

Modernization, Social Identity, and Ethnic Conflict

September 18, 2015

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1 Introduction

- Empirical evidence suggests that ethnic divisions or diversity in a society leads to negative outcomes in various dimensions, including internal armed conflict, public goods provision, and economic development among others.
- It is often argued that the lack of shared social identity, that is, the dominance of subnational (particularly, ethnic) identities over national identity, lies behind the negative outcomes in ethnically heterogeneous societies (Collier, 2009).
- If shared national identity is important, how can it be realized?

- Miguel (2004) and Collier (2009), based on case study and statistical analysis, argue that "**nation-building**" **policies**, such as the promotion of a national language and school education emphasizing common history, culture, and values, are effective in strengthening national identity.
- In political science, there exist competing theses on effects of **modernization** (including industrialization, the rise of wage labor, the diffusion of education, and urbanization) on social identity.
 - The traditional thesis, which is based on the past experience of Europe, argues that modernization leads to widespread national identity at the expense of ethnic and other subnational identities.
 - Another influential thesis mainly focusing on Africa argues that modernization rather breeds ethnic identification.

- If the traditional view is correct, policies promoting modernization might be more important than "nation-building" policies for shared national identity and good outcomes in conflict and development, while if the competing view is true, nation-building policies would be crucial.
- Which view is more relevant under what conditions?
- How are (violent and non-violent) ethnic conflict and economic development affected by modernization through social identity?
- How do policies such as "nation-building" policies affect the outcomes through identity?
- This paper develops a model of social identity, ethnic conflict, and economic development in order to examine these questions theoretically.

1.1 Related literature

- Contest models of ethnic conflict : Esteban and Ray (2008, 2011), Besley and Persson (2010, 2011), Caselli and Coleman (2013), Sambanis and Shayo (2013)
- Most closely related is Sambanis and Shayo (2013, American Political Science Review), who introduce the determination of social identity to a contest model.
 - Examines the interaction between the social identity of individuals (the nation or their ethnic group) and ethnic conflict.
 - Utility function based on concepts of the so-called social identity approach in social psychology.
- Papers examining interactions between identity and economic behaviors: Akerlof and Kranton (2000, 2010), Shayo (2009), Benabou and Tirole (2011), and Bisin et al. (2011).

2 Model

- Extends the Sambanis and Shayo (2013) model by modeling multiple production sectors and associated sectoral choices by workers (and production decisions of firms).
- A finite number N of individuals belong to one of $n_e (\geq 2)$ ethnic groups that are symmetric in every aspect (the population size of each group is N/n_e)
 - The model is concerned with an ethnically heterogeneous society without a dominant ethnic group.

2.1 Production

- Sectors producing the private good
 - n_e ethnically-segregated **traditional sectors (Sector TJ, $J = 1, 2, \dots, n_e$)**
 - 1 ethnically-integrated **modern sector (Sector M)**
 - The traditional sectors correspond to sectors that rely on traditional or primitive technologies in the real economy, such as traditional agriculture, the urban informal sector, and household production.

- Production functions

$$\text{Sector } TJ : Y_{TJ} = A_T(L_{TJ})^\alpha, \quad \alpha \in (0, 1), \quad (1)$$

$$\text{Sector } M : Y_M = A_M \sum_{J=1}^{n_e} L_{MJ}, \quad (2)$$

$L_{TJ}(L_{MJ})$: the number of workers in sector TJ (sector M)

$A_T(A_M)$: the sector's total factor productivity (TFP)

- Decreasing returns to labor in Sector TJ

intends to capture the presence of quasi-fixed factors in traditional sectors, such as limited arable land in traditional agriculture.

- Labor incomes

$$y_{TJ} = A_T(L_{TJ})^{\alpha-1}, \quad (3)$$

$$y_M = A_M. \quad (4)$$

- In sector TJ , labor income is determined so that the product is equally shared among workers, a typical assumption for traditional sectors.

