing" of an organizational culture which sociologists call "boundary shifting". (See, e.g., Alba and Nee (1997), Alba (2006), Nee and Alba (2009) and Lee (2009).)[16] Moreover, using the example of symphony orchestras, Allmendinger and Hackman (1995) present evidence for the hypothesis that female members of organizations with a relatively balanced gender composition have significantly fewer problems with organizational culture and are less often perceived as a cause of deterioration of organizational quality than female members of organizations in which women are strongly underrepresented. With regard to racial minorities, Zatzik, Elvira and Cohen (2003) find that their voluntary turnover rates decrease with increasing representation of their own racial group on their job level, i.e., their job satisfaction increases if more co-workers are of the same race. I will discuss this extension of the model for the specification with competition, i.e., for $m \leq n_1 + n_2$. I assume that m, n_1 and n_2 are large numbers.[17]

[16] In sociology, "boundary shifting" means that a group boundary that separates two groups in terms of social identity can be shifted such that the groups merge into one, a development that can only occur after a significant number of individuals from the formerly underrepresented group have entered into the establisment and changed its culture. See Alba (2006), Alba and Nee (1997), and Lee (2009).

[17] This assumption simplifies the analysis in the present context since it equalizes probabilities and shares of types among candidates.

5.1 Overcoming the Paradox of Integration

Obviously, results do not change as long as $n_2 < \overline{m_2}$. Only if there are a sufficiently high number of candidates from the underrepresented group, does it become possible for them to change the organizational culture after being advanced. Thus, I will now consider the case of $n_2 > \overline{m_2}$.

Observation 1 If the decision-maker advances more than $\overline{m_2}$ candidates from G_2 in equilibrium, this equilibrium must be a pooling equilibrium with $\alpha(d_{iC}) = \overline{\alpha}$ for all candidates i from G_2.

Proof If more than $\overline{m_2}$ candidates from G_2 are advanced in equilibrium, all players know that the organizational culture of the relevant hierarchy level will change such that $d_{iC} = 0$ for all individuals. Thus, the probability of exclusion will be $F(0)$ for all candidates, independently of their message, since no assimililation effort will be required from candidates from G_2 who advance. Therefore, all candidates from G_2 want to send the message that entails the highest probability of being advanced. Consequently, the equilibrium must be a pooling equilibrium.□

Taking the possibility of advancing more than $\overline{m_2}$ candidates from G_2 for granted, the question now arising is whether - and when - it is in the decision-maker's interest to do so. Consider first a situation where d lies below $\widehat{d}_L$, so that no separating equilibrium can exist in any case, and assume that $n_1 < m$. Then, the decsion-maker cannot assign all vacant positions to candidates from G_1 anyway and thus strictly prefers $d_{iC} = 0$ over $d_{iC} = d$ for candidates i from G_2. He will therefore assign at least $\overline{m_2} + 1$ vacant positions to candidates from G_2, and in this manner trigger $d_{iC} = 0$ for all candidates. Thus, we have

Observation 2 If $d < \widehat{d}_L$ and $n_1 < m$, there exists a unique equilibrium in which messages are uncorrelated with types (babbling equilibrium), $m_2 \in [\overline{m_2} + 1, n_2]$ candidates from G_2 and $m - m_2$ candidates from G_1 are advanced, $d_{iC} = 0$ for all candidates, and any candidate is excluded from her group with probability $F(0)$ only.

Proof Existence of this equilibrium follows from Observation 1 and the subsequent argument. The equilibrium is unique for a given $d < \widehat{d}_L$ because if $n_1 < m$, the decision-maker has an incentive to deviate from any other pooling equilibrium in which $d_{iC} = d$ for candidates i from G_2, and only pooling equilibria can exist in this parameter range. $\square$

Consider now a situation in which d lies above $\widehat{d_L}$, i.e., a situation in which a separating equilibrium exists if less than $\overline{m_2}$ candidates from G_2 are advanced. The decision-maker prefers the separating equilibrium over any pooling equilibrium if he can fill all m positions in the separating equilibrium. Assume for simplicity that

$$n_2^H\left(\widehat{d_L}\right) + n_1 \geq m, \text{ with}$$

$$n_2^H(d) = \left(1 - \widehat{\theta}(d)\right) n_2,$$

i.e., that the decision-maker can indeed fill all m positions in any existing separating equilibrium. Then, he will never want to advance more than $n_2^H(d)$ candidates from G_2 if $d > \widehat{d_L}$. The reason for this is the following: In the separating equilibrium, the decision-maker can fill $n_2^H(d)$ positions with candidates that are highly motivated with certainty, while the remaining positions can be filled with candidates whose probability of being highly motivated is $\overline{\alpha}$. In a pooling equilibrium, by contrast, the probability of being highly motivated is bounded from above by $\overline{\alpha}$ for all candidates. Thus, if $n_2^H(d) \leq \overline{m_2}$, the same separating equilibria exist as in the case of $m < \overline{m_2}$.

