Boondoggles and Expropriation

Rent-seeking and Policy Distortion when Property Rights are Insecure

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Abstract

Most analyses of property rights and economic development point to the negative influence of insecure property rights on private investment. Keefer and Knack focus instead on the largely unexamined effects of insecure property rights on government policy choices. They identify one significant anomaly—dramatically higher public investment in countries with insecure property rights—and use it to make the following broad claims about insecure property rights:

- They increase rent-seeking.

- They may reduce the incentives of governments to use tax revenues for productive purposes, such as public investment.

- They do so whether one regards the principal problem of insecure property rights as the maintenance of law and order, which government spending can potentially remedy, or as the threat of expropriation by government itself, and therefore not remediable by government spending.

The authors present substantial empirical evidence to support these claims.

Boondoggles and expropriation:

Rent-seeking and policy distortion when property rights are insecure

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Boondoggles and expropriation:

Rent-seeking and policy distortion when property rights are insecure[1]

The security of property rights has a well-known and significant role in economic development. In explaining the links between the two, most analyses point to the direct effect that insecure property rights have on private investment. This focus does not explain significant anomalies in government policy making between countries with secure and insecure property rights. This paper uses one such anomaly, the fact that the ratio of public investment either to national income or to private investment is dramatically higher in countries with insecure property rights than other countries, to make the following broad claims: insecure property rights increase rent-seeking by government; they may reduce the incentives of governments to use tax revenues for productive purposes; and, finally, these effects emerge regardless of whether one regards the principal problem of insecure property rights as the maintenance of law and order among citizens, which government spending can potentially remedy, or as the threat of expropriation by government itself, and therefore not remediable by government spending. Empirical tests reported in the second half of this paper provide evidence for each of these claims.

On the other hand, our analytical results reject the argument that governments have an incentive to increase public investment when property rights insecurity drives down private investment. On the contrary, as long as public investment is complementary to private investment, the opposite is true. However, when one allows rent-seeking and public investment decisions to interact, the analytical results generate predictions that are consistent with the empirical record reported in the second half of the paper: observed public spending rises with the insecurity of property rights.

With respect specifically to public investment, the analysis provides an explanation for the ambiguous and often negligible growth effects that have been found for public investment in the literature. The analysis here suggests that the effects of observed public investment on growth are likely to vary with the security of property rights. However, the interaction between the security of property rights and public investment has not been considered in this large literature. The tests reported at the end of this paper support the notion that public investment can have a positive effect on growth, but that this effect is

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revealed only when one accounts for the differing incentives of governments, under different property rights environments, to use public investment for rent-seeking purposes.

Public investment and growth

The analysis in this paper begins with Barro's (1990) canonical analysis of public investment and growth. In the sections following, we expand on the conception of property rights that Barro hints at in his model, and contrast it to a more institutional approach to property rights that is common in the literature. In the final stage of the analysis we introduce the potential for government rent-seeking, from which we derive our testable predictions.

Barro (1990) begins with a representative, infinite-lived household in a closed economy, maximizing utility given by $U = \int_0^\infty u(c)e^{-\rho t}dt$, where c is consumption per person, $\rho > 0$ is the constant discount rate and $u(c) = \dfrac{c^{1-\sigma} - 1}{1 - \sigma}$, where $\sigma > 0$. Production per capita in the model is given by $y = k\phi = Ak\left(\dfrac{g}{k}\right)^\alpha$. A flat income tax finances public good spending, so the marginal private return to private investment is

$(1-\tau)\dfrac{\delta y}{\delta k} = (1-\tau)(1-\alpha)\phi\left(\dfrac{g}{k}\right)$. The growth rate of consumption is therefore

$$(1) \qquad \gamma = \frac{1}{\sigma}\left[(1-\tau)(1-\alpha)A\left(\frac{g}{k}\right)^\alpha - \rho\right].$$

