DISCUSSION PAPER SERIES

IZA DP No. 7924

Assimilation, Criminality and Ethnic Conflict

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January 2014

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zur Zukunft der Arbeit
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January 2014

ABSTRACT

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We examine the consequences, of integrating large minorities into productivity-relevant majority *ethno-linguistic* norms, for distribution, ethnic conflict and crime. We develop a two-community model where such assimilation generates social gains by: (a) facilitating economic interaction, and (b) dampening *religious* or *racial* conflict over symbolic and normative contents of the public sphere. However, integration shifts the distribution of both material and symbolic goods against the minority. It also expands income inequality within the minority community. This incentivizes decentralized attempts to expropriate producers which, through cumulative causation, both immiserize and criminalize the minority. An underclass thus results, with disproportionate minority presence.

JEL Classification: D74, J15, J71, O15, Z13

Keywords: minority, identity, language, assimilation, discrimination, ethnic conflict, crime, welfare dependency

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1. Introduction

In most, arguably all, diverse societies with a well-defined dominant majority ethno-linguistic community, the evolution of public policy debates reflect a recurring contestation between arguments for mono-culturalism (whereby minorities are supposed to 'assimilate', i.e. adopt the cultural-linguistic norms and behavioural patterns of the majority, at least over time), and multi-culturalism, whereby minorities are to be permitted, perhaps even encouraged, to articulate and develop their distinct cultural-linguistic identities. This paper provides an analytical framework within which these policy stances can be assessed, and their implications for social conflict and income distribution explicated.

Legislated removal of minority children on an extensive scale from their parents and communities, and relocation in institutional and foster-care settings involving immersion in the majority language and culture, provides a stark example of policies to force minority communities to assimilate. In Australia, between roughly 1909 and 1969, children of Aboriginal and Torres Strait Islander descent were removed from their families by government agencies and church missions, to be brought up in white institutional and foster care. In 1997, following a national inquiry, the Australian Human Rights and Equal Opportunity Commission concluded that between one in three and one in ten indigenous children were forcibly removed in the period 1910 - 1970.[1] In Canada, a network of residential schools for children from First Nations, Métis, and Inuit communities was set up with funding from the government's Department of Indian Affairs and administered by churches. The system was primarily active following the passage of the Indian Act in 1876, until the mid-twentieth century. School attendance was made compulsory and, in some parts, residential schools were the only option. In 2008, public apologies were issued by the Prime Ministers of both Australia and Canada in their respective Parliaments for past adoption of these policies.

While these cases of physical removal and absorption are extreme, Australia and Canada are not unique in having enforced policies of cultural and linguistic assimilation that are legally mandatory and thus binding on minorities. Perhaps even more pervasive, however, are policies to incentivise individual members of minority communities to embrace majority norms. Language, syllabus and cultural policies followed in public educational institutions, the official language followed in law courts and public administration, language and cultural content of citizenship tests, etc., are all instruments that can and indeed are used to nudge minority individuals towards extensive adoption of majority ethno-linguistic norms, by increasing the relative benefits from doing so.[2]

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[1] *Bringing Them Home – Report of the National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from Their Families* (Canberra, 1997).

[2] Denial of recognition to the Kurdish language in Turkey is linked to the Turkish nationalist policy of cultural assimilation. In Latvia, despite about 40% of the population being Russian-speaking, Latvian remains both the

Arguments for assimilation often start from the presumption that minorities lead a segregated existence, whether literally or in terms of social interactions. Such minority communities may have had a long historical presence (as is the case with indigenous communities in countries of European settlement), or may be the product of recent immigration (as for example is the case in Western Europe). Frankly articulated presumptions of divine sanction or inherent cultural superiority aside, the broad contours of an instrumentalist case for assimilation appear to be the following.

First, assimilation is profitable for minorities, since adoption of the cultural and linguistic practices of the majority reduces search, coordination and transaction costs contingent on economic interaction with the latter. This in turn expands the effective size of the market, generating efficiency gains via specialization, economies of scale and faster adoption of social, institutional and technological innovations. For the same reasons, assimilation by the minority is also profitable for the majority. Second, cultural/linguistic diversity encourages and empowers incompatible belief systems or historical identifications (i.e., it buttresses oppositional *ethno-religious* identities). The latter both perpetuate atavistic antagonisms and generate new 'culture wars' between communities: assimilation reduces the scope and intensity of such conflicts. Third, cultural-cum-linguistic segregation, by leading to socio-economic exclusion, generates a poverty-stricken minority underclass, which puts pressure on the welfare system and/or law enforcement, thereby negatively impacting the majority. Xenophobic political parties, in particular, often seek to magnify and exploit majority anxieties by simultaneously charging minorities' with both an unwillingness to assimilate and an excessive propensity to engage in crime, and explain away their poverty and exclusion in such terms. [3]

Despite its policy importance, comparative assessment of the impacts of assimilation and segregation, on income distribution, ethnic conflict and crime, has received little analytical attention in the formal theoretical literature on political economics.[4] This paper seeks to address this lacuna.

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sole state language and a requirement for citizenship. In the UK, English language requirements for citizenship tests have been progressively tightened in recent years. Ortega and Tangeras (2008) develop a political-economic analysis of the imposition of mono-lingual education by dominant groups.

[3] The first extends a free trade argument into social policy (e.g. Lazear, 1999). It was advanced by colonial administrators and social reformers in colonized countries in the 19th and early 20th centuries, as the justification for Westernizing the education system, the legal code, and social behaviour. Civil rights laws and anti-discrimination statutes in the US are motivated at least partly by the belief that social integration promotes economic efficiency (Frederickson, 1999). Contemporary examples of populist articulation of the second and third arguments include political parties such as the French National Front, the Dutch Party for Freedom, the Bharatiya Janata Party of India, Jobbik of Hungary and Golden Dawn of Greece.

[4] Lazear (1999), Konya (2005) and Kuran and Sandholm (2008) and Li (2013) develop models of assimilation, but do not analyze the implications for distributive conflict. Akerlof and Kranton (2000) explain forms of dysfunctional individual behaviour in terms of stresses generated by identity norms, but do not model their aggregate consequences for conflict between communities. Conversely, Dasgupta and Kanbur (2007, 2005b) and Esteban and Ray (2011, 2008) examine how *exogenous* changes in the income distribution affect conflict between communities, and thus do not connect the income distribution to the extent of cultural-linguistic integration prevailing in the society. The connection between the extent of cultural integration and social conflict thus remains unexplored in their analysis. Dasgupta (2009) shows how class conflict between workers

We consider a society consisting of a majority and a (relatively large) minority. These communities differ in terms of their characteristics, acquired as part of childhood socialization of community members, along two different dimensions. One set of characteristics are directly relevant for economic interaction and productivity, while the other set involves intrinsic valuation of certain items, practices, or symbols that do not have any direct productivity implications. To fix ideas, one may concretize this dichotomy broadly as that between *language* on the one hand and *religion, race, or ethnicity* on the other.[5] The first set of characteristics is, in principle, open to change on the basis of individual adjustments to economic incentives. Assimilation, in our model, therefore takes the form of individually rational minority adoption of majority practices in this sphere, which in turn has consequences for both income distribution and the extent of decentralized criminality. The second set of characteristics is however more deeply or foundationally constitutive of one's sense of self, and therefore stable. This constitutes the site of collective conflict between communities in our model. The degree of assimilation affects such ethnic conflict via its determination of income distribution.

To expand, individuals acquire a set of cultural-behavioural traits and norms, as part of their upbringing within a particular community, which are relevant for workplace interaction and coordination. One achieves income gains when a larger proportion of the workforce comes to share one's behavioural norms, thereby facilitating economic coordination. Language, including dialect, idiom, accent and modes of expression, constitutes the most transparent example of such productivity-relevant norms. However, they also include other culturally embedded behavioural traits such as working according to a particular time allocation routine and ethnicity or religion-specific holiday schedule (e.g. not working on Fridays or Sundays), prohibitions against certain dietary habits (e.g. consumption of alcohol, beef or pork), dress codes, etc. Expanding on Akerlof and Kranton (2000), we assume that 'switching identity', or bringing one's behaviour into alignment with those commonly present in (and thereby constitutive of) the other community, is feasible but costly. Individuals vary in terms of their identity switching costs. Thus, for a minority individual, the decision whether to assimilate (i.e., to exhibit the majority's workplace-relevant behavioural traits) is guided by the relative return from doing so, net of her identity switching cost. This net relative return is, in turn, determined by the proportion of her community members who choose to assimilate. We first show that, under plausible restrictions on the distribution of switching costs, assimilation by the entire minority community, and separation (i.e., a complete lack thereof) both constitute locally stable equilibria. Thus, one-off 'big push' policies, which force a large proportion of minority individuals to integrate, can permanently convert a culturally-linguistically segregated society into one integrated

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and employers, and ethnic conflict between different groups of workers, mutually condition one another, but assumes homogeneity within the working class in all employment-relevant aspects except the reservation wage.