Consider now the case in which $n_2^H(d) > \overline{m_2}$. Clearly, in this parameter range the old separating equilibria do not exist any more. To see this, assume that in a separating equilibrium, high motivation is signaled by sending m_H, and that the decision-maker will advance all $n_2^H(d)$ candidates from G_2 who send m_H. Then, since all players know that $n_2^H(d) > \overline{m_2}$, all players anticipate that d_{iC} will be zero for all candidates. Thus, independently of the message they send, candidates will only be excluded from their group with probability $F(0)$. Thus, all candidates, independently of their type θ, want to send m_H. Separating therefore becomes impossible if the decision-maker advances all senders of m_H. Moreover, once messages are sent in a separating equilibrium, the decision-maker always has an incentive to advance *all* candidates from G_2 that have sent m_H. Therefore, no separating equilibrium exists any more for $d < \overline{d}$, with $\overline{d}$ implicitly defined by

$$n_2^H\left(\overline{d}\right) = \overline{m_2}.$$

The whole range of refined[18] equilibria in the extended model with $m, n_2 > \overline{m_2}$ is characterized in Propositions 4 and 5:

Proposition 4: **Pooling Equilibria** If $m, n_2 > \overline{m_2}$, the range of all existing refined pooling equilibria is as follows: (a) If $d < \max\left\{\widehat{d}_L, \overline{d}\right\}$ and $n_1 < m$, equilibrium messages are uncorrelated with types, $m_2 \in [\overline{m_2} + 1, n_2]$ candidates from G_2 and $m - m_2$ candidates from G_1 are advanced, $d_{iC} = 0$ for all candidates, and any candidate is excluded from her group with probability $F(0)$ only. (b) If $d < \max\left\{\widehat{d}_L, \overline{d}\right\}$ and $n_1 = m$, the equilibrium of (a) still exists; but another refined pooling equilibrium exists, too, in which all m positions are assigned to candidates from G_1.

Proposition 5[19]: Separating Equilibria If $m, n_2 > \overline{m_2}$, the range of all existing separating equilibria is as follows: If $d \in [\max\left\{\widehat{d}_L, \overline{d}\right\}, \widehat{d}_H)$, $n_2^H(d)$ candidates from G_2 send m_H and are advanced, $n_2 - n_2^H(d)$ candidates from G_2 send m_L and are not advanced, and $m - m_2$ candidates from G_1 are advanced. The probability of group exclusion is $F(\phi(d))$ for m_H-senders from G_2 and $F(0)$ for all other candidates.

From Propositions 4 and 5, it follows that if both the number of vacant positions and the number of candidates from the underrepresented group exceed the cut-off value $\overline{m_2}$, the Paradox of Integration is overcome and nothing can prevent the progress of the underrepresented group any more:

Theorem 2: **Elimination of the Paradox of Integration** The Paradox of Integration cannot occur if $m, n_2 > \overline{m_2}$.

Proof For the Paradox of Integration to occur, there must be a parameter range in which the unique existing refined equilibrium is a pooling equilibrium in which no candidate from G_2 can advance. Since Propositions 4 and 5 characterize the whole range of refined equilibria that exist in the extended model for $m, n_2 > \overline{m_2}$, they imply that the pooling equilibrium without advancement of candidates from G_2, if it exists in this parameter range, is not unique. Thus, Propositions 4 and 5 imply Theorem 2. $\square$

[18] Remember that the refinement says that if a separating equilibrium exists for candidates from G_2, no pooling equilibrium is played by them in the same parameter range.

[19] Again, I abstract from mirror equilibria in which the meanings of m_H and m_L are reversed.

Theorem 2 implies that existing barriers to advancement fall if firstly, the social group that is represented only at a token-level in the targeted sphere has become strongly represented within the pool of candidates and if, secondly, a sufficiently high number of positions in the targeted sphere become available simultaneously.

6 Minorities, "boundary blurring" and taste discrimination

In this section, I extend the model from section 3 to account for taste discrimination. The extended model applies to ethnic or religious minorities. Processes of decreasing cultural difference between a minority and the majority are called "boundary blurring" by sociologists.[20] History has shown that these processes of "boundary blurring" can have very different endings, depending on the historical context. The white ethnic groups, including the Jews, that entered the U.S. in the first half of the 20th century reached full and lasting integration. By contrast, the Jews' integration process in France during the 19th century could abate discrimination only intermittedly; the so-called Dreyfus affair at the end of the 19th century dramatically showed the reinvigoration of antisemitism and discrimination. (See, e.g., Kann (1969) and Wilson (1976).)

Of course, it depends on many different historical, political, social, and economic factors whether a process of boundary blurring ends in full integration or in a reinvigoration of discrimination. This paper abstracts from most of these factors. However, this section will show that the model presented in the current paper, if extended to account for taste discrimination, predicts the existence of a U-shaped relationship between "boundary blurring" and discrimination. Thus, my model predicts that processes of "boundary blurring" will always have seemingly surprising bad endings in societies with a strong tendency for taste discrimination.

