Cultural Leaders and the Clash of Civilizations

Esther Hauk
Hannes Mueller

This version: June 2012
(July 2010)

Cultural Leaders and the Clash of Civilizations[*]

Esther Hauk[†]and Hannes Mueller[‡]

June 12, 2012

Abstract

This article builds a micro founded model of cultural conflict. In this model intrinsically motivated cultural leaders supply and interpret culture. Leaders have an incentive to amplify disagreement about cultural values. This leads to a clash of perspectives between cultures. The population benefits from the supply of culture but suffers if leaders amplify disagreement. The article discusses constraints to leader behavior and analyzes how economic factors affect the incentives of cultural leaders. Economic strength can lead to displays of cultural arrogance while economic integration between groups can hinder cultural alienation.

1 Introduction

The expression "clash of civilizations" or "clash of cultures" has become a winged word after the attacks on the twin towers on 11 September 2001. Originally brought up as term by the historian Bernard Lewis[1] the expression was made famous by Huntington's book "The Clash of Civilizations and the Remaking of a World Order" (1996). His main hypothesis is that the fundamental source of conflict in the post cold war period will be along cultural and religious lines. In his words: *"The fault lines between civilizations will be the battle lines of the future"* (Huntington 1993). In particular, Huntington claims that "Islam has bloody borders" and predicts prevalent civilizational conflict between Muslims and non-Muslims. The debate surrounding Huntington's work has received a sense of urgency after the September 11 attacks. Its merit has been debated

[†]Institute of Economic Analysis (IAE-CSIC) and Barcelona Graduate School. E-mail: esther.hauk@iae.csic.es

[‡]Institute of Economic Analysis (IAE-CSIC) and Barcelona Graduate School, E-mail: hannes.mueller@iae.csic.es

[1]Lewis used the term first in his article in the September 1990 issue of The Atlantic Monthly titled "The Roots of Muslim Rage".

both because of the difficulty of defining a "civilization"[2] and doubt about its empirical validity.[3] However, it is hard to deny that religion and culture are important ingredients in conflict and that religious categories in particular have been used in (shocking) regularity by perpetrators of violence.[4] The term "clash of civilizations" has entered common vocabulary and plays an important role in framing the political debate on a whole range of issues from terrorism to cultural stereotypes.[5]

The main question we aim to answer here is why existing cultural categories (religious categories in particular) become so salient and conflictive. In order to do so we model the competition between two existing cultures from both the demand and supply side of culture. In this model the clash of civilizations is a clash of perspectives. Individuals in different cultures disagree fundamentally about what constitutes cultural value. We show that those supplying culture (cultural leaders), can have an interest to reinforce this divide in ways that harm welfare. We discuss the conditions that lead to this particular principal-agent problem and illustrate our analysis with the example of religion.

To model the demand side of culture we adopt the framework of cultural transmission of preferences by Bisin and Verdier (2001). In this framework parents maximize the utility of their children by choosing a costly educational effort that determines the probability that the parents transmit their cultural trait to the child. At the core of this model stands a central assumption. Parents of different traits (cultures) systematically differ in their evaluation of cultures. The view on a culture from the inside is more positive than the view from the outside. Educational effort is then driven by high benefits from their own culture and the fear that the child will be worse off in another culture. We argue that these incentive devices directly correspond to cultural concepts like heaven and hell.

Cultural leaders supply culture. They do this by interpreting their own culture, interpreting other cultures and representing their own culture towards other cultures. The fact that culture is changing and adapting gives leaders the freedom to change the character of culture through their actions. We analyze the incentives of cultural leaders in light of the recent literature on intrinsic motivation. We find that under realistic assumptions on the motives of leaders their optimal interpretation of culture might deviate systematically from the welfare maximum for the population. We show that unlike a social planner who would only allow for the provision of cultural benefits, cultural leaders will stir

---

[2]Some issues raised are that Huntington's classification overlooks internal differences among civilizations (Berman, 2003b) and that idenity is a choice and not destiny (Sen, 2006).

[3]There is a huge literature refuting different aspects of Huntington's work. Fox (2001) shows that a perception of a clash could come from the Western perspective on the sample of conflicts. Inglehart and Norris (2002, 2003) and Chaney (2012) provide evidence that there is no cultural mechanism that links Islam to a distaste for democracy.

[4]Inglehart and Norris (2002, 2003) show a cultural divide between the West and Islam on issues of gender roles. For civil wars between 1940 and 2000, Toft (2006, 2007) establishes the increasingly important role of religion.

[5]Al Jazeers Television, for example, broadcasted a Featured Documentary called: "The 9/11 Decade. The Clash of Civilizations?" http://www.youtube.com/watch?v=fIhTBEUr_80

the fear of conversions - for example, by stressing negative or simply incompatible elements of other cultures. More surprisingly, cultural leaders can benefit from stressing these same elements in their own culture towards the outside. We argue that this cross-cutting interest in exaggerating incompatibility can explain religious conflict in particular. Even related and very similar beliefs can appear incompatible and divisive if differences receive all the attention.[6]

But why is the population unable to defend its own interests against their leaders? One of the main reasons is the lack of information. Moreover, leaders can strategically use the past behavior of both the ingroup and the outgroup to feed low intercultural perceptions. Competition among leaders is unlikely to help, since in a world where cultural categorizations are hard to avoid the nature of competition is likely to be external and not internal. While internal competition for leadership might reduce the use of aggressive clash strategies, external competition (launching a new trait) is likely to intensify the clash.

Economic factors are an important restriction on the strategy of leaders. We show that raising the fear of conversion in other groups is not a feasible strategy if the leader's group is economically very disadvantaged or if this reduces the economic opportunities of the leader's group. We also study a scenario where economic payoffs depend endogenously on the degree of cultural diversity in society. We do so by allowing for network effects. If network effects are only present in the economically disadvantaged cultural group - e.g. there is an immigrant network providing some economic benefits - this allows their leader to be culturally more aggressive.

Instead of manipulating actual and perceived benefits from a particular trait, cultural leaders might manipulate the salience of different identities. In an extension, we modify our model to allow people to have a citizen identity common to the whole society and a group-specific identity (i.e. religion, family origins etc.). We show that leaders of an economically disadvantaged group always want to increase group salience and hence induce a cultural clash. We also show that leaders of the economically advantaged group might want to play along. Group members can also benefit from an increased salience of their group identities but only if these are linked to sufficiently large positive cultural values. If cultural fears are strong, group members suffer from an increase in group salience.

The remainder of the paper is organized as follows. In the next section we set up the basic model. Section 3 contains our main results on cultural leaders and the clash of civilizations. In section 4 we discuss political restrictions on cultural leaders focusing on the role of asymmetric information and competition between leaders. Section 5 is dedicated to the interaction of economic opportunities with cultural manipulations. In section 6 we develop the model with multiple identities where leaders choose the salience of group-specific identity versus citizen identity. Section 7 concludes.

---

[6] Examples are the, often violent, conflicts between Protestants and Catholics or between Sunnis and Shiites.

2　The Model Set-Up

We use a simple model with existing cultural traits to model how differences between these traits become amplified. We first present an adaptation of Bisin and Verdier's (2001) model of cultural transmission. In this model the demand for a culture is driven by its benefits compared to other cultures. In subsection 2.2 we introduce cultural leaders who supply culture and shape its character. We argue that these leaders have an incentive to amplify cultural differences.

In what follows we will use (monotheistic) religion as our leading example for culture. This is because of the importance that religion plays in the discussion of the clash of civilizations. However, it should be kept in mind that our model can apply more broadly.

2.1　The Demand for Cultural Transmission

A society of size 1 has two possible cultural traits, trait 1 and trait 2. The fraction of individuals having trait 1 is q and the fraction of individuals having trait 2 is $1 - q$. We follow Hauk and Saez-Marti (2002) in the way overlapping generations are modeled: a Poisson birth and death process keeps the population size of active agents constant.[7]

Parents choose their education effort d_i which determines the probability that their child will adopt their culture. We assume that the costs of education are $C(d_i) = \frac{1}{2}d_i^2$. One should think of this costs as the cost of submerging the child into the values provided by cultural leaders. It includes fees charged by the leader and the opportunity costs of time spent in exposing the child to the culture. If this submergence fails, the child bumps into a randomly chosen member of the parent's society and copies her preferences. With probability q it then adopts culture 1 and with probability $1 - q$ it adopts culture 2. This way of cultural transmission captures the role of society in shaping an individual's culture.

We assume that parents have *imperfect empathy*: they evaluate their child's future utility through the structure of values in their own culture. We assume that from the perspective of group i culture j provides utility u_{ij}, $i, j \in \{1, 2\}$. Imperfect empathy means that culture is seen differently from outside than from inside i.e. $u_{ii} \neq u_{ji}$ for $i \in \{1, 2\}$ and $j \neq i$ and that the own culture is perceived as superior: $u_{ii} > u_{ij}$.[8] This difference in perception can be driven by information and differences in tastes alike. Imperfect empathy seems particularly realistic in the case of religious beliefs. Typically, belief in one god implies that following another god will harm welfare. Yet, groups with different, often contradictory, beliefs live together in a society.

---

[7] The survival probability of an active agent is λ each period. With probability $1 - \lambda$ an active agent has a child without any predetermined preferences who will becomes active the next period. For simplicity we look at life-time values. This saves on notation. If we only looked at per period values everything would have to be multiplied by $\frac{1}{1-\lambda}$ to get life-time utilities.

[8] In sociology this assumption is called ethnocentrism.

Apart from culture the utility of parents is also affected by the economic opportunities of their offsprings. We assume that these are objective, i.e. the perspective on economic opportunities is independent of the parent's culture. Life-time economic opportunities are denoted by w_i where i refers to the culture of the child. We assume that $w_1 \geq w_2$ and will therefore call trait 1 the economically advantaged and trait 2 the economically disadvantaged group.[9] This assumption can reflect two different economic environments: (i) everybody works in the same sector but culture 2 is economically disadvantaged either due to wage discrimination or due to some cultural elements leading to lower productivity, (ii) the different traits work in separated sectors and the sector of culture 2 is less productive.