[5] In reality, as we illustrate below, some practices with religious, racial or ethnic identity connotations may also have productivity implications. The broad-brush distinction is porous but nonetheless empirically helpful, and is routinely deployed in the economic analysis of discrimination.

within the sphere of production-relevant behavioural norms. Such a move increases both total income and that of every majority individual; total income of the minority community may also rise. However, assimilation worsens the income distribution both across and within communities: it reduces the income share of the minority community, while also increasing income inequality therein.

We proceed to explicate the consequences for collective conflict. Building on Dasgupta and Kanbur (2011, 2007, 2005a), we visualize communities as held together by certain forms of community-specific public goods, such as institutions and rituals of public collective worship, historical monuments, public statues and memorials to military leaders, political icons and past victories, laws governing behaviour in private matters of sexuality, marriage, divorce, inheritance, abortion, etc. These carry no relevance for productivity, and are therefore orthogonal to workplace-relevant (largely cultural-linguistic) norms, but are intrinsically valued (mostly on core ethno-religious grounds). In accord with Esteban and Ray (2011, 2008), we model such collective consumption as generating political conflict between communities over mutually exclusive control of the public sphere.[6] All members of a community derive non-material benefits from, and may therefore contribute material political resources to, making the public sphere more reflective of its collective symbols and values. We show that the inequality inducing consequences of assimilation in the workplace spill over from the sphere of private incomes to that of public assertion: assimilation reduces the minority's share of the symbolic and normative content of the public sphere, thus reducing the welfare of at least some minority individuals. Indeed, all minority individuals may be worse off in consequence. However, assimilation in the workplace may reduce relative social waste due to political conflict, measured as the share of social income expended on political activities.

Finally, we address *individual* expropriation of material resources. We conceptualize expropriation primarily as competitively determined returns from unproductive criminal activities ('theft'), but possibly including legally enforced social transfers (welfare benefits) to non-productive individuals, funded by taxes on productive ones. We show that (production-relevant) assimilation

[6] In 2010, France banned the wearing of a face-covering veil in public. The key official justification was productivity-relevant: face-coverings prevent identification, which is both a security risk and a coordination hindrance, in a society which relies on facial recognition and expression in communication. Thus, headscarves were not affected. In contrast, the wearing of *all* conspicuous religious symbols in public schools was banned in France in 2004 by a different law, which did affect the wearing of both Islamic veils *and* headscarves. The Turkish government has traditionally banned women who wear headscarves from working in the public sector. In both cases, the ban on headscarves was justified not by any direct negative impact it might have on productivity, but by its symbolic role in keeping the public sphere secular. In a referendum held in Switzerland in 2009, a constitutional amendment banning new mosque minarets was approved by 57.5%. In Northern Ireland, clashes often break out over rival Catholic and Protestant marches organized annually to commemorate events in the history of past antagonisms, in India Hindus and Muslims contest ownership of medieval structures, while in Europe conflicts rage between rival mobilizations over demands for censorship on grounds of blasphemy. In all these cases, the items of contestation do not appear to have any direct or immanent implications for workplace coordination or economic productivity, but are intrinsically valued by (typically ethno-religious) communities as constitutive symbols of self-expression in the public sphere.

generates, as a stable equilibrium phenomenon, an unproductive underclass dependent on expropriation. This underclass exhibits a disproportionately high presence of the minority. Assimilation may both immiserize and criminalize the *entire* minority community, even when, *sans* expropriation, it would generate income gains for a significant proportion therein. Expropriation may however be entirely absent under production-relevant cultural separation. Thus, the aggregate productivity gains from cultural-linguistic assimilation are at least partially negated by the decentralized distributive conflict it generates, via its dis-equalizing impact on income distribution within the minority community. The extent of such negation depends on how strongly property rights are protected: therefore, reducing social losses due to expropriation requires greater spending on prevention of property crimes. Under separation, however, even weak property rights protection may suffice to eliminate expropriation. Hence, the productivity case for assimilation needs to be qualified by its causal connection with distributive conflict, while the equity case remains dubious. We thus provide *a priori* grounds for adopting a cautionary position with regard to integrationist policy claims.

Section 2 sets up the benchmark model. We examine conflict over collective consumption in Section 3. Section 4 addresses conflict over material expropriation. Section 5 concludes with a discussion of some extensions and applications. Detailed proofs are presented in the Appendix.

2. The benchmark model

2.1. Preliminaries

Consider a population of measure 1, comprised of two groups, M (majority) and N (minority), with population shares m and n respectively, $m = (1-n), \mathrm{n} \in (0, \frac{1}{2})$. Each member of the population is endowed with one unit of effort, which she expends on activities related to earning income. To earn income, she needs to acquire some identity-related, or community-specific, cultural characteristics including linguistic ones, to successfully engage in production-related transactions, negotiations and coordination. The marginal product of effort, contingent on acquiring the characteristics specific to community $i \in \{M, N\}$ and choosing to exhibit them, is $\theta_i y_i$, where $\theta_i \in [0,1]$ is the proportion of the population that behaves according to the work-place relevant cultural-cum-behavioural norms and characteristics of community i, and $y_i > 0$ is some community-wide productivity parameter. Identities are exclusive, or 'oppositional': the exhibition of characteristics of community i implies renunciation of the identity-markers of the other community. Thus, the benefit from displaying a particular set of behavioural patterns depends positively on how pervasive those behavioural patterns are. This captures the idea that common behavioural and expressive norms coordinate productive activities across individuals and thereby increase output. These norms may possibly have intrinsic

consequences for productivity as well: y_M need not be equal to y_N. We normalize y_M to unity, and assume $y_N \leq 1$. Given any community $i \in \{M, N\}$, we shall denote the other community by $-i$.

For *j* born into community *i*, acquisition of the norms of her own community is costless (reflecting socialization in childhood), but acquisition of those of the other community involves an 'identity switching' cost, modelled as an effort cost *c*; *c* is idiosyncratic and distributed over $[\rho_i, \overline{\rho}_i]$, with $0 < \rho_i < \overline{\rho}_i < 1$, according to some continuous and differentiable distribution function $F^i(c)$.

An obvious interpretation of *c* is in terms of the effort spent in learning a new language and behavioural norms instead of engaging in actual production: some are inherently more efficient learners. A deeper one is that not all can internalize alien norms equally. The degree of functionality within the context of a set of culturally/linguistically alien rules varies across persons born into the same community, leading to idiosyncratic differences in productivity. These differences are however not intrinsic but specific to the cultural construction of the workplace: these differences would disappear if production was organized according to the norms one was originally socialized into. Adopting different behavioural norms may also lead to cognitive dissonance and guilt, which make it difficult to sustain such behaviour (and, therefore, productive efficiency) for extended periods. In any case, the formal upshot is that, for *j* born into community *-i* , the return from adopting the production-relevant behavioural patterns of the other community, i, is $\theta_i(1 - c_{-i,j})y_i$, where $c_{-i,j}$ is the identity-switching (marginal) effort cost of working in an alien environment for the individual.[7] For such an individual, the return from persisting with one's original behavioural norms is $(1 - \theta_i)y_{-i}$. We assume that the distribution of identity switching costs follows a concave exponential form:

$$F^i(c) = (\overline{\rho}_i - \rho_i)^{-\alpha_i}(c - \rho_i)^{\alpha_i}; \quad (1)$$

where $\alpha_i \in (0,1) \forall i \in \{M, N\}$. Thus, contingent on switching identity, the income $I_{-i,j}$ of *j* born into community *-i* falls in the interval $[\theta_i(1 - \overline{\rho}_{-i})y_i, \theta_i(1 - \rho_{-i})y_i]$; when the entire community *-i* switches identity, the distribution of (normalized) income within that community is given by:

$$D^{-i}\left(\frac{I}{\theta_i y_i}\right) = 1 - F^{-i}(1 - \frac{I}{\theta_i y_i}).$$

Let n_M be the size of the 'assimilated' minority population (those who choose to exhibit the behavioural norms of the majority despite being brought up in the minority community); $n_M \in [0, n]$. Then the assimilation cost of the marginal assimilated member of N is given by:

[7] Generalized discrimination against the minority can be modelled as a constant cost component, $d \leq \rho_N$, that impacts all assimilating N individuals equally. Thus, an increase in such discrimination simply reduces the returns from assimilation by an identical amount ($\theta_i y_i d$) for all minority individuals.

$$\breve{c}(n_M) \equiv F^{N^{-1}}(\tfrac{n_M}{n}). \quad (2)$$

$\breve{c}(.)$ is the inverse supply function for assimilated individuals: if the population size of N individuals who rationally assimilate is n_M, then the highest cost incurred must be exactly $\breve{c}(n_M)$. By (1) and (2):

$$\breve{c}(n_M) \equiv \left(\tfrac{n_M}{n}\right)^{1/\alpha_N}\left(\overline{\rho}_N - \rho_N\right) + \rho_N; \quad (3)$$

so that (recalling $\alpha_N \in (0,1)$):

$$\breve{c}'(n_M) = \tfrac{(\overline{\rho}_N - \rho_N)}{n\alpha_N}\left(\tfrac{n_M}{n}\right)^{\frac{1-\alpha_N}{\alpha_N}} > 0 \text{ for all } n_M \in (0, n]; \quad (4)$$

$$\breve{c}''(n_M) = (1-\alpha_N)\tfrac{(\overline{\rho}_N - \rho_N)}{(n\alpha_N)^2}\left(\tfrac{n_M}{n}\right)^{\frac{1-2\alpha_N}{\alpha_N}} > 0. \quad (5)$$

Thus, the marginal assimilation cost function (or the inverse supply function) $\breve{c}(.)$ is *increasing and convex* in the size of the assimilated population over $(0, n]$. Analogous expressions hold for M.