[20] Note that the model makes no assumption about whether the decline of social difference is due to a one-sided or two-sided process, i.e., whether only one group converges toward the other, or whether both groups converge toward each other in terms of social identity and culture. Such a process of decreasing social difference that can be either one- or two-sided is called "boundary blurring" in sociology, and is almost always accompanied by the emergence of hybrid social identities of the minority group. (See Alba and Nee (1997), Alba (2006) and Lee (2009).)

6.1 Extension of the model: Including direct discrimination

Consider the model from section 4 and extend it in the following way. There are T periods, denoted by t. In the first period, $t = 1$, cultural difference between G_2 and G_1 is $d_1 \geq d_H$. In all periods $t \in [2, T-1]$, $d_t = \max\{d_{t-1} - \Delta, \epsilon\}$, with $\Delta > 0$, $\epsilon > 0$. $T = T(\Delta, \epsilon)$ is chosen such that $d_T = \epsilon$. T can be arbitrarily large, i.e., Δ and ϵ can be arbitrarily close to zero. At the beginning of each period, players are born, and at the end of the period, they die. In each period, nature, G_1, G_2 and the decision-maker are given as in the model from section 4. However, the game that they play, although in all other respects identical to the one described in section 4, is extended as follows.

I now assume that in each period, there exists an unmodeled supremacist. Before the beginning of the cheap-talk game, the supremacist attempts to enforce a measure that prevents candidates in G_2 from being advanced. Thus, the measure supported by the supremacist can be thought of as a legal ban to advance someone from G_2 or, alternatively, as any policy that destroys the higher-level productivity of individuals from G_2 so effectively that the decision-maker has no incentive to advance them, regardless of their types. If the supremacist succeeds, $\mu = 1$, if not, $\mu = 0$. His probability of success is given by $\Pr\{\mu = 1\}$.

However, both the decision maker and the candidates from G_1 can affect the probability $\Pr\{\mu = 1\}$ of the supremacist's success: Before the cheap-talk game begins, that is directly after nature has drawn the candidates, the decision-maker and the pool of G_1-candidates must decide simultaneously whether to *support the supremacist*, to *behave neutrally*, or to *oppose the supremacist*. To describe this formally, denote the decision-maker by D and the pool of G_1-candidates by K_1, and let $j \in \{D, K_1\}$ denote either of the two players. The decision to oppose the supremacist is denoted by $s_j = 1$, the decision to remain neutral by $s_j = 0$, and the decision to support the supremacist by $s_j = -1$. The decision-maker D decides individually, since he is not explicitly modeled as a group of different individuals. The pool of G_1-candidates, K_1, however, makes a collective decision. I assume that K_1 must decide unanimously if it does not want to behave neutrally. Put differently, $s_{K_1} = 1$ ($s_{K_1} = -1$) if and only if each individual i in K_1 chooses $s_i = 1$ ($s_i = -1$); otherwise, $s_{K_1} = 0$. Apart from simplifying the analysis, this assumption captures the fact that a group is perceived as opposing or supporting a measure only if there is sufficient agreement within the group on how to evaluate the measure in question. I further assume that opposing the supremacist imposes effort-costs κ on j, and that supporting the supremacist imposes both κ and a moral cost η on j. (Costs are born by each individual in K_1.) Thus, the model applies to societies in which the establishment leans toward liberal values and incurs some moral costs if it acts against these tendencies. However, I assume that behaving neutrally is costless. The simultaneous decisions of D and K_1 affect the supremacist's probability of success as follows:

$$\begin{aligned}
\Pr\{\mu = 1\} &= 1 - \min\left\{1, \max\left\{0, \sum_j \omega_j s_j\right\}\right\}; \; j \in \{D, K_1\}, \text{ with} \\
\omega_D, \omega_{K_1} &\in (0,1]; \; \omega_D + \omega_{K_1} \geq 1; \; \omega_D > \omega_{K_1}
\end{aligned}$$

Thus, if neither D nor K_1 oppose the supremacist, he succeeds with certainty, and $\mu = 1$. By contrast, if both D and K_1 oppose the supremacist, he fails, and $\mu = 0$. If, however, only one of the two players D and K_1 opposes the supremacist, the latter's probability of success depends on the weights ω_j. The weights ω_D and ω_{K_1} measure the degree of influence of D and K_1, respectively. Since D stands for the elite that controls access to the higher-level positions to which the candidates in K_1 aspire, I assume that D is more influential, i.e., $\omega_D > \omega_{K_1}$. Thus, if D opposes the supremacist and K_1 supports him, then the supremacist's probability of success is positive, but below one.

After both D and K_1 have made their decision about how to behave toward the supremacist, and before D has to decide which candidates from G_1 and G_2 to advance, the value of μ is realized and observed by all players. The equilibrium concept is the refined Perfect Baysian Equilibrium that has been defined in section 4. Moreover, since players live only for one period and generations do not overlap, it suffices to consider strategies that do not condition on past periods. Figure 6 below depicts the time structure of the extended game for one arbitrary period.

