School Language Policy, Crime and the Minority Underclass

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1 Introduction

In practically all societies divided between a well-defined majority ethno-linguistic community and at least one such minority, the language and cultural-cum-behavioural conventions to be adopted in public educational institutions constitute a standard site of political contestation between communities. Broadly, two different positions can be perceived in this context. One may term the first position behavioural-expressive centralization or *unitarianism*. This involves the idea that public institutions in general, and public educational institutions in particular, should solely reflect the linguistic and cultural-behavioural conventions of the majority, so that minority individuals may access these institutions only if they 'assimilate', i.e., adopt these conventions. The second position may be termed behavioural-expressive *federalism*. This enjoins public institutions to partially adopt the cultural-linguistic and behavioural conventions of at least the larger minorities, so that the latter may access these facilities while maintaining their linguistic and cultural/behavioural distinctiveness. The objective of this paper is to provide an analytical framework within which these policy stances can be assessed, and their implications for income distribution, decentralized crime and welfare dependency explicated.

The formal model presented in this chapter draws heavily from sections of a much broader analysis carried out in my unpublished discussion paper titled 'Assimilation, criminality and ethnic conflict', co-authored with Diganta Mukherjee of the Indian Statistical Institute (IZA Discussion Paper No. 7924, January 2014). The concrete application to school language policy pursued here was however not attempted in that paper. The primary analytical focus of that paper was on ethnic conflict: an issue I do not engage with at all here.

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Behavioural-expressive unitarianism (unitarianism for brevity) may take the extreme form of inserting minorities into a majority institutional setting without giving them the legal scope to opt-out. 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. In Australia, children of Aboriginal and Torres Strait Islander descent used to be 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 during 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 from 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 countries 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 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] In these cases, minority individuals are notionally free to opt out of assimilation, but only by losing access to valuable public services.

Standard historical examples of behavioural-expressive federalism (federalism for brevity) come from the Austro-Hungarian empire, Yugoslavia and the Soviet Union. In these cases, in regions of minority concentration, many, or even all, public educational institutions adopted the minority's language as the medium of instruction, and at least a large part of both judicial and administrative business was carried out in the minority's language. India, Francophone Canada, and, to a lesser extent, many parts of the US with large Hispanic populations, provide contemporary examples.

What are the relative economic merits of unitarianism vis-à-vis federalism, in our linguistic-cultural context? The former imposes costs of access to public educational institutions on minorities, but makes such access costless for the majority. The latter, in effect, divides up public institutions in general, and the public edu-

[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 sole state language and a requirement for citizenship. In the UK, English language requirements for citizenship tests have been progressively tightened in recent years.

cation system in particular, between communities, imposing costs on the majority for accessing the minorities' share of public institutions, and vice versa. Cultural-linguistic segregation in the public education system is then largely replicated by the consequent cultural-linguistic segmentation of the labour market. Seen in this light, an important argument in support of the case for unitarianism, and its ultimate objective of assimilating linguistic-cultural minorities to the majority's linguistic and behavioural conventions, appears to be the following. 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 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 linguistic-cultural centralization and linguistic-cultural federalism, on income distribution, decentralized crime and welfare dependency, has received little analytical attention in the formal theoretical literature on political economics. This paper seeks to address this lacuna.[4]

I consider a society consisting of a majority and a minority. These communities *antagonistically* differ in terms of a set of behavioural-expressive traits and conventions, which are relevant for learning interaction and coordination. Individuals born into a community acquire that community's traits and conventions as part of their upbringing within the community. Language, including dialect, idiom, accent and modes of expression, constitutes the most transparent example of such learning-relevant conventions, but not the only one. Working according to a particular time allocation routine and holiday schedule (e.g. not working on Fridays or Sundays), dress codes (e.g. Islamic veils or Sikh turbans), dietary restrictions (e.g. injunctions against beef, pork, alcohol and non-kosher meat, or adoption of vegetarianism), rules of social interaction (e.g. untouchability or gender-segregation): all constitute common examples of community-specific behavioural traits and conventions that are relevant for within-school interaction and teaching-learning coordination. Expanding on Akerlof and Kranton (2000), I assume that 'switching identity', or bringing one's behaviour and modes of expression into alignment with those commonly present in (and thereby constitutive of) the other community, is feasible but

[3]Contemporary examples 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]The theoretical contributions most closely related to the concerns of this paper are by Ortega and Tangerås (2008), who develop a political-economic analysis of the imposition of mono-lingual education by dominant groups, and Dasgupta (2017), who examines the connections between linguistic assimilation and group conflict over identity goods. Neither of these two contributions addresses the implications of language and cultural policy in schools for either decentralized crime or welfare dependency. More distantly related are contributions by Lazear (1999), Kónya (2005), Kuran and Sandholm (2008), Li (2013) and Bowles et al. (2014), who develop models of assimilation (or, more generally, social segregation and integration) and that by Akerlof and Kranton (2000), who explain forms of dysfunctional individual behaviour in terms of stresses generated by identity norms.

costly in terms of effort. Individuals vary in terms of their identity switching costs, and are endowed with one unit of effort that they can allocate between learning and identity-switching. There exists one unit of a (non-rival but excludable) pedagogic public good ('schools'), which is allocated across communities according to public policy.

