Public Goods, Social Pressure, and the Choice Between Privacy and Publicity

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TECHNICAL APPENDIX

This technical appendix includes proofs of comparative statics results; the proof of the claim made in the text that if $\beta' > \beta$, then $H^{\delta}(\delta; \beta')$ first-order stochastic dominates $H^{\delta}(\delta; \beta)$; computational results, and detailed analysis of the *interim* preferences over policies.

A. *Comparative Statics*

The functions $g^P(\theta_i)$ and $g^O(\theta_i)$ depend on θ_i, β, γ, and p; they are independent of α.

Comparative statics of $g^P(\theta_i)$. Since $g^P(\theta_i) = g_{min} + \theta_i$ and $g_{min} = \gamma - p$, it is obvious that $g^P(\theta_i)$ is an increasing function of θ_i, and that the function $g^P(\theta_i)$ shifts upward with an increase in γ, and shifts downward with an increase in p. Finally, the function $g^P(\theta_i)$ is always independent of β. Since the utility function is quasilinear, $g^P(\theta_i)$ is independent of income, I.

Comparative statics of $g^O(\theta_i)$. Since $g^O(0) = g^P(0)$, $g^O(0)$ behaves as described above with respect to the parameters. Thus, in what follows, we will consider only $\theta_i > 0$. Let $RHS \equiv g_{min} + \theta_i + \beta(1 - \exp[-(g^O(\theta_i) - g_{min})/\beta])$. For any parameter m, the implicit function in Proposition 1(i) can be differentiated to obtain $\partial g^O/\partial m = (\partial RHS/\partial m) + (\partial RHS/\partial g^O)(\partial g^O/\partial m)$. Collecting terms implies that $\partial g^O/\partial m = (\partial RHS/\partial m)/(1 - \exp[-(g^O(\theta_i) - g_{min})/\beta])$. Since the denominator is positive, the sign of $\partial g^O/\partial m$ is the same as the sign of $(\partial RHS/\partial m)$. To save on notation, it will be useful to define the function $z^O(\theta_i) \equiv (g^O(\theta_i) - g_{min})/\beta$, and to use z to denote an arbitrary (positive) value.

Since $\partial RHS/\partial \theta_i = 1$, it follows that $g^{O\prime}(\theta_i) = 1/(1 - \exp[-z^O(\theta_i)]) > 0$; that is, the equilibrium action under a policy of publicity (openness) is increasing in type.

Since the parameters γ and p appear only in g_{min}, and $(\partial RHS/\partial g_{min}) = (1 - \exp[-z^O(\theta_i)])$, it is straightforward to show that $\partial g^O(\theta_i)/\partial g_{min} = 1$. Therefore $\partial g^O(\theta_i)/\partial \gamma = 1$ and $\partial g^O(\theta_i)/\partial p = -1$.

Differentiating and collecting terms yields $\partial g^O(\theta_i)/\partial\beta = (1 - \exp[-z^O(\theta_i)] - z^O(\theta_i)\exp[-z^O(\theta_i)])/(1 - \exp[-z^O(\theta_i)])$. The function $1 - \exp[-z] - z\exp[-z]$ is easily shown to be positive for $z > 0$; thus, $\partial g^O(\theta_i)/\partial\beta > 0$.

Comparative statics of the action differential $g^O(\theta_i) - g^P(\theta_i)$.

Let $\delta(\theta_i; \beta) \equiv g^O(\theta_i) - g^P(\theta_i) = \beta(1 - \exp[-(z^O(\theta_i)])$ denote the action differential as a function of θ_i. This difference is increasing in type; that is, $\delta'(\theta_i; \beta) = \exp[-(z^O(\theta_i)]g^{O\prime}(\theta_i) > 0$. Thus, the highest type inflates his action the most. We have already seen that $\partial g^O(\theta_i)/\partial g_{min} = 1$; this yields the immediate result that $\partial z^O(\theta_i)/\partial g_{min} = (\partial(g^O(\theta_i) - g_{min})/\partial g_{min})/\beta = 0$. This implies that the action differential $\delta(\theta_i; \beta)$ is independent of the parameters γ and p. Since $g^P(\theta_i)$ is independent of β, then $\partial\delta(\theta_i; \beta)/\partial\beta = \partial g^O(\theta_i)/\partial\beta > 0$.