Both benevolent and rent-seeking governments maximize (1) with respect to g/y to find the rate of public investment that maximizes growth. Rent-seeking governments then go on to maximize their utility with respect to rents, the amount of taxes they collect above and beyond the amount needed to fund growth-maximizing public investment. Assuming that all tax revenues are spent on public investment ($\tau = g/y$) and that the production function is Cobb-Douglass, and noting that $(g/k) = (g/y) \cdot \phi(g/k)$, differentiation gives Barro's equation (15):

$$(2) \qquad \frac{d\gamma}{d\left(\frac{g}{y}\right)} = \frac{1}{\sigma} \cdot \phi\left(\frac{g}{k}\right) \cdot (\phi' - 1).$$

Growth is maximized when the expression in (2) is equal to zero, yielding $\tau^* = a$. Barro

argues that since all governments would set g/k such that growth is maximized, there should be no observed correlation between public investment and growth. Rates of public investment should only vary across countries because of variations in the relative productivity of private and public capital, which are not themselves correlated with growth.

The effect of property rights on public investment and growth

There are at least two ways to introduce the security of property rights into the model above. One approach is suggested in Barro's (1990) public investment work and is common in the growth literature (e.g., Barro, Mankiw and Sala-i-Martin 1995, or Belletini and Ceroni). In this literature, property rights insecurity is a tax, implying that property rights security can be modified by government with the same facility that it modifies taxes more generally. Barro (1990) specifically assumes that governments can spend resources to curb attempts by some households to steal the output of other households: "An increase in spending, g, in areas that enhance property rights causes a reduction in the effective value of τ rather than a direct effect on the production function. . .[t]he relation of growth and saving rates to the amount of government expenditure devoted to the enforcement of property rights would resemble [those of other productive government expenditures]." (Barro 1990, p. S116).[2] Although public spending consequences are implied by this "fiscal" model of property rights, they have not been formally modeled nor tested.

An alternative approach to property rights is taken in the more institutionally-oriented literature. In this literature, the problem is not one of "law and order", where households fear expropriation by other private parties, but rather one of the ability of the state to credibly commit not to expropriate sunk investments. North and Weingast (1989), Acemoglu and Robinson (2001), Clague et al. (1996), Keefer and Stasavage (2000) and many others emphasize the institutional roots of insecure property rights, particularly the ability of governments to commit credibly not to expropriate privately-held assets. Institutions are not easily susceptible to change by government officials. As with the fiscal model of property rights, the institutional model has not been formally integrated into a dynamic

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[2] Zak (2000) also models the property rights problem as one of expropriation by some households of others, and allows government to expend resources on policing to reduce this risk. Unlike Barro (1990), he endogenizes the expropriation risk that households impose on each other; however, his model abstracts from the decision by government to invest in public infrastructure.

model of government fiscal decision making in a growth context.[3]

The two approaches embrace two distinct problems. The fiscal approach to property rights focuses on the law and order threat that citizens pose to each other, and the costs to government of dealing with that threat. It does not explicitly ask what conditions make these costs higher in some countries than others. The institutional model focuses on the threat of government expropriation and directly suggests institutional sources of variations in the severity of this threat across countries. Most of the cross-country evidence that sheds light on the impact of property rights is most easily interpreted in the context of the second model, including the evidence presented below.

One might imagine that governments would have an incentive to offset reduced private investment due to insecure property rights with greater public investment. Under either approach to property rights, the theoretical analysis below shows that governments do *not* have an incentive to do this, as long as public investment is a complement to private investment, as assumed in all of the public investment literature, rather than a substitute for it. An additional consideration, besides the insecurity of property rights in and of itself, is necessary to explain our empirical findings that public investment is highest in countries with the weakest property rights.

Property rights as a fiscal problem

If property rights security were easily influenced by government budget decisions, then the decision to spend resources to improve the security of property rights would be directly linked to the decision to spend resources on public investment. To explicitly model this, we assume that households confront a new tax rate given by $\tau_{HH} = \tau_{PI} + \tau_{PR} + \kappa(\tau_{PR})$, comprised of the taxes they pay to finance public investment (τ_{PI}) and more secure property rights (τ_{PR}), and of the implicit tax they confront, represented by $\kappa(\tau_{PR})$, which is the residual risk to property rights after government has spent resources (e.g., on courts and police) to mitigate that risk, $d\kappa/d\tau_{PR} < 0$. The burden of insecure property rights can then be described as $(\kappa + \tau_{PR})$, the amount that households pay to secure property rights, and the insecurity

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[3] A third approach views the security of property rights as neither a fiscal nor an institutional problem, but rather a "pre-institutional" problem of struggle over resources and of investment by all actors in resources that can be used either to defend their own assets or to expropriate the assets of others (see, e.g., Skaperdas 1995 and Sonin 2002). The government provision of property rights in these models is, however, as in the macroeconomics literature, a simple policy decision flowing from the identity of the median voter rather than a consequence of institutional features of the state.

that remains after taxes have been converted into police and courts.

