The Economics of International Refugee Law

Ryan Bubb, Michael Kremer, and David I. Levine

ABSTRACT

We model the evolution of international refugee law and analyze reform proposals. We show that the 1951 Convention Relating to the Status of Refugees can be understood as an agreement among states to supply the global public good of refugee protection but that the increase in economic migration has led states to shade on their obligations under the convention. Furthermore, one state shading on its obligations strengthens incentives for other states to shade, potentially creating multiple equilibria. Under the open-ended nonrefoulement norm of the convention, reforms that make a state less attractive for potential immigrants, such as taxes or north-to-south transfer systems, would create negative externalities for third countries. In contrast, reforms in which wealthy states pay poor states to resettle refugees from other poor states would create positive externalities on third countries. Subsidizing such transfers would be more efficient than current policies used to reduce the social costs caused by concentrations of refugees in certain southern host states.

1. INTRODUCTION

The 1951 Convention Relating to the Status of Refugees (189 U.N.T.S. 137 [July 28, 1951]), through its fundamental principle of nonrefoulement, which prohibits states from returning refugees to their place of persecution, requires states to protect refugees who enter their territory. However, faced with increasing economic migration, in recent years

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states have made it more difficult for migrants to successfully apply for refugee status. Moreover, most refugees are now concentrated in poorer countries near their country of origin, often with limited economic opportunities, and such concentrations of refugees can contribute to the violence that caused the initial mass flight from persecution. In the hope of improving the international system of refugee protection, some have advocated that states adopt what we call transfer systems in which refugees are transferred from the state to which they initially travel to another state in return for some payment to the host state. Some limited transfer systems have been adopted. For example, in 2001 Australia concluded agreements under which it transferred asylum seekers to Nauru and Papua New Guinea—an arrangement it termed the Pacific Solution that was designed to deter refugees from entering its territory. Taxation schemes in which migrants are charged for entry have also been proposed; such schemes could be designed to help screen economic migrants from refugees. The aim of this paper is to model the evolution of international refugee law and to analyze potential reforms.

We model the current system of refugee protection based on the 1951 convention as a Pareto-improving contract that bound states to provide a more efficient level of the global public good of refugee protection. The increase in economic migration since the 1951 convention was adopted has created a screening problem for host states, which have difficulty distinguishing between refugees and those who migrate in search of economic opportunities. We show how this screening problem has in turn strengthened host states' incentives to shade the performance of their obligations under the 1951 convention by increasing the standards of proof of their refugee status determination procedures, which are not perfectly contractible, resulting in more false negatives and refoulement of refugees to their place of persecution. Moreover, the choice of standard of proof can exhibit strategic complementarity: as more states use a high standard of proof, the best response of other states may be to increase their standards of proof.

In our analysis of reform proposals, we distinguish between two different types of reforms: reforms that make a state less attractive to potential migrants, such as taxes on refugee-claimants or north-to-south transfers of refugees from wealthy states to poorer host states, and reforms that expand the set of migration options for refugees, such as south-to-south transfers between poorer host states. Furthermore, while previous analyses consider such policies from a partial equilibrium perspective, focusing on a particular set of countries entering into a transfer

agreement, we take a general equilibrium perspective and identify externalities that potential reforms impose on other countries.

Taxes and north-to-south transfers could mitigate the screening problem by inducing self-selection among those who claim refugee status and thus could result in increased protection of refugees. However, fewer refugees apply to wealthy states that impose a refugee tax or will transfer them to a poorer state. Thus, reforms along these lines create negative externalities for third countries that receive these redirected refugees. In general equilibrium, these reforms, while increasing the number of refugees protected, could make some developing countries worse off by increasing their burden of hosting refugees without fully compensating them for their increased costs.

In contrast to north-to-south transfers, a transfer system that expands the migration options of refugees creates positive externalities for third countries. For example, rich countries could have compensated Kenya in exchange for Kenya accepting Rwandan refugees who had fled to Congo. This approach will create positive externalities for other countries by diverting refugees and deflecting the burden of hosting them. Moreover, if the costs of hosting refugees are convex, then it typically will be efficient not to host large concentrations of refugees in neighboring countries, as often occurs. A south-to-south transfer system could thus reduce the total social costs of hosting refugees.

A key reason that such policies create externalities for third countries is the commitment to nonrefoulement established in the 1951 convention. Policies of an individual state that deter or attract refugee applications change the flow of migrants to third countries that have committed to accept refugees. If, instead, states had a less open-ended commitment to hosting refugees—for example, if each state had committed to host a particular fraction of the world's refugees—then the burden externality would largely disappear, and states' private incentives to adopt refugee policies would better align with social incentives.

Section 2 of the paper provides background on the evolution of international refugee law. Section 3 presents a model that explains the formation of the current system of refugee protection. Section 4 considers how state compliance with the 1951 convention is affected by economic migration. Section 5 models potential reform schemes, and Section 6 concludes.

2. BACKGROUND

The 1951 convention was adopted in the aftermath of World War II to address the problem of large numbers of displaced people living in Europe outside of their country of origin, and it was subsequently extended in 1967 to become a general regime for protecting those who cross national boundaries to avoid persecution.[1] The 1951 convention consists principally of a commitment by states not to return refugees that enter their territory to their country of persecution (nonrefoulement). Under the convention, then, the allocation of the burden of protecting refugees is determined largely by the migration choices of refugees. Furthermore, states themselves are responsible for determining which migrants are entitled to refugee status.

The 1951 convention system has come under pressure as world inequality has increased, transportation costs have fallen, and welfare states have grown, increasing incentives for economic migration. The number of applicants for asylum in developed countries grew from approximately 150,000 per year in the early 1980s to a peak of 850,000 in 1992 (Hatton 2009). In response, industrialized countries have implemented nonentreé policies that attempt to prevent migrants from entering their territory and claiming refugee status under the convention and have adopted stricter procedures for determining refugee status (Keely and Russell 1994). Nonentreé policies typically involve intercepting refugees offshore before they can apply. For example, the U.S. Coast Guard routinely interdicts Cuban and Haitian "boat people" and forcibly returns them to their country of origin.[2] Furthermore, procedural reforms have made it more difficult for asylum seekers to suc-

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1. The 1951 convention was limited to refugees who acquired their refugee status "as a result of events occurring before 1 January 1951" but was effectively extended by the 1967 Protocol Relating to the Status of Refugees (606 U.N.T.S. 267 [October 4, 1967]), which incorporated the substantive provisions of the 1951 convention but lacked any temporal or geographic restriction on the definition of refugees. All references herein to the 1951 convention should be understood to refer also to obligations under the 1967 protocol.

2. When this policy was initiated under U.S. president Ronald Reagan's administration, the Coast Guard conducted interviews with those intercepted and transported to the United States those with credible claims to refugee status while repatriating the rest. In 1992, however, the United States, facing a large influx of Haitians after a September 1991 coup deposed Haitian president Jean-Bertrand Aristide, stopped conducting refugee screenings of intercepted Haitians and simply forcibly repatriated all of them. This interdiction policy was challenged in federal court, but the U.S. Supreme Court upheld the policy as consistent with both U.S. domestic law and the 1951 convention. See *Sale v. Haitian Ctrs. Council*, 113 S. Ct. 2549, 509 U.S. 155 (1993).

cessfully claim refugee status even when they reach developed states. For example, since the Dublin Convention (Convention Determining the State Responsible for Examining Applications for Asylum Lodged in One of the Member States of the European Communities, 30 I.L.M. 427 [June 15, 1990]) came into force in 1997, asylum applicants in the European Union must file their application in the country in which they first arrived. This procedural rule is intended to prevent asylum shopping by refugees. The United States tightened its procedures for determining refugee status in a 1996 reform (Illegal Immigration Reform and Immigrant Responsibility Act of 1996, Pub. L. No. 104-208, 110 Stat. 3009). that provides for expedited removal proceedings in which immigration officers can order an alien to be removed without further hearing or review unless the alien states a fear of persecution or intent to apply for asylum (Immigration and Nationality Act, sec. 235[b][1][A], [B]; 8 U.S.C. sec. 1225[b][1][A], [B]).[3] One observer, describing the situation, asserts that "the Convention is coming apart at the seams. . . . Intercontinental travel has become easy. . . . States say their asylum systems are being overwhelmed with this tangled mass of refugees and economic migrants and are urging a legal retrenchment" (Achiron 2001, p. 6).

While wealthy states have attempted to deflect those claiming refugee status, poorer states have become the primary hosts of refugees. Under the 1951 convention, the burden of hosting refugees largely falls on states that are geographically proximate to refugee producers. At the end of 2005, of an estimated 8.4 million refugees worldwide, some 6.1 million resided in developing countries, principally in Africa, Central and Southeast Asia, and the Middle East (UNHCR 2005). Poor countries deny many refugees the opportunity to integrate into their new national communities and warehouse many in large camps with limited economic opportunities (UNHCR 2006). These concentrations of refugees can exacerbate violence. For example, in the 1990s, concentrations of Rwandan refugees in the Congo led to a bloody civil war as the Rwandan government sponsored Congolese rebel groups to attack them (Polgreen 2007). And the Taliban government was born in the madrassas of Afghan refugee camps in Pakistan (Moore 2001), and those camps continued to provide soldiers for the Taliban in the war against the United States and its allies (Baldauf and Tohid 2003).

3. This new policy results in the U.S. government taking less responsibility for identifying and protecting refugees; refugees who do not state a fear of persecution of their own accord at their initial interview can simply be refouled.