A parent from the economically advantaged group (culture 1) solves

$$\max_{d_1} d_1 \left(u_{11} + w_1\right) + (1 - d_1)\left(q\left(u_{11} + w_1\right) + (1 - q)\left(u_{12} + w_2\right)\right) - \frac{1}{2}d_1^2 \quad (1)$$

where the first term reflects a direct educational success of exposing the child to culture 1 while the second term is the expected utility when education fails.

Equivalently a parent of the economically disadvantaged group (culture 2) maximizes

$$\max_{d_2} d_2 \left(u_{22} + w_2\right) + (1 - d_2)\left((1 - q)\left(u_{22} + w_2\right) + q\left(u_{21} + w_1\right)\right) - \frac{1}{2}d_2^2. \quad (2)$$

It is straightforward to show that the optimal education effort is

$$d_1 = \Delta_1(1 - q) \quad (3)$$
$$d_2 = \Delta_2 q \quad (4)$$

where the parameters

$$\Delta_1 \equiv u_{11} - u_{12} + w_1 - w_2 \quad (5)$$

and

$$\Delta_2 \equiv u_{22} - u_{21} + w_2 - w_1 \quad (6)$$

summarize the overall motivation of parents of culture 1 and 2 to demand cultural education for their children.

For cultural survival of the economically disadvantaged group to be possible it has be true that $\Delta_2 > 0$. The fear of culture 2 parents that their children exit their culture has to compensate the wage differential if the economically disadvantaged culture is to survive in the long run. In order to focus on the interesting case with two groups we assume that $\Delta_2 > 0$.

The population dynamics in terms of group size of the economically advantaged group is given by:

$$q_{t+1} = \lambda q_t + (1 - \lambda)q_t((d_1 + (1 - d_1)q_t) + (1 - q_t)(1 - d_2))$$

---

[9] A leader who maximizes overall income but has no impact on wages would therefore try to reduce the size of group 2.

or equivalently

$$q_{t+1} - q_t = (1 - \lambda)q_t(1 - q_t)(d_1 - d_2)$$

Hence in steady state

$$0 = (1 - \lambda)q(1 - q)(d_1 - d_2)$$

which has three rest points, $q = 0$ and $q = 1$ and the interior rest point $d_1 = d_2$ which by Proposition 1 in Bisin and Verdier (2001) is the only stable rest point. Hence the stable steady state is determined by

$$d_1^* = \Delta_1 (1 - q^*) = \Delta_2 q^* = d_2^*. \tag{7}$$

In other words, the educational effort of parents is decreasing in the size of their group.

The steady state size of the economically advantaged group is given by

$$q^* = \frac{\Delta_1}{\Delta_1 + \Delta_2}. \tag{8}$$

Intuitively the equilibrium size of the economically advantaged group is increasing in the extent of its economic advantage (wage discrimination against group 2) and the cultural dislike of the the economically advantaged group towards the economically disadvantaged group.

The demand for cultural education can then be written as functions of the underlying parameters summarized in Δ_1 and Δ_2. Steady state per capita demand for cultural education is given by

$$d_1^* = d_2^* = \frac{\Delta_1 \Delta_2}{\Delta_1 + \Delta_2}. \tag{9}$$

which is increasing in Δ_1 and Δ_2.

2.2   The Supply Side of Culture

In our model culture is distributed by professional agents who also develop or interpret the culture they are spreading. Leaders hold some political power that allows them to further their own interest.[10] In what follows we will take this interest to be non-economic, i.e. we assume that leaders take their mission seriously. Our results are strengthened if leaders are motivated by economic factors.

We assume that cultural leaders affect the values u_{11}, u_{12}, u_{22} and u_{21}. They do so by interpreting and highlighting existing cultural aspects of their own and other cultures. Part of this interpretation can also be the provision of services complementary to a culture. For example, the provision of wedding services by a priest of religion i increases the benefit u_{ii}. A sermon by the same priest

---

[10] See the discussion in Chaney (2011) for some evidence and a review of the literature.

which explains that believers in j go to hell lowers u_{ij}. It is important to note that these assumptions capture essential elements of culture. Culture is always a value and a viewpoint at same time. Whoever supplies culture also supplies a way to interpret reality.[11]

The second role of cultural leaders is the distribution of culture. We assume that cultural leaders spread culture because they see it as a public good. In other words, cultural leaders are intrinsically motivated. Intrinsic motivation can be distinguished in "warm glow" and "public good" motivation.[12] We will present these different motivations focusing on the economically disadvantaged group (culture 2) and analyze the incentives of their leader.

Warm glow is the direct psychological benefit from being actively involved in the provision of a public good. In the case of a cultural leader the warm glow benefit will be given by the number of people the culture is successfully distributed to. Under this assumption cultural leaders therefore maximize the expected number of successful transmissions. For leader 2 this can be expressed as the number of parents in the community, $(1 - q^*)$, times the probability of transmission, d_2^*,

$$U_2\left(warmglow\right) = d_2^*\left(1 - q^*\right) = \Delta_2 q^*\left(1 - q^*\right). \tag{10}$$

In the example of religion this can be thought of as the number of conversions triggered by the leader's actions. If the leader is a Christian priest then this would be the number of children in his community that are confirmed.

The main alternative is that leaders receive a benefit from the overall level of cultural transmissions - regardless of whether they were directly involved or not. This attitude leads them to internalize the transmissions due to random encounters later in life which means that the utility function of the leader of group 2 in this case is simply the size of his group

$$U_2\left(publicgood\right) = 1 - q^*. \tag{11}$$

It is important to stress that payments to the leader (resulting from educational costs) would lead to a similar utility functions for cultural leaders. If leaders are motivated by rents that are generated from the parent's efforts (like fees for religious schooling) then this can be captured by a warm glow utility in equation (10).[13] If leaders are motivated by the overall income generated by their group then they would maximize group size as suggested by equation (11).

To summarize, leader 2 maximizes equation (10) (equation (11)) through his impact on u_{11}, u_{12}, u_{22} and u_{21}. It makes sense to illustrate this impact in the light of our leading example: religion. The positive effects of religion on well-being are well documented. In our model these positive effects of religion 2 are captured by u_{22}. If religion was an objective truth linked to a bundle of verifiable services then the value of u_{22} could simply be regarded as the direct

---

[11] Here is where our study overlaps with studies of ethnocentrism. See, for example, Hammond and Axelrod (2006).

[12] For a recent empirical study on the underlying neuro economics see Harbaugh et al (2007).

[13] For a detailed discussion of economic rents see Hauk and Mueller (2011).

benefit that "consumers" of faith 2 receive from the services provided by leader 2. We would then have $u_{21} = u_{11}$ and $u_{12} = u_{22}$. It is easy to show that then either $\Delta_1 < 0$ or $\Delta_2 < 0$. One religion would disappear in the long run.

Religious diversity in the model is explained by the fact that believers in religion 1 and 2 will disagree fundamentally regarding their evaluations of the two religions. We argue that some of this disagreement is affected by the actions of cultural leaders. For example, leaders interpret existing religious texts and provide their interpretation of present day situations. Their specific knowledge gives them some credibility when addressing their community. Leaders are therefore able to give their own interpretation to their religion and draw their community into this interpretation. Some leaders will focus on generating benefits (raise u_{22}) while others might attack other faiths or simply condemn the disbelievers (lower u_{21}).

In addition, leaders represent their religion towards the outside. The pope is probably the most extreme example here as his word is taken as representative for a large share of Christian believers. This makes leaders also responsible for shaping the outside view on their religion. A public speech by leader 2 that picks on sensitive issues in religion 1, for example, might lower u_{12}. This happened when Terry Jones, a pastor from Florida, announced that he would burn the Quran on the 9th anniversary of September 11th. Jones refrained from this announced burning. Nevertheless Jones held a trial against the Quran in March 2011 where the Quran was condemned and Jones oversaw its burning. The symbolism of burning the Quran let to outrage amongst many Muslims. A more subtle effect was that it made Jones' religion appear incompatible with Muslim beliefs.

The influence of cultural leaders will be restricted by several factors. Leaders are not totally free to choose values of u_{ij} but will typically build on a history of interpretations and cultural services. In the following section we will first analyze the incentives of unconstrained leaders and compare these to the welfare of the population. How these findings translate into a more realistic setup where leaders face restrictions is then discussed in Sections 4 and 5. Our explicit analysis will be derived for (the leader of) group 2, the economically disadvantaged group.

3 Results with Unconstrained Leaders

We first look at the leader of the economically disadvantaged group and his incentive to change ingroup sentiments u_{22} and u_{21}. For the time being we take economic variables as given. The manipulation of the economic opportunities of different traits will be discussed in section 5. As can be seen from the definition

$$\Delta_2 \equiv u_{22} - u_{21} + w_2 - w_1$$

both an increase in the utility derived from the own culture, u_{22}, and a decrease in the perceived utility of a conversion, u_{21}, increases Δ_2 and hence the demand

for cultural education by group 2. Our model confirms that increasing this perceived cultural difference is always in the interest of the leader of group 2.

Proposition 1 *If cultural leaders of the economically disadvantaged group can affect u_{22} and u_{21} they will increase u_{22} and lower u_{21} - regardless of their utility function. The economically disadvantaged population always benefits form an increase of u_{22} but suffers when u_{21} decreases.*

Proof. See Appendix A. ∎

The cultural leader has always an incentive to raise the perception of cultural differences as this motivates parents to educate their children (raises Δ_2).[14] An increase in the difference can be either achieved through the provision of cultural values (raising u_{22}) or through claims of cultural superiority which make the other culture appear inferior (lowering u_{21}). Both appear symmetric from the point of view of the cultural leader - regardless of her utility function.

