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Diasporas and Conflict

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ABSTRACT

Diasporas and Conflict*

We build a model of conflict in which two groups contest a resource and must decide on the optimal allocation of labor between fighting and productive activities. In this setting, a diaspora emanating from one of the two groups can get actively involved in the conflict by transferring financial resources to its origin country. We find that the diaspora influences the war outcome and, above a certain size, contributes to the escalation of violence. Given the characteristics of the conflict equilibrium, the two groups of residents prefer to negotiate a peaceful settlement if there exists a sharing rule that makes both of them better off than war. We then identify the characteristics of the economy such that the diaspora acts as a peace-wrecking force or triggers a transition towards peace. A dynamic version of the model with an endogenous diaspora allows us to analyze the joint evolution of migration and conflict in the home country, discuss the role of openness to migration and the possibility of multiple equilibria, and draw some policy implications.

JEL Classification: F22, D74, O1

Keywords: diasporas, conflict, international migration

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1 Introduction

Poor countries are often plagued by civil wars and, in many cases, source of sizeable migration flows. There is also abundant evidence that diasporas can play a major role in the evolution of conflict in the origin country. Through various channels, which range from political lobbying to financial support and direct involvement in fighting, migrants may act as a peace-building or peace-wrecking force. The economic literature, however, has so far overlooked the relationship between emigration and conflict in the homeland. In this paper, we contribute to bridging this gap and build a theoretical framework to understand how diasporas can affect conflict in the origin country.

The involvement of diasporas in homeland conflicts has been documented by qualitative research in different fields. One of the best known examples is the Sri Lankan civil war, which opposed the Tamil and the Cinhalese between 1983 and 2009. During the first phase of the conflict, the Tamil diaspora favored the escalation of violence through massive financial support to its group of origin and a relentless lobbying activity aimed at mobilizing international opinion (Fair, 2007; Gunaratna, 2003; Orjuela, 2008). Similarly, the Eritrean and Croatian diasporas have played decisive roles in the independence wars of their respective countries of origin, in particular by providing funds for the armed struggle of the secessionist groups (Hockenos, 2003; Fessehatzion, 2005). After the independence, and during and in the aftermath of the Ethio-Eritrean conflict (1998 − 2000), the Eritrean government even asked the diaspora members to contribute 2% of their monthly income to the newly formed state (Fessehatzion, 2005). Such contribution was not compulsory, but largely perceived as a duty (Koser, 2007). In the case of Croatia, Skrbiš (2000) also notes that financial participation of emigrants was nearly mandatory, with diaspora resources being used both for fighting in the home country and campaigning in the host countries to seek support and recognition of the new state. Lobbying has also been a defining mode of intervention of the anti-Castro Cuban diaspora. Although *de facto* unsuccessful, the Cuban diaspora strongly affected the US foreign policy and the ability of the political regime in the homeland to carry on (Grugel and Kippin, 2007). Other notable examples of migrants' involvement in homeland conflict include communities as diverse as the Irish, the Armenian or the Cambodian diasporas. Such cases are extensively documented by an important literature in political sciences (see for instance Smith and Stares

(2007)). It notably emphasizes the role of migrants' financial contributions, which are often targeted towards armed groups and political parties in order to subsidize conflict or political activity.[1]

In spite of such evidence and rich qualitative research, the economic literature has remained so far quite silent on the mechanisms through which diasporas can shape conflict in the origin country. On the one hand, the vast literature considering the possible impact of emigration on sending countries' outcomes has overlooked the onset and intensity of civil conflict as relevant variables of interest. Even the few papers interested in the consequences of migration for inter-group competition in the sending country (Mariani, 2007; Docquier and Rapoport, 2003) have not modeled conflict and the choice between war and peace. Some recent (and mostly empirical) studies, however, have shown that migrants can somehow shape institutions and politics in the sending country. For instance, Spilimbergo (2009) provides evidence that foreign students have a positive impact on democracy at home countries, while Docquier et al. (2016) emphasize a positive effect of emigration on institutional development in the sending country. Consistent with these cross-country results, a few micro-oriented papers also document the impact of migration on political participation and opinions in the origin communities. In particular, Batista and Vicente (2011) find that Cape-Verdean non-migrants living in more migration-intensive localities exhibit higher demand for political accountability, while Chauvet and Mercier (2014) suggest that Malian return migrants transfer electoral norms to their origin communities, notably in terms of participation. Finally, Pfutze (2012) and Barsbai et al. (2016) respectively find that migration increases the probability that an opposition party wins a municipal ballot (in Mexico), and lowers the support for the incumbent Communist party (in Moldova).

On the other hand, the otherwise rich literature on conflict tends to neglect the role played by diasporas. As far as empirical studies are concerned, the only exception has long been Collier and Hoeffler (2004), who highlight a positive correlation between the proportion of migrants in the US and the probability of conflict in the home country, thus suggesting that diasporas may be a risk factor in the re-ignition of wars. More recently, Docquier, Ruyssen, and Schiff (2014) find that

[1]Obviously, migrants also send funds to their origin country as remittances to their families. Remittances are not neutral with respect to conflict, since they modify the recipients' budget constraint and then their opportunity cost to get involved in civil war or become activists. However, the analysis of the specific impact of remittances on conflict is beyond the scope of this paper.

bilateral migration increases the likelihood of interstate conflict. As far as domestic conflicts are concerned, Preotu (2016) reports that emigration to developed countries can decrease the incidence of civil war in the countries of origin. What is still missing, however, is a proper theoretical framework to understand through which channels migrants influence the evolution of conflict in the origin country. As pointed out by Blattman and Miguel (2010), in spite of the major role played by diasporas in rebel finance, "an important limitation of the existing theoretical work on armed conflict causes [is] its almost exclusive focus on the internal armed groups' decision of whether or not to fight". This paper is a first step in this research direction.

We present a model of conflict in which two groups contest a resource which can be consumed as a group-specific public good. Open conflict requires labor, and involves the destruction of some of the resources of the economy. Within each group, agents, who are ex-ante identical, collectively decide on the optimal allocation of labor between direct participation to the conflict (as soldiers, or activists) and productive activities. In this setting, we introduce a diaspora emanating from one of the two groups. In case of conflict, migrants can decide to provide funding to their group of origin (i.e. subsidize its war effort), thus affecting the intensity and outcome of conflict. Given the characteristics of the implied conflict equilibrium, the two groups of residents may choose to negotiate a pacific settlement if there exists a sharing rule that makes both of them better off than war.

In a first, static specification of our model, we consider the diaspora as an exogenous stock of economic migrants, whose decision to leave the source economy is essentially independent on the latent risk of conflict in their origin country. In practice, however, migration is also driven by conflict, which amplifies the incentive to emigrate and triggers flows of refugees. It is then difficult to distinguish purely economic from conflict-generated emigration. In order to account for this dimension, the second part of the paper describes the dynamics of the model when the diaspora evolves over time as a result of successive migration waves. Migration outflows endogenously depend on source-destination utility differentials, which are in turn affected by the outbreak (or resolution) of conflict. We then characterize the joint evolution of migration and conflict.

As far as the results are concerned, we first emphasize the role that migration can play in the escalation of violence. We show that there exists a threshold diaspora size above which migrants provide a positive contribution to the war effort of their group of origin. This contribution increases with the size of the diaspora, leading in turn to an increase in the share of fighters in the origin group. We also find that the peace – war tradeoff is affected by the diaspora, which can play either a peace-building or a peace-wrecking role. In particular, it is more likely to act as a peace-building force in cases when negotiation is more costly, productivity is lower (which reduces the opportunity cost of violence), and/or the amount of contested resources is lower. Furthermore, we show how the critical size that the diaspora needs to attain in order to trigger a switch from war to peace (and vice versa) depends on the size of the two resident groups. Such critical size notably turns out to be larger when the rival group is more numerous. Last, our dynamic analysis allows for a feedback effect of war (or peace) on migration. In the case of a potentially peace-wrecking diaspora, the two-way relation between migration and conflict may generate multiple steady states, namely a peaceful equilibrium with a smaller diaspora and a conflict equilibrium with larger emigration. More generally, we highlight the role of the openness of frontiers in defining the trajectory of the economy towards peace or war in the long-run. A more permissive migration policy, for instance, may allow a diaspora to fulfil its peace-building potential.

The rest of the paper is organized as follows. The benchmark model is outlined and solved in Section 2. The dynamics of our model, along with a few policy implications, are described in Section 3. Section 4 discusses a few case studies and relates them to our theoretical results. Finally, Section 5 concludes and proposes some extensions.

2 The static model

We start by presenting a simple model of conflict involving two groups. We are agnostic with respect to the source of difference between the two groups, which can be ethnic, religious, politic, etc. Migration is assumed to concern only one of the two groups and, as far as the static version of the model is concerned, to be exogenous.

2.1 The economic environment

We consider a population divided into two groups, indexed by E (the elite) and O (the oppressed group), respectively. Group E is made up of ϵ_E individuals, all residing in the homeland and characterized by productivity y_E. Group O is originally made up of ϵ_O individuals. However, m members of this group migrate and live abroad. The $\epsilon_O - m$ resident members of group O have productivity y_O, while the m migrants (who will be henceforth referred to as group M) are characterized by a productivity $(1+\mu)y_O$, with $\mu > 0$. We further assume $y_E = \kappa y_O = \kappa y$, with $\kappa > 0$, so that y can be interpreted as the overall level of development of the economy while κ is a measure of between-group inequality.

