I Z A

IZA DP No. 3591

Ethnicity, Assimilation and Harassment in the Labor Market

Gil S. Epstein
Ira N. Gang

July 2008

Ethnicity, Assimilation and Harassment in the Labor Market

Gil S. Epstein
Bar-Ilan University
and IZA

Ira N. Gang
Rutgers University
and IZA

ABSTRACT

Ethnicity, Assimilation and Harassment in the Labor Market

We often observe minority ethnic groups at a disadvantage relative to the majority. Why is this and what can be done about it? Efforts made to assimilate, and time, are two elements working to bring the minority into line with the majority. A third element, the degree to which the majority welcomes the minority, also plays a role. We develop a simple theoretical model useful for examining the consequences for assimilation and harassment of growth in the minority population, time, and the role of political institutions. Over time, conflicts develop within the minority group as members exhibit different interests in assimilating and in maintaining their cultural identity. We discuss how this affects the minority's position over time and the influence of public policy.

JEL Classification: D74, F23, I20, J61, L14

Keywords: assimilation, contracts, ethnicity, market structure, networks, harassment

Corresponding author:

Gil S. Epstein
Department of Economics
Bar-Ilan University
52900 Ramat-Gan
Israel
E-mail: epsteig@mail.biu.ac.il

Ethnicity, Assimilation and Harassment in the Labor Market

Introduction

Minority ethnic group participation in labor markets is quite complex and in many ways different from that of citizens belonging to a nation's majority ethnicity. Studies of minorities around the world show, with few exceptions, that they tend to earn wages substantially below those of comparable majority workers (Altonji and Blank 1999, Blau and Kahn, 1997, 2006, 2007, Smith and Welch, 1989, Bhaumik, Gang and Yun, 2006). Partly, this reflects a failure on the part of the minority group to undertake the effort to assimilate with the majority (Constant, Gataullina and Zimmermann, 2008). "Lack of effort" can arise from the desire to maintain a cultural heritage or separate identity which would be lost or reduced if the group assimilated. The failure to take active steps to assimilate can also arise in the face of high adjustment costs, such as inadequate language skills, intergenerational familial conflicts, and, in the case of immigrants, lack of knowledge about the host country labor market (Chiswick and Miller, 1995, 1996, Bauer, Epstein and Gang, 2005). Yet for immigrants and their descendants, as length of time in the host country increases, assimilation generally creeps in and various immigrant labor market indicators approach those of comparable majority workers. On occasion, minority workers outperform majority workers (Chiswick, 1977, Deutsch, Epstein and Lecker, 2006).

Efforts made to assimilate, and time, are two elements working to bring minorities into line with the majority. A third element, the degree to which the majority welcomes the minority, also plays a role. Often, the majority is less than welcoming, blaming the minority for depressing wages and displacing majority workers – i.e., causing majority unemployment. This presumption has very strong policy implications and is implicit, for example, in the calls for increased regulation of immigration heard worldwide. Yet, there is mixed evidence on the impact of minorities on majority wages and employment – it depends on whether they are substitutes or complements with respect to the skills and other attributes they bring to the labor market (Gang and Rivera-Batiz 1994, Gang, Rivera-Batiz and Yun 2002). Whether minorities actually lower wages and increase employment, or not, the perception exists that they do so. Because of this perception the majority may take active steps to discourage minority assimilation – discrimination, isolation, and so on. We refer to these majority activities as harassment.

Often the efforts of the minority and the majority are mediated through political institutions. These institutions exist in both the minority and majority worlds. They could be, for example, political parties, trade organizations, unions, or thugs. These are organizations that are able to overcome the free-rider problem individual members of each group have in moving from the actions they desire to take, to actually taking the actions. Yet, while an organization's purpose may be to represent the members of their group, the interests' of the organization and that of its members do no always coincide. Our work adds to the blossoming literature on majority – minority conflict and resolution, assimilation, and the reestablishment of cultural identity (see, for example, Alesina and La Ferrara, 2000, Anas, 2002, Bisin and Verdier, 2000, Dustmann, Fabbri and Preston, 2004, Kahanec, 2006, and Lazear, 1999).

We are interested in why minorities are so often at a disadvantage relative to the majority, the circumstances under which their status changes or stagnates over time, and role public policy can play. Assimilation efforts by the minority, harassment by the majority and time are the three elements that determine how well the minority does in comparison to the majority. We examine the consequences for these of increases in the numbers of members of the minority, time, and the role of the political entity. We construct a model in which there are four actors: the members of the majority and the organization that represents them, and members of the minority and the organization that represents them. Over time, the political entity representing the minority and the members of the minority exhibit different interests in assimilating and in maintaining their cultural identity. We discuss how this affects the minority's position over time. Finally, we discuss the public policy implications of the model.

The model

Consider a firm that uses two factors of production: workers who are part of the majority, L_n, and workers who are members of a minority ethnic group, L_m. For simplicity, we assume that there is only one ethnic minority.[1] We use the term minority and majority in terms of power, for example, the whites in South Africa

---

[1] We use the terms minority and majority to refer to both the groups as a whole and individual members of each group.

under apartheid are to be seen as the majority while the blacks are the minority. We normalize the efficiency level of majority workers to unity; the minority's productive/efficiency level equals $g(.)\Pr(.)$. The two functions, $g(.)$ *and* $\Pr(.)$, play important roles in the determination of production and wages; aside from this distinction, labor is homogeneous.[2]

$\Pr(.)$, where $0 \leq \Pr(.) \leq 1$, is a function of two elements: (1) The effort invested by the majority in order to prevent the minority from assimilating into the majority. These activities include harassing members of the minority, not cooperating with them, discriminating against them, and so on (hereafter, "harassment"). Such activities decrease the minority's productivity and thus their efficiency.[3] Denote the harassment level by *h*. (2) The effort invested by the minority in assimilating. These activities affect the minority's efficiency level positively. The more the minority assimilates, its productivity increases, as cooperation increases between the majority and the minority. Denote assimilation activity by *a*.[4]

We further assume that over time, in a natural way, the minority assimilates or the majority gets used to them and views them more as equals (Chiswick, 1978, Duleep and Regets, 2002). We therefore introduce an element of time into the minority's productivity. Productivity increases with time, though it cannot be higher than the majority's. Thus g(.) is such that for $t \geq 1$, $0 < g(t) \leq 1$.[5] An example of such

a function is $g(t) = e^{-\tau\frac{1}{t}}$, *with* $\tau > 0$. In this example, over a long period of interaction between the minority and the majority, $t = \infty$, the time weight equals one unit, $g(t) = 1$. For all other levels of *t*, $t < \infty$, the weight is less than one, $g(t) < 1$.