As usual, households choose a consumption path that maximizes utility, taking as given government policy, so that growth is given by

$$(3) \quad \gamma = \frac{1}{\sigma}\left[(1 - \tau_{HH})(1 - \alpha)A\left(\frac{g}{k}\right)^{\alpha} - \rho \right].$$

Government then chooses τ_{PI} and τ_{PR} to maximize growth. Noting that

$\tau_{PI} = g / y = A^{-1}(g/k)^{1-\alpha}$, substituting for g/k, and differentiating (3) with respect first to τ_{PI} and then to τ_{PR} to get the marginal growth impacts of each, yields the two first order

conditions given by (4) (after dividing out $\dfrac{1}{\sigma}\tau_{PI}^{\frac{\alpha}{1-\alpha}}A^{\frac{1}{1-\alpha}}$ from each of the two conditions).

$(4.1) \quad \kappa' = -1$

$(4.2) \quad \tau_{PI} = \alpha\big(1 - \tau_{PR} - \kappa(\tau_{PR})\big).$

Note that when property rights are irrelevant, equation (4.1) disappears and equation (4.2) converges to the previous solution for public investment, $\tau_{PI} = a$.

From these conditions, one can deduce immediately that more insecure property rights *reduces* the incentives of governments to make productive public investments. The ratios of productive public investment to national income and to private investment are lower in countries with insecure property rights. From equation (4.2), the greater is the burden of insecure property rights $(\kappa + \tau_{PR})$ (spending to secure property rights and the residual insecurity of property rights), the lower is τ_{PI}, which is simply the ratio of public investment to national income. With respect to the ratio of public to private investment,

recall that $\dfrac{g}{k} = (A\tau_{PI})^{\frac{1}{1-\alpha}}$. Substituting from equation (4.2), and differentiating both sides

with respect to $(\kappa + \tau_{PR})$, the net burden imposed by insecure property rights on households, it follows immediately that the predicted ratio of public to private capital also drops as property rights insecurity increases.[4]

The law and order approach to property rights does not predict, however, that the security of property rights influences the growth effect of productive public investment. At the growth-maximizing level of public investment, additional public investment has zero

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[4] Note that restricting attention to (4.2) is possible because the growth-maximizing level of expenditures on

marginal impact on growth, regardless of the security of property rights.[5]

An institutional approach to property rights and public investment

The institutional approach to property rights focuses on the threat of government expropriation, a threat which is unlikely to be solved by increasing expenditures on courts and police. Two of the significant explanations for variations in this threat across countries are checks on government discretion and the time horizon of government officials. North and Weingast and Keefer and Stasavage (2000) argue that the ability of any government to credibly promise not to renege on its policy commmitments (e.g., not to expropriate) is enhanced by the presence of institutional checks and balances or multiple veto players inside government. These institutional features are at the constitutional core of the state. Similarly, countries that have elections, which offer a sanction for decision makers who violate promises, can also strengthen the institutional underpinnings of secure property rights.

Others (e.g., Clague et al. 1996) argue that the time horizon of leaders is another significant determinant of their decision to expropriate. Clague, et al. (1996) that the longer a dictator expects to survive in office, or the longer a democracy has been established, the more secure are property rights. Leaders with long time horizons are reluctant to engage in expropriatory actions, since the reduced investment that results hurts their ability to extract rents in the future. Leaders with short time horizons naturally care less about future rents. Regime horizons, though influenced by the actions of government officials while in office, have a substantial exogenous component that is beyond the influence of government policy instruments.