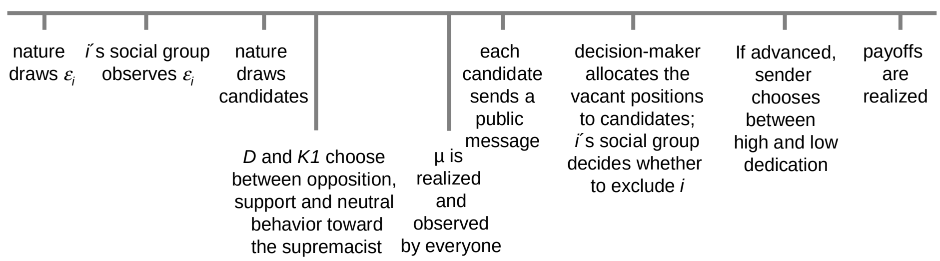

Figure 6: The extended game

6.2 A U-shaped relationship between boundary blurring and discrimination

If the supremacist fails ($\mu = 0$), then the continuation game is identical to the game analyzed in section 3. If, however, the supremacist succeeds ($\mu = 1$), then only the continuation game between the decision-maker and the candidates from G_1 is identical to the analogous game in section 3. Candidates from G_2, by contrast, cannot be advanced. Thus, we get

Observation 3 For $\mu = 1$, only the babbling equilibrium exists for the cheap-talk game between G_2-candidates and the decision-maker, while the equilibrium of the cheap-talk game between G_1-candidates and the decision-maker is as characterized in section 4. For $\mu = 0$, all equilibria of the cheap-talk game are as characterized in section 4.

6.2.1 The decision-maker

Consider now the decision-maker's incentives when he has to choose his behavior toward the supremacist. Clearly, he never supports the supremacist because, firstly, he never loses from being allowed to advance individuals from G_2, and secondly, supporting the supremacist is the costliest of the three possible actions. Thus, it suffices to consider his choice between neutral behavior and support. Contrary to the previous sections, I now assume that $n_1 \geq m$, i.e., the decision-maker can always fill all vacant positions with candidates from the majority-group G_1. This implies that only if at least some identifiable candidates from the minority-group G_2 are better in expectation than candidates from G_1, the decision-maker will have an incentive to oppose the supremacist. Since for any non-zero cultural difference between G_1 and G_2, the share of candidates who would exhibit high dedication if advanced is lower in G_2, it is only within a separating equilibrium of the cheap-talk game between the candidates from G_2 and the decision-maker that some G_2-candidates turn out to be better in expectation than the G_1-candidates. However, if cultural difference lies above d_H or below d_L, no such separating equilibrium exists, and the decision-maker has no incentive to oppose the supremacist. Note that this is true even if $d_0 > d_L$. Thus, an incentive to oppose the supremacist exists only for a cultural difference that lies between d_L and d_H. In this range of d_t, the decision-maker must trade-off his expected gain from advancing potential m_H-senders from G_2 against the effort costs κ of opposition. For simplicity, I assume that candidates are drawn in large numbers, i.e., n_1, $n_2 \rightarrow \infty$. Then, the decision-maker opposes the supremacist if and only if

$$\frac{n_2^H(d_t)}{n_2}(1-\overline{\alpha})(\Pi_H - \Pi_L) \geq \kappa,$$

that is, if and only if the share $\frac{n_2^H(d_t)}{n_2}$ of m_H-senders among the candidates from G_2, multiplied with the relative gain from advancing a m_H-sender from G_2 rather than a candidate from G_1, exceeds the effort costs of opposing the supremacist. If d_D is implicity defined by

$$\frac{n_2^H(d_D)}{n_2}(1-\overline{\alpha})(\Pi_H - \Pi_L) = \kappa,$$

we obtain the following Proposition:

Proposition 6 If $d_D \in [d_L, d_H)$, then the decision-maker opposes the supremacist if and only if $d_t \in [d_L, d_D]$ and behaves neutrally otherwise. By contrast, if $d_D \geq d_H$, then the decision-maker opposes the supremacist over the entire interval $[d_L, d_H)$ but behaves neutrally everywhere else. If, however, $d_D < d_L$, the decision-maker behaves neutrally for all values of d_t.

Proof Proposition 6 follows directly from the definition of d_D, Observation 3 and the fact that $\frac{dn_2^H(d_t)}{dd_t} < 0$. $\square$

Assuming $d_D \geq d_L$ which holds for sufficiently small κ, one can summarize that a declining cultural difference between the majority-group G_1 and the minority-group G_2 first provides the minority with the decision-maker's protection but then, after a further decline, deprives the minority of this protection again.