Hathaway and Neve (1997) and Schuck (1997) propose substantial reforms to the current system that combine increased commitments by developing countries to host refugees with payments from developed countries to compensate developing countries for the costs of refugee protection. The aim of these schemes is to reduce the incentive of economic migrants to fraudulently claim refugee status in wealthy countries by sending those who claim refugee status to poorer countries for protection, while at the same time improving protection in poorer countries through increased financing from wealthy countries. While it is difficult to accurately estimate the cost to industrialized countries of screening and hosting refugees, the United Nations High Commissioner for Refugees (UNHCR) estimated the cost of administering asylum procedures and providing welfare benefits to refugee-claimants in 13 industrialized countries to be U.S.$7 billion in 1991 (UNHCR 1995). Hathaway and Neve (1997, p. 147) argue that the costs of payments from developed countries under their proposal would be offset by substantial reductions in these costs of administering the current refugee protection system.

Australia has concluded a number of transfer agreements designed to deter asylum seekers by sending them elsewhere. Under its Pacific Solution, begun in 2001 and recently terminated in 2008, Australia transferred refugee-claimants to Papua New Guinea and Nauru for processing (Mathew 2002). Furthermore, the United States and Australia recently entered into an informal bilateral agreement under which each will transfer a small number of refugees who apply for asylum in one country to the other country for resettlement. The goal of the program is to deter asylum seekers by sending them to a country that is far away and with which they have few cultural links (Kralev 2007).

3. EXPLAINING THE 1951 CONVENTION

To explain the initial adoption of the 1951 convention regime, we model refugee protection as a global public good. In our model, we assume that political and ethnic persecution produces disutility for citizens of all states but hosting refugees is costly only to the host state. This divergence in public and private benefits from hosting refugees results in free riding and creates scope for a Pareto-improving contract under which states agree to host refugees in excess of the privately optimal number. We show that, in the absence of economic migration, the relatively simple regime of the 1951 convention—host all refugees who enter your country—results in a more efficient level of the global public

good of refugee protection. This result plausibly explains the widespread adoption of the 1951 convention.

3.1. Model Setup

There are two regions, the north and the south. Each region has $L +$ 1 states, and each state has a continuum of citizens of unit mass. The northern states are wealthy, which is reflected in their high wages, net of transfer payments and other benefits, w_N. The southern states are poor, each with wages $w_S < w_N$. Denote the difference in wages between north and south by Δw. States N_0 and S_0 persecute a minority group with a population of size λ in each, costing group members P utils if they remain in their country of origin.

The players in the model are all nonpersecuting host states $\{N_1,$ . . . , $N_L, S_1,$ . . . , $S_L\}$ and the citizens of the persecuting states N_0 and S_0. As described in more detail below, host states choose refugee policies, and citizens then choose whether and where to migrate in response to those policies.

3.1.1. Migrants.
There are two potential motivations for citizens in persecuting states to migrate: to avoid persecution and to seek higher wages. We refer to migrants who are persecuted as refugees and to migrants who are not persecuted as economic migrants.

Potential migrants derive linear utility from income and prefer the higher wages of the north. However, each faces a dislocation cost of $d_i \in [0, \bar{d}]$ utils as a result of relocating because of, for example, the psychic costs of being in a new culture and far from family, and these costs are distributed in the population according to the cumulative distribution function $G(\cdot)$ (distributed independently of other characteristics). Furthermore, to travel between the south and the north costs an extra J utils (the same amount for everybody).[4]

For now, as a rough approximation of the period in which the 1951 convention was created, we consider the case in which transportation costs are high enough, and the wage differential is low enough, that no nonpersecuted person would choose to migrate, even if he would be admitted to a host state.[5] In particular, suppose the following:

4. This embodies the assumption that travel between the north and south requires substantially more time and expense than travel within the north or south. Think of the north as Europe and the south as sub-Saharan Africa.
5. We relax this assumption in Section 4.

Assumption 1. There is no economic migration: the difference in wages between north and south, Δw, is less than the transportation costs, J.

Furthermore, we assume that the persecution cost P is very large, so persecuted citizens prefer to migrate to the host state that offers the greatest probability of protection, regardless of region, and consider wages, dislocation costs, and transportation costs only when the probability of protection is equal between two or more host states.[6]

Each potential migrant can produce either weak or strong evidence of persecution in his country of origin, denoted $e_i \in \{w, s\}$ with $s > w$. A fraction (π^R) of citizens in each of S_0 and N_0 who are actually persecuted can produce strong evidence, while a fraction $(\pi^M < \pi^R)$ of those not actually persecuted can produce strong evidence (and the rest can produce only weak evidence). The evidence is thus (imperfectly) informative about the true refugee status of migrants.

We assume that only some migrants know the strength of their evidence when making migration decisions. Specifically, a fraction γ of all citizens in S_0 and N_0 know their evidence type, while the remaining fraction $1 - \gamma$ do not.[7] We refer to those who know their evidence type as informed citizens and those who do not as uninformed citizens, and we assume that whether a migrant is informed is distributed independently of his other characteristics (for example, country of origin, evidence type, persecution status, and the like). We define the type of each citizen as $\theta_i \in \{w, s, \varnothing\}$, where $\theta_i \in \{w, s\}$ denotes an informed citizen with evidence $e_i = \theta_i$ and $\theta_i = \varnothing$ denotes an uninformed citizen.

3.1.2. Host States.

Assume that people in the host states are altruistic toward those who experience persecution but also face costs of immigration. Potential reasons for such costs include xenophobic preferences, costs of redistribution in response to factor price changes caused by

6. In the analysis that follows, refugees face only a discrete finite set of probabilities of being admitted to different host states: 0, π^R, and 1.

7. Two polar cases are represented by $\gamma \in \{0, 1\}$. The expression $\gamma = 1$ represents the case in which all migrants know which host states would accept them when deciding where to migrate. If this were the case, then in equilibrium no migrant would ever fail a refugee status determination since he would not have applied if he would fail. At the other extreme, with $\gamma = 0$, all migrants with strong claims are unable to make different decisions than migrants with weak claims, which is also unrealistic. The assumption that the population is made up of a combination of citizens who are perfectly informed of their evidence type and citizens who are completely ignorant of their evidence type is a reduced-form way to model tractably the fact that migrants are, on average, imperfectly informed of the strength of their refugee claim.

immigration, and any direct financial burdens imposed by immigrants.[8] We model the burden of immigration as simply an additively separable cost in host states' utility functions that is an increasing and convex function of the number of immigrants hosted, denoted by $B(\cdot)$.[9]

Let β represent the (assumed uniform) degree of altruism in countries' preferences, with $0 < \beta < 1$. For each refugee that avoids persecution, all host states get an additive altruistic utility benefit of βP. Note that we are assuming that host states behave more altruistically toward those who face political persecution in their home country than toward those in the same country who are poor but not persecuted. The fact that the 1951 convention accords greater rights to those facing political persecution than to those migrating in search of economic opportunities suggests that citizens of wealthy states do indeed distinguish persecution from economic misery.[10]

Host states cannot observe the persecution status of migrants, but they can use a refugee status determination procedure to reveal the evidence that a particular migrant has of his refugee status. In contrast, refugee-claimants' country of origin is observable. Host states can use country of origin in forming beliefs about whether a migrant is a refugee.[11] Since there are no altruistic benefits from admitting the nonper-

8. Articles 23 and 24 of the convention require states to accord refugees the same rights as nationals with respect to public relief and pensions.

9. We are not making a normative claim about the costs and benefits of immigration but rather a positive claim about the preferences that drive political decision making in host states. The preferred amount of economic immigration in most countries is greater than zero, so the burden function $B(\cdot)$ should be thought of as the burden of receiving immigrants in excess of the amount that is privately optimal in the absence of altruistic refugee protection motives. We do not model explicitly these background economic migration flows. Receiving economic immigration through the refugee protection system is costly, since countries prefer to select economic migrants on the basis of their country of origin and particular skill sets. The convexity of $B(\cdot)$ may be due to a marked increase in xenophobia as refugees become a sizeable and visible minority. We assume that $B(0) = 0$ and $B'(0) = 0$.

10. One potential underlying reason for this is that voters distinguish between negative and positive liberties. Some nonutilitarian political theorists argue that states should provide, for example, freedom of speech but not freedom from want. See, for example, Berlin (1969, p. 116). Voters are more willing to bear costs to ensure others' negative liberties than they are to guarantee some minimal standard of living. Our assumption that voters distinguish persecution from economic hardship is critical to the analysis that follows. If no such distinction were made, then northern host states would not be concerned about the difficulty of distinguishing true refugees from economic migrants.

11. Many countries, particularly those in Europe, routinely use country of origin as a (sometimes dispositive) indicator of refugee status. For example, under a 2004 reform to its asylum law, the United Kingdom has authorized the Home Secretary to publish a list

secuted, states would never admit any migrants from nonpersecuting states, and so we omit any potential emigration from host states from the model.

3.2. First Best for Host States

We first define the first best for host states as the allocation of refugees that maximizes the sum of all host states' utility functions.[12] In the solution, the marginal cost of hosting refugees is equated across states, which, given our assumption that states face the same burden function $B(\cdot)$, implies that each state hosts the same number of refugees.[13]

Depending on the parameters, the first best may or may not entail offering protection to all who are persecuted. We will focus on the case in which the first best is the corner solution in which all refugees are protected. To guarantee this, throughout we assume the following:

Assumption 2. The marginal altruistic benefit to the world community of hosting refugees, $2L\beta P$, is greater than the marginal cost of hosting refugees, $B'(\lambda/L)$, when all of the persecuted are protected.

With this assumption, we have the following result:

Proposition 1. Under assumption 2, in the first best, all persecuted people are hosted.