In order to sidestep external effects and free-riding problems, we assume that each group's decisions are taken by a leader who aims at maximizing the group's average utility. As in Esteban and Ray (2008, 2011), individual utility is derived from private consumption c, and from a group-level public good Q which depends on the appropriation of a given resource (or public budget) R. The average utility functions maximized by the three groups' leaders are the following:

$$u_E = c_E + \chi Q_E, \tag{1}$$

$$u_O = c_O + \chi Q_O, \tag{2}$$

and

$$u_M = c_M + \eta \chi Q_O, \tag{3}$$

where $\chi > 0$ denotes the preference for the public good, which is further weighted by $\eta > 0$ in the case of migrants. Hereby we are suggesting that migrants are interested in the access of their group of origin to the public good, but may attach to it a different weight in their utility function.[2]

The quantity Q_i $(i = E, O)$ of public good that groups O and E can have access to depends on the appropriation of a contested resource R. Examples may range from the obtention of a (share of

[2]Assuming that migrants are interested in the public good contested in the homeland is consistent with examples of diasporas being highly involved in the political situation in their home country, which may also be decisive for their opportunity to migrate back home.

the) public budget highlighted by Esteban and Ray (2008, 2011), to sheer territorial expansion. The contested resource may be subject to violent conflict or shared through a process of negotiation.

In case of conflict, group E (respectively, O) obtains a share s (respectively, $1-s$) of R, where s is given by the following contest function:

$$s(A_E, A_O) = \frac{\gamma A_E}{\gamma A_E + (1-\gamma)A_O}. \tag{4}$$

In the above expression, A_i ($i = E, O$) denotes the number of soldiers (or activists) that group i allocates to conflict, and γ represents the relative (dis)advantage of group E in conflict.[3] It reflects the idea that, prior to conflict, the two groups may have a different access to conflict-related information or technology, for instance.[4] Alternatively, $s(A_E, A_O)$ can be interpreted as the probability that group E will capture the whole amount of resource R.

Open conflict is costly: it entrains the destruction of a share δ of the total resources located or produced in the economy, i.e. residents' private production (y_O and y_E) and R. Migrants differ from residents since they are not concerned by the destructive effect of war on private production. Note also that conflict has an opportunity cost: individuals who are employed as soldiers are removed from productive activities so that, for instance, group E gives up a total quantity of private consumption equal to $A_E c_E$.

In this context, migrants can decide to get actively involved in the conflict by subsidizing soldiers from their group (O) in the origin country. The value of the subsidy and the very fact that migration makes group O shrink are the two channels through which the diaspora interplays with conflict and the peace – war choice in our model. We rule out, however, that migrants can be recruited as soldiers, as well as the possible productivity and price effects of migration on the home economy.

In case the two groups choose to split resources without resorting to armed conflict, they engage in a process of negotiation and must ultimately agree on the sharing rule s. Negotiation imposes a cost Z onto each group. Such a cost is justified by negotiation being time- or resource-consuming,

[3]Contest functions of this type, whose theoretical foundations are outlined in Jia, Skaperdas, and Vaidya (2013) and Garfinkel and Skaperdas (2007), are widely used in the literature on conflict.

[4]Note that we do not assume γ larger or smaller than 1/2 so there is no prior on which group should have a relative advantage in the conflict.

and also accounts for the possibility that past conflicts generate hatred and distrust between the involved actors, thus making them, to some extent, prefer war over pacific settlement. A positive Z may also be related to the lack of a perfect commitment technology associated with the peaceful settlement of the conflict.

2.2 The model with conflict

2.2.1 Optimal choices

Suppose now that R is contested through violent conflict. The leaders of the two resident groups must determine the share of the labor force that they allocate to conflict. More precisely, the leaders of group E and O choose θ_E and θ_O, such that $A_E = \theta_E \epsilon_E$ and $A_O = \theta_O(\epsilon_O - m)$, respectively. On the other hand, the leader of group M decides a, i.e. how much the diaspora will contribute for each soldier deployed by group O. This transfer may thus be interpreted as a subsidy to group O's involvement in conflict. The total amount of war-targeted financial transfers, aA_O, will then be shared equally among the resident members of group O, thus reducing the opportunity cost of war for group O.

In our framework, production in the origin country is entirely transformed into private consumption. Accordingly, in case of war u_E and u_O write as

$$u_{E,w} = (1 - \delta)((1 - \theta_E)\kappa y + \chi s(A_E, A_O)R), \tag{5}$$

and

$$u_{O,w} = (1 - \delta)((1 - \theta_O)y + a\theta_O + \chi(1 - s(A_E, A_O))R), \tag{6}$$

respectively. Given that the utility function is linear in its two arguments, the convexity of the problem derives from the shape of the contest function.

For a given a, the first order conditions $\partial u_{E,w}/\partial\theta_E = 0$ and $\partial u_{O,w}/\partial\theta_O = 0$ yield the following reaction functions:

$$\theta_E(\theta_O) = \frac{\sqrt{\gamma\epsilon_E(1-\gamma)(\epsilon_O - m)\kappa y\theta_O\chi R} - \kappa y(1-\gamma)(\epsilon_O - m)\theta_O}{\kappa y\gamma\epsilon_E}, \tag{7}$$

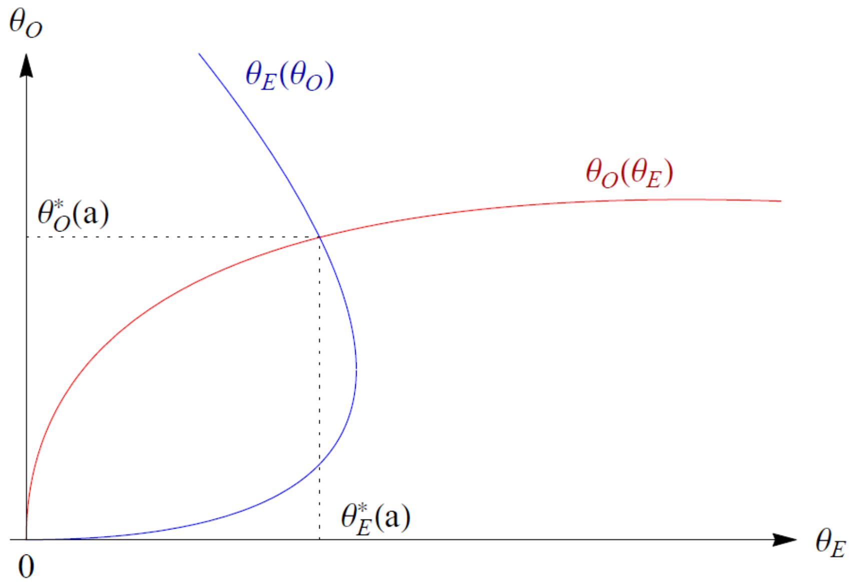


Figure 1: Reaction functions of groups E and O.

and

$$\theta_O(\theta_E) = \frac{\sqrt{\gamma\epsilon_E(1-\gamma)(\epsilon_O - m)(y-a)\theta_E\chi R} - (y-a)\gamma\epsilon_E\theta_E}{(y-a)(1-\gamma)(\epsilon_O - m)}. \tag{8}$$

Figure 1 depicts the two reaction functions, as well as their intersection, which corresponds to the following equilibrium values:

$$\theta^*_E(a) = \frac{\chi R(1-\gamma)(\epsilon_O - m)\gamma\epsilon_E(y-a)}{((y-a)\gamma\epsilon_E + \kappa y(1-\gamma)(\epsilon_O - m))^2}, \tag{9}$$

and

$$\theta^*_O(a) = \frac{\chi R(1-\gamma)(\epsilon_O - m)\gamma\epsilon_E\kappa y}{((y-a)\gamma\epsilon_E + \kappa y(1-\gamma)(\epsilon_O - m))^2}. \tag{10}$$

From $\theta^*_E(a)$ and $\theta^*_O(a)$ we can obtain $A^*_E(a)$ and $A^*_O(a)$, i.e. the equilibrium sizes of the two armies, depending on a.

Notice that the best-response functions are hump-shaped, meaning that when a group is faced with increasing opposition it initially responds by escalating conflict, but is eventually limited by its resource constraint and decreases its involvement in conflict if the other group's activism grows further. In case of complete symmetry *ex ante* and in the absence of active intervention by the diaspora ($\gamma = 1/2$, $\kappa = 1$, $\epsilon_E = \epsilon_O - m$, $a = 0$), the conflict equilibrium is also symmetric and lies on the 45° line.

As far as the diaspora is concerned, u_M can be written, in case of conflict, as

$$u_{M,w} = (1+\mu)y - a\frac{\theta_O^*(a)(\epsilon_O - m)}{m} + (1-\delta)\eta\chi(1 - s(A_E^*(a), A_O^*(a)))R. \tag{11}$$

Knowing $\theta_E^*(a)$, $\theta_O^*(a)$, $A_E^*(a)$ and $A_O^*(a)$, the leader of group M maximizes $u_{M,w}$ with respect to a, the amount transferred to each soldier of group O. From $\partial u_{M,w}/\partial a = 0$, we can retrieve a^* as a function of m. It is possible to show that there exist m_1 and m_2 such that:

$$a^* = \begin{cases} 0 & \text{if } m \leq m_1 \\ \dfrac{y(\gamma\epsilon_E + (1-\gamma)\kappa(\epsilon_O - m))((1-\delta)\eta m - (\epsilon_O - m))}{\gamma\epsilon_E((1-\delta)\eta m + (\epsilon_O - m))} & \text{if } m_1 < m < m_2 \\ \dfrac{y(\gamma\epsilon_E + (1-\gamma)\kappa(\epsilon_O - m)) - \sqrt{\gamma\epsilon_E(1-\gamma)(\epsilon_O - m)\kappa y\chi R}}{\gamma\epsilon_E} & \text{if } m_2 \leq m < \epsilon_O \end{cases}. \tag{12}$$

If $0 < m \leq m_1$, the optimization program of group M would lead to negative values for a^*. Since the diaspora can only provide a non-negative contribution, we consider $0 \leq m \leq m_1$ to be associated with the corner solution $a^* = 0$.[5] When m reaches m_1, the diaspora becomes big enough for a strictly positive involvement in the conflict to be optimal. The size of this contribution increases with the number of migrants m. Finally, when m equals m_2, the contribution of the diaspora is large enough to make θ_O reach one. In other words, group O's involvement in conflict is so heavily subsidized by emigrants that all the resident members of group O are employed as soldiers (or activists), and payed out of the diaspora's contribution. Overall, the function $a^*(m)$ behaves as represented in Figure 2.