This indifference between increasing u_{22} and lowering u_{21} does not apply to parents. Parents have to live with a chance that their children change culture. Low values of u_{21} imply that parents educate their children mostly out of fear. High values of u_{22} mean that high perceived benefits drive education.

Despite its simplicity our model provides a strong and robust message. Fear can be in the interest of those driven by a religious mission - regardless of whether this religious mission applies to the overall outcome or the leader's direct influence. Our model is particularly realistic for those leaders who are not connected to the earthly interests of their community but focus on values in the metaphysical religious world (saving souls). Communities prefer to be motivated by the joy and fulfillment that their religion provides.

If we take a narrow religious interpretation the model can be recast as a belief in heaven and hell. Proposition 1 then shows that parents who are motivated by heaven benefit from this belief. A family that is motivated by the prospect of hell suffers. Brañas-Garza et al (2010) use a dataset of 35000 individuals from 32 countries who state both their beliefs and their church attendance to test for asymmetries in the incentive effects of heaven and hell.[15] Their data reveal that, firstly, the believers in hell are a subset of those believing in heaven. Secondly, both explain some part of church attendance with beliefs in heaven playing the more important role. In the reading of proposition 1 this suggests a positive welfare effect of religious belief.

Up until now we focused on the influence of the cultural leader on Δ_2. As explained in the previous section cultural leaders also represent their culture towards the outside. This means the leader of culture 2 has influence on

$$\Delta_1 \equiv u_{11} - u_{12} + w_1 - w_2$$

---

[14] For the time being we ignore the cost side of the different strategies. Notice that for costly changes in culture, the result can be interpreted as saying that cultural leaders will maximize $u_{22} - u_{21}$ subject to the cost of producing the difference.

[15] This data is taken from the module on National Identity of the 1998 International Social Survey Program (ISSP): Religion II.

through her influence on how her culture is perceived by the outgroup: u_{12}. Surprisingly, the leader is not necessarily interested in making his culture look good and might want to lower the cultural perception of the outgroup towards the ingroup which we will refer to as *cultural alienation*.

Proposition 2 *A decrease in u_{12} is the interest of the leader of culture 2 if she is motivated by warm glow incentives and as long as group 2 is sufficiently large ($q^* < \frac{1}{2}$). A decrease in u_{12} is never in the interest of a leader with public good incentives and members of group 2.*

Proof. See Appendix B. ■

Proposition 2 states that cultural leaders with warm glow motivations can benefit from alienating other cultures even though this strategy is clearly harmful to their followers. In our model, alienation of the outgroup is in the leader's interest because it leads to a new steady state in which increased fear in the outgroup has spilled over into higher educational effort in the ingroup. The cost is a smaller group. The new steady state features less members of group 2. This can be beneficial for the leader if she prefers a small radical group to a larger unmotivated group.[16]

Gould and Klor (2012) provide evidence for this mechanism. They study hate crimes against Muslim immigrants in the US in the aftermath of the September 11 attacks. They exploit exogenous variations across states in the number of crimes to show that Muslim immigrants living in states which experienced the sharpest increase in hate crimes also experience the sharpest increase in cultural effort.[17] The religious motives of the terrorists are well-documented. It is a declared goal of al-Quaeda to bring more Muslims into a radical version of Islam that follows the Sharia closely.

A leader with public good motivation represented by utility function (11) does not benefit directly from higher demand for her culture (d_2^*). She only cares about the total number of members in group 2 and therefore suffers a loss if culture 1 is alienated. Members of group 2 do not suffer directly but because group 1 is alienated and therefore tries harder to prevent the spread of culture 2. Increased effort in group 1 makes group 2 lose members and the remaining members have no choice but to put more effort into education as well.

A first corollary from propositions 1 and 2 is that only an increase of u_{ii} is beneficial for society at large. This allows us to conclude immediately that a social planner would only allow for the use of this channel and try to get perceptions about the other culture as close as possible to its true value. Without inherent taste differences this always leads to either two completely symmetric traits or to the survival of only one trait.

---

[16] The underlying mechanism is not unrealistic. Cohen-Zada (2006), for example, studies enrollment rates in Catholic private schools. He finds a strongly concave relationship between local enrollment in private Catholic schools and the share of Catholics in the local population.

[17] The measures for cultural effort are higher probability of within group marriages, higher fertility rates, lower female labor force participation and lower English proficiency.

Leaders in the economically advantaged group have the same interests as their peers in the economically disadvantaged group with similar effects on their group members.

Corollary 1 *Cultural leaders of both cultural groups share an interest in escalating fear of conversion. At least one leader always has an incentive to alienate the outgroup.*

According to corollary 1 cultural leaders have an incentive to provoke intolerance and fear on both sides of an existing cultural boundary. This provides a novel interpretation of the "clash of civilizations" and the role of cultural leaders. The "clash" in our model is a clash of viewpoints on the same culture - the view from inside and the view from outside. Proposition 1 shows that leaders generally have an incentive to make other cultures look bad to discourage conversions. Proposition 2 shows that if leaders are warm glow motivated they can also benefit from making their own culture look bad in the eyes of outsiders. Welfare falls with this exaggeration of differences and incompatibilities.[18]

How realistic is this in the context of religion? Proposition 2 shows that a crucial question here is whether warm glow motivation is important for religious leaders. A study of the psychology of religious leaders is beyond the scope of this article. However, religious texts are full of promises of personal rewards so that warm glow motivation is per se not an unrealistic assumption. More importantly, perhaps, some religions contain more direct instructions. For example, Matthew 28:19-20 states:

"19 Go therefore and make disciples of all nations, baptizing them in[a] the name of the Father and of the Son and of the Holy Spirit, 20 teaching them to observe all that I have commanded you. And behold, I am with you always, to the end of the age."

This passage is remarkable not only because it gives the instruction to baptize and teach but because it establishes a direct link to a religious benefit. God is with those that baptize and teach his word. A strong belief in god can therefore mean strong warm glow motivation to mission. If we take our model literally then leaders of large Christian communities might have an incentive to alienate other religions.

4   Political Restrictions on the Behavior of Leaders

In this section we discuss political restrictions on the behavior of cultural leaders. We first explain why the control of cultural leaders is difficult. Section 4.1 discusses asymmetric information between leaders and their communities. While

---

[18]Note that our model implies that two groups of equal size provide larger incentives for leaders to engage in alienation. This connects our work to work on the role of polarization in ethnic conflict. See, for example, Esteban and Ray (1994) and Montalvo and Reynal-Querol (2005).

competition between leaders could be seen as a solution we show in section 4.2 that competition can backfire. Economic restrictions are discussed in section 5.

4.1 The Role of Information

Propositions 1 and 2 show that the behavior of cultural leaders can harm their community. One of the main reasons that the population can not defend its own interest against the leader is a lack of information.

One way to see this is to assume that the true cultural values u_{ii} are known to the respective population i but that the utility from a different culture j is unknown to the population but known to the leader. In this situation the leader will have an incentive to abuse her position and downplay u_{ij}. However, not all claims that culture j leads to low welfare will be believed and internalized by her group. One important restriction for the image of culture j displayed by leader i is the past and present behavior of group j. In such an environment corollary 1 enters with full force. Past and present provocations by the outgroup become ammunition to feed low perceptions of u_{ij}.[19] Violence, for example, creates new negative evidence against the group and could therefore be used strategically to radicalize existing conflicts.[20] In an ethnic conflict atrocities on both sides are used to strengthen group identification.[21]

Religion provides a fascinating case of asymmetric information. It is an element of many religions that the religious leaders provide a special connection to a world of beliefs that cannot be known. Once this belief in leaders is established the scope for abuse is almost infinite. Holy scripts tend to be guides of conduct approved by some supreme being leading to reward if followed and punishment if violated. Historically, few people could claim to be able to interpret the scripts, due to illiteracy or them being written in a foreign language.

An extreme example is the Medieval Catholic church which used its religious leadership to extract economic rents. An important aspect of the position of the church was that Catholic priests had an informational advantage[22] due to the fact that the bible was only available in Latin. Therefore, information about what was in the bible could not be contested. According to our theory

---

[19] Glaeser (2005) proposes a different model of conflict in which politicians make up hate messages and derives conditions under which the population does not check on stories they are told by politicians. We see our model as complementary: our model shows that leaders from both sides could actually have an incentive to cooperate in the creation of hatred. The cost of the creation of hate stories in our model would depend on the extend they are rooted in facts.

[20] Consider e.g. the September 11 attacks. The attacks increased prejudice (Kam and Kinder, 2007, Hitlan et al, 2007 and Sheridan, 2006) and hate crimes against Muslims and people of Middle Eastern origin (Oswald, 2002). The declared goal, less US military intervention, was not achieved.

[21] For us the real issue is not that whether or not stories of violence and cruelty are made up. What is fabricated by leaders is the link to the trait.

[22] Similarly, among Muslims the ulema (religious experts) class enjoyed a monopoly for the interpretation of the Quran and the deeds and words of the Prophet Muhammed - the hadith - for centuries. Knowledge was passed down through a chain of authorities or a line of recognized masters (see Cesari, 2009).

this facilitated abuses because it meant that values of u_{ij} were easier to manipulate. Indeed the Catholic church excessively used the prospect of hell for a sophisticated system of rent extraction.[23]

The reformer Martin Luther strongly opposed these practices of the Catholic Church. Interestingly, his remedy was a German translation of the bible. According to Luther the study of the bible was to lead to an 'universal priesthood of all believers'.[24] Copies of the text spread rapidly after 1517. Hence, the Reformation not only meant "market entry" as in the interpretation of Ekelund et al (2002) - which we discuss in the next subsection - but the spread of translated text also broke the scope for manipulation which should have changed welfare significantly.