I first consider two alternative policy scenarios under the assumption of secure property rights over income from productive activities. Under the first, unitary, scenario, the entire pedagogic good is costlessly available to all majority individuals, the intuitive interpretation being that the educational system is entirely organised according to the linguistic and behavioural conventions of the majority. To access the educational system, therefore, every minority individual has to incur her idiosyncratic identity switching cost. Individuals' earnings consequent on accessing the educational system are simply unity minus their identity switching cost, the difference being assumed positive. Individuals earn nothing if they don't access the pedagogic public good, the intuitive interpretation being that individuals can only produce after acquiring knowledge and training through the school system.

Under the second, federal, scenario, the pedagogic public good is divided between the two communities according to their population shares. Her own community's share of the public good is costlessly available to a community member, but she cannot access the share of the other community. Intuitively, this formulation is meant to capture a situation where some parts of the educational system (say, schools located in areas of minority concentration) use the minority's language as the medium of instruction and adopt its behavioural conventions (say, gender-segregated and burkha-permitting class rooms, halaal meat-only cafetarias, holidays on Fridays rather than Sundays and religious instruction as part of the curriculum), while the rest use the majority's language and behavioural conventions (which violate those of the minority). A community's share of the school system is identical to its population share. An individual's earnings are simply given by the size of the segment of the public good allocated to her birth community. The interpretation is that, due to the presence of administrative indivisibilities, being able to access a larger segment of the education system implies being able to choose from larger menus of pedagogic styles, disciplinary combinations or specializations, infrastructural facilities and school locations, which facilitates a closer match between an individual's idiosyncratic learning aptitude or intrinsic comparative advantage and the training or education she acquires. Receiving an education more appropriate to one's idiosyncratic characteristics implies better learning outcomes, which in turn generate higher personal productivity.

Thus, in sum, a unitary school system implies a better fit between a minority individual's personal learning-relevant characteristics and the education she receives, compared to a federal one. This improves her productivity. This positive effect is counteracted by the identity-switching effort cost she has to incur, which reduces her productivity. I assume that the net effect on productivity is positive for some, but not all, minority individuals, and positive for the minority community on average.

I first identify a set of parametric restrictions under which a federalist education system, once installed by fiat or as a consequence of political contestation between

communities, can be self-sustaining, in that no individual will have an incentive to unilaterally shift to the other community's segment of the system (i.e., switch identity). Nonetheless, under these parametric conditions, both communities would achieve aggregate income gains if the state were to shift to a unitary educational system organised according to the majority's linguistic and behavioural conventions by fiat. Thus, under my parametric restrictions, enforced assimilation by the minority to the majority's behavioural-expressive norms worsens the income distribution within the minority community, even as it makes both communities better off on average. In this sense, my benchmark model formalizes and clarifies the efficiency case for a unitary school system, while also highlighting its adverse equity consequences.

I proceed to examine how my efficiency conclusions hold up under imperfect property rights protection. I extend the analysis by incorporating individual expropriation as a way of acquiring income, in addition to school-mediated production. I 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. I show that a unitary education system 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 *every* member of the minority community, even when, *sans* expropriation, it would both generate income gains for that community on average and make a large proportion of its members better off. Expropriation may however be entirely absent under a federal education system. Thus, the aggregate income gain for the minority community brought about by linguistic-cultural centralization may be more than fully negated by the decentralized distributive conflict it generates, via its dis-equalizing impact on income distribution within that 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 a federal education system, 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 and the creation of an unproductive minority underclass, while the equity case remains dubious. I thus provide a priori grounds for adopting a cautionary position with regard to integrationist policy claims.

Section 2 sets up the benchmark model, under the assumption of secure property rights over income from productive activities. Section 3 incorporates expropriation as an alternative avenue of income generation. Section 4 concludes.