6.2.2 The pool of candidates from the majority

Compared with the decision-maker, candidates from G_1 have, to some extent, the opposite incentives. If the cultural difference between them and the candidates from G_2 lies weakly above d_H or strictly below d_L, the decision-maker favors them over anyone from G_2. Thus, for $d_t \geq d_H$ or $d_t < d_L$, candidates from G_1 have no incentive to support the supremacist. Of course, they also have no incentive to oppose him. Thus, they behave neutrally. If, however, cultural difference lies between d_L and d_H, some highy motivated candidates from G_2 separate themselves from all others in equilibrium, and the decision-maker will favor these candidates over candidates from G_1. Thus, for $d_t \in [d_L, d_H)$, candidates from G_1 profit from a success of the supremacist: If the supremacist succeeds, they will get the positions that otherwise would have been obtained by candidates from G_2. Therefore, for $d_t \in [d_L, d_H)$, candidates from G_1 will support the supremacist if and only if

$$\begin{aligned} \left(\frac{m}{n_1} - \frac{m - n_2^H(d_t)}{n_1}\right)(u_L - u_0) &\geq \kappa + \eta, \text{ or} \\ \frac{n_2^H(d_t)}{n_1}(u_L - u_0) &\geq \kappa + \eta. \end{aligned}$$

Now let d_{K1} be implicitly defined by

$$\frac{n_2^H(d_{K1})}{n_1}(u_L - u_0) = \kappa + \eta,$$

and assume that moral costs η are sufficiently high such that $d_{K1} < d_D$. Then, we obtain:

Proposition 7 If $d_{K1} \in [d_L, d_D)$, the pool of candidates from G_1, K_1, supports the supremacist for $d_t \in [d_L, \min\{d_{K1}, d_H\}]$ and behaves neutrally for all other values of cultural difference. If, by contrast, $d_{K1} < d_L$, then K_1 behaves neutrally for all values of cultural difference.

Proof Proposition 7 follows directly from the definition of d_{K1}, Observation 3 and the fact that $\frac{dn_2^H(d_t)}{dd_t} < 0$. $\square$

Thus, assuming $d_{K1} \geq d_L$, one can summarize that a decline of cultural difference between majority and minority will, at some point, trigger a collaboration between the candidates from the majority and the supremacist, a collaboration, however, that will break up again after a further decline of cultural difference. Note, however, that candidates from G_1 never oppose the supremacist.

6.2.3 The Second Paradox of Integration

The above analysis has shown that both for a very high and a very low cultural difference from the majority, the minority finds itself without the protection of the decision-maker, i.e., it is of no interest to the elite that controls access to higher-level positions. Naturally, it is also not protected by the majority's aspirants to these higher-level positions. Thus, if a sufficiently powerful supremacist (or supremacist group) attempts to enforce discriminatory measures against the minority, and if, as assumed here, behaving neutrally toward the supremacist is costless for the majority and its elite, then the minority will face discrimination both in the early and the late stages of "boundary blurring". Paradoxically, the minority faces less discrimination in the intermittent phase in which it produces a number of "superior" candidates that can credibly signal their willingness to exhibit high dedication to the majority's establishment. During this intermittent phase, the decision-maker, i.e., the elite in control of higher-level positions, has an interest in protecting these superior candidates from discrimination, even against the resistance of candidates from the majority. Figure 7 below depicts the resulting U-shaped relationship between (declining) cultural difference and the supremacist's probability of success for $\omega_D = 1$ (blue lines). It also depicts the inverse U-shaped relationship between (declining) cultural difference and integration of the minority (red lines).

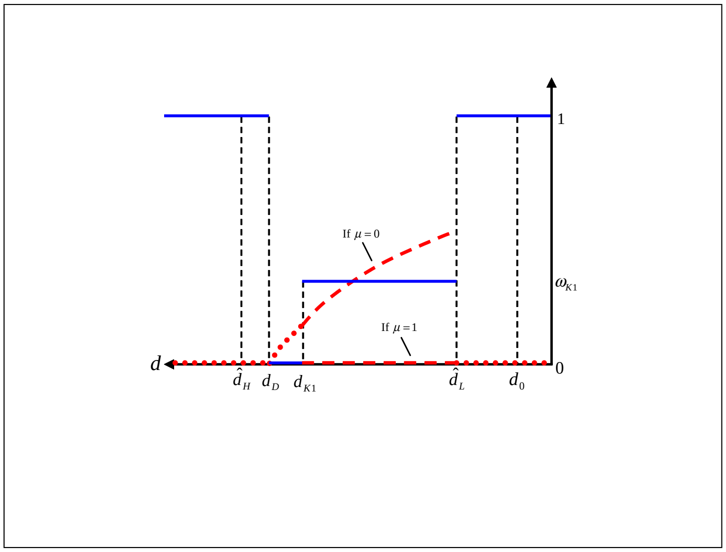

Figure 7: The blue thick lines represent the success probability of the supremacist, $\Pr\{\mu = 1\}$. The red dotted and dashed lines represent the probability $\Pr\{a_i = 1\}$ that a random candidate i from the minority G_2 is advanced in equilibrium or, alternatively, the share of minority-candidates advanced in equilibrium.

Note that the model presented in this section does not say anything about changes in anti-minority attitudes of the general public. By contrast, the model is about changes in *reactions* of the *elites* to such attitudes. The model predicts that discrimination of minorities often becomes more socially accepted *after* and *because* the targeted minorities have made a significant progress in acculturation.

7 Discussion

Since the Introduction already contains an informal summary of the model, I will refrain from providing one here again. Instead, I will discuss the implications of my (unextended) model in the light of existing empirical evidence and point out some challenges for future research.