To embed these characteristics in the Barro (1990) model we first allow for the possibility that at some point, government decision makers realize that they have only one period left in office, that at the end of the period they must leave office, removing all incentive they might have to maximize future growth and leading them instead to expropriate as much private capital as possible. The amount that they can take in the last period, though, depends on the overarching institutional environment in which they operate (e.g., where checks and balances are significant, it is less likely that any individual government actors can, in their last periods, extract significant rents).

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property rights protection establshed in (4.1) depends only on K.

[5] Differentiating (3) with respect to τ_{PI}, and differentiating again with respect to $(\kappa + \tau_{PR})$, and evaluating the result at the growth maximizing level of public investment given by (4.2) reveals no effect of property rights

Assume that neither households nor government know in which period all government veto players will have to leave office, and that the exogenous probability that the government will have to leave office in any given period is given by

5) $F(t) = 1 - e^{-ht}$.[6]

This distribution function has the convenient property that the probability that the government will have to leave office at some time t, conditional on not having had to leave office earlier, is given by $F'(t)/(1 - F(t)) = h$, where h is invariant over time. Upon leaving office, governments can take a share θ of the capital that households have invested, above and beyond whatever tax rate the government had previously established. The key here is simply that governments can neither control nor predict the events that would make expropriation an optimal strategy. However, they can control taxes and spending conditional on the probability of the events occurring and the maximum rents that they can extract should they be forced to leave office.

The specific assumptions – that the government leaves office, for example – are not meant to capture the entire set of circumstances under which governments might expropriate. The key assumption is simply that at some point in a government's tenure, its incentives change unexpectedly, leading it to shift tax policy in a way that is adverse to existing investors. The particular specification accomplishes this, although others would, as well.

Institutions affect both F and θ. For example, in countries with strong, long-lived political parties, the likelihood that a party will have to leave office, never to return, is lower, reducing F and therefore h. In countries with regular elections and institutional checks and balances, it is more difficult for political actors to expropriate in the event that they are forced to leave office (or, more generally, in the event that their political incentives change). Such institutions effectively lower θ.

Households maximize $U = \int_0^\infty u(c)e^{-\rho t}dt$, where

6.1) $U = \int_0^\infty u\big[(1 - F(t))c(t) + F'(t)(1 - \theta)k(t)\big]e^{-\rho t}dt$, subject to

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security on the relationship between public investment and economic growth.

[6] Kamien and Schwartz (1978) introduced this expression as the probability that a research program would bear fruit by some period t. The analogy to research and development is not strained, since R&D, like government tenure, is affected by factors both exogenous to and within the control of key actors.

6.2) $\quad \dot{k} = (1-\tau)Ak^{1-\alpha}g^\alpha - c, \quad c \geq 0.$

Equation (6.1) assumes that households consume $c(t)$ until government expropriates, at which point they live off of their remaining capital, $(1 - \theta)k$.[7] The maximization problem can be approached by using (6.2) to rewrite (6.1) in terms of k and dk/dt. If the integrand of (6.1) is G, the solution to the problem is then given by the Euler equation, $dG_{\dot{k}}\!\big/\!dt = G_k$, or

$$-\dot{c}u''[1 - F(t)] + u'F'(t) + u'\rho[1 - F(t)] = u'\left[(1 - F(t))(1 - \tau)(1 - \alpha)A\left(\frac{g}{k}\right)^\alpha + F'(t)(1 - \theta)\right].$$

Recalling that $u'=c^\sigma$ and $u''=-\sigma c^{\sigma-1}$ and rearranging terms yields the following expression for growth

7) $\quad \gamma = \dfrac{\dot{c}}{c} = \dfrac{1}{\sigma}\left[(1-\tau)(1-\alpha)A\left(\dfrac{g}{k}\right)^\alpha - \theta h - \rho\right].$

As expected, growth falls as the security of property rights deteriorates.

