Supplemental Materials

"Access Denied: How Bureaucrats Shape Politicians' Incentives to Choose Restrictive Asylum Policies"

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A Preliminaries

As stated in the main text, we impose the following assumptions:

Assumption 1. *The function F is continuously differentiable and has full support on $\mathbb{R}$.*

Assumption 2. *The function H is continuously differentiable and has full support on $[0,1]$. Its density, h, has a unique interior peak and satisfies $h(1) < 1$.*

Assumption 3. *The function $w_0(v)$ is continuously differentiable and is strictly decreasing in v.*

Assumption 4. *Parameter values are such that $w_0(\overline{v}) < w_1 - c$ and*

$$lim_{v \to -\infty}\, w_0(v) > w_1 - c.$$

Assumption 5. *Given a policy t, the functions $c(t)$, $w_1(t)$, or $w_0(v,t)$ are continuously differentiable. Moreover, c and w_0 are increasing in t while w_1 is decreasing in t.*

The smoothness assumptions in Assumptions 1, 2, 3, and 5 imply that the function (and its generalizations for the extensions[1])

$$\Gamma(\hat{v},t) \equiv H(q(\hat{v})) - \frac{c(t)}{w_1(t) - w_0(\hat{v},t)} = H\left(\frac{1-F(\overline{v})}{1-F(\hat{v})}\right) - \frac{c(t)}{w_1(t) - w_0(\hat{v},t)}$$

is continuously differentiable.[2]

For the analysis with an endogenous asylum policy, we occasionally strengthen our assumptions so that H, F, and w_0 are twice continuously differentiable.[3]

B Baseline Model

B.1 Proof of Proposition 1

Proof. Define the function $\Gamma(\hat{v}) \equiv H(q(\hat{v})) - \frac{c}{w_1 - w_0(\hat{v})}$. An equilibrium threshold $\hat{v}^*$ must solve the indifference condition $\Gamma(\hat{v}^*) = 0$.

[1] For the extension featuring unsuccessful applications, we augment Assumption 4 so that it is still the case that the type who is just eligible, $\overline{v}$, finds it profitable to apply when the probability of admission is 1.

[2] We examine special cases of this function in which only one of the quantities c, w_1, or w_0 varies with t.

[3] This would have to be necessary to scrutinize interior solutions, which is the case when the politician faces policy-making costs, $K(t)$. To examine comparative statics of the optimal interior policy t^*, need to make sure that the objective function of the politician, $1 - \Pr(\text{admission}|\hat{v}^*(t)) - K(t) = 1 - [1 - F(\hat{v}^*(t))]\, H(q(\hat{v}^*(t))) - K(t)$ is sufficiently smooth to examine comparative statics. Here, we would need to assume that all functions, including K, are twice continuously differentiable. Note that the function $\hat{v}^*(t)$ is implicitly defined by $\Gamma(\hat{v}^*(t)) = 0$. However, it "inherits" the smoothness properties from Γ.

Using the definition of $\underline{v}$, we have that $\Gamma(\underline{v}) = H(q(\underline{v})) - 1 < 0$, $\Gamma(\overline{v}) = 1 - \frac{c}{w_1 - w_0(\overline{v})} > 0$, and

$$\frac{\partial \Gamma}{\partial \hat{v}} = h(q(\hat{v}))\frac{\partial q}{\partial \hat{v}} + \frac{c}{[w_1 - w_0(\hat{v})]^2}\left(-w_0'(\hat{v})\right) > 0.$$

Because the function Γ is continuous, by the Intermediate Value Theorem, there is a unique $\hat{v}^*$ satisfying $\Gamma(\hat{v}^*) = 0$, which is equivalent to expression 3 in the main text. □

B.2 Pooling Equilibria

Claim 1. *There is no pooling equilibrium in which all types apply for asylum.*

Proof. To derive a contradiction, suppose there is such a pooling equilibrium. If all applicant types apply, the bureaucrat's posterior belief is equal to his prior belief. Denote the induced belief about eligibility by $\underline{q} = 1 - F(\overline{v})$. Sequential rationality means that the bureaucrat grants admission if $\underline{q} \geq \kappa$ and rejects otherwise.

From the perspective of the foreign national, the probability of admission is $H(\underline{q})$. When indeed applying (as required in this equilibrium), the foreign national's payoff is:

$$H(\underline{q})w_1 + (1 - H(\underline{q}))w_0(v) - c.$$

A deviation to not applying yields a payoff of $w_0(v)$. No incentive to deviate requires that

$$H(\underline{q})\left[w_1 - w_0(v)\right] \geq c.$$

Even if $H(\underline{q})$ is close to 1, the lowest types have an incentive to deviate. To see this, suppose that $H(\underline{q}) \to 1$. For the equilibrium to exist, we need to require that $w_1 - c \geq w_0(v)$ holds. But this contradicts our Assumption 4 for sufficiently low types v because $\lim_{v \to -\infty} w_0(v) > w_1 - c$. Hence, some types have a unilateral incentive to deviate, contradicting the assumption that there is a pooling equilibrium in which all types of the foreign national apply. □

Claim 2. *There is a pooling equilibrium in which no types apply for asylum if the bureaucrat's off-the-path belief of the foreign national's eligibility is relatively low.*

Proof. In a pooling equilibrium in which all types choose not to apply, the bureaucrat's information set is off the path of play. Let $\hat{F}$ be the CDF of v at this point, which is unrestricted in a Perfect Bayesian equilibrium and denote the associate probability of eligibility by $\hat{q} = 1 - \hat{F}(\overline{v})$. Sequential rationality means that the bureaucrat grants admission when $\hat{q} \geq \kappa$.

From the perspective of the applicant, the probability of admission is $H(\hat{q})$. When choosing not to apply, the foreign national obtains a payoff of $w_0(v)$. When deviating to an application, each type receives:

$$H(\hat{q})w_1 + (1 - H(\hat{q}))w_0(v) - c.$$

For the equilibrium to exist, we require that for all v:

$$c \geq H(\hat{q}) \left[w_1 - w_0(v)\right],$$

or

$$w_0(v) \geq w_1 - \frac{c}{H(\hat{q})}. \tag{B.1}$$

Observe that the right-hand side is strictly less than $w_1 - c$ if $H(\hat{q}) < 1$ and that the parameter v only affects the left-hand side (which is decreasing in v by Assumption 3). Expression B.1 holds for low v, as by Assumption 4, $\lim_{v \to -\infty} w_0(v) > w_1 - c$. It can also hold for high v, since we only assumed that $w_0(\overline{v}) < w_1 - c$, which implies that $w_0(v) < w_1 - c$ for all v such that $v > \overline{v}$.

Denote $\lim_{v \to \infty} w_0(v)$ by $\tilde{w_0}$ (this limit exists because w_0 is continuous). We must have $\tilde{w_0} < w_1 - c$ but $\tilde{w_0}$ can be larger than $w_1 - \frac{c}{H(\hat{q})}$. In this case, the pooling equilibrium in which no foreign national type applies exists. By inspection, the bound $\tilde{w_0} \geq w_1 - \frac{c}{H(\hat{q})}$ is harder to satisfy if $H(\hat{q})$, and hence $\hat{q}$, is large. Hence, the pooling equilibrium is more likely to exist if $\hat{q}$ is relatively low so that the bureaucrat is skeptical about eligibility. □

B.3 Applications: Violence and Economic Crises

When Conflicts Intensify Consider a parameter $\theta \geq 0$ and assume that the distribution of individual persecution for the foreign national is $F_\theta(v) \equiv F(v - \theta)$. An increase in the parameter θ induces a first-order stochastic dominance shift in F_θ (see Benabou and Tirole, 2011). Substantively, an increase in the parameter θ corresponds to an intensifying conflict.

The equilibrium application threshold is characterized by:

$$H\left(q_\theta\left(\hat{v}^*\right)\right) = \frac{c}{w_1 - w_0\left(\hat{v}^*\right)},$$

where $q_\theta(\hat{v}) \equiv \frac{1 - F_\theta(\overline{v})}{1 - F_\theta(\hat{v})}$ is the posterior of eligibility. The key force here is how the bureaucrat's assessment of eligibility, q_θ, is affected by θ. To investigate this formally, differentiate this

parameter with respect to θ to obtain:

$$\frac{\partial q_\theta}{\partial \theta} = -f(\hat{v}-\theta)\left[1-F(\overline{v}-\theta)\right] + f(\overline{v}-\theta)\left[1-F(\hat{v}-\theta)\right].$$

This is ambiguous. Intuitively, two things happen. The prior probability of eligibility, $1-F_\theta(\overline{v})$, increases, which increases q_θ. However, for a fixed candidate threshold $\hat{v}$, the probability of an application also increases, which decreases q_θ. Since the posterior probability of eligibility (conditional on having received an application) is the ratio of these two quantities, it can increase or decrease as a result of an intensifying conflict (depending on the location of the equilibrium threshold $\hat{v}^*$, i.e., depending on parameter values). Furthermore, as a consequence, the equilibrium threshold $\hat{v}^*$ is also an ambiguous function of θ, since, by the Implicit Function Theorem, the sign of this quantity is determined by $h(q_\theta(\hat{v}^*))\frac{\partial q_\theta}{\partial \theta}$. Specifically:

$$\frac{\partial \hat{v}}{\partial \theta} = -\frac{h(q_\theta)\frac{\partial q_\theta}{\partial \theta}}{h(q_\theta)\frac{\partial q}{\partial \hat{v}} + \frac{c(-w_0')}{(w_1-w_0)^2}}.$$

The denominator is positive. As a result, an increase in θ increases the probability of an application (decreases the threshold $\hat{v}^*$) if $\frac{\partial q_\theta}{\partial \theta} > 0$, i.e.,

$$f(\overline{v}-\theta)\left[1-F(\hat{v}^*-\theta)\right] > f(\hat{v}^*-\theta)\left[1-F(\overline{v}-\theta)\right].$$

This is the case if the prior probability of eligibility, $1-F(\overline{v}-\theta)$, is relatively low.