2.2. Equilibrium

Individuals simultaneously decide whether to acquire the behavioural traits of the other community or to persist with their own, i.e. those they are already endowed with, with the objective of maximizing their own income. A Nash equilibrium is simply a set of identity choices such that the choice made by any individual maximizes her own income, given those of all other individuals in society.

Since $\rho_i > 0$ for all $i \in \{M, N\}$, if at least one member of community *i* earns at least as much by switching, then all members of the other community $(-i)$ must earn more by continuing with their own identity. Thus, apart from the two possible mono-cultural outcomes, where all individuals choose to exhibit identical behavioural norms and traits, we only need to consider the class of 'multicultural' outcomes where all members of some community *i* maintain their own communal identity markers, and at least some (possibly all) members of the other community –*i* persist with the identity markers of that community (-*i*), as possible candidates for Nash equilibrium.

We shall first consider assimilation by minority (N) individuals to majority (M) norms. In light of the preceding discussion, any given level of assimilation $n_M \in [0, n]$ constitutes an equilibrium if, given that level of assimilation and persistence of all M individuals with their own cultural traits, (a) n_M/n proportion of N individuals are all at least as well off by assimilating, and (b) the remaining proportion of N individuals are all at least as well off by *not* assimilating. Note that condition (a) above implies that all M individuals are better off by persisting with their own

behavioural traits when $n_M > 0$. When $n_M = 0$, given the persistence of all other M individuals with their own cultural traits, every M individual is worse off in case of a unilateral deviation to the minority's traits (since $m > n$). An equilibrium n_M^* is (locally) stable if there exists $\varepsilon > 0$ such that: [for all $n_M \in (n_M^*, n_M^* + \epsilon)$, more than $\left(1 - \frac{n_M}{n}\right)$ proportion of N individuals are worse off by assimilating; and, for all $n_M \in (n_M^* - \epsilon, n_M^*)$, more than $\frac{n_M}{n}$ proportion of N individuals are better off by assimilating]. Evidently, since $n_M \in [0, n]$, the first part of the stability condition above must hold vacuously when $n_M^* = n$, while the second part must hold vacuously when $n_M^* = 0$. An equilibrium where M individuals acquire the minority's behavioural norms is defined analogously.

We now impose two restrictions via our Assumption 1 below. Assumption 1(i) formalizes the intuitive idea that assimilation costs are substantial *relative* to the size of the majority, and thus relative to private gains from *unilateral* assimilation on part of N individuals. This does not prevent assimilation costs from being arbitrarily small for a positive proportion of the N population: while positive, ρ_N can be arbitrarily close to 0. However, the closer ρ_N to 0, the closer the majority must be in size to the minority. Recalling (4), Assumption 1(ii) essentially implies that the marginal identity switching cost increases relatively fast when the society is close to mono-culturalism, and ensures that relatively small-scale defections from a mono-cultural equilibrium would be self-correcting.

Assumption 1. **(i)** $[m < \frac{y_N}{1-\rho_N+y_N}]$; **(ii)** for all $i \in \{M, N\}$, $[\frac{(\overline{\rho}_i - \rho_i)}{s_i \alpha_i} > 2 - \overline{\rho}_i]$, where s_i is the population share of community i.

Proposition 1. *Let Assumption 1 hold. Then, exactly three locally stable equilibria exist, two of which entail behavioural uniformity, while one entails complete behavioural separation.*

Proof: See the Appendix.

By Proposition 1, only three stable equilibria exist. One involves assimilation of the entire minority community to the majority's norms: the latter thus universally prevail in this mono-cultural equilibrium. However, a stable multi-cultural equilibrium also exists, where *all* persist with the cultural-linguistic norms specific to their own respective communities. Lastly, assimilation of the entire majority to the minority's norms constitutes a locally stable mono-cultural equilibrium as well.[8]

Proposition 1 implies that the same two communities can get locked into either a mono-cultural or a multi-cultural equilibrium, depending on accidents of past history. Thus, if a minority currently exists in a state more or less culturally separate from the majority, that cannot, by itself, be construed as evidence of that community's inherent or constitutive inability to assimilate. Rather, it can be perceived as the result of a collective action problem: a coordinated attempt at assimilation, if

[8] There exist multi-cultural equilibria involving partial assimilation as well, but these are all unstable.

sufficiently widespread within the minority community, may indeed succeed in completely assimilating that community to majority norms. Conversely, an assimilated minority may successfully construct its separate identity through a coordinated attempt at cultural assertion and 'invention of traditions'.[9] In either case, Proposition 1 suggests that assimilation or separation may be a collective choice in a broad sense, rather than a social given. The state, through its language, schooling, employment and citizenship policies, may be able to exercise that choice effectively. Once exercised on a sufficiently large scale, the outcome would be self-sustaining. Since the society would shift to a different locally stable equilibrium, compulsion would no longer be necessary: voluntary decentralized individual choice would continue to reproduce the desired outcome. A similar big push may be exercised by large-scale social movements inside the minority community as well.

Since Proposition 1 suggests that separation or assimilation may be a matter of collective choice, it also highlights the importance of comparing the characteristics of these alternate equilibria in the formulation of social policy. We now proceed to address this question.

2.3. Comparing equilibria

We compare the properties of the equilibrium where the minority assimilates, with those of the equilibrium where all persist with their original cultural norms, so that the communities fully maintain their cultural cum behavioural 'separateness'. For brevity, we shall term the first, 'assimilation' and the second, 'separation'. For the rest of this paper, we ignore the remaining stable equilibrium where the majority assimilates to minority norms since this appears generally devoid of substantive policy interest: it is difficult to think of societies where such an equilibrium may be thought to obtain.[10]

Proposition 2. *Let Assumption 1 hold. Then, under assimilation by the minority community relative to separation:*

(a) every member of the majority community earns more, and the majority community's share of total income rises;

(b) total income in society is higher;

(c) total income of the minority community rises iff $[(1 - ny_N) > E(c_N)]$*; its total income is reduced if the inequality is reversed; and*

[9] For a detailed discussion of such movements and their role in the construction of ethno-linguistic nationalism in modern Europe, see Hobsbawm (1992) and Hobsbawm and Ranger (1983).

[10] Furthermore, such an equilibrium necessarily generates lower total output than the one where the minority assimilates, provided M is, on average, at least as attached to its norms as the minority (i.e. $E(c_M) \geq E(c_N)$], and may do so even otherwise. Since this is empirically likely, it is therefore of limited normative interest.

(d) all minority individuals suffer an absolute income reduction if $[(1 - ny_N) < \rho_N]$ *, while* at least *some do so if* $[(1 - ny_N) < \overline{\rho}_N]$.

Proof: See the Appendix.

Proposition 2 articulates the efficiency argument for assimilation. Every member of M gains income if N assimilates. The economies of scale assimilation generates outweigh the costs of integration incurred by the latter, so that total income of society necessarily increases. However, assimilation also leads to increased inequality along two different dimensions. First, it benefits M *proportionately more*. Second, while incomes within a community are identical under separation, reflecting equal inherent productivity, idiosyncratic differences in the ability to function within an alien culture opens up income inequality inside N when it assimilates (though incomes within M remain equalized).

Despite a decline in income share, N benefits monetarily on average from assimilation when the gain from assimilation is greater than the average cost. The larger the majority and the lower the relative productivity of the minority, the higher this gain. However, provided that the upper bound on assimilation costs is higher than the gain from assimilation, a positive proportion of N individuals (those with costs in $(1 - ny_N, \overline{\rho}_N)$) must suffer a fall in income under assimilation. When costs are sufficiently high relative to the gains $(1 - ny_N < \rho_N)$, assimilation reduces the income of *every* N individual. The two forms of inequality that assimilation engenders may be expected to influence social conflict in different ways. We now proceed to incorporate two forms of social conflict in our model and investigate how the inequality-inducing consequences of assimilation impact on them.

