Volume LXII No. 2
December 2025

p-ISSN 1655-1516
e-ISSN 2984-8156

The Philippine Review of Economics

ARTICLES IN THIS ISSUE

BOOK REVIEW

IN MEMORIAM

A joint publication of the
University of the Philippines
School of Economics
and the **Philippine Economic Society**

The Philippine Review of Economics

A joint publication of the UP School of Economics (UPSE)
and the Philippine Economic Society (PES)

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Publication Information: The PRE (p-ISSN 1655-1516; e-ISSN 2984-8156) is a peer-reviewed journal published every June and December of each year. A searchable database of published articles and their abstracts is available at the PRE website (http://pre.econ.upd.edu.ph).

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Acknowledgments: The PRE gratefully acknowledges the financial support towards its publication provided by the Philippine Center for Economic Development (PCED). The *Review* nonetheless follows an independent editorial policy. The articles published reflect solely the editorial judgement of the editors and the views of their respective authors.

The Philippine Review of Economics

Vol. LXII No. 2
December 2025

p-ISSN 1655-1516
e-ISSN 2984-8156
DOI: 10.37907/ERP5202D

The Philippine Review of Economics
62(2):1-15. DOI:10.37907/1ERP5202D

Income inequality, weak institutions, and the emergence of reform-abortive corruption

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We propose a statutory/norm approach for understanding the emergence of rent-seeking corruption using a 2×2 collective action game. In the status quo, self-interested players converge on a market-failure equilibrium, which is inferior to the cooperative outcome. The government attempts to shift behavior toward cooperation by enacting statutes that prohibit defection through penalties and enforcement mechanisms. The effectiveness of these interventions depends on sufficiently high expected penalties and low implementation costs, which are conditions characteristic of upright governance. When government is weak, however—particularly when it is vulnerable to bribes—statutes are undermined. Income inequality magnifies this vulnerability: elites benefit from the status quo and possess resources to finance bribes that dilute, reshape, or block reforms, while the poorer majority faces prohibitive monetary and electoral lobbying costs. This dynamic produces an Olsonian "tyranny of the minority," in which a small but affluent group prevails over the numerically larger majority. As a result, the combination of weak institutions and high inequality impedes reforms that would otherwise enhance utilitarian welfare. Our analysis underscores how governance quality and income distribution jointly shape the effectiveness of statutory interventions, offering insight into why national reform initiatives often fail in contexts characterized by weak rule of law.

JEL classification: C72, D72
Keywords: income inequality, initial attractor, target attractor, weak institutions, collective action problems, statutes, Olson tyranny of the minority, reform initiatives

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1. Introduction

Collective action problems arise when members of society are expected to contribute to the creation of social assets that generate broad, non-excludable benefits. However, some individuals may choose to free ride, refraining from contributing while still enjoying the resulting public good (e.g., a bridge or a water-impounding structure such as a dam). Collective action initiatives can succeed, as in the case of the Three Gorges Dam in China, or fail, as illustrated by the stalled Kaliwa River Dam project in the Philippines (Chavez [2024]; Flores [2025]). In such settings, free riders gain by accessing the public good without bearing its cost, while contributors are left worse off, having shouldered the burden that others avoided.

The Government is arguably the most important human institution for addressing collective action problems in large polities (Hobbes 1996[1651]; Rousseau 1941[1762]; Smith 1937[1776]; Nozick [1973]). Samuelson [1955] demonstrated that when public goods rely on private voluntary contributions from a large number of self-interested individuals, the result is a market failure, specifically, the under-provision of public goods. Private agents contribute only up to the value of their own utility from the good, disregarding the benefits received by others. A Benevolent Central Planner, fully informed of individual utilities, could in principle correct this failure by levying taxes proportional to the utility each member derives from the public good and providing the efficient level of the good. Mancur Olson [1965] advanced this argument by asserting that in large polities composed of self-interested individuals, voluntary private provision may lead not merely to under-provision but to zero provision of public goods. Because individuals can consume the public good regardless of their contribution, each has an incentive to free ride, resulting in complete non-provision failure (the *zero public goods provision hypothesis*). In both cases, the outcome is a *public goods* failure rooted in the collective action problem.