(All proofs are presented in the Appendix.)

3.3. The Noncooperative Outcome

Consider now what states will do in the absence of any agreement on hosting refugees. Each host state simultaneously chooses how many migrants to admit, and potential migrants then decide whether and where to migrate. We focus on the case in which, optimizing individually, states

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of countries deemed safe and to decline to examine asylum applications from nationals of those countries. See schedule 3 of the U.K. Asylum and Immigration (Treatment of Claimants, and the like) Act 2004, and Part 11, Section 345 of U.K. Immigration Rules.

12. We exclude the utility of economic migrants and refugees from this definition both to simplify algebra and to capture the idea that we are considering contracts among states and excluding the possibility of contracts between migrants and states. While it is not readily apparent to us why contracts between migrants and states are not feasible, given their rarity in the real world we think it is realistic to exclude them.

13. If instead it is cheaper to host refugees in the south, then in the first best there would be more refugees hosted in each southern state than in each northern one. For more general forms of heterogeneity in burden functions across states, in the first best more refugees are hosted where it is cheaper to host them.

would not want to host their pro rata share of refugees. In particular, throughout we assume the following:

Assumption 3. The marginal private altruistic benefit to states of hosting refugees, βP, is less than the marginal private cost, $B'(\lambda/L)$, when each host state hosts its pro rata share of the persecuted.

With these assumptions, we have the following result:

Proposition 2. In the absence of an agreement, states host fewer than the first-best number of refugees, and some of the persecuted remain in their country of origin.

The inefficiency in the noncooperative outcome results from the standard public goods problem—in the absence of a contract or other institution, states do not internalize the full social altruistic benefit that they generate by hosting refugees yet bear the full social cost. In the resulting equilibrium, states underprovide refugee protection. The 1951 convention, to which we now turn, was an attempt by states to solve this problem through contracting.

3.4. The 1951 Convention

Suppose now that host states can enter into the 1951 convention, which requires host states to admit all refugees who enter their borders and to use appropriate refugee status determination procedures to identify refugees. We assume that under the convention, host states simultaneously choose the standard of proof of their refugee status determination procedures, $p_j \in \{w, s\}$. The term p_j represents a cutoff such that, under the 1951 convention, if an applicant for refugee status can produce evidence $e_i \geq p_j$, then host state j must admit the migrant.[14] Denote the profile of all host states' choices as p.

By choosing the high standard of proof, $p_j = s$, a host state can ex-

14. These assumptions roughly correspond to the actual convention regime. The convention only requires states to admit refugees and places on states the burden of determining refugees' status. However, refugee status determinations typically turn on the testimony of the refugee-claimant, and economic migrants have strong incentives to claim refugee status and lie about being persecuted, given the large cross-country disparities in economic opportunities. Thus, refugee status determinations are imperfect. In an earlier version of this paper (Bubb, Kremer, and Levine 2007), host states formed beliefs about the refugee status of an applicant based on their evidence, and the standards of proof represented cutoffs of those beliefs above which parties to the convention were obligated to admit the applicant. The solution concept used was perfect Bayesian equilibrium. The results generated by this more microfounded setup were the same as those of the present simpler model.

clude all migrants with $e_i = w$. However, if host state j chooses the high standard of proof, it suffers a shading cost K in its payoff function. The term K captures, in a reduced-form way, states' aversion to shading on the performance of their international obligations. The underlying reasons for these preferences, which result from details of international politics that are beyond the scope of this paper, are unmodeled.[15] However, host states may not withdraw from the convention (or, if you prefer, withdrawing is associated with a very large utility penalty) or set an impossibly high standard of proof ($p_j > s$), and they must admit all migrants who successfully meet their standard of proof.[16]

We are essentially assuming a form of incomplete contracting. States are able to contract on the broad legal responsibility to avoid refoulement. Once they have acceded to the convention, states effectively cannot outright withdraw or plainly breach the convention. Under the convention, states must make judgments about the refugee status of migrants through appropriate legal procedures. However, the details of these refugee status determination procedures—namely, the standards of proof, p, used—are not perfectly contractible, and states can choose their standard of proof. States have induced preferences (represented by the shading cost K) for choosing the more generous standard of proof after acceding to the convention. The term K measures the degree of contractibility of the standards of proof, p.

We now have the following result:

Proposition 3. Without economic migration, there is an equilibrium under the convention in which all states use the low standard of proof and all persecuted people are protected if and only if the cost of shading on the convention is sufficiently high ($K \geq K^{\text{NEM}}$).

Proposition 3 states that without economic migration, the first best

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15. Our modeling approach is meant to capture a range of reasons for state compliance with international law. For example, the decision makers in states may have a preference for complying with international agreements, or alternatively, international agreements could simply be a coordination device for a repeated-game equilibrium in which the agreement is self-enforcing. The precise way that international agreements shape state behavior is largely orthogonal to our analysis. However, the assumption that the convention is not perfectly enforceable is obviously crucial to our analysis of the effect of economic migration on state compliance with the convention. For a review of explanations for the compliance of states with international law, see Raustiala and Slaughter (2002).

16. Article 44 of the convention allows states to denounce the convention and be released from their obligations under the convention 1 year after denouncing it. However, no state has denounced the convention, and it appears that withdrawing is in fact costly to states.

can be achieved under the 1951 convention, with all of the persecuted spread evenly across host states.[17] Such an agreement thus creates a contracting surplus relative to the inefficient outcome that obtains in the absence of an agreement. Moreover, it can be shown that, given the choice between all countries acceding to the convention and no convention, all countries would be willing to accede even without side payments. Hence, the 1951 convention can be viewed as a Pareto-improving agreement among states to share the burden of hosting refugees. Because of the low wage differential and the high cost of moving between regions, the 1951 convention is applied only to true refugees, and each country faces equal inward flows of refugees. Under these conditions, compliance with the 1951 convention is relatively easy for states to monitor, and host states use the low standard of proof and do not shade on the performance of their obligations under the convention, since the reduction in hosting burden that they could achieve by raising their standard of proof is less than their shading costs. Note that the simple rule—host all refugees who enter your borders and claim asylum—also economizes on administrative costs.

The reason that we must have a sufficiently high cost of shading K to sustain this equilibrium in which all refugees are hosted is because each host state could reduce its burden of hosting by increasing its standard of proof, thereby deterring prospective refugees. Without some degree of contractibility of p (represented by K), each individual host state would prefer to free ride on the hosting efforts of others.

The subset of the parameter space considered here seems to us to be a rough approximation of the context in which the 1951 convention was adopted, and our stylized model provides a formal explanation for why the 1951 convention was created—it reduced free riding by states and increased the number of refugees protected to (closer to) the efficient level.

4. EXPLAINING THE BREAKDOWN OF THE 1951 CONVENTION

Since it was adopted in 1951, the convention regime has become less attractive to wealthy states, which have made it increasingly difficult for refugees to claim their rights under the convention. We consider now

17. However, if there is some heterogeneity in host states' costs of hosting refugees, then the convention will not implement the first best. The first best is achieved by the 1951 convention only if the migration destination choices of refugees happen to coincide with the cost-minimizing allocation of refugees to host states.

the effect of economic migration on states' compliance with the 1951 convention. We model the 1951 convention as an incomplete contract—states are able to contract on the broad responsibility to have legal procedures in place to process refugees' applications and to host applicants who are granted refugee status but are unable to contract on details of their procedures for determining refugee status. Economic migration can increase incentives for states to shade on the performance of their obligations under the convention by increasing the standard of proof of their determination procedures. Moreover, as more states shade, it can become more attractive to other states to shade as well, since they face larger flows of asylum applicants. For some parameter values, this strategic complementarity results in multiple equilibria, with all states fully complying with the convention and all states shading on performance of their convention obligations being equilibria.

Consider the case in which all host states have acceded to the 1951 convention but transportation costs are now low enough, and the wage differential is high enough, that some nonpersecuted citizens from S_0 would choose to migrate north if they would be admitted to a host state. In particular, we drop assumption 1 and instead assume the following:

Assumption 4. There is economic migration: the difference in wages between north and south, Δw, is greater than the transportation costs, J.

As the strength of the economic incentive to migrate, Δ_w, gets larger, more potential economic migrants (those with sufficiently low dislocation costs d_i) will want to migrate from S_0 to a northern host state.

As a simplification, we focus on symmetric equilibria, in which either all host states choose the low standard of proof ($p_j = w$) or all choose the high standard of proof ($p_j = s$).[18] We can now characterize outcomes under the convention in the presence of economic migration.

Proposition 4. With economic migration,

a) There exists an equilibrium under the convention in which all host states use the low standard of proof if and only if the cost of shading is sufficiently high ($K \geq \underline{K}$), and this threshold is higher than in the case without economic migration ($\underline{K} > \underline{K}^{\text{NEM}}$).

b) The threshold of the cost of shading that sustains the low-standard-

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18. Asymmetric equilibria certainly exist for some parameter values, in particular one in which all northern host states choose $p_j = s$ and all southern host states choose $p_j = w$ (which is perhaps a good approximation of the current refugee policies around the world). Similar results can be derived for these equilibria.

of-proof equilibrium, $\underline{K}$, is increasing in the economic incentive to migrate ($\partial \underline{K}/\partial \Delta w \geq 0$).

c) There exists an equilibrium under the convention in which all host states use the high standard of proof if and only if the cost of shading is sufficiently low ($K \leq \bar{K}$).

d) The threshold of the cost of shading below which the high-standard-of-proof equilibrium exists, $\bar{K}$, is increasing in the economic incentive to migrate: if $LG'(\Delta w - J) \geq \pi^M G'(\Delta w - J/\pi^M)$, then $\partial \bar{K}/\partial \Delta w \geq 0$, where it exists.