[5] If we were to consider negative values for a, they could be interpreted as the diaspora withdrawing capital from the home country.

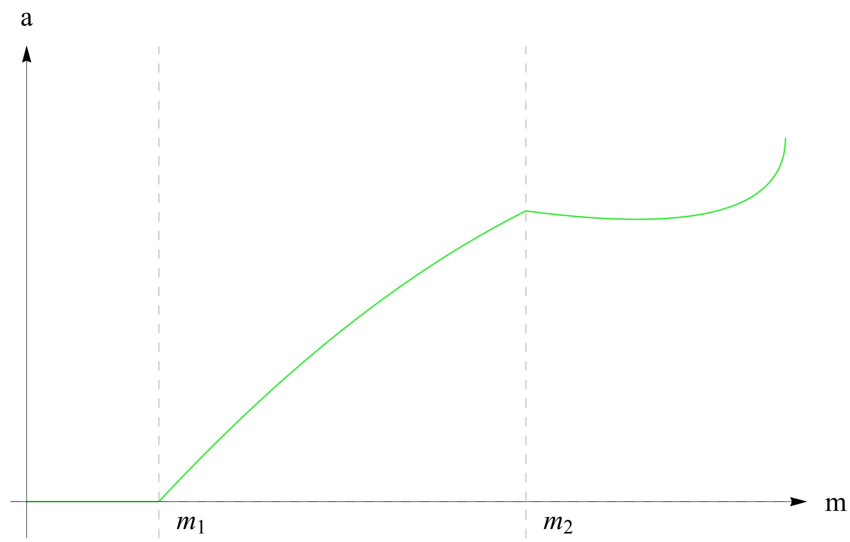


Figure 2: Equilibrium response of group M.

2.2.2 Equilibrium

We now turn to the analysis of the conflict equilibrium. By using the expression for a^* in Equation (12) to replace a in Equations (9) and (10), we obtain the equilibrium values θ_E^*, θ_O^* and a^* as functions of the parameters only.

In order to have shorter expressions, we impose a few restrictions on the parameters. In particular, we set

- $\gamma = 1/2$ (symmetry in conflict between groups E and O),
- $\kappa = 1$ (groups O and E have the same productivity), and
- $\eta = 1$ (migrants value the public good as much as residents).

We also assume that the parameters satisfy the following:

Assumption 1 $\dfrac{1-\delta}{2} < \dfrac{\epsilon_E}{\epsilon_O} < \dfrac{1-\delta}{\delta}$.

This assumption, which is by no means necessary for the model to be solved but allows us to derive simpler results, requires the two groups not to be too different in size, so that none of them is big enough to push the other group out of conflict if its size marginally increases. Note also that the model can be fully solved in the general case of $0 < \gamma < 1$, $\kappa > 0$ and $\eta > 0$ and would yield qualitatively similar results.

Once the above assumption and parameter restrictions are taken into account, we can rewrite Equation (12) as

$$a^*(m) = \begin{cases} 0 & \text{if } m \leq m_1 \\ \dfrac{y(\epsilon_E + (\epsilon_O - m))((2-\delta)m - \epsilon_O)}{\epsilon_E(\epsilon_O - \delta m)} & \text{if } m_1 < m < m_2 \\ \dfrac{y(\epsilon_E + (\epsilon_O - m)) - \sqrt{\epsilon_E(\epsilon_O - m)y\chi R}}{\epsilon_E} & \text{if } m_2 \leq m < \epsilon_O \end{cases} \tag{13}$$

where

$$m_1 = \frac{\epsilon_O}{2-\delta}, \tag{14}$$

while m_2 solves $\theta^*_O(a, m) = 1$.[6]

Although a^* depends on several parameters, we use the notation $a^*(m)$ (as well as $\theta^*_E(m)$ and $\theta^*_E(m)$) in order to highlight the impact of the diaspora on the conflict equilibrium.

By replacing $a^*(m)$ in $\theta^*_E(a)$ and $\theta^*_O(a)$, we further obtain:

$$\theta^*_E(m) = \begin{cases} \dfrac{(\epsilon_O - m)\epsilon_E}{y(\epsilon_E + (\epsilon_O - m))^2}\chi R & \text{if } m \leq m_1 \\ \dfrac{(\epsilon_O - \delta m)(2\epsilon_E + \epsilon_O - m(2-\delta))}{4y(\epsilon_E + (\epsilon_O - m))^2}\chi R & \text{if } m_1 < m < m_2 \\ \dfrac{\sqrt{\epsilon_E(\epsilon_O - m)y\chi R} - y\epsilon_E(\epsilon_O - m)}{y\epsilon_E} & \text{if } m_2 \leq m < \epsilon_O \end{cases}, \tag{15}$$

and

$$\theta^*_O(m) = \begin{cases} \dfrac{(\epsilon_O - m)\epsilon_E}{y(\epsilon_E + (\epsilon_O - m))^2}\chi R & \text{if } 0 < m \leq m_1 \\ \dfrac{(\epsilon_O + \delta m)^2\epsilon_E}{4y(\epsilon_O - m)(\epsilon_E + (\epsilon_O - m))^2}\chi R & \text{if } m_1 < m < m_2 \\ 1 & \text{if } m_2 \leq m < \epsilon_O \end{cases}. \tag{16}$$

For ease of exposition, we call A, B and C the three regions defined by $m \leq m_1$, $m_1 < m < m_2$ and $m \geq m_2$, respectively. The relationship between the diaspora's contribution to conflict a^* and

[6] The complete expression for m_2, which is rather complicated, is given in the Appendix.

its size m, for all admissible values of m, can be described as follows.

Proposition 1 *The value of the diaspora's contribution at equilibrium, $a^*(m)$, is zero over region A. It is an increasing function of m over region B and a U-shaped function of m over region C.*

Proof. Follows from the inspection of the partial derivatives of the expression of $a^*(m)$ given by Equation (13). ■

Looking at m_1, we first can see that the minimal size such that the diaspora starts intervening actively in the conflict increases with ϵ_O and δ. If migrants come from a relatively small origin group, the size of the diaspora such that they start subsidizing conflict in the home country is also small. On the other hand, all other things being equal, conflicts that are potentially more destructive are financed by larger diasporas.

When the size of the diaspora is smaller than m_1, there is no contribution from migrants. When $m_1 < m < m_2$, the diaspora intervenes actively in the conflict, and its contribution increases with its size. Finally, when m exceeds m_2, the contribution of the diaspora ensures that θ_O remains constant and equal to 1.[7]

The following Proposition describes how the shares of workforce that, in equilibrium, the two groups allocate to conflict, depend on the size of the diaspora.

Proposition 2 *The relationship between the size of the diaspora and the shares of soldiers in each group depends on the shape of the diaspora's contribution. In particular,*

(i) over region A, θ_O^* and θ_E^* are $\cap$-shaped functions of m;

(ii) over region B, θ_O^* is a growing function of m while θ_E^* is $\cap$-shaped;

(iii) over region C, θ_O^* is constant and θ_E^* is a $\cap$-shaped function of m.

Proof. Follows from the inspection of the partial derivatives of $\theta_E^*(m)$ and $\theta_O^*(m)$ as in Equations (15) and (16) with respect to m. ■

[7] In this setting, an additional increase of the size of the diaspora has a U-shaped effect on the diaspora's involvement. First, when the diaspora becomes bigger, the contribution is dissolved between more migrants which allows the subsidy $a^*(m)$ to diminish. At the same time, the shrink of the number of residents makes it more and more difficult to prevail in the conflict, and thus at one point the compensation from the diaspora which ensures that all the resident members remain soldiers needs to be bigger.

Over region A, i.e. as long as the diaspora does not subsidize conflict, groups O and E behave symmetrically and allocate the same share of their labor force to conflict. Each group's θ^* increases with the group's size, as long as the latter is smaller than the other group's size. However, if an already dominant group grows even bigger, both groups allocate a smaller share of their human resources to fighting. Within this region, although the diaspora does not contribute to the conflict, it influences it by its size. Namely, the share of soldiers in each group is a $\cap$-shaped function of m: when the number of migrants gets larger, group O becomes automatically weaker than group E in case of conflict, and must compensate by increasing its military engagement. Group E will react accordingly by increasing θ_E^*. Eventually, however, if the diaspora grows further the pool of available soldiers becomes too small for group O to be able to prevail: group O will then withdraw human resources from conflict, causing group E to do the same.

Within region B, the diaspora's financial support to group O is internalized by both groups in their decision over the optimal share of soldiers. Different from region A (corner solution with "passive" diaspora), the two groups do not have symmetric behaviours. In particular, the share of soldiers in group O increases with the size of the diaspora. On the other hand, the impact of the diaspora's support on $\theta_E^*(m)$ is of ambiguous sign: it is positive when $\epsilon_E > (1-\delta)m$ and negative when the inequality is reversed. When the diaspora is relatively small (with respect to group E), its financial involvement in conflict does not represent too big a threat for group E, which will simply adjust its θ_E^* to match a larger a^* and the implied increase in θ_O^*. When the number of migrants is relatively large, the diaspora's contribution to group O may act as a deterrent for group E, which prefers to reduce the number of its soldiers.

Last, when m exceeds m_2 (region C), the money sent back home by the diaspora is such that $\theta_O^* = 1$. This region corresponds to another corner solution, in which the diaspora is active but, eventually, only affects the equilibrium via size effects since θ_O^* is constant.

Although interesting, the corner regions A and C are less informative regarding the interactions between diaspora and conflict. Within region A, the diaspora does not contribute financially to the conflict and only plays a role through a mechanical size effect. Region C sees group O invest all its human resources in conflict, regardless of the size of the diaspora. In what follows, we thus assume that the following holds.

Assumption 2 *The size of the diaspora is such that* $m_1 < m < m_2$.

This means that we focus on region B, where we observe simultaneously the size effect and the contribution effect of the diaspora.

