



Development (Paradigm) Failures

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Abstract

Over time the international development community has advocated various development paradigms, but countries following these paradigms have often performed poorly. I provide an explanation for this poor performance. In my model the political leader of a developing country chooses a policy and whether to implement it in an honest or corrupt manner. These choices affect domestic production and aid inflows. Production is high when productive capacity is high, and when the policy is appropriate in the country-specific circumstances and implemented honestly. Aid inflows are high when the policy is close to the paradigm. In equilibrium countries with low productive capacity and high corruption resulting from weak political institutions follow the paradigm more closely. Hence my model suggests that development paradigms have a tendency to fail because they are primarily followed by countries that would fail anyway.

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1 Introduction

Development economists and international development agencies have advocated very different development paradigms since World War II. The paradigm of the 1950s and 1960s suggested that governments should take the leading role in development: they should adopt import substitution policies and plan the accumulation and allocation of capital. But Krueger (1995) and others argue that many developing countries following this paradigm, for example those in Latin America, performed rather poorly, while some other countries like South Korea and Taiwan were growing fast with different policies.

The paradigm of the 1980s and 1990s, the “Washington Consensus”, suggested that markets should be given the leading role in development: industries should be deregulated, public enterprises privatized and trade liberalized. But Rodrik (2006) and others argue that many developing countries following this paradigm, for example again those in Latin America, performed rather poorly despite the support they received from international development agencies, while some other countries like China and India were growing fast with different policies.¹

Besides these two major development paradigms, many other ideas and paradigms have also been far less successful in promoting economic development than initially expected. Reviewing various development policies popular at some point in time since World War II, Easterly (2001, book cover) concludes that “[a] myriad of remedies has not delivered the solutions promised.” The limited success of the various development paradigms also manifests itself in the disappointing finding that foreign aid has no robust positive effect on economic development (e.g., Rajan and Subramanian, 2008).

The question arises why all these development paradigms have failed in various countries. In principle, it could be that all these paradigms were wrong, but that there is a

¹The success of these two major development paradigms is subject to an intense and sometimes ideology-laden discussion. For a thorough and insightful discussion, see, e.g., Lindauer and Pritchett (2002).

“true” development paradigm out there waiting to be discovered. However, many development economists have recently emphasized that it is unlikely that a simple set of policies can trigger development universally, and that appropriate policies differ across countries as they depend on cultural, historical and institutional circumstances (e.g., Lindauer and Pritchett, 2002; Mukand and Rodrik, 2005; Rodrik, 2006, 2007, 2010; Rajan 2008).² In this paper I take the notion that appropriate policies differ across developing countries as a starting point, and I show that countries that would perform poorly anyway because of their poor economic and institutional pre-conditions tend to follow development paradigms more closely. This argument suggests that development paradigms have a tendency to fail because they attract countries that would fail anyway.

I present my argument using a simple two-period political economy model inspired by Mukand and Rodrik (2005), and Bhattacharyya and Hodler (2010). I follow the former in modeling country-specific optimal policies and corruption, and the latter in modeling political competition and institutions.³ In my model the incumbent president of a developing country chooses a policy, e.g., the degree of government interventions, and decides whether to implement this policy in an honest or corrupt manner. These choices affect the two components of national income: domestic production and aid inflows. Domestic production is high when productive capacity is high, and when the policy is appropriate in the country-specific circumstances and implemented in an honest manner. Aid inflows are high when the policy is close to the current development paradigm. At the end of the first period the incumbent may be replaced by the challenger. The chances that the incumbent can stay in office depend on the quality of the political institutions, and on whether the people support him or his challenger, knowing that any politician could be inherently good

²The theory of the second best suggests that optimal policies should differ across developing countries if binding constraints differ across developing countries, which seems likely.

³The foci of these two contributions are quite different from mine: Mukand and Rodrik (2005) study policy experimentation and imitation in a setting with multiple countries, and Bhattacharyya and Hodler (2010) look at how the effect of natural resource rents on corruption depends on political institutions.

(i.e., benevolent) or bad (i.e., corrupt). In the second period the politician in office again chooses a policy and decides whether to implement it in an honest or corrupt manner.