Governments communicate their intentions to their constituents through the promulgation of statutes and norms, which articulate how political authorities aim to advance social welfare by addressing collective action problems. These statutes specify which actions are prohibited or encouraged, determine the contributions required for public goods provision, and set the penalties for violations. This statutory approach reflects the long-standing view in political philosophy and economics that effective collective action in large polities requires the intervention of a third party—the Government. From Samuelson's [1954; 1955] and Olson's [1965] frameworks, the government acts as a "Benevolent Central Planner" whose authority and monopoly on the legitimate use of force enable it to curb free riding and ensure adequate public goods provision. This perspective aligns with Hobbes's Leviathan, which imposes order in a state of nature marked by "a *warre* of all against all," though at the cost of extensive individual subordination. Other traditions, such as Locke's [2013] democratic social contract or Condorcet's Jury

Theorem, emphasize that the legitimacy of governing authority may stem from consent and collective decision-making rather than coercion.

Yet regardless of whether the sovereign's power to govern emerges through democratic delegation, social contract, or other institutional arrangements, its intent must ultimately be expressed through programs and statutes that shape citizens' behavior and expectations. Under this logic, the system of statutes, norms, and enforcement mechanisms constitutes what Acemoglu, and Robinson [2012] describe as "rule of law," which is central to explaining whether nations succeed or fail. A robust rule of law, characterized by the protection of property rights and the enforcement of contracts, creates the institutional environment necessary for wealth generation. It also determines how economic surplus is allocated according to what the polity considers fair, whether distributed broadly in democratic societies or concentrated among a privileged few, such as oligarchic elites.

In this paper, we trace the emergence of rent-seeking corruption to weak institutions that have been captured by a privileged minority—oligarchs—who, empowered by income inequality, are able to influence the formulation and implementation of statutes and norms intended to align individual behavior with the common good in collective action settings. We decompose the process of statute formation into its constituent stages and demonstrate how, at each step, rent-seeking opportunities arise as a direct consequence of institutional weakness.

2. Dam Construction Game (*DCG*) as collective action problem

Two self-interested and myopic agents, *A* and *B*, are confronted with the public goods problem of providing a dam for irrigation and flood control. Completing the dam project requires the cooperation of both parties; unilateral effort by only one party is insufficient. If both parties cooperate, the project succeeds (the dam is built), and both agents—as well as the wider community—benefit. Each agent's strategy set is (*C*, *D*), where *C* denotes "Cooperate" and *D* denotes "Don't Cooperate." The resulting 2×2 full *DCG* in normal form is shown in Table 1.

TABLE 1. Payoff matrix of a 2x2 *DCG*

		B	
		C	***D***
A	***C***	A_{CC}, B_{CC}	A_{CD}, B_{CD}
	D	A_{DC}, B_{DC}	A_{DD}, B_{DD}

We assume the following conditions for *DCG*: (1) $A_{CC} > A_{DD}$ and $B_{CC} > B_{DD}$; (2) $A_{DD} > A_{CD}$ and $B_{DD} > B_{DC}$; and (3) $A_{CC} < A_{DC}$ and $B_{CC} < B_{CD}$. Note that (*C*, *C*) strictly Pareto-dominates (*D*, *D*), i.e., A_{CC} , $B_{CC} > A_{DD}$, B_{DD}. These conditions make *DCG* a social dilemma game with a unique attractor at

(D, D), which is also the unique Nash equilibrium (NE). At (D, D), no player can improve his payoff by a unilateral deviation. Once the game is at (D, D), there is no incentive for either party to change strategies if the other remains at D. For example, if at (D, D) player A switches to C, A receives $A_{CD} < A_{DD}$, resulting in a lower payoff; the same logic applies symmetrically to player B.

The action profile (C, C) is not a Nash equilibrium of *DCG* by Condition (3); that is, if the players were to start at (C, C), each would have an incentive to deviate to D. This is mandated by the free riding problem in all dilemma games. Condition (1), however, indicates that (C, C) Pareto-dominates (D, D): both A and B are strictly better off at (C, C) than at (D, D). By assumption, successful completion of the dam requires mutual cooperation—only when both agents choose C does the project materialize.