B. *Proof of Claim that if $\beta' > \beta$, then $H^\delta(\delta; \beta')$ First-order Stochastic Dominates $H^\delta(\delta; \beta)$*

Recall that $\delta(\theta; \beta) = \beta(1 - \exp[-(g^O(\theta) - g_{min})/\beta])$, and let $\bar{t}(\beta) \equiv \delta(\bar{\theta}; \beta)$ for any given β; since $\delta(\bar{\theta}; \beta)$ is increasing in β, so is $\bar{t}(\beta)$. Therefore the support of $H^\delta(t; \beta)$ induced by $H(\theta)$ and $\delta(\theta; \beta)$ is $[0, \bar{t}(\beta)]$. Then, fixing β:

$$H^\delta(t; \beta) \equiv \Pr\{\delta(\theta_i; \beta) \leq t\} = \Pr\{\theta \leq (g^O)^{-1}(\beta\ln(\beta/(\beta - t) + g_{min})\} = H((g^O)^{-1}(\beta\ln(\beta/(\beta - t) + g_{min})).$$

Thus, $\partial H^\delta(t; \beta)/\partial\beta = h(t)[((g^O)^{-1}(t))'(\ln(\beta/(\beta - t) + g_{min})][\ln\beta + 1 - \ln(\beta - t) - \beta/(\beta - t)]$, so that $\partial H^\delta(t; \beta)/\partial\beta < 0$ if and only if $\ln\beta + 1 - \ln(\beta - t) - \beta/(\beta - t) < 0$. Note that $H^\delta(0; \beta) = 0$ and $H^\delta(\bar{t}(\beta); \beta) = \Pr\{\delta(\bar{\theta}; \beta) \leq \bar{t}(\beta)\} = 1$ for any given value of β, so we are interested in $\partial H^\delta(t; \beta)/\partial\beta$ for $t \in (0, \bar{t}(\beta))$.[1]

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[1] Note that increasing β increases the right end-point, so this means we must extend $H^\delta(t; \beta)$ to be 1 on the interval $[\bar{t}(\beta), \bar{t}(\beta')]$ when we compare it to the distribution $H^\delta(t; \beta')$, so that they are on the same support.

Note that $\ln\beta + 1 - \ln(\beta - t) - \beta/(\beta - t) < 0$ if and only if $\ln(\beta/(\beta - t)) < 1 - \beta/(\beta - t)$ for t in this open interval. Note that $t < \beta$ since $(1 - \exp[-(g^O(\theta) - g_{min})/\beta]) < 1$. Thus, we may restate the problem as: is $\ln x < x - 1$ for $x \geq 1$? In fact, the line $x - 1$ is tangent to $\ln x$ at $x = 1$, so $\ln x < x - 1$ for $x > 1$ and the two functions are equal at $x = 1$. Therefore, $\partial H^\delta(t; \beta)/\partial\beta < 0$ for $t \in (0, \bar{t}(\beta))$, so that if $\beta' > \beta$, then $H^\delta(t; \beta') < H^\delta(t; \beta)$ for $t \in (0, \bar{t}(\beta))$; that is, $H^\delta(t; \beta')$ FOSD $H^\delta(t; \beta)$.

C. *Computational Results on the Effect of β on α^{PO}*

Table 1 below displays computational results for four density functions: 1) the Uniform density, with $h(\theta) = 1$; 2) the Left Triangle density, with $h(\theta) = 2 - 2\theta$; 3) the Middle Triangle density, with $h(\theta) = 4\theta$ when $\theta \leq ½$, and $h(\theta) = 4 - 4\theta$ when $\theta > ½$; and 4) the Right Triangle density, with $h(\theta) = 2\theta$. Notice that the Uniform density is a mean-preserving spread of the Middle Triangle density.

TABLE 1 – EFFECT OF β ON $E(\delta^2)/E(\delta)$ FOR ALTERNATIVE DENSITIES OF θ

density↓ β→	0.5	1.0	2.0
Uniform	0.40859	0.69264	1.14159
Left Triangle	0.36996	0.61131	0.96546
Middle Triangle	0.41363	0.69296	1.10361
Right Triangle	0.43900	0.75341	1.22101

Table 1 suggests that, for a given density, increasing β increases α^{PO}, so that $\Phi^{PO}(\alpha^{PO})$ shifts up, associating more values of α with privacy than were associated with the lower value of β. Also, note that, holding β constant, the computed values of $E(\delta^2)/E(\delta)$ increase as we move from the Left to the Middle to the Right Triangle distributions. Thus, Table 1 is consistent with the conjecture that a shift in H to a new distribution H', where H' first-order stochastic dominates H, results in higher values of α^{PO} as well (i.e., upward shifts of Φ^{PO}, too).

