

Why is the policy-maker actually doing everything right when now and then external observers accuse her of getting things wrong?

Danny Quah, Apr 2020

Suppose that if some random event V occurs, the cost is X . With 20/20 hindsight the policy-maker "gets it right" when she prevents V from happening and keeps from incurring X .

In reality, however, V is random and takes place with probability p , where the policy-maker can expend resources C to reduce p , and the cost function $C(p)$ has $C' < 0$ and $C'' > 0$. In words, it gets more and more costly to lower the probability of being wrong and letting V occur. Suppose that event V can indeed be prevented but at prohibitive marginal cost, i.e., $C' \rightarrow -\infty$ as $p \rightarrow 0$.

The policy-maker is optimising (behaving efficiently) when she minimises expected cost, i.e., she solves $\min_p C(p) + pX$, or sets p such that $C' = -X$. In words, she is at the efficient frontier when the incremental cost devoted to preventing V just equals the incremental expected damage that V will do. When the optimal p is bounded away from zero, the policy-maker never gets it right all the time.

If optimal p is small but positive then most of the time it will seem like the policy-maker got everything right. But now and then, even when the policy-maker is at the efficient frontier, a random V event will occur and to the external observer it will seem like the policy-maker had let her guard down. Actually, she hadn't.

Under the prohibitive cost assumption, optimal p is interior, i.e., optimal p will be (relatively) small but remain positive. In this case if the policy-maker did set p to 0 and prevented V from ever occurring, she is actually not optimising. Under these circumstances, if she boasted of always getting everything right, actually she would be just playing to the gallery and not doing her job. It is only when the marginal cost is bounded from above when p goes to zero and X is sufficiently large, that optimal policy sets $p=0$.

In everyday life? If you never miss a flight, then you are wasting too much time waiting around in airports.