The productivity weight that the minorities receive equals $g(.)\Pr(.)$. This weight reflects the productivity and efficiency of the minority relative to the majority

---

[2] Our results are even stronger if we allow diversity to increase productivity and/or efficiency.

[3] This is similar to the cooperation and harassment activities described in insider-outsider theory (Lindbeck and Snower, 1998).

PT[4] TPAssimilation is not always beneficial for the minority; see Epstein (2003) for a discussion of migrant assimilation. For now, we ignore such possibilities; we will return to discuss them later in this paper.

[5] If we allow the minority to be more productive/efficient than the majority, corresponding to the popular opinion about Asians and other groups in America, our results below will be more extreme.

group, with the majority group investing in harassment activities and the minority investing in assimilation activities (*a* and *h* are positive). We focus on the unique interior Nash equilibria. The function $\Pr(.)$ has the following properties:

(1)
$$\frac{\partial \Pr(h,a)}{\partial h} < 0 \;\; and \;\; \frac{\partial \Pr(h,a)}{\partial a} > 0 \;\; and \;\; \frac{\partial^2 \Pr}{\partial a \partial h} \;\; greater \;\; than \;\; or$$

less than zero.

The representative firm's production function at time t $(t \geq 1)$ is given by

(2)
$$Q_t(L) = f\left(L_n + g(t)\Pr(h.,a)L_m\right),$$

such that
$$\frac{\partial f(L)}{\partial L} > 0 \;\;,\;\; \frac{\partial^2 f(L)}{\partial L^2} < 0 \;\;,\;\; \frac{\partial^3 f(L)}{\partial L^3} = 0,\; \frac{\partial g(t)}{\partial t} > 0 \;\; and \;\; \frac{\partial^2 g(t)}{\partial t^2} < 0.$$

We assume decreasing returns to scale for labor. Moreover, we assume that the third derivative of the production function with respect to labor equals zero, $\frac{\partial^3 f(L)}{\partial L^3} = 0$. This assumption simplifies our calculations. Below we show where this assumption is used and that it is not critical for our results.

Let W_n be the majority worker's wage, and W_m be the minority's wage. We assume that the wages the majority and minority receive equals their marginal product values. We could assume that the majority workers have market power over their employers; this would not change our results.

Normalizing the price of the product to unity, the profits of the firm are given by

(3)
$$\pi(.) = \; f\left(L_n + g(t)\Pr(h,a)\,L_m\right) - \left(W_n L_n + W_m L_m\right) \;.$$

The first order conditions for maximization are

(4)
$$\frac{\partial \pi(.)}{\partial L_n} = f' - W_n = 0 \Rightarrow f' = W_n,$$

and,

(5)
$$\frac{\partial \pi(.)}{\partial L_m} = g(t)\Pr(h, a)f' - W_m = 0 \Rightarrow g(t)\Pr(h, a)f' = W_m.$$

Equation (4) represents the wage condition for majority workers and (5) represents the wage condition for minority workers.

Harassment and majority utility

We specify the majority's utility quite simply as

(6)
$$u_n(.) = C_n,$$

where C_n is the majority's consumption level. We assume that each worker consumes his entire income in each period; this means that the consumption level equals the majority's wage level (the price level is normalized to unity). Therefore,

(7)
$$u_n(.) = C_n = f'\left(L_n + g(t)\Pr(h, a) L_m\right).$$

Utility is a positive function of harassment activities by the majority and a negative function of the assimilation activities by the minority. Each of the majority individuals would want to invest in harassment activities, however, as a result of free riding it is not rational for each individual separately to do so.

Now assume that there exists a political entity that represents the majority. The utility of this entity is a positive function of the worker's utility, $u_n(.)$. The total quantity of harassment activity set by this political entity equals h. Denote the utility of the political entity representing the majority by $U_N(.)$. The political entity is able to overcome the free rider problem.

The political entity representing the majority, hereafter the "majority", determines the level of harassment so as to maximize utility. From (4) it is clear that increasing the level of harassment decreases the productivity level of the minority.

This is similar to decreasing the labor force available to the firm, thus increasing the wage level of the majority.[6]

The majority can benefit from harassing the minority, as these activities will increase their own wages. On the other hand, there is a cost to harassment that decreases the utility of the majority.

One could also think of majority utility as increasing in the harassment level, as the majority may have positive utility just from harassment. This may be the case for some in the majority group; however, overall we assume that it costs majority group to participate in harassment activities. These activities take time and effort and thus decrease the utility of the majority. The utility of the political entity representing the majority is thus a function of the majority representative agent and the level of harassment activities: $U_N(u_n, h)$. To simplify we assume, using (4), (6) and (7), that the utility of the political entity representing the majority's utility can be written as [7]

$$(8) \qquad U_N(.) = f'(L_n + \Pr(h,a)g(t)L_m) - h \ ,$$

where $f'(L_n + \Pr(h,a)g(t)L_m) = \dfrac{\partial f(L_n + \Pr(h,a)g(t)L_m)}{\partial L}$.

The majority's objective is to maximize its utility by determining its optimal harassment level. The first order condition determining the optimal harassment level is given by $\dfrac{\partial U_N(.)}{\partial h} = 0$, thus

$$(9) \qquad \Delta_N = \frac{\partial \Pr(h,a)}{\partial h} g(t) f''(L_n + g(t)\Pr(h,a) L_m) L_m L_n - 1 = 0,$$

---

[6] We could also model the behavior of a second political entity, one that represents the interests of capital owners (the firm) in the majority. The capital owners would react like the minority (since the minority decreases the firm's marginal costs), so the results would not change.

[7] Assuming a general function such as $U_N\left(f'(L_n + \Pr(h,a)g(t)L_m) - h\right)$ would not change the results.

where $f''(L_n + \Pr(h,a) \, g(t)L_m) = \dfrac{\partial^2 f(L_n + g(t)\Pr(h,a) \, L_m)}{\partial L^2}$.

The first order condition therefore satisfies,

$$(10) \qquad \frac{\partial \Pr(h,a)}{\partial h} = \frac{1}{f''(L_n + g(t)\Pr(h,a) \, L_m)g(t)L_n L_m}.$$

Remember that both $\dfrac{\partial \Pr(h,a)}{\partial h}$ and $f''(L_n + \Pr(h,a)g(t)L_m)$ are negative.