When Economic Crisis Hits Consider a parameter γ such that $w_0(v,\gamma)$ is decreasing in γ and continuously differentiable in γ. γ is the level of economic crisis in the foreign national's home polity. Recall that the equilibrium application threshold is characterized by:

$$\underbrace{H(q(\hat{v}^*)) - \frac{c}{w_1 - w_0(\hat{v}^*,\gamma)}}_{\equiv \Gamma} = 0.$$

Differentiate $\hat{v}^*$ with respect to γ:

$$\frac{\partial \hat{v}^*}{\partial \gamma} = -\frac{\frac{\partial \Gamma}{\partial \gamma}}{\frac{\partial \Gamma}{\partial \hat{v}}}$$

We have that $\frac{\partial \Gamma}{\partial \hat{v}} > 0$ and $\frac{\partial \Gamma}{\partial \gamma} > 0$. Thus, the equilibrium threshold is *decreasing* in the level of the crisis γ. This is intuitive, as worse economic conditions increase the incentives to apply for asylum.

C Exogenous Asylum Policy

C.1 Proof of Proposition 2

Proof. Consider the case where the payoff of being in the destination country depends on the asylum policy, $w_1(t)$ (the cases in which asylum policy affects the costs of applying or the payoff of remaining can be analyzed analogously). Consider again the function $\Gamma(\hat{v}, t)$:

$$\Gamma(\hat{v}, t) = H\left(q(\hat{v})\right) - \frac{c}{w_1(t) - w_0(\hat{v})}.$$

Given t, the equilibrium threshold is defined as the solution to $\Gamma(\hat{v}^*(t)) = 0$. Then, since Γ is continuously differentiable, we can use the Implicit Function Theorem to compute:

$$\frac{\partial \hat{v}^*}{\partial t} = -\frac{\frac{\partial \Gamma}{\partial t}}{\frac{\partial \Gamma}{\partial \hat{v}}} > 0.$$

The inequality follows because Γ is increasing in $\hat{v}$ as shown above and $\frac{\partial \Gamma}{\partial t} = \frac{\partial \Gamma}{\partial w_1} w_1'(t) = \frac{c}{(w_1 - w_0)^2} w_1'(t) < 0$.

For the other case, the argument is identical because:

1. $\frac{\partial \Gamma}{\partial c}\frac{\partial c}{\partial t} < 0$
2. $\frac{\partial \Gamma}{\partial w_0}\frac{\partial w_0}{\partial t} < 0$

This completes the proof. □

C.2 Proof of Proposition 3

Before proceeding to the proof of the Proposition, the following definition and result are useful:

Definition 1. *For any $x \in [0, 1]$, define the following function:*

$$R(x) \equiv H(x) - h(x)x.$$

Then:

Lemma 1. *If Assumption 2 holds, the function R defined in Definition 1 satisfies (i) $R(0) = 0$, (ii) $R(1) \in (0, 1]$, (iii) $R'(0) < 0$, and (iv) $R'(1) > 0$. Moreover, (v), for x larger than the mode of H, there is a unique value, $x_0 < 1$, such that $R(x_0) = 0$.*

Proof of Lemma 1:

Proof. (i) Since $H(0) = 0$, $R(0) = H(0) - 0h(0) = 0$.

(ii) We know $h(1) < 1$. Therefore, $R(1) = H(1) - h(1) = 1 - h(1) \in (0, 1]$.

We also have $R'(x) = h(x) - [xh'(x) + h(x)] = -xh'(x)$. Hence:

(iii) $R'(0) = -0h'(0) = 0$.

(iv) $R'(1) = -h'(1) > 0$, because when h has an interior peak, it must be the case that $h'(1) < 0$.

(v) Denote the value of the unique interior peak of h by $\hat{x} \in (0, 1)$. Observe that $\hat{x}$ is a critical point, i.e., it solves $R'(\hat{x}) = 0$. Moreover, because h is single-peaked, $R'(x) = -xh'(x)$ can change signs only once. This also implies that $R(\hat{x}) < 0$—if not, R' would switch signs more than once. Focusing on $x \in [\hat{x}, 1]$, we have $R(\hat{x}) < 0$ and $R(1) > 0$ by property (ii). Since R is continuous by Assumption 2, the Intermediate Value Theorem implies that there must exist a point $x_0 > \hat{x}$ such that $R(x_0) = 0$. □

The properties established in Lemma 1 are illustrated in Figure C.1.

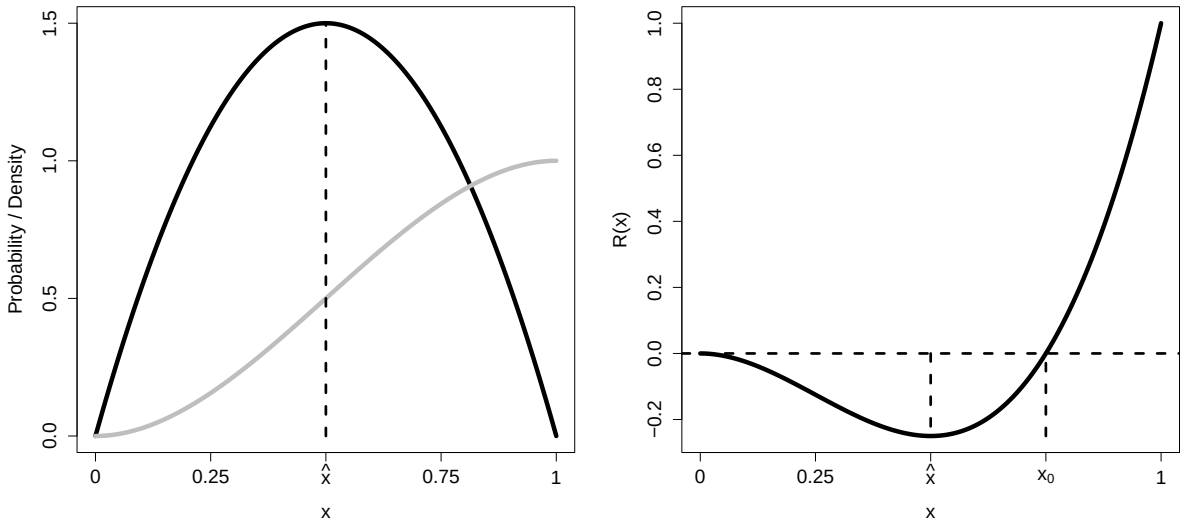

Figure C.1: Illustration of Lemma 1. The left panel shows the probability density function h (black line) and the cumulative distribution function H (gray line), where $H = \mathcal{B}(2, 2)$. The right panel shows the function R as defined in Definition 1.

We now proceed to the proof of Proposition 3:

Proof. The probability of admission is $[1 - F(\hat{v}^*(t))]\, H(q(\hat{v}^*(t)))$. As stated in the main text, the derivative with respect to t is:

$$-f\left(\hat{v}^*\right) \frac{\partial \hat{v}^*}{\partial t} H(q(\hat{v}^*)) + \left[1 - F\left(\hat{v}^*(t)\right)\right] h(q(\hat{v}^*)) \frac{\partial q}{\partial \hat{v}} \frac{\partial \hat{v}^*}{\partial t}.$$

Recall that $\frac{\partial q}{\partial \hat{v}} = q(\hat{v}^*)\frac{f(\hat{v}^*)}{1-F(\hat{v}^*)}$. Plugging in, we have:

$$-f\left(\hat{v}^*\right)\frac{\partial \hat{v}^*}{\partial t}H(q(\hat{v}^*)) + \left[1 - F\left(\hat{v}^*(t)\right)\right]h(q(\hat{v}^*))q(\hat{v}^*)\frac{f(\hat{v}^*)}{1-F(\hat{v}^*)}\frac{\partial \hat{v}^*}{\partial t},$$

or

$$-f\left(\hat{v}^*\right)\frac{\partial \hat{v}^*}{\partial t}\left[H(q(\hat{v}^*)) - h(q(\hat{v}^*))q(\hat{v}^*)\right].$$

Since f is a density, the term $f\left(\hat{v}^*\right)$ is always positive. Moreover, $\frac{\partial \hat{v}^*}{\partial t} > 0$ by Proposition 2. We need to consider the term:

$$H(q(\hat{v}^*)) - h(q(\hat{v}^*))q(\hat{v}^*),$$

which depends on the equilibrium threshold only through its effect on the equilibrium probability of eligibility, $q(\hat{v}^*)$. Using Definition 1, the term is equal to $R(q(\hat{v}^*(t)))$, and the effect of t on the equilibrium probability of admission is

$$-f\left(\hat{v}^*\right)\frac{\partial \hat{v}^*}{\partial t}R(q(\hat{v}^*(t))),$$

i.e., the negative of the sign of $R(q(\hat{v}^*(t)))$. Lemma 1 then implies that the effect of t on the equilibrium probability of admission is positive if the equilibrium probability of eligibility is relatively low (when $R < 0$) and negative otherwise (when $R > 0$). Further using Lemma 1, the effect of t on the equilibrium probability of admission is negative if $R(q(\hat{v}^*(t))) > 0$, or $q\left(\hat{v}^*(\overline{t})\right) > q_0$, where q_0 solves $R(q_0) = 0$.[4] Conversely, the effect of t on the equilibrium probability of admission is positive if $R(q(\hat{v}^*(t))) < 0$, or $q\left(\hat{v}^*(\overline{t})\right) < q_0$.