4.2   Competition among leaders

In the above model the existence of leaders is taken as given and leaders do not have to worry about potential competitors. There are many situations with these monopolies, where leader entry is institutionally restricted, where leaders might manipulate these institutional rules in their favor and followers have little or no influence in appointing the leaders. In other situations leaders have to worry about potential competitors which might constitute a restriction to their behavior. Whether or not this limits abuses depends on the nature and extent of competition. To see this point, consider two different types of competition, internal competition where leaders compete for the same trait and external competition due to the possibility of launching a new trait. In what follows we will argue that only internal competition might reduce the use of aggressive clash strategies while external competition will intensify it. We also point to the limits of internal competition.

Internal competition would arise, for example if potential leaders can offer and commit to "trait platforms" and are then selected by the population. If parents foresee the consequences of their leader's choices correctly, internal competition is likely to be an effective tool to prevent abuses. However, leaders do not have an incentives to silence any attempts of alienation. In other words they might free-ride on existing radicals in the group. This explains e.g. why terror organizations with a strong religious or cultural emphasis are not easily condemned by leaders from their own culture. The ambiguous relationship of Basque nationalistic leaders to ETA in the Spanish democracy illustrates this point.

The entry of competing interpretations does not correspond to internal competition but should rather be understood as external competition, where the deviating interpretation corresponds to launching a new trade. This way of creating competition is likely to lead to extreme positions as the incentive to claim cultural superiority are amplified with rising competition. As shown by Bisin et al. (2008) and Montgomery (2008) if there are more than two cultural traits

---

[23] See Ekelund et al (2002) for a discussion.

[24] See Pelikan (2005). Becker and Woessmann (2009) show that protestantism indeed increased literacy.

a positive utility loss in case of a trait change ($\Delta_{ij} > 0$ for all $i \neq j$) is not sufficient for cultural survival. Using the same assumption on educational costs as in the present article, these papers show that the two types with the highest utility loss in case of a trait change - the two most "radical" types - survive but less radical types might become extinct. Hence, successful entry of a new types requires either strong economic advantages associated with the type or a high cultural dislike towards other types or both.

This prediction is in line with some of findings in the literature. Stark and Iannaccone (2002), for example, argue that secularization in Europe (low church attendance) is the result of low competition. Our model delivers an interesting caveat. We argue that competition can lead to worse outcomes if it is not based on increasing cultural value but increasing the fear of conversion. An excellent illustration of this tension is provided by Abramitzky et al (2009) who study the effect of Christmas on Hanukkah celebrations by Jewish families in the US. They show that the competition (Christmas) leads to higher expenses by Jewish parents during Hanukkah. The effect is strongest for those parents who (have to) fear conversion of their children most, i.e. expenditure on Hanukkah is higher in counties with a lower shares of Jews.

The Lutheran reformation discussed in the previous section provides an additional illustration of external competition. Luther organized a new church that cleverly used the old religion to provide cultural values and only introduced minimal changes. Moreover, he enhanced the cultural values by introducing hymns, many of which he wrote himself. But he also instilled cultural fear: salvation was only possible in the new faith. His intolerance was very pronounced with the directly competing cultural traits, Catholicism but also Judaism. He was more neutral towards Islam, a faith unlikely to be adopted by his potential followers. Lutheranism arose as the only way to escape hell.

The ulema class, scholars of Islamic law, also started to experience external competition with the spread of secular education systems leading to the birth of a Muslim intellectual class that claims to speak on behalf of Islam. Nowadays the vast majority of the most influential Muslim thinkers are graduates from secular universities who do not belong to the ulema.(Cesari, 2009) This competition among leaders which is facilitated by the modern communication technologies has coincided with the birth of more fundamentalist and radical Islamic groups.

In a world where cultural categorizations are hard to avoid, leadership competition is more likely to increase the use of aggressive clash strategies than to decrease it. Mutual violence, for example, instead of leading to the questioning of leaders, might allow leaders to emphasize cultural identities and differences even more. Moreover, emphasizing existing cleavages can have the effect to rally people behind their leaders.[25] Toft (2007) argues that this effect can be so strong that religious symbols are adopted by political leaders in civil wars to receive aid from outside.

---

[25] The rally around the flag effect is mainly studied for leaders involved in interstate conflict. See e.g. Baker and Oneal (2001) for rally around the flag effects in the US and Lai and Reiter (2005) for rally around the flag effects in the UK.

5 The Role of Economic Opportunities

An interesting question is how the differences in economic opportunities between the two traits affects the warm glow leader's incentive for alienating the outgroup. To answer that question we first rewrite the equilibrium group size of the economically advantaged group introducing (5) and (6) into (8) as

$$q^* = \frac{u_{11} - u_{12} + w_1 - w_2}{u_{11} - u_{12} + u_{22} - u_{21}}.$$

Note that the wage gap $w_1 - w_2$ increases the size of q^*, i.e. it lowers the size of group 2. Economic benefits have a direct impact on educational effort and the spread of culture. By proposition 2 alienation is only used by sufficiently large economically disadvantaged groups. If q^* increases due to an increase in $w_1 - w_2$ then u_{12} needs to increase to decrease q^* again. In other words, a leader of an economically disadvantaged group has a lower "capacity for alienation" (requires a higher u_{12}) for any given u_{22}. This comparative static can be interpreted as a connection between economic well-being and cultural arrogance. The better-off a trait is relatively, the more alienating its cultural leaders want to behave. This is in line with Chen (2010), for example, who shows that the Indonesian financial crises lead to an increase in religious (Islamic) intensity. Since Islamic institutions provided insurance and the possibility of consumption smoothing, the economic benefits associated with being a Muslim increased relatively and so did the size of the group.

One extreme form of cultural alienation is terrorism: terrorist attacks might destroy cultural goods of the outgroup but will definitely lead to increased dislike by the outgroup towards the ingroup. Consistently with our above prediction Berman and Laitin (2008) present empirical findings that terrorist missions organized by radical religious clubs that provide benign local public goods are more lethal than missions organized by other terrorist groups with similar aims and theologies. According to our model this finding is due to the fact that leaders of these groups know that the group will survive even strong negative pressures on their members.[26]

5.1 When alienation leads to economic discrimination

In addition to the level effect described above economic opportunities could also influence the marginal incentives of cultural leaders. Take, for example, an immigrant minority. If their leader successfully alienates the majority, it is likely that this manipulation does not only affect how much cultural dislike the majority parents feel in case of a trait change of their child, but also the economic opportunities of the members of the minority. In other words, increased cultural fear might translate into increased discrimination.[27]

---

[26] Berman and Laitin (2008) argue that these groups have a technological advantage for more lethal attacks. Our model explains why their leaders want to use lethal attacks in the first place.

[27] To take the extreme example of terrorism: Kaushal et al. (2007), Dávila and Mora (2005) and Rabby (2007) find significant economic repercussions for Muslims and Arabs living in the

Can this reaction of the economic situation restrict leaders? To answer this question we introduce an explicit link between wage discrimination against the economically disadvantaged group and the cultural fear of the economically advantaged group. Assume that

$$w_1 - w_2 = \alpha \left(u_{11} - u_{12} \right) \tag{12}$$

where $\alpha \geq 0$ measures how much cultural dislike translates into discrimination. Proposition 3 shows that the more group 2's economic opportunities react to how it is perceived by group 1, the smaller is the scope for alienation.

Proposition 3 *The optimal level of u_{12} (from the perspective of group 2's leader) is increasing in α.*

Proof. See Appendix C ∎

An interesting and surprising implication of Proposition 3 is that any policy that destroys the link between increased alienation and increased wage differences - instead of helping the minority - might backfire because it increases their leader's capacity for alienation. The presence of a secular leader in our model who tries to maximizes the overall economic rents in society by e.g. imposing institutional constraints on wage discrimination might have this effect. By reducing the economic disadvantage of group 2, this secular leader could make the cultural leader of the economically disadvantaged group more aggressive.

A different reason why wage differences might not react to alienation is that group 2 has developed its own sub-economy that is independent of cultural sentiments in group 1.[28] Put differently, economic interaction between cultures can prevent cultural alienation. Our model therefore provides an explanation for the well-documented link between economic integration and good inter-cultural relations.[29]

Proposition 3 suggests that the cultural leader can be interested in isolating the minority economically. In Appendix D we discuss this possibility further and show that cultural leaders of sufficiently intolerant minority groups - groups with a sufficiently high level of cultural dislike towards the majority group - will always destroy economic integration. In doing so, they reduce the size of their own group but benefit from an increased education effort resulting from the possibility of higher alienation under economic isolation of the minority group.

5.2 Cultural Diversity and Network Effects

The above analysis does not allow for any link between cultural diversity and economic payoffs. However, there are good reasons to think that such a link ex-

---

US and the UK following the 9/11 and London attacks.

[28] It is not uncommon that the minority develops an informal sector that relies on minority social networks for enforcement etc.

[29] For a review of the empirical literature see Rohner et al (2011).

ists.[30] A simple way to model this in our framework is to assume that economic opportunities improve with a function $d = q(1-q)$ so that income is highest at $q = \frac{1}{2}$. Cultural leaders who maximize group size will have the tendency to drive society away from diversity while cultural leaders with warm glow motivation have an intrinsic incentive to keep society culturally diverse. However, the use of alienation to achieve this will harm welfare.