Parts a and c of proposition 4 imply that, for sufficiently high values of the shading cost K, having all host states use the low standard of proof is the unique symmetric equilibrium, even with economic migration. However, parts b and d state that as the wage gap between north and south increases, the level of K required to make the low standard of proof an equilibrium increases. Furthermore, the level of K below which it is an equilibrium for all host states to choose the high standard of proof also increases.[19] As transportation costs fall and the wage differential between north and south increases, economic migrants begin to mix with refugees, and the 1951 convention is less attractive to states. The increase in states' burden of hosting migrants caused by an increase in the incentive for economic migration makes it more difficult to sustain the low-standard-of-proof equilibrium, as states can save more on hosting costs by increasing their standard of proof.[20]

Our model thus shows how economic migration can lead to a partial breakdown of the convention system. States' induced preferences for compliance with international law (represented in the model by K) may have been sufficient to support full compliance in the early years of the convention regime when there was relatively little economic migration, but the subsequent increase in economic migration resulting from rising world inequality and falling transportation costs may have reduced states' compliance with the convention.

19. The condition $LG'(\Delta w - J) > \pi^M G'(\Delta w - J/\pi^M)$ in part d of proposition 4 is just a weak restriction requiring the density function $G'(\cdot)$ to be sufficiently flat. The even weaker necessary and sufficient condition is that the expression in equation (A17) be positive. This condition fails only for extremely unusual density functions with a large spike right at $\Delta w - J/\pi^M$. We use the sufficient condition in our statement of proposition 4 to make the proposition easier for the reader to parse.

20. For sufficiently small numbers of persecuted people (low λ), host states collectively prefer the outcome in which all use the high standard of proof to the outcome in which all use the low standard of proof. However, such an outcome is inefficient relative to the outcome that obtains under the convention in the absence of the screening problem.

Moreover, host states face strategic complementarity in their choice of whether to shade on performance of their obligations under the convention. Consider first a strategy profile with economic migration in which all host states choose the low standard of proof. If one state deviates by increasing its standard of proof, then migrants travel in increased numbers to the other states, increasing their burden of hosting migrants and therefore their incentive to raise their standard of proof.[21] Choosing a high standard of proof is thus a beggar-thy-neighbor strategy and makes other host states worse off.

For intermediate values of K, strategic complementarity can result in multiple equilibria, with both all northern states using the low standard of proof and all northern states using the high standard of proof being equilibria. In this area of the parameter space, if all other host states are using the low standard of proof, then the relatively small reduction in hosting costs that a host state would receive from raising its standard of proof is smaller than the shading cost K. However, if all other host states are using the high standard of proof, the large increase in hosting costs that a host state would receive from lowering its standard of proof would be larger than the avoided shading cost K. Strategic complementarity can thus turn the old adage "two wrongs don't make a right" on its head. The first $2L - 1$ wrongs can indeed make the last wrong appealing, even when no country would prefer to be the first to unilaterally use a high standard of proof in its refugee status determination procedures.

The potential existence of multiple equilibria suggests that attempts to coordinate a lowering of host states' standards of proof in concert could be successful even in the absence of structural reforms. If both a low-standard-of-proof and a high-standard-of-proof equilibrium exist, then if each host state believes that all other states will lower their standard of proof, then each state would be willing to do so. The UNHCR could potentially facilitate such coordination. However, it is possible that economic migration through the refugee protection system is so great that having all states use the low standard of proof is no longer an equilibrium.

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21. Moreover, the pool of migrants going to other host states worsens in the sense of being composed of a higher proportion of economic migrants. This occurs since informed migrants with strong evidence, who are more likely to be refugees than the rest of the migrant population, continue to travel to the strict state, and the flow of migrants that are redirected from the strict state to other host states contains a smaller proportion of refugees than the proportion of refugees in the overall migrant flow.

5. POTENTIAL REFORMS TO THE INTERNATIONAL REFUGEE PROTECTION SYSTEM

Increased economic migration and the consequent tightening of refugee status determinations have led to proposals for reforms to the 1951 convention system. One potential reform suggested by our analysis is to place the responsibility for refugee status determinations with the UNHCR. By centralizing the responsibility for recognizing refugees as such, states would no longer have the ability to shade on their obligations under the convention by increasing the standards of proof of their procedures for determining refugee status. This would address the problem of countries shading, but delegating refugee status determination to the UNHCR would result in agency costs. States would have to provide some form of monitoring and incentives to the UNHCR to implement appropriate procedures for determining refugee status. Moreover, the UNHCR would face the same difficulty in distinguishing true refugees from economic migrants that host states face under the current system.

Another set of approaches would reduce the incentive for economic migration through the refugee system. Host states would like to treat economic migrants and refugees differently, selecting economic migrants on the basis of economic considerations such as skills and limiting the total amount of economic migration, while at the same time protecting all refugees from persecution. However, if refugees are accorded more generous treatment than economic migrants and refugee status is unobservable, this simple first-best (from the perspective of host states) menu is not incentive compatible, and economic migrants have an incentive to falsely claim refugee status. From a mechanism design perspective, a mechanism that makes it unattractive to economic migrants to claim refugee status but does not deter persecuted people from seeking protection may be useful to host states.

One potential such mechanism is to impose a large income tax on refugees from poor states who are hosted in wealthy countries. If an income tax were levied on successful asylum claimants so as to make their after-tax income roughly the same as it would be in their country of origin, then the nonpersecuted would have less incentive to falsely claim refugee status.[22] However, it seems likely that many would find such a tax normatively unattractive. Preferences seem to be such that

22. Note that such a tax would violate Article 29 of the convention, which prohibits discriminatory taxation of refugees, and hence imposing such a tax would require changes to the convention.

citizens of wealthy states feel differently about those living in abject poverty within their borders than about those in distant lands. Furthermore, the act of taking wealth from someone to keep them poor seems more morally objectionable to many than is the act of failing to give wealth to someone to alleviate poverty. Taxing a poor refugee from Haiti living in Hoboken, New Jersey, such that she has to live on $1 per day (as many do in Haiti) would be politically unpalatable, even if it were combined with a substantial relaxation of standards of proof for refugee status determinations, an increase in visas for economic migrants, and additional transfers to reduce poverty abroad.

Another potential separating mechanism would be for northern states to send refugees they receive to southern states for protection. For such an arrangement to be individually rational for southern states, northern states may have to make payments to southern states to compensate them for their increased burden of hosting. We refer to a system under which states transfer refugees who arrive in one state to another state for protection as a transfer system.

Hathaway and Neve (1997) and Schuck (1997) both propose transfer-system-based reforms to the international refugee protection system. In the system proposed by Hathaway and Neve (1997), states would form regional interest-convergence groups in which poorer states in a region would agree to host the majority of refugees produced in the region and richer states in the region would agree to finance the costs of refugee protection incurred by those host states. Refugee-claimants in the wealthier states would be transferred to safe, poorer countries for refugee status determination proceedings. This would eliminate the incentive of both refugees and economic migrants to seek asylum in wealthier countries, which would allow developed states to dismantle their current costly refugee status determination institutions and nonentreé policies. Such deals would, in partial equilibrium, make all countries better off.

While states have not implemented anything like the large-scale transfer systems proposed by Hathaway and Neve (1997), Australia's Pacific Solution entailed transferring refugee-claimants to poorer countries. In addition, the United States and Australia recently entered into an informal bilateral agreement under which each will transfer a small number of refugees who apply for asylum in one country to the other country for resettlement. The goal of the program is to deter asylum seekers by sending them to a country that is far away and to which they have few cultural links (Kralev 2007).

Schuck (1997) proposes a similar system in which states would agree

to quotas, based on national wealth or other criteria, for the number of refugees each is obligated to protect. Schuck's main innovation is to propose that states be allowed to trade their refugee quotas in a market, which would presumably result in an allocation of refugees similar to that envisioned by Hathaway and Neve.

We use our positive model of international refugee law to analyze such potential reforms. Our analysis yields several insights.

First, taxes on refugee-claimants and north-to-south refugee transfer systems reduce the incentive of economic migrants to apply for refugee status, as argued in previous analyses of such reforms (for example, Hathaway and Neve 1997). With fewer economic migrants applying for refugee status, host states would be less likely to refuse refugee status to those fleeing persecution. Such reforms could thereby result in increased protection of refugees.

However, such reforms would reduce refugees' incentive to travel to a wealthy state to apply for refugee status. Refugees would instead travel directly to a poor state for hosting. Rich nations would benefit from a reduced burden of hosting migrants, but poorer states would face a higher burden of hosting refugees. These changes in the migration destination choices of refugees are an externality of such reforms. In the case of a north-to-south transfer system, poorer transferee states potentially face a prisoner's dilemma in which each may be willing to participate in such a system but each may be better off if none of them participate.[23]

Finally, we consider reforms that broaden the set of options available to refugees who arrive at a particular destination. For example, suppose that rich countries financed a system under which refugees from Rwanda arriving in Congo were given the option to resettle in Kenya or Senegal. While such south-to-south transfers do not help ameliorate northern states' screening problem, they also are not subject to the negative externality to southern host states associated with north-to-south transfers. In fact, they create positive externalities on third countries, since fewer refugees would have incentives to travel to third countries such as Tanzania. Furthermore, they are likely a more efficient way for northern states to reduce the social costs that result from the massing of refugees

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23. Similar prisoner's dilemmas arise in other areas of international law. For example, bilateral investment treaties impose externalities on other states through their effect on foreign investment flows, and recipients of foreign investment may face a prisoner's dilemma in choosing whether to agree to bilateral investment treaties with source countries. See Guzman (1998) and Bubb and Rose-Ackerman (2007).

in the southern host states closest to the sources of refugee flows than are current policies.