The main implication of my model is the specific non-monotonic relationship between (1) the cultural gap separating two social groups and (2) the relative group standings with regard to high-tier positions in politics or business. An extreme cultural gap makes advancement impossible for members of the underrepresented group. The latter become more likely to advance as the cultural gap declines. However, at some point a further decline of the cultural gap prevents advancement of the underrepresented group again if promoting a wrong type is very costly for the decision maker (Paradox of Integration). Only if the cultural gap converges to zero can members of the underrepresented group again advance with positive probability under any circumstances.

This relationship fits well with the empirical pattern depicted by Figures 8 and 9. Moreover, additional evidence for the Paradox of Integration is available: In Turkey, a country with highly traditional gender-role attitudes, women are nowadays doing better on many scales than in a number of Western, much less traditional countries: According to *Women on Boards* (2011), Turkey has a higher percentage of women directors on boards, namely 9.7%, than even Germany or France, that have 9% and 8.2%, respectively. From *She Figures* (2006), a statistic regularly provided by the European Commission, one can see that Turkey's share of women in research above the PhD level (36%) was much higher than in France (28%) and Germany (19%) in 2003, while the share of female PhDs was roughly the same as in Germany, namely 38%. (See *She Figures* 2006, Figure 1.6 and 1.2.) These results are confirmed by *She Figures* (2009). Relatedly, Gorodzeisky and Semyonov (2011) find that in Europe, muslim women's educational and occupational attainments are not only higher than that of their male compatriots, but are also higher than that of native European women.

Also, my model predicts that in the separating equilibria, when only few members of the underrepresented group can advance, those who advanced did so with higher probability than members of the overrepresented group and are also more productive than the latter. Evidence that is consistent with this prediction is provided by, e.g., Gayle, Golan and Miller (2011), Lyness and Heilman (2006) and Yap and Konrad (2009). Gayle, Golan and Miller (2011) find that if women become executive managers then they earn more and are promoted faster than their male counterparts. Relatedly, Lyness and Heilman (2006) find that conditional on being promoted, female managers receive better performance evaluations than their male colleagues. Yap and Konrad (2009) report that an initially negative promotion bias against women turns into a positive promotion bias when one moves up the organizational hierarchy.

A related implication of my model is that the most productive types of the underrepresented group do not advance more easily when their group's represention at the targeted hierarchy level is increasing. Thus, average productivity of the minority group in high-tier jobs weakly decreases as their representation in these jobs improves. Note, however, that no analoguous prediction can be made about average productivity of the *entire* staff in these jobs. In fact, average productivity of the entire staff increases as the representation of the minority group improves *along the separating equilibria* but drops again when the separating equilibria break down. This would explain the mixed and inconclusive evidence on the effects that female board members have on firm performance. To gain more conclusive evidence, empirical research should focus on changes in the performance of the minority group when its representation increases.

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9 Appendix A

Proof of Proposition 1 Suppose that $d > d_0$, that G_1's off-equilibrium beliefs are

$\Pr\left\{\theta_i > \overline{\theta} \mid i \in G_1, m_i = m_L\right\} = 0$ and $\Pr\left\{\theta_i > \theta(d) \mid i \in G_2, m_i = m_L\right\} = 0$, and that all individuals i send m_H. This is consistent with (a). Then, G_1 correctly believes that $\Pr\left\{\theta_i > \overline{\theta} \mid i \in G_1,\ m_i = m_H\right\} = \overline{\alpha}$ and $\Pr\left\{\theta_i > \theta(d) \mid i \in G_2,\ m_i = m_H\right\} = \alpha(d)$. Consequently, the decision-maker advances all $i \in G_1$ and no $i \in G_2$. Thus, the probability of being excluded by one's own group is independent of d. This and the off-equilibrium beliefs imply that no individual has an incentive to deviate and send m_L. Thus, there exists a babbling equilibrium with properties (a), (b) and (c). From (b) and (c) it follows that all candidates have social value $v_i = \varepsilon_i$. A group exludes a member i if $v_i < 0$. This implies (d). □

Proof of Proposition 2 The argument immediately preceding Proposition 2 proves that (c) implies (a), (b) and (d) for all $d \in \left[\widehat{d}_L, \widehat{d}_H\right]$ but not for any d outside this interval. (The fact that $\widehat{\theta}(d) > 0$ follows from $d > d_E$ and the properties of $\widehat{\theta}(d)$.) Both (a) and the fact that $\widehat{\theta}(d) > \theta(d)$ for $d > \widehat{d}_L$ imply the equilibrium belief of G_1 that a person from G_2 sending m_H will exhibit high dedication with certainty. This implies that the decision-maker advances i if $m_i = m_H$. Point (b) and the fact that $d > d_0$ imply that the equilibrium belief $\Pr\left\{\theta_i \geq \theta(d) \mid m_i = m_L\right\}$ about those who send m_L is not sufficently optimistic for G_1 to advance someone who sends m_L. Thus, together, (a), (b) and the assumptions about d imply (c). □