3. Public consumption and collective conflict

The first form of conflict we address is that over collective assertions of identity via symbolic domination of the public sphere. A community finds its collective identity in shared religious shrines, monuments to its departed heroes, public memory rituals of past victories and defeats, in the naming of parks, streets, bridges, towns and universities after its revered members, mass public gatherings to perform collective religious and ethnic rituals, state holidays on occasions important to its perceived collective history, etc. Laws governing private behaviour of individuals, especially in matters of marriage, sexual behaviour, divorce, abortion and inheritance, are also typically based on a set of core values and norms identified with particular ethno-religious communities. Thus, in the first case, a sense of collective ownership is derived from the physical presence of a community's symbolic markers of territory in the public space, literally interpreted. In the second case, a sense of collective possession is derived from the state's identification with, or support for, a set of norms central to the self-perception of a community, articulated through the use of the state's legal and administrative

machinery (its coercive powers) to enforce the observance of these norms by private individuals. The second case thus involves the juridical presence of a community's symbolic markers of territory within the corpus of normative prescriptions that together constitute the normative public sphere. Analytically, therefore, the two cases can be treated identically for our purposes.

When a society consists of multiple ethno-religious communities with a strongly defined sense of collective history, defined especially in terms of past antagonisms, marking of collective territory in the public sphere is liable to generate conflicts. These may take the form of attempts by different communities to lobby/bribe authorities to act in their favour, for and against the status quo, or they may consist of direct action. Direct action may be legal and peaceful; e.g. when it involves mass subscription drives to build places of worship or monuments more imposing (and therefore more assertive) than those of another community. It may also be illegal and violent, as when it involves the mobilization of activists' groups or militias to physically destroy places of worship or monuments belonging to other communities, or to terrorize other communities to force them to desist from observing certain practices or rituals. In any case, offensive action by one community, if unchecked by countervailing defensive action by the other community, generates psychic gains for members of the former community, and losses for members of the latter. Group conflict of this kind can be conceptualized as fights over *distribution of symbolic territory*, rather than of material resources.

Such conflict engages real resources, but the consequent gains are directly psychic, i.e. non-material, depending on the extent to which particular types of public goods specific to a community are generated. For formal purposes, we can demarcate them as taking place in the sphere of collective symbolic consumption, rather than in that of private material consumption. The zero-sum nature of such consumption is parsimoniously modelled via a framework where an individual cares both about consumption in her private sphere and the *share* of the public sphere 'owned' by her community.

Let utility of any member j of community $i \in \{M, N\}$ be given by $u_j^i = U^i(x_j, p_i, p_{-i}, t)$; where x_j is *j*'s private consumption, p_i is the extent of 'cultural ownership' of the contestable public sphere, $p_i \in [0,1]$, and $t \in (0,1]$ is a parameter reflecting the proportion of the public sphere open to contestation. Greater reflection of the *other* community's symbols in the public sphere (higher p_{-i}) reduces the well-being of all members of community i, while greater reflection of one's own symbols (higher p_i) entails an improvement. Of course, in our two community world, $p_i = 1 - p_{-i}$, so that the first automatically implies a corresponding reduction in p_i.[11] Intuitively, the proportion $(1 - t)$

[11] However, this need not be so in a richer model with more than two communities. There, our formulation permits two communities to simultaneously achieve higher shares of the public sphere, at the cost of some *third* community. In such a society, a given community A may feel differentially antagonistic towards other communities B and C. We do not explore this interesting extension in the present paper.

of the public sphere is culturally neutral between the two communities: formally, they hold equal shares $\underline{p} \in (0, \frac{1}{2}]$.[12] For algebraic parsimony, we assume that preferences assume the following form:

$$u_j^i = x_j(\frac{p_i}{1-p_i})^{t\aleph_i}; \tag{6}$$

with $\aleph_N, \aleph_M > 0$. The extent of collective ownership is defined through a process of political contestation, which requires the expenditure of monetary resources, generated through decentralized voluntary contributions, on the part of both communities. Formally, community *i*'s ownership share of the contestable public sphere is given by the standard ratio-form contest success function:

$$p_i = \frac{(\frac{b_i}{b_{-i}})^\tau}{1+(\frac{b_i}{b_{-i}})^\tau}; \tag{7}$$

where b_i is the total expenditure by community i in political attempts to influence the normative or symbolic content of public space in its favour, and $\tau \in (0,1]$ is a parameter. Using (6) and (7),

$$u_j^i = x_j(\frac{b_i}{b_{-i}})^{\sigma_i t}\ ; \tag{8}$$

where $\sigma_i > 0$. Member *j* of community i has income I_j^i. All individuals simultaneously allocate their income between private consumption and political contribution so as to maximize utility.

Suppose the equilibrium levels of political expenditures are b_M^*, b_N^*. Then, since (recalling (8)) utility only depends on relative political expenditure, a strict Pareto-improvement could be implemented if, somehow, political expenditures of both communities were taxed at some community-neutral rate, and the revenue used to subsidize private consumption of all members of society. A social planner who could credibly pre-commit to the equilibrium division of the public sphere would also be able to enforce a strict Pareto-improvement by eliminating political contributions altogether. Thus, we shall interpret the total amount of political expenditure generated in the Nash equilibrium as a measure of both the total social cost of conflict and its intensity.

The FOCs of the optimization problem of the representative contributing member, *j*, yield:

$$\forall i \in \{M, N\}, [\frac{b_i}{x_j^i} = \sigma_i t]. \tag{9}$$

[12] We think of this space as one of constitutional guarantees of equal treatment of different ethno-religious (or racial) groups by the state. A constitution may ban all religious content and symbols from the education system except when these receive equal secular scrutiny in a course on comparative sociology. In India, personal laws governing marriage, divorce and inheritance differ across religious communities, but have equal constitutional validity. Despite Hindus constituting about 85% of the population, the number of public holidays to mark Hindu religious celebrations is roughly the same as those marking the festivals of religious minorities.

The community-specific parameter σ_i reflects the relative weight on collective consumption vis-a'-vis private consumption. Higher σ_i implies a stronger sense of communal identity, relative to a private notion of self-hood. We accordingly term it *community cohesion*: higher levels of community cohesion increase aggregate political spending by a community. Since equilibrium incomes are identical within M regardless of whether N assimilates, and identical within N in the separated equilibrium, all community members must make identical and positive political contributions in these three cases. Let Y_{NM} be the total income of the minority community if it assimilates, and define:

$$\sigma_N^*(t) \equiv \frac{Y_{NM} - n(1-\overline{\rho}_N)}{t(1-\overline{\rho}_N)}. \tag{10}$$

Recalling (9), it can be checked that, given any $t \in (0,1]$, when the minority community assimilates, *all* minority individuals must make positive political contributions whenever $\sigma_N > \sigma_N^*(t)$.

Proposition 3. *Given any triple* $< m, F^N(c), F^M(c) >$ *satisfying Assumption 1, any* $t \in (0,1]$, *and any* $\sigma_N > \sigma_N^*(t)$,

(a) there exists $\epsilon > 0$ *such that political spending as a proportion of total income is lower under assimilation by the minority community, compared to separation, whenever* $\sigma_M < \sigma_N + \epsilon$;

(b) there exists $\epsilon > 0$ *such that the minority community receives the lower share of the contestable part of the public sphere under both assimilation and separation whenever* $\sigma_M > \sigma_N - \epsilon$;

(c) the minority's share of the contestable part of the public sphere falls when it assimilates; and

(d) any expansion in the contestable part of the public sphere reduces the private consumption of every individual in society; furthermore, there exists $\epsilon > 0$ *such that any such expansion reduces the minority's share of the contestable part whenever* $\sigma_M < \sigma_N + \epsilon$.

Proof. See the Appendix.

Proposition 3 extends the efficiency case for assimilation (Proposition 2) to conflict over division of the public sphere. Intuitively, it focuses on the situation where identity-based political mobilization is extensive within both communities, and the two communities are not-too-dissimilar in cohesion. In such situations, Proposition 3(a) suggests that resource loss due to conflicts may fall as a proportion of total output when N assimilates.[13] N always receives less than half the contestable part of the public sphere; assimilation reduces its share (Proposition 3(b) and (c)). These findings are driven largely by

[13] An off-shoot of assimilation, at least over time, may conceivably be the weakening of community cohesion within the minority, and therefore of conflicts with the majority. Kuran and Sandholm (2008) offer an evolutionary game theoretic perspective on this view. Our static argument is independent of this dynamic argument. Note also that a shift to assimilation may *increase* inter-group conflicts when N is sufficiently *less cohesive*, relative to M. Then, income inequality engendered within N by assimilation may actually increase total political spending by N, expressed as a proportion of total societal income.

the fact that assimilation reduces the income share of N (Proposition 2(a)). If a larger part of the public sphere opens up for contestation, then all members of society increase their political spending. However, M increases its political spending proportionately more. Hence, such an expansion leads to N faring worse in the political arena: its share of the public sphere falls (Proposition 3(d)).

Remark 1. Total resource expended on identity-related consumption conflict increases if total income accruing to *both* communities increases,[14] as must be the case under assimilation if $m > E(c_N)$ (recall Proposition 2(a and c)), but not necessarily otherwise.