Without imposing further assumption on parameter values, either inequality can be satisfied. Recall that t increases $\hat{v}^*$, and $\hat{v}^*$ is monotonically related to the posterior belief q. By making an application less attractive (i.e., holding fixed t, increasing the costs or decreasing the wage earned upon admission), one can increase $\hat{v}^*$ so that $\hat{v}^* \to \overline{v}$ and $q(\hat{v}^*) \to 1$. Here, $q\left(\hat{v}^*(\overline{t})\right) > q_0$ is satisfied. Similarly, by making an application more attractive, one can decrease $\hat{v}^*$ so that $\hat{v}^* \to \underline{v}$ and $q(\hat{v}^*) \to \underline{q}$, which is defined as $\underline{q} \equiv \frac{1-F(\overline{v})}{1-F(\underline{v})}$. If parameter values are such that $\underline{q} < q_0$, then $q\left(\hat{v}^*(\overline{t})\right) < q_0$ is satisfied.

□

[4]By Lemma 1, we know that q_0 is less than 1 and larger than the value that corresponds to the peak of h, and it is unique in the interval $(0, 1)$.

C.3 Welfare Analysis

In equilibrium, types below $\hat{v}^*$ do not apply and will always receive $w_0(v)$ while types above $\hat{v}^*$ do apply and receive

$$H(q(\hat{v}^*))w_1 + (1 - H(q(\hat{v}^*)))w_0(v) - c.$$

For concreteness, consider the case of an employment ban, so that $w_1(t)$ is decreasing in t: $w_1'(t) < 0$. The foreign national's equilibrium utility is

$$W(t) = \int_{-\infty}^{\hat{v}^*(t)} w_0(v)f(v)dv + \int_{\hat{v}^*(t)}^{\infty} \left[H(q(\hat{v}^*))w_1(t) + (1 - H(q(\hat{v}^*)))w_0(v) - c\right] f(v)dv.$$

Using Leibniz' integral rule, the derivative of this expression with respect to t is equal to:

$$w_0(\hat{v}^*)f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial t} - \left[H(q(\hat{v}^*))w_1(t) + (1 - H(q(\hat{v}^*)))w_0(\hat{v}^*) - c\right] f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial t} + \int_{\hat{v}^*}^{\infty} \left[h(q(\hat{v}^*))\frac{\partial q}{\partial \hat{v}}\frac{\partial \hat{v}^*}{\partial t}(w_1(t) - w_0(v)) + H(q(\hat{v}^*))w_1'(t)\right] f(v)dv$$

Re-arranging, the first line in the preceding expression simplifies to 0 because of the equilibrium condition $H(q(\hat{v}^*)) = \frac{c}{w_1 - w_0(\hat{v}^*)}$, which implies $H(q(\hat{v}^*))\left[w_1 - w_0(\hat{v}^*)\right] = c$. Hence, we have:

$$\frac{\partial W}{\partial t} = \int_{\hat{v}^*}^{\infty} \left[h(q(\hat{v}^*))\frac{\partial q}{\partial \hat{v}}\frac{\partial \hat{v}^*}{\partial t}(w_1(t) - w_0(v)) + H(q(\hat{v}^*))w_1'(t)\right] f(v)dv. \tag{C.2}$$

This expression details two effects: First, the bureaucrat has increased confidence that the foreign national is eligible which increases the probability of admission. Second, conditional on in fact receiving admission, the employment ban hurts the foreign national because of the expected wage decline.

To make progress, recall that the effect of t on $\hat{v}^*$ is:

$$\begin{aligned}\frac{\partial \hat{v}^*}{\partial t} &= -\frac{\frac{cw_1'}{(w_1 - w_0)^2}}{h(q)\frac{\partial q}{\partial \hat{v}} + \frac{c(-w_0')}{(w_1 - w_0)^2}} \\ &= \frac{-cw_1'}{h(q)\frac{\partial q}{\partial \hat{v}}(w_1 - w_0)^2 + c(-w_0')},\end{aligned}$$

where q, $\frac{\partial q}{\partial \hat{v}}$, and w_0 are evaluated at $\hat{v}^*$.

Now focus on the following terms:

$$h(q(\hat{v}^*))\frac{\partial q}{\partial \hat{v}}\frac{\partial \hat{v}^*}{\partial t}(w_1(t) - w_0(v)) + H(q(\hat{v}^*))w_1'(t).$$

These are part of the integrand in expression C.2 that is multiplied by $f(v)$.

Plugging in $\frac{\partial \hat{v}^*}{\partial t}$ and write $q'(\hat{v}^*)$ for $\frac{\partial q}{\partial \hat{v}}(\hat{v}^*)$ to simplify the notation, this is equal to:

$$-h(q(\hat{v}^*))q'(\hat{v}^*)(w_1(t) - w_0(v))\frac{cw_1'}{h(q(\hat{v}^*))q'(\hat{v}^*)(w_1 - w_0(\hat{v}^*))^2 + c(-w_0'(\hat{v}^*))} + H(q(\hat{v}^*))w_1'$$

This can be re-arranged to obtain $\frac{w_1'}{h(q(\hat{v}^*))q'(\hat{v}^*)(w_1 - w_0(\hat{v}^*))^2 + c(-w_0'(\hat{v}^*))}$ times:

$$H(q(\hat{v}^*))\left[h(q(\hat{v}^*))q'(\hat{v}^*)(w_1 - w_0(\hat{v}^*))^2 + c(-w_0'(\hat{v}^*))\right] - h(q(\hat{v}^*))q'(\hat{v}^*)c(w_1(t) - w_0(v)).$$

Given that $w_1' < 0$, the sign of the preceding expression determines the sign of the integrand in C.2. Re-arranging yields:

$$-H(q(\hat{v}^*))cw_0'(\hat{v}^*) + h(q(\hat{v}^*))q'(\hat{v}^*)\left[H(q(\hat{v}^*))(w_1 - w_0(\hat{v}^*))^2 - c\,(w_1 - w_0(v))\right].$$

Recall that the equilibrium condition is $H(q(\hat{v}^*)) - \frac{c}{w_1 - w_0(\hat{v}^*)} = 0$, which implies that $c = H(q(\hat{v}^*))(w_1 - w_0(\hat{v}^*))$. Hence, we can re-arrange to obtain:

$$-H(q(\hat{v}^*))cw_0'(\hat{v}^*) + h(q(\hat{v}^*))q'(\hat{v}^*)c\left[w_1 - w_0(\hat{v}^*) - (w_1 - w_0(v))\right],$$

or

$$-H(q(\hat{v}^*))cw_0'(\hat{v}^*) + h(q(\hat{v}^*))q'(\hat{v}^*)c\left[w_0(v) - w_0(\hat{v}^*)\right].$$

The first term details the welfare loss due to a marginally lower wage (this does not vary with v).[5] The second term represent the welfare gain due to an increase in credibility (and it does vary with v). Plugging back into the integral in C.2, on average, this can be positive or negative. Hence, we have shown the following:

Proposition 1. *The effect of a more restrictive asylum policy on the foreign national's welfare can be positive or negative.*

D Extensions

D.1 Imperfect Enforcement

Formally, outcomes are generated according to the following processes: $\Pr(L = 1, S = F) = ea$, $\Pr(L = 0) = 1 - e + e(1 - a)\lambda$, and $\Pr(L = 1, S = I) = e\left[(1 - a)(1 - \lambda)\right]$. Note that this formulation implies that we do not model the foreign national compliance decision (i.e.,

[5] The term is positive, but it is multiplied by $\frac{w_1'}{h(q(\hat{v}^*))q'(\hat{v}^*)(w_1 - w_0(\hat{v}^*))^2 + c(-w_0'(\hat{v}^*))}$, which is negative.

when rejected, whether to voluntarily leave or to stay). We do so primarily because having another endogenous choice takes away our focus from the application stage.

We now derive the equilibrium condition stated in the main text. Letting p again the probability of being admitted as a refugee, the expected utility of applying for asylum is

$$pw_1^F + (1-p)\left[\lambda w_0(v) + (1-\lambda)w_1^I\right] - c.$$

By contrast, the expected utility of not applying continues to be $w_0(v)$. As a consequence, the foreign national applies if

$$p \geq \frac{c - (1-\lambda)\left[w_1^I - w_0(v)\right]}{w_1^F - w_1^I + \lambda(w^I - w_0(v))}.$$

Plugging in $p = H(q(\hat{v}))$ yields the equation in the main text. It remains to show that a unique semi-separating equilibrium exists. In the main text, we showed that the foreign national applies if:

$$p \geq \frac{c - (1-\lambda)\left[w_1^I - w_0(v)\right]}{w_1^F - w_1^I + \lambda\left(w^I - w_0(v)\right)}.$$

Note that the right-hand side simplifies to $\frac{c}{w_1^F - w_0(v)}$ if $\lambda = 1$ as in the baseline case. Furthermore, the derivative of the right-hand side with respect to v is again negative, since:

$$w_0'(v)\left[\lambda c + (1-\lambda)(w_1^F - w_1^I)\right] < 0.$$

Thus, the foreign national's equilibrium strategy will be a threshold rule. To make progress, define $\underline{v}$ as the solution to:

$$1 = \frac{c - (1-\lambda)\left[w_1^I - w_0(\underline{v})\right]}{w_1^F - w_1^I + \lambda(w_1^I - w_0(\underline{v}))},$$

Using this definition, it must be the case that $\hat{v}^* \in (\underline{v}, \overline{v})$.

Now define the function

$$\Psi(\hat{v}) \equiv H\left(\frac{1-F\left(\overline{v}\right)}{1-F\left(\hat{v}\right)}\right) - \frac{c - (1-\lambda)\left[w_1^I - w_0(\hat{v})\right]}{w_1^F - w_1^I + \lambda(w_1^I - w_0(\hat{v})}.$$

As before $\Psi(\underline{v}) < 0$, $\Psi(\overline{v}) > 0$, and Ψ is continuous and monotonically increasing. Hence, by the Intermediate Value Theorem, a unique value $\hat{v}^*$ such that $\Psi(\hat{v}^*) = 0$ exists.