Proof of the Corollary 1 $\widehat{\theta}(d) - \theta(d) > 0$ since $d > \widehat{d}_L$. Moreover, the implicit definitions of $\widehat{\theta}(d)$ and $\theta(d)$ given in (1) and (2) imply that for $d \geq \widehat{d}_L$, $\widehat{\theta}'(d) > \theta'(d)$. Thus, $\widehat{\theta}(d) - \theta(d)$ increases in d. Points (c) and (d) of Proposition 2 imply that an individual from G_2 that sends m_H is excluded with probability $F(\phi(d))$. Furthermore, point (c) implies that an individual from G_2 that sends m_L is excluded with probability $F(0)$. Since $d > d_E$, $F(\phi(d)) > F(0)$. The exclusion probability for individuals i in G_1 is independent of d and m_i and equals $F(0)$. Thus, individuals in G_2 that send m_H incur a strictly higher risk of group exclusion than all other individuals. □

Proof of the Corollary 2 For individuals in G_1, $e(d_{iC}) = 0$, and the probability of being excuded is constant and independent of d. Thus, in a separating equilibrium, all types θ_i would have a strict incentive to signal a willingness to exhibit high dedication in order to advance, and therefore, no separating equilibrium exists for individuals in G_1. However, since $\overline{\alpha} > \alpha(d_0)$, a babbling equilibrium in which all indivduals in G_1 are advanced always exists. $\square$

Proof of Proposition 3 Suppose that all senders' stragies and both equilibrium and off-equilibrium beliefs of G_1 are as described in the Proof of Proposition 1. This is consistent with (a). Then, the argument immediately preceding Proposition 3 proves that if (a) is true, then the decision-maker wants to advance candidates from G_2 if $m \geq n_1 + n_2$. Since $\alpha(d) < \overline{\alpha}\ \forall d > 0$, however, the decision-maker prefers candidates from G_1 over candidates from G_2. This implies that (b) must be true for each level of cultural difference $d \in D_p$ and that (d) is implied by (b). The proof of (c) is analogous to the proof of (d) in Proposition 1. Point (e) is implied by (c) and (d). The argument preceding Proposition 3 proves that for $d \in \widehat{D}_p$, all individuals in G_2 want to advance. We know that individuals in G_1 all want to advance independently of d. Thus, for each $d \in \widehat{D}_p \cap D_p$, (b) implies that no individual in any social group has any incentive to deviate from equilibrium strategies consistent with (a). $\square$

Proof of Theorem 1 It is easy to see that any Perfect Bayesian equilibrium of the game must either be a separating equilibrium as characterized in Proposition 2 or a pooling (babbling) equilibrium. (To see this, note that an equilibrium must either involve information transmission of some kind in which case it is a separating equilibrium or no information transmission in which case it is a pooling (babbling) equilibrium. Note furthermore that all individuals of type $\theta_i < \theta(d)$ in G_2 have the same incentives at all stages of the game. Thus, in any equilibrium with information transmission, they would always pool on the same message. Consequently, a separating equilibrium implies the existence of at least some individuals of type $\theta_i \geq \theta(d)$ in G_2 that send a different message than the other individuals in G_2. Proposition 2 characterizes all equilibria of this kind, i.e., all existing separating equilibria.) Proposition 2 implies that for cultural difference $d \in [d_0, \widehat{d_L})$, a separating equilibrium does not exist. Due to the incentives of G_1, a pooling equilibrium must be either characterized by advancement of all individuals in G_2 or by non-advancement of all individuals in G_2. Proposition 3 implies that a pooling equilibrium with advancement of G_2 does not exist for $d \in [d_0, \widehat{d}_L)$ but for $d < d_0$. However, Proposition 1 implies that a pooling equilibrium without advancement of G_2 exists for $d \in [d_0, \widehat{d}_L)$. $\square$

Proof of Propositions 4 and 5 Observation 1 and 2 and the argument subsequent to Observation 2 directly imply (a) of Proposition 4 for $\max\left\{\widehat{d}_L, \overline{d}\right\} = \widehat{d}_L$ and Proposition 5 for $\max\left\{\widehat{d}_L, \overline{d}\right\} = \overline{d}$. It remains to be shown that (a) also holds for $\max\left\{\widehat{d}_L, \overline{d}\right\} = \overline{d}$, Proposition 5 also holds for $\max\left\{\widehat{d}_L, \overline{d}\right\} = \widehat{d}_L$ and that (b) of Proposition 4 holds in general. The claim that (b) of Proposition 4 holds follows from the fact that if $n_1 = m$, the decision-maker can fill all positions with candidates from G_1 whose probability of being highly motivated is $\overline{\alpha}$. Since for $d < \max\left\{\widehat{d}_L, \overline{d}\right\}$, candidates i from G_2 do not have a higher probability of high motivation, the decision-maker has no incentive to deviate from a pooling equilibrium in which only candidates from G_1 are advanced and fill all vacant positions. Consider now the claim that Proposition 5 also holds for $\max\left\{\widehat{d}_L, \overline{d}\right\} = \widehat{d}_L$. The proof for this claim is identical to the proof of Proposition 2, taking into account that m, n_2 and n_1 are large numbers so that all players have correct point estimates of $n_2^H(d)$ at any stage of the game. The claim that (a) of Proposition 4 also holds for $\max\left\{\widehat{d}_L, \overline{d}\right\} = \overline{d}$ is proven as follows: Observation 1 and the subsequent argument have shown that the decision-maker has an incentive to deviate from any pooling equilibrium in which $n_1 < m$ and $d_{iC} = d$ for candidates i from G_2. Thus, if no separating equilibrium exists, the only possible equilibrium if $d < \max\left\{\widehat{d}_L, \overline{d}\right\}$ and $n_1 < m$ is a pooling equilibrium with $d_{iC} = 0$ for candidates i from G_2. The proof that such an equilibrium exists for $d < \overline{d}$ is analogous to the proof that it exists for $d < \widehat{d}_L$, i.e., the proof of Observation 2. $\square$

10 Appendix B

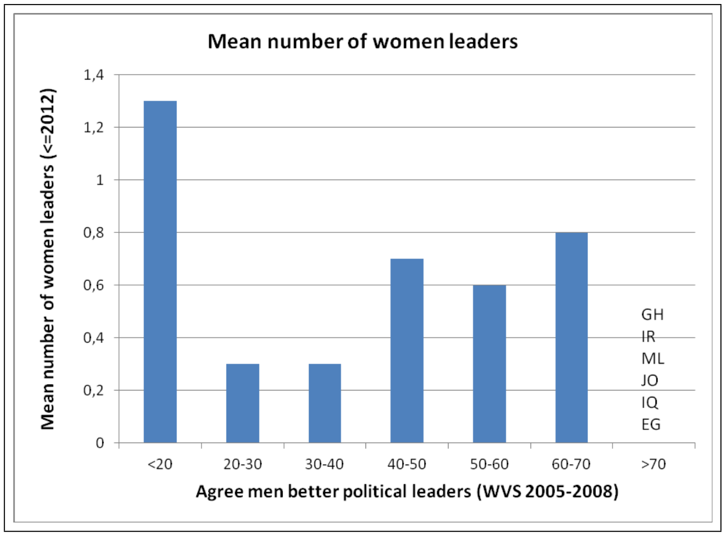

Figure 8: The x-axis measures the percentage of women in a given country that agree with the claim that men are better political leaders. (Source: World Values Survey 2005-2008, 56 countries) The y-axis measures the average percentage of women in the role of their country's political leader. I counted a woman as political leader if she was prime minister or president, elected or appointed. I excluded women that were automatic successors or appointed by their father or husband. The figure shows that in extremely traditional countries (more than 70% of women agree that men are better political leaders), women do not become political leaders. However, both in highly traditional countries (40-60% agreement) and in very modern countries (<20% agreement), women are much more likely to become leaders than in countries in between (20-40% agreement). In the modern countries, female leaders are most likely. A similar pattern is found if not the number of female leaders but rather the number of terms with female leadership is measured.

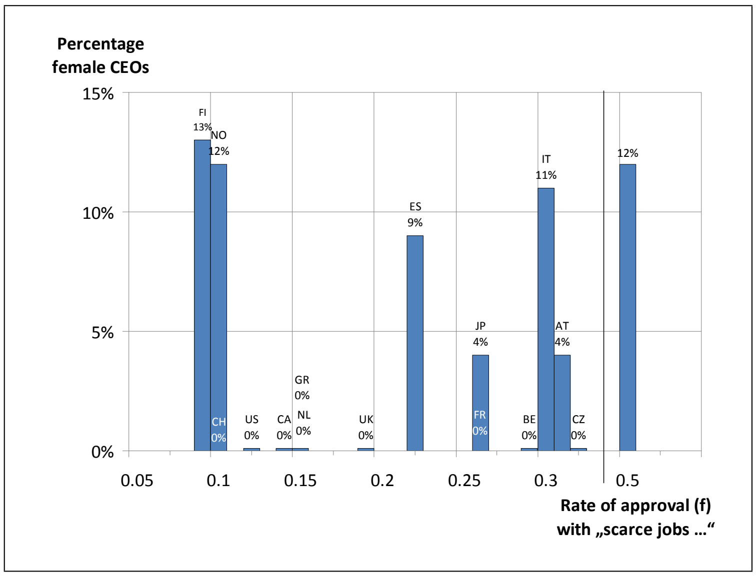

Figure 9: The x-axis measures the percentage of women in a given country that agree with the claim that scarce jobs should go to men. (Source: Fortin (2005)) The y-axis measures the percentage of female CEOs of the world's largest employers. (Source: World Economic Forum 2010) Fortin (2005) shows that the share of women who agree with the "scarce jobs"-claim has a strong negative effect on female labor market participation. The figure reveals that both in highly traditional and very modern countries, women are more likely to become CEOs in large corporations than they are in countries in between. Data about extremely traditional countries were not available.