2.3 War *vs* peace

So far we have analyzed a situation of conflict, in which the two groups resort to war in order to "conquer" their shares of the contestable resource R. However, this is not the only option available to the leaders of the two groups, who can alternatively sit at a table and peacefully negotiate how to share R. Negotiation implies that both parts agree on a sharing rule s, such that group E obtains fraction s of R, while fraction $1-s$ goes to group O.

Given the conflict-equilibrium value $\theta_i^*(m)$ $(i = E, O)$, the leader of group i may prefer to engage in a negotiation, which implies a fixed cost, rather than initiating conflict, which destroys resources and requires labor force. For this to be the case, there must exist a non-empty set of values of s such that the utility of group i in case of war, $u_{i,w}$, is lower than its utility if a peaceful settlement is reached, $u_{i,p}$. For negotiation to actually take place, there must exist values of s such that *both* groups are better off without war.

Replacing a^*, θ_E^* and θ_O^* into Equations (5) and (6), the utilities of the two groups in case of conflict can be rewritten as:

$$u_{E,w}(m) = (1-\delta)\left(y + \frac{(2\epsilon_E + \epsilon_0 - m(2-\delta))^2\chi R}{4(\epsilon_E + (\epsilon_O - m))^2}\right), \tag{17}$$

and

$$u_{O,w}(m) = (1-\delta)\left(y + \frac{(\epsilon_O - \delta m))^2\chi R}{4(\epsilon_E + (\epsilon_O - m))^2}\right). \tag{18}$$

Peaceful settlement avoids the destruction generated by conflict, and keeps all the labor force in the productive sector (θ_O and θ_E are set to zero). However, it implies that both groups pay a fixed cost Z. In case of peace, groups E and O thus obtain

$$u_{E,p} = y + s\chi R - Z \tag{19}$$

and

$$u_{O,p} = y + (1-s)\chi R - Z, \tag{20}$$

which, different from $u_{E,w}$ and $u_{O,w}$ do not depend on m.

Solving $u_{i,p} = u_{i,w}$ (for $i = E, O$), we can determine the threshold functions $\tilde{s}_E(m)$ and $\tilde{s}_O(m)$. These functions give the values of s which, for each possible m, make the two groups indifferent between open conflict and peaceful settlement. In particular, we obtain

$$\tilde{s}_E(m) = \frac{Z - \delta y}{\chi R} + (1-\delta)\left(\frac{(2\epsilon_E + \epsilon_0 - m(2-\delta))^2}{4(\epsilon_E + (\epsilon_O - m))^2}\right), \tag{21}$$

and

$$\tilde{s}_O(m) = 1 - \left(\frac{Z - \delta y}{\chi R} + (1-\delta)\left(\frac{(\epsilon_O - \delta m)^2}{4(\epsilon_E + (\epsilon_O - m))^2}\right)\right). \tag{22}$$

The two groups agree on a peaceful negotiation only if there exists a sharing rule s which makes both of them better off than war. It then follows that

Proposition 3 *For any given m, a pacific settlement is viable only if $\tilde{s}_E(m) \leq \tilde{s}_O(m)$.*

Note that the negotiated sharing rule s is a priori undetermined, as there exist multiple values of s such that the two groups prefer peace to war. To resolve indeterminacy, we will assume later on (see Section 2.4) that the sharing rule negotiated by the two groups in case of peace is the outcome of a Nash-bargaining process.

Under Assumption 2, both functions $\tilde{s}_E(m)$ and $\tilde{s}_O(m)$ are decreasing with m. By subsidizing group O in case of conflict, a larger diaspora induces a higher propensity for group O to engage in conflict, while strengthening the preference of group E for a peaceful settlement. Otherwise said, a larger m strengthens the bargaining power of group O by increasing its conflict outcome $u_{O,w}$.

To assess whether the groups actually choose to negotiate peace, depending on m, we need to establish under which conditions $\tilde{s}_E(m)$ is smaller than $\tilde{s}_O(m)$. In case $\tilde{s}_E(m) > \tilde{s}_O(m)$, no peaceful sharing rule would make both groups better off than war, which will then be the equilibrium. Switches between war and peace occur for values of m such that $\tilde{s}_E(m) = \tilde{s}_O(m)$.

Proposition 4 *Let $\hat{m}$ and $\bar{m}$ be the two values of m that solve $\tilde{s}_E(m) = \tilde{s}_O(m)$, with $\hat{m} < \bar{m}$. Under Assumption 2 (i.e., the diaspora's contribution is positive but not large enough to push group O to employ all its members as soldiers), there exist:*

$$Z_0 = \delta y + \frac{1}{4}(1+\delta)\chi R$$

and

$$Z_1 = \delta y + \chi R \left(\frac{\delta}{2} + \frac{(2-\delta)(1-\delta)^2 \epsilon_E \epsilon_O}{((2-\delta)\epsilon_E + (1-\delta)\epsilon_O)^2} \right),$$

with $Z_0 > Z_1$, such that:

(i) If $Z > Z_0$, the diaspora cannot prevent war in the home country, i.e. $\tilde{s}_E(m) > \tilde{s}_O(m)$.

(ii) If $Z_1 < Z < Z_0$, the two groups are at war for $m = m_1$ and the diaspora is potentially peace-building. A switch from war to peace occurs within region B if $\hat{m} < m_2$. A second switch from peace to war may also exist if $\bar{m} < m_2$. In such a case, an initially peace-building diaspora may turn peace-wrecking as it becomes very large.

(iii) If $Z < Z_1$, the two groups are at peace for $m = m_1$ and the diaspora is potentially peace-wrecking. A switch from peace to war occurs within region B if $\bar{m} < m_2$.

Proof. Solving $\tilde{s}_E(m) = \tilde{s}_O(m)$ yields the two possible solutions $\hat{m}$ and $\bar{m}$, whose expressions are given in Appendix B. These solutions are real numbers only if $Z < Z_0$. If $Z > Z_0$, the two curves $\tilde{s}_E(m)$ and $\tilde{s}_O(m)$ do not cross, and $\tilde{s}_E(0) > \tilde{s}_O(0)$. This proves (i). If $Z < Z_0$, the two curves $\tilde{s}_E(m)$ and $\tilde{s}_O(m)$ intersect twice over $]-\infty, \infty[$. Whether the two intersections $\hat{m}$ and $\bar{m}$ fall within $]m_1, m_2[$ determines possible switches from war to peace and peace to war. We also know that $\tilde{s}_E(m)$ and $\tilde{s}_O(m)$ are both decreasing functions of m over $]m_1, m_2[$, but that there exists a value of m larger than m_2 above which $\tilde{s}_E(m)$ starts increasing with m. This implies that $\hat{m}$ corresponds to a switch from war to peace, and that $\bar{m}$ corresponds to a switch from peace to war.

If $Z_1 < Z < Z_0$, $\hat{m} > m_1$. This implies that $\tilde{s}_E(m_1) > \tilde{s}_O(m_1)$ and the two groups are initially (i.e., at $m = m_1$) at war. As soon as m reaches $\hat{m}$, $\tilde{s}_E(m)$ becomes smaller than $\tilde{s}_O(m)$ and the two groups prefer to peacefully share the contested resource. Peaceful negotiation effectively happens if $\hat{m}$ falls within the boundaries of region B, i.e. if $\hat{m} < m_2$, and the diaspora then has a peace-building effect. Last, if $\bar{m}$ also falls within the boundaries of region B ($\bar{m} < m_2$), the diaspora can trigger a second switch from peace to war for large values of m. This proves (ii). Finally, if instead $Z < Z_1$, then $\hat{m} < m_1$ and the two groups are at peace when $m = m_1$. However, if $\bar{m}$ falls within region B, a growing diaspora is able to trigger a switch from peace to war, which proves (iii). ■

Figures 3, 4 and 5 describe the possible cases of non-neutral diaspora (i.e., when $Z < Z_0$). The red (respectively, blue) line represents the threshold value of the sharing rule above (below) which group O (E) does not accept peaceful settlement. These lines are dashed in case of war, when the sharing rule derived from the conflict equilibrium is represented by the purple line. They are solid when the equilibrium is peaceful (i.e., when $\tilde{s}_E(m) < \tilde{s}_O(m)$), in which case the light green area represents the set of feasible sharing rules. Within this area, the solid green line depicts, for every possible m, the negotiated sharing rule derived from the Nash-bargaining process.

Notice that in all cases, when $m \leq m_1$ (region A), $\tilde{s}_E(m)$ and $\tilde{s}_O(m)$ are both increasing with m. The diaspora does not contribute and only has a size effect on the equilibrium, making group E (O) more (less) willing to engage in conflict.

Figure 3 describes the case of a peace-building diaspora ($Z_1 < Z < Z_0$). The two groups are at war when $m = m_1$, and when m reaches $\hat{m}$, the diaspora is sufficiently large to trigger a switch to peace.

Eventually, if $\bar{m}$ is within region B, peace can be broken again when migration reaches this second threshold value. The diaspora then first plays as a peace-building actor, but turns peace-wrecking if its size becomes very large. Figure 4 illustrates this specific case.

Last, Figure 5 describes the case of a peace-wrecking diaspora. The two groups are at peace when $m = m_1$, which necessarily implies that $\hat{m} < m_1 < \bar{m}$. Peace is observed for all the values of m which are smaller than $\bar{m}$. When m reaches $\bar{m}$, the diaspora triggers a switch from peace to conflict.

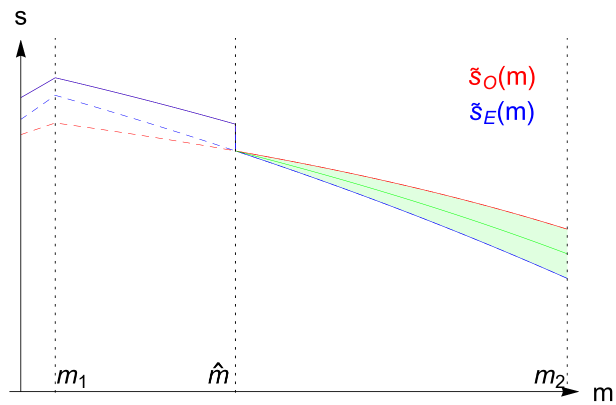


Figure 3: Peace-building diaspora.