Proof of Remark 1. Since the function Ψ is continuously differentiable, the Implicit Function Theorem implies that we have:

$$\frac{\partial \hat{v}^*}{\partial \lambda} = -\frac{\frac{\partial \Psi}{\partial \lambda}}{\frac{\partial \Psi}{\partial \hat{v}}}.$$

Since $\frac{\partial \Psi}{\partial \hat{v}} > 0$, the effect of λ on $\hat{v}^*$ is positive if $-\frac{\partial \Psi}{\partial \lambda} > 0$. We have:

$$\frac{\partial \Psi}{\partial \lambda} = \frac{(w_1^I - w_0(\hat{v}^*))\left(c - w_1^F + w_0(\hat{v}^*)\right)}{\left(w_1^F - w_1^I + \lambda(w_1^I - w_0(\hat{v})\right)^2}.$$

Observe that since the right-hand side of the equilibrium condition must be a number between 0 and 1, it must be the case that $c - w_1^F + w_0(\hat{v}^*) < 0$. Hence, $-\frac{\partial \Psi}{\partial \lambda}$ is positive if $w_1^I > w_0(\hat{v}^*)$. Substantively, the effect of λ on $\hat{v}^*$ is positive if $w_1^I > w_0(\hat{v}^*)$, i.e., the wage in the informal sector is relatively high. This inequality can hold or not, depending on parameter values. Consider Figure D.2. In the left-panel, w_1^I is relatively large, so an increase in λ increases the equilibrium application threshold $\hat{v}^*$. By contrast, in the right panel, w_1^I is relatively small, so an increase in λ decreases $\hat{v}^*$.

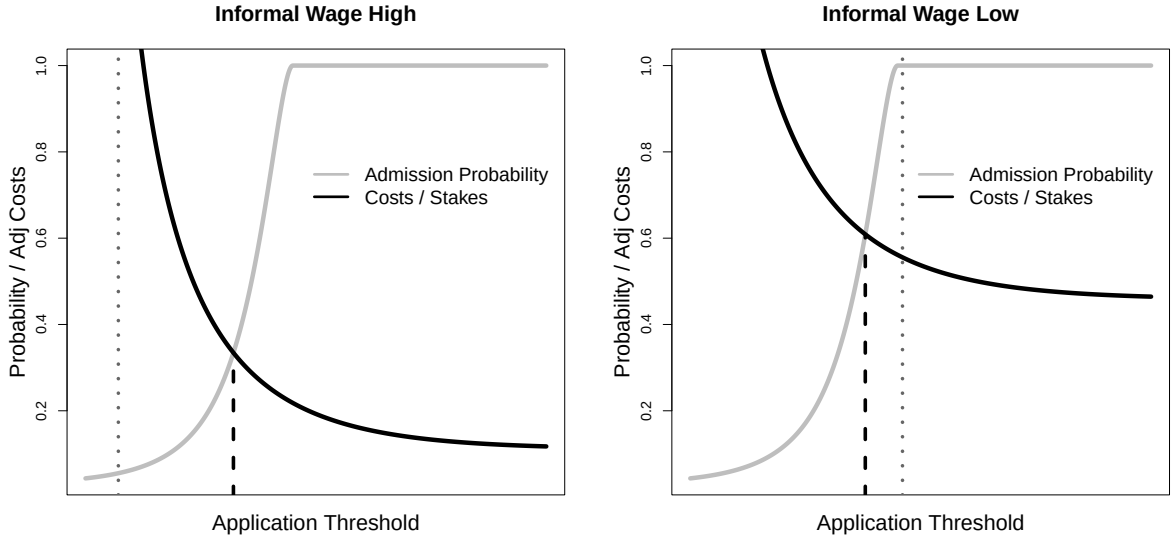

Figure D.2: The equilibrium at the application stage. Parameter values: $w_1^F = 1$, $\overline{v} = 2.25$, $\lambda = 0.6$, $c = 0.5$, $w_0 = \exp(-v)$, $F = \mathcal{N}(1,1)$, $H = \mathcal{B}(2,2)$, $w_1^I = 0.7$ in the left panel and $w_1^I = 0.1$ in the right panel. The dashed lines indicate the equilibrium threshold $\hat{v}^*$ and the type for which $w_1^I = w_0^{-1}(v)$ (i.e., $v = -\log(w_1^I)$). This type is to the left (right) of $\hat{v}^*$ in the left (right) panel.

□

Microfoundation I: Enforcement Agency Suppose that rather than being an exogenous parameter, the probability that the bureaucrat's rejection decision is enforced, λ, is endogenously chosen by an agency, denoted by D. Since the bureaucrat's rejection is observable to government entities, the agency can condition on it. Moreover, suppose for simplicity that the agency only cares about proper enforcement, i.e., the agency receives 1 if a deportation takes place and 0 otherwise. Moreover, enforcement effort λ is costly with a cost function $\kappa(\lambda)$. The function κ is strictly increasing and convex, and satisfies $\kappa'(0) = 0$ and $\lim_{\lambda \to 1} \kappa' = \infty$.

The agency's optimization problem is:

$$\max_{\lambda \in [0,1]} \lambda 1 + (1 - \lambda)0 - \kappa(\lambda)$$

This implies that the optimal choice is given by

$$1 = \kappa'(\lambda^*)$$

Given the assumption on κ, the solution is interior and unique.

The baseline model remains unchanged except that λ must be replaced with the optimal level of enforcement, λ^*. One can use this model variant to form predictions about what happens when enforcement effort becomes cheaper for the enforcement agency, either because (unmodeled) individual agents are more motivated, a surge in funding, or improved equipment. Formally, κ' decreases, so λ^* increases. Recall from the main text that according to Remark 1, the equilibrium application threshold can increase or decrease as λ increases. As a result, an decrease in the costs of enforcement effort can increase or decrease the probability of an asylum application.

Microfoundation II: Firm Lobbying Suppose that firm can choose lobbying effort or (quid-pro-quo) contributions to induce some politicians to choose a level of λ that the firm prefers. For simplicity, we consider a version in which a firm directly chooses λ at cost $M(\lambda)$. The firm is interested in maximizing its profit. Without the labor of the foreign national, the firm's profit is π_0. With the additional labor, the firm is π_1^L if the applicant has a formal status and π_1^H if the applicant does not have a formal status. We assume:

$$0 = \pi_0 < \pi_1^L < \pi_1^H.$$

The firm chooses λ at the beginning of the game. Given an equilibrium $\hat{v}^*$, the firm solves

$$\max_{\lambda \in [0,1]} \pi_1^L \left[\left(1 - F(\hat{v}^*)\right) H(q(\hat{v}^*)) \right] + \pi_1^H \left[\left(1 - F(\hat{v}^*)\right) \left(1 - H(q(\hat{v}^*))\right) (1 - \lambda) \right] - M(\lambda)$$

The first-order condition is:

$$-\pi_1^L f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial \lambda}\left[H(q)-h(q)q\right]+$$
$$\pi_1^H\left[-(1-F(\hat{v}^*))(1-H(q))+(1-\lambda)\,f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial \lambda}\left(-(1-H(q))-h(q)q\right)\right]=M'(\lambda),$$

where q is evaluated at $\hat{v}^*$ throughout.

Suppose that $w_1^I \geq w_0(\hat{v}^*(\lambda))$ (which implies that $\frac{\partial \hat{v}^*}{\partial \lambda} > 0$ by Remark 1) and $\pi_1^L \to 0$. Then, the firm strictly want to decrease enforcement, for two reasons: first, conditional on both an application and a rejection, an increase in λ directly lowers the probability of obtaining high profits through cheap labor (an increased level of λ means that the rejected applicant is more likely be deported). Second, for strategic reasons, an increase in λ also lowers the probability of obtaining a deportation. The reason is that an increase in enforcement increases credibility, which lowers the probability that the bureaucrat rejects. Hence, the firm does not want to increase λ.

When π_1^L is larger, the firm's calculus becomes more complex. In particular, increasing λ could be optimal if $H(q(\hat{v}^*))-h(q(\hat{v}^*))q(\hat{v}^*)$ is negative. As explained above, this expression can be positive or negative, depending on parameter values. Specifically, it is negative if the equilibrium probability of eligibility is relatively low.

D.2 Irregular Migration

We focus on the parameter space in which $w_1^F > w_{-1}^I$, and the following inequality holds:

$$c-k > \pi\left(w_1^F - w_{-1}^I\right).$$

Intuitively, the difference in costs must be larger than the wage difference, adjusted for the likelihood of being sent back when irregular migration is attempted. In particular, applying for asylum is more costly than irregular migration.

In order to pin down $\hat{v}_1^*$, we now analyze the decision to apply for asylum relative to attempting irregular migration:

$$pw_1^F+(1-p)w_0(v)-c \geq \pi w_{-1}^I+(1-\pi)w_0(v)-k,$$

where p is again the endogenous probability of being admitted as a refugee. Rearranging the preceding inequality, we have

$$p \geq \frac{c - k + \pi(w^I_{-1} - w_0(v))}{w^F_1 - w_0(v)}.$$

Plugging in $H(q(\hat{v}_1))$ for p yields the expression in the main text.

We begin by verifying that relative to staying in the foreign national's home polity, both types of migration are attempted by individuals with higher levels of individual persecution. Specifically, the foreign national attempts irregular migration relative to staying home if:

$$\pi \geq \frac{k}{w^I_{-1} - w_0(v)}.$$

The right-hand side is decreasing in v, confirming that foreign national types with higher v are more likely to attempt migration.

Moreover, as in the baseline case, letting p be the probability of admission (to be determined), the foreign national applies for asylum rather than staying home if:

$$p \geq \frac{c}{w^F_1 - w_0(v)}.$$

The right-hand side is decreasing in v, confirming that foreign national types with higher v are more likely to apply for asylum.