In equilibrium the people support the incumbent if and only if he chooses the optimal policy and implements it in an honest manner. A good incumbent always does so, but a bad incumbent does so only if the political institutions are sufficiently strong, such that he is likely to stay in office if and only if the people decide to support him. If the political institutions are relatively weak, a bad incumbent chooses a policy closer to the paradigm and implements it in a corrupt manner. Moreover, the chosen policy is in any case the closer to the paradigm, the lower the productive capacity. Hence countries that would perform poorly anyway due low productivity and high corruption resulting from weak political institutions tend to follow the paradigm more closely than countries with high productivity and no corruption. In an extension I further show that if the paradigm reveals some information about the policies that could be appropriate, then ignorant politicians follow the paradigm more closely than politicians who know the appropriate policy themselves. Therefore development paradigms may be doomed to fail because they attract countries that are doomed to fail.

This model also provides an explanation for the absence of a robust positive effect of foreign aid on economic development. It suggests that countries receive more aid when following the paradigm closely, and that such countries tend to be plagued by low productivity, weak political institutions and distorted policies that are inappropriate in the country-specific circumstances.

There are many contributions that argue why some particular development paradigm has failed. But to the best of my knowledge, my model is the first that offers an explanation why all development paradigms have a tendency to fail or, at least, to look as if they failed. It is thereby related to other models that illustrate the (mostly negative) incentive effects of foreign aid, e.g., those on foreign aid and rent seeking by Svensson (2000) and Hodler

(2007). The most closely related contributions is probably Hagen (2008) showing that aid recipient countries have an incentive to tilt their policies towards the donors' preferred policies (i.e., towards the current paradigm) even if aid is disbursed unconditionally.

The remainder of this paper is structured as follows: Section 2 presents the model. Section 3 characterizes the equilibrium and derives the main results. Section 4 introduces uncertainty into the model. Section 5 concludes. The appendix contains lengthy proofs.

2 The Model

There is a developing country with three players: the incumbent president, who is in power for exogenous reasons, a challenger and the people. Each politician, i.e., the incumbent and the challenger, is a good type with probability $\beta \in (0, 1)$ and a bad type with probability $1 - \beta$.⁴ Each politician's type is his private information, but β is common knowledge.

There are two periods $t = 1, 2$. Timing and actions are as follows: In period one the incumbent chooses policy $a_1 \in [0, 1]$ and the level of corruption $\kappa_1 \in \{0, c\}$, where 0 represents absence of corruption and c considerable corruption, and where $c \in (0, 1)$. At the end of period one, the people observe κ_1 , but not a_1 , and they support either the incumbent or the challenger.⁵ I assume that they support the incumbent when indifferent. The political institutions determine the extent to which the people's decision affects the probability that the incumbent is replaced by the challenger. The incumbent can remain in office with probability p if the people support him, and with probability q if the people support the challenger, where $0 \leq q \leq p \leq 1$. Following Bhattacharyya and Hodler (2010), I measure the quality of the political institutions by $D \equiv p - q$. This measure suggests that political institutions are of high quality when the incumbent is likely to stay in office

⁴The subsequent results hold for any $\beta \in (0, 1)$, i.e., even if good politicians are rare.

⁵The assumption that the people do not observe a_1 is not crucial, but simplifies the analysis by reducing the number of possible off equilibrium observations.

if and only if the people want him to stay, but of low quality when the people's decision has little effect on the chances that the incumbent can stay in office.⁶ In period two the politician in office chooses policy $a_2 \in [0, 1]$ and corruption $\kappa_2 \in \{0, c\}$.

In each period there are two sources of national income y_t : domestic production and aid inflows. Domestic production increases in the productive capacity $A > 0$; and due to disincentive effects it is lower in the presence of corruption ($\kappa_t = c$) than in the absence of it ($\kappa_t = 0$). Domestic production also depends on how close the chosen policy a_t is to the policy $z \in [0, 1]$ that maximizes production in the country-specific circumstances. For now, I assume that politicians know z .⁷ Aid inflows depend on the donors' generosity $B > 0$ and the closeness of policy a_t to the development paradigm $x \in [0, 1]$. The idea is that donors reward aid recipient countries that follow the current paradigm, either by allocating (i.e., promising) more aid to these countries, or by disbursing a higher fraction of the allocated aid to these countries.⁸ Formally, I assume