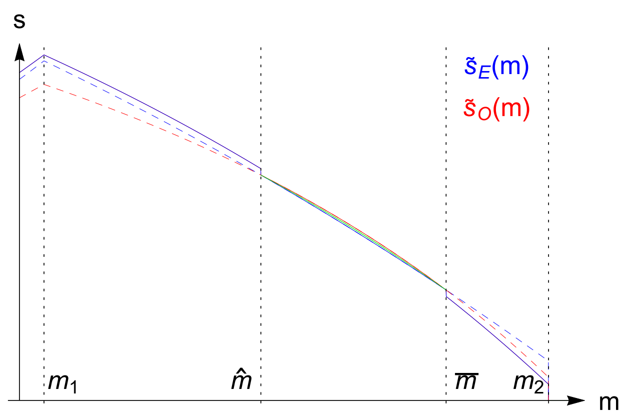


Figure 4: Peace-building, then peace-wrecking diaspora.

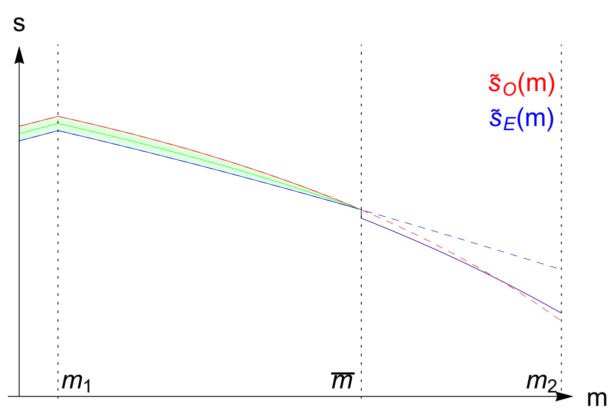


Figure 5: Peace-wrecking diaspora.

As stated by Proposition 4, the diaspora is neutral when the cost of peace is too high ($Z > Z_0$), it has a peace-building potential when the cost of peace is relatively, but not prohibitively, high ($Z_1 < Z < Z_0$), and a peace-wrecking potential when the cost of peace is low ($Z < Z_1$).

In particular, a situation in which the diaspora, regardless of its size, has no chance whatsoever to pull the origin country out of war is more likely when Z_0 is small. This corresponds to a relatively low cost of the war (low δy and/or low $\delta \chi R$). On the contrary, when the cost of the war is high (Z_0 large), the diaspora is more likely to be able to play a role.

If the diaspora is non-neutral ($Z < Z_0$), it is more likely to play a peace-building role if Z_1 is small. Looking at the effects of the parameters on Z_1, the peace-building scenario becomes more likely if y, χ and R decrease. In fact, if a switching point exists, it will be from war to peace if $\tilde{s}_E(m_1) > \tilde{s}_O(m_1)$, i.e. the economy is at war when $m = m_1$. This is more likely when the resources subject to potential destruction (y, R) as well as the importance of the contested resource in the utility function (χ) are limited.

Finally, it may be interesting to look at the effect of the parameters on $\hat{m}$ and $\bar{m}$, i.e. the threshold size that the diaspora must reach in order to bring about a switch from war to peace and vice versa. The comparative statics on $\hat{m}$ and $\bar{m}$ are not obvious because in general, they depend on specific conditions on the parameters. We can however prove the following results concerning the effects of the two groups' size.

Proposition 5 *The threshold values $\hat{m}$ and $\bar{m}$ increase with ϵ_E. They also increase with ϵ_O if $\epsilon_E < (1-\delta)m$.*

Proof. The results can be established by means of the Implicit Function Theorem, under Assumption 1. ■

The first result tells us that, expectedly, it takes a larger diaspora to make the difference when the size of group E increases. Second, the threshold size of the diaspora which triggers a switch increases with the size of group O only when group E is relatively small. This is due to the fact that the marginal impact of the diaspora on the origin group's outcome decreases with the size of group E.[8]

[8] Recall that $\epsilon_E < (1-\delta)m$ also ensures that θ_E^* increases with a^* (see point (ii) of Proposition 2).

2.4 Nash bargaining

As mentioned above, if groups E and O decide to avoid war and resort to peaceful negotiation in order to split R, there can exist a set of values of s they may agree upon. To resolve such indeterminacy, we assume that the value of s which emerges is the outcome of Nash bargaining, i.e.

$$s(m) = \arg\max_{s}(u_{O,p} - u_{O,w}(m))(u_{E,p} - u_{E,w}(m)). \tag{23}$$

In other words, the two groups maximize the product of their respective surpluses from peace (defined using war utilities as "threat points").[9] In particular, after replacing the conflict-equilibrium values θ_E^*, θ_O^* and a^* in the utility functions, we obtain

$$s(m) = \begin{cases} \dfrac{\delta}{2} + \dfrac{(1-\delta)\epsilon_E}{\epsilon_E + \epsilon_O - m} & \text{if } 0 < m \leq m_1 \\ \dfrac{(2-\delta)\epsilon_E + \epsilon_O - m(2-(2-\delta)\delta)}{2(\epsilon_E + \epsilon_O - m)} & \text{if } m_1 < m < m_2 \\ 1 - \dfrac{\delta}{2} - \dfrac{(1-\delta)y(\epsilon_O - m)}{\sqrt{y(\epsilon_O - m)\epsilon_E \chi R}} & \text{if } m_2 \leq m < \epsilon_O \end{cases}. \tag{24}$$

It can be shown that the negotiated s is always increasing in m over regions A and C, while it decreases with m over region B under Assumption 1. This is due to the effect of m on the war outcomes of the two groups. As long as the diaspora does not subsidize conflict (region A), a larger m imposes a negative size effect on the share of resources that group O can obtain in case of war, thus weakening its bargaining power and leading to a higher s. A similar situation occurs in region C, where $\theta_O^* = 1$: as group O shrinks, due to increased migration, its war outcome worsens and the share $1 - s$ of resources it can obtain through negotiation decreases. Instead, within region B, a larger diaspora translates into a potentially higher war outcome for group O, which can thus negotiate peace on better terms and impose a lower s on group E.

[9] Note that the Nash-bargaining process we use is symmetric, as the two groups' surpluses have the same weight in the objective function. Asymmetry, however, could arise indirectly through the parameter γ, which affects the war outcomes of groups E and O. Here, the results are displayed under Assumption 1, and no such asymmetry is possible.

3 The dynamic model: endogenous diaspora

The static model developed in Section 2 considers migration as exogenous. This hypothesis is fairly consistent with diasporas that mostly gather economic migrants. One cannot ignore, however, that migration intensity is also affected by conflict in the home country, which may impact the incentive to migrate and generate for instance sizable flows of refugees.

3.1 The set up

To account for this possibility, we develop a dynamic version of our benchmark model in which the size of the diaspora endogenously evolves over time. In each period t, a new flow of migrants from group O adds up to the existing stock of migrants abroad m_t. This migration outflow is supposed to depend positively on the difference between utility abroad $u_{M,t}(m_t)$ and at home $u_{O,t}(m_t)$.[10]

The size of the diaspora evolves over time according to

$$m_{t+1} = (1-\zeta)m_t + b(u_{M,t}(m_t) - u_{O,t}(m_t)) = f(m_t), \tag{25}$$

where $0 \leq \zeta < 1$ and $b > 0$. The parameter ζ accounts for the erosion of the diaspora over time. In the absence of explicit demographic mechanisms, such erosion may be due for instance to the process of assimilation of some migrants, who become less and less involved in the collective decision of the diaspora. The parameter b reflects the degree of openness of frontiers: the higher b, the larger the flow of migrants, for a given net utility gain from migration. For the sake of simplicity, b is considered as constant. It may, however, evolve over time and depend on the very existence of a violent conflict which, for instance, may push destination countries to adopt more welcoming policies and make entry easier for refugees.[11]

Consistent with the static model, migration affects only the size of group O, which at every t is

[10] Although we do not model explicitly individual migration choices, our reduced-form interpretation is compatible with a situation in which resident members of group O decide whether to migrate or not by comparing the utility gain attached to migration, $u_{M,t}(m_t) - u_{O,t}(m_t)$, to their individual migration cost. For a given distribution of migration costs, a larger utility gain will translate into a larger outflow of migrants.

[11] In a similar fashion, variables such as y and R, which are related to the level of development of the country, may depend on the evolution of migration and the peace – conflict tradeoff, thus introducing an endogenous growth mechanism in the model. This goes however beyond the scope of the current study and is then left for further research.

equal to $\epsilon_O - m_t$. The transition function resulting from Equation (25) is piecewise, depending on whether s is the outcome of conflict ($m_{t+1} = f_w(m_t)$) or negotiation ($m_{t+1} = f_p(m_t)$), and whether we have interior or corner solutions.

In particular, within region B ($m_1 < m < m_2$), we obtain

$$m_{t+1} = \begin{cases} (1-\zeta)m_t + by\mu & \text{if } \tilde{s}_E(m) \leq \tilde{s}_O(m) \\ (1-\zeta)m_t + b\left(y(\delta+\mu) + \dfrac{(\epsilon_O - \delta m)^2(\epsilon_E + \epsilon_O - (2-\delta)m)\chi R}{4m(\epsilon_E + \epsilon_O - m)^2}\right) & \text{if } \tilde{s}_E(m) > \tilde{s}_O(m) \end{cases}. \tag{26}$$

As in the static analysis, we focus on interior solutions (Assumption 2 holds) and we consider two different cases. With a peace-building diaspora (Figure 3), the transition function displays a discrete downward shift for $m = \hat{m}$ since the switch to peace lowers the incentive to migrate. This is depicted in the first panel of Figures 7 and 6, where $m_{t+1} = f_w(m_t)$ for $m < \hat{m}$ while $m_{t+1} = f_p(m_t)$ for $m > \hat{m}$. On the contrary, with a peace-wrecking diaspora (Figure 5), the switch to war at $\bar{m}$ implies an upward shift in the transition function, as displayed in Figures 8, 9 and 10, where $m_{t+1} = f_p(m_t)$ for $m < \bar{m}$ while $m_{t+1} = f_w(m_t)$ for $m > \bar{m}$.[12]

We are interested in determining the stationary level of migration, i.e. m_{SS} which solves $m_{t+1} = m_t$, and establishing whether the system reaches its steady state in a peace or conflict situation. Since the analytical treatment of the model proves to be particularly cumbersome due to the shape of the transition function in case of war, we limit ourselves to the analytical characterization of stationary equilibria arising in peace. We then turn to numerical examples in order to provide a more complete illustration of the dynamic behaviour of the model.