In order to construct an equilibrium in which $\hat{v}^*_{-1} < \hat{v}^*_1$, we assume that

$$H(q(\hat{v}^*_{-1})) < \frac{c}{w^F_1 - w_0(\hat{v}^*_{-1})}.$$

In the main text, we showed that the foreign national applies for asylum, rather than attempting to migration irregularly, if:

$$p \geq \frac{c - k + \pi(w^I_{-1} - w_0(v))}{w^F_1 - w_0(v)}.$$

Given our assumption on the difference in costs, the right-hand side of the preceding inequality is decreasing in v. Thus, foreign national types with larger values of v apply for asylum. As a consequence, the second equilibrium threshold is determined by the following equality:

$$H(q(\hat{v}^*_1)) = \frac{c - k + \pi\left(w^I_{-1} - w_0\left(\hat{v}^*_1\right)\right)}{w^F - w_0\left(\hat{v}^*_1\right)}. \tag{D.3}$$

It remains to verify that $\hat{v}_1^*$ is unique and satisfies $\hat{v}_{-1}^* < \hat{v}_1^*$. To this end, define

$$\Lambda(\hat{v}_1) \equiv H(q(\hat{v}_1)) - \frac{c - k + \pi\left(w_{-1}^I - w_0\left(\hat{v}_1\right)\right)}{w_1^F - w_0\left(\hat{v}_1\right)}.$$

The function Λ is increasing in $\hat{v}_1$ and satisfies $\Lambda(\overline{v}) > 0$. Finally, we need $\Lambda(\hat{v}_{-1}^*) < 0$. Note that $\hat{v}_{-1}^*$ can be written as:

$$\hat{v}_{-1}^* = w_0^{-1}\left(w_{-1}^I - \frac{k}{\pi}\right),$$

where w_0^{-1} is the inverse function of w_0. Using this notation, we can simplify the following expression:

$$c - k + \pi\left[w_{-1}^I - w_0\left(\hat{v}_{-1}^*\right)\right] = c.$$

Hence, $\Lambda(\hat{v}_{-1}^*) < 0$ holds because it is equivalent to the inequality

$$H(q(\hat{v}_{-1}^*)) < \frac{c}{w^F - w_0(\hat{v}_{-1}^*)},$$

which was assumed above.

We briefly consider the case in which asylum policy t affects the irregular wage w_{-1}^I. Arguably, this is the case for policies that require employers to verify that a worker has the proper work authorization ("e-verify"). By increasing the risk to employers, they may lower the wage to irregular workers to offset the risk and cost of punishment. Thus, when the informal sector is targeted, w_{-1}^I is decreasing in t. Suppose that t increases, decreasing w_{-1}^I. This increases $\hat{v}_{-1}^*$ but decreases $\hat{v}_1^*$. Thus, some types who previously attempted irregular migration stay in the home polity now *and* some types who previously attempted to enter the polity irregularly now apply for asylum. Depending on the strength of these effects, the expression $\pi\left[f(\hat{v}_1^*)\frac{\partial \hat{v}_1^*}{\partial t} - f(\hat{v}_{-1}^*)\frac{\partial \hat{v}_{-1}^*}{\partial t}\right]$ can be positive or negative. Hence, as explained in the main text, the incentives to make more restrictive asylum policy can increase or decrease.

Proof of Remark 2. For the first statement, recall that $\hat{v}_{-1}^*$ is defined as:

$$\hat{v}_{-1}^* = w_0^{-1}\left(w_{-1}^I - \frac{k}{\pi}\right)$$

The result follows because w_0^{-1} is a decreasing function and $w_{-1}^I - \frac{k}{\pi}$ is increasing in π. Hence, $\frac{\partial \hat{v}_{-1}^*}{\partial \pi} < 0$.

For the second statement, note that the function Λ defined above is continuously differentiable. Hence, by the Implicit Function Theorem, the effect of π on $\hat{v}_1^*$ is given by:

$$\frac{\partial \hat{v}_1^*}{\partial \pi} = -\frac{\frac{\partial \Lambda}{\partial \pi}}{\frac{\partial \Lambda}{\partial \hat{v}}}.$$

Since, $\frac{\partial \Lambda}{\partial \hat{v}} > 0$, the sign of the effect is determined by the sign of $\frac{\partial \Lambda}{\partial \pi}$. We have:

$$\frac{\partial \Lambda}{\partial \pi} = -\frac{w_{-1}^I - w_0(\hat{v}_1^*)}{w_1^F - w_0(\hat{v}_1^*)}.$$

As a result, we have that $\frac{\partial \hat{v}_1^*}{\partial \pi} > 0$ if $w_{-1}^I > w_0(\hat{v}_1^*)$. In fact, in the kind of equilibrium we are considering, it must the case that $w_{-1}^I > w_0(\hat{v}_1^*)$. To see this, suppose not, i.e., $w_{-1}^I < w_0(\hat{v}_1^*)$. Because w_0^{-1} is decreasing, we then have:

$$\hat{v}_1^* < w_0^{-1}\left(w_{-1}^I\right) < w_0^{-1}\left(w_{-1}^I - \frac{k}{\pi}\right) = \hat{v}_{-1}^*.$$

This contradicts the assumption that $\hat{v}_{-1}^* < \hat{v}_1^*$. Hence, $\frac{\partial \hat{v}_1^*}{\partial \pi} > 0$. □

D.3 Failed Applications

For this application, we need to adjust Assumption 4. We now assume that $\rho w_1 + (1-\rho)\underline{w} - c > w_0(\overline{v})$ and $\lim_{v \to -\infty} w_0(v) > \rho w_1 + (1-\rho)\underline{w} - c$.

The expected utility of not applying for asylum remains $w_0(v)$. However, the expected utility of applying for asylum is now more complicated. Let p be the (endogenous, to be determined) probability of obtaining asylum. Then, the expected utility of applying for asylum is:

$$\rho\left[pw_1 + (1-p)w_0(v)\right] + (1-\rho)\underline{w} - c.$$

Hence, the foreign national applies if:

$$p \geq \frac{c + (1-\rho)\left(w_0(v) - \underline{w}\right)}{\rho\left[w_1 - w_0(v)\right]}.$$

Note that if $\rho = 1$, the right-hand side simplifies to the expression in the main analysis. The right-hand side also continues to be decreasing in v. Define the following function:

$$\Upsilon(\hat{v}) \equiv H(q(\hat{v})) - \frac{c + (1-\rho)\left(w_0(\hat{v}) - \underline{w}\right)}{\rho\left[w_1 - w_0(\hat{v}))\right]}.$$

Define $\underline{v}$ as the type that is indifferent between applying or not when the admission probability is equal to 1, i.e.,

$$\underline{v} = w_0^{-1}\left(\rho w_1 + (1-\rho)\underline{w} - c\right).$$

We have $\Upsilon(\underline{v}) = H(q(\underline{v})) - 1 < 0$ and $\Upsilon(\overline{v}) = \frac{\rho w_1 + (1-\rho)\underline{w} - c - w_0(\overline{v})}{\rho(w_1 - w_0(\overline{v}))} > 0$. Since Υ is increasing in $\hat{v}$, this implies that there is a unique equilibrium threshold $\hat{v}^* \in (\underline{v}, \overline{v})$.

Proof of Remark 3. Since Υ is continuously differentiable, the Implicit Function Theorem implies that the effect of ρ on $\hat{v}^*$ is given by:

$$\frac{\partial \hat{v}^*}{\partial \rho} = -\frac{\frac{\partial \Upsilon}{\partial \rho}}{\frac{\partial \Upsilon}{\partial \hat{v}}}.$$

Since $\frac{\partial \Upsilon}{\partial \hat{v}} > 0$, the sign of the effect is the negative of the sign of $\frac{\partial \Upsilon}{\partial \rho}$. Differentiating, we have:

$$\frac{\partial \Upsilon}{\partial \rho} = -\frac{(w_1 - w_0(\hat{v}))\left[c + w_0(\hat{v}) - \underline{w}\right]}{\left[\rho\left(w_1 - w_0(\hat{v})\right)\right]^2}.$$

This is always positive. To see this, recall that we have assumed that $\underline{w} < w_0(\overline{v})$. Because w_0 is decreasing, $\underline{w} < w_0(\hat{v}^*)$. Hence, the numerator is positive, rendering the whole expression $\frac{\partial \Upsilon}{\partial \rho}$ positive. The sign of $\frac{\partial \hat{v}^*}{\partial \rho}$ is hence negative—an increase in ρ decreases the equilibrium threshold $\hat{v}^*$. □

E Endogenous Asylum Policy

We begin by restating the politician's optimization problem:

$$\max_{t \in [\underline{t}, \overline{t}]} \; 1 - \left[1 - F(\hat{v}^*(t))\right] H(q(\hat{v}^*(t)))$$

Following the reasoning in the main text, the derivative of the objective function can be re-arranged to obtain:

$$\frac{\partial \hat{v}^*}{\partial t} f(\hat{v}^*)\left[H(q(\hat{v}^*)) - h(q(\hat{v}^*))q(\hat{v}^*)\right].$$

Utilizing Definition 1, this can equivalently be written as:

$$\frac{\partial \hat{v}^*}{\partial t} f(\hat{v}^*) R(q(\hat{v}^*(t))).$$

Lemma 1 implies that $R(q(\hat{v}^*(t)))$ is positive if $q(\hat{v}^*(t))$ is sufficiently large, which in turn implies that t must be sufficiently large (because q and $\hat{v}^*$ are increasing functions of $\hat{v}$ and t, respectively). Otherwise, the expression is negative. Hence, there are three cases:

1. $R(q(\hat{v}^*(\bar{t}))) < 0$. The objective function is always decreasing, hence $t^* = \underline{t}$.
2. $R(q(\hat{v}^*(\underline{t}))) > 0$. The objective function is always increasing, hence $t^* = \bar{t}$.
3. $R(q(\hat{v}^*(\underline{t}))) < 0 < R(q(\hat{v}^*(\bar{t})))$. The objective function is first decreasing and then increasing, hence both $\underline{t}$ and $\bar{t}$ can be optimal, depending on parameter values.

For the comparative static results, we assume case 3. applies.

Hence, the politician chooses between the corner solutions $\underline{t}$ and $\bar{t}$. To understand this further, consider the following intuition. First, note that there is a threshold $\hat{v}_0$ that *maximizes* the probability of admission, i.e., solving

$$\max_{\hat{v}} \; [1 - F(\hat{v})]\, H(q(\hat{v}))$$

Again using Definition 1, this threshold is characterized by $R(q(\hat{v}_0)) = 0$.[6] This is a maximum because (strengthening the smoothness assumptions above so that F, H, and w_0 are twice continuously differentiable), the second-order condition holds. This requires that:

$$-f'(\hat{v})R(q(\hat{v})) - f(\hat{v})R'(q(\hat{v}))\big|_{\hat{v}=\hat{v}_0} < 0.$$

This holds because $R(q(\hat{v}_0)) = 0$ and $R'(q(\hat{v}_0)) = -h'(q(\hat{v}_0))q(\hat{v}_0) > 0$ by Lemma 1.

The politician's objective function is $1 - [1 - F(\hat{v}^*(t))]\, H(q(\hat{v}^*(t)))$, i.e., the politician wishes to *minimize* the probability of refugee admission. Hence, the politician wishes to induce an equilibrium application threshold that is far away from the threshold that maximizes admission ($\hat{v}_0$). Given that the equilibrium threshold $\hat{v}^*$ is monotonically increasing in t, this can either be the equilibrium threshold when choosing $\bar{t}$ or the equilibrium threshold when choosing $\underline{t}$.

On a substantive level, the politician faces a relatively stark choice: choose either the least or the most restrictive policy. It is possible to introduce a cost function for policy-making to soften the starkness of this choice. Suppose that when choosing t, the politician internalizes the costs of implementing this policy. It costs $K(t)$, with K being increasing and weakly convex, and satisfying $K(\underline{t}) = 0$. When $\bar{t}$ is sufficiently costly[7], the politician chooses between the least restrictive policy, $\bar{t}$, and the interior solution (denoted by t^I) that

[6] To make sure that this expression is consistent with other parameter restrictions, define q_0 as the solution to $R(q_0) = 0$. Then, we need that $q_0 \in \big(\underline{q}, 1\big)$, where $\underline{q} \equiv \frac{1-F(\overline{v})}{1-F(\underline{v})}$.

[7] A standard condition is $\lim_{t\to\bar{t}} K'(t) = \infty$.

solves

$$\max_{t\in\left[\underline{t},\bar{t}\right]} 1-\left[1-F(\hat{v}^*(t))\right]H(q(\hat{v}^*(t)))-K(t)$$

Figure E.3 illustrates.

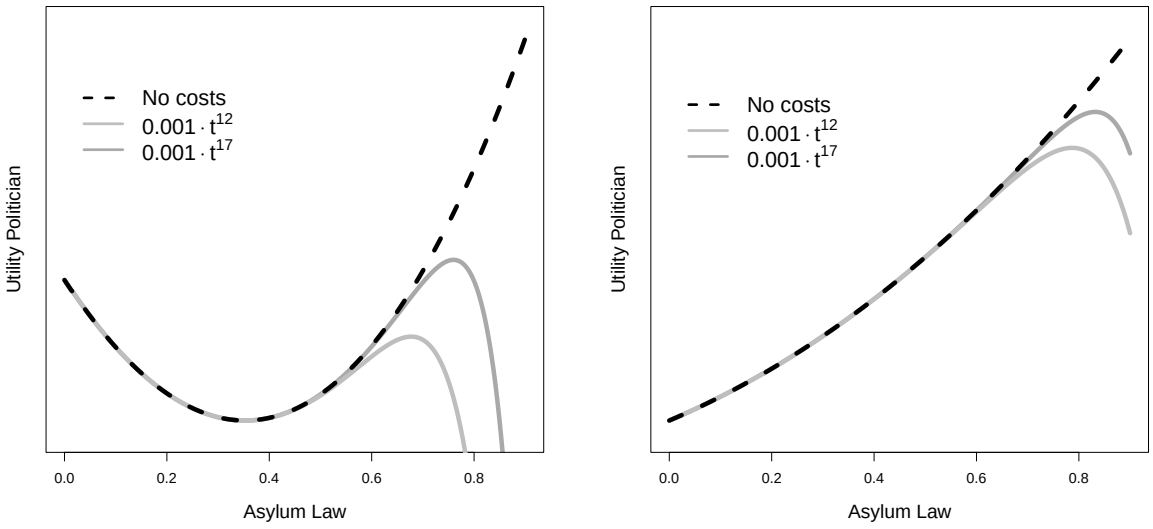

Figure E.3: Incorporating a cost function. Parameter values: $c = 0.5$, $\overline{v} = 5$, $H = \mathcal{B}(2,2)$, $F = \mathcal{N}(2,2)$, and $w_0(v) = 1 - \Phi\left(\frac{v}{5}\right)$.

Figure E.3 shows the politician's objective function with and without costs. By inspection, one can see that for the interior solution t^I to be optimal, it has to be the case that $\bar{t}$ is better than $\underline{t}$—otherwise, the costliness of t^I makes is unattractive as compared to the policy $\underline{t}$. Comparing the expected utility of the choices $\underline{t}$ and $\bar{t}$ is therefore a necessary step to determine whether the interior policy t^I can be optimal. Second, if even t^I is locally optimal, it can be globally sub-optimal because the policy $\underline{t}$ is still better.

F Variation in Asylum Policy

F.1 Agency Reputation

We assume that there is a parameter $\sigma \geq 0$ such that the distribution for which κ is drawn is $H_\sigma \equiv H(\kappa - \sigma)$ (see Benabou and Tirole, 2011). The support is then $[\sigma, 1+\sigma]$. We assume that t induces a "interior" threshold equilibrium $\hat{v}^*(t,\sigma) \in (\underline{v}, \overline{v})$ for all σ. An increase in σ corresponds to a stricter agency.

Consider first the effect of σ on the equilibrium application threshold $\hat{v}^*$ when t is held fixed. Recall the definition of the equilibrium threshold:

$$H_\sigma(q(\hat{v}^*)) - \frac{c}{w_1 - w_0(\hat{v}^*)} = 0. \tag{F.4}$$

Employ the Implicit Function Theorem to compute:

$$\frac{\partial \hat{v}^*}{\partial \sigma} = -\frac{-h_\sigma(q(\hat{v}))}{h_\sigma(q(\hat{v}))\frac{\partial q}{\partial \hat{v}} + \frac{c(-w_0')}{(w_1 - w_0(\hat{v}))^2}} > 0.$$

Thus, holding fixed the asylum policy t, a stricter agency increases the equilibrium threshold. This is the direct effect of a stricter agency.

The politician optimally chooses between the least restrictive policy ($\underline{t}$) and the most restrictive policy ($\bar{t}$). Consistent with the discussion in the previous section, we assume that either policy *could* be optimal, which requires that $R_\sigma(q(\hat{v}^*(\bar{t}))) > 0 > R_\sigma(q(\hat{v}^*(\underline{t})))$, where $R_\sigma(x) \equiv H_\sigma(x) - h_\sigma(x)x$.

The most restrictive policy $\bar{t}$ is optimal if:

$$\left[1 - F(\hat{v}^*(\underline{t}, \sigma))\right] H_\sigma(q(\hat{v}^*(\underline{t}, \sigma))) - \left[1 - F(\hat{v}^*(\bar{t}, \sigma))\right] H_\sigma(q(\hat{v}^*(\bar{t}, \sigma))) \geq 0.$$

Differentiate the left-hand side with respect to σ to obtain:

$$f(\hat{v}^*(\bar{t}))\frac{\partial \hat{v}^*(\bar{t})}{\partial \sigma} R_\sigma(q(\hat{v}^*(\bar{t}))) - f(\hat{v}^*(\underline{t}))\frac{\partial \hat{v}^*(\underline{t})}{\partial \sigma} R_\sigma(q(\hat{v}^*(\underline{t}))) +$$
$$(1 - F(\hat{v}^*(\bar{t})))h(q(\hat{v}^*(\bar{t}))) - (1 - F(\hat{v}^*(\underline{t})))h(q(\hat{v}^*(\underline{t})))$$

Recall that by assumption, $R_\sigma(q(\hat{v}^*(\bar{t}))) > 0 > R_\sigma(q(\hat{v}^*(\underline{t})))$. Hence, the first line is positive. The intuition is that an increase in σ increases the equilibrium threshold. This is more valuable when the (conditional) probability of admission is already high (which is more likely to be the case when the policy is restrictive). Otherwise, the increase in eligibility induces a relatively large increase in the probability of admission.

The second line is ambiguous in general. It represent the fact that conditional on an application (which occurs with probability $1 - F(\hat{v}^*)$), an increase in σ makes the agency more restrictive. We know that

$$1 - F(\hat{v}^*(\bar{t})) < 1 - F(\hat{v}^*(\underline{t})),$$

i.e., the probability of an application is lower when the policy is the most restrictive one ($\bar{t}$). However, it also depends on the quantities $h(q(\hat{v}^*(\bar{t})))$ and $h(q(\hat{v}^*(\underline{t})))$, which cannot be ordered in general. Specifically, their order depends on which posterior belief $q(\hat{v}^*(t))$ is closer to the value that represents the peak of h. Recall from Lemma 1 that R evaluated at the peak of h is negative. Hence, unless $q(\hat{v}^*(\underline{t}))$ is very small, it is the case that $h_\sigma(q(\hat{v}^*(\bar{t}))) < h_\sigma(q(\hat{v}^*(\underline{t})))$. This renders the second line above negative, inducing competing effects.

Summarizing, when σ increases, two things happen: the equilibrium threshold increases and the conditional probability of admission decreases. The former change always makes the policy $\bar{t}$ more attractive. By contrast, the latter effects depends on the location of $q(\hat{v}^*(t))$ relative to the peak of the density h. Under relatively mild conditions, $q(\hat{v}^*(\underline{t}))$ is closer to this peak than $q(\hat{v}^*(\bar{t}))$.

F.2 Politicians Focused on Numbers

One can write the politician's optimization problem as follows:

$$\max_{t\in[\underline{t},\bar{t}]} \gamma_N \underbrace{F(\hat{v}^*(t))}_{\text{No Application}} + \gamma_D \underbrace{(1-F(\hat{v}^*(t)))\left[1-H(q(\hat{v}^*(t)))\right]}_{\text{Deportation}}$$

Note that the objective function is continuously differentiable. Differentiating, we have:

$$f(\hat{v}^*(t))\frac{\partial \hat{v}^*}{\partial t}\left[\gamma_N - \gamma_D + \gamma_D R(q(\hat{v}^*(t)))\right]$$

The derivative is positive if

$$R(q(\hat{v}^*(t))) > \frac{\gamma_D - \gamma_N}{\gamma_D}.$$

Observe that the right-hand side of the preceding inequality can be positive or negative. If $\frac{\gamma_D-\gamma_N}{\gamma_D} > 0$, then Lemma 1 implies that the derivative of the objective function is positive if t is large, and negative if t is small. Hence, it is again the case that the politician chooses between $\underline{t}$ and $\bar{t}$. If $\frac{\gamma_D-\gamma_N}{\gamma_D} < 0$, then Lemma 1 implies that the derivative of the objective function is positive if t is large, but it could also be positive if t is very small.[8] For simplicity, we assume that $R(q(\hat{v}^*(\underline{t}))) < \frac{\gamma_D-\gamma_N}{\gamma_D}$. Under this assumption, it is again the case that the politician chooses between $\underline{t}$ and $\bar{t}$.

Following the reasoning in the main text, define:

$$\Delta^\gamma \equiv \gamma_N F(\hat{v}^*(\bar{t}))+\gamma_D(1-F(\hat{v}^*(\bar{t})))\left[1-H(q(\hat{v}^*(\bar{t})))\right]-\gamma_N F(\hat{v}^*(\underline{t}))-\gamma_D(1-F(\hat{v}^*(\underline{t})))\left[1-H(q(\hat{v}^*(\underline{t})))\right].$$

[8] In this case, the objective function is first increasing, then decreasing, and then increasing again.

We have:

$$\frac{\partial \Delta^{\gamma}}{\partial \gamma_N} = F(\hat{v}^*(\bar{t})) - F(\hat{v}^*(\underline{t})) > 0,$$

and

$$\frac{\partial \Delta}{\partial \gamma_D} = (1 - F(\hat{v}^*(\bar{t}))) \left[1 - H(q(\hat{v}^*(\bar{t})))\right] - (1 - F(\hat{v}^*(\underline{t}))) \left[1 - H(q(\hat{v}^*(\underline{t})))\right] < 0.$$

The inequality follows because $1 - F(\hat{v}^*(\bar{t})) < 1 - F(\hat{v}^*(\underline{t}))$ and $1 - H(q(\hat{v}^*(\bar{t}))) < 1 - H(q(\hat{v}^*(\underline{t})))$.

F.3 Allied with Business Interests

One can write the politician's optimization problem as follows:

$$\max_{t \in \left[\underline{t}, \bar{t}\right]} F(\hat{v}^*(t)) + (1 - F(\hat{v}^*(t))) \left[1 - H(q(\hat{v}^*(t)))\right] (\lambda + (1 - \lambda)\alpha).$$

Define $\phi \equiv \lambda + (1 - \lambda)\alpha$ and observe that $\phi \in (0, 1)$. Using this notation, the derivative of the objective function with respect to t is:

$$f(\hat{v}^*(t)) \frac{\partial \hat{v}^*}{\partial t} \left[1 - \phi + \phi R(q(\hat{v}^*(t)))\right]$$

This is positive if

$$R(q(\hat{v}^*(t))) > \frac{-(1 - \phi)}{\phi},$$

By Lemma 1, this inequality holds if t is relatively large. It can also hold if t is very small. Following the reasoning in section F.2 above, we assume that $R(q(\hat{v}^*(\underline{t}))) < \frac{-(1-\phi)}{\phi}$. Then, it is the case that the politician chooses between $\underline{t}$ and $\bar{t}$.

Define:

$$\Delta^{\phi} \equiv F(\hat{v}^*(\bar{t})) + (1 - F(\hat{v}^*(\bar{t}))) \left[1 - H(q(\hat{v}^*(\bar{t})))\right] \phi - F(\hat{v}^*(\underline{t})) - (1 - F(\hat{v}^*(\underline{t}))) \left[1 - H(q(\hat{v}^*(\underline{t})))\right] \phi.$$

We have:

$$\frac{\partial \Delta^{\phi}}{\partial \phi} = (1 - F(\hat{v}^*(\bar{t}))) \left[1 - H(q(\hat{v}^*(\bar{t})))\right] - (1 - F(\hat{v}^*(\underline{t}))) \left[1 - H(q(\hat{v}^*(\underline{t})))\right] < 0.$$

Since ϕ is increasing in α, the result follows.

F.4 Compassionate Politicians

One can write the politician's optimization problem as follows:

$$\max_{t\in\left[\underline{t},\bar{t}\right]} F(\hat{v}^*(t)) + (1 - F(\hat{v}^*(t)))\left[(1-\rho)\beta + \rho(1 - H(q(\hat{v}^*(t))))\right]$$

The derivative with respect to t is:

$$f(\hat{v}^*(t))\frac{\partial \hat{v}^*}{\partial t}\left[(1-\rho)(1-\beta) + \rho R(q(\hat{v}^*(t)))\right]$$

This is positive if

$$R(q(\hat{v}^*(t))) > \frac{(1-\rho)(1-\beta)}{\rho}.$$

By Lemma 1, this is the case if t is relatively large. By contrast, if t is small, the derivative is negative.[9] Hence, it is again the case that the politician chooses between $\underline{t}$ and $\bar{t}$.

Define:

$$\Delta^{\beta} \equiv F(\hat{v}^*(\bar{t})) + (1 - F(\hat{v}^*(\bar{t})))\left[(1-\rho)\beta + \rho(1 - H(q(\hat{v}^*(\bar{t}))))\right] - \left[F(\hat{v}^*(\underline{t})) + (1 - F(\hat{v}^*(\underline{t})))\left[(1-\rho)\beta + \rho(1 - H(q(\hat{v}^*(\underline{t}))))\right]\right].$$

We have:

$$\frac{\partial \Delta^{\beta}}{\partial \beta} = (1 - F(\hat{v}^*(\bar{t})))(1-\rho) - (1 - F(\hat{v}^*(\underline{t})))(1-\rho) < 0.$$

G Variations of the Baseline Model

G.1 A Pure Deterrence Equilibrium

Suppose that v and κ are private information as before, but $\kappa \in [0, \overline{\kappa}]$, with $\overline{\kappa} > 1$. Importantly, assume that parameter values are such that the type who is just eligible, $\overline{v}$ finds asylum not attractive, even when admitted for sure, i.e., $w_0(\overline{v}) > w_1 - c$. However, assume that $\lim_{v\to\infty} w_0(v) < w_1 - c$.[10] In this case, the equilibrium threshold satisfies $\hat{v}^* > \overline{v}$ and is given by:

$$H(1) = \frac{c}{w_1 - w_0(\hat{v}^*)}$$

[9] If $\frac{(1-\rho)(1-\beta)}{\rho}$ is very large (i.e., larger than $R(1)$), then the objective function is always decreasing, implying $t^* = \underline{t}$. As discussed in SM-E, we generally assume that both $\underline{t}$ and $\bar{t}$ could be optimal, which means that we assume $R(q(\hat{v}^*(\bar{t}))) > \frac{(1-\rho)(1-\beta)}{\rho} > R(q(\hat{v}^*(\underline{t})))$.

[10] This implies that there is a type who finds applying for asylum attractive when the probability of admission is 1.

As a consequence, the probability of successful admission is:

$$[1 - F(\hat{v}^*)]\, H(1).$$

The derivative with respect to t is:

$$-f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial t} H(1) < 0.$$

Thus, because the bureaucrat is *unresponsive* to the foreign national's strategy, only deterrence matters. Note that the larger support for the random variable κ is only used to get an interior probability of admission, $H(1) < 1$. Otherwise, the probability of admission is 1 which is empirically unrealistic.

G.2 Complete Information

Suppose that v and κ are common knowledge. The bureaucrat's preferences immediately imply that an eligible foreign national is admitted whereas a non-eligible foreign national is not admitted.

Hence, the equilibrium threshold is $v^* = \overline{v}$—complete information eliminates applications by ineligible types.

G.3 One Sided Uncertainty

G.3.1 Uncertainty about Threat

From the bureaucrat's decision rule to grant asylum, define $\hat{v}_B$ as the threshold level of violence that keeps the bureaucrat indifferent between granting asylum or not, i.e.,

$$\frac{1 - F(\overline{v})}{1 - F(\hat{v}_B)} = \kappa.$$

Note that because $\kappa \in (0, 1)$, $\hat{v}_B < \overline{v}$. If $\hat{v}_B \leq \underline{v}$, then $\hat{v}^* = \underline{v}$ and the bureaucrat admits with probability 1. The bureaucrat's belief that the citizen is eligible is high enough to justify granting asylum and citizen types below $\underline{v}$ do not find it worthwhile to apply even knowing that the bureaucrat grants asylum.

Finally, suppose that $\hat{v}_B > \underline{v}$. In this case, the bureaucrat must mix for applications to happen on the path of play. This is because if B would grant admission for sure, all foreign national types $v \geq \underline{v}$ will apply—but then B would like to deviate no not admitting the foreign national. The equilibrium strategies are characterized by the indifference conditions.

The application threshold is the one that keeps the bureaucrat indifferent, i.e., $\hat{v}^* = \hat{v}_B$. Moreover, B's strategy to admit must keep this type indifferent between applying or not, i.e., B admits with probability

$$p^* = \frac{c}{w_1 - w_0(\hat{v}^*)}.$$

Note that in this equilibrium, there is no deterrence effect because $\hat{v}^* = \hat{v}_B$ does not change when t changes. However, the bureaucrat's strategy does change with t. In particular, by inspection, p^* is increasing in t. As a result, the probability of a successful admission,

$$(1 - F(\hat{v}^*))\, p^*,$$

is *increasing* in t because p^* is increasing in t and $\hat{v}^*$ is independent of t. This seems empirically implausible relative to other model variations.

G.3.2 Uncertainty about Preferences

Suppose that v is common knowledge but $\kappa \in [0, 1]$ is private information. However, for almost all $\kappa \in (0, 1)$, each type v of the foreign national knows that the probability of admission is either 0 (if $v < \overline{v}$) or 1 (if $v \geq \overline{v}$). Thus, the analysis is the same as with complete information.

G.3.3 Uncertainty about Asylum Standard

Suppose that v is common knowledge but $\overline{v}$ is private information, distributed according to a CDF G, with support $[\overline{v}_L, \overline{v}_H]$. We search for an interior equilibrium in which $\hat{v}^* \in (\overline{v}_L, \overline{v}_H)$.

Since the bureaucrat can observe v and knows $\overline{v}$, he chooses to admit if and only if $v \geq \overline{v}$. From the foreign national's perspective (who is type v), the probability of admission (if applying) is thus $G(v)$ and applying is optimal if

$$G(v) \geq \frac{c}{w_1 - w_0(v)}.$$

The left-hand side is increasing in v while the right-hand side is decreasing in v. Thus, if there is a threshold $\hat{v}^*$ that solves the inequality with equality, it will be unique.

In such an equilibrium, the probability of successful admission is

$$(1 - F(\hat{v}^*))\, G(\hat{v}^*)$$

The derivative with respect to t is:

$$-f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial t}G(\hat{v}^*) + (1 - F(\hat{v}^*))\, g(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial t}$$

or:

$$\frac{\partial \hat{v}^*}{\partial t}\left[\underbrace{-f(\hat{v}^*)G(\hat{v}^*)}_{\text{deterrence}} + \underbrace{(1 - F(\hat{v}^*))\, g(\hat{v}^*)}_{\text{eligibility}}\right]$$

There is thus again an ambiguity here, but it has different roots: besides the familiar deterrence effect, an increase in t has a positive effect of the probability of admission because remaining applicants are more likely to be eligible ("eligibility"). Thus, while the foundations are somewhat different, the fact that the bureaucrat is *responsive* to the foreign applicants decision-rule implies that asylum policies do not always decrease the probability of successful admission.

G.4 Two Sided Uncertainty

The case when there is uncertainty about the threat of persecution (v) and preferences (κ) is solved in the main text.

G.4.1 Uncertainty about Threat and Asylum Standard

Now assume that the citizen does not know the exact admission standard $\overline{v}$. Specifically, $\overline{v} \sim G$. As in the main text, the bureaucrat chooses to admit if and only if:

$$q(\hat{v}) \geq \kappa$$

Re-arranging this yields:

$$\underbrace{F^{-1}\left[1 - \kappa(1 - F(\hat{v}))\right]}_{\equiv l(\hat{v})} \geq \overline{v}$$

Thus, the bureaucrat must be sufficiently lenient in terms of the admission standard. Note that $l(\hat{v})$ is increasing in $\hat{v}$. Thus, the equilibrium threshold $\hat{v}^*$ is given by the solution to:

$$G\left(l(\hat{v}^*)\right) = \frac{c}{w_1 - w_0(\hat{v}^*)}$$

Again, the left-hand side is increasing in $\hat{v}$ which guarantees a unique equilibrium threshold.

In this equilibrium, the probability of successful admission is

$$(1 - F(\hat{v}^*))\, G(l(\hat{v}^*))$$

The derivative with respect to t is:

$$-f(\hat{v}^*)\frac{\partial \hat{v}^*}{\partial t} G(l\hat{v}^*)) + (1 - F(\hat{v}^*))\, g(l(\hat{v}^*))\frac{\partial l}{\partial \hat{v}}\frac{\partial \hat{v}^*}{\partial t}$$

where

$$\frac{\partial l}{\partial \hat{v}} = [F^{-1}]' \left(1 - \kappa(1 - F(\hat{v}))\right) \kappa f(\hat{v}) = \frac{\kappa f(\hat{v})}{F'\left(F^{-1}(1 - \kappa(1 - F(\hat{v})))\right)} > 0$$

Re-arranging further yields:

$$\frac{\partial \hat{v}^*}{\partial t}\left[\underbrace{-f(\hat{v}^*)G(l(\hat{v}^*))}_{\text{deterrence}} + \underbrace{(1 - F(\hat{v}^*))\, g(l(\hat{v}^*))\frac{\partial l}{\partial \hat{v}}}_{\text{eligibility}}\right]$$

This is the same ambiguity as identified as above. Because the bureaucrat is *responsive* to the foreign applicants decision rule, changes in asylum law do not always decrease the probability of successful admission.

H Choosing Supply-oriented Policies

The incumbent chooses $t \in \left[\underline{t}, \overline{t}\right]$ and the asylum standard, $\overline{v}(t)$, is an increasing function of t. We interpret the policy t as consisting of executive actions and directives to the agency. Hence, we assume that t is observable to both the bureaucrat and the foreign national.

Turning to the equilibrium analysis, given the observed level of t and a conjectured application threshold $\hat{v}$, the bureaucrat chooses to admit the foreign national if

$$q\left(\overline{v}(t), \hat{v}\right) \geq \kappa,$$

where at an interior threshold, the posterior probability of eligibility is equal to $q\left(\overline{v}(t), \hat{v}\right) = \frac{1-F(\overline{v}(t))}{1-F(\hat{v})}$.

From the foreign national's perspective, the probability of admission is equal to $H\left(q\left(\overline{v}(t), \hat{v}\right)\right)$. As a consequence, the equilibrium threshold, $\hat{v}^*$, is determined by the following equality:

$$H\left(q\left(\overline{v}(t), \hat{v}^*\right)\right) = \frac{c}{w_1 - w_0(\hat{v}^*)}.$$

Examining this equilibrium condition yields that the equilibrium threshold $\hat{v}^*$ is increasing in t. To see that this is true, define the function $\Gamma(\hat{v}) \equiv H(q) - \frac{c}{w_1 - w_0(\hat{v})}$. Using the Implicit Function Theorem, we have:

$$\frac{\partial \hat{v}^*}{\partial t} = -\frac{h(q)\frac{\partial q}{\partial \overline{v}}\frac{\partial \overline{v}}{\partial t}}{\frac{\partial \Gamma}{\partial \hat{v}}} > 0.$$

The inequality follows because $\frac{\partial \Gamma}{\partial \hat{v}} > 0$ and $\frac{\partial q}{\partial \overline{v}} = -\frac{f(\overline{v})}{1-F(\hat{v})} < 0$.

In equilibrium, the probability of admission is:

$$\left[1 - F(\hat{v}^*(t))\right] H\left(q(\overline{v}(t), \hat{v}^*(t))\right).$$

As a consequence, the incumbent faces the following optimization problem:

$$\max_t \; 1 - \left[1 - F(\hat{v}^*(t))\right] H\left(q(\overline{v}(t), \hat{v}^*(t))\right) - K(t)$$

Differentiating, the first-order condition is given by:

$$\frac{\partial \hat{v}^*}{\partial t} f(\hat{v}^*) H(q(\overline{v}(t), \hat{v}^*(t))) - \left[1 - F(\hat{v}^*)\right] h(q(\overline{v}(t), \hat{v}^*(t))) \left(\frac{\partial q}{\partial \overline{v}}\frac{\partial \overline{v}}{\partial t} + \frac{\partial q}{\partial \hat{v}}\frac{\partial \hat{v}^*}{\partial t}\right) - K'(t) = 0$$

or, re-arranging:

$$\frac{\partial \hat{v}^*}{\partial t} f(\hat{v}^*) \left[H(q) - h(q)q\right] + \underbrace{\left[1 - F(\hat{v}^*)\right] h(q) \left(-\frac{\partial q}{\partial \overline{v}}\frac{\partial \overline{v}}{\partial t}\right)}_{\text{Direct Effect}} - K'(t) = 0,$$

where q is evaluated at $\overline{v}(t)$ and $\hat{v}^*(t)$.

Comparing this equation to the baseline analysis, the first-order condition is the same except for the term labeled Direct Effect. This term is *positive*, pushing the incumbent to choose a higher level of the instrument t. Substantively, this means that compared to the deterrence instruments that we focused on in the baseline analysis—border walls, employment restrictions, etc.—direct interventions into the bureaucracy seem to be more attractive.

However, analysis relied on two important assumptions: first, we assumed that the incumbent is able to shape the bureaucrat's admission standard ($\frac{\partial \overline{v}}{\partial t} > 0$). This might be easier in some institutional and political contexts than in others. For example, direct control over the bureaucracy is typically delegated to a minister of the interior or homeland security, and this actor's (partisan) alignment with the incumbent and overall competence will determine the size of $\frac{\partial \overline{v}}{\partial t}$. Moreover, the asylum standard is also partially codified to international law. Most countries ratified the 1951 Refugee Convention that broadly outlines when countries have to grant asylum.

Second, we abstracted away from an endogenous response by the bureaucrat to respond to direct interventions into the agency's mission. It is plausible that bureaucrats may dislike changes to the standard $\overline{v}$. In this case, bureaucrats may exert low effort (possibly in other policy areas) and/or they may exercise their outside option, seeking employment in the private sector. This could be costly to the politician as bureaucracies tasked to review asylum applications are often also managing other types of migration including high-skilled labor migration. When bureaucrats leave, these bureaucracies could become less effective in managing migration that might is desirable to refugee-skeptic politicians. Due to our focus on endogenous application decisions, incorporating such an option is outside of the scope of our paper, but it is likely that it will limit the attractiveness of such direct interventions in the asylum process.

References

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