Once again, all governments, whether rent-seeking or not, attempt to choose the level of public investment that maximizes growth. As before, substituting $\dfrac{g}{k} = (A\tau)^{\frac{1}{1-\alpha}}$ into (7) and maximizing (7) with respect to τ yields:

(8) $\quad \dfrac{d\gamma}{d\tau} = \dfrac{1}{\sigma}A^{\frac{1}{1-\alpha}}\tau^{\frac{\alpha}{1-\alpha}}(\alpha\tau^{-1} - 1) = 0.$

The predictions of this model, incorporating an institutional approach to property rights, are somewhat distinct from those of the fiscal model of property rights. None of the institutional parameters appear in (7), so from (7) we can immediately deduce that the share of public investment in national income and the ratio of public to private investment are predicted to be invariant to the security of property rights, rather than declining with the security of property rights, as in the fiscal model. The influence of public investment on growth is invariant to the security of property rights, as in the previous model.

In sum, the institutional approach to property rights, unlike the fiscal approach,

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[7] A more accurate, but more complicated setup would allow households to carry $(1 - \theta)k$ into the next period, beginning production again under a successor government. Since utility under the successor government is a function only of the capital that households possess when the successor government comes to power, however, the simplification has no effect on the conclusions.

predicts that there is no spillover from the property rights environment to government fiscal decision making. However, in common with the fiscal approach to property rights, the institutional approach fails to predict the relationship between the magnitude of public investment and property rights that is observed in the data. Rent-seeking offers a logical avenue to explore to reconcile the property rights predictions and the empirical findings. We turn to this in the next section.

Rent-seeking, institutions and public investment

There is a significant distinction between rent-seeking and insecure property rights, and analytical advantages to not conflating them by, for example, defining those governments as rent-seeking that undermine property rights. Rent-seeking is best seen as that portion of predictable government taxes that are retained by government officials for their own uses. Threats to property rights, on the other hand, as the foregoing arguments suggest, are best seen as the unpredictable threat that either government or citizens will expropriate capital – possibly for their own use (as in rent-seeking), but not necessarily.

Much public investment takes the form of rent-seeking. From pork barrel spending in the United States to white elephant steel factories in Nigeria, public investment has been seen to serve purposes other than maximization of growth, ranging from securing political support to securing personal fortunes. Among countless stories that show the extent to which rent-seeking is embedded in public investment in countries with insecure property rights is one of public investment in Turkmenistan: in a country where roads were crumbling and water was unavailable for hours on end, the authorities an international airport with the capacity to receive 4.5 million visitors a year, in a country that received a few hundred thousand a year, and for which the authorities insisted on building the control tower on the wrong side of the terminal, blocking the controllers' view of the runway.[8]

The public choice literature, with its emphases on rent-seeking interest groups (Buchanan and Tullock, 1962; Olson, 1971), bureaucratic and legislative incentives (Niskanen, 1971; Noll and Fiorina, 1978; Fenno, 1973), and the predilections of confiscatory autocrats (Olson 1994), provide ample reasons to believe that public investment should not be immune to the non-economic incentives of government decision makers. Pritchett (2000) cites numerous examples of public investments with no demonstrable positive impact

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[8] "Palaces and Poverty in Central Asia," *The Washington Post*, November 11, 1994, p. A35.

on economic outputs at all. Tanzi and Davoodi (1997) thoroughly demonstrate an inverse correlation between corruption and the quality of public investments across a large number of countries.

However, the simple observation that rent-seeking is associated with public investment is not enough to explain why public investment is higher in countries with insecure property rights. For that, one needs to show that rent-seeking does not displace public investment or that, if it does, rent-seeking increases at a faster rate than public investment declines. Similarly, in the fiscal model of property rights, productive public investment declines with property rights protection; if property rights insecurity increases observed public investment because of higher rent-seeking, it must be the case that rent-seeking rises faster than productive public investment falls. In both the fiscal and institutional models of property rights, the sum of rent-seeking and productive public investment increases as the security of property rights drops.

Barro (1990) describes a plausible way in which a rent-seeking government might decide how much to extract from households for its own, non-public purposes. First, government decision makers set the rate of public investment that maximizes growth, as in the preceding models. Then they fix the final tax rate to maximize their own consumption possibilities, conditional on the effect of this decision on future growth, holding public investment constant. In Barro (1990), the utility of government officials in any period is given by $U(c_g) = u[(\tau - \alpha) \cdot y(0)e^{\gamma t}]$, where α is the growth-maximizing ratio of public investment to income. The higher is growth, γ, the more that government can consume; higher taxes, though, suppress growth. Maximizing government utility with respect to τ, holding public investment constant, leads rent-seeking governments to set taxes such that they can extract rents given by

$$(9) \quad \tau - \alpha = -\frac{1}{dy/d\tau} = \frac{\sigma}{(1-\alpha)\phi}.$$

The middle term in (9) simply reflects the fact that rents are higher when taxes have a smaller effect on growth, since an increase in taxes with no offsetting increase in public investment must have, by (1), a negative effect on growth.