$$y_t = y(a_t, \kappa_t) \equiv \Lambda(\kappa_t)f(a_t|z) + Bg(a_t|x), \quad (1)$$

where $\Lambda(0) = A$ and $\Lambda(c) = \phi A$ with $A > 0$ and $\phi \in (0, 1)$, and where $f(a_t|z)$ and $g(a_t|x)$ are strictly positive and continuously differentiable with $f' > 0$ if $a_t < z$, $f' < 0$ if $a_t > z$, $f'' < 0$, $g' > 0$ if $a_t < x$, $g' < 0$ if $a_t > x$, and $g'' < 0$.

The choices of the politician in office determine his official wage $w_t = w(a_t, \kappa_t) = \tau y(a_t, \kappa_t)$, where $\tau \in (0, 1 - c)$, his corruption revenues $r_t = r(a_t, \kappa_t) = \kappa_t y(a_t, \kappa_t)$, and the

⁶Aidt et al. (2008) also use this measure of political institutions in their retrospective voting framework. They focus on the two different types of weak political institutions that this formulation allows for: If p and q are both high, an authoritarian incumbent is likely to stay in office even without the people's support. If they are both low, the incumbent is likely to be overthrown even when the people support him.

⁷The subsequent results do not depend on whether or not the people know z .

⁸The model can therefore capture a main determinant of aid flows even if aid conditionality rarely works, as long as more aid is generally allocated to countries following the current development paradigm than to countries choosing very different policies (e.g., central planning in the early 1990s). See also Hagen (2008).

people's welfare $u_t = u(a_t, \kappa_t) = (1 - \tau - \kappa_t)y(a_t, \kappa_t)$. In each period the people's payoff is u_t , the payoff of a good politician in office is w_t , the payoff of a bad politician in office is $w_t + r_t$, and the payoff of a politician out of office is zero. Hence good and bad politicians differ in that bad politicians value corruption revenues and the official wage equally, while good politicians only derive utility from their official wage. For simplicity, I abstract from discounting. Further, I assume $\frac{\tau}{c} < \frac{\phi}{1-\phi}$ to rule out the uninteresting case in which even bad politicians always choose zero corruption (see Proof of Lemma 2).

The appropriate solution concept for my dynamic game of incomplete information is perfect Bayesian equilibria, and I focus on pure-strategy equilibria that satisfy the Cho-Kreps intuitive criterion. I use the abbreviation PBE to stand for perfect Bayesian equilibria in pure strategies that satisfy the intuitive criterion.

3 The Equilibrium

I start by discussing the combinations of policies a_t and corruption κ_t that a politician in office may choose. As the payoff of any politician in office increases in the national income y_t , any politician sets a_t to maximize y_t given his choice of $\kappa_t \in \{0, c\}$. Hence he chooses either $\kappa_t = 0$ and $a_t = a^0$, or $\kappa_t = c$ and $a_t = a^c$, where $a^{\kappa_t} \equiv \arg \max_{a_t} y(a_t, \kappa_t)$. These choices lead to the national income $y_t = y^0$ or $y_t = y^c$, respectively, where $y^{\kappa_t} \equiv y(a^{\kappa_t}, \kappa_t)$. Obviously, $y^0 > y^c$. The following lemma further provides some useful results on a^{κ_t} :

Lemma 1 *It holds that $\min\{x, z\} \leq a^{\kappa_t} \leq \max\{x, z\}$, that the distance $|a^{\kappa_t} - x|$ increases in A and decreases in B , and that $|a^0 - x| > |a^c - x|$.*

That is, politicians always choose a policy in-between the production maximizing policy z and the aid maximizing paradigm x . The chosen policy is closer to the paradigm in the presence of corruption, and if the country's productive capacity A is low. The reason is that in these cases productivity is low anyway, such that more can be gained by appealing

to international donors than by choosing policies that slightly increase productivity in the country-specific circumstances.

I now solve the game using backward induction, therefore starting with the policy choices of the politician who is in office in period two:

Lemma 2 *In period two a good politician in office chooses $\kappa_2 = 0$ and $a_2 = a^0$, and a bad politician in office chooses $\kappa_2 = c$ and $a_2 = a^c$.*

A good politician prefers zero corruption and chooses policy a^0 , because corruption would lower domestic production and thereby his wage w_2 . A bad politician chooses corruption $\kappa_2 = c$ and policy a^c , because the share $c + \tau$ of the national income $y_2 = y^c$ that he gets when acting corruptly exceeds the share τ of $y_2 = y^0$ that constitutes his wage when acting honestly.

It follows from Lemma 2 that in period two the people's welfare is $u_2 = (1 - \tau)y^0$ if a good politician is in office, and $u_2 = (1 - \tau - c)y^c$ if a bad politician is in office. Since $y^0 > y^c$ and $c > 0$, the people are clearly better off in period two when the politician in office is good rather than bad. Hence, at the end of period one, they support the incumbent if and only if their belief that he is a good type, which I denote by $\mu(\kappa_1)$, exceeds probability β , with which the challenger is a good type. Their belief $\mu(\kappa_1)$ depends on their observation κ_1 and the equilibrium strategies of good and bad incumbents. Let us assume that a good incumbent chooses the national income maximizing policy bundle $(a^0, 0)$ also in period one. (Proposition 1 below confirms that a good politician chooses $(a^0, 0)$ in any PBE.) A bad incumbent then faces a trade-off: He can either play $(a^0, 0)$ to imitate a good incumbent, or he can reveal his bad type by acting corruptly. In this latter case he is best off when choosing the policy bundle (a^c, c) . For a bad incumbent imitation has the advantage that it improves the chances that he can stay in office, while revealing his type has the advantage that he can earn corruption revenues already in period one. In particular, imitation leads to an expected lifetime payoff of $\tau y^0 + p(\tau + c)y^c$, and revealing his type and playing (a^c, c)

to an expected lifetime payoff of $(1 + q)(\tau + c)y^c$. Hence imitation makes him better off if and only if $D \geq D' \equiv \frac{(\tau+c)y^c - \tau y^0}{(\tau+c)y^c}$. It follows:

Proposition 1 *There exists a PBE in which a good incumbent chooses $\kappa_1 = 0$ and $a_1 = a^0$, and a bad incumbent chooses $\kappa_1 = 0$ and $a_1 = a^0$ if $D \geq D'$, but $\kappa_1 = c$ and $a_1 = a^c$ otherwise; and in which the people support the incumbent if and only if they observe $\kappa_1 = 0$. The threshold D' satisfies $D' \in (0, 1)$, increases in B and ϕ , and decreases in A . There exist no other PBE.*

Proposition 1 highlights that a bad incumbent imitates the national income maximizing policies of a good incumbent in period one if the political institutions are strong, such that he is likely to stay in office when supported by the people, but unlikely to stay without the people's support. However, he chooses the same corrupted policies as in period two when the political institutions are weak, such that the people's decision has little impact on the chances that he can remain in office. More generous aid inflows (higher B) makes corruption relatively more attractive and, therefore, increases the threshold level D' . Higher productive capacity A and larger disincentive effects of corruption (lower ϕ) have the opposite effect: They make corruption less attractive and, therefore, reduce D' .

Having derived the equilibrium strategies, we can now study the characteristics of the countries that tend to follow the paradigm closely. I thereby use the expected distance $E(|a_1 - x|)$ to measure how closely a country follows the paradigm. Proposition 1 implies that the expected distance is simply $E(|a_1 - x|) = |a^0 - x|$ if political institutions are so strong that $D \geq D'$, but $E(|a_1 - x|) = \beta|a^0 - x| + (1 - \beta)|a^c - x|$ otherwise. It then directly follows from Lemma 1:

Proposition 2 *The expected distance $E(|a_1 - x|)$ increases in A and decreases in B , and it is higher if $D \geq D'$ than otherwise.*

In other words, developing countries tend to follow the paradigm closely if productive capacity A is low, if aid tends to be generous (high B), and if political institutions D are so weak that bad incumbents do not feel sufficiently constrained to refrain from corruption.

It is easy to show that the expected national income $E(y_1)$ would be small in countries with low A and low D even in the absence of a paradigm and foreign aid, i.e., even if $B = 0$. Together with Proposition 2, this finding implies that development paradigms have a natural tendency to fail because countries that would perform poorly anyway – due to low productive capacity and poor political institutions – tend to follow the paradigms more closely.