As far as peaceful equilibria are concerned, we can claim the following.

Proposition 6 *A stable stationary equilibrium with peace exists if and only if*

(i) $\dfrac{\zeta\hat{m}}{y\mu} < b < \dfrac{\zeta m_2}{y\mu}$, *when the diaspora is potentially peace-building* ($Z_1 < Z < Z_0$),

(ii) $\dfrac{\zeta m_1}{y\mu} < b < \dfrac{\zeta\bar{m}}{y\mu}$, *when the diaspora is potentially peace-wrecking* ($Z < Z_1$),

[12] For the sake of consistency with the static analysis, all the figures describing the dynamic behaviour of our model include a portion of region A, although in the text we restrict ourselves to the analysis of interior solutions (region B).

where $\hat{m}$, $\bar{m}$ are as in Proposition 4.

Moreover,

$$m_{SS} = \frac{by\mu}{\zeta},$$

and

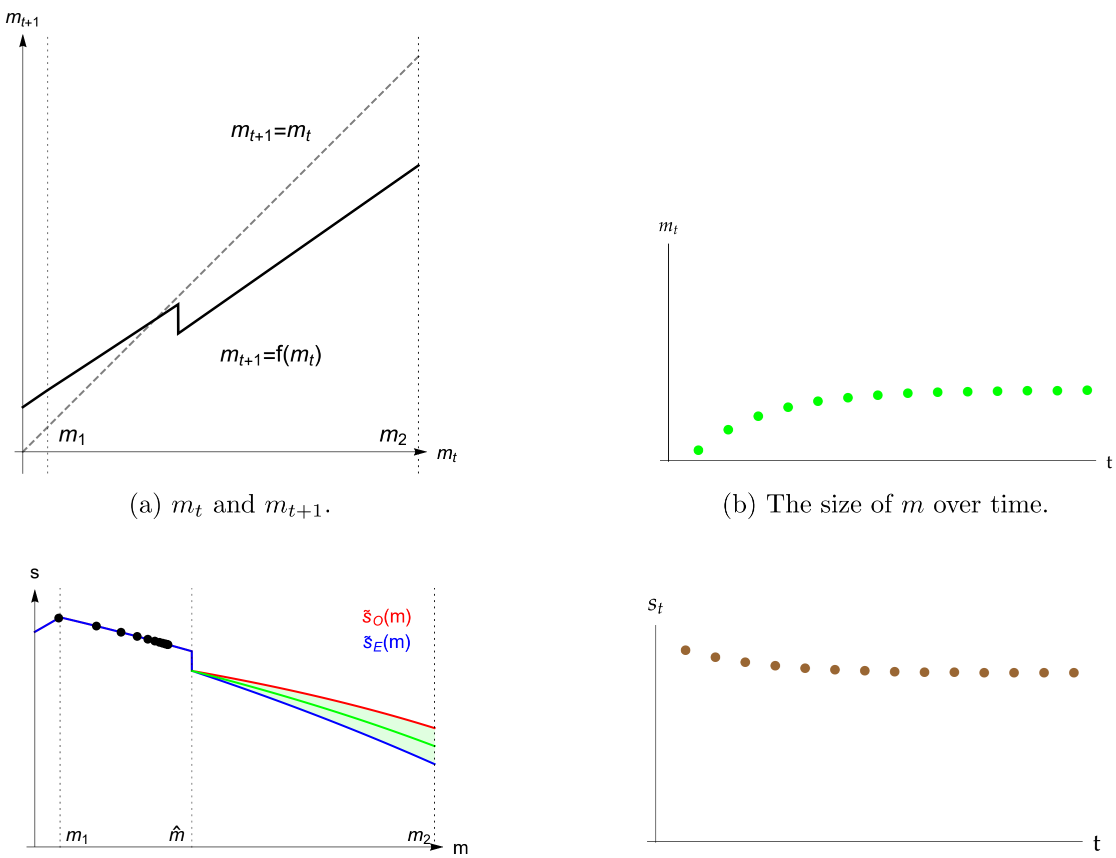
$$s_{SS} = \frac{by\mu(2-(2-\delta)\delta) - \zeta((2-\delta)\epsilon_E + \epsilon_O)}{2by\mu - 2\zeta(\epsilon_E + \epsilon_O)}.$$

Proof. A peace equilibrium exists if and only if the peace branch of the transition function, i.e. $f_p(m_t)$, crosses the 45° line. When the diaspora is potentially peace-building, this is the case if $f_p(\hat{m}) > \hat{m}$ and $f_p(m_2) < m_2$. Such inequalities lead to the condition in (i). When instead the diaspora has a peace-wrecking potential, we need $f_p(m_1) > m_1$ and $f_p(\bar{m}) < \bar{m}$, which give the condition in (ii). If a peaceful steady state exists, it is stable since the slope of $f_p(m_t)$ is smaller than 1, which is ensured by $\zeta < 1$. The values of m_{SS} and s_{SS} are found by solving $f_p(m) = m$ and replacing m_{SS} in Equation (24) when $m_1 < m < m_2$. ■

Not surprisingly, the stationary size of the diaspora is an increasing function of b (openness) and $y\mu$ (migration premium) while it decreases with ζ (assimilation parameter). As far as the sharing rule is concerned, it reaches a steady-state level more favorable to group O when steady-state migration is larger. This is consistent with the static analysis that shows how, within region B, a larger m confers a higher bargaining power to group O by increasing its war outcome.

3.2 Simulations

Our numerical simulations are based on a parameterization which ensures that Assumption 1 is verified. Consistent with Section 2, we start by considering the case of a potentially peace-building diaspora and then describe the peace-wrecking case, where multiple equilibria may also emerge. In all our examples, we set $\epsilon_O = 0.4$, $y = 2$, $\kappa = 1$, $R = 2$, $\gamma = 0.5$, $\delta = 0.1$, $\chi = 0.6$, $\eta = 1$, μ=1 and ζ=0.3. As far as the two remaining parameters are concerned, we generate the peace-building and peace-wrecking cases by choosing different values of Z consistent with the prescriptions of Proposition 4. Within each of these two cases, we play with b so as to analyse the implications of



(a) m_t and m_{t+1}.

(b) The size of m over time.

(c) Joint dynamics of m and s.

(d) The size of s over time.

Figure 6: Peace-building scenario: dynamics with low b.

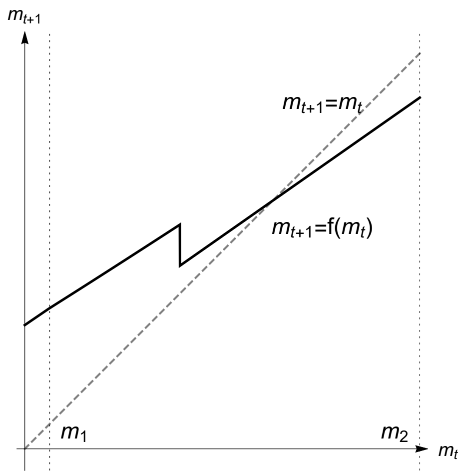
different degrees of frontier openness.[13,14] Although largely arbitrary, the parameterizations upon which our simulations are based are intended to have plausible implications.

3.2.1 Peace-building diaspora

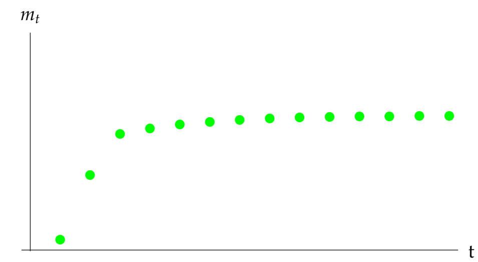
We first analyse the dynamic behaviour of our model under the case of a potentially peace-building diaspora, which we generate by setting $Z = 0.505$. Within this case, we analyse the implications of choosing a relatively low versus relatively high value for the openness parameter (namely b=0.032 and b=0.045).

[13]Note that b may encapsulate several determinants of the degree of openness of the frontiers, such as geographical or policy-related factors. The latter may be thought of as related to migration policies in both the destination and the home country.

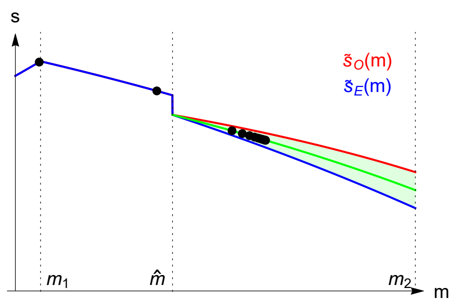
[14]Alternatively, we could rely on ζ to generate differential trajectories of migration. Stronger assimilation makes it harder for the diaspora to affect the peace – war tradeoff at home.



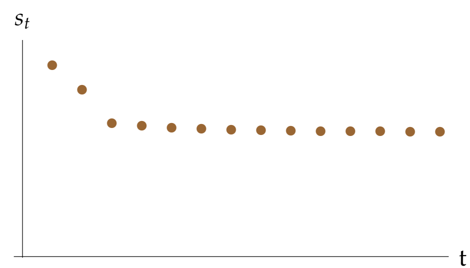
(a) m_t and m_{t+1}.



(b) The size of m over time.



(c) Joint dynamics of m and s.



(d) The size of s over time.

Figure 7: Peace-building scenario: dynamics with high b.