D. *Material on Interim Preferences over Policies P and O*

This material pertains to Proposition 4. Two results follow from equation (5). First, comparing with equation (3), we see that $E(\Gamma^{PO}(\theta, \alpha)) = \Phi^{PO}(\alpha)$, so that when evaluated at $\alpha = \alpha^{PO}$, $E(\Gamma^{PO}(\theta, \alpha^{PO}), \alpha^{PO}) = 0$. Since differentiating $\Gamma^{PO}(\theta_i, \alpha)$ shows that it is a monotonically decreasing function of θ_i for each value of α, this implies that $\Gamma^{PO}(0, \alpha^{PO}) > 0$ and $\Gamma^{PO}(\bar{\theta}, \alpha^{PO}) < 0$, so that on an *interim* basis, if $\alpha = \alpha^{PO}$, then lower types will (*interim*) prefer *P* to *O* and higher types will (*interim*) prefer *O* to *P*. Define two other values of α, namely $\underline{\alpha}^{PO} \geq 0$ such that $\Gamma^{PO}(\bar{\theta}, \underline{\alpha}^{PO}) = 0$ when $\mu \geq \bar{\theta} - (\delta(\bar{\theta}; \beta))^2/2\beta$ (that is, the value of α such that all types will *interim* prefer *P* to *O* for any $\alpha \leq \underline{\alpha}^{PO}$; note that if $\mu < \bar{\theta} - (\delta(\bar{\theta}; \beta))^2/2\beta$ then no such non-negative value exists), and $\bar{\alpha}^{PO}$ such that $\Gamma^{PO}(0, \bar{\alpha}^{PO}) = 0$ (that is, the value of α such that all types will *interim* prefer *O* to *P* for any $\alpha \geq \bar{\alpha}^{PO}$). By construction, $\underline{\alpha}^{PO} < \alpha^{PO} < \bar{\alpha}^{PO}$. Furthermore, when $\alpha \leq \underline{\alpha}^{PO}$, the *ex ante* social preference for *P* over *O* is therefore reinforced by *interim* unanimity for *P* over *O*, while when $\alpha \geq \bar{\alpha}^{PO}$, the *ex ante* social preference for *O* over *P* is reinforced by *interim* unanimity for *O* over *P*. However, when α lies between $\underline{\alpha}^{PO}$ and $\bar{\alpha}^{PO}$, lower types prefer *P* to *O* while higher types prefer *O* to *P*, so that for all α in the interval $(\underline{\alpha}^{PO}, \bar{\alpha}^{PO})$ there is disagreement about the preferred policy at the *interim* stage, and there will not be unanimous reinforcement of any *ex ante* policy choice.

E. *Conflict Between Ex Ante and Interim Preferences*

To see the possibility of conflict between *ex ante* and *interim* preferences in a case wherein *O* is *ex ante* preferred but *P* is *interim* preferred by the median type, let $\theta^{PO}(\alpha)$ be the marginal type such that $\Gamma^{PO}(\theta^{PO}(\alpha), \alpha) = 0$, for $\alpha \geq 0$. Note that $\theta^{PO}(\alpha)$ is decreasing in α, and that $\theta^{PO}(0) > \mu$, the mean (and median) type if H is symmetric. Thus, there is an α^* such that $\theta^{PO}(\alpha^*) = \mu$. It is straightforward to show that $\alpha^* \in (\alpha^{PO}, \bar{\alpha}^{PO})$, so that for any value of α in the interval (α^{PO}, α^*), the *ex ante* social payoff-maximizing choice of policy is O, but on an *interim* basis, the median type would prefer P to O.

To see how the reverse conflict can occur, assume that $\alpha = 0$. Since $\alpha^{PO} > 0$, this means that society *ex ante* prefers P to O. Since $\theta^{PO}(0) > \mu$, then any density h whose median is to the right of $\theta^{PO}(0)$ implies that the median type prefers O to P. Signaling type to gain esteem is sufficiently valuable to the median type (but is irrelevant in the case of the *ex ante* decision) for those types to *interim* prefer O to P. This conflict between the *ex ante* and *interim* settings is summarized below.