2.2 Conflict

- Groups contest for exogenous resources that yield group-specific club goods of value V (such as public services and infrastructures benefiting a particular group).
- **Contest function** (determines the amount of resources each group acquires)

$$\frac{V_J}{V} = \frac{F_J}{F} \quad \text{if } F > 0, \quad \text{and} \quad = \frac{1}{n_e} \quad \text{if } F = 0, \quad (5)$$

V_J : the resources acquired by group J ($J = 1, 2, \dots, n_e$), $F_J = \sum_{i \in J} f_i$: the total contributions or "efforts" to conflict by members of the group (f_i : the contribution by individual i), $F = \sum_{J=1}^{n_e} F_J$: the aggregate "efforts" (**the level of conflict**)

- The cost of conflict of individual i with f_i

$$c(f_i) = \frac{1}{\theta} (f_i)^\theta, \quad \theta \geq 2. \quad (6)$$

- The model considers the situation in which the resource allocation over the groups is determined not by rules but by the consequences of violent conflict or non-violent conflict (such as rent-seeking activities).

2.3 Utility

- As in Sambanis and Shayo (2013), the utility of an individual depends on (i) his material payoff positively, (ii) **perceived distance** from a social group he identifies with (either his ethnic group or the nation) negatively, and (iii) the **status** of the social group positively.
 - The perceived distance and the status are important factors affecting social identification and intergroup behaviors, according to influential theories in social psychology.
- Material payoff of individual i of ethnic group J ($J = 1, 2, \dots, n_e$) when he works in sector K ($K = TJ, M$):

$$\pi_i = y_K - \frac{1}{\theta}(f_i)^\theta + \delta \frac{F_J}{F} V. \quad (7)$$

δ : the value of the group-specific club good in units of the private good
[constant]

- **Perceived distance** between an individual and a social group depends on the distance between his 3 attributes and average attributes of the group.
 - Attributes: whether one belongs to (a) the nation or not, (b) particular ethnic groups or not, (c) particular traditional sectors or not

$$q_i^n = 1 \text{ if } i \in N, \quad q_i^n = 0 \text{ otherwise,} \quad (8)$$

$$q_i^J = 1 \text{ if } i \in J, \quad q_i^J = 0 \text{ otherwise, for } J = 1, 2, \dots, n_e, \quad (9)$$

$$q_i^{TJ} = 1 \text{ if } i \in TJ, \quad q_i^{TJ} = 0 \text{ otherwise, for } J = 1, 2, \dots, n_e. \quad (10)$$

- * Example : when he belongs to ethnic group 2 and works in sector M ,
 $q_i^n = 1, q_i^2 = 1, q_i^J = 0$ for $J \neq 2$, and $q_i^{TJ} = 0$ for any J .

- **Perceived distance** between individual i of ethnic group J and social group G ($G = J, N$ [nation])

$$d_{iG}^2 = \omega_n (q_i^n - q_G^n)^2 + \omega_e \sum_{J=1}^{n_e} (q_i^J - q_G^J)^2 + \omega_s \sum_{J=1}^{n_e} (q_i^{TJ} - q_G^{TJ})^2. \quad (11)$$

q_G^n, q_G^J, q_G^{TJ} : average values of the attributes of the group,

$\omega_n, \omega_e, \omega_s \in (0, 1)$: weights on the respective attributes (sum= 1)

- As in Sambanis and Shayo (2013), the weight on the ethnic attributes ω_e (the national attribute ω_n) increases (decreases) with the level of ethnic conflict F .

$$\omega_e = \eta_0 + \eta_1 F, \quad \eta_0 \geq 0, \quad \eta_1 > 0, \quad \eta_0 + \eta_1 F_{\max} < 1 - \omega_s, \quad (12)$$

$$\omega_n = 1 - \omega_e - \omega_s = 1 - \omega_s - (\eta_0 + \eta_1 F), \quad (13)$$

- * When ethnic conflict becomes more intense, people care about the ethnic attributes more (the national attribute less) in measuring distances from social groups.