In order for the harassment level determined in (9) to maximize the majority's utility, the second order condition must hold. The second order condition for maximization is given by $\dfrac{\partial^2 U_N(.)}{\partial h^2} < 0$. Thus,

$$(11) \qquad \begin{aligned} &\frac{\partial^2 \Pr(h,a)}{\partial h^2} f''(L_n + g(t)\Pr(h,a) \, L_m)g(t)L_m L_n + \\ &\qquad \left(\frac{\partial \Pr(h,a)}{\partial h}\right)^2 f'''(L_n + g(t)\Pr(h,a) \, L_m)g(t)^2 L_m{}^2 L_n{}^2 < 0. \end{aligned}$$

Under the assumptions made above, see (2), the third derivative of the production function with respect to the labor equals zero, $\dfrac{\partial^3 f(L)}{\partial L^3} = 0$. This assumption simplifies matters; alternatively, it can be assumed that $\left(\dfrac{\partial \Pr(h,a)}{\partial h}\right)^2 f'''(L_n + g(t)\Pr(h,a) \, L_m)g(t)^2 L_n{}^2 L_m{}^2$ is very small or equals zero. The second order condition can thus be written as

$$(12) \qquad \frac{\partial^2 \Pr(h,a)}{\partial h^2} f''(L_n + g(t)\Pr(h,a) \, L_m)g(t)L_n L_m < 0.$$

From (2) we know that $f''(L_n + g(t)\Pr(h,a) \, L_m) < 0$, so in order for the second order conditions to hold it must be that

$$(13) \qquad \frac{\partial^2 \Pr(h,a)}{\partial h^2} > 0 \; or \; \frac{\partial^2 (1 - \Pr(h,a))}{\partial h^2} < 0 \; .$$

Namely, as the level of assimilation increases, there are decreasing returns to harassment, h.[8]

Assimilation and minority utility

The utility of the minority is of the same form of that of the majority. We specify the minority's utility function simply as

$$(14) \qquad u_m(.) = C_m,$$

where C_m is the minority's consumption level. We assume that each worker consumes his entire income in each period. Therefore,

$$(15) \qquad u_m(.) = W_m = g(t)\Pr(h, a)f'(L_n + g(t)\Pr(h,a) L_m).$$

Utility is a negative function of harassment and a positive function of assimilation activities. Each minority individual would want to invest in assimilation; however, while it is rational for all together to invest, as a result of free riding it is not rational for each individual separately to do so.[9]

Now assume that there exists a political entity that represents the minority and is able to overcome the free rider problem. The political entity might be a group representing minority rights, interests, and so on. The utility of this entity is a positive function of the number of assimilated minority workers. Assimilation has many benefits for the minority group: first, it increases their wages; second, if part of the minority assimilates, the benefits of their assimilation will provide the rest of the minority with benefits – this arises because the minority group can act as a network (Rauch, 2001); and third, for international traders such connections help in importing

---

[8] In interpreting the level of assimilation "0" means not assimilation at all and "1" is full assimilation (identical to the local population). The degree of assimilation affects both the wages of the minority and majority.

[9] It has been frequently noted that while people may hold prejudices about a group, often they do not hold these views about individuals from the group whom they know. The costly assimilation we refer to here is in terms of how the local population thinks of the minority as a group. Individuals in the minority may benefit from, for example, learning the language and will be willing to invest.

and exporting products at lower costs. In this last example, if the minority consists of a group of immigrants, as they assimilate into the host country, network externalities increase, enabling increased profits and increased imports, thus increasing the utility of the international importer (exporter) minority (in other words, there is an extra externality, see Epstein and Gang, 2006). In general, the utility of the political entity representing the minority will be a function of the degree to which the minority population has assimilated into the majority, $g(t)\Pr(h,a)\,L_m$.

Denote the utility of the political entity representing the minority by $U_M\left(g(t)\Pr(h,a)\,L_m,a\right)$ such that,

$$(16) \qquad\qquad U(.)_{IM} \;=\; R\!\left(g(t)\Pr(h,a)\,L_m\right) -\; a\,.$$

$R(.)$ is the rent associated with the assimilation of the minority. This level of assimilation is represented by the term $g(t)\Pr(h,a)L_m$. We assume that as the level of assimilation increases, $g(t)\Pr(h,a)L_m$ increases, that is, the rent also increases. Some of the minority participates in assimilation activities and thus have a cost of a for each a unit of effort for the purpose of assimilating. To simplify, we assume for now that the rent equals $R\!\left(g(t)\Pr(h,a)\,L_m\right) = r\;g(t)\Pr(h,a)L_m$. Therefore, the utility of the political entity representing the minority group becomes

$$(17) \qquad\qquad U(.)_M \;=\; r\;\Pr(h,a)\,g(t)L_m -\; a\,.$$

As assumed above, as assimilation activities increase $\Pr(h,a)$ increases. The first order condition for maximization of minority utility is given by $\dfrac{\partial U(.)_M}{\partial a} = 0$, namely,

$$(18) \qquad\qquad \Delta_M \;=\; \frac{\partial \Pr(h,a)}{\partial a}\; g(t)L_m r -\; 1 = 0\,.$$

The first order condition is satisfied if

(19)
$$\frac{\partial \Pr(h,a)}{\partial a} = \frac{1}{g(t)L_m r}.$$

Remember we assumed that $\frac{\partial \Pr(h,a)}{\partial a} > 0$, see (1). In order to insure that the solution is the level that maximizes minority utility it must hold that $\frac{\partial^2 U(.)_M}{\partial a^2} < 0$. Therefore, it must also hold that

(20)
$$\frac{\partial^2 \Pr(h,a)}{\partial a^2} < 0.$$

In other words, (20) assumes that there are decreasing returns to investing in assimilation. From (19) we can conclude that,

Increasing the size of the minority, or the rent associated with assimilation, r, will, given the level of harassment, increase the level of assimilation. Moreover, over time, the minority will invest more effort in assimilating.

The political entity representing the minority seeks aggregate rents as described above, not rents per capita. Thus for this political entity, growth of the minority population wanting to assimilate is the same as increasing rents. Rising rents increase the benefits for the minority political entity and thus increase the entity's returns to investing in assimilation. With time, the minority naturally integrates into the majority; increasing assimilation efforts speeds up the process.

Equilibrium

The majority group invests in harassment and the minority invests in assimilation (*a* and *h* are positive). We focus on the unique interior Nash equilibria. We now wish to consider the effects changes in the size of the minority (rents to the minority's political entity) have on the equilibrium levels of harassment and assimilation efforts.