REMARK 2. Conflicting *Ex Ante* and *Interim* Preferences over Policies.

h symmetric: There are values of α such that while a policy of publicity is *ex ante* socially preferred, the alternative policy of privacy is *interim*-preferred by the median type.

h sufficiently right-weighted: There are values of α such that while a policy of privacy is *ex ante* socially preferred, a policy of publicity is *interim*-preferred by the median type.

PROOF OF PROPOSITION 6(a):

Proposition 6(a) provides the following ordering of the α-values at which there is *ex ante* indifference between any two policies: $0 < \alpha^{WO} < \alpha^{PO} < \alpha^{PW}$. To see that $0 < \alpha^{WO} < \alpha^{PO}$, let:

$$\eta(t) \equiv \int_0^t (\delta(\theta;\beta))^2 h(\theta)d\theta / \int_0^t \delta(\theta;\beta)h(\theta)d\theta.$$

Then $\alpha^{WO} = \eta(\theta^W)$, which is clearly positive, while $\alpha^{PO} = \eta(\bar{\theta})$. It is straightforward to show that sgn $\{\eta'(t)\}$ = sgn $\{\delta(t;\beta)\int_0^t \delta(\theta;\beta)h(\theta)d\theta - \int_0^t (\delta(\theta;\beta))^2 h(\theta)d\theta\} > 0$ for all $t > 0$. Therefore, it follows that $\alpha^{PO} = \eta(\bar{\theta}) > \eta(\theta^W) = \alpha^{WO}$.

To see that $\alpha^{PO} < \alpha^{PW}$, let

$$v(s) \equiv \int_s^{\bar{\theta}} (\delta(\theta;\beta))^2 h(\theta)d\theta / \int_s^{\bar{\theta}} \delta(\theta;\beta)h(\theta)d\theta.$$

Then $\alpha^{PO} = v(0)$, while $\alpha^{PW} = v(\theta^W)$. It is straightforward to show that sgn $\{v'(s)\}$ = sgn $\{\int_s^{\bar{\theta}} (\delta(\theta;\beta))^2 h(\theta)d\theta - \delta(s;\beta)\int_s^{\bar{\theta}} \delta(\theta;\beta)h(\theta)d\theta\} > 0$ for all $s < \bar{\theta}$. Therefore, it follows that $\alpha^{PO} = v(0) < v(\theta^W) = \alpha^{PW}$.

F. *Material on Interim Preferences over Policies P, O and W*

Throughout this discussion we assume that $\theta^W \in (0, \bar{\theta})$; if not, then the policy W coincides with either O or P and there are not three distinct policies to be compared.

Recall that the conditional mean is $\mu(\theta^W) = \int_{\mathcal{J}} th(t)dt/H(\theta^W)$, where $\mathcal{J} = [0, \theta^W]$. Furthermore, let $E(g^O - g^P)$ denote the expected distortion under a policy of O versus a policy of P, and similarly for $E(g^W - g^P)$ and $E(g^O - g^W)$. Then:

(a) $E(g^O - g^P) = \int \delta(t;\beta)h(t)dt$, where the integral is taken over $[0, \bar{\theta}]$;

(b) $E(g^W - g^P) = \int_{\mathcal{JC}} \delta(t;\beta)h(t)dt$, where the integral is taken over $\mathcal{JC} = [\theta^W, \bar{\theta}]$;

(c) $E(g^O - g^W) = \int_{\mathcal{J}} \delta(t;\beta)h(t)dt$, where the integral is taken over $\mathcal{J} = [0, \theta^W]$.

The integral in part (a) reflects the fact that every type (except the lowest) distorts her action under a policy of O while no type distorts her action under a policy of P. The integral in part (b) reflects the fact that only those types in $\mathcal{JC} = [\theta^W, \bar{\theta}]$ distort their actions. Finally, the integral in part (c) reflects the fact that only those types in $\mathcal{J} = [0, \theta^W]$ do not distort their actions.

These definitions allow us to summarize the type-specific value of one policy over another. Let $\Gamma^{PO}(\theta_i, \alpha) \equiv V_i(g^P(\theta_i), \theta_i, \mu, G^P) - V_i(g^O(\theta_i), \theta_i, \theta_i, G^O)$ denote the type-specific value of a policy of privacy over a policy of publicity. Then:

$\Gamma^{PO}(\theta_i, \alpha) = \beta(\mu - \theta_i) + (\delta(\theta_i; \beta))^2/2 - \alpha ME(g^O - g^P)$.