- **The status of social group G ($G = J, N$)** [exogenous] : the difference between the group's subjective "value" or "importance" and the reference groups' one

$$S_G = \sigma_G - \sigma_{-G}, \quad (14)$$

$\sigma_G(\sigma_{-G})$: the "value" or "importance" of group G (the reference groups $-G$)

- When $G = J$, the reference groups are the other ethnic groups, and when $G = N$, they are other nations.
- $S_J = \sigma_J - \sigma_{-J} = 0$ from the assumption that ethnic groups are symmetric.
- **The national status** $S_N = \sigma_N - \sigma_{-N}$ represents people's evaluations of the nation's international standing or reputation, particularly compared to neighboring nations, in "soft" dimensions such as culture, history, sports, and widely shared values, as well as in "hard" dimensions such as military strength and territory.

- The utility of individual i who identifies with social group ($G = J, N$)

$$u_{iG} = \pi_i - \beta d_{iG}^2 + \gamma S_G, \quad \beta, \gamma > 0. \quad (15)$$

- Given that an individual identifies with a particular social group, his utility increases as the perceived distance from the group decreases. Since the perceived distance depends on differences in the sectoral attributes, he has an incentive to choose the same sector as the "average person" of the group.
- Social identification of an individual is endogenously determined. He "chooses" a group (his ethnic group or the nation) that brings him higher utility either because of higher material payoff, the shorter perceived distance, or the higher status.

2.4 Timing

- Individuals play a two-stage game to maximize their utility.
 - (1) decide which sector to work (sector TJ or sector M for individuals of ethnic group J)
 - (2) choose a social group to identify with (the nation or his ethnic group) and the contribution to conflict f_i simultaneously
- Subgame perfect Nash equilibria of the game are searched.

3 Results

- There exist 2 types of equilibria: equilibria in which individuals of the same ethnic group share the same identity and those in which they have different identities.
- First, these equilibria are compared for given parameters and exogenous variables.
- Actually, which equilibrium(a) exists do change with values of exogenous variables. Taking into account this, interactions among modernization (the shift from traditional sectors to the modern sector), identity, conflict, and output are examined next.

3.1 Homogenous identity equilibria

- 2 equilibria exist : (i) all individuals identify with their ethnic group, (ii) all individuals identify with the nation.
- **Proposition 1:** For given parameters and exogenous variables,
 - The level of conflict F is lower and the proportion of workers in the modern sector (sector M) L_M/N is higher when all identify with the nation.
 - Under conditions that would hold at least for typical developing countries, total output of the private good Y and aggregate material payoff (the value of private and public good consumption net of the cost of conflict) are higher, when all identify with the nation.
 - (There do exist combinations of parameters and exogenous variables such that both equilibria exist.)

3.2 Heterogenous identity equilibria

- 3 equilibria exist : (1) Sector M (sector TJ) workers identify with the nation (their ethnic group), (2) Sector M workers are divided over identities and all in sector TJ identify with their ethnic group, and (3) Sector TJ workers are divided over identities (and all in sector M identify with the nation).
- **Proposition 2:** For given parameters and exogenous variables, when all equilibria, including 2 homogenous identity equilibria, are compared,
 - The level of conflict F is lower and the proportion of workers in the modern sector (sector M) L_M/N is higher in equilibrium with the higher proportion of people identifying with the nation.
 - * Ranking of the above 3 equilibria in the proportion of people identifying with the nation: (3)>(1)>(2)
 - Total output of the private good Y and aggregate material payoff are higher in equilibrium with the higher proportion of people indentifying with the nation, under conditions that would hold at least for typical developing countries.

3.3 Interactions among modernization, identity, conflict and output

- Now, interactions among modernization (the shift from traditional sectors to the modern sector), identity, conflict, and output are examined.
- A simple dynamics is introduced into the model by supposing that the TFP of sector M , A_M , increases over time.
- The productivity growth raises the modern sector income, induces the higher proportion of workers to choose the sector, and raises the sector's share in production.
- How does modernization driven by the productivity growth affect social identity, conflict, and aggregate output among others?
- Results differ depending on levels of exogenous variables such as the status of the nation ($S_N = \sigma_N - \sigma_{-N}$) and the amount of contested resources V .