2 The Model with Secure Property Rights[5]

Consider a population of size normalized to 1, comprised of two groups, M (majority) and N (minority), with population shares m and n respectively, $m = (1 - n)$, $\mathrm{n} \in \left(0, \frac{1}{2}\right)$. Each member of the population is endowed with one unit of effort, which she expends on activities related to earning income.

To earn income, each individual needs to acquire education via a school system. In order to access the school system, each individual needs to acquire some identity-related, or community-specific, linguistic-cultural characteristics, to successfully engage in learning-related ('class-room') negotiations and coordination. The marginal product of effort, contingent on acquiring the characteristics specific to community $i \in \{M, N\}$, is θ_i, where $\theta_i \in [0, 1]$ is the proportion of a composite unit of educational institutions that is organised according to the cultural-cum-behavioural conventions and characteristics of community i. Thus, the benefit from acquiring a particular set of expressive and behavioural conventions depends positively on how pervasive those conventions are in educational institutions. This captures the idea that being able to access a larger segment of the school system implies better learning outcomes, which in turn generate higher personal productivity. Given any community $i \in \{M, N\}$, I shall denote the other community by $-i$. For j born into community i, acquisition of the behavioural and expressive conventions 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 $[\rho_i, \bar{\rho}_i]$, with $0 < \rho_i < \bar{\rho}_i < 1$, according to some continuous and differentiable distribution function $F^i(c)$.

An obvious interpretation of c is in terms of the effort spent in acquiring a new language and behavioural rules instead of substantive knowledge, techniques, and modes of problem-solving within a specific discipline: some are inherently more efficient learners of language and 'manners'. A deeper one is that not all can internalize alien conventions 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 learning outcomes and consequently market productivity. These differences are however not intrinsic but specific to the cultural construction of educational institutions: these differences would disappear if production-enabling educational institutions were organized according to the conventions one was originally socialized into.[6] In any case, the formal upshot is that, for j born into community $-i$, the return from adopting the learning relevant behavioural conventions of the other community, i, is $\theta_i\left(1 - c_{-i,j}\right)$, where $c_{-i,j}$ is

[5]The benchmark model developed in this section is broadly similar to that presented by Dasgupta (2017), though the substantive questions investigated there are very different.

[6]This is a familiar general idea in the sociology of education, exemplified by the various writings of Pierre Bourdieu. See, for example, Bourdieu and Passeron (1977). The Chilean film Machuca (2004), written and directed by Andrés Wood, provides a striking portrayal of identity switching costs imposed on poor Native American children when they are enrolled on scholarship in an exclusive private school with an almost entirely White and upper class student body, in the context of Chile in 1973.

the identity-switching (marginal) effort cost of negotiating an alien educational environment for the individual.[7] For such an individual, the return from persisting with one's original behavioural conventions is $(1 - \theta_i)$. I assume that the distribution of identity switching costs follows an exponential form:

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

where $\alpha_i > 0 \forall i \in \{M, N\}$. In case of a concave cost distribution ($\alpha_i \in (0, 1)$) more than half the minority population falls below the mid-point of the cost distribution. Thus, intuitively, minority individuals are more likely to be low cost, rather than high cost; or, equivalently, concentrated in the lower part of the cost distribution with regard to assimilation. The opposite holds for a convex cost distribution. Thus, a concave cost distribution would appear, a priori, to be the case where assimilation is most likely to benefit the minority community on average. Contingent on switching identity, the income $I_{-i,j}$ of j born into community $-i$ falls in the interval $\left[\theta_i(1 - \bar{\rho}_{-i}), \theta_i(1 - \rho_{-i})\right]$.

Let n_M be the size of the 'assimilated' minority population (those who adopt the behavioural and expressive conventions 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:

$$\breve{c}(n_M) \equiv F^{N^{-1}}\left(\frac{n_M}{n}\right). \tag{2}$$

$\breve{c}(.)$ 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):

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

so that

[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 ($\theta_1 d$) for all minority individuals. Individuals may perceive their own expressive and behavioural habits as norms rather than conventions, in that they may intrinsically value them as ideals to live by. In that case, identity-switching will involve a psychic cost. If such marginal psychic cost increases with the level of workplace effort, individuals may rationally provide less than full effort in an alien work environment. The effort level provided will then vary according to idiosyncratic differences in the marginal psychic cost function. Though evidently compatible with my analysis, I refrain from explicitly modelling this additional source of idiosyncratic differences in productivity on considerations of expositional ease and simplicity.