Now, recalling (8) and using a log transformation of the utility function there, we have:

$$\frac{du_j^N}{dt} = \frac{1}{x_j}\frac{\partial x_j}{\partial t} + \sigma_N \ln\left(\frac{b_N}{b_M}\right) + \frac{\sigma_N t}{\left(\frac{b_N}{b_M}\right)}\frac{\partial\left(\frac{b_N}{b_M}\right)}{\partial t}. \tag{11}$$

In the light of (7) and Proposition 3 (parts (b) and (d)), (11) yields the following.

Corollary 1. *Given any triple* $< m, F^N(c), F^M(c) >$ *satisfying Assumption 1, given any* $t \in (0,1]$, *and given any* $\sigma_N > \sigma_N^*(t)$, *there exists* $\epsilon > 0$ *such that a marginal contraction in the contestable part of the public sphere increases the welfare of every minority individual whenever* $\sigma_M \in (\sigma_N - \epsilon, \sigma_N + \epsilon)$.

Despite its aggregate conflict-reducing effects (Proposition 3), the inequality engendering effects of assimilation spill over from the space of incomes (Proposition 2) to the space of utilities. .

Corollary 2. *Given any triple* $< m, F^N(c), F^M(c) >$ *satisfying Assumption 1, any* $t \in (0,1]$, *and any* $\sigma_N > \sigma_N^*(t)$,

(a) the welfare of every majority individual is higher under assimilation, relative to separation; and

(b) when $m < \rho_N$, *the welfare of every minority individual is lower under assimilation, relative to separation.*

Proof. See the Appendix.

Remark 2. Since the relative identity composition of the public sphere necessarily shifts against the minority (Proposition 3(c)), minority individuals may be worse off on assimilation even if they achieve income gains. Thus, the assumption of large identity costs relative to income gains ($m < \rho_N$) is sufficient, but not necessary, for assimilation to make *all* minority individuals worse off.

[14] This follows immediately from condition (X11) in the Appendix.

4. Private expropriation and individualized strife

Section 3 examines conflict over collective consumption. Such conflict however does not involve *income expropriation*: it does not change the distribution of material resources ('income'). We now proceed to address this additional dimension of social conflict. From the perspective of the minority, the key justification for assimilation identified by our analysis so far is its positive impact on the earnings of those minority individuals whose identity adjustment costs are low relative to the gain from assimilation. We now show that even these purported gains may be illusory: they may be more than eliminated by decentralized conflict over expropriation generated endogenously by assimilation.

We interpret expropriation primarily as illegal income from individual participation in a competitive criminal sector that involves extortion, theft and robbery. More broadly, however, it may involve legislated redistributive mechanisms (welfare payments) to non-producers as well. We model expropriation as a lump-sum tax on all producers: the size of this tax rises with the relative size of the population engaged in expropriation, till some ceiling. The expropriation sector is competitive, in that entry is free, all expropriators act as price-takers and earn identical returns from expropriation.

Expropriation yields $r, r = R$ if the proportion of the population engaged in it, x, is not more than $x^* \in (0,1)$. The most that a producer can lose to expropriators is $\bar{L} \in (0, ny_N)$. We think of both R and $\bar{L}$ as measures of property rights protection. For crime, we interpret R as the most that an individual criminal can extort, and $\bar{L}$ as the amount a producer cannot defend, given the policing and legal structure. The former binds when the criminal population is sufficiently small (below x^*). The latter binds at x^* and beyond. Expansions in the criminal population beyond x^* accordingly reduce earnings in that sector.[15] When expropriation involves welfare transfers to non-producers, R represents the most that a given political system can provide. If the claimant population is small, the system accommodates additional claimants by increasing the tax rate, rather than by reducing per capita benefits. Once the tax ceiling is reached, further increases in the population of transfer claimants lead to a commensurate reduction in per capita benefits. Thus, for a productive individual, loss from expropriation is $L = Min\{\frac{xR}{(1-x)}, \bar{L}\}$, while individual gain from expropriation is given by:

$$r = R \; if \; x \leq x^* \equiv \bar{L}/(R + \bar{L});$$

$$= \frac{(1-x)\bar{L}}{x} \text{ otherwise.} \qquad (12)$$

Given any proportion of the population engaged in production $(1 - x)$, let $\pi_P(x)$ be the

[15] This formulation is similar to that of Murphy *et al.* (1993). However, they do not address identity aspects at all, which constitute our explicit focus. This leads to a substantive difference in consequences. While absence of expropriation constitutes a locally stable equilibrium in their model,, the incorporation of identity switching costs rules out this possibility when assimilation occurs in our model (see Proposition 4(b) below).

minimum net income possible such that there exists a set of individuals with measure x, all members of which earn $\pi_P(x)$ or less *in excess of r* from production. Under assimilation, recalling (2),

$$\pi_P(x) = \left[1 - Min\left\{\frac{xR}{1-x}, \bar{L}\right\} - \check{c}_N(n-x)\right] - r \text{ if } x \leq n;$$

$$= \left[1 - Min\left\{\frac{xR}{1-x}, \bar{L}\right\}\right] - r \text{ if } x > n; \quad (13)$$

whereas, under separation,

$$\pi_P(x) = \left[ny_N - Min\left\{\frac{xR}{1-x}, \bar{L}\right\}\right] - r \text{ if } x \leq n;$$

$$= \left[m - Min\left\{\frac{xR}{1-x}, \bar{L}\right\}\right] - r \text{ if } x > n. \quad (14)$$

Analogously, let $\bar{\pi}_P(x)$ be the *maximum* net income possible such that there exists a set of individuals with measure $(1-x)$, all members of which earn $\bar{\pi}_P(x)$ or more *in excess of r* from production. Evidently, $\pi_P(x) = \bar{\pi}_P(x)$ if [either $x < n$ or $x > n$], while $\pi_P(n) < \bar{\pi}_P(n)$. A level of expropriation x_E is an equilibrium iff [$\pi_P(x_E) \leq 0$ and $\bar{\pi}_P(x_E) \geq 0$]. An equilibrium x_E is (locally) stable iff for some $\varepsilon > 0$, [$\pi_P(x) > 0$ whenever $x \in (x_E, x_E + \varepsilon)$, and $\pi_P(x) < 0$ whenever $x \in (x_E - \varepsilon, x_E)$].

Proposition 4. *Let* $[1 - \bar{\rho}_N < R < y_N n]$ *, and let Assumption 1 hold. Then:*

(a) separation and absence of expropriation together constitute a locally stable equilibrium; but

(b) assimilation by all minority producers and absence of expropriation cannot together constitute an equilibrium, and the minority community must participate proportionately more in expropriation than the majority community in any equilibrium; furthermore, at least one (locally) stable equilibrium combining assimilation by all minority producers with expropriation will necessarily exist.

Proof. See the Appendix.

By Proposition 4(a), universal individual acceptance of the extant distribution of income can co-exist with segregation in productive activities, as a locally stable equilibrium, when the maximum possible returns from expropriation are low, relative to the size of the minority. Thus, when a minority is relatively populous, and property rights are well protected, dependence on criminal activities and/or welfare transfers may be negligible when the communities are segregated at the level of production. This will also constitute the only possible equilibrium when property rights are sufficiently well protected, so that $R < (y_N n - \bar{L})$. Thus, private incentives suffice to eliminate individualized distributive strife over material resources altogether, even though the society can offer only imperfect protection to the property rights of producers. Indeed, even property rights protection that appears minimally effective to N producers, in the sense of providing only an arbitrarily small margin over the

return from expropriation, suffices to ensure a locally stable equilibrium that eliminates decentralized distributive conflict under cultural segregation ($y_N n$ may exceed R by an arbitrarily small amount).

In contrast, under assimilation, even if property rights are 'almost perfectly' protected (R is less than what all but an arbitrarily small proportion of minority individuals can earn from production), it is impossible to eliminate expropriation as an equilibrium outcome (Proposition 4(b)). Due to identity switching costs, assimilation creates an 'underclass' of minority individuals: the proportion of the minority population with earnings arbitrarily close to $1 - \overline{\rho}_N$ is always positive. Hence, some N individuals always find it rational to expropriate. This however reduces the return from production, inducing even more individuals to expropriate. Thus, even a highly effective system of property rights protection does not guarantee that distributive tensions will be negligible: a low value of R is compatible with high levels of expropriation in every equilibrium involving assimilation by all minority producers. In sum, the presence of identity switching costs can magnify even minor breaches of property rights protection into high and persistent levels of distributive strife.

Proposition 4(b) also suggests that identity costs create a disproportionately low presence of N in production. Every equilibrium exhibits a relatively high engagement of N in expropriation: thus, the underclass, i.e. those surviving on criminal earnings or welfare handouts, must disproportionately include N individuals. Indeed, in equilibrium, the entire N community may expropriate while the entire M community produces. Paradoxically, despite being the expropriators, all N individuals may suffer income losses on assimilation:. Conversely, despite being the expropriated, all M individuals may achieve income gains. Thus, assimilation may causally generate both widespread *immiserization and criminalization* within the N community; indeed this may occur even when potential income gains from assimilation are sizeable for the minority.[16] The following example illustrates this point.