By differentiation of the first order conditions (see (8) and (18)), the Nash equilibrium effort levels satisfy the following conditions for $L=L_F$,

(21)
$$\frac{\partial h^*}{\partial L} = \frac{\dfrac{\partial \Delta_N}{\partial a}\dfrac{\partial \Delta_M}{\partial L} - \dfrac{\partial \Delta_M}{\partial a}\dfrac{\partial \Delta_N}{\partial L}}{\dfrac{\partial \Delta_N}{\partial h}\dfrac{\partial \Delta_M}{\partial a} - \dfrac{\partial \Delta_N}{\partial a}\dfrac{\partial \Delta_M}{\partial h}} \quad ,$$

and,

(22)
$$\frac{\partial a^*}{\partial L} = \frac{\dfrac{\partial \Delta_M}{\partial h}\dfrac{\partial \Delta_N}{\partial L} - \dfrac{\partial \Delta_N}{\partial h}\dfrac{\partial \Delta_M}{\partial L}}{\dfrac{\partial \Delta_M}{\partial a}\dfrac{\partial \Delta_N}{\partial h} - \dfrac{\partial \Delta_M}{\partial h}\dfrac{\partial \Delta_N}{\partial a}} \quad .$$

From (8) and (18) we obtain

$$\frac{\partial \Delta_N}{\partial a} = \frac{\partial^2 \mathrm{Pr}}{\partial h \partial a} g(t) f''L_n L_m ; \quad \frac{\partial \Delta_N}{\partial h} = \frac{\partial^2 \mathrm{Pr}}{\partial h^2} g(t) f'' L_m L_n^2 ;$$

$$\frac{\partial \Delta_N}{\partial L_F} = \frac{\partial \mathrm{Pr}}{\partial h} g(t) f'' L_N ;$$

(23)   and,

$$\frac{\partial \Delta_M}{\partial a} = \frac{\partial^2 \mathrm{Pr}}{\partial a^2} g(t) L_m r ; \quad \frac{\partial \Delta_M}{\partial h} = \frac{\partial^2 \mathrm{Pr}}{\partial a \partial h} g(t) L_m L_n r \; ; \frac{\partial \Delta_M}{\partial L_m} = \frac{\partial \mathrm{Pr}}{\partial a} g(t) r .$$

Substituting (23) into (21) and (22) and using the first order conditions (9) and (19) we obtain

$$\frac{\partial h^*}{\partial L_m} = \frac{g(t)^2}{H} \left(\frac{\partial^2 \mathrm{Pr}}{\partial h \partial a} f''L_n - \frac{\partial^2 \mathrm{Pr}}{\partial a^2} r \right) \quad ,$$

(24)   and,

$$\frac{\partial a^*}{\partial L_m} = \frac{L_n}{H} g(t)^2 \left(\frac{\partial^2 \mathrm{Pr}}{\partial a \partial h} r - \frac{\partial^2 \mathrm{Pr}}{\partial h^2} f''L_n \right) \quad ,$$

where, $H = g(t)^2 L_n^2 L_m^2 r \ f'' \left(\dfrac{\partial^2 \text{Pr}}{\partial a^2} \dfrac{\partial^2 \text{Pr}}{\partial h^2} - \left(\dfrac{\partial^2 \text{Pr}}{\partial h \partial a} \right)^2 \right).$

Since $f'' < 0$; $\left(\dfrac{\partial^2 \text{Pr}}{\partial h \partial a} \right)^2 > 0$ and $Sign\left(\dfrac{\partial^2 \text{Pr}}{\partial a^2} \right) = - Sign\left(\dfrac{\partial^2 \text{Pr}}{\partial h^2} \right)$, $H > 0$.

The ability of the minority to convert its assimilation efforts into productivity and efficiency can be represented by the marginal effect of a change in the minority's assimilation effort on the marginal productivity effect, $\dfrac{\partial \text{Pr}(.)}{\partial a}$ (where $0 \leq \text{Pr}(.) \leq 1$). By assumption, this marginal productivity effect is declining with the minority's own assimilation efforts. Changes in assimilation efforts also affect, however, the majority's marginal productivity level. The minority has an advantage in terms of ability if a change in majority's effort positively affects the minority's marginal productivity level. In other words, a positive (negative) sign of the cross second-order partial derivative of $\text{Pr}(h, a)$, $\dfrac{\partial^2 \text{Pr}}{\partial a \partial h}$, implies that the minority has an advantage (disadvantage) when majority group makes efforts to harass the minority change. For a given combination of efforts (h, a), the ratio between the effect of a change in the minority's effort on the marginal productivity level and the effect of a change in majority group effort, $\dfrac{\partial^2 \text{Pr}}{\partial a \partial h} \Big/ \left(\dfrac{\partial^2 \text{Pr}}{\partial a^2} \right)$, is a measure of the asymmetry between the abilities of both groups to affect the minority's productivity level.[10] In the same way one can calculate the measure of asymmetry in terms of the other group.

From (24) we obtain

P[10] PFor a general discussion on how effort activities are transferred from effort to performance see Epstein and Nitzan (2006, 2007).

Lemma 1

(a) For $\dfrac{\partial^2 \text{Pr}}{\partial h \partial a} = 0$, $\dfrac{\partial h^*}{\partial L_m} > 0$ *and* $\dfrac{\partial a^*}{\partial L_m} > 0$.

(b) For $\dfrac{\partial^2 \text{Pr}}{\partial h \partial a} < 0$, $\dfrac{\partial h^*}{\partial L_m} > 0$ *and* $\dfrac{\partial a^*}{\partial L_m} \overset{>}{\underset{<}{=}} 0 \ if \quad \dfrac{\dfrac{\partial^2 \text{Pr}}{\partial a \partial h}}{\left(\dfrac{\partial^2 \text{Pr}}{\partial h^2} \right)} \overset{>}{\underset{<}{=}} \dfrac{f''L_n}{r}$.

(c) For $\dfrac{\partial^2 \text{Pr}}{\partial h \partial a} > 0$, $\dfrac{\partial a^*}{\partial L_m} > 0$ *and* $\dfrac{\partial h^*}{\partial L_m} \overset{>}{\underset{<}{=}} 0 \ if \quad \dfrac{\dfrac{\partial^2 \text{Pr}}{\partial h \partial a}}{\left(\dfrac{\partial^2 \text{Pr}}{\partial a^2} \right)} \overset{>}{\underset{<}{=}} \dfrac{r}{f''L_n}$.

By Lemma 1 (a), if the contestants are symmetric in equilibrium in terms of their abilities, then growth in the minority population will increase both harassment and assimilation efforts.

By Lemma 1 (b), if the majority group has an advantage, as defined above, over the minority population, then growth in the minority population will increase harassment; however it is not clear what will happen to the level of assimilation activities. This ambiguity depends on the measure of asymmetry between the two groups, $\dfrac{\dfrac{\partial^2 \text{Pr}}{\partial a \partial h}}{\left(\dfrac{\partial^2 \text{Pr}}{\partial h^2} \right)}$, and the ratio between the effects of the marginal efficiency of their investment, $\dfrac{f''L_n}{r}$. The main idea here is that even though harassment activities increase, the majority is so strong that it may not be worthwhile for the minority to try to fight the majority. Therefore, the minority may well decrease its efforts to assimilate. This will depend on what each group can gain from such activities.