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

$$\breve{c}''(n_M) = (1-\alpha_N)\frac{(\bar{\rho}_N - \rho_N)}{(n\alpha_N)^2}\left(\frac{n_M}{n}\right)^{\frac{1-2\alpha_N}{\alpha_N}}. \tag{5}$$

Thus, the marginal assimilation cost function (or the inverse supply function) $\breve{c}(.)$ is *increasing* in the size of the assimilated population over $(0, n]$. It is convex if $\alpha_N \in (0, 1)$ and concave if $\alpha_N > 1$. Analogous expressions hold for M.

Assumption 1 (i) $[\bar{\rho}_N > m > \rho_N > m - n]$; and (ii) $[m > E(c_N)]$.

By Assumption 1(i), when the educational public good is divided according to population proportion, no individual will unilaterally choose the other community's expressive and behavioural conventions. Thus, Assumption 1(i) ensures that, if a population-proportionate federal school system was brought about by state fiat, it would be self-perpetuating, since no individual would have a unilateral incentive to migrate to the other community's education sector. Such a system would constitute a Nash equilibrium. Hence, a shift to a unitary system would require a purposive act of policy intervention. Assumption 1(i) also embeds the analytically more interesting and empirically more plausible scenario where some, but not all, minority individuals would be better off if the entire educational system was organised according to the majority's conventions. Since I wish to highlight the role played by property rights protection in determining the social consequences of a unitary education policy, I set up the most favourable scenario for a unitary education system under secure property rights by assuming that the aggregate benefit to the minority from linguistically-culturally unifying the school system along majority conventions is greater than its total cost (Assumption 1(ii)).

What happens if, from an initial condition of population-proportionate federalism constituting a stable individually-rational equilibrium, public policy shifts the school system to a unitary form organised according to the majority's linguistic-cultural conventions, under secure property rights? I now turn to this question. I ignore the possible case where the unitary school system is organised according to the minority's conventions since the treatment is symmetric. The answers are summarized in Observation 1 below, which follows immediately from Assumption 1.

Observation 1 *Let Assumption 1 hold. Then, under linguistic-cultural unitarianism according to the majority's conventions relative to linguistic-cultural federalism:*

(a) *every member of the majority community earns more,*
(b) *total income in society is higher,*
(c) *total income of the minority community rises, and*
(d) *some, but not all minority individuals suffer an absolute income reduction.*

Observation 1 articulates the efficiency argument for linguistic unitarianism under a best-case scenario. 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 increases. However, while incomes within a community are identical under segregation, 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). Nonetheless, N benefits monetarily on average from assimilation since the gain from assimilation is greater than the average cost. The larger the majority relative to the minority's average cost of assimilation, the higher the gain to minority individuals on average from assimilation. However, since the upper bound on assimilation costs is higher than the gain from assimilation, a positive proportion of N individuals (those with costs in $(m, \bar{\rho}_N)$) must suffer a fall in income under assimilation, while those with lower costs, i.e. costs in the interval (ρ_N, m) will achieve income gains.

3 School Policy Under Insecure Property Rights

From the perspective of the minority, the key justification for assimilation identified by my 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. I now proceed to show that these purported gains may be illusory: they may be more than eliminated by decentralized conflict over expropriation generated endogenously by assimilation when property rights over income from production are insecure.

I 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 transfers (welfare payments) to non-producers as well. I 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 $\bar{L} \in (0, n)$. Both R and $\bar{L}$ are to be thought of as measures of property rights protection. For crime, I 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.[8] When expropriation involves welfare transfers to non-producers, R represents the most that a given political system can

[8]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

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:

$$\begin{aligned} r &= R \, if \, x \leq x^* \equiv \bar{L}/(R + \bar{L}); \\ &= \frac{(1-x)\bar{L}}{x} \quad \text{otherwise.} \end{aligned} \tag{6}$$

Given any proportion of the population engaged in production $(1 - x)$, let $\pi_P(x)$ be the *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 linguistic unitarianism, recalling (2),

$$\begin{aligned} \pi_P(x) &= \left[1 - Min\left\{\frac{xR}{1-x}, \bar{L}\right\} - \breve{c}_N(n-x)\right] - r \text{ if } x \leq n; \\ &= \left[1 - Min\left\{\frac{xR}{1-x}, \bar{L}\right\}\right] - r \text{ if } x > n, \end{aligned} \tag{7}$$

whereas, under linguistic federalism,

$$\begin{aligned} \pi_P(x) &= \left[n - Min\left\{\frac{xR}{1-x}, \bar{L}\right\}\right] - r \text{ if } x \leq n; \\ &= \left[m - Min\left\{\frac{xR}{1-x}, \bar{L}\right\}\right] - r \text{ if } x > n. \end{aligned} \tag{8}$$

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 $x \in (x_E - \varepsilon, x_E)]$.

incorporation of identity switching costs rules out this possibility when assimilation occurs in my model (see Proposition 1(b) below).