When property rights are a law and order problem that can be addressed by fiscal policy, governments can be thought of as first setting taxes and spending to protect property

rights according to (4.1), then setting taxes to set the growth-maximizing level of public investment, according to (4.2), and then identifying the optimal level of rent-extraction by maximizing $U(c_g) = u[(\tau_{HH} - \alpha(1 - \tau_{PR} - \kappa(\tau_{PR})) - \tau_{PR}) \cdot y(0)e^\kappa]$ with respect to τ_{HH}. This yields rents given by

$$(10) \quad \tau_{HH} - \alpha(1 - \tau_{PR} - \kappa(\tau_{PR})) - \tau_{PR} = -\frac{1}{dy/d\tau}$$

where the first term in (10) corresponds to the tax rate in (9), and the remaining terms on the ·left-hand side of (10) correspond to a in (9), such that the left-hand side of (10) is simply the amount tax revenues that are diverted to rent-seeking rather than productivity-enhancing activities.

From (10), and specifically the denominator of the right-hand side term, we can deduce both that property rights insecurity exacerbates rent-seeking, and that insecure property rights drives up rent-seeking more rapidly than it drives down productive public investment. From the maximization of (3) and first order conditions (4.1) and (4.2), the right-hand side of (10) can be rewritten as

$$(11) \quad -\frac{1}{dy/d\tau} = \frac{\sigma}{(1 - \alpha)A^{1-\alpha}(1 - \tau_{PR} - \kappa(\tau_{PR}))^{\frac{\alpha}{1-\alpha}}}.$$

By inspection, it is evident that rent-seeking increases as the security of property rights declines (the left-hand side of (11) increases with κ and τ_{PR}). Moreover, the increase in rent-seeking offsets the decline in productive public investment predicted by equation (4.2). By (4.2), as property rights become more insecure (as $(\kappa + \tau_{PR})$ rises), productive public investment drops by α. Differentiating the right-hand side of (11) by $(\kappa + \tau_{PR})$ yields

$\alpha \dfrac{\sigma}{(1 - \alpha)^2 A^{1-\alpha}(1 - \tau - \kappa)^{\frac{2\alpha+1}{1-\alpha}}}$, the amount by which rent-seeking increases with a decline in

the security of property rights (or, equivalently, an increase in the costliness of protecting property rights).

For all reasonable values of the technology parameter A and the marginal utility of consumption, σ, this expression is larger than α and the insecurity of property rights

increases rent-seeking (much) faster than it suppresses productive public investment.[9]
Intuitively, governments forego current rents if the resulting increased household investment
and faster growth promise more than offsetting increased future rents. When property
rights are insecure (or costly to secure), the promise of future rents falls for two reasons.
Directly, insecure property rights deter private investment; however, they also reduce private
investment indirectly, by reducing government incentives to undertake productive public
investment. The direct effect is what leads rents to increase faster than productive public
investment falls.

The addition of rent-seeking to the objectives of government turns the previous
predictions of the fiscal model of property rights on their head: as long as rent-seeking takes
the form of unproductive public investment, observed public investment (the sum of
productive and unproductive public investment) can rise both as a fraction of income and as
a fraction of private investment when property rights become less secure. Furthermore, the
non-productive public investment that results from rent-seeking has a negative impact on
growth (or, more precisely, the taxes that finance it have a negative impact on growth).
Consequently, one would expect the effect of observed public investment on economic
growth to increase with the security of property rights, rather than exhibit no relation, as
predicted in the absence of rent-seeking.