5.1. Taxing Refugees

We begin by analyzing a system in which successful refugee-claimants are taxed. We consider taxation systems not because they are likely to be adopted but rather because they are relatively easy to understand and provide insight into more complicated schemes that result in similar incentives, like north-to-south transfer systems.

We model refugee taxation systems using a modified version of the baseline convention model defined in Section 3. We assume, then, that all states have acceded to the convention and that there is (potentially) economic migration (assumption 4 holds). We first consider the decision of an individual northern state to impose a tax on those who successfully claim refugee status. We allow the state to set taxes differentially according to the migrants' country of origin, and we consider the case in which the maximum feasible tax leaves refugees with the same after-tax wages that they receive in their home country.[24]

Proposition 5. If an individual northern state can tax successful refugee-claimants, then it will lower its cost of hosting migrants by setting a positive tax, and all other northern states will be made worse off than they are in the absence of the taxation system.

The taxation system makes the northern host state that adopts it less attractive to both economic migrants and southern refugees as a migration destination. Consequently, southern migrants go to other northern host states, and the taxing state is made better off because of the reduction in its hosting burden. However, these other northern host states are made worse off by the increased flow of migrants. This individual taxation system is a beggar-thy-neighbor strategy in much the same way as is increasing the standard of proof. Individual northern states thus have a strong incentive to impose such taxes. The rarity of such tax systems is probably due to the likely discomfort of many citizens of wealthy states with such taxes.[25] And with one taxation system in place,

24. This restriction eliminates the possibility of setting an arbitrarily high tax as a way to effectively withdraw from the convention. It is thus analogous to our previous assumption that states will not withdraw outright from the convention.

25. We supposed that there is no shading cost incurred from using such a tax system. However, a cost analogous to such a shading cost may well explain the lack of refugee taxation systems.

other northern states will have an even stronger incentive to follow suit, as they are now hosting more migrants. There is thus strategic complementarity in creating taxation systems.

Suppose now that all northern host states can similarly tax successful refugee-claimants. We have the following result:

Proposition 6. If all northern host states can tax successful refugee-claimants, then

a) northern host states will assess taxes that eliminate economic migration through the refugee protection system, resulting in the same set of equilibrium outcomes as in the case with no economic incentive to migrate ($\Delta w < J$), considered in Section 3, and

b) southern host states will face greater flows of migrants with the taxation system in place than they do in the absence of the taxation system and consequently will be made worse off.

Part *a* of proposition 6 implies that a refugee taxation system is a potential solution to the screening problem created by economic migration. For a range of values of the shading cost ($\underline{K}^{\text{NEM}} \leq K < \underline{K}$), while without a taxation system northern host states use the high standard of proof, which results in refoulement of refugees to their place of persecution, with the taxation system in place it is an equilibrium for all host states to use the low standard of proof, which results in all persecuted people being protected.

The reason a taxation system can result in the first-best level of refugee protection is that, by eliminating the economic incentive to migrate, the taxation system eliminates host states' screening problem. Migrants from poor countries who are fleeing persecution (refugees) apply for protection in southern states, and the nonpersecuted (potential economic migrants) do not migrate.

However, southern host states are made worse off by northern host states' taxation system because they now face the burden of hosting more refugees. Without any incentive to migrate north, southern refugees remain in the south. These taxes thus result in negative externalities to other host states.

5.2. North-to-South Transfers

We now turn to north-to-south transfer systems. Our analysis reveals important parallels between these transfer systems and the refugee taxation systems considered above. Suppose that a single northern state could, prior to all states choosing their standards of proof *p,* offer a set

of contracts to southern states under which each southern state would agree to accept some number of southern refugees deported from the northern state in exchange for a payment.

Proposition 7. If an individual northern state offers transfer contracts, then it will lower its cost of hosting migrants by an amount greater than the payments it must make under the contracts, and all other northern states will be made worse off than they are in the absence of the transfer system.

This result echoes proposition 5 for taxation systems. Southern migrants prefer not to travel to the northern transferor state, where they will not receive northern wages even if they successfully claim refugee status since they will be transferred to the south for hosting, and instead apply for refugee status in other northern states. As a result, the northern transferor state is made better off because of the reduction in the number of migrants it hosts. In addition, as with a taxation system, other northern host states are made worse off by the transfer system due to the greater migrant flows they face. Moreover, there is also strategic complementarity in creating north-to-south refugee transfer systems—facing greater migrant flows, other northern states now have a stronger incentive to adopt a north-to-south transfer system.

Suppose now that all northern host states can create such transfer systems. We have the following result:

Proposition 8. If all northern host states can offer transfer system contracts to southern host states, then

a) northern host states will sign transfer system contracts that eliminate economic migration through the refugee protection system, resulting in the same set of equilibrium outcomes as in the case with no economic incentive to migrate ($\Delta w < J$), considered in Section 3, and

b) southern host states will face greater flows of migrants with the transfer system in place than they do in the absence of the transfer system, and payments to southern host states under the transfer system will not fully compensate them for their increased burden of hosting migrants.

Again, this result for north-to-south transfer systems parallels proposition 6 for taxation systems. Part *a* shows that north-to-south transfer systems can expand the number of refugees protected by eliminating the screening problem faced by northern host states. With the transfer system in place, economic migrants no longer have an incentive to falsely claim

refugee status and instead have incentives to apply to be admitted through the official channels for economic migration. This ability to treat economic migrants and refugees differently in an incentive-compatible way is a virtue of a north-to-south refugee transfer system from the perspective of northern host states.

However, this may not be Pareto improving, even among host states, as the north-to-south transfer system also alters the migration destination choices of southern refugees. With a transfer system in place, southern refugees now migrate to southern host states directly, rather than first bearing the cost of migrating north and then being sent south via the transfer system, and the resulting increase in southern states' burden of hosting refugees may not be fully compensated by payments made by northern host states under the transfer system. Each southern host state's transfer system contracts thus impose externalities on other southern host states through their effect on the migration choices of southern refugees. Southern host states may face a prisoner's dilemma in which they would be better off if none of them signed onto transfer system contracts, but each host state individually has an incentive to sign onto transfer system contracts. If, instead of a decentralized market of take-it-or-leave-it offers to individual southern host states, there is a collective bargaining process among all states, then a Pareto-improving contract could emerge in which southern host states receive payments that do fully compensate them for their increased hosting costs.

This externality associated with north-to-south transfer systems has not been considered in the extant literature proposing transfer system-based reforms. In the proposal of Hathaway and Neve (1997), host states would form interest convergence groups in which the inner core members, which are poorer states that are geographically proximate to the sources of refugees, agree to be the primary hosts of refugees, and the outer core members, which are wealthier states that are generally farther from refugee producers, agree to bear the bulk of the inner core members' hosting costs by making payments to inner core members. Outer core members would then transfer successful refugee-claimants to inner core members for hosting. Hathaway and Neve make a normative argument about how the fiscal burden should be allocated, suggesting that it be based on the gross national product or each country's funding obligations to the United Nations.

However, our positive analysis predicts that, because of the effect of the transfer system on the migration choices of refugees, the outer core members may be able to induce inner core members to participate in

such a system at a level of payments that results in inner core members being made worse off. As migration flows change in response to the north-to-south transfer system and a new equilibrium is reached, most refugees may travel directly to inner core members, and outer core members will be able to reduce payments without inner core members terminating the arrangement, since any individual inner core member would receive similar refugee flows whether or not it remains part of the transfer system.

The background commitment to nonrefoulement in the 1951 convention plays a key role in this negative burden externality. Because other states have committed to accept refugees who enter their territory, when a state deters refugee-applicants through a north-to-south transfer system or otherwise, diverting them to other host states, the hosting burdens of other states party to the convention increase. Reforms may also change the total number of persecuted people protected in the world, which results in an altruistic externality since other states care about protecting refugees from persecution.

Suppose instead that the nonrefoulement norm of the 1951 convention were replaced by a commitment by each state to host a fixed fraction of the world's refugees, wherever they travel initially. Under this system, refugee status determinations would still be decentralized, with each state considering refugee status applicants, but successful applicants would then be redistributed among host states so that each state hosts its agreed-upon fraction of world refugees. If individual states enter into transfer agreements from that background obligation, paying other states to perform their hosting obligation, then the negative burden externality that we identify would largely disappear. However, under such a system, the most liberal host state would in effect govern the international refugee protection system, since refugee-applicants would apply to that state for refugee status determination. If there is heterogeneity across states in preferences about these policies, this might make such a system unattractive to less liberal states.

This approach is similar to the proposal of Schuck (1997). He proposes that each host state be assigned a refugee protection quota based on its gross national product or other measures of state capacity. States would then be allowed to trade their refugee protection obligations, with transferee states taking on some part of the transferor state's quota in exchange for a payment. Importantly, the obligation to bear the cost of protecting refugees in this system is disassociated from the migration choices of refugees. The externality in north-to-south transfer systems

identified in our analysis above would thus not exist in Schuck's proposed system. It is critical, however, that this system of allocating quotas be contractible and states not be able to renegotiate the allocation rule after a new migration equilibrium is reached.

Another alternative approach would assign all refugees from a particular source country to a particular host state. The United States, for example, might be assigned the responsibility to host all Cuban refugees, while Turkey could be assigned the responsibility to host Iranian refugees, and so forth. Under this system, whenever a Cuban migrant, say, applied to any state for refugee status, he would be sent to the United States for refugee status determination proceedings, and if recognized as a refugee, he would be allowed to stay in the United States. If host states entered into transfer agreements from this baseline set of obligations, the burden externality would also be eliminated.

Importantly, a north-to-south transfer system would result in some refugees losing the economic benefits of protection in the north. Refugees who would have been hosted in a developed state are made worse off ex post since they are now sent to (or go directly to) a southern host state for protection. Indeed, since in our model migrants get to choose the host state to which they migrate, our model, interpreted literally, implies that the transfer system makes all migrants weakly worse off in an ex ante sense since it effectively removes northern host states from their choice set. In the equilibrium under the transfer system, no southern migrants attempt to migrate north.

However, in reality, some refugees would continue to travel to host states in the north even with a north-to-south transfer system in place, as refugees' destination choices are often constrained and affected by random factors. Without the transfer system in place, some of these refugees' claims for refugee status would have been rejected, and they would have been sent back to be persecuted in their country of origin, while instead the transfer system results in these refugees being sent to southern host states for protection. These refugees are made better off by the transfer system in an ex ante sense. Furthermore, the refugees who currently choose to risk applying in the north and are denied refugee status and refouled are made better off in an ex post sense by a transfer system, as instead they are protected in the south. The transfer system results in a reduction in the number of false negatives, which increases the overall number of refugees protected.

Furthermore, economic migrants who, in the absence of a north-to-south transfer system, would have successfully claimed refugee status in

a developed state are made worse off by the transfer system. Although such a system would eliminate the economic benefits to those who currently migrate through the refugee protection system, we think it likely that northern citizens would find such a system more palatable than an income tax on refugees that induces similar self-selection.[26]

Our simple model sheds light on the costs and benefits of a north-to-south refugee transfer system. Furthermore, it highlights the implications of the bargaining process among states for determining the distributive consequences of a transfer system. While our analysis does not yield any unambiguous normative conclusions about such transfer systems, it illuminates some of the trade-offs facing states in adopting such a system.

5.3. Transfer Systems That Expand Migrant Options

In the model above, we assume that a set of migrants who are indifferent among several hosts spread themselves evenly across those hosts. In reality, the southern refugees concentrate in neighboring countries, likely in large part because of travel costs within the south. Under the 1951 convention, that neighbor has an obligation to host all refugees who arrive. In the model, we assume that each host state has an identical convex burden function such that the efficient allocation of refugees is to spread them equally across host states. Thus, the massing of refugees in host states near the sources of refugees is inefficient. More generally, the first best is achieved by the 1951 convention only if the migration destination choices of refugees happen to coincide with the cost-minimizing allocation of refugees to host states, which seems unlikely to be the case.

Concentrations of refugees often cause two additional problems besides the (often large) costs to the host. First, refugees are typically concentrated in refugee camps, often with terrible conditions and usually with limited or no rights to work in the host nation. Both refugees and (less directly) altruistic citizens in other nations suffer from this outcome. The confinement of refugees to camps probably reflects the convexity of the burden function—facing a smaller flow, these host states may be

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26. As we argued above, citizens of wealthy states seem less concerned about poverty abroad than they are about the poverty of immigrants at home. A transfer system would keep the locus of poverty outside the borders of wealthy states. Moreover, a transfer system would be a less obvious taking of wealth from a refugee than would be a discriminatory income tax. For both of these reasons, we think many would find such a system less morally objectionable than a large income tax on refugees.

willing to provide refugees the right to integrate into their country. Second, concentrations of refugees can also contribute to the violence that resulted in refugee flows in the first place. One recent example is in the Congo in the 1990s, where Rwandan refugees massed following violence in Rwanda. The Rwandan government then sponsored Congolese rebel groups to attack the refugees (Polgreen 2007).

One policy by which northern states could reduce the social costs associated with refugee concentrations in the south would be for them to compensate nearby southern host states that accept refugees and accord them certain rights, such as allowing them to work and to move freely within the host country. Such a south-to-south transfer system is part of the policy reform envisioned by Hathaway and Neve (1997) (along with north-to-south transfers).

Importantly, a transfer system that expands the migration options of refugees, like south-to-south transfer systems, would not have the negative externality of refugee transfers from the north to the south and instead would create positive externalities. The crucial analytical distinction is between voluntary transfers of refugees, in which the refugee prefers to be transferred rather than remaining in the initial host country, and involuntary transfers of refugees. When transfers are involuntary, as in the north-to-south transfer systems analyzed above, it makes the transferor state less attractive to prospective migrants, thereby deflecting migrants to third countries. In contrast, when refugees are transferred to somewhere with better conditions, as in a south-to-south transfer system, it makes the transferor state more attractive to prospective migrants. This results in a positive spillover to third countries, which face a somewhat diminished inward flow of refugee-claimants. For example, if Kenya were to take in Rwandan refugees who initial traveled to Congo, it would make Tanzania better off by making Congo a more attractive destination for refugees and thereby lessening the flow of Rwandans to Tanzania. Transfers from squalid refugee camps to a new host state that provides the opportunity for full integration of the migrant into the national community would likely be voluntary even if the transferee state is somewhat poorer than the transferor state.

Subsidizing a south-to-south transfer system might well be a more efficient way for northern states to reduce the social costs from current concentrations of refugees in particular southern host states than either paying for assistance to refugees concentrated in such camps or resettling them in northern host states, two policies currently undertaken in response to refugee problems. It seems likely that it is more costly for

northern host states to resettle a refugee from a camp to its own territory than it would be for a nearby southern host state to resettle the refugee. If so, then there is surplus to be had from a contract in which the northern state pays such a southern host state to resettle the refugee. For a fixed resettlement budget, a northern host state could resettle more refugees through such south-to-south transfers than from taking in resettlement refugees itself. Furthermore, while providing aid to camps with large concentrations of refugees certainly provides some benefits to refugees, northern states may get more altruistic benefit per dollar spent by concentrating their resources on resettlement under a south-to-south transfer system.

6. CONCLUSION

We create a modeling framework under which the 1951 Convention Relating to the Status of Refugees can be understood as an attempt by states to solve a global public good provision problem. The analysis helps clarify why the convention has come under pressure, and it also can be used to analyze several reform proposals. We argue that, within the framework of the 1951 convention, in which countries are obligated to accept refugees arriving on their shores, reforms by a subset of states that deter economic migrants from applying for refugee states would create negative externalities for other states. In contrast, transfer systems that expand the migration options of refugees avoid this externality, and subsidizing such transfers would be more efficient than current policies used by northern states to reduce the social costs caused by concentrations of refugees in certain southern host states.

APPENDIX

Proof of Proposition 1

The first best is the solution to

$$\max_{\{R_j\}_{j\in\mathbb{H}}} \left\{ \sum_{j\in\mathbb{H}} \left[\beta P \sum_{k\in\mathbb{H}} (R_k) - B(R_j) \right] \right\} \tag{A1}$$

subject to

$$\sum_{j\in\mathbb{H}} R_j \leq 2\lambda \tag{A2}$$

and appropriate nonnegativity constraints, where R_j denotes the number of refugees hosted by state $j \in \mathbb{H} \equiv \{N_1, \ldots, N_L, S_1, \ldots, S_L\}$.

Suppose that the proposition is not true. Then, in the first best, the marginal social benefit of hosting an additional refugee is $2L\beta P$, and the marginal social cost, given assumption 2 and the convexity of $B(\cdot)$, is less than $2L\beta P$, since some state must be hosting less than λ/L refugees, so the maximand in equation (A1) could be increased by increasing the number of refugees hosted—a contradiction. Q.E.D.

Proof of Proposition 2

Throughout, our solution concept is subgame perfect equilibrium (SPE). Thus, in equilibrium, each citizen's migration choice following each potential set of refugee policy decisions by host states is a best response to other citizens' choices, and given citizens' strategies, each host state's refugee policy strategy is a best response to other host states' strategies.

Denote by A_j the number of migrants that host state j chooses to admit. Suppose that the proposition is not true. Then there exists an SPE in which all 2λ refugees migrate to and are hosted by the $2L$ host states in $\mathbb{H}$, and therefore some host state j must host at least λ/L refugees. Host state j's payoff is then $2\lambda\beta P - B(R_j)$, where $R_j \geq \lambda/L$ is the number of refugees hosted by j in the SPE. However, under assumption 3 and given that $B''(\cdot) > 0$, j would gain by choosing some A_j such that it hosts fewer than λ/L migrants, a contradiction. Q.E.D.

Proof of Proposition 3

In the proposed equilibrium, all host states choose $p_j = w$ and thus admit all migrants who apply for refugee status.

Migration Decisions. Under assumption 1, there is no economic migration, so all migrants are refugees and stay within their region. Furthermore, since P is very large, all persecuted people will migrate. We assume that if a type of migrant is indifferent among a set of optimal destination choices, then he mixes between each host state with equal probability, and thus that migrant type is spread evenly across host states in that set. (We strictly need to assume a continuum of people.) Thus, by the law of large numbers, migrants are spread evenly across host states in this equilibrium.

Deviations by Host States. In the proposed equilibrium, all migrants are hosted, and each host state receives the payoff

$$U_j(p = w) = 2\lambda\beta P - B\left(\frac{\lambda}{L}\right). \tag{A3}$$

Consider whether a host state j would prefer to deviate by choosing $p_j = s$. Such a host state would now receive only informed migrants with $e_i = s$ from their region, since uninformed migrants and informed migrants with $e_i = w$ would prefer to go to states with $p_k = w$, where they will be admitted for sure. This deviation thus reduces state j's burden of hosting, but it would incur the shading cost K, yielding a payoff

$$U(p_j = s, p_{-j} = w) = 2\lambda\beta P - B\left(\frac{\lambda\gamma\pi^R}{L}\right) - K. \tag{A4}$$

This deviation is not profitable, and the proposed equilibrium is indeed an SPE, if and only if

$$K \geq B\left(\frac{\lambda}{L}\right) - B\left(\frac{\lambda\gamma\pi^R}{L}\right) \equiv \underline{K}^{\text{NEM}}. \tag{A5}$$

Q.E.D.

Proof of Proposition 4

Consider first the strategy profile $p = w$ in which all host states choose $p_j = w$. In the migration subgame that follows, nonpersecuted citizens from S_0 will migrate north if $\Delta w - d_i > J$. The total number of economic migrants is thus $(1 - \lambda)G(\Delta w - J)$. By assumption 4, all persecuted people prefer to migrate to a northern host state rather than to a southern state. Northern and southern host states' payoffs are thus

$$U_N(p = w) = 2\lambda\beta P - B\left\{\frac{1}{L}[2\lambda + (1 - \lambda)G(\Delta w - J)]\right\} \tag{A6}$$

and

$$U_S(p = w) = 2\lambda\beta P. \tag{A7}$$

Southern host states have no incentive to deviate to $p_j = s$ since they would then bear the shading cost K but get no benefit. If a northern host state deviated to $p_{N_j} = s$, it would receive only (its pro rata share of) informed migrants with $e_i = s$. Its payoff would then be

$$U_{N_j}(p_{N_j} = s; p_{-N_j} = w) \tag{A8}$$

$$= 2\lambda\beta P - B\left\{\frac{1}{L}\gamma[\pi^R 2\lambda + (1 - \lambda)\pi^M G(\Delta w - J)]\right\} - K.$$

Thus, $p = w$ is an SPE if and only if this is not a profitable deviation, or

$$K \geq B\left\{\frac{1}{L}[2\lambda + (1 - \lambda)G(\Delta w - J)]\right\}$$

$$- B\left\{\frac{1}{L}\gamma[\pi^R 2\lambda + (1 - \lambda)\pi^M G(\Delta w - J)]\right\} \equiv \underline{K}.$$ (A9)

The term $\underline{K}$ is larger than $\underline{K}^{NEM}$ given in equation (A5).

Consider now the strategy profile $p = s$ in which all host states choose the high standard of proof. Informed persecuted citizens from S_0 migrate north if $e_i = s$, and uninformed persecuted citizens from S_0 attempt to migrate north if $\pi^R \Delta w > J$; otherwise, they migrate to a southern host state. Informed nonpersecuted citizens from S_0 migrate north if $e_i = s$ and $d_i < \Delta w - J$. Uninformed nonpersecuted citizens from S_0 attempt to migrate north if $d_i < \Delta w - J/\pi^M$. All persecuted citizens in N_0 attempt to migrate to a northern host state. Northern and southern host states' payoffs are

$$U_N(p = s) = \pi^R 2\lambda\beta P - K$$

$$- B\left(\frac{1}{L}\left\{\pi^R\lambda[2 - (1 - \gamma)I_{\{\pi^R\Delta w < J\}}]\right.\right.$$ (A10)

$$\left.\left. + \pi^M(1 - \lambda)[\gamma G(\Delta w - J) + (1 - \gamma)G(\Delta w - J/\pi^M)]\right\}\right).$$

and

$$U_S(p = s) = \pi^R 2\lambda\beta P - B\left[I_{\{\pi^R\Delta w < J\}}\frac{\pi^R\lambda}{L}(1 - \gamma)\right] - K.$$ (A11)

If northern state N_j deviates to $p_{N_j} = w$, it will receive all uninformed migrants, all informed refugees with $e_i = w$, and its pro rata share of informed migrants with $e_i = s$. Its payoff would be

$$U_{N_j}(p_{N_j} = w; p_{-N_j} = s) = 2\lambda\beta P$$

$$- B\left[2\lambda\left(\frac{\gamma\pi^R}{L} + 1 - \gamma\pi^R\right) + (1 - \lambda)G(\Delta w - J)\left(\frac{\gamma\pi^M}{L} + 1 - \gamma\pi^M\right)\right].$$ (A12)

This will not be profitable if and only if

$K \leq \bar{K}_N$

$$\equiv B\left\{2\lambda\left[\frac{\gamma\pi^R}{L} + 1 - \gamma\pi^R\right] + (1-\lambda)G(\Delta w - J)\left[\frac{\gamma\pi^M}{L} + 1 - \gamma\pi^M\right]\right\}$$

$$- B\left(\frac{1}{L}\left\{\pi^R\lambda[2 - (1-\gamma)I_{\{\pi^R\Delta w < J\}}] + \pi^M(1-\lambda)[\gamma G(\Delta w - J)\right.\right. \qquad (A13)$$

$$\left.\left. + (1-\gamma)G(\Delta w < J/\pi^M)]\}\right)$$

$$- 2\lambda\beta P(1 - \pi^R).$$

Consider now a deviation by a southern state S_j to $p_{S_j} = w$. State S_j would then receive all uninformed refugees and all informed refugees with $e_i = w$. Its payoff would be

$$U_{S_j}(p_{S_j} = w; \, p_{-S_j} = s) = 2\lambda\beta P - B[2\lambda(1 - \gamma\pi^R)]. \qquad (A14)$$

This will not be a profitable deviation if and only if

$$K < \bar{K}_S \equiv B[2\lambda(1 - \gamma\pi^R)] - B\left[I_{\{\pi^R\Delta w < J\}}\frac{\pi^R\lambda}{L}(1-\gamma)\right] \qquad (A15)$$

$$- 2\lambda\beta P(1 - \pi^R).$$

Thus, $p = s$ is an equilibrium if and only if $K < \bar{K} \equiv \min(\bar{K}_N, \bar{K}_S)$.

We have shown that there exist $\bar{K}$ and $\underline{K}$ such that $K > \underline{K} \Leftrightarrow p = w$ is an SPE and $K < \bar{K} \Leftrightarrow p = s$ is an SPE. Observe that, for some parameter values, $\bar{K} > \underline{K}$, so it is possible that both $p = w$ and $p = s$ are equilibria.

To establish the comparative statics of $\underline{K}$, we differentiate the expression for $\underline{K}$ in equation (A9), yielding

$$\frac{\partial\underline{K}}{\partial\Delta w} = \frac{1}{L}(1-\lambda)G'(\Delta w - J)B'\left\{\frac{1}{L}[2\lambda + (1-\lambda)G(\Delta w - J)]\right\}$$

$$- \frac{\gamma\pi^M}{L}(1-\lambda)G'(\Delta w - J)B'\left\{\frac{1}{L}\gamma[\pi^R 2\lambda + (1-\lambda)\pi^M G(\Delta w - J)]\right\}.$$

$$(A16)$$

Note that, since $G'(\cdot) \geq 0$ and $B''(\cdot) > 0$ by assumption, $\partial\underline{K}/\partial\Delta w \geq 0$.

To establish the comparative statics of $\bar{K}$, we consider how changes in Δw affect both $\bar{K}^N$ and $\bar{K}^S$. We first note that at the point $\pi^R\Delta w = J$, $\partial\bar{K}^N/\partial\Delta w$ and $\partial\bar{K}^S/\partial\Delta w$ are undefined, since uninformed persecuted citizens switch from going south to going north as Δ_w exceeds J/π^R,

leading to a discontinuous change in both $\bar{K}^{N}$ and $\bar{K}^{S}$. For all other values of Δ_{w}, we differentiate equations (A13) and (A15), yielding

$$\frac{\partial \bar{K}^{N}}{\partial \Delta w} = (1 - \lambda)\left[\pi^{M}G'(\Delta w - J)\left(\frac{\gamma \pi^{M}}{L} + 1 - \gamma \pi^{M}\right)\right.$$

$$\times \ B'\left[2\lambda\left(\frac{\gamma \pi^{R}}{L} + 1 - \gamma \pi^{R}\right) + (1 - \lambda)G(\Delta w - J)\left(\frac{\gamma \pi^{M}}{L} + 1 - \gamma \pi^{M}\right)\right]$$

$$- \frac{1}{L}\left[\gamma G'(\Delta w - J) + (1 - \gamma)G'(\Delta w - J/\pi^{M})\right] \tag{A17}$$

$$\times \ B'\left(\frac{1}{L}\left[\pi^{R}\lambda[2 - (1 - \gamma)I_{[\pi^{R}\Delta w < J]}\right]\right.$$

$$\left.\left.+ \ \pi^{M}(1 - \lambda)\left[\gamma G(\Delta w - J) + (1 - \gamma)G(\Delta w - J/\pi^{M})\right]\right]\right)\right]$$

and

$$\frac{\partial \bar{K}^{S}}{\Delta w} = 0. \tag{A18}$$

Since $B''(\cdot) > 0$, the first $B'(\cdot)$ term that appears in equation (A17) is larger than the second $B'(\cdot)$ term since its argument is larger. Thus, a sufficient condition for $\partial \bar{K}/\Delta w \geq 0$ is

$$\pi^{M}G'(\Delta w - J)\left(\frac{\gamma \pi^{M}}{L} + 1 - \gamma \pi^{M}\right)$$

$$\geq \frac{1}{L}\left[\gamma G'(\Delta w - J) + (1 - \gamma)G'(\Delta w - J/\pi^{M})\right]. \tag{A19}$$

Sufficient for this condition to be true is the simpler condition given in proposition 4. Q.E.D.

Proof of Proposition 5

Denote by N_{k} the northern host state that proposes a taxation system. Because taxes cannot be set so high as to leave a migrant with less after-tax income than he had in his home country, refugee-claimants from N_{0} are not taxed.

Denote the tax rate charged by N_{k} for migrants from S_{0} who successfully claim refugee status by τ. The maximum feasible tax satisfies $(1 - \tau)w_{N} \geq w_{S}$ or $\tau \leq 1 - (w_{S}/w_{N})$. The lowest feasible tax rate is assumed to be zero (no negative taxes).

First, observe that in any equilibrium of the baseline convention

model (that is, without any refugee tax) with economic migration, N_k will host some informed southern migrants. Second, note that if N_k taxes southern refugees, it is less attractive to potential southern migrants as a destination. Thus, in any symmetric standard of proof equilibrium under the convention with N_k's taxation system in place, N_k receives no southern migrants. This lowers N_k's burden of hosting migrants. Because any positive tax rate deflects all southern migrants, N_k is indifferent among all $\tau \in (0, 1 - w_S/w_N)$.

Finally, note that other northern states are made worse off since they now face a greater number of refugee-applicants. The diversion of refugee-applicants from N_k to other northern host states will raise the threshold level of the shading cost K, at which the low standard of proof is an equilibrium (and will similarly raise the threshold level of the shading cost below which the high standard of proof is an equilibrium). Q.E.D.

Proof of Proposition 6

Let τ_{N_j} denote the tax rate by host state N_j on successful refugee-applicants from S_0, with τ denoting the entire profile of states' tax rates. The maximum feasible tax rate for each host state again satisfies $\tau_{N_j} \leq 1 - w_S/w_N$ for all $j = 1, \ldots, L$. We look for a symmetric equilibrium of this global taxation system game in which northern host states choose tax rates $\tau_{N_j}^* > 0$ and no southerners migrate north.

First, note that with the taxation system in place, no individual southern migrant will want to deviate from the equilibrium by traveling north if and only if, for every northern host state N_j, $(1 - \tau_{N_j}^*)w_N - J < w_S$, or $\tau_{N_j}^* > 1 - [(w_S + J)/w_N]$. Thus, all refugees migrating to host states in their region of origin in equal numbers to each is indeed Nash equilibrium behavior following τ^*. There is thus no economic migration in equilibrium. Moreover, northern host states are indifferent among $\tau_j \in [1 - (w_S + J)/w_N, 1 - (w_S/w_N)]$ since in equilibrium no tax is paid.

With these taxation systems in place, the game reduces to the game analyzed in Section 3.4, with no economic incentive to migrate ($\Delta w < J$). Consequently, in either a symmetric low-standard-of-proof equilibrium or a high-standard-of-proof equilibrium, southern host states will host more refugees with this taxation system in place than they do without a taxation system.

Finally, note that the taxation system makes northern host states

better off since it eliminates economic migration and moreover can increase refugee protection by lowering the cost of shading necessary to support the low-standard-of-proof equilibrium (from $\underline{K}$ to $\underline{K}^{\text{NEM}}$). Q.E.D.

Proof of Proposition 7

Denote by N_k the northern host state that proposes a transfer system. The transfer system contract offer is defined by $\{(Q^{S_j}, T^{S_j})\}_{j=1, \ldots, L}$, where Q^{S_j} is the number of refugee transfer slots southern country S_j provides to migrants from S_0 sent by N_k in exchange for a payment T^{S_j}. Under the agreement, state N_k can deport from S_0 to state S_j a total of Q^{S_j} migrants whom it determines have refugee status. Each southern state then simultaneously chooses whether to accept or reject its contract offer (for simplicity, without knowing the contracts offered to other southern host states). Any states that accept are paid their T^{S_j} by N_k. Then, after migrants make their migration decisions, N_k can transfer any southern migrant that passes its refugee status determination procedure to a southern state with open contracted-for transfer slots until all slots are filled. We refer to this as the individual transfer system game. We restrict attention to Markov-perfect SPEs in which citizens' strategies are a function only of the state p and the set of transfer system contracts and not the entire history of contract offers and rejections or acceptances by southern host states; similarly, host states' strategies specifying their standards of proof are a function only of the set of transfer system contracts.

Denote S_j's strategy that specifies whether to accept or reject each potential offer by the function $r_{S_j}(Q^{S_j}, T^{S_j})$, which is equal to one if S_j accepts and zero if it rejects, and denote the entire strategy profile by $r(Q, T)$. Denote the profile of resulting contracts by $(\hat{Q}, \hat{T})$ (with $\hat{Q}^{S_j} = 0$ and $\hat{T}^{S_j} = 0$ if S_j rejects). Define the total number of transfer slots contracted for by N_k as $n(\hat{Q}) \equiv \Sigma_{j=1}^{L} \hat{Q}_{S_j}$. Denote host states' strategy profile following transfer slot contracting as $p(\hat{Q})$.

First, observe that in any equilibrium of the baseline convention model (that is, without any transfer system contracts) with economic migration, N_k will host some informed southern migrants. Second, note that if N_k contracts for any transfer slots, it is less attractive to potential southern migrants as a destination since migrants arriving in N_k risk being deported south under the transfer system. Thus, in any symmetric standard-of-proof equilibrium under the convention with N_k's transfer

system in place, N_k receives no southern migrants. This lowers N_k's burden of hosting migrants. Third, suppose that N_k makes take-it-or-leave-it offers of (Q^*, T^*) such that $Q^*_{S_j} = \varepsilon > 0$ and $T^*_{S_j} = 0 \, \forall j = 1,$ . . . , L. Each southern state S_j is indifferent between accepting or rejecting its offer since it will not actually receive any migrants through the transfer system (since N_k will not receive any southern migrants). Thus, N_k can lower its hosting burden by an amount greater than the cost of payments under the transfer contracts.

Finally, note that other northern states are made worse off since they now face a greater number of refugee-applicants. The diversion of refugee-applicants from N_k to other northern host states will raise the threshold level of the shading cost K at which the low standard of proof is an equilibrium (and similarly will raise the threshold level of the shading cost below which the high standard of proof is an equilibrium).

Proof of Proposition 8

All northern states simultaneously offer contracts to southern states denoted $(Q, T) \equiv \{(Q^{S_j}_{N_k}, T^{S_j}_{N_k})\}_{j,k=1, \ldots, L}$, where $Q^{S_j}_{N_k}$ is the number of refugee transfer slots that southern country S_j provides to migrants from S_0 sent by N_k in exchange for a payment $T^{S_j}_{N_k}$. Each southern state can then accept or reject each individual contract. The game then proceeds as before, but after citizens make their migration choices, each northern state can transfer any southern migrants that pass its refugee status determination procedures to southern states with which it has unused transfer slots for which it has contracted. Again, we focus on Markov-perfect SPEs.

Denote S_j's strategy that specifies whether to accept or reject by the vector-valued function $\mathbf{r}^{S_j}(Q^{S_j}, T^{S_j})$, where (Q^{S_j}, T^{S_j}) is the vector of contract offers made to S_j and the kth element of $\mathbf{r}^{S_j}(Q^{S_j}, T^{S_j})$ is equal to one if S_j accepts the contract offered by N_k and zero if it rejects. Denote the entire profile of southern host state strategies by $\mathbf{r} \equiv \{\mathbf{r}^{S_j}(Q^{S_j}, T^{S_j})\}_{j=1, \ldots, L}$. Denote the resulting contract between S_j and N_k by $(\hat{Q}^{S_j}_{N_k}, \hat{T}^{S_j}_{N_k})$, and let $(\hat{Q}, \hat{T}) \equiv \{(\hat{Q}^{S_j}_{N_k}, \hat{T}^{S_j}_{N_k})\}_{j, k=1, \ldots, L}$ denote the set of all contracts. Define the total number of transfer slots contracted for by N_j as $n_{N_j}(\hat{Q}) \equiv \Sigma^L_{k=1} \hat{Q}^{N_j}_{S_k}$. Denote the host states' strategy profile following transfer slot contracting by $p(\hat{Q})$.

We look for a symmetric equilibrium of this global transfer system

game in which northern host states offer transfer contracts $\hat{Q}^*$ for all N_j, $n_{N_j}(\hat{Q}^*) > 0$, and no southerners migrate north.

First, note that with the transfer system in place, no individual southern migrant will want to deviate from the equilibrium by traveling north since it would bear the cost J but then be deported to a southern host state under the transfer system. Thus, all refugees migrating to host states in their region of origin in equal numbers to each is indeed Nash equilibrium behavior following $\hat{Q}^*$. There is thus no economic migration in equilibrium.

Next, suppose that each northern host state N_k makes take-it-or-leave-it offers such that $Q_{S_j}^{N_k^*} = \varepsilon > 0$ and $T_{S_j}^{N_k^*} = 0 \, \forall j = 1, \ldots, L$. Each southern state S_j is indifferent between accepting or rejecting its offers since, given that other southern host states are in equilibrium accepting their contract offers, S_j will receive the same number of migrants whether it accepts or rejects its contract offers.

With these transfer contracts in place, the game reduces to the game analyzed in Section 3.4, with no economic incentive to migrate ($\Delta w < J$). Consequently, in either a symmetric low-standard-of-proof equilibrium or high-standard-of-proof equilibrium, southern host states will host more refugees with this transfer system in place than they do without a transfer system. Moreover, they receive no payments in equilibrium because of the externalities imposed by other southern states' transfer contracts.

Finally, note that the transfer system makes northern host states better off since it eliminates economic migration and moreover can increase refugee protection by lowering the cost of shading necessary to support the low-standard-of-proof equilibrium (from $\underline{\mathbf{K}}$ to $\underline{K}^{\text{NEM}}$). Q.E.D.

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