Diversity can harm welfare if a common culture facilitates economic interactions (Lazear, 1999). A simple way to incorporate this into our model is to allow for network effects, i.e. economic benefits increase with the size of the group. Network effects could be present in both cultural group or only in the economically disadvantaged group. This latter interpretation is especially relevant if group 2 represents an economically disadvantaged immigrant group where some of the economic benefits depends on the immigrant network, so that the new economic benefits are $w_2 + e(1-q)$ where e is the marginal network benefit and $w_1 > w_2 + e$ so that group 1 is always economically advantaged. Since the main function of one-side network effects is to reduce the economic disadvantage of trait 2, one-sided network effects allow warm glow leaders to increase cultural alienation.[31] Matters are different if network effects are present in both groups, i.e. the economic benefit of group 1 is

$$w_1 + eq \tag{13}$$

while the economic benefit of group 2 is

$$w_2 + e(1-q). \tag{14}$$

In appendix E we show that small e make a warm glow leader of group 2 culturally less aggressive, i.e. she reduces cultural alienation (increases u_{12}) but the opposite happens once the network effect becomes sufficiently important. Nevertheless, the overall level of cultural alienation will always fall short of the optimum without positive network effects. The intuition of the result is as follows. When network effects are zero ($e = 0$), we are back to our original model and the warm glow leader chooses the level of u_{12} optimally such that $q^{e=0} = \frac{1}{2}$. With network effects, the size of $e > 0$ and hence the importance of network effects do not only affect the steady state group size but also the perceived utility difference between traits (Δ_1 and Δ_2) directly and indirectly through its effect on the steady state. Importantly, a trait change leads to a higher utility loss whenever one's group is in a majority, and to a lower utility loss when one's group is in the minority compared to the base line model. The overall utility loss from a trait change is increasing in group size due to the positive network effects. This drives the warm glow leader towards less cultural alienation (increases u_{12}) and hence bigger group sizes. However, when the group becomes too big, free-riding starts to dominate and the education effort

---

[30] We thank an anonymous referee for pointing this out. For a survey on the positive and negative effects of ethnic diversity on economic policies and outcomes see Alesina and La Ferrara (2005).

[31] A detailed analysis can be obtained from the authors upon request.

per group member falls, hence when the network effect becomes very important (e large) a warm glow leader wants to increase cultural alienation but still wants its group to be a majority.

6 Salience and Identity

Our model focuses on one particular cultural trait and shows how the true and perceived benefits linked to the trait might be manipulated by cultural leaders. An alternative approach is to argue that people have multiple identities and cultural leaders try to influence the salience of these different identities. If this intensity of identification is a free choice[32] then the influence of cultural leaders is small. However, there are good reasons to believe that people can be pushed into certain identity roles against their will. The following account due to Sara Wajid, a Muslim journalist living in the UK in the aftermath of the London terror attacks July 2005 illustrates this.

But most British Muslims have experienced the fetishisation of our religious identity over our citizenship - and are exhausted by it. A lower profile would be great. In fact, a return to the closet would be a blessed relief. I miss the relative anonymity of being British Asian.[33]

When will cultural leaders stress cultural identities over citizenship? What are their incentives to do so? Our model can be easily modified to address these questions. Assume that there are two possible identities, one where members of a society understand themselves (are seen) merely as "citizens" and one where people see themselves (are seen) through a cultural identifier which separates people in group 1 and group 2. Society, in particular group leaders, determine the intensity by which members of the society carry a group identity which we call γ. To emphasize that γ might be forced upon individuals we assume the same γ for both groups. With these assumptions the group 1 parent chooses the education effort d_1 which solves

$$\max_{d_1} d_1 \left(\gamma u_{11} + w_1\right) + \left(1 - d_1\right) \left(q \left(\gamma u_{11} + w_1\right) + \left(1 - q\right) \left(\gamma u_{12} + w_2\right)\right) + \left(1 - \gamma\right) u - \frac{1}{2} d_1^2$$

where where u is simply the cultural benefit from a "citizen" identity.

Equivalently a parent of group 2 maximizes

$$\max_{d_2} d_2 \left(\gamma u_{22} + w_2\right) + \left(1 - d_2\right) \left(\left(1 - q\right) \left(\gamma u_{22} + w_2\right) + q \left(\gamma u_{21} + w_1\right)\right) + \left(1 - \gamma\right) u - \frac{1}{2} d_2^2$$

In this set-up motivation to educate rises in γ. This can be seen from the motivational factor

$$\Delta_1' \equiv \gamma \left(u_{11} - u_{12}\right) + w_1 - w_2 \tag{15}$$

and

$$\Delta_2' \equiv \gamma \left(u_{22} - u_{21}\right) + w_2 - w_1. \tag{16}$$

---

[32] For models where indivudals can choose freely among to different identities see Penn (2008) and Shayo (2009).

[33] New Statesman 2009, p.

The resulting equilibrium group size of the group 1 is

$$q^* = \frac{\gamma\left(u_{11} - u_{12}\right) + w_1 - w_2}{\gamma\left(u_{11} - u_{12}\right) + \gamma\left(u_{22} - u_{21}\right)} \tag{17}$$

It is easy to show that group size only increases in γ if the group is discriminated against in the labor market. Hence leaders with public good motivation have an interest in raising γ if and only if their group is economically disadvantaged.

We show in Appendix F that warm glow motivated leaders of both sides have an interest in raising γ for most parameter values.[34] This consensus by cultural leaders from both sides stresses - once again - the common interests that arise due to leaders benefitting from educational effort of their group.

Interestingly, a rise in γ might also benefit the population. The reason is that a cultural identity can give access to cultural goods that are not accessible with a simple citizen identity ($u_{ii} > u$). Driven by these benefits, citizens have a clear incentive to support the rise of γ. As before, incentives between leaders and the community are aligned if cultural identities are characterized by benefits (high u_{ii}) not fear (low u_{ij}).

The resulting trade-offs for cultural leaders are best illustrated at the example of immigrants in a largely ignorant and discriminating majority. In our model, the negative judgements of the majority will be reflected in an economic handicap $w_1 - w_2$. In other words, the survival of the immigrant trait will be threatened. How can cultural leaders react? They may either exert control over their members by encouraging them to conform their appearance in order to minimize alienation and discrimination. The outcome would be low values for γ and the long-term decline of the trait if the strategy does not bear fruits in terms of lower values for $w_1 - w_2$ quickly. The alternative is that leaders encourage their members to live their group identities strongly and isolate them from the majority - at the potential costs of cementing the labor market situation. According to Levinson (2003) the experiences of Jewish Americans and African Americans in the early twentieth century illustrate both of these strategies. Factions within each of these minorities attempted to steer other members toward avoiding discrimination by assimilating or, alternatively, militantly embracing group identity. Our model indicates that strong cultural values (high u_{22}) within these groups mean that minority members might favor a solution with strong group identities.

7 Discussion

This article embedded the question of cultural conflict into the economic literature of cultural transmission of preferences. In our model, culture is provided by cultural leaders who also shape its content. We show that intrinsically motivated leaders have an incentive to stress incompatibilities between their own

---

[34] We show in the appendix that leader 2 always has an interest in raising γ. Leader 1 has an interest in raising γ as long as group 1 is sufficiently large.

and other cultures. More surprisingly, cultural leaders have an incentive to raise sensitive issues to alienate other cultures. We show that this behavior harms welfare. If outside and inside views on a culture diverge, cultural education is increasingly driven by the fear of conversion rather than the maintenance of positive values.

We present our model in terms of cultural transmission of preferences from parents to children. This interpretation makes a lot of sense in our main application, since inconsistencies in religious beliefs stand side by side with individuals in different groups attempting to keep their children inside their faith. However, the model could also apply to a possible future trait change by the same individual. In this interpretation a person today ("parent") chooses the cultural effort to reduce the probability of a trait change by the future self ("child"). This interpretation would be in line with Carvalho's (forthcoming) model of veiling, where veiling is chosen to reduce the probability of successfully being tempted towards non-Muslim values in the future.

Our analysis studies the optimal manipulation by cultural leaders at steady state but not on the dynamic transition path to steady state. The latter exercise would require studying a dynamic game where forward looking leaders fully take the dynamic effects of their manipulation of cultural values on the evolution of cultural values into account. While this is beyond the scope of the paper, the present analysis can still give us some insights concerning leader's incentives for cultural manipulation on the transition path. The manipulation of ingroup cultural values immediately increases educational effort and group size next period. Therefore, our findings here apply fully off the equilibrium path.

The benefits of alienation are a second order effect, hence our equilibrium analysis does not directly apply to the transition path. However, it is not clear whether this eradicates the incentives to provoke other cultures. It is possible that cultural leaders have an incentive to overshoot cultural alienation on the transition path to speed up convergence to the new steady state, since adjustment in education effort lack behind adjustments in group size.

More importantly, perhaps, the fact that the effect of alienation hits the group members indirectly raises the difficulties of making leaders accountable for welfare losses. This could explain why cultural conflict is so hard to tackle and calm.

Even if we accept the fact that there are pre-existing cultural identities, it is important to differentiate the image that cultures cast of themselves from the image that other cultures cast of them. It is in this difference in perceptions that the clash of civilizations can be observed and fought productively.

References

[1] Abramitzky, Ran, Liran Einav and Oren Rigbi (2009) "Is Hanukkah Responsive to Christmas?", *The Economic Journal*, 120, 612-630

[2] Alesina, Alesina and Eliana LaFerrara (2005) "Ethnic Diversity and Economic Performance", *Journal of Economic Literature*, 43(2): 762-800.

[3] Baker, William D. and John R. Oneal (2001) "Patriotism or Opinion Leadership?: The Nature and Origins of the "Rally 'Round the Flag" Effect", *The Journal of Conflict Resolution* 45(5) 661-687.

[4] Becker, Sascha and Ludger Woessmann (2009) "Was Weber Wrong? A Human Capital Theory of Protestant Economic History", *Quarterly Journal of Economics,* 124 (2), 531-596.

[5] Berman, Eli (2003a) "Hamas, Taliban and the Jewish Underground: An Economist's View of Radical Religious Militia", NBER Working Paper 10004.

[6] Berman, Eli and Laitin, David (2008) "Religion, terrorism and public goods: Testing the club model", *Journal of Public Economics* 92: 1942–1967.

[7] Berman, Paul (2003b) Terror and Liberalism, W.W. Norton. New York.

[8] Bisin, Alberto and Thierry Verdier (2001) "The economics of cultural transmission and the dynamics of preferences" *Journal of Economic Theory* 97: 298-319.

[9] Bisin, Alberto, Giorgio Topa and Thierry Verdier (2008) "Cultural Transmission, Socialization and the Population Dynamics of Multiple State Traits Distributions" *International Journal of Economic Theory* 5: 139-154.