The addition of rent-seeking to the institutional approach to property rights yields
similar conclusions. In this case, the utility function of government officials is given by (12),
where government consumes all the capital that it can expropriate, and all of the tax revenue
it retains after bringing public investment to the growth-maximizing level.

$$(12) \quad U(c_g) = u\left[\left(1 - F(t)\right)\left(\tau - \frac{g}{y}\right)y(0)e^{rt} + F'(t)\theta k(0)e^{rt}\right]$$

Maximizing (14) with respect to τ yields

$$(13) \quad \tau - \frac{g}{y} = -\frac{F'(t)}{1 - F(t)} * \frac{\theta k(0)}{y(0)} - \frac{1}{\partial \gamma / \partial \tau}$$

The question we would like to ask is whether rents from taxation, given by the right hand side of (13), and rents from expropriated capital, given by the last term in (12), increase or decrease as property rights become less secure (as θ rises). Summing the two and differentiating with respect to θ, yields

$$-h\frac{k(0)}{y(0)} + he^{-ht}e^{rt}k(0)(1-\theta h), \text{ recalling } \frac{\partial \gamma}{\partial \theta} = h.$$ This expression is greater than zero —

that is, total consumption by government officials as a fraction of national income rises as property rights become less secure — when

$$(14) \quad -\frac{1}{y(0)} + e^{-ht}e^{\lambda t}(1-h\theta) > 0.$$

The right hand term of (14) is always positive and the left hand term is small. Expression (14) indicates that over the most plausible parameter ranges, rent-seeking does, indeed, generally rise as property rights become less secure.[10] The intuition is broadly similar to that in the fiscal model, in that as property rights become less secure, the payoffs to government from deferring rents to the future decline. Since productive public investment, in this model, is unaffected by the security of property rights, the net effect of insecure property rights is to increase observed public investment as a fraction of national income and private investment.

There are clear implications for the interpretation of public investment coefficients in growth regressions. Since they are based on observed public investment, which includes non-productive public investment created for rent-seeking purposes, the estimated growth effects of public investment are naturally likely to be low or negative. Failing to control for the effects of the property rights environment on the effects of additional public investment conflates these two sets of countries, leading to no or negative associations between public investment and growth. Conditional on the security of property rights, however, we would predict public investment to have a positive impact on growth. The evidence presented below is consistent with all of these predictions.

Different institutional variables and their expected impact

In the empirical analysis that follows, we first establish the anomalies that motivate

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[10] If the expression in parentheses were .01, h were 99, growth were zero, and t one, the right hand side term would be .0037. Initial period income per capita could be lower than $350 (when the left hand term would equal -.0029), and (14) would still be positive.

this paper – that the ratios of public investment to national income and to private investment are significantly higher in countries with insecure property rights. We then examine the implications of the foregoing analysis for economic growth, and look at the interaction of public investment and property rights on growth. Measures of the institutional environment are obviously fundamental to these tests. Unfortunately, there are no cross-country data that allow for a specific test of the fiscal model of property rights – the threats that citizens impose on each other, and the inherent differences across countries that make these threats more costly to combat in some places than others. Available variables measure a mix of both concepts. On the other hand, we are able to use two sets of variables related to the institutional model of property rights. One set refers directly to the threats posed by government action to investors. The second set captures some of the underlying institutional factors that are argued in the institutional literature to increase the threat of government expropriation.

Risk of expropriation and contract repudiation

Indicators of the risks of expropriation or the repudiation of contracts by government are representative of the capacity of the government to act arbitrarily more generally. In the work below, two indicators for these risks are employed, "**Risk of Expropriation**" and "**Risk of Repudiation of Contracts by Governments.**" These variables are published as part of the *International Country Risk Guide* (ICRG), provided monthly to subscribers, mainly multinational investors. "Expropriation" is a subjective indicator of the risk of confiscation and forced nationalization. "Repudiation of Contracts by Governments" is a subjective indicator of the risk that governments will repudiate or otherwise unilaterally change the terms of contracts with foreign businesses. Because these two indicators provide similar information, in the regressions below an additive index of them is used, labelled "**Predictable Government.**"

Bureaucratic quality and corruption

Low quality bureaucracies are the second institutional dimension investigated below. Bureaucratic organization and incentives are important components in their own right of the institutional framework within which public investment decisions are made and implemented. They are also indicative of the state of other institutions. The decisions of bureaucrats are nearly always subject to the oversight of politicians. If politicians are

unconstrained in the demands that they can place on bureaucracies, or if they are subject to frequent replacement, bureaucratic quality is likely to be lower.[11] Directly or indirectly, therefore, bureaucratic quality enters into the determination of the institutional parameter θ.