By Lemma 1 (c), if the minority has an advantage over the majority, then an increase in the minority population will increase assimilation activities, however it is not clear what will happen to the level of harassment activities. This ambiguity depends on the measure of asymmetry between the two groups, $\dfrac{\dfrac{\partial^2 \text{Pr}}{\partial a \partial h}}{\left(\dfrac{\partial^2 \text{Pr}}{\partial a^2} \right)}$, and the

14

ratio between the effects of the marginal efficiency of their investment, $\dfrac{r}{f\,''L_n}$.

Recall our assumption f'''=0, so when increasing L_n, f'' doesn't change and thus the ratio decreases. Thus the relative advantage of the minority decreases, while it increases for the majority.

As we described earlier, we define the majority to be the strong group. It does not have to be the biggest group. Therefore, we assume that the majority is the "majority" because it has the advantage over the minority and thus it holds that $\dfrac{\partial^2 \Pr}{\partial h \partial a} < 0$. We conclude that,

Proposition 1: $\dfrac{\partial h^*}{\partial L_m} > 0$ **and** $\dfrac{\partial a^*}{\partial L_m} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} 0$ *if* $\dfrac{\dfrac{\partial^2 \Pr}{\partial a \partial h}}{\left(\dfrac{\partial^2 \Pr}{\partial h^2}\right)} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} \dfrac{f\,''L_n}{r}$.

Growth in the minority population, given that the majority group is relatively stronger, increases the majority's harassment of the minority. As the minority's population grows, efforts to assimilate on the part of the minority will increase if the measure of the asymmetry between the abilities of both groups to affect the minority's productivity exceeds the ratio between the effects of the marginal efficiency of their investments on their rents. Here it "pays" for the minority not to give up in the face of greater harassment, but to fight instead and further their assimilation. Similarly, if the measure of the asymmetry between the abilities of both groups to affect the minority's productivity is less than the ratio between the effects of the marginal efficiency of their investments on their rents, the minority will not find it worthwhile to fight the majority population and will reduce its assimilation efforts as its population increases. As the minority's population grows, assimilation efforts by the minority will decrease if the majority population is so strong that it is worthwhile for the minority to try to fight the majority. Therefore, the minority may well decrease its efforts to assimilate. This will depend on what each group can gain from such activities.

Let us now consider how a change in the rent received by the political entity representing the minority population, *r,* affects the level of harassment against the

minority and its assimilation efforts. As presented above in (21) and (22), differentiating of the first order conditions (see (8) and (18)), the Nash equilibrium effort levels satisfy the following conditions,

$$(25) \qquad \frac{\partial h^*}{\partial r} = \frac{\dfrac{\partial \Delta_N}{\partial a}\dfrac{\partial \Delta_M}{\partial r} - \dfrac{\partial \Delta_M}{\partial a}\dfrac{\partial \Delta_N}{\partial r}}{\dfrac{\partial \Delta_N}{\partial h}\dfrac{\partial \Delta_M}{\partial a} - \dfrac{\partial \Delta_N}{\partial a}\dfrac{\partial \Delta_M}{\partial h}} \quad and \quad \frac{\partial a^*}{\partial r} = \frac{\dfrac{\partial \Delta_F}{\partial h_I}\dfrac{\partial \Delta_N}{\partial r} - \dfrac{\partial \Delta_N}{\partial h_I}\dfrac{\partial \Delta_F}{\partial r}}{\dfrac{\partial \Delta_F}{\partial a}\dfrac{\partial \Delta_N}{\partial h_I} - \dfrac{\partial \Delta_F}{\partial h_I}\dfrac{\partial \Delta_N}{\partial a}} \quad .$$

The calculations described in (23) hold. We, however, calculate two additional components:

$$(26) \qquad \frac{\partial \Delta_N}{\partial r} = 0 \ and \ \frac{\partial \Delta_M}{\partial r} = \frac{\partial \mathrm{Pr}}{\partial a}\, g(t)L_F .$$

Using (26) together with (23), (25) and (26) we obtain

$$\frac{\partial h_I^*}{\partial r} = \frac{g(t)^2}{H}\frac{\partial^2 \mathrm{Pr}}{\partial h \partial a} f^{\,''} \frac{\partial \mathrm{Pr}}{\partial a} L_m^{\,2} L_n$$

(27) and,

$$\frac{\partial a^*}{\partial r} = \frac{g(t)^2}{H}\left(-\frac{\partial^2 \mathrm{Pr}}{\partial h^2} f^{\,''} L_m^{\,2} L_n^{\,2} \frac{\partial \mathrm{Pr}}{\partial a} \right) \quad ,$$

where H is defined in equation (23).

Lemma 2: $\qquad Sign\left(\dfrac{\partial h_I^*}{\partial r} \right) = - Sign\left(\dfrac{\partial^2 \mathrm{Pr}}{\partial h \partial a} \right) \ and \ \dfrac{\partial a^*}{\partial r} > 0.$

Increasing the rent associated with assimilation efforts increases assimilation activities by the minority. However, it is not clear what will happen to harassment activities. If the minority has an advantage over the majority in turning effort into ability, $\dfrac{\partial^2 \mathrm{Pr}}{\partial h \partial a} > 0$, then increasing rents associated with assimilation decreases

harassment.[11]   The idea here is that the minority has a lot more to gain from its assimilation activities relative to what the majority can obtain and, at the same time, it can have an advantage in turning effort into efficiency. These two elements will cause the minority to increase its assimilation activities, while they will decrease the majority's harassment efforts.

        With the majority as the strong population we obtain

Proposition 2: *Increasing the rent associated with assimilation activities will increase both harassment and assimilation efforts by both groups ($\frac{\partial h^*}{\partial r} > 0$ and*

$\frac{\partial a^*}{\partial r} > 0$).

        Let us now consider how time affects assimilation activities. Will we see greater or fewer assimilation and harassment efforts over time? As $g(t)$ is increasing in t, we look at the effect of changes in $g(t)$ on the levels of harassment and assimilation activities. Use (21) and (22) for $L=g(t)$ and the fact that (recall $f'''=0$),

(28)
$$\frac{\partial \Delta_N}{\partial g(t)} = \frac{\partial \Pr}{\partial h} f'' L_m L_n \text{ and } \frac{\partial \Delta_{IT}}{\partial g(t)} = \frac{\partial \Pr}{\partial a} L_n r .$$

By substituting (28) and (2) into (21) and (22) and using the first order conditions (9) and (19) we obtain

$$\frac{\partial h^*}{\partial g(t)} = \frac{L_m}{H} \left(\frac{\partial^2 \Pr}{\partial h \partial a} f'' L_N - \frac{\partial^2 \Pr}{\partial a^2} r \right)$$

(29)   and

$$\frac{\partial a^*}{\partial g(t)} = \frac{L_n L_m}{H} \left(\frac{\partial^2 \Pr}{\partial a \partial h} r - \frac{\partial^2 \Pr}{\partial h^2} f'' L_n \right) .$$

---

[11] Effort refers to activities such as assimilation and harassment, while ability tells us how effort translates into outcomes – does one unit of effort give us one percent or ten percent of the desired outcome

From (29) we have,

Lemma 3

(a) For $\dfrac{\partial^2 \Pr}{\partial h \partial a} = 0$, $\dfrac{\partial h^*}{\partial t} > 0$ *and* $\dfrac{\partial a^*}{\partial t} > 0$.