Similarly, let $\Gamma^{PW}(\theta_i, \alpha) \equiv V_i(g^P(\theta_i), \theta_i, \mu, G^P) - V_i(g^W(\theta_i), \theta_i, \tilde{\theta}_i, G^W)$ denote the type-specific value of a policy of privacy over a policy of waiver. Then:

$$\Gamma^{PW}(\theta_i, \alpha) = \beta(\mu - \mu(\theta^W)) - \alpha ME(g^W - g^P) \text{ for } \theta_i < \theta^W\text{; and}$$

$$= \beta(\mu - \theta_i) + (\delta(\theta_i; \beta))^2/2 - \alpha ME(g^W - g^P)\text{, for } \theta_i \geq \theta^W.$$

Finally, let $\Gamma^{WO}(\theta_i, \alpha) \equiv V_i(g^W(\theta_i), \theta_i, \tilde{\theta}_i, G^W) - V_i(g^O(\theta_i), \theta_i, \theta_i, G^O)$ denote the type-specific value of a policy of waiver over a policy of publicity. Then:

$$\Gamma^{WO}(\theta_i, \alpha) = \beta(\mu(\theta^W) - \theta_i) + (\delta(\theta_i; \beta))^2/2 - \alpha ME(g^O - g^W)\text{, for } \theta_i < \theta^W\text{; and}$$

$$= - \alpha ME(g^O - g^W)\text{, for } \theta_i \geq \theta^W\text{, for } \theta_i \geq \theta^W.$$

The functions $\Gamma^{PO}(\theta_i, \alpha)$, $\Gamma^{PW}(\theta_i, \alpha)$, and $\Gamma^{WO}(\theta_i, \alpha)$ are continuous in both arguments and strictly decreasing in α; the latter two functions have portions that are constant with respect to θ_i, but they are strictly decreasing in θ_i over the non-constant regions.

We first determine conditions under which there will be non-trivial sets of types who prefer each policy in a binary comparison. In particular, let $\bar{\alpha}^{IJ}$, for $IJ = PO, PW, WO$, be the value of α for which $\theta_i = 0$ is indifferent between policy I and policy J (for this and any higher value of α, policy J will be preferred to policy I for all types). Then $\bar{\alpha}^{IJ}$ is defined uniquely by $\Gamma^{IJ}(0, \bar{\alpha}^{IJ}) = 0$, yielding:

$$\bar{\alpha}^{PO} = \beta\mu/(ME(g^O - g^P));$$

$$\bar{\alpha}^{PW} = \beta(\mu - \mu(\theta^W))/(ME(g^W - g^P));$$

$$\bar{\alpha}^{WO} = \beta\mu(\theta^W)/(ME(g^O - g^W)).$$

Provided that $\alpha < \min\{\bar{\alpha}^{IJ}\}$, there will be at least some (low) types who prefer policy I to policy J in a binary comparison. In order to have at least some (high) types who prefer policy J to policy I in a binary comparison, it must be that $\Gamma^{IJ}(\bar{\theta}, \alpha) < 0$; our hypothesis that $\theta^W < \bar{\theta}$ is enough to guarantee that this holds for all $\alpha > 0$.

CLAIM 1: If $0 < \alpha < \min \{\bar{\alpha}^{IJ}\}$, then:

(i) there exists a unique $\theta^{IJ}(\alpha) \in (0, \bar{\theta})$ such that $\Gamma^{IJ}(\theta^{IJ}(\alpha), \alpha) = 0$;

(ii) moreover, $\theta^{WO}(\alpha) < \theta^{W} < \theta^{PW}(\alpha)$ and $\theta^{WO}(\alpha) < \theta^{PO}(\alpha) < \theta^{PW}(\alpha)$.

PROOF OF CLAIM 1:

By construction, if $0 < \alpha < \min \{\bar{\alpha}^{IJ}\}$, then $\Gamma^{IJ}(0, \alpha) > 0$ and $\Gamma^{IJ}(\bar{\theta}, \alpha) < 0$, for all IJ. First consider $IJ = PO$. The function $\Gamma^{PO}(\theta, \alpha)$ is continuous and strictly decreasing in θ; therefore there exists a unique value $\theta^{IJ}(\alpha) \in (0, \bar{\theta})$ such that $\Gamma^{IJ}(\theta^{IJ}(\alpha), \alpha) = 0$. Next consider $IJ = PW$. The function $\Gamma^{PW}(\theta, \alpha)$ is constant at a positive level for $\theta_i < \theta^W$, and $\Gamma^{PW}(\theta, \alpha) = \Gamma^{PO}(\theta, \alpha) + E(g^O - g^W)$ for $\theta_i \geq \theta^W$. Since this is a continuous and strictly decreasing function, there is a unique value $\theta^{PW}(\alpha) \in (\theta^W, \bar{\theta})$ such that $\Gamma^{PW}(\theta^{PW}(\alpha), \alpha) = 0$. Moreover, this implies that $\Gamma^{PO}(\theta^{PW}(\alpha), \alpha) = - E(g^O - g^W) < 0$, so $\theta^{PO}(\alpha) < \theta^{PW}(\alpha)$. Finally, consider $IJ = WO$. The function $\Gamma^{WO}(\theta, \alpha)$ is constant at a negative level for $\theta_i \geq \theta^W$; it is a continuous and strictly decreasing function for $\theta_i < \theta^W$. Therefore, there is a unique value $\theta^{WO}(\alpha) \in (0, \theta^W)$ such that $\Gamma^{WO}(\theta^{WO}(\alpha), \alpha) = 0$. Moreover, evaluating Γ^{PO} at this level yields $\Gamma^{PO}(\theta^{WO}(\alpha), \alpha) = \Gamma^{PW}(0, \alpha) > 0$, so $\theta^{WO}(\alpha) < \theta^{PO}(\alpha)$.

Note that for the special case of $\alpha = 0$ the claim above still holds with the following minor modifications. Now the function $\Gamma^{WO}(\theta, \alpha)$ starts out positive and declines to zero at θ^W; moreover, it remains constant at zero for $\theta_i \geq \theta^W$. Thus, the equation $\Gamma^{WO}(\theta^{WO}(\alpha), \alpha) = 0$ is satisfied by all members of the set $[\theta^W, \bar{\theta}]$; we take the left-most element as $\theta^{WO}(\alpha)$, and thus $\theta^{WO}(\alpha) = \theta^W$. The rest of the claim continues to hold as stated.

Given the ordering $\theta^{WO}(\alpha) < \theta^{PO}(\alpha) < \theta^{PW}(\alpha)$ derived above, it is straightforward to show that no type finds W to be the best policy. The preference orderings are as follows and are illustrated in Figure 3 in the main text:

For $\theta \in [0, \theta^{WO}(\alpha))$	$P \succ W \succ O$	(with $W \sim O$ at $\theta^{WO}(\alpha)$)
For $\theta \in (\theta^{WO}(\alpha), \theta^{PO}(\alpha))$	$P \succ O \succ W$	(with $P \sim O \succ W$ at $\theta^{PO}(\alpha)$)
For $\theta \in (\theta^{PO}(\alpha), \theta^{PW}(\alpha))$	$O \succ P \succ W$	($O \succ P \sim W$ at $\theta^{PW}(\alpha)$)
For $\theta \in (\theta^{PW}(\alpha), \bar{\theta}]$	$O \succ W \succ P$	

Now we relax the assumption that $\alpha < \min \{\bar{\alpha}^{IJ}\}$, $IJ = PO, PW, WO$. It is straightforward to show that $\bar{\alpha}^{PO}$ must lie between $\bar{\alpha}^{PW}$ and $\bar{\alpha}^{WO}$, but we are unable to determine in general whether $\bar{\alpha}^{PW} < \bar{\alpha}^{WO}$ or $\bar{\alpha}^{WO} < \bar{\alpha}^{PW}$ (however, if $\bar{\alpha}^{WO} < \bar{\alpha}^{PW}$, then W can never be *interim*-optimal for any type because $\Gamma^{WO}(0, \alpha) < 0$, implying that O is preferred to W for all types).

As claimed in the text, there are conditions under which some types will most-prefer a policy of W; these conditions are now described. First, it can be shown that $\bar{\alpha}^{PW} < \bar{\alpha}^{WO}$ for the case in which θ is distributed uniformly on $[0, \bar{\theta}]$. For $\bar{\alpha}^{PW} < \alpha < \bar{\alpha}^{WO}$, all types strictly prefer P to W, while those in $[0, \theta^{WO}(\alpha))$ also strictly prefer W to O. So it is possible for some types to *interim*-prefer W to both P and O (however, this set is limited by the fact that $\theta^{WO}(\alpha) < \theta^{W}$ still holds). Notice that the types who *interim*-prefer W to both P and O will exercise privacy under a policy of W (since they are $< \theta^{W}$), but hope to gain both from higher types who also choose privacy and from the disclosures and distortions of even higher types.