[10] Brañas-Garza, Pablo, Teresa Garcia-Muñoz and Shoshana Neuman (2010) "The Big Carrot: High-stakes Incentives Revisited", *Journal of Behavioral Decision Making* 23: 288–313.

[11] Carvalho, Jean-Paul (Forthcoming) "Veiling", *Quarterly Journal of Economics.*

[12] Cesari, Jocelyne (2009) "Islam in the West: From Immigration to Global Islam", *Harvard Middle Eastern and Islamic Reciew* 8: 148-175.

[13] Chaney, Eric (2012) "Democratic Change in the Arab World, Past and Present". mimeo. Harvard University.

[14] Chaney, Eric (2011) "Revolt on the Nile: Economic Shocks, Religion and Political Influence". mimeo. Harvard University

[15] Chen, Daniel L. (2010) "Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis", *Journal of Political Economy* 118(2), 300-354.

[16] Cohen-Zada, D., 2006. "Preserving religious values through education: Economic analysis and evidence from the US," *Journal of Urban Economics* 60(3), 372-398.

[17] Dávila, Alberto and Marie T. Mora (2005) "Changes in the earnings of Arab men in the US between 2000 and 2002" *Journal of Population Economics* 18: 587–601.

[18] Ekelund, Robert , Robert Hébert and Robert Tollison (2002) "An Economic Analysis of the Protestant Reformation". *Journal of Political Economy,* 110(3), 646-671.

[19] Esteban, Joan-Maria and Debraj Ray (1994) "On the Measurement of Polarization" *Econometrica* 62(4): 819-851.

[20] Fox, Jonathan (2001) "Two Civilizations and Ethnic Conflict: Islam and the West", Journal of Peace Research 38(4):459-472.

[21] Glaeser, Edward L. (2005) "The Political Economy of Hatred", *The Quarterly Journal of Economics 120(1):* 45-86.

[22] Gould, Eric D. and Esteban F. Klor (2012) "The Long-Run Effects of 9/11: Terrorism, Bachlash and the Assimilation of Muslim Immigrants in the West", CEPR DP 8797.

[23] Hammond, Ross and Robert Axelrod (2006) "The Evolution of Ethnocentrism", *Journal of Conflict Resolution*, 2006 (50), 926.

[24] Harbaugh, William, Ulrich Mayr and Daniel Burghart (2007) Neural Responses to Taxation and Voluntary Giving Reveal Motives for Charitable Donations. Science, 316, pp. 1622-1625.

[25] Hauk, Esther and Maria Saez-Marti (2002) "On the cultural transmission of corruption", *Journal of Economic Theory* 107: 311–335.

[26] Hauk, Esther and Hannes Mueller (2011) "Cultural Leaders and the Clash of Civilizations", Barcelona GSE Working Papers Series nᵒ 481

[27] Hitlan, Robert T. and Kimberly Carrillo and Michael A. Zárate and Shelley N. Aikman (2007) "Attitudes Toward Immigrant Groups and the September 11 Terrorist Attacks" *Peace and Conflict: Journal of Peace Psychology* 13(2): 135–152.

[28] Huntington, Samuel P. (1993) "The Clash of Civilizations?", *Foreign Affairs* 72(3): 22-49

[29] Huntington, Samuel P. (1996) *The Clash of Civilizations and the Remaking of World Order.* Simon & Schuster. New York.

[30] Inglehart, Ronald and Pippa Norris (2002) "Islam and the West: Testing the Clash of Civilization Hypothesis", Comparative Sociology 1: 235-263

[31] Inglehart, Ronald and Pippa Norris (2003) "The True Clash of Civilizations", Foreign Policy 135: 62-70

[32] Kam, Cindy D. and Donald R. Kinder (2007) "Terror and Ethnocentrism: Foundations of American Support for the War on Terrorism" *The Journal of Politics* 69(2): 320–338.

[33] Kaushal, Neeraj, Robert Kaestner and Cordelia Reimers (2007) "Labor Market Effects of September 11th on Arab and Muslim Residents in the United States", *J Human Resources* XLII(2): 275-308.

[34] Lai, Brian and Dan Reiter (2005) "Rally 'Round the Union Jack? Public Opinion and the Use of Force in the United Kingdom, 1948–2001", *International Studies Quarterly* 49, 255–272.

[35] Lazear, E. (1999) "Culture and Language", *Journal of Political Economy* 107(S6): S95-S126.

[36] Levinson, D. J. (2003) "Collective Sanctions" *Stanford Law Review* 56: 345-428.

[37] Montalvo, José G. and Marta Reynal-Querol (2005) "Ethnic Polarization, Potential Conflict, and Civil Wars," *American Economic Review* 95(3): 796-816.

[38] Montgomery, James, D. (2008) "Intergenerational Cultural Transmission as an Evolutionary Game", mimeo, Department of Sociology, University of Wisconsin-Madison.

[39] Oswald, Debra L. (2005) "Understanding Anti-Arab Reactions Post-9/11: The Role of Threats, Social Categories and Personal Ideologies" *Journal of Applied Social Psychology* 35(9): 1775-1799.

[40] Pelikan, Jaroslav (2005) *Whose Bible Is It? A History of the Scriptures.* Penguin. New York.

[41] Penn, Elizabeth Maggie. 2008. "Citizenship versus Ethnicity: The Role of Institutions in Shaping Identity Choice." *Journal of Politics* 70:956–73.

[42] Rabby, Faisal (2007) "The Post-9/11 Labor Markets for "Muslims" in the West – Evidence from the USA and the UK" Working Paper Department of Economics, Rutgers University.

[43] Rohner, Dominic, Mathias Thoenig and Fabrizio Zilibotti (2011) "War Signals: A Theory of Trade, Trust and Conflict," CEPR Discussion Papers 8352.

[44] Sen, Amartrya (2006) *Identity and Violence: The Illusion of Destiny,* W.W.Norton & Comany, Inc. New York.

[45] Shayo, Moses (2009) "A Model of Social Identity with an Application to Political Economy: Nation, Class, and Redistribution" *American Political Science Review* Vol. 103, No. 2 May 2009

[46] Sheridan, Lorraine P (2006) "Islamophobia Pre– and Post–September 11th, 2001 " *Journal of Interpersonal Violence* 21 (3): 317-336.

[47] Stark, Rodney and Laurence R. Iannaccone (2002) "A Supply-Side Reinterpretation of the "Secularization" of Europe", *Journal for the Scientific Study of Religion*, Vol. 33, 3, pp. 230-252.

[48] Toft, Monica Duffy (2006) "Religion, Civil War and International Order", BCSIA Discussion Paper 2006-03, Kennedy School of Government, Harvard University

[49] Toft, Monica Duffy (2007) "Getting Religion? The Puzzling Case of Islam and Civil War", *International Security* 31 (4): 97-131

A   Proof of Proposition 1

Note first that the influence of increasing u_{22} and lowering u_{21} for the cultural leader goes only through increasing Δ_2. The size of group 2 $(1 - q^*)$ increases with Δ_2 because

$$\frac{\partial q^*}{\partial \Delta_2} = -\frac{\Delta_1}{(\Delta_1 + \Delta_2)^2}.$$

This immediately implies that a leader who maximizes groups size is interested in raising Δ_2.

The derivative of (10) with respect to Δ_2 is given by

$$
\begin{aligned}
\frac{\partial U_2\left(warmglow\right)}{\partial \Delta_2} &= \frac{\partial \Delta_2 q^*\left(1 - q^*\right)}{\partial \Delta_2} \\
&= q^*\left(1 - q^*\right) - \Delta_2 \frac{\Delta_1}{(\Delta_1 + \Delta_2)^2}\left(1 - 2q^*1\right) \\
&= q^*\left(1 - q^*\right) + \left(1 - q^*\right) q^*\left(2q^* - 1\right) > 0
\end{aligned}
$$

Hence, religious leaders would always like to set the maximal difference $u_{22} - u_{21}$.

The utility of group 2 is given by

$$U_2 = u_{22} + w_2 - \left(1 - d_2\right) \Delta_2 q - \frac{1}{2} d_2^2$$

or, in equilibrium,

$$U_2 = u_{22} + w_2 - d_2^* + \frac{1}{2}\left(d_2^*\right)^2 \tag{18}$$

24

so that

$$\frac{\partial U_2}{\partial u_{21}} = -\frac{\partial d_2^*}{\partial u_{21}} \left(1 - d_2^*\right) < 0$$

For a change in u_{22} the calculation is

$$\frac{\partial U_2}{\partial u_{22}} = 1 - \frac{\partial d_2^*}{\partial u_{22}} \left(1 - d_2^*\right) > 0.$$

because

$$\frac{\partial d_2^*}{\partial u_{22}} = q^* - q^* \left(1 - q^*\right) < 1.$$

In summary, group 2 always benefits from an increase in u_{22} and suffers from a decrease in u_{21}.

B Proof of Proposition 2

Note first that the influence of decreasing u_{12} and increasing u_{11} for the cultural leader of group 2 goes only through increasing Δ_1. The size of the group 2 $(1-q^*)$ decreases with Δ_1 because

$$\frac{\partial q^*}{\partial \Delta_1} = \frac{\Delta_2}{\left(\Delta_1 + \Delta_2\right)^2} > 0.$$

This immediately implies that a leader of group 2 who maximizes group size is interested in lowering Δ_1 and therefore never wants to lower u_{12}.

The incentives of a warm glow leader can be studied by looking at the derivative of (10) with respect to Δ_1, namely

$$\frac{\partial U_2 \left(warmglow\right)}{\partial \Delta_1} = \Delta_2 \left(1 - 2q^*\right)$$

which is positive for all $q^* < \frac{1}{2}$, hence a warmglow leader is interested in decreasing u_{12} as long as $q^* < \frac{1}{2}$.

The equilibrium utility of group 2 is given by (18) which can be rewritten using equilibrium $d_2^* = \Delta_2 q^*$ as

$$U_2 = u_{22} + w_2 - \Delta_2 q^* + \frac{1}{2} \left(\Delta_2 q^*\right)^2$$

Note that the change of utility with $\Delta_2 q^*$ therefore is

$$\frac{\partial U_2}{\partial \Delta_2 q^*} = -1 + \Delta_2 q^* < 0$$

as $\Delta_2 q^* < 1$.

Now we are ready to show that cultural alienation is not in group 2's interest. Cultural dislike towards group 2 affects the utility of group 2 through $\Delta_2 q^* =$

25

$\frac{\Delta_1\Delta_2}{\Delta_1+\Delta_2}$ as follows

$$\begin{aligned}
\frac{\partial \Delta_2 q^*}{\partial \Delta_1} &= \frac{\Delta_2 \left(\Delta_1 + \Delta_2\right) - \Delta_1\Delta_2}{\left(\Delta_1 + \Delta_2\right)^2} \\
&= \frac{\Delta_2^2}{\left(\Delta_1 + \Delta_2\right)^2} > 0
\end{aligned}$$

which means that

$$\frac{\partial U_2}{\partial \Delta_1} < 0.$$

hence a decrease in u_{12} always harms group 2.

C   Proof of Proposition 3

Using the assumed linked between cultural perception and wage discrimination stipulated by (12) we get the following fear of a trait change parameters:

$$\begin{aligned}
\Delta_1^\alpha &= (1+\alpha)\left(u_{11} - u_{12}\right) \\
\Delta_2^\alpha &= \left(u_{22} - u_{21}\right) - \alpha\left(u_{11} - u_{12}\right) \\
\Delta_1^\alpha + \Delta_2^\alpha &= \left(u_{11} - u_{12}\right) + \left(u_{22} - u_{21}\right)
\end{aligned}$$

The stable equilibrium is given by

$$q_\alpha^* = \frac{(1+\alpha)\left(u_{11} - u_{12}\right)}{\left(u_{11} - u_{12}\right) + \left(u_{22} - u_{21}\right)} \tag{19}$$

We will present our analysis by discussing when the leader of group 2 has an incentive to increase the cultural dislike of the outgroup towards the ingroup. In general we define

$$f_i = u_{ii} - u_{ij} \tag{20}$$

as the cultural dislike of group i towards group j. Using this definition a warm glow leader of group 2 would like to increase the cultural dislike of group 1 towards its own group as long as this increases her utility, namely as long as

$$\frac{\partial U_2(warmglow)}{\partial f_1} = q(1-q)\frac{\partial \Delta_2^\alpha}{\partial f_1} + \Delta_2^\alpha(1-2q)\frac{\partial q}{\partial f_1} > 0 \tag{21}$$

Using the equilibrium q defined by (19) and $\Delta_2 = f_2 - \alpha f_1$ in the first order condition for the religious leader (21) we get after some algebra

$$\frac{\partial U_2(warmglow)}{\partial f_1} = \frac{\Delta_2(1+\alpha)}{(f_1 + f_2)^3}\left[\left(-\alpha f_1^2 - f_1 f_2(1+3\alpha) + f_2^2\right]\right.$$

We have to look at the sign of the square bracket only which is positive for

$$f_1 < f_1^\alpha = \frac{f_2}{2\alpha}\left(\sqrt{(1+3\alpha)^2 + 4\alpha} - (1+3\alpha)\right) \tag{22}$$

Hence the optimal level of cultural dislike towards the ingroup is given by f_1^α and we can show that

$$\frac{\partial f_1^\alpha}{\partial \alpha} = \frac{f_2}{2\alpha^2}\left[1 - \frac{1+5\alpha}{\sqrt{(1+3\alpha)^2 + 4\alpha}}\right] < 0$$

Observe that $u_{12} = u_{11} - f_1^\alpha$, hence a higher f_1^α implies a higher capacity of alienation, i.e. a lower perception of culture 2 by goup 1 (u_{12}). Since $\frac{\partial f_1^\alpha}{\partial \alpha} < 0$, the optimal u_{12} from the perspective of leader 2 is increasing in α, reducing the optimal level of cultural alienation.

D A minority sector

In an environment where cultural dislike towards the minority group and hence cultural alienation leads to more discrimination, the creation of a minority sector might benefit the cultural leader's interest since it puts an upper bound to wage discrimination. If discrimination is too high, everybody will move to the minority sector. Formally,

$$\begin{aligned}\Delta_1 &= (u_{11} - u_{12}) + w_1 - \max\{w_2, w_1 - \alpha(u_{11} - u_{12})\}.\\ \Delta_2 &= (u_{22} - u_{21}) - (w_1 - \max\{w_2, w_1 - \alpha(u_{11} - u_{12})\})\end{aligned}$$

where w_2 is now the wage in a separate minority sector while $w_1 - \alpha(u_{11} - u_{12})$ describes the wage of an integrating minority member, i.e. of a minority member that works in the majority sector and is subject to wage discrimination. To save on notation we will work with the cultural dislike parameters f_i defined by (20).

This model has two equilibrium candidates:

1. In the first candidate q^S there is separation in the labor market and cultural alienation does not have an effect on discrimination. Since Δ_2 is independent from f_1 we know from the previous analysis that the leader sets f_1^S such that

$$q^S = \frac{f_1^S + (w_1 - w_2)}{f_1^S + f_2} = \frac{1}{2}, \tag{23}$$

hence

$$f_1^S = f_2 - 2(w_1 - w_2) \tag{24}$$

2. In the second candidate q^I the labor market is integrated and cultural alienation affects the amount of labor market discrimination. Hence q^I is given by equation (19) namely by

$$q^I = \frac{(1+\alpha)f_1^I}{f_1^I + f_2} \tag{25}$$

and the optimal fear level was derived in Appendix C as

$$f_1^I = f_1^\alpha = \frac{f_2}{2\alpha}\left(\sqrt{(1+3\alpha)^2 + 4\alpha} - (1+3\alpha)\right) \tag{26}$$

Observe that separation will never be an equilibrium if the minority prefers to work in the discriminating majority sector for the optimal cultural fear parameter of the separation equilibrium candidate f_1^S. Similarly, labor market integration will never be an equilibrium if at f_1^I the minority prefers the minority sector. If both equilibria are feasible the cultural leader will implement the equilibrium that maximizes her utility.

Proposition 4 *The equilibrium outcomes are as follows*

1. *Labor market integration q^I if the cultural dislike of the minority towards the majority is low, namely*

$$f_2 < \frac{1 + 2\alpha}{\alpha}(w_1 - w_2) \tag{27}$$

2. *Labor market separation q^S if the cultural dislike of the minority towards the majority is high. In particular,*

$$f_2 > \frac{2(w_1 - w_2)}{\sqrt{(1 + 3\alpha)^2 + 4\alpha} - (1 + 3\alpha)}. \tag{28}$$

3. *For intermediate levels of cultural dislike of the minority towards the majority, namely*

$$\frac{1 + 2\alpha}{\alpha}(w_1 - w_2) < f_2 < \frac{2(w_1 - w_2)}{\sqrt{(1 + 3\alpha)^2 + 4\alpha} - (1 + 3\alpha)}$$

the religious leader will induce labor market separation q^S whenever

$$(1 - B)f_2 > (w_1 - w_2) \tag{29}$$

and the integration equilibrium q^I otherwise where $B < 1$ is defined by equation (31). Moreover $q^I < q^S$.

Proof. We first prove the different equilibria outcomes.

1. Let condition (27) hold and suppose for contradiction that separation is an equilibrium outcome. Then the optimal fear level f_1^S is given by (24). The minority will indeed choose not to integrate if $\alpha f_1^S > w_1 - w_2$. Replacing f_1^S by its value this condition can be rewritten as $f_2 > \frac{1+2\alpha}{\alpha}(w_1 - w_2)$ which contradicts condition (27).

2. Condition (28) is equivalent to $\alpha f_1^I > (w_1 - w_2)$ hence the minority will be better off in the minority sector.

3. When both equilibria are feasible it is easy to see that $q^I < q^S$ since $q^I > q^S$ would require $\alpha f_1^I > w_1 - w_2$ which would induce the minority to switch to the minority sector and make the integration equilibrium

disappear. To see which equilibrium is chosen by the leader we have to compare the leader's utilities in the different equilibria, namely

$$U^S_{2leader} = (f_2 - (w_1 - w_2)) \left(q^S\right) \left(1 - q^S\right)$$

with

$$U^I_{2leader} = \left(f_2 - \alpha f^I_1\right) \left(q^I\right) \left(1 - q^I\right)$$

Using the equilibrium values for q^I and q^S we get

$$U^S_{2leader} = (f_2 - (w_1 - w_2)) \frac{1}{4}$$

$$
\begin{aligned}
U^I_{2leader} &= \left(f_2 - \alpha f^I_1\right) \left(\frac{(1+\alpha)f^I_1}{f^I_1 + f_2}\right) \left(\frac{f_2 - \alpha f^I_1}{f^I_1 + f_2}\right) \\
&= \left(\frac{f_2 - \alpha f^I_1}{f^I_1 + f_2}\right)^2 (1+\alpha)f^I_1
\end{aligned}
$$

where f^I_1 is given by (26)). If both equilibria exist the leader is better off in the separation equilibrium if $U^S_{2leader} > U^I_{2leader}$ or equivalently if

$$(f_2 - (w_1 - w_2)) (f^I_1 + f_2)^2 - 4(f_2 - \alpha f^I_1)^2(1+\alpha)f^I_1 > 0 \qquad (30)$$

Replacing f^I_1 by its value in (30) and rearranging we obtain condition (29), where B is defined by

$$B = \frac{2k\,(1+\alpha)\,\alpha\,(2-k)^2}{(k+2\alpha)^2} \text{ with } k = \left(\sqrt{(1+3\alpha)^2 + 4\alpha} - (1+3\alpha)\right)$$

hence

$$B = \frac{2\alpha\,(\alpha+1)\left(\sqrt{9\alpha^2 + 10\alpha + 1} - (1+3\alpha)\right)\left(3\alpha - \sqrt{9\alpha^2 + 10\alpha + 1} + 3\right)^2}{\left(\alpha - \sqrt{9\alpha^2 + 10\alpha + 1} + 1\right)^2}$$

$$(31)$$

Straightforward but tedious calculations show that $B < 1$.

∎

Proposition 4 tells us that only leaders of sufficiently intolerant (high f_2) minority groups will be able to destroy labor market integration. Since the minority group will only be willing to work in the majority sector when there is little cultural dislike by the majority towards the minority, the proportion of the minority in the integrated labor market is higher than in the separated labor market when both labor markets are possible. Hence inducing the switch from the integration equilibrium to the separation equilibrium implies that the leader will cash in the education effort of fewer people. However, per capita education effort will be higher because direct and oblique socialization are cultural substitutes. Moreover, the effect of cultural dislike of the majority towards the

minority is different in the integrated and the separated labor market. In the integrated labor market cultural dislike of the majority towards the minority has an additional effect, namely it increases wage discrimination and thereby reduces the attractiveness of being a member of the minority. Once this effect is gone due to a switch to the minority sector, the marginal benefit for the cultural leader of increasing cultural dislike towards its own group makes a jump which explains why labor market separation might be optimal for the leader.

E   Network effects

If economic incentives in both groups partly depend positively on group size as in (13) and (14), the perceived utility differences Δ_i between trait i and j from the point of view of a trait i parent are given by

$$\begin{aligned}
\Delta_1 &= u_{11} - u_{12} + (w_1 - w_2) - (1 - 2q)e \\
\Delta_2 &= u_{22} - u_{21} - (w_1 - w_2) + (1 - 2q)e \\
\Delta_1 + \Delta_2 &= u_{11} - u_{12} + u_{22} - u_{21}
\end{aligned}$$

Using the fact that in equilibrium the fraction of individuals of trait 1 is given by

$$q = \frac{\Delta_1}{\Delta_1 + \Delta_2}$$

we can calculate the steady state fraction of trait 1 as

$$q^e = \frac{u_{11} - u_{12} + (w_1 - w_2) - e}{(u_{11} - u_{12} + u_{22} - u_{21} - 2e)}$$

Define $f_i = u_{ii} - u_{ij}$. Hence

$$q^e = \frac{f_1 + (w_1 - w_2) - e}{(f_1 + f_2 - 2e)}$$

and we can rewrite Δ_2 as

$$\Delta_2 = \frac{(f_2 - (w_1 - w_2) - e)(f_1 + f_2)}{(f_1 + f_2 - 2e)}$$

Notice that $\Delta_2 > 0$ for all q requires $e < f_2 - (w_1 - w_2)$

We want to understand the optimal choice of f_1 of a warmglow leader (which is equivalent to choosing u_{12} optimally for a fixed u_{11}). Given that

$$\frac{\partial \Delta_2}{\partial f_1} = -2e \frac{\partial q}{\partial f_1}$$

we get that

$$\frac{\partial U_2(warmglow)}{\partial f_1} = \frac{\partial q}{\partial f_1}(1 - q)\left[-2eq + (f_1 + f_2)(1 - 2q)\right]$$

30

Now

$$\frac{\partial q}{\partial f_1} = \frac{f_2 - e - (w_1 - w_2)}{(f_1 + f_2 - 2e)^2} > 0$$

So sign of $\frac{\partial U}{\partial f_1}$ depends on sign of

$$-2eq + (f_1 + f_2)(1 - 2q)$$
$$= \frac{-f_1^2 - f_1(2(e + w_1 - w_2)) + 2e^2 + f_2^2 - 2(w_1 - w_2)(e + f_2)}{f_1 + f_2 - 2e}$$

and the optimal f_1 is when this expression is zero, namely at

$$f_1^e = -(e + w_1 - w_2) + \sqrt{3e^2 + f_2^2 + (w_1 - w_2)^2 - 2f_2(w_1 - w_2)}$$

To understand how e affects this optimal choice we need to calculate

$$\frac{\partial f_1^e}{\partial e} = -1 + \frac{6e}{2\sqrt{3e^2 + f_2^2 + (w_1 - w_2)^2 - 2f_2(w_1 - w_2)}} \tag{32}$$

which at

$$\frac{\partial f_1}{\partial e}\Big|_{e=0} = -1$$

So weak network effects make the leader less aggressive. But (32) changes its sign from negative to postive at $e > \tilde{e} = \frac{(f_2 - (w_1 - w_2))^2}{6}$. We can also calculate when f_1^e overtakes the optimal f_1 without network effects, i.e. when

$$-(e + w_1 - w_2) + \sqrt{3e^2 + f_2^2 + (w_1 - w_2)^2 - 2f_2(w_1 - w_2)} > f_2 - 2(w_1 - w_2)$$

This is equivalent to

$$e > (f_2 - (w_1 - w_2))$$

but this case is ruled out since such an e would lead to $\Delta_2 < 0$.

F Group Identities and Salience

We first show that group size increases in salience if and only if the group is economically disadvantaged. The derivative of the group size the economically advantaged group (17) with respect to γ is

$$\frac{\partial q^*}{\partial \gamma} = -\frac{(u_{11} - u_{12} + u_{22} - u_{21})(w_1 - w_2)}{\gamma^2(u_{11} - u_{12} + u_{22} - u_{21})^2}$$

and hence negative due to its economic advantage. If it were economically disadvantaged it would gain in size from pronouncing cultural salience. However, for leaders with warm glow motives group size is not all that matters. The

benefit of a warm glow leader of the economically disadvantaged group changes with γ according to

$$
\begin{aligned}
\frac{\partial U_2(warmglow)}{\partial \gamma} &= \frac{\partial \left[\Delta_2' q \left(1 - q\right).\right]}{\partial \gamma} \\
&= \Delta_2' \left(1 - 2q\right) \frac{\partial q}{\partial \gamma} + q(1 - q) \frac{\partial \Delta_2'}{\partial \gamma} \\
&= \frac{\left(1 - q\right) \left(u_{11} - u_{12} + u_{22} - u_{21}\right)}{\left(\Delta_1' + \Delta_2'\right)^2} \times \\
&\quad \left(2 \left(w_1 - w_2\right)^2 + \gamma^2 \left(u_{11} - u_{12}\right) \left(u_{22} - u_{21}\right) + \gamma \left(u_{11} - u_{12}\right) \left(w_1 - w_2\right)\right)
\end{aligned}
$$

which is always positive since $w_1 - w_2 > 0$.

For a warm glow leader of the economically advantaged group the benefit of changing γ is given by

$$
\begin{aligned}
\frac{\partial U_1(warmglow)}{\partial \gamma} &= \frac{\partial \left[\Delta_1' q(1 - q)\right]}{\partial \gamma} \\
&= \Delta_1' \left(1 - 2q\right) \frac{\partial q}{\partial \gamma} + q(1 - q) \frac{\partial \Delta_1'}{\partial \gamma} \\
&= q \left(\frac{\gamma^2 \left(u_{11} - u_{12}\right) \left(u_{22} - u_{21}\right) - \left(u_{22} - u_{21}\right) \gamma \left(w_1 - w_2\right) + 2 \left(w_1 - w_2\right)^2}{\gamma^2 \left(\left(u_{11} - u_{12}\right) + \left(u_{22} - u_{21}\right)\right)}\right)
\end{aligned}
$$

which might have more than one solution for $\frac{\partial U_1(warmglow)}{\partial \gamma} = 0$. The statement in the text, however, can be easily derived from setting $u_{11} = u_{12}$. We then have

$$
\begin{aligned}
\Delta_1' &= w_1 - w_2 \\
q^* &= \frac{w_1 - w_2}{\gamma \left(u_{22} - u_{21}\right)}
\end{aligned}
$$

and

$$
\frac{\partial U_1(warmglow)}{\partial \gamma} = -\frac{\left(w_1 - w_2\right)^2}{\gamma^2 \left(u_{22} - u_{21}\right)} \left(1 - 2q\right)
$$

which is negative for all $q < \frac{1}{2}$ and positive otherwise. The leader of the economically advantaged group will resist an increase in γ only if her group becomes small and supports it otherwise.

We now show that the impact of γ on the effort of the economically disadvantaged group is positive. For ease of notation we use our cultural dislike definition (20) such that

$$
f_1 = \left(u_{11} - u_{12}\right) \text{ and } f_2 = \left(u_{22} - u_{21}\right).
$$

32

In equilibrium

$$
\begin{aligned}
d_2 &= \Delta_2 q^* = \frac{\Delta_1 \Delta_2}{\Delta_1 + \Delta_2} = \frac{(\gamma f_2 - (w_1 - w_2))\,(\gamma f_1 + (w_1 - w_2))}{\gamma\,(f_1 + f_2)} \\
&= \frac{\gamma^2 f_1 f_2 + \gamma f_2 (w_1 - w_2) - \gamma f_1 (w_1 - w_2) - (w_1 - w_2)^2}{\gamma\,(f_1 + f_2)}
\end{aligned}
$$

and therefore

$$
\begin{aligned}
\frac{\partial \Delta_2 q^*}{\partial \gamma} &= \frac{(2\gamma f_1 f_2 + (f_2 - f_1)\,(w_1 - w_2))\,\gamma\,(f_1 + f_2)}{(\gamma\,(f_1 + f_2))^2} \\
&\quad - \frac{(f_1 + f_2)\left[\gamma^2 f_1 f_2 + \gamma f_2 (w_1 - w_2) - \gamma f_1 (w_1 - w_2) - (w_1 - w_2)^2\right]}{(\gamma\,(f_1 + f_2))^2}.
\end{aligned}
$$

which simplifies to

$$
\frac{\partial \Delta_2 q^*}{\partial \gamma} = \frac{\gamma^2 f_1 f_2 + (w_1 - w_2)^2}{\gamma^2\,(f_1 + f_2)} > 0.
$$