(b) For $\dfrac{\partial^2 \Pr}{\partial h \partial a} < 0$, $\dfrac{\partial h^*}{\partial t} > 0$ *and* $\dfrac{\partial a^*}{\partial t} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} 0$ *if* $\dfrac{\dfrac{\partial^2 \Pr}{\partial a \partial h}}{\left(\dfrac{\partial^2 \Pr}{\partial h^2}\right)} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} \dfrac{f''L_n}{r}$.

(c) For $\dfrac{\partial^2 \Pr}{\partial h \partial a} > 0$, $\dfrac{\partial a^*}{\partial t} > 0$ *and* $\dfrac{\partial h_1^*}{\partial t} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} 0$ *if* $\dfrac{\dfrac{\partial^2 \Pr}{\partial h \partial a}}{\left(\dfrac{\partial^2 \Pr}{\partial a^2}\right)} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} \dfrac{r}{f''L_n}$.

By Lemma 3(a), if the contestants are symmetric in equilibrium in terms of their abilities then over time the majority group increases its harassment activities and the minority increases its assimilation activities. By Lemma 3(b) if the majority group has an advantage over the minority, then over time harassment activities increase, however, it is not clear what happens to assimilation efforts. By Lemma 3(c) if the minority has an advantage (in turning effort into performance) over the majority, then over time assimilation activities increase, however, it is not clear what happens to the level harassment efforts. The reasons for these results are the same type of reasons presented after Lemma 1.

Given that the majority population is the stronger group we obtain:

Proposition 3: *Harassment will increase over time while assimilation efforts may*

increase or decrease ($\dfrac{\partial a^*}{\partial t} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} 0$ *if* $\dfrac{\dfrac{\partial^2 \Pr}{\partial a \partial h}}{\left(\dfrac{\partial^2 \Pr}{\partial h^2}\right)} \begin{smallmatrix} > \\ = \\ < \end{smallmatrix} \dfrac{f''L_n}{r}$ *).*

A more general model of assimilation

Now let us return to the political entity representing the minority population. Assume that assimilation has two different types of effects on the utility of an individual: (1) it increases the wages of the individual and, (2) it decreases the utility of the individual as he is losing his identity and uniqueness.[12] Therefore, we rewrite the utility of the entity in the following way:

$$(30) \qquad U(.)_{IM} \;=\; R\big(\Pr(h,a)\,g(t)L_m,\,(1-\Pr(h,a))g(t)L_m\big) -\; a.$$

The first component is the number of assimilated minority members, while the second component in the number of non-assimilated minority members. Increasing any of these components increases the utility of the minority's political entity:

$$(31) \qquad \frac{\partial R\big(\Pr(h,a)\,g(t)L_m,\,(1-\Pr(h,a))g(t)L_m\big)}{\partial\big(\Pr(h,a)\,g(t)L_m\big)} > 0 \;\; and \;\; \frac{\partial R\big(\Pr(h,a)\,g(t)L_m,\,(1-\Pr(h,a))g(t)L_m\big)}{\partial\big((1-\Pr(h,a))\,g(t)L_m\big)} > 0.$$

The objective of the minority's political entity is to maximize its utility by determining the level of assimilation activities.[13] The first order condition is:

$$(32) \quad \frac{dU(.)_M}{da} = \left(\frac{\partial R(.)}{\partial\big(\Pr(h,a)\,g(t)L_m\big)} - \frac{\partial R(.)}{\partial\big((1-\Pr(h,a))\,g(t)L_m\big)} \right) \frac{\partial\big(\Pr(h,a)\,g(t)L_m\big)}{\partial a}.$$

In the case we described above it is clear that we were only talking about the first component of (32).

Under this more generalized case, it is clear that if $\Pr(h,a)=1$ then the benefit to an individual will be low (and for the political entity it will be zero and it will not have any reason to exist). Therefore, if the level of assimilation is sufficiently high

---

[12] Another way of thinking about this is from the political entity's view: this group's existence is a function of harassment and the minority's failure to undertake effective assimilation activities. In order for the political entity to survive it needs to help those it represents and at the same time ensure that they still need its services. If all members of the minority fully assimilate then there will be no role for this political entity.

[13] We continue to assume the utility of the majority's political entity is monotonic.

then the assimilated individuals will want to invest in resisting assimilation so as to differ from the local population, thus holding on to their heritage and traditions.

Assume for $t=t^*$ the assimilation activity that maximizes (32) equals $a_{t^*}^*$. Over time, as the assumed level of assimilation increases, if the level of harassment in time $t=t^*+1$ equals the level of harassment activities at time $t=t^*$, then it is clear that the level of assimilation activities of those who have already assimilated will decrease from time period $t=t^*$ to period $t=t^*+1$. Namely, $a_{t^*}^* > a_{t^*+1}^*$. In other words it may well be the case that after a certain period of time the level of assimilation activities will decrease. Let us now return to the minority worker. Given (5), minority workers who have a low level of assimilation will always want to invest effort in assimilation activities while it is not clear that the political entity that represents all the minority will always want to do so. Moreover, if the level of assimilation is sufficiently high, it may well be the case that the minority worker will continue investing in assimilation activities while the political entity will invest in anti-assimilation activities, for example, preserving the heritage of the minority group, etc. These activities are aimed at preserving home country traditions and emphasizing the differences between the majority population and the minority.

We conclude therefore that,

Proposition 4

There exists an inverse U-shaped relationship between the rent obtained from assimilation activities and time for the political entity representing the minority. With time the majority will continue to invest in harassment activities against the minority, whereas the members of the minority who have low levels of assimilation will invest in assimilation activities while those with a high level assimilation will invest in anti-assimilation activities. The political entity representing the minority will increase its assimilation activities until a certain point in time, $\bar{t}$, and beyond this time will decrease assimilation activities and may even invest in anti-assimilating activities ($a_1 < 0$).

This proposition states that the members of the minority benefit from assimilation and will invest (as much as they can given free rider problems, etc.) in assimilation activities. Denote the minority's members assimilation activities by $a_2 > 0$. At the

beginning, the political entity representing the minority will benefit from assimilation and thus will increase their investment in assimilation activities. Over time, after $\bar{t}$, the political entity benefits less from assimilation of the minority group as its members are becoming more and more assimilated. As a result, after period $\bar{t}$ assimilation activities by political entity decrease and may even become negative. Negative assimilation activities can be thought of as anti-assimilation activities (these activities of the political entity are denoted by $a_1<0$), and include activities aimed at preserving home country traditions and emphasizing the differences between the majority population and the minorities. At the same time the majority population will continue harassing the minorities, while individual members continue to invest in assimilation activities.

It may well be the case that as the members of the minority continue in their assimilation activities after a level of a_2^* (see figure) and the political entity will invest effort in anti-assimilation activities, so that a_1 becomes negative (see figure). Thus we will see that the political entity is fighting to prevent assimilation or at least full assimilation while the members of the minority that have low levels of assimilation fight to increase assimilation. Both the majority population and political entity will be fighting assimilation and the members of the minority with low levels of assimilation will be fighting to increase assimilation. Over time, therefore, we may well see that the political entity raises assimilation efforts and fights harassment, but after a certain point they go against their fellow country-men and decrease assimilation activities, even engaging in anti-assimilation activities to hold on to their rent and not let the minority fully assimilate into the host country.

Public policy implications and concluding remarks

This paper analyses a game theoretic model of ethnic competition between the majority in a country and the minority. To surmount certain public good problems in the generation of harassment and assimilation activities, "lobbying" organizations form to carryout these activities. We generate equilibrium harassment and assimilation activities, derive optimum time paths for these activities, and derive a potential for conflicts of interests between migrant organizations and their members. This potential conflict is acute between both the majority and the minority, and within

the minority community (Gradstein and Schiff, 2006 and Gradstein and Justman, 2005). Here we further speculate about policy implications.

Our picture of assimilation is highly simplified – with time and effort the minority assimilates into majority culture until there is no differentiation in terms of consumption preferences or wages. The majority group harasses the ethnic minority to forestall and prevent this, or at least to keep the gains from the process out of the hands of the minority. Over time it is assumed that, in a natural way, the minority assimilates or the majority gets used to them and sees them more as equals. While highly simplified, the model allows us to obtain insights that are useful for understanding richer assimilation stories (Bun and Kiong, 1993, Gang and Zimmermann, 2000, Gradstein and Schiff, 2006, Gradstein and Justman, 2005, Rapoport and Weiss, 2003). The intensity of assimilation activities by the minority and harassment activities by the majority generally depends on how symmetric the minority and majority are in terms of their abilities, and their relative marginal efficiency of investment in these activities. We also consider dissention within the minority ethnicity, where some in the minority group may reject assimilation in favor of maintaining elements of their cultural identity, while other members of the minority may still be struggling to assimilate.

Our model further captures the role of political institutions. There are an abundance of real world examples. In the United States prominent organizations have included NAACP, HIAS, the Anti-Catholic League, the Ku Klux Klan (KKK). In Europe, frequently political parties take either pro- or anti-immigrant positions. Moreover, there may be multiple competing organizations. Above (footnote 6) we pointed to the possibility of a second political entity, one that represents the interests of capital owners (the firm) in the majority. The capital owners would react like the minority (since the minority decreases the firm's marginal costs), so the results would not change. As a very real example in the United States, very recently the National African American Tobacco Prevention Network broke with other minority groups and opposed the passage of particular anti-smoking legislation which it viewed as too weak.

If the minority is an immigrant group our paper shows the effect of increased migration on both assimilation and harassment. As the size of the minority increases, assimilation and the effort to assimilate will increase. Moreover, generally growth in the minority increases harassment by the majority. If the groups are very asymmetric

it will pay for the minority to fight harassment and further their assimilation. However, the minority will give up on assimilation if the asymmetry between the abilities of both groups to affect the minority's productivity is less than the ratio between the effects of the marginal efficiency of their investments on their rents. Moreover, if the majority is so strong and united against the minority, the minority will also give up in its attempt to assimilate.

Our paper also discusses several aspects of the role of time in assimilation and harassment, and raises several questions with regard to what is generally thought about the process of assimilation. The conventional wisdom is that the experiences of migrants to America (where there have been several waves of migrants from different areas is that assimilation activities and harassment peak early and trail off with time. For example, the outcaste Catholic immigrants of the early twentieth century are now fully accepted into American society. Many have become prominent politicians and business people, and their children, grandchildren and great grandchildren mix freely with other ethnicities in suburban school districts. There is no harassment of these groups, and assimilation is complete. In fact, many of them have now become natives, in the sense of our model, who may carry out harassment activities against other minorities such as African Americans (in Northern cities), Hispanics, Asians and Middle Easterners.

We might also ask how a simple tax-subsidy policy would affect assimilation and harassment. For example, can assimilation be expedited and harassment impeded if a benevolent planner simply taxed the majority wage and transferred it as a subsidy to the minority workers, since the incentive for harassment by majority workers is to increase their wages at the expense of the minority group? Unfortunately, taxing the majority may have opposing affects. Imposing taxes may increase harassment since wages of the majority have decreased and as a result the majority will want to substitute for the decrease by increasing harassment and thus increasing wages. On the other hand, imposing taxes and transferring them to the minority will decrease the minority assimilation activities that may in equilibrium decrease harassment. A different possibility would be to impose a tax on the minority and transferring it to the majority. This may decrease harassment and increase assimilation.
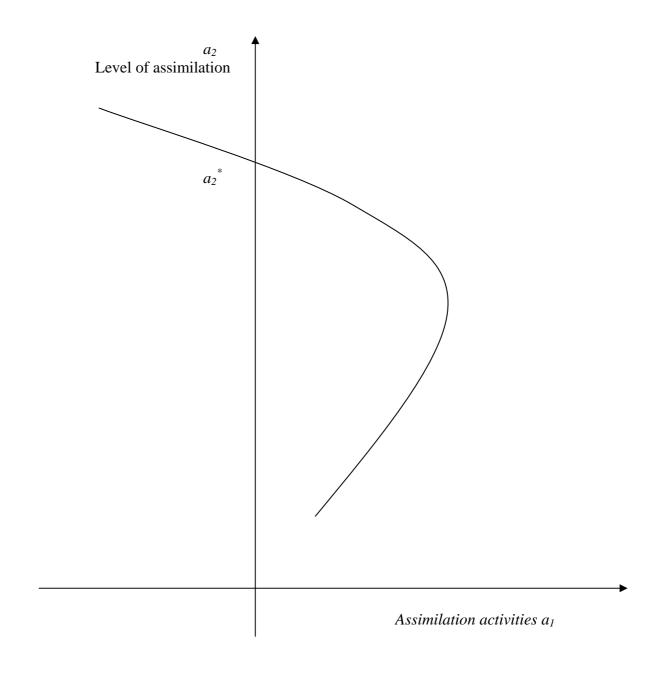
Our paper adds to the understanding the forces at work in economic relations between the majority ethnic group and minority ethnic groups. We offer an alternative story to those currently discussed in the literature, cited above. In addition

to the policy elements discussed above, the model supports policies emphasizing tolerance of cultural differences, while at the same time rejecting policies that stigmatize and isolate minority ethnicities.