Figure 6 describes the dynamics of the model when b is low. In particular, panel (a) depicts on the same graph the transition function $m_{t+1} = f(m_t)$ and the stationarity condition $m_{t+1} = m_t$, whose intersection corresponds to the (stable) steady-state value of m. Panel (c) displays the joint evolution of m and s, each point corresponding to the combination of these two variables at a specific period. Panels (b) and (d) show separately the trajectories of m and s as functions of time. Figure 7 presents the same graphs when migration is made easier by a higher degree of openness of the borders.

Unsurprisingly, the steady-state value of m is larger when migration is easier (higher b). If b is low, the diaspora never grows sufficiently large to trigger a switch from war to peace, and the steady state corresponds to a situation of conflict and low migration. For a higher value of b, the diaspora can fulfill its peace-building potential as the dynamics of migration is powerful enough to drive the system towards a peaceful settlement.

The simulations thus reveal that the openness of frontiers plays a decisive role in triggering a switch from conflict to peace. As far as policy is concerned, this suggests that too strong barriers to migration prevent the diaspora from reaching the threshold value $\hat{m}$, and thus hamper the transition from war to peace. From the viewpoint of destination countries, allowing more immigration from war-plagued countries may favor conflict resolution. On the other hand, countries that are closed to emigration (by policy) or geographically isolated may be long locked in a conflict situation.

A quick look at the trajectories of s and m makes clear that a higher b translates into a stationary repartition of the contested resource which is always more favorable to group O, regardless of whether s is the outcome of war or peaceful negotiation. This is fully consistent with the results of Section 2 where m is shown to have a negative effect on s.

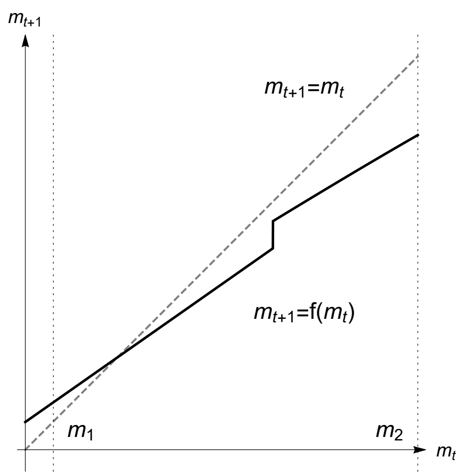
Finally, let us briefly discuss the possibility that $\hat{m}$ and $\bar{m}$ both fall within region B (as described by Figure 4 in a static framework). In this case, a very large value of b implies that the dynamics of m converges to a high stationary value, which corresponds to a situation of conflict. It is then possible that the diaspora, after acting at first as a pacifying force, ultimately turns peace-wrecking.

3.2.2 Peace-wrecking diaspora

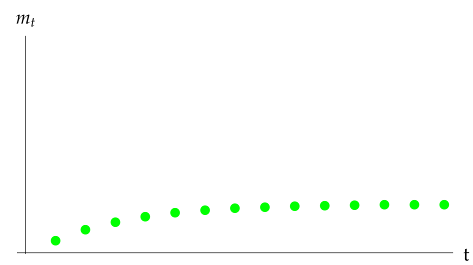
We now describe the dynamics of the model in the case of a potentially peace-wrecking diaspora, generated by $Z = 0.520$. In this setting, Figures 8 and 9 respectively illustrate the behaviour of our model with a relatively low (respectively, high) value of b (namely, b=0.035 and b=0.045).

The results are symmetric to those obtained in the peace-building configuration. Here, the larger steady-state value of m made possible by a higher b leads to conflict. On the contrary, if b is small, the diaspora reaches too small a size at equilibrium to endanger peace, and the steady state corresponds to a situation of peace and low migration. Normative implications are symmetric as well: contrary to Section 3.2.1, policies that increase frontier openness are more conducive to war in sending countries.

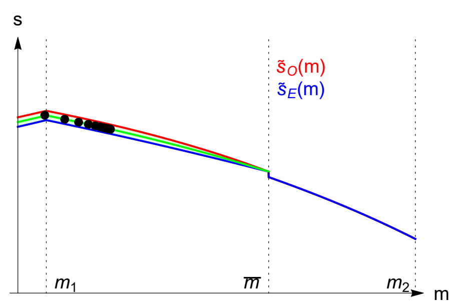
As far as s is concerned, the result is the same as in the peace-building case: a larger b (easier migration) is associated with a steady-state repartition of the resource which is more favorable to



(a) m_t and m_{t+1}.



(b) The size of m over time.



(c) Joint dynamics of m and s.

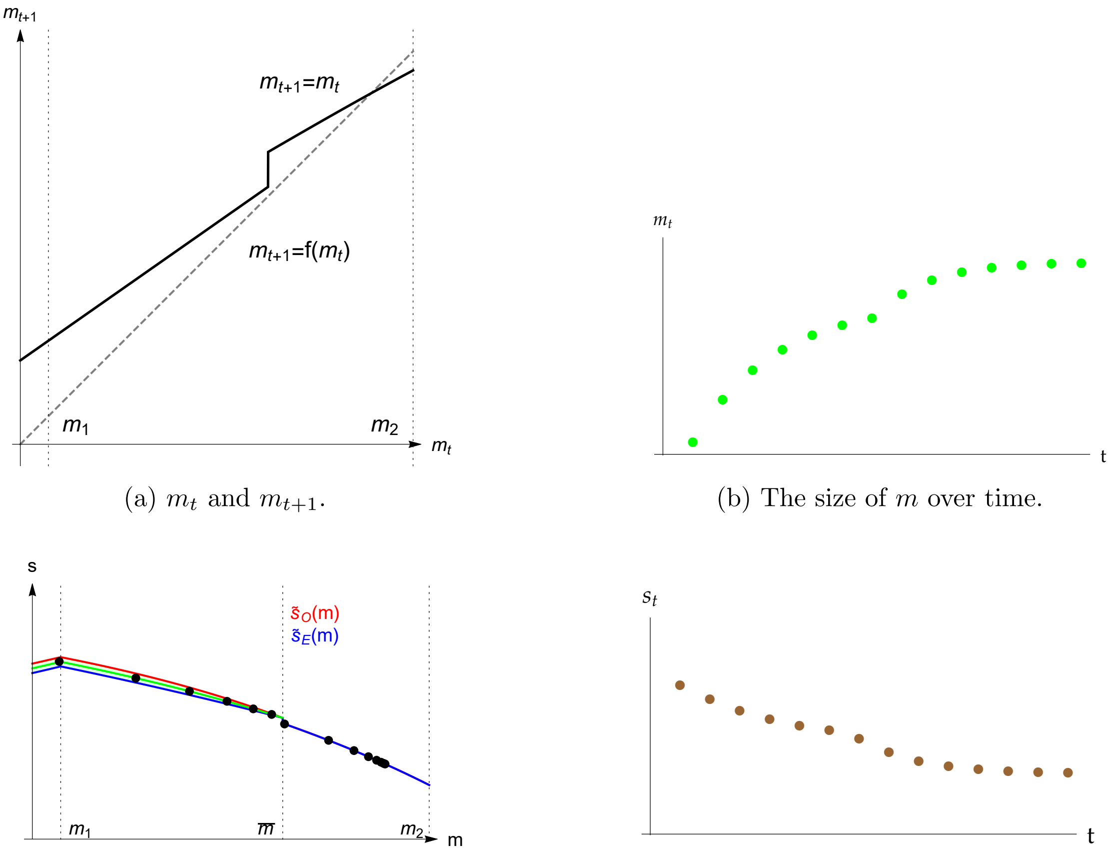
(d) The size of s over time.

Figure 8: Peace-wrecking scenario: dynamics with low b.

group O, regardless of whether s emerges from war or peaceful settlement.

Finally, in the peace-wrecking configuration, multiple equilibria can emerge for intermediate values of b. As can be seen from panel (a) of Figure 10 (drawn for $b = 0.04$), the transition function crosses the 45° line twice. We then have two stationary equilibria: the first one is characterized by a smaller diaspora and a peaceful allocation of the resource, while the second is associated to a larger diaspora and open conflict.

In this case, initial conditions do matter. When the initial size of the diaspora is smaller than $\bar{m}$, the economy ends up in peace. This is the situation displayed in Figure 10. If instead, the initial stock of migrants is larger than $\bar{m}$, the system converges to the second steady state, located in the war region, and characterized by a larger stationary stock of migrants and a sharing rule which is more favorable to group O. The existence of multiple equilibria highlights the possibility of a



(a) m_t and m_{t+1}.

(b) The size of m over time.

(c) Joint dynamics of m and s.

(d) The size of s over time.

Figure 9: Peace-wrecking scenario: dynamics with high b.

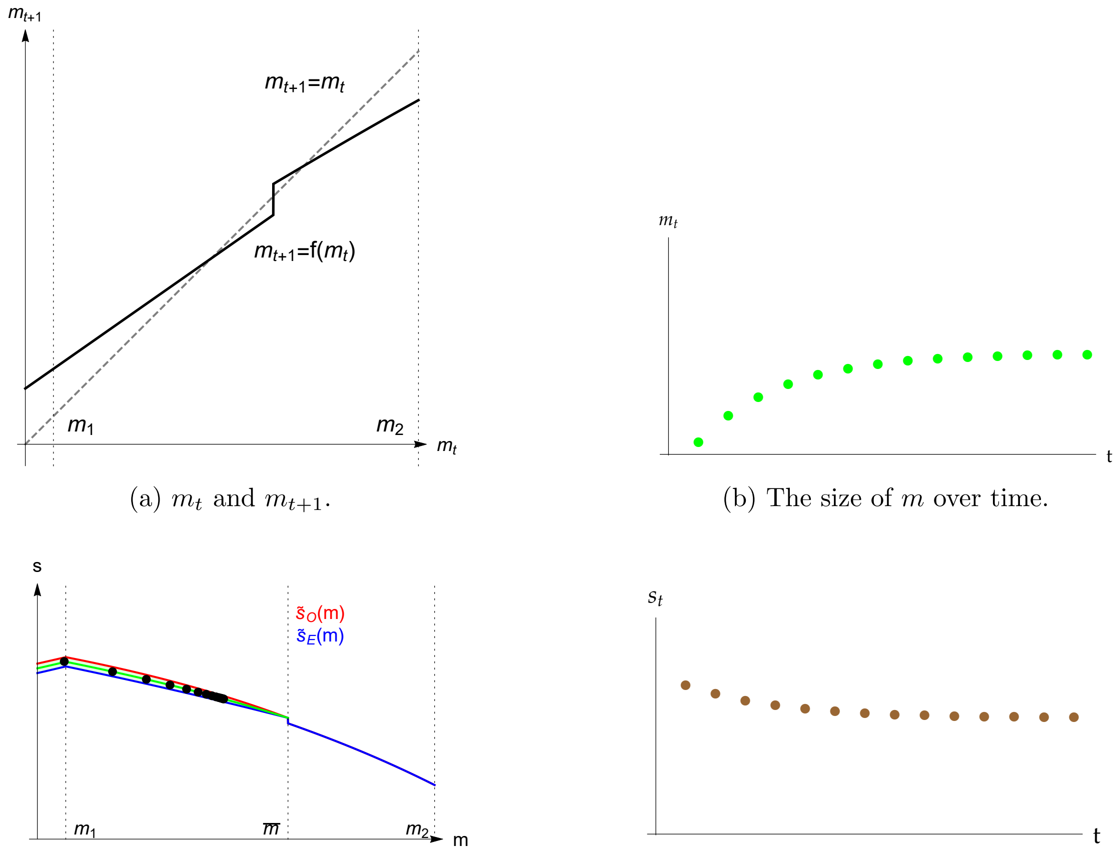
"poverty trap" characterized by both a large stock of emigrants and open conflict (which hampers average well-being through the destruction and misallocation of productive resources).[15]

4 Case studies

We now review a few historical examples of diasporas involved in homeland conflicts and relate some of their distinctive features to the predictions of the model, in terms of financial contribution of the diaspora, conflict intensity and the peace – war tradeoff.

Starting from the early 80s, Tamil migrants provided strong financial support to the main Tamil armed group in Sri Lanka, the *Liberation Tigers of Tamil Eelam* (LTTE). The diaspora, which relied

[15] In a different context, the possibility of multiple equilibria, one of which is characterized by high migration rates and high poverty, has been highlighted by De la Croix and Docquier (2012).



(a) m_t and m_{t+1}.

(b) The size of m over time.

(c) Joint dynamics of m and s.

(d) The size of s over time.

Figure 10: Peace-wrecking scenario with multiple equilibria: dynamics with intermediate b and small initial diaspora.

on a well-organized global network to channel funds to the fighters on a very large scale, has been described by Joshi (1996) as the "economic backbone of the militant campaign", and contributed significantly to sustain conflict.[16] Eventually however, at the end of the 90s, most of the main migrants' host countries labelled the LTTE as a Foreign Terrorist Organization. In the aftermath of the 9/11 attacks, the suspicion over the funds sent by the Tamil migrant community became even stronger, leading to a change in the attitude of the diaspora, which started to support non-violent conflict resolution and power-sharing settlements (Fair, 2007; Orjuela, 2008). In the frame of the model, the evolution of the international environment can be thought of as an exogenous negative shock on the diaspora's capacity to subsidize the war effort of the LTTE. As a consequence, $a^*(m)$

[16]Gunaratna (2003) estimates that the LTTE had an annual income close to 100 million dollars, of which the diaspora had contributed at least 60 million per year.

lowered, thus contributing to the de-escalation of violence at home through a smaller $\theta^*_O(m)$.

In a similar fashion, Croatian emigrants largely intervened in the war for independence by providing financial assistance to Tudjman's Croatian Democratic Union (HDZ), which led the secession from Yugoslavia. During the escalatory phase of the conflict (1987 – 1991), most diaspora funds were used to finance the political activities of the opposition, with whom the diaspora shared its willingness to oust the communist government and take concrete steps towards independence.[17] Before the ascent of the HDZ, however, the Croatian diaspora, which was already constituted as pro-independence by the time of Tito's death in 1980, lacked a corresponding movement in the homeland and was unsuccessful in fueling conflict (Skrbiš, 2007). One may wonder which factors drove this change in the effectiveness of the diaspora's involvement. Our model suggests two possible explanations that are also compatible with historical evidence. First, the ascension of Milosevic to power in Serbia in 1987 led to a dramatic rise of nationalism. In our framework, this can be proxied by an increase in χ (the weight attached to the contested resource or public budget), which, as can be seen from Equations (15) and (16), translates into a higher intensity of conflict (as expressed by $\theta^*_E(m)$ and $\theta^*_O(m)$). Second, the substantial increase in Croatian migration during the 80s may have helped the diaspora to bring about the transition towards war, which corresponds to a raise in m in Figure 5.[18] In our dynamic setting, the build-up of the diaspora could be explained by a relatively high value of the openness parameter b, and the joint evolution of conflict and migration would correspond to Figure 9.

The Cuban case provides an interesting example of a potentially peace-wrecking diaspora (at least in the intentions of its members) which remained unsuccessful in its attempts to ignite war in the origin country. After the revolution of 1959, important waves of emigrants fled the communist regime and settled down in the US. The Cuban diaspora overtly aimed at overthrowing Castro, and constantly managed to keep Cuba at the top of the US foreign policy agenda, but was unable to suscitate a counterrevolution in the homeland. In terms of our model, this can be interpreted as the diaspora failing to reach the threshold $\bar{m}$ above which its involvement could have endangered

[17]According to Hockenos (2003), more than 50 million dollars flowed from the diaspora towards the HDZ between 1991 and 1995, during the hot conflict stage.

[18]Notice also that the likelihood of the peace-wrecking scenario is in turn positively linked to increases in Z and χ, which can both be related to a surge in nationalism.

peace (Figure 5). Recalling that this threshold depends positively on ϵ_E (Proposition 5), it can be argued that, in the Cuban case, the relatively large support that Castro had at home (large group E) might have prevented the diaspora from being actually peace-wrecking. In a dynamic perspective, the closeness of the Cuban borders (low b in our model) may have contributed to keep the diaspora too small to trigger war at home (Figure 8). A similar situation may have occurred in the former USSR where the impermeability of borders prevented migration from being a threat to political stability.

5 Conclusion

In this paper, we propose a model of conflict to explore how a diaspora, by financially supporting its group of origin, may affect the intensity and likelihood of war in the homeland. Endogenizing the size of the diaspora in a dynamic context allows us to characterize the joint evolution of migration and conflict.

We find that, if large enough, the diaspora is willing to contribute to the war effort of its group of origin. In case of actual conflict, this fuels the intensity of war, pushing the origin group to allocate a higher share of its members to fighting. Furthermore, we show that factors regulating the costs of war and peace in the home country determine whether the diaspora is more likely to act as a peace-building or -wrecking force. Our dynamic analysis highlights the role of frontiers openness and migration policies in driving the economy towards a peace or war equilibrium, characterized by a high or low level of migration. We also review some cases of diasporas which played a major role in the evolution of conflict in the home country and show that their features are fairly compatible with the predictions of the model.

As directions for further research, we would suggest considering complementary channels, both direct and indirect, through which the diaspora might affect conflict dynamics. In particular, lobbying from abroad as well as the direct involvement of migrants as soldiers are two potential mechanisms which might play a direct role, in addition to the size effect and targeted financial contributions investigated here. As far as indirect channels are concerned, emigration may shape the incentives to engage in conflict in the home country through non-targeted financial flows (i.e.

private remittances), as well as its effects on productivity and prices. Exploring these issues would allow us to better gauge the importance of diasporas for the evolution and outcome of inter-group competition at home.

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Appendix

A Expression for m_2

$$m_2 = \frac{-(4y\epsilon_E)^2 - (\delta^2\epsilon_E\chi R)^2 + 8y\epsilon_E\delta\chi R(2\delta\epsilon_E - 3(1-\delta)\epsilon_O) - \Omega^{1/3}(\delta^2\epsilon_E\chi R + \Omega^2 - 4y(2\epsilon_E + 3\epsilon_O))}{12y\Omega^{1/3}} \tag{27}$$

with

$$\Omega = (4y\epsilon_E)^3 + 24y^2\epsilon_E\chi R(5(\delta\epsilon_E)^2 - 3\epsilon_O(1-\delta)(4\delta\epsilon_E - 3(1-\delta)\epsilon_O)) - 12y(\epsilon_E\chi R)^2\delta^3(2\delta\epsilon_E - 3(1-\delta)\epsilon_O) + (\delta^2\epsilon_E\chi R)^3 + 24\sqrt{3}y\epsilon_E(\epsilon_O - \delta(\epsilon_E + \epsilon_O))\sqrt{y\chi R((4y\epsilon_E)^2 - (\delta\epsilon_E + 9(1-\delta)\epsilon_O)^2 + 54((1-\delta)\epsilon_O)^2 + (1-\delta)\delta^3\epsilon_E\epsilon_O(\chi R)^2)}.$$

B Expression for $\hat{m}$ and $\bar{m}$ in Proposition 4

$$\hat{m} = \frac{4(Z-\delta y)(\epsilon_O + \epsilon_E) - ((3-\delta)\delta\epsilon_E + (1+\delta)\epsilon_O)\chi R - (\epsilon_O - \delta(\epsilon_E + \epsilon_O))\sqrt{(1-\delta)\varphi\chi R}}{(1-\delta)^3\chi R - \varphi}, \tag{28}$$

and

$$\bar{m} = \frac{4(Z-\delta y)(\epsilon_O + \epsilon_E) - ((3-\delta)\delta\epsilon_E + (1+\delta)\epsilon_O)\chi R + (\epsilon_O - \delta(\epsilon_E + \epsilon_O))\sqrt{(1-\delta)\varphi\chi R}}{(1-\delta)^3\chi R - \varphi}, \tag{29}$$

with $\varphi = (1+\delta)\chi R - 4(Z - \delta y)$.