[16] In 1871, the British colonial authorities in India enacted the Criminal Tribes Act, under which communities were defined as habitually criminal and systematically registered. Restrictions on movements were imposed and adult male members were forced to report weekly to the local police. At Independence in 1947, 13 million people in 127 communities faced constant surveillance, mandatory fingerprinting, search and arrest without warrant if found outside prescribed areas. The Act was repealed in 1949. The Act essentially covered marginal communities of itinerant petty traders, pastoralists, gypsies, and hill and forest dwelling tribes, whose life-styles and cultural habits did not conform to the model of settled agriculture, waged labour and commercial exploitation of forest resources that the colonial state was promoting. It was thus an attempt to forcibly assimilate these marginal communities into the state's preferred mode of socio-economic organization. Accordingly, special 'settlements' were constructed for these communities, and many were settled (i.e. confined) in villages under police guard, whose job was to ensure that no registered member of the tribe was absent without notice. The Amendment of 1897 empowered local governments to establish separate 'reformatory' settlements, for tribal boys from age four to eighteen, away from their parents (as in Canada and Australia, see Section 1). The usually desperate living conditions in these settlements forced significant sections of these communities to take to petty theft and robbery as a means of survival, which reinforced discrimination and exclusion from productive activities brought about by the Act. A vicious cycle of immiserization and criminalization was thereby created, the effects of which persist even now. See Radhakrishnan (2001).

Example 1. Let $y_N = 1, \overline{\rho}_M = \overline{\rho}_N = 0.9, \rho_M = \rho_N = 0.3, m = 0.51, \alpha = 0.5, R = 0.36, x^* = \frac{1}{2}$. Then Assumption 1 holds, $R = \overline{L}$, $[n > R > (1 - \rho_N) - \frac{nR}{(1-n)}]$, $[1 - \overline{L} > R]$ and $[m < 1 - \overline{L}]$. Given assimilation, a stable equilibrium exists where all N individuals expropriate while all M produce. All M individuals earn $(1 - \frac{nR}{(1-n)})$, which is more than *m*; but all N earn *R*, which is less than *n*. However, since $n > R$, no expropriation constitutes a stable equilibrium under separation. Expropriation thus leads to *all* N individuals earning less under assimilation than what they may have done under separation, though all M earn more. Using (1) we find that, *sans* expropriation, assimilation would have generated gains for approximately 59% of the N population.

5. Discussion and concluding remarks

This paper has developed a parsimonious framework within which the case for assimilating minorities may be examined, and various social conflicts associated with such assimilation clarified. We have shown that the justification for behavioural homogenization may be deduced from (a) the productivity gains it may provide by facilitating economic interaction, and (b) the dampening effect it may have on political contestation among communities for control over symbolic and normative contents of the public sphere. However, these possible gains have to be balanced against the dis-equalizing consequences of integration, both within and across communities. Integration may shift the distribution of both material and symbolic goods against minorities. Second, it may expand income inequality within the minority community itself. This in turn may set in motion attempts to expropriate productive individuals which, through cumulative causation, may more than dissipate any income gains accruing to the minority community from integration. Thus, the efficiency case for assimilation needs to be qualified by the possibility of both immiserization and criminalization of the minority community. Furthermore, measures to protect property rights, which are obviously resource consuming, may be more relaxed, and hence less costly, under separation, without necessarily generating crime or distributive conflict. Such costs offer an additional caveat against assimilation.

Our analysis explains why attempts to integrate *large* minorities into majority *ethno-linguistic* norms in particular may meet with strong resistance, even if there are potential gains from such integration. To illustrate, soon after the formation of Pakistan in 1947, large-scale political conflict broke out in the eastern part of the country over attempts to make Urdu the sole official language. Consequent hardening of oppositional identities between the Urdu-speaking western part and the

Bangla-speaking eastern part eventually led to civil war, genocide and the formation of Bangladesh in 1971. Similar attempts at linguistic unification sparked off decades of civil war in Sri Lanka. [17]

In explaining such conflicts, we can be seen as also providing functional micro-foundations for an argument for the 'rights of nationalities', with *language* as the basis for national identities. Such arguments have been used since the 19th century, initially in Europe to develop a case for German and Italian unifications, subsequently to justify the formation of new states from the ruins of the Czarist, Austro-Hungarian and Ottoman empires, and, later, to justify the organization of multi-ethnic and multi-lingual countries such as the former Soviet Union, the former Yugoslavia, and India along federal lines with administrative units organized broadly on the basis of ethno-linguistic categories. Our analysis suggests that such a form of political organization, by permitting large ethno-linguistic groups to develop their own cultural identities and organizing their economic interactions on the basis of such identities, may have served to equalize welfare both within and across communities, while also restraining the size of the population dependent on individual expropriation.

However, our analysis also points to a major source of potential instability in such federations. Given a history of past antagonisms, and given an overlap between linguistic and ethnic/religious fault-lines, such federations need to devise methods to credibly pre-commit to the equidistance, of the state in large segments of the public sphere, broadly interpreted, so as to keep these segments outside the scope of *ethno-religious* identity-based political contestations. The failure to do so might generate high levels of conflict over the symbolic and normative content of the public sphere. Analogous requirements of neutrality and constitutional rules apply to arbitration mechanisms for resolving conflicting demands by different regions for fiscal transfers, which are likely to become more strident and less open to compromise when inter-regional migration opportunities are restricted by ethno-linguistic fragmentation of the national labour market. Furthermore, such states run the risk of providing inefficient protection to linguistic communities too small to be viable on their own, thereby generating moral hazard problems. In India, constantly proliferating demands for the carving out of new states, especially in the north-eastern part of the country, are usually met by ad-hoc fiscal transfers, which in turn incentivize new ethnicity and language based mobilizations.

These factors generate significant social losses which can potentially be reduced by integrating minorities, especially through linguistic unification. In particular, for relatively small minorities, a segregated existence can causally generate high levels of poverty and criminalization, both of which may be reduced by cultural-cum- linguistic assimilation.[18] However, for such gains to

[17] Montalvo and Reynal-Querol (2005, 2008) find that societies which are ethnically more *polarized*, i.e. where majority and minority communities are close in size, may be more prone to social conflicts (specifically civil wars and genocides). Easterly *et al*. (2006) present a similar finding in the context of mass killings. Our analysis can be seen as providing a theoretical rationalization of these empirical findings. See also footnote 23.

[18] Formally, this is the case where$[(1 - ny_N) > E(c_N)\ and\ R > y_N n\ ]$ (recall Propositions 2 and 4).

actualize, assimilation costs have to be low throughout (i.e. $\overline{\rho}_N$ low). Otherwise, the segment within the minority which loses out from assimilation (those with assimilation costs in $((1-ny_N),\overline{\rho}_N)$) would be large, and this large segment. may well block attempts to assimilate it. Persistence may lead to protracted civic conflict, and the minority community may itself get split between those who wish to assimilate and those who do not.[19] Thus, a small marginalized minority may end up in a culturally and linguistically ghettoised 'identity trap' associated with high levels of poverty as well as low intensity but persistent internal conflict. Even if integrationist efforts are successful, a society may end up with a permanent underclass comprising disproportionately of individuals from minority origins, surviving precariously through various combinations of petty criminality and welfare dependency, simultaneously as other minority individuals integrate and achieve income gains.[20]

One way to reduce assimilation costs might be to encourage assimilation to norms that incorporate elements from the minority culture, rather than being exclusively reflective of the majority. Gandhi wanted the national language of independent India to be Hindusthani, which he conceptualized as a culturally composite language with Sanskrit as well as Arabic and Persian roots. Attempts in Europe and North America to develop a 'multi-cultural' syllabus in public schools, which provides positive exposure to minority expressive conventions and cultures, may also be interpreted in terms of such a project. Our analysis, while sympathetic to such projects, also serves to identify their limitations. To the extent that this attempted composite diverges substantially from the majority's norms, it imposes significant adjustment costs on the *majority*. These costs may easily exceed the gains to the minority, leading to aggregate social losses. Thus, the efficiency case for such cultural compromises is not self-evident. Nor is their political sustainability, since they are likely to generate a political backlash from majorities. Reflections of these political tensions can be perceived in conflicts over the content and organization of the public education system in Western Europe and North America over the last two decades. In India, on the other hand, the canonical formulation of the national language, Hindi, has moved increasingly closer to its Sanskrit origins and away from Arabic and Persian influences, while the converse is arguably true for the trajectory of the national language, Urdu, in Pakistan. While conscious political choices exercised through language academies certainly played a role in these developments, they are also a consequence of the cultural distance between majorities in these countries and the linguistic traditions identified with their respective minorities.

[19] Conflicts within the African-American community over 'acting White' constitute a specific example, of which Austen-Smith and Fryer (2005) provide a formalization.

[20] Urban riots in the UK, France and Sweden are all recent reminders of the volatility of this underclass. Conversely, partition of a country along religious cum ethno-linguistic lines usually leads to large-scale but *incomplete* ethnic cleansing, leaving behind small minority enclaves which tend to get stuck in the kind of identity traps that we have highlighted. Discrimination by the majority, with or without official sanction, makes these identity traps even harder to escape. This seems to be the case for the Muslim minority in some parts of India, for the Arab minority in Israel, as well as for various local minorities in parts of the former Yugoslavia.

Both majorities and minorities may however have an incentive to adopt the behavioural norms of a relatively neutral, but large, *third* community. This third community may be a supra-national entity with global presence, integration with which brings the advantage of access to a global market. Despite decolonization, languages (and cultural-behavioural norms) of the former colonizers, especially English, French, Spanish and Portuguese, continue to be widely and officially adopted in Latin America, Africa and Asia. Our analysis suggests that such adoption may serve to integrate diverse and antagonistic ethno-linguistic communities within a country. Indeed, large majorities may be willing to forgo linguistic dominance over minorities *only* in favour of common assimilation to a third language that carries large benefits. Minorities may also find such assimilation more acceptable than linguistic surrender to the majority because of the cultural-historical neutrality of such a third language (which entails lower assimilation costs) and greater global scope (which increases the benefits). Thus, increased integration with global markets, including labour markets and markets for cultural production, might facilitate integration *within* individual countries, while disruption of such links might exacerbate internal group conflicts. [21] By the same token, integration with external markets may *increase* minority separatism and thereby *increase* internal conflicts when such markets deploy cultural-linguistic norms closer to those of the minority.[22] Relatedly, internal presence of a large 'buffer' community, culturally-linguistically roughly neutral, between two historically antagonistic communities, may help facilitate integration. Our analysis thus highlights the possible importance of the role played by ethno-linguistic fragmentation in *reducing* civic conflict.[23]

Financial compensation may play a role in inducing minorities to integrate. Such schemes, including effective anti-discrimination or affirmative action legislation, can be modelled in our framework as an identical increase in returns from assimilation for all minority individuals (footnote

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[21] There is some weak cross-country evidence linking greater external openness with lower internal conflict, and it is well-known that globalization affects domestic conflict in contradictory ways through channels such as income distribution, international prices for contestable mineral resources, revenue base of the government etc. (see Magee and Massoud (2011) and Barbieri and Reuveny (2005) for recent discussions). We thus add to this literature by highlighting an additional mechanism. Collapse of the Soviet Union and the consequent economic disruption arguably played an important role in the revival of ethno-linguistic tensions in parts of Eastern and Central Europe, as well as in many former Soviet republics. Iintegration into some third linguistic-cultural tradition shifts the normative issue of a just distribution of gains to a global level (see Van Parijs (2011).

[22] In recent decades, opening up of job opportunities in Saudi Arabia has led to important income gains for some sections of Indian Muslims, but has also incentivized greater adoption of Saudi Wahabism-inspired behavioural and religious norms and expanded the influence of Arabic in expressive practices. Remittances have funded ethno-religious assertion (e.g. the building and refurbishment of denominational mosques and religious schools, lavish spending on ceremonies, withdrawal of women from the labour market, campaigns for strict observance of dress and dietary codes, etc.), and on mobilizations to organize, defend or enforce such assertion. This in turn has generated conflict and counter-mobilization. The Saudi influence is noticeable in conflicts over organized attempts to impose Wahabism-inspired linguistic, behavioural and religious norms in Bangladesh and Pakistan as well. See, for example, Boone (2014) for a discussion in the context of Pakistan.

[23] Note that such societies are ethno-linguistically *less polarized*, and recall footnote 17. Desmet *et al.* (2012) and Desmet *et al*. (2009) develop an empirical operationalization of the idea of linguistic *distance* between communities. Consistent with our analysis, the former contribution finds deep linguistic cleavages (which imply large assimilation costs) to be empirically better predictors of civil conflict.

7). However, their actual working involves multiple difficulties. If transfers are made conditional on irreversible assimilation, then the majority has an incentive to renege on its commitments. This has, for example, been the case with treaties signed between the US government and various Native American nations throughout the 19th century. Second, such schemes face standard adverse selection and moral hazard problems: they may require payments to the minority in excess of its actual costs of assimilation, due to the difficulty of measuring these idiosyncratic costs (or assimilatory achievements) with any degree of confidence. As is well-known in the literatures on affirmative action programs and anti-poverty transfers, such payments may also set up perverse individual incentives that reduce minority efforts to acquire productivity enhancing skills.[24] Reinterpretation of the insights generated by these cognate literatures to the issue of optimal compensation schemes, within our unified framework of explicit interactions among minority integration, identity conflict, decentralized crime and welfare dependency, remains an open research area.

Lastly, our analysis points to the interesting possibility of non-financial compensation to minorities through expansion of the part of the public sphere closed to political competition between communities (Corollary 1). It suggests that minorities may be more open to assimilation in productivity-relevant cultural (especially linguistic) norms when associated with measures to reduce majority ethno-religious control over the symbolic and normative aspects of the public sphere. Thus, when the minority differs from the majority in both language and religion, making the majority language the sole medium of instruction in schools may face less opposition if 'bundled' with policies to secularize an education system largely controlled by majority religious organizations. Whether such policy bundling works in general is an empirical question that deserves in-depth scrutiny.

Appendix

Proof of Proposition 1. For a minority individual *j*, the net assimilation premium is:

$$P_{jN} = [(m + n_M)(1 - c_j) - (n - n_M)y_N]; \tag{X1}$$

so that (recalling (2)), for the marginal assimilating N individual, the net gain from assimilating is:

$$Z_N(n_M) \equiv [(m + n_M)(1 - \check{c}_N(n_M)) - (n - n_M)y_N]. \tag{X2}$$

Complete separation (i.e. $n_M = 0$) is an equilibrium iff $Z_N(0) \leq 0$, while complete assimilation (i.e. $n_M = n$) is an equilibrium iff $Z_N(n) \geq 0$. Partial integration is an equilibrium iff, for some $n_M \in (0, n)$, $Z_N(n_M) = 0$. First notice that, since $\check{c}_N(0) = \rho_N$ (recall (3)), (X2) implies:

[24] On affirmative action, see, for example, Holzer and Neumark (2000). Transfers conditional on assimilation efforts (e.g. participation in language classes) may also generate socially *excessive* adjustment by minorities: Bougheas *et al*. (2007) show how conditional anti-poverty transfers may be inefficient, yet persist indefinitely.

$$Z_N(0) = [m(1-\rho_N) - ny_N)]. \quad \text{(X3)}$$

Assumption 1(i) and (X3) together imply $Z_N(0) < 0$. Hence complete separation is an equilibrium. Now recall $\check{c}_N(n) = \overline{\rho}_N < 1$. Hence, from (X2), $Z_N(n) > 0$, implying that complete assimilation by the minority community must also be an equilibrium. Lastly, notice that, by (X2),

$$Z'_N(n_M) \equiv 1 + y_N - [\check{c}_N(n_M) + (m + n_M)\check{c}'_N(n_M)]. \quad \text{(X4)}$$

From (3)-(5), $\check{c}(n) = \overline{\rho}_N, \check{c}'(n) = \frac{(\overline{\rho}_N - \rho_N)}{n\alpha_N} > 0$, and $\check{c}''(n_M) > 0$. Then (noting Assumption 1(ii) and recalling $y_N \leq 1$), $Z'_N(n) < 0, Z''_N(n) < 0$ for all $n_M \in (0, n]$ and $\lim_{n_m \to 0} Z'_N(n_M) = (1 + y_N - \rho_N) > 0$. It follows that: (a) the equilibrium involving complete assimilation by the minority, and that involving complete separation, are both locally stable, and (b) there exists exactly one equilibrium involving partial assimilation by the minority, but this equilibrium is unstable. The proof of the claim made regarding equilibria involving majority acquisition of minority norms is exactly analogous. ■

Proof of Proposition 2. If N universally assimilates, total output is given by:

$$Y_M = [1 - nE(c_N)]; \quad \text{(X5)}$$

where $E(c_N)$ is the expected assimilation cost for an N individual. Output under separation is:

$$Y_S = [(1-n)^2 + n^2 y_N]. \quad \text{(X6)}$$

M's total income under integration by N is m; whereas it is m^2 under separation. Hence, integration by the minority increases total income of the majority. Since incomes are identical within M, all its members earn more. Under assimilation by N, M's income share, using (X5), is:

$$H_{MM} = \frac{m}{1-(1-m)E(c_N)}; \quad \text{(X7)}$$

while under separation, using (X6), it is:

$$H_{MS} = \frac{m^2}{(1-m)^2 y_N + m^2}. \quad \text{(X8)}$$

Using (X7) and (X8), we get:

$$H_{MM} \leq H_{MS} \text{ iff } E(c_N) \leq (1 + y_N - \frac{y_N}{m}). \quad \text{(X9)}$$

Now since $\rho_N < E(c_N)$, (X9) implies: $H_{MM} \leq H_{MS}$ only if $\rho_N < (1 + y_N - \frac{y_N}{m})$, which violates Assumption 1(i). Hence $H_{MM} > H_{MS}$. Part (a) of Proposition 2 follows.

By (X5)-(X6), total output is higher under assimilation iff $E(c_N) < [2m + (1-m)(1 - y_N)]$. Since $E(c_N) < 1$, $m > \frac{1}{2}$, and $y_N \leq 1$, part (b) follows. Now, under assimilation, total

income received by N is $n[1-E(c_N)]$, while that under separation is $n^2 y_N$. Part (c) of Proposition 2 follows. Lastly, income received by a minority individual under assimilation is $\left(1-c_{N,j}\right)$, while that under separation is ny_N. Comparing, we get part (d) of Proposition 2. ■

Proof of Proposition 3. Let Y be the total income in society, and let $\widehat{H}_i$ be the share of political contributors in i. From (9), aggregating over the contributing population of each community, and letting $\hat{X}^i$, $\hat{s}_i$ denote, respectively, total private consumption and population share of contributing members of i, we get the Nash equilibrium conditions: $\forall i \in \{M,N\}, [\hat{X}^i = \widehat{H}_i Y - b_i = \frac{b_i \hat{s}_i}{\sigma_i t}]$; so that:

$$\forall i \in \{M,N\}, [b_i = \frac{\widehat{H}_i Y \sigma_i t}{\hat{s}_i + \sigma_i t}]. \tag{X10}$$

Recall that individual incomes are identical within each community under separation, while they are identical within the majority community under assimilation by the minority. Hence, in these three cases, the set of contributors within a community must be the entire community. Since $\sigma_N > \sigma_N^*(t)$, the set of contributors within a community is the entire community in the remaining case as well. Thus, denoting by H_{iS}, H_{iM} the income share of the community i in the separated and assimilated equilibrium, respectively, from (X10), the equilibrium community political contributions are:

$$b_{NS} = \frac{H_{NS} Y_S \sigma_N t}{n+\sigma_N t}, b_{MS} = \frac{H_{MS} Y_S \sigma_M t}{m+\sigma_M t}, b_{MM} = \frac{H_{MM} Y_M \sigma_M t}{m+\sigma_M t}, b_{NM} = \frac{H_{NM} Y_M \sigma_N t}{n+\sigma_N t}. \tag{X11}$$

From (X11), total political expenditure, expressed as a proportion of total income, is given by:

$$B_S = [\frac{(1-H_{MS})}{\frac{n}{\sigma_N t}+1} + \frac{H_{MS}}{\frac{m}{\sigma_M t}+1}], B_M = [\frac{(1-H_{MM})}{\frac{n}{\sigma_N t}+1} + \frac{H_{MM}}{\frac{m}{\sigma_M t}+1}]; \tag{X12}$$

From (X12), we get:

$$B_S > B_M \text{ iff } (H_{MM} - H_{MS}) \left[\frac{1}{\frac{n}{\sigma_N t}+1} - \frac{1}{\frac{m}{\sigma_M t}+1}\right] > 0. \tag{X13}$$

Since $n < m$ and $H_{MM} > H_{MS}$ (by Proposition 2(a)), (X13) implies:

$$B_S > B_M \text{ if } \sigma_N \geq \sigma_M. \tag{X14}$$

Part (a) of Proposition 3 follows from (X13) and (X14) by continuity.

Noting (X11), under separation, $\frac{b_{NS}}{b_{MS}} = \left(\frac{ny_N}{m}\right)\frac{(mn\sigma_N + n\sigma_M\sigma_N t)}{(nm\sigma_M + m\sigma_N\sigma_M t)} < 1$ if $\sigma_N \leq \sigma_M$; while, under assimilation, $\frac{b_{NM}}{b_{MM}} = \frac{(mn\sigma_N + n\sigma_M\sigma_N t)}{(nm\sigma_M + m\sigma_N\sigma_M t)} < 1$ if assimilation costs are 0. Hence, N's political expenditure must be lower than M's in either case when $\sigma_N \leq \sigma_M$. Part (b) of Proposition 3 follows by continuity.

From (X11),

$$\frac{b_{NS}}{b_{MS}} = \left(\frac{H_{NS}}{H_{MS}}\right)\frac{\sigma_N(m+\sigma_M t)}{\sigma_M(n+\sigma_N t)}, \frac{b_{NM}}{b_{MM}} = \left(\frac{H_{NM}}{H_{MM}}\right)\frac{\sigma_N(m+\sigma_M t)}{\sigma_M(n+\sigma_N t)}. \quad \text{(X15)}$$

Since M's income share is higher under assimilation (Proposition 2(a)), (X15) implies part (c).

From (X11), any increase in the contestable part of the public sphere (i.e. in *t*) reduces the private consumption of all members of society. Using (X15), we also have:

$$\frac{d\left(\frac{b_N}{b_M}\right)}{dt} = \left(\frac{H_N}{H_M}\right)\left[\frac{\sigma_N{\sigma_M}^2(n+\sigma_n t)-\sigma_M{\sigma_N}^2(m+\sigma_m t)}{{\sigma_M}^2(n+\sigma_n t)^2}\right] = \sigma_N\sigma_M\left(\frac{H_N}{H_M}\right)\left[\frac{\sigma_M n-\sigma_N m}{{\sigma_M}^2(n+\sigma_n t)^2}\right]. \quad \text{(X16)}$$

From (X16), $\frac{d\left(\frac{b_N}{b_M}\right)}{dt} < 0$ if $\sigma_N \geq \sigma_M$. Part (d) follows from (X16) by continuity. ■

Proof of Corollary 2. By Proposition 2(a), assimilation increases the income of every M individual. Then, by (9), private consumption of every M individual must rise. By Proposition 3(c), M's share of the contestable part of the public sphere rises when N assimilates. Part (a) of Corollary 2 follows from (8). Now, when $m < \rho_N$, assimilation lowers income of every N individual (Proposition 2(d)). Suppose private consumption increases for some N individual. Then, by (9), total minority political expenditure must rise, which in turn implies that private consumption must rise for *every* N individual, so that total N income must rise: a contradiction. Hence, private consumption must fall for every N individual. Part (b) of Corollary 2 follows from (8) and Proposition 3(c). ■

Proof of Proposition 4.

(a) Since assimilation costs are 0 under separation, part (a) of Proposition 4 is self-evident.

(b) Suppose under assimilation no expropriation is an equilibrium. Then the proportion of N earning at least R is unity. But, as $R \in (1-\overline{\rho}_N, 1)$, this cannot be. Now, if the entire population expropriates, then the return to it is 0, while the return to production, 1- $\bar{L}$, is positive. Hence (recalling that expropriation must obtain), in any equilibrium, both production and expropriation must engage positive proportions of the population. Evidently, if any M individual is better off through expropriation, then the same must hold for *all* N individuals. Thus, any equilibrium where a positive proportion of M expropriates must also be one where all of N expropriates. Thus, any equilibrium must fall in one of exactly two categories: (a) only N individuals expropriate, or (b) all of N, and some, but not all, of M expropriate. Hence N participates proportionately more in expropriation.

We now show that there exists at least one locally stable equilibrium under assimilation. By (13), $\pi_P(0) = \left(1-\overline{\rho}_N\right) - R < 0$; $\pi_P(1) = (1-\bar{L}) > 0$; $\pi_P(x)$ is continuous and identical to $\bar{\pi}_P(x)$ in $[0, n)$ and $(n, 1]$, though discontinuous at $x = n$. Then a stable equilibrium between 0 and *n* must

exist if $\pi_P(n) > 0$, while one lying between n and 1 must exist if $\bar{\pi}_P(n) < 0$. If [$\pi_P(n) \leq 0$ and $\bar{\pi}_P(n) \geq 0$], $x_E = n$ must be an equilibrium. If [$\pi_P(n) < 0$ and $\bar{\pi}_P(n) > 0$] then, by continuity of both in $[0, n)$ and $(n, 1]$, $x_E = n$ must be stable. If $\pi_P(n) = 0$, then $x_E = n$ is stable when there exists $\varepsilon > 0$ such that $\pi_P(x) < 0$ for all $x \in (n - \varepsilon, n)$. If there exists $\varepsilon > 0$ such that $\pi_P(x) > 0$ for all $x \in (n - \varepsilon, n)$, then, by continuity, there must be a stable equilibrium $x_E \in (0, n)$. Again, by continuity, the only remaining possibility is that, for some $\varepsilon > 0$, [$\pi_P(x) = 0$ for all $x \in (n - \varepsilon, n)$]. It is easy to check from (13) that this cannot be. Hence, there must exist at least one locally stable equilibrium $x_E \in (0, n]$ whenever [$\pi_P(n) = 0$ and $\bar{\pi}_P(n) > 0$]. By an exactly analogous argument, there must exist at least one locally stable equilibrium $x_E \in [n, 1)$ whenever $\bar{\pi}_P(n) = 0$. ■

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