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

(a) under linguistic federalism, absence of expropriation constitutes a locally stable equilibrium; but

(b) under linguistic unitarianism, absence of expropriation cannot 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 involving expropriation will necessarily exist.

Proof of Proposition 1 (a) Since assimilation costs are 0 under federalism, part (a) of Proposition 1 is self-evident.

(b) Suppose under unitarianism no exprop1qqriation is an equilibrium. Then the proportion of N earning at least R is unity. But, as $R \in (1 - \bar{\rho}_N, 1)$, 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. Hence, 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.

I now show that there exists at least one locally stable equilibrium under a unitary school policy. By (7), $\pi_P(0) = (1 - \bar{\rho}_N) - R < 0$;$\pi_P(1) = \left(1 - \bar{L}\right) > 0$; $\pi_P(x)$ 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 (7) 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 $\bar{\pi}_P(n) = 0$

■

By Proposition 1(a), universal individual acceptance of the extant distribution of income can co-exist with linguistic-cultural segregation in the education system, 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 school level. This will also constitute the only possible equilibrium when property rights are sufficiently well protected, so that $R < \left(n - \bar{L}\right)$. 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 linguistic federalism (n may exceed R by an arbitrarily small amount).

In contrast, under linguistic unitarianism or centralization, 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 1(b)). Due to identity switching costs, linguistic centralization creates an 'underclass' of minority individuals: the proportion of the minority population with earnings arbitrarily close to $1 - \bar{\rho}_N$ 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, identity switching costs can magnify even minor breaches of property rights protection into high and persistent levels of distributive strife.

Proposition 1(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 transfers, 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.[9] The following example illustrates this point.

[9] At a broad interpretative level, this finding serves to make sense of the case of the so-called 'criminal tribes' in colonial India. 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

Example 1 Let $\bar{\rho}_M = \bar{\rho}_N = 0.71, \rho_M = \rho_N = 0.59, m = 0.7, \alpha = 1, R = 0.295, x^* = \frac{1}{2}$. Then Assumption 1 holds, $R = \bar{L}$, $[n > R > (1 - \rho_N) - \frac{nR}{(1-n)}]$, $[1 - \bar{L} > R]$ and $[m < 1 - \bar{L}]$. Given a unitary school system, 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 a population-proportionate federal school system. Expropriation thus leads to *all* N individuals earning less under linguistic-cultural unification of the education system than what they may have done under a segregated one, though all M earn more. *Sans* expropriation, unification would have generated income gains for approximately 91.7% of the N population, and also increased its total income.

4 Discussion and Concluding Remarks

This paper has developed a theoretical framework within which one may examine the case for linguistic-cultural unification of the educational system in societies with multiple ethno-linguistic communities. I have shown that possible efficiency gains from unification have to be balanced against the consequences of integration expanding income inequality within the minority community. Such expansion 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 a unitary education policy needs to be qualified by the possibility of both immiserization and criminalization of the minority. Furthermore, measures to protect property rights, which are resource consuming, may be more relaxed, and hence less costly, under a school system organised on principles of linguistic-cultural federalism, without necessarily generating crime or distributive conflict. Such costs offer an additional caveat against enforced assimilation, and provides conditional support for a federal school policy in the presence of *large* linguistic minorities. However, my analysis also shows that, for relatively small minorities, educational segregation can causally generate high levels of poverty and criminalization, both of which may be reduced by cultural-cum-linguistic assimilation.[10] Nonetheless, assimilation may be blocked by the segment within the minority which loses out from assimilation: the minority community may

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 Sect. 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).

[10]Formally, this is the case where $R > n$ (recall Proposition 1).

itself get split between those who wish to assimilate and those who do not.[11] Thus, a small marginalized minority may end up in a culturally and linguistically ghettoised 'identity trap' associated with high levels of crime, poverty and 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.[12] Elsewhere (Dasgupta 2017) I have discussed in detail how various language policy measures may be envisaged to reduce identity switching costs for minority individuals. Detailed formal examination of such policy measures would appear to constitute a useful avenue of future research, especially in the context of linguistic-cultural identity traps.

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

[12] Urban riots in the UK, France and Sweden are all recent reminders of the volatility of this underclass. Conversely, partition of a country along 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 I 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. The 1989 Hindi film "Salim Langde Pe Mat Ro", directed by Saeed Akhtar Mirza, provides an insightful depiction of such an identity trap in the context of a Muslim neighbourhood of Mumbai during a period of heightened religious tensions.

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