4 Adding Uncertainty

In the previous sections I have looked at a situation in which politicians know the policy z that maximizes domestic production in the country-specific circumstances. In this section I first show that the main results of the previous section also hold if the politicians do not know z , i.e., if they are ignorant. I then add the assumption that the development paradigm x reveals some information about the distribution of z . I find that in this case countries with ignorant politicians follow the paradigm more closely than countries with informed politicians.

I assume that policy z is drawn from the distribution $H_1(z)$ with probability $\gamma \in (0, 1)$, and from the distribution $H_2(z)$ with probability $1 - \gamma$, where $H_1(0) = H_2(0) = 0$ and $H_1(1) = H_2(1) = 1$, and where the corresponding densities $h_1(z)$ and $h_2(z)$ are continuously differentiable. Since I will again focus on the expected distance $E(|a_1 - x|)$, I can assume without loss of generality that the politicians learn z at the beginning of period two.

Suppose for now that when choosing policy bundle (a_1, κ_1) , the incumbent has no information about z other than probability γ and the distributions $H_1(z)$ and $H_2(z)$. From

his perspective the distribution of z is thus $H(z) = \gamma H_1(z) + (1 - \gamma)H_2(z)$, with density $h(z) = \gamma h_1(z) + (1 - \gamma)h_2(z)$. Hence the expected national income is

$$y_t^e = y^e(a_t, \kappa_t) = \Lambda(\kappa_t)\tilde{f}(a_t) + g(a_t|x),$$

where $\tilde{f}(a_t) \equiv \int_0^1 f(a_t|z)h(z)dz$ is continuously differentiable, concave and hump-shaped like $f(a_t|z)$.⁹ Expected domestic production is maximized by the policy \tilde{z} that satisfies $\tilde{f}'(\tilde{z}) = 0$.

The PBE of this modified game is the same as the PBE characterized in Proposition 1, except that the value of the threshold D' may differ because policies a^0 and a^c are now defined as $a^{\kappa t} \equiv \arg \max_{a_t} y^e(a_t, \kappa_t)$. Similar as in Lemma 1, it can be shown that the equilibrium policies a^0 and a^c are between \tilde{z} and x ; that they are the closer to the paradigm x , the higher B and the lower A is; and that a^c is closer to x than a^0 . Consequently, the results in Proposition 2 also hold in this modified game. Hence developing countries with ignorant politicians also tend to follow the current paradigm x more closely if their political institutions are weak and their productive capacity A low.

I now add the assumptions that z is drawn from $H_1(z)$, and that the paradigm is $x = \tilde{z}_1$, where \tilde{z}_1 satisfies $\tilde{f}'_1(\tilde{z}_1) = 0$ with $\tilde{f}'_1(a_t) \equiv \int_0^1 f'(a_t|z)h_1(z)dz$ again being continuously differentiable, concave and hump-shaped. These assumptions may represent a situation in which donors have some knowledge about country-specific optimal policies and set the paradigm to maximize expected production in the recipient country.

The fact that the paradigm x reveals the true distribution of z does not provide any additional valuable information to an incumbent who is informed and knows the country-specific optimal policy z . He therefore still chooses the policy a_1 specified in Proposition

⁹Note that $\tilde{f}'(a_t) = \int_0^1 f'(a_t|z)h(z)dz > 0$ for $a_t = 0$ since $f'(0|z) > (\geq)0$ for all $z > (\geq)0$, that $\tilde{f}'(a_t) < 0$ for $a_t = 1$ since $f'(1|z) < (\leq)0$ for all $z < (\leq)1$, and that $\tilde{f}''(a_t) = \int_0^1 f''(a_t|z)h(z)dz < 0$ for all $a_t \in [0, 1]$ since $f''(a_t|z) < 0$ for all a_t and z .

1, which generally differs from x . However, if the incumbent is ignorant, then information about the distribution of z is valuable for him. In particular, when $x = \tilde{z}_1$, an ignorant incumbent can simultaneously maximize expected domestic production and aid inflows by choosing policy $a_1 = x$. Hence, unlike an informed incumbent, an ignorant incumbent follows the paradigm very closely (no matter whether he is good or bad). Therefore:

Proposition 3 *Given $x = \tilde{z}_1$, the expected distance $E(|a_1 - x|)$ is lower if the incumbent is ignorant than if he knows z .*

There are two important differences between the results in Propositions 2 and 3. First, low productive capacity A and weak political institutions D tend to lead to policies close to the paradigm x independently of how the paradigm has been determined. Ignorance, however, only causes incumbents to closely follow the paradigm if doing so increases expected domestic production. If the paradigm is set randomly, or if it reflects ideological views, then it becomes ambiguous whether an informed or an ignorant incumbent follows the paradigm more closely. Second, low productive capacity and weak political institutions lead to policies close to the paradigm because such policies generate higher aid inflows. But when the paradigm maximizes expected domestic production, ignorant politicians would follow the paradigm more closely than informed politicians even if foreign aid were paid independently of the chosen policy.

It is easy to show that countries with an ignorant incumbent would perform worse in expectation than countries with an informed incumbent also in the absence of a paradigm and foreign aid. Proposition 3 thus suggests another reason why paradigms may fail: they may attract countries that would perform poorly anyway because of their incompetent politicians. But despite their poor performance, these countries still perform better than if the paradigm did not reveal any information about the appropriate policies z . A paradigm that reveals valuable information therefore simultaneously helps countries with ignorant politicians, and looks like a failure as most countries that follow it perform poorly.

5 Concluding Remarks

The presented model suggests that many developing countries may be willing to distort their policies to follow a certain development paradigm in order to attract higher aid flows. The countries that are willing to distort their policies most are those with poor economic and institutional pre-conditions, because their economies plagued by poor technologies and corrupt and incompetent political leaders are unproductive anyway. Hence, development paradigms may fail partly because most countries that follow them would fail anyway.

While my model can possibly best capture the two major development paradigms (with their implications for the degree of government interventions), the main idea should apply more generally. To get foreign aid, developing countries often need to meet “enormous demands on scarce administrative skills” (Easterly, 2002, p. 223), or to channel resources towards certain projects or initiatives. Countries may be more willing to meet such demands if their opportunity costs are low because of low productivity, weak institutions or rampant corruption.

The model suggests that development paradigms might retard development by motivating political leaders to distort their policies away from the policies that would be appropriate in the country-specific circumstances. What might seem even worse is that paradigms cause larger policy distortions in countries with low productivity and poor governance. This, however, is not unambiguously negative, as it implies higher aid flows to countries in which the people’s welfare is low. Paradigms could thus be seen as a mechanism, albeit imperfect, that ensures that more aid flows to countries where people are in need. In addition, paradigms can also do good when used to reveal valuable information about appropriate policies to incompetent political leaders.

There is disagreement about what development paradigm, if any, has followed the Washington Consensus (Rodrik, 2006). Some would say that the focus on governance

and corruption is the new development paradigm. This focus is quite different from the policy paradigms discussed in this paper. Thinking within the presented framework, such a paradigm may mean that foreign aid is independent of the chosen policy, but higher when the policy is implemented in an honest rather than a corrupt manner. As a result (good and bad) politicians have no incentive to distort policies, and even bad politicians may often find it optimal to implement these undistorted policies in an honest manner. But, in countries with very poor political institutions, bad politicians may still engage in massive corruption.¹⁰ As a result these countries receive less foreign aid. Hence, the effects of such a governance paradigm contrasts starkly with the effects of policy paradigms: First, countries where people are in need tend to receive more aid under a policy paradigm, but less aid under a governance paradigm. Second, a governance paradigm may look successful partly because its followers would perform quite well anyway, while policy paradigms tend to look unsuccessful partly because they attract mainly countries that would fail anyway.

¹⁰Appendix B (not intended for publication) derives these results formally.

Appendix A: Proofs

Proof of Lemma 1: It follows from the properties of $f(\cdot)$ and $g(\cdot)$ that given κ_t , there exist either one or two local maximizers, $a_l^{\kappa_t}$, of $y(a_t, \kappa_t)$. Each of them must satisfy the first-order condition $\Lambda(\kappa_t)f'(a_t|z) + g'(a_t|x) = 0$. It follows from this first-order condition and the properties of $f(\cdot)$ and $g(\cdot)$ that $\min\{x, z\} \leq a_l^{\kappa_t} \leq \max\{x, z\}$, and that $|a_l^{\kappa_t} - x|$ increases in $\Lambda(\kappa_t)$ and decreases in B for both $a_l^{\kappa_t}$. Hence, if there is only one local maximizer (which then coincides with the global maximizer a^{κ_t}), it holds that $|a^{\kappa_t} - x|$ increases in A and decreases in B , and that $|a^0 - x| > |a^c - x|$. Moreover, it follows from the strict concavity of $f(\cdot)$ and $g(\cdot)$ that if there are two local maximizers and the one closer to z (to x) is the global maximizer for some value of $\frac{\Lambda(\kappa_t)}{B}$, then the local maximizer closer to z (to x) is the global maximizer also for all higher (smaller) values of $\frac{\Lambda(\kappa_t)}{B}$. Consequently, it holds that $|a^{\kappa_t} - x|$ increases in A and decreases in B , and that $|a^0 - x| > |a^c - x|$ even if there are two local maximizers. ■

Proof of Lemma 2: As period two is the last period, a good politician maximizes w_2 and a bad politician maximizes $w_2 + r_2$. A good politician prefers $(a^0, 0)$ to (a^c, c) because $y^0 > y^c$ and, consequently, $w(a^0, 0) > w(a^c, c)$. A bad politician prefers (a^c, c) to $(a^0, 0)$ because $(\tau + c)y^c > \tau y^0$, which follows from $\frac{\tau}{c} < \frac{\phi}{1-\phi}$. ■

Proof of Proposition 1: I first prove existence of the characterized PBE. It follows from Lemma 2 that the good incumbent's strategy is indeed his best response to the people's strategy, and from Lemma 2 and the discussion before the proposition that the bad incumbent's strategy is indeed his best response to the people's strategy. Given these strategies of the different incumbent types, Bayesian updating implies $\mu(0) = 1$ and $\mu(c) = 0$ if $D < D'$, and $\mu(0) = \beta$ if $D \geq D'$. Moreover the Intuitive Criterion requires the off equilibrium belief $\mu(c) = 0$ if $D \geq D'$, because playing $\kappa_1 = c$ is in this case equilibrium dominated for a good, but not for a bad incumbent. Consequently, the people's strategy

is optimal given their beliefs $\mu(\kappa_t)$ for $D < D'$ as well as for $D \geq D'$.

I now prove that no other PBE exists. It follows from the discussion before the proposition that no other PBE can exist in which a good incumbent plays $\kappa_1 = 0$. Hence it only remains to be shown that no PBE can exist in which a good incumbent plays $\kappa_1 = c$. In any perfect Bayesian equilibrium in which a good incumbent plays $\kappa_1 = c$, a bad incumbent plays $\kappa_1 = c$ as well. But the Intuitive Criterion then requires the off equilibrium belief $\mu(0) = 1$, because playing $\kappa_1 = 0$ is equilibrium dominated for a bad, but not for a good incumbent. Given $\mu(0) = 1$, the people would support the incumbent when observing $\kappa_1 = 0$, and a good incumbent would therefore deviate and play $\kappa_1 = 0$ instead of $\kappa_1 = c$. Hence there exists no PBE in which a good incumbent plays $\kappa_1 = \tau$.

I finally derive the properties of D' . It follows from $y^0 > y^c > 0$ and $(\tau + c)y^c > \tau y^0$ (which is established in the proof of Lemma 2) that $D' \in (0, 1)$. It can be shown that $\frac{\partial D'}{\partial I} = \frac{\tau}{(\tau+c)(y^c)^2} \left[y^0 \frac{\partial y^c}{\partial I} - y^c \frac{\partial y^0}{\partial I} \right]$ for $i \in \{A, B, \phi\}$. It follows from the definition of $y(a_t, \kappa_t)$ and Lemma 1 that $\frac{\partial y^c}{\partial B} \geq \frac{\partial y^0}{\partial B}$, and it holds that $y^0 > y^c > 0$. Hence $\frac{\partial D'}{\partial B} > 0$. The definition of $y(a_t, \kappa_t)$ further implies $\frac{\partial y^c}{\partial \phi} > 0 = \frac{\partial y^0}{\partial \phi}$. Hence $\frac{\partial D'}{\partial \phi} > 0$. Equation (1) implies $y^0 \frac{\partial y^c}{\partial A} - y^c \frac{\partial y^0}{\partial A} = B [\phi f(a^c|z)g(a^0|x) - f(a^0|z)g(a^c|x)]$, which is strictly negative because Lemma 1 and the properties of $f(\cdot)$ and $g(\cdot)$ imply $f(a^c|z) \leq f(a^0|z)$ and $g(a^0|x) \leq g(a^c|x)$, and because $\phi < 1$. Hence $\frac{\partial D'}{\partial A} < 0$. ■