DCG constitutes a collective action problem because the socially superior outcome cannot be achieved unless both parties cooperate. Under *laissez-faire* conditions—where no external authority intervenes—the dam will not be built, periodic flooding will continue, and irrigation will not materialize. The structure of *DCG* readily generalizes to settings with more than two participants while preserving the same essential features, a dynamic interaction commonly referred to as the "tragedy of the commons."

3. Enter a benevolent central planner

We now depart from the standard *laissez-faire* framework in elementary game theory by introducing a third party external to A and B—the government, G. Agents A and B belong to a community under G's jurisdiction. For ease of exposition, let G be initially benevolent. Its central mission is to enable communities within its domain to achieve the highest feasible level of welfare, given available resources and technology—that is, to steer outcomes toward the cooperative profile (C, C), yielding payoffs (A_{CC} , B_{CC}) in Table 1. However, under *laissez-faire* conditions, the free riding imperative does not allow cooperation. Instead, it gravitates toward the disorderly non-cooperative equilibrium (D, D).

To achieve (C, C), G must redirect behavior away from its natural alignment toward (D, D) and instead guide it toward the cooperative outcome. To this end, the government promulgates a statute S designed to align individual incentives with cooperation. If S is effective, agents will be induced to choose C, and the cooperative outcome (C, C) will be attained.

3.1. Statutes as an alignment mechanism

A statute S has several key features. First, it identifies the punishable action, which in this case is defection D. Second, it specifies the enforcement regime, including a mandated contribution $c \geq 0$ from each party to support the program. Third, this contribution finances the enforcement mechanism that generates a

probability f, with $0 \leq f \leq 1$, that a violator is detected and punished. Fourth, the statute defines the statutory penalty $p \geq 0$ imposed on an individual who is caught violating the statute. Revenue collected from defectors is added to the enforcement budget. With D understood as the deviant action, we represent the statute as $S = (c, p, f)$. Note that $c = 0$ corresponds to full financing of the dam by the national treasury, whereas $c > 0$ corresponds to local co-financing through community contributions. The statute S alters the incentives in the original game DCG, yielding a modified game DCG' with the payoffs shown in Table 2.

TABLE 2. The payoff matrix of *DCG'* (*DCG* modified by *S* = (*c*, *p*, *f*))

		B	
		C	***D***
A	***C***	$A_{CC} - c,\ B_{CC} - c$	$A_{CD} - c,\ B_{CD} - c - pf$
	D	$A_{DC} - c - pf,\ B_{DC} - c$	$A_{DD} - c - pf,\ B_{DD} - c - pf$

The contribution c must be paid by each player regardless of the game's outcome, whereas the expected penalty pf is imposed only on the player who chooses the defection strategy D.

3.2. Weak institutions

We now present a numerical example of a dam construction game in which, under *laissez-faire* conditions (i.e., without government intervention), the interaction leads to the attractor (D, D), representing a market failure. Suppose the DCG is characterized by the following payoff table:

TABLE 3. Payoff matrix of the Dam Construction Game (*DCG*): *Laissez Faire* Case

		B	
		C	***D***
A	***C***	(10, 10)	(2, 15)
	D	(15, 2)	(3, 3)

The unique attractor state of this game—equivalently, its unique Nash equilibrium—is (D, D), yielding payoffs of (3, 3). The socially optimal payoff profile is (10, 10), corresponding to (C, C), and clearly (10, 10) > (3, 3). However, (C, C) is not an attractor because it is vulnerable to free riding; left to themselves, the players will not voluntarily settle at (C, C). The social interaction, therefore, results in a social failure: agents pursuing their myopic self-interest converge to the inferior outcome (D, D). Without an external enforcing authority, A and B remain trapped in this suboptimal state where the dam is not built.

Now consider the introduction of a third party (i.e., the government) that promulgates a statute $S^* = (c = 2, p = 7, f = 1)$. Here, $c = 2$ is the tax (or contribution) levied on each player, p=7 is the statutory penalty for violation, and $f = 1$ indicates full certainty of detection and punishment. With a 100 percent apprehension rate, the government acts as a strong enforcer of the statute. The statute S^* modifies the original *DCG*, yielding a new game, *DCG'*, with payoffs shown in Table 4.

TABLE 4. The payoff matrix of *DCG'* with Statute *S = (2, 7, 1)**

		B	
		C	***D***
A	***C***	10 – 2, 10 – 2 = (8, 8)	2 – 2, 15 – 2 – 7 = (0, 6)
	D	15 – 2 – 7, 2 – 2 = (6, 0)	3 – 2 – 7, 3 –2 - 7 = (-6, -6)

To assess the welfare effects of the intervention, we compare the attractor state (Nash equilibrium) of the original game *DCG* with that of the modified game *DCG'* after the statute S^* is introduced. The transformed game *DCG'* has a unique attractor at (*C*, *C*), yielding payoffs of (8, 8), which is strictly greater than the (3, 3) payoff profile of the original attractor (*D*, *D*) in *DCG*. The statute $S^* = (2, 7, 1)$ therefore produces a clear welfare improvement—whether assessed through Pareto dominance (since 8 > 3) or utilitarian aggregation (8 + 8 = 16 > 6 = 3 + 3). In this numerical example, statute S^* represents a *government or Visible Hand success*, achieving higher individual and collective welfare by steering behavior toward the cooperative outcome. In our terminology, the statute has resulted in overcoming the free riding problem.

3.3. Government failures

Promulgating a statute is one thing; formulating one that actually improves welfare is another. Under Samuelson's [1954] idealized "benevolent central planner," government intervention is guaranteed to succeed. In reality, however, governance is carried out by fallible human agents operating within imperfect institutions. In such settings, interventions may fail to achieve their intended goals and can even result in welfare losses.

Suppose *G* is weak and is able to promulgate only $S' = (c = 4, p = 4, f = 1/8)$, a much weaker alternative to $S^* = (2, 7, 1)$. This weakness is reflected in a higher mandated contribution $c = 4 > 2$ for agents—perhaps due to wastage or corruption—a lower statutory penalty $p = 4 < 7$ for non-cooperation, and a greatly reduced probability of punishment $f = (1/8) < 1$. The payoff matrix of the game modified by S', denoted *DCG″*, is shown in Table 5.

TABLE 5. The payoff matrix of *DCG″*, with *S′* = (4, 4, (1/8))

		B	
		C	***D***
A	***C***	(10 – 4, 10 – 4) = (6, 6)	(2 – 4), (15 – 4 – 0.5) = (-2, 10.5)
	D	(15 – 4 – 0.5, 2 – 4) = (10.5, -2)	(3 – 4 – 0.5, 3 – 4 – 0.5) = (-1.5, -1.5)

The attractor state of *DCG″* remains (*D*, *D*), exactly as in the *laissez-faire* case. The players' behavior continues to be "defection" despite the presence of a statute. Worse still, the welfare outcome under *S′* at the attractor (*D*, *D*) is (-1.5, -1.5), which is inferior to the *laissez-faire* payoff of (3, 3). In this case, government intervention leaves society worse off. When *G* is weak, its statute can thus produce a clear government failure.

4. Inequality in the status quo state

Inequality may already be present in the initial condition, represented by the initial attractor (*D*, *D*). We introduce the following definitions:

Definition 1: Consider two *DCG*-games DCG^1 and DCG^2. A state $X = (X_A, X_B)$ where $X_i \in \{C, D\}$, $i = A, B$ in DCG^1 is **Pareto-superior** to a state $Y = (Y_A, Y_B)$ where $Y_i \in \{C, D\}$, $i = A, B$ in DCG^2 when every member of society is better off in *X* than in *Y* (i.e., $A_{X_AX_B} > A_{Y_AY_B}$ and $B_{X_AX_B} > B_{Y_AY_B}$).

Definition 2: Consider two *DCG*-games DCG^1 and DCG^2. A state $X = (X_1, X_2)$ where $X_i \in \{C, D\}$, $i = A, B$ in DCG^1 is **utilitarian-superior** to a state $Y = (X_1, X_2)$ where $Y_i \in \{C, D\}$, $i = A, B$ in DCG^2 when the sum of all individuals' utilities in *X* exceeds the sum of their utilities in *Y* (i.e., $A_{X_1X_2} + B_{X_1X_2} > A_{Y_1Y_2} + B_{Y_1Y_2}$).

Definition 3: Institutions are **strong** when the bribe required to induce the government *G* to deviate from its original design approaches infinity (∞).

Definition 4: Institutions are **weak** when the bribe needed to induce the government *G* to change course from its original design is much smaller than the net payoff received by either agent.

Suppose the modified *DCG* (called DCG^*) has the following payoff matrix:

TABLE 6. Payoff matrix of the modified Dam Construction Game (*DCG): *Laissez Faire* case**

		B	
		C	***D***
A	***C***	(10, 10)	(2, 15)
	D	(15, 2)	(3, 12)

Note that DCG^* differs from the original *DCG* in that the payoff at (*D*, *D*) is now (3, 12), rather than (3, 3) as in Table 3. The status quo is therefore payoff-unequal: if both defect, player *B* receives "12" in DCG^*, compared with "3" in the original *DCG*. In this modified setting, the initial attractor (*D*, *D*) in DCG^* disproportionately favors *B* (12 vs. 3), whereas the target attractor (*C*, *C*) continues to yield (10, 10), the same cooperative payoff profile as in Table 3.

Despite these changes, DCG^* remains a collective action failure under *laissez-faire*, with (*D*, *D*) as its unique attractor. It is also worth noting that the cooperative state (*C*, *C*) in DCG^* (Table 6) is **utilitarian-superior** to (*D*, *D*) in the original *DCG* (Table 3), since 10 + 10 = 20 > 3 + 3 = 6. However, it is **not Pareto-superior** to (*D*, *D*) in DCG^*, because player *B* receives "12" at (*D*, *D*) in DCG^* but only "10" at (*C*, *C*) in the original *DCG* given in Table 3.

With perfect information, both *A* and *B* recognize this payoff inequality, and *B* may, therefore, be tempted to sabotage any reform initiative that alters payoffs by shifting away from (*D*, *D*) in DCG^* to a state (*C*, *C*) in a revised *DCG* with a reform-oriented government statute. For instance, let the state promulgate and implement statute $S^* = (2, 7, 1)$ to the game DCG^*. This resulting modified game, which we denote DCG^{**}, has the payoff matrix given in Table 7.

TABLE 7. Payoff matrix of the new Dam Construction Game *DCG*** **which is the game *DCG**** **after implementing statute *S**** **= (2, 7, 1)**

		B	
		C	***D***
A	***C***	(10 – 2, 10 – 2) = (8, 8)	(2 – 2, 15 – 2 – 7) = (0, 6)
	D	(15 – 2 – 7, 2 – 2) = (6, 0)	(3 – 2 – 7, 12 –2 – 7) = (-6, 3)

Notice that with the statute S^*, the target state (*C*, *C*) in the game DCG^{**} becomes the attractor, and the dam is successfully built, yielding the payoff (8, 8). This state is **utilitarian-superior** to the status quo attractor (*D*, *D*) in DCG^* given in Table 6, which yields (3, 12), since 8 + 8 = 16 > 3 + 12 = 15. In this setting, the statute $S^* = (2, 7, 1)$ still constitutes a *Visible Hand success*: it displaces the original attractor (*D*, *D*) in DCG^* and replaces it with the cooperative attractor (*C*, *C*) in DCG^{**}.

However, the state (*C*, *C*) in DCG^{**} is **not Pareto-superior** to the status quo (*D*, *D*) in DCG^{*} because agent *B* receives a lower payoff at (*C*, *C*) in DCG^{**}. In the new attractor (*C*, *C*) in DCG^{**}, *B* obtains only "8" units, whereas he receives "12" units under the unequal status quo (*D*, *D*) in DCG^{*} when the reform is aborted. Thus, *B* is strictly better off if the reform fails and, therefore, has an incentive to bribe the authorities to block the transition to (*C*, *C*) in DCG^{**}.

How much can *B* afford to offer as a bribe? *B* is willing to pay up to "3" units to the authorities to block the reform, because doing so leaves him with 12 - 3 = 9 units—still higher than the "8" units he would receive if the dam were built under DCG^{**}. Table 8 presents the payoff matrix of a new game, denoted DCG^{Bribe}, which mirrors DCG^{*} but incorporates *B*'s 3-unit bribe to the government to secure the state (*D*, *D*). This is *B*'s preferred outcome—bribing to sabotage the reform—rather than supporting a transition to the cooperative state (*C*, *C*) in DCG^{**}.

TABLE 8. Payoff matrix of the Dam Construction Game (DCG^{Bribe}) with illicit side payment of "3" to *G*: The Aborted Reform Case

		B	
		C	***D***
A	***C***	(10, 10)	(2, 15)
	D	(15, 2)	(3, 9)

If institutions are **weak**, the government may indeed accept *B*'s 3-unit bribe and abort the reform. *B* then realizes a net payoff of 9 units after the bribe. Note that (*D*, *D*) remains the unique attractor of the game DCG^{Bribe} even after the 3-unit rent-seeking transfer.

If institutions are **strong**—that is, if the bribe required to induce the government to change course is effectively infinite—then the wealthier agent *B* cannot afford to offer a bribe large enough to make the authorities deviate from the original design without incurring a net loss. Under such conditions, rent-seeking corruption does not arise, and the reform effort proceeds as intended, shifting the interaction to the cooperative game DCG^{**}.

4.1. Players as coherent social classes

The analysis can also be extended to cases where players *A* and *B* represent relatively *coherent* social classes rather than individuals. *Coherence* here refers to the class's ability to share burdens and coordinate collective efforts effectively. This coherence is relative: each class is subject to what Olson [1965] describes as the "tyranny of the minority," whereby smaller, wealthier groups are more capable of collective action than larger, poorer ones. In this interpretation, *B* represents the Elite class—the fewer, favored group in the status quo attractor (*D*, *D*) in the *DCG* described in Table 3—while A represents the Non-Elite class, the larger and poorer segment of society. By the logic of Olson's [1965] tyranny,

the Elite class is more internally coherent than the Non-Elite class, whose size and resource constraints make coordination more difficult.

As in the case of the game DCG^{Bribe}, this internal coherence allows the Elite class (B) to preserve its privileged position by sabotaging reforms that would have raised utilitarian welfare for the entire community—composed of both Elite and Non-Elite members, but utilitarian rather than Pareto-optimal. Through rent seeking, the Elite class successfully blocks reforms that would have generated broad welfare gains, thereby maintaining an unequal and inefficient status quo.

4.2. Possibility of a non-elite counter-lobby

Can the Non-Elite offer a counter-bribe to induce the authorities to complete the reform? Yes and no. While weak institutions may be indifferent to the source of illicit payments, they are not indifferent to the amount. The Non-Elite class (A) could, in principle, offer a counter-bribe—say, "4" units—drawn from the "8" units it expects to receive if the reform is successfully implemented in DCG^{**} (Table 7).

The Non-Elite faces what may be called a *numerical asymmetry problem* in any bribery contest. Under Olson's "tyranny of the minority," the capacity of the Non-Elite—the numerically large but poorer group—to raise a counter-bribe is severely constrained by its difficulty in coordinating contributions from many low-income members. The question, then, is whether weak authorities would accept the Non-Elite's nominal offer of "4" units over the Elite's smaller offer of "3" units and thus proceed with the reform [Olson 1965].

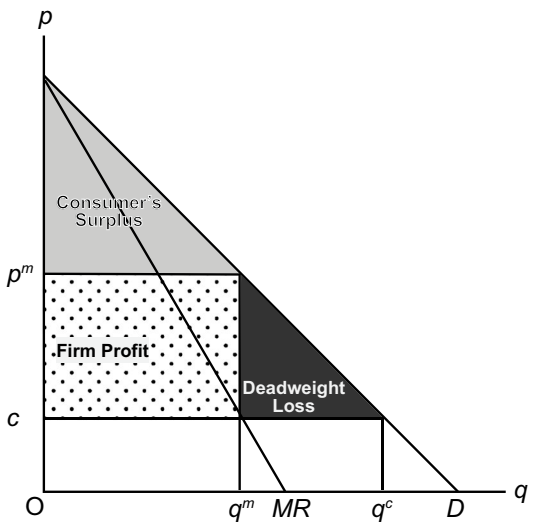
In practice, the authorities recognize the organizational disadvantages faced by the Non-Elite. Because the Non-Elite is far more numerous and far poorer, collecting contributions is cumbersome, uncertain, and slow. Anticipating these difficulties, authorities heavily discount the Non-Elite's promised payment. The effective value of the Non-Elite's offer becomes $4x$, where $x < 1$ represents the discount factor applied to the group's ability to deliver. Thus, the authorities will prefer the Elite's offer of "3" whenever $3 > 4x$, or equivalently whenever $x < 3/4$. Given the typical coordination disadvantages of large, poor groups, this condition is likely to hold. This numerical asymmetry problem is not unique to bribery scenarios; it is a general feature of collective action. Larger, less cohesive groups systematically struggle to mobilize resources compared to smaller, wealthier, and more coordinated elites.

4.3. Tyranny of the minority and the asymmetry in credible commitment: The case of a market monopoly

To illustrate a market failure arising from asymmetry under Olson's [1965] tyranny of the minority—where larger groups face higher coordination costs—consider a power distribution company that enjoys a monopoly position. The monopoly equilibrium (abstracting from regulatory complications) is shown in Figure 1. The monopolist produces at q^m and charges the price p^m. The area under

the demand curve is partitioned into three components: the light gray region representing consumer surplus, the dotted region representing producer surplus (monopoly profit), and the dark gray region representing deadweight loss, which is entirely dissipated—no group in society captures it.

FIGURE 1. Monopoly and welfare shares of different groups



Note: Light gray area = consumer's surplus; Dotted area = producer's surplus; Dark gray area = deadweight loss (economic waste)
Source: Fabella et al. [2020].

Now suppose there exists a power consumer advocacy group (AG) committed to protecting consumers from potential abuses of monopoly power by the distribution utility (DU). Imagine that AG proposes the following contract to the DU: the utility agrees to produce at the competitive output q^c and sell electricity at the lower competitive price c. Under this arrangement, the entire area under the demand curve—the light gray, dotted, and dark gray regions—becomes consumer surplus. AG, in turn, commits to collect from consumers an amount equivalent to the "dotted area + half of the dark gray area" and transfer this as compensation to the DU. If such a contract were successfully implemented, both the DU and consumers would benefit. The DU receives compensation equivalent to its forgone monopoly profit plus half of the eliminated deadweight loss. Consumers enjoy lower electricity prices ($c < p^m$) and gain the light gray area plus the remaining half of the dark gray area. Society as a whole also benefits, as the deadweight loss disappears entirely. Remarkably, this cooperative outcome achieves efficiency without requiring government intervention.

Will the DU accept the offer? It will not, because AG cannot credibly commit to delivering its side of the contract. That commitment ultimately depends on AG's ability to overcome the collective action problem it faces. Power consumers

would be expected to contribute voluntarily, but any individual consumer may choose to free ride or renege on the agreement. Collecting contributions from millions of relatively poor consumers entails extremely high transaction costs, making the promised payment effectively unenforceable. Given this, the DU cannot reasonably expect to receive the compensation AG pledges. Anticipating non-payment, the DU's equity holders would rationally vote to reject the proposed contract.

4.4. Weak legislature

Now, suppose the legislature enters the picture and threatens to revoke the DU's franchise through legislation. If the legislature is a weak institution—vulnerable to bribery—then the DU's equity holders, being few in number and relatively affluent, can mount a lobbying effort by offering legislators a bribe. The AG, by contrast, will be unable to match this offer. As before, legislators will heavily discount any pledge from AG because its contributors are extremely numerous and far poorer, making the collection of funds uncertain and costly. Consequently, the AG's initiative will again fall short, for the same reason that raising a counter-bribe from a large, dispersed group is prohibitively difficult.

Unless new technologies emerge that substantially reduce the cost of collecting contributions, many potential Coasean bargains will remain unrealized. This helps explain why, in the post–World War II era, numerous thinkers advocated the nationalization and state ownership of the "commanding heights of the economy," including the power and banking sectors [Yergin and Stanislaw 1998]. This view continues to hold sway in many countries, where state ownership of the power sector persists. However, weak institutions eventually undermined the effectiveness of the state-ownership model as well [Yergin and Stanislaw 1998], contributing to the shift toward market-oriented reforms associated with the first wave of the Washington Consensus in the 1980s.

If the government and its agencies function as strong institutions, they will reject any bribe offers, allowing welfare-enhancing interventions to proceed. Over time, this institutional strength manifests in markedly superior performance outcomes [Cook and Fabella 2002]. The contrast is evident, for instance, between the long-run trajectories of the Philippines and those of countries such as Vietnam.

In general, pervasive rent-seeking behavior renders the regulatory environment fragile, prompting investors to withdraw from the jurisdiction. More broadly, when weak institutions and rent seeking dominate, initial income inequality becomes a powerful barrier to reform. The greater the inequality, the stronger the vested interests that can block welfare-enhancing change—and the higher the likelihood that the nation will ultimately fail.

5. Conclusion

Collective action problems (CAPs) are social interactions in which outcomes depend jointly on the actions chosen by all players. In a 2×2 CAP, there are four possible states: (*C*, *C*), where both players cooperate; (*C*, *D*), where the row player cooperates while the column player defects; (*D*, *C*), the reverse; and (*D*, *D*), where both defect. Under the rational-choice paradigm, where agents are *homo economicus* who pursue only their individual payoffs, a CAP typically settles at the inferior state (*D*, *D*). This state yields payoffs for each player that are lower than those attainable at the cooperative state (*C*, *C*), but (*C*, *C*) is blocked by the free-riding incentive. The state (*D*, *D*) is a social failure in the sense that it provides each player with a payoff that is strictly inferior to the payoff they would receive at another feasible state—namely, (*C*, *C*). A social failure thus reflects the inability to achieve the cooperative outcome. The purpose of game transformations in CAPs is to replace the failed attractor (*D*, *D*) with the cooperative attractor (*C*, *C*). Initially, every CAP has (*D*, *D*) as its attractor—an inferior outcome for all players.

Our metric of analysis is monetary. We begin by defining a failed social state as one characterized by the action profile (*D*, *D*). A statute specifies which actions are prohibited (e.g., the use of dynamite in fishing) and sets the penalties for violations. As shown earlier, such an intervention transforms the nature of the game by altering its payoffs. A successful intervention reshapes the game so that the free riding problem is overcome, i.e., its Nash equilibrium becomes the desired cooperative state (*C*, *C*). This is the enforcement dimension of the statute, determined by the enforcement probability f and the statutory penalty p, with the product pf constituting the effective (or expected) penalty. When pf is low, behavioral change is insufficient, and the cooperative state (*C*, *C*) will not be attained. Government intervention succeeds only when the enacted rule is strong in both enforcement and penalty. A sufficiently high pf ensures that (*C*, *C*) becomes the new Nash equilibrium. Conversely, weak institutions generate weak interventions—those with low pf—and consequently fail to induce cooperative behavior. Hence, the institutional environment surrounding the intervention is crucial. Social change and welfare improvement arise only when strong statutes are implemented within strong institutional settings.

The two players in the model can be interpreted as two social classes: the fewer, more affluent Elite Class and the numerous, poorer Non-Elite Class. In the initial attractor (*D*, *D*), the Elite are the advantaged group, enjoying a higher initial income. They also understand that the post-reform distribution associated with the cooperative state (*C*, *C*) favors the Non-Elite, who would gain more from the reform. When institutions are weak, the Elite can offer a bribe to the authorities *G*, or to its key organs, to halt the reform and preserve the status quo. Weak institutions imply that the bribe required to make the authorities deviate

from the reform program is finite—well within the Elite's ability to pay while still remaining better off than in the reformed state (C, C).

By contrast, the Non-Elite cannot mount an effective counter-lobby due to Olson's [1965] "tyranny of the minority": their large numbers and low incomes make it extremely difficult to coordinate contributions and produce a credible monetary offer. This asymmetry in credible commitment pushes a weak G to favor the Elite's lobby, causing the reform initiative—intended to raise overall welfare—to collapse.

We illustrate this asymmetry through the example of a franchised monopoly. The Non-Elite, as the much larger consumer class, cannot credibly commit to compensating the monopoly franchise holder for operating at a more socially desirable output and price, even when the potential surplus gains (including the deadweight loss) are sufficient to cover the compensation. A similar asymmetry arises in the legislative arena: even if the legislature seeks to support the Non-Elite by combining electoral pressure with a monetary proposal, the Elite may still raise their monetary offer to outweigh the legislative bias. Thus, whether in regulatory or legislative settings, the Elite's greater coherence and resources allow them to outmaneuver the Non-Elite, blocking welfare-enhancing reforms when institutions are weak.

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