Proposition 3 (Effects of the status of the nation): Suppose that the TFP of sector M , A_M , increases over time.

- If the status of the nation S_N is very high (very low),
 - all individuals always identify with the nation (their ethnic group) and the level of conflict F is consistently low (high).
 - When the status is higher and thus all identify with the nation, for given A_M , the proportion of workers in sector M , L_M/N , is higher, and (under conditions that would hold at least for typical developing countries,) the total output of the private good Y and aggregate material payoff are higher.

- Otherwise (If S_N is neither very high nor very low), social identity and thus the realized equilibrium change with the productivity growth.
 - The result is simpler when $\eta_1 = 0$, that is, when the level of conflict F does not affect weights on ethnic attributes ω_e and on the national attribute ω_n of the perceived distance.
 - * In this case, F is the same in all equilibria and equilibrium is unique for given parameters and exogenous variables.
 - * When the status is relatively high (low), the society shifts from the equilibrium in which sector M workers identify with the nation and sector TJ workers identify with their ethnic group to the equilibrium in which all identify with the nation (their ethnic group).
 - That is, the identity initially associated with modern (traditional) sector workers becomes the shared identity eventually, when S_N is high (low).
 - * For given A_M , when the status is higher, the society is in an equilibrium with higher L_M/N , and (under conditions that would hold at least for typical developing countries,) higher Y and aggregate material payoff.

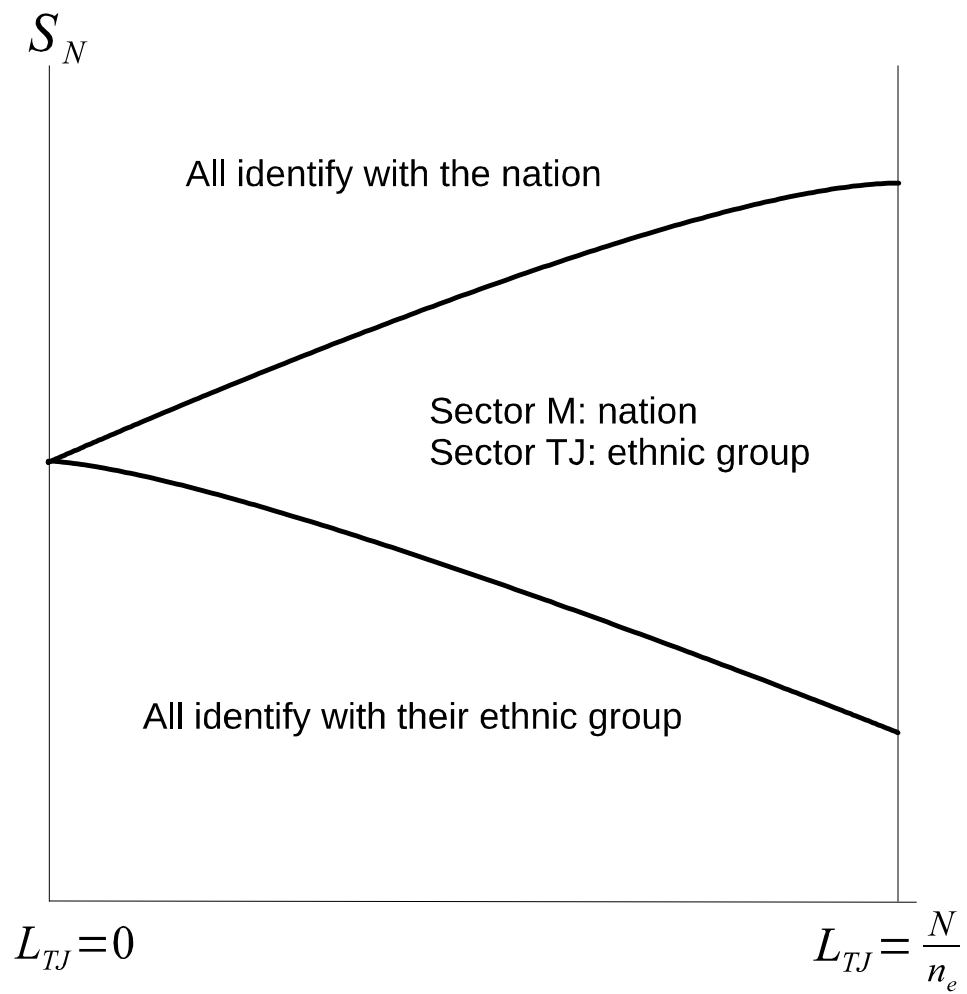


Fig. 1 Equilibrium when $\eta_1 = 0$

- The result is more complicated when $\eta_1 \neq 0$, that is, when weights ω_e and ω_n of the perceived distance depend on F .
- * Unlike the case $\eta_1 = 0$,
 - F is lower in equilibrium with the higher proportion of people identifying with the nation (Propositions 1 and 2).
 - The 2 equilibria in which individuals of either sector M or TJ are divided over identities too could exist.
 - **Multiple equilibria** could exist given parameters and exogenous variables including S_N . Identity, conflict, and output differ depending on which equilibrium happens to be realized.

- * The result on the equilibrium shift changes slightly from the case $\eta_1 = 0$.
 - When S_N is relatively high (low), the society **tends to** shift from a heterogenous identity equilibrium, where traditional sector workers are more likely to identify with their ethnic group than modern sector workers,
to the equilibrium in which all individuals identify with the nation (their ethnic group), where F is low (high) and, for given A_M , L_M/N and Y are relatively high (low).

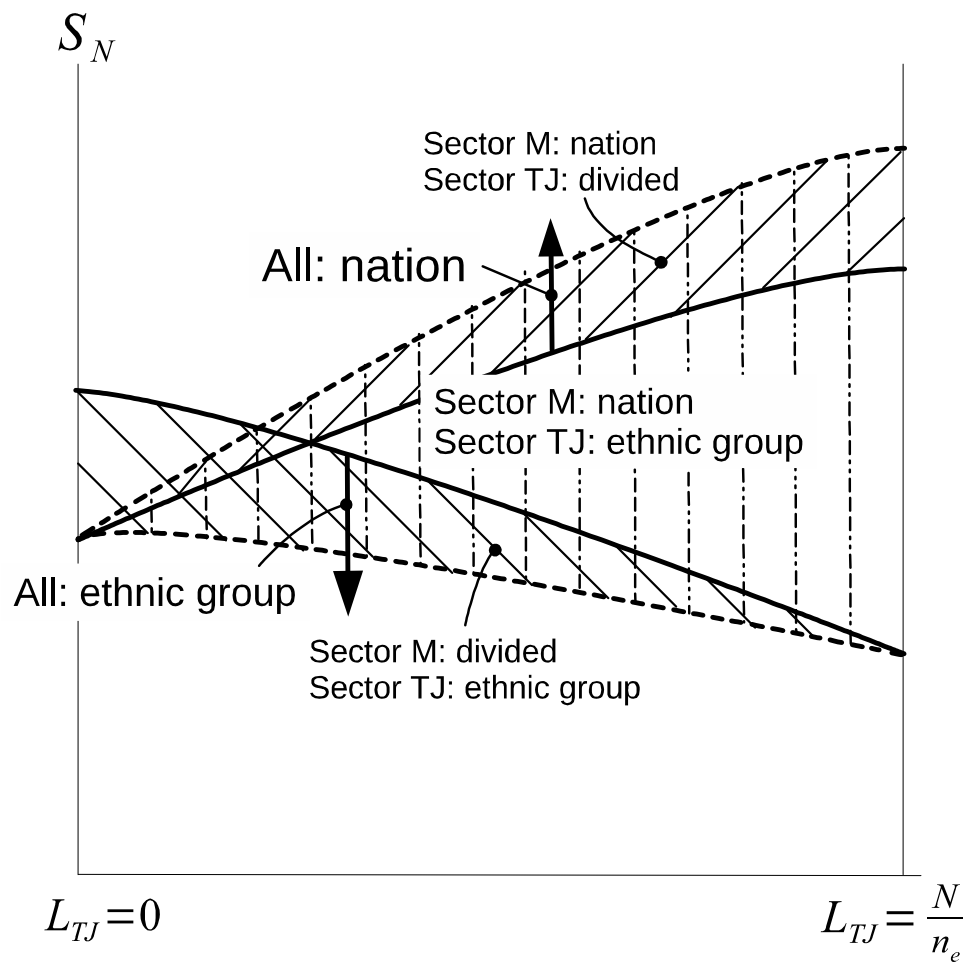


Fig. 2 Equilibrium when $\eta_1 > 0$

3.3.1 Discussion

- As mentioned in Introduction, there exist competing theses on effects of modernization on social identity in political science.
 - The traditional thesis, which is based on the past experience of Europe, argues that modernization leads to widespread national identity at the expense of ethnic and other subnational identities.
 - Another influential thesis mainly focusing on Africa argues that modernization rather breeds ethnic identification.
- The result is consistent with the traditional view when the status S_N is relatively high, while it is consistent with the competing view when it is relatively low, as far as the relatively long term effect of modernization (the effect involving the equilibrium shift) is concerned.

- The national status S_N represents people's evaluations of the nation's international standing or reputation, particularly compared to neighboring nations, in "soft" dimensions such as culture, history, sports, and widely shared values as well as in "hard" dimensions such as military strength and territory.
- Policies can affect some of the dimensions. As mentioned in Introduction, Miguel (2004) and Collier (2009), based on case study and statistical analysis, argue that "**nation-building**" policies, including the promotion of a national language and school education emphasizing common history, culture, and values, are effective in strengthening national identity.
- The result shows how "nation-building" policies can reinforce national identity through raising the national status, and suggests that they are crucial for good outcomes in countries where the status is low because of lack of shared culture and history, such as many African nations.

- Alternatively, these "nation-building" policies may be interpreted as policies making shared nationality more salient, i.e. raising ω_n , and ethnicity less salient, i.e. reducing ω_e , in the perceived distance.
- Indeed, **Proposition 4** shows that a decrease in η_0 that raises ω_n and lowers ω_e has similar effects to an increase in S_N .

3.4 Effects of contested resources

- **Proposition 5:** (i) The level of conflict F increases with resources V in all equilibria. (ii) Results similar to Proposition 3 hold for V when "low (high) S_N " is replaced with "large (small) V ". Specifically, when V is large (small), the society tends to shift from a heterogenous identity equilibrium to the one in which all individuals identify with their ethnic group (the nation).
- Contested resources represent both material resources (such as natural resources) and a part of the governmental budget for group-specific club goods whose allocation over the groups is determined by the consequences of violent conflict or non-violent conflict (such as rent-seeking activities).
- Hence, the result suggests that weak political and economic institutions as well as the abundance of material resources is a hindrance to the desirable outcome. The model reveals a novel mechanism interacting with social identity that resources and institutions (and policies improving institutional quality) affect ethnic conflict and development.

- The result is consistent with the traditional thesis on effects of modernization on social identity if contested resources are not abundant or institutions are good in quality, otherwise it is consistent with the competing thesis (as far as the relatively long term effect of modernization is concerned).

4 Conclusion

- This paper has developed a model of social identity, ethnic conflict, and development, in which individuals choose a sector to work (between the modern sector and a traditional sector), social identity (between ethnic identity and national identity), and contributions to conflict.
- Given other things equal, a society with higher national status, less contested resources, better institutions, or ethnic differences less salient in people's minds tends to be in an equilibrium with the higher proportion of people with the national identity, the lower level of conflict, the higher share of modern sector workers (higher degree of modernization), and higher output.
- As modernization proceeds, a society tends to shift to an equilibrium with uniformly national identity and good performance in other dimensions, if the status is high, the resources are not abundant, institutions are good in quality, or ethnic differences are not salient in people's minds; otherwise, it tends to shift to an equilibrium with uniformly ethnic identity and the worse performance in other dimensions.

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