References

Alesina, Alberto and Eliana La Ferrara, 2000, Participation in Heterogeneous Communities, Quarterly Journal of Economics, (August), 847-904.

Altonji, J. G. and R. M. Blank, 1999, Race and Gender in the Labor Market, in O. Ashenfelter and D.Card (eds.), Handbook of Labor Economics, vol. 3C, Elsevier Science B.V.:Amsterdam, 3143-3259.

Anas, Alex, 2002, Prejudice, Exclusion and Compensating Transfers: The Economics of Ethnic Segregation, Journal of Urban Economics, 52 (3), 409-32.

Bauer, Thomas, Gil S. Epstein and Ira N. Gang, 2005, Enclaves, Language and the Location Choice of Migrants, Journal of Population Economics, 18 (4), 649–662.

Bhaumik, Sumon K., Ira N. Gang, and Myeong-Su Yun, 2006, Ethnic Conflict and Economic Disparity: Serbians and Albanians in Kosovo, Journal of Comparative Economics, 34(4), 754-773.

Bisin, Alberto and Thierry Verdier, 2000, "Beyond the Melting Pot": Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits, Quarterly Journal of Economics, August, 955-988.

Blau, F. D. and L. M. Kahn, 1997, Swimming Upstream: Trends in the Gender Wage Differential in the 1980s, Journal of Labor Economics, 15 (1), 1- 42.

Blau, Francine D. and Lawrence M. Kahn, 2006, The US Gender Pay Gap in the 1990s: Slowing Convergence, Industrial and Labor Relations Review, 60 (1), 45–66.

Blau, Francine D. and Lawrence M. Kahn, 2007, The Gender Pay Gap, The Economists' Voice: Vol. 4 : Iss. 4, Article 5. Available at: http://www.bepress.com/ev/vol4/iss4/art5.

Bun, Chan Kwok and Tong Chee Kiong, 1993, Rethinking Assimilation and Ethnicity: The Chinese in Thailand, International Migration Review, 27 (1), 140-168.

Chiswick BR, Miller PW, 1995, The Endogeneity between Language and Earnings: International Analyses, Journal of Labor Economics 13: 246-288.

Chiswick BR, Miller PW, 1996, Ethnic Networks and Language Proficiency among Immigrants, Journal of Population Economics 9: 19-36.

Chiswick, B. R., 1977, Sons of Immigrants: Are They at an Earnings Disadvantage?, American Economic Review, Papers and Proceedings, 376-380.

Chiswick, Barry, 1978, The Effect of Americanization on the Earnings of Foreign-Born Men, Journal of Political Economy, 86 (5), 897-922.

Constant, A., Gataullina L. and K.F. Zimmermann, 2008, "Ethnosizing Immigrants" Journal of Economic and Behavioral Organization, forthcoming.

Deutsch, Joseph, Gil S. Epstein and Tikva Lecker, 2006, Multi-Generation Model of Immigrant Earnings: Theory and Application, Research in Labor Economics, 217-234.

Duleep, Harriet, and Mark Regets, 2002, The Elusive Concept of Minority Quality: Evidence from 1970-1990, IZA discussion paper 631 (www.iza.org).

Dustmann, Christian, Francesca Fabbri, and Ian Preston, 2004, Ethnic Concentration, Prejudice and Racial Harassment of Minorities, CReAM Discussion Paper 05/04 (www.econ.ucl.ac.uk/cream/).

Epstein, Gil S. 2003, Labor Market Interactions between Legal and Illegal Minorities, Review of Development Economics, 7(1), 2003, 30-43.

Epstein, Gil S. and Ira Gang, 2006, "Ethnic Networks and International Trade", in Labor Mobility and the World Economy Federico Foders and Rolf J. Langhammer (ed), Springer (Berlin, Heidelberg), 85-103.

Epstein, Gil S. and Shmuel Nitzan, 2007 Endogenous Public Policy and Contests. Springer.

Epstein, Gil S. and Shmuel Nitzan, 2006, "Reduced Prizes and Increased Effort in Contests", Social Choice and Welfare 26(3), 447-453.

Gang, Ira N. and Klaus F. Zimmermann, 2000, Is Child Like Parent? Educational Attainment and Ethnic Origin, Journal of Human Resources, 35, 550-569.

Gang, Ira N. and Rivera-Batiz, Francisco, 1994, Labor Market Effects of Immigration in the United States and Europe: Substitution vs. Complementarity, Journal of Population Economics, 7, 157-175.

Gang, Ira N., Francisco Rivera-Batiz and, Myeong-Su Yun, 2002, Economic Strain, Ethnic Concentration and Attitudes Towards Foreigners in the European Union, IZA Discussion Paper 578 (www.iza.org).

Gradstein, Mark and Maurice Schiff, 2006, The Political Economy of Social Exclusion, with Implications for Immigration Policy, Journal of Population Economics 19(2), 197-446.

Gradstein, Mark and Moshe Justman, 2005, The Melting Pot and School Choice, manuscript, Journal of Public Economics, 89, 871-896.

Kahanec, Martin, 2006, Ethnic Specialization and Earnings Inequality: Why Being a Minority Hurts but Being a Big Minority Hurts More, IZA Discussion Paper 2050, (www.iza.org).

Lazear, Edward P., 1999, Culture and Language, Journal of Political Economy, 107 (6, pt. 2), S95-S126.

Lindbeck, Assar and Dennis J. Snower, 1988, Cooperation, Harassment, and Involuntary Unemployment, an Insider-Outsider Approach, American Economic Review, 78(1) 167-188.

Rapoport, H. and A. Weiss, 2003, The Optimal Size for a Minority, Journal of economic behavior and organization 52, 27-45 .

Rauch, James E., 2001, Business and Social Networks in International Trade, Journal of Economic Literature, 39 (4), 1177-1203.

Smith, J.P. and F.R. Welch, 1989, Black Economic Progress after Myrdal, Journal of Economic Literature, 27 (2), 519-64.

Figure
Assimilation activities of political entity and employed minorities

a_2
Level of assimilation

a_2^*

Assimilation activities a_1