Appendix B (not intended for publication)

In this appendix I assume that foreign aid no longer depends on policy a_t , but on corruption κ_t . In particular, I assume that aid inflows are given by $B\tilde{g}(\kappa_t)$, with $\tilde{g}(0) > \tilde{g}(c) \geq 0$. The rest of the model is the same as in section 2.

In any period the politician in office simply chooses the policy $a_t = z$, which maximizes national income y_t and, thereby, his official wage w_t , and also the corruption revenues r_t if $\kappa_t = c$.¹¹ Hence, it is only corruption $\kappa_t \in \{0, c\}$ that is of interest in this setting.

In period two a good incumbent again chooses $\kappa_2 = 0$, which leads to the national income $y_2 = \tilde{y}^0 \equiv \tilde{A} + \tilde{g}(0)$, where $\tilde{A} \equiv Af(z|z)$. The payoff of a bad incumbent is $\tau\tilde{y}^0$ when choosing $\kappa_2 = 0$, and $(\tau + c)\tilde{y}^c$, where $\tilde{y}^c \equiv \phi\tilde{A} + \tilde{g}(c)$, when choosing $\kappa_2 = c$. Hence he prefers $\kappa_2 = 0$ if $\frac{\tau}{c} \geq \frac{\phi\tilde{A} + \tilde{g}(c)}{(1-\phi)\tilde{A} + \tilde{g}(0) - \tilde{g}(c)}$, and $\kappa_2 = c$ otherwise.¹²

The people's decision at the end of period one matters if and only if $\frac{\tau}{c} < \frac{\phi\tilde{A} + \tilde{g}(c)}{(1-\phi)\tilde{A} + \tilde{g}(0) - \tilde{g}(c)}$. In this case the PBE of this modified game is the same as the PBE characterized in Proposition 1, except that the threshold is now $\tilde{D}' \equiv \frac{(\tau+c)\tilde{y}^c - \tau\tilde{y}^0}{(\tau+c)\tilde{y}^c} < D'$.¹³ The probability that a country chooses $\kappa_1 = 0$ is 1 if $D \geq \tilde{D}'$, and β otherwise. Hence countries with high D are more likely to follow such a governance/corruption paradigm. But countries with high D would also be more likely to choose $\kappa_1 = 0$ than countries with low D in the absence of foreign aid, i.e., if $B = 0$. The implications of these results are discussed in section 5.

¹¹In the presence of uncertainty as in section 4, the incumbent would choose the policy a_t that maximizes *expected* national income, but all subsequent results would be very similar.

¹²Depending on $\tilde{g}(0)$ and $\tilde{g}(c)$, this inequality can hold even though $\frac{\tau}{c} < \frac{\phi}{1-\phi}$. Hence, even a bad politician in office chooses $\kappa_2 = 0$ if $\tilde{g}(0)$ is sufficiently large relative to $\tilde{g}(c)$.

¹³Note that $\tilde{D}' < D'$ if and only if $\frac{\tilde{y}^0}{\tilde{y}^c} > \frac{y^0}{y^c}$. It must hold that $\frac{\tilde{y}^0}{\tilde{y}^c} > \frac{y^0}{y^c}$ because $\frac{1}{\phi} > \frac{f(a^0|z)}{\phi f(a^c|z)}$, where the inequality follows from Lemma 1, and because $\frac{\tilde{g}(0)}{\tilde{g}(c)} > 1 > \frac{g(a^0|x)}{g(a^c|x)}$, where the first inequality holds by assumption and the second follows from Lemma 1.

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