Two variables from the ICRG are relevant. The first, **"Quality of the Bureaucracy"**, measures the degree to which the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruption of governmental services. Such bureaucracies have established mechanisms for recruitment and training, and some autonomy from political pressure. For the second variable, **"Corruption in Government,"** low ratings are assigned to countries in which high government officials are likely to demand special payments and where illegal payments are generally expected throughout lower levels of government. Again, because the two variables offer similar information, they are grouped in an additive index labelled **"Bureaucratic Performance."**[12]

Executive discretion and competitive elections

At the center of institutional arguments related to the insecurity of property rights is the extent to which government hands are institutionally tied or not in questions of expropriation. Underlying the security of property rights and the performance of the bureaucracy is the structure of political institutions. The checks and balances arguments of North and Weingast and others are precisely in this vein: when multiple government actors must agree to expropriation or contract repudiation, the possibility of these actions being undertaken is reduced.

Two indicators of executive discretion are used below. One, **Executive Constraints**, indicates whether the executive in a country is subject to restraints on unilateral decision making by other branches of government or parts of society (Jaggers, K. and T.R. Gurr 1995). The Database of Political Institutions (DPI), version 3 (Beck, et al. 2001) characterizes the presence of checks and balances with the variable **Checks3**. This variable is built up from several other variables collected in the data set, including the number of parties in the government coalition (for parliamentary systems), whether the president's party has a majority in the legislature (presidential systems), and whether elections

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[11] Noll and Fiorina (1978) is one of the first of a growing literature examining the interaction of political and bureaucratic agents.

[12] Results using either of the two components are very similar to results obtained from using the index. The same is true for "Predictable Government".

are governed by closed list or open list rules (the former granting more authority to the heads of parties).

On the presumption that constitutional checks on executive behavior mean little if the relevant actors are not elected, the construction of *Checks3* also takes into account legislative and executive indices of electoral competitiveness (*EIEC* and *LIEC* in DPI), scaled one to seven.[13] However, for completeness, we also consider the competitiveness of elections separately. Where elections are more competitive, constraints on excessive rent-seeking and expropriation by leaders are likely to be tighter.

Public investment data

The other key variable in the analysis below is public investment. To measure this we follow Levine and Renelt (1992) and Devarajan, et al. (1996) by taking data on public investment from the *Government Financial Statistics* (*GFS*) of the International Monetary Fund. While GFS has some data on public investment by state and local governments, its most complete and reliable coverage is of central government expenditures, not including investments by state-owned enterprises.[14]

Property rights and the rate of public investment

Both models of property rights predict that, in the presence of rent-seeking that takes the form of non-productive public investment, observed public investment ratios to national income and private investment should be higher in countries that exhibit less secure property rights. Table 1 focuses on the institutional model of property rights, and compares

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[13] Where there are no elections, countries receive a one; the scores rise to seven when there are multiple candidates and multiple parties, and no single party or candidate receives more than 75 percent of the vote. If the legislative index of electoral competitiveness is less than five (where five indicates that multiple parties can legally be established, but where only one party wins any seats in the legislature), *checks* is one. This reflects the notion that legislatures that are not competitively elected are less likely to exercise decision making authority independent of the executive. Otherwise, coding of this variable depends on whether countries are presidential or parliamentary.

In presidential systems, checks is the sum of one (if *EIEC* is greater than four), one (for the president), one for each legislative chamber, and one if the first government party is closer in political orientation (left, right or center) to the first opposition party than to the party of the president. If the legislature is closed list (voters must vote for parties and cannot register candidate preferences) and the president's party has a majority in parliament, the legislature is not counted as a check. In parliamentary systems, checks is the sum of one (for the prime minister) and the number of parties in the governing coalition; the number of parties is reduced by one if there is a closed list and the prime minister's party is in the coalition.

[14] Barro (1991) appears to use the general government public investment, including decentralized government expenditures from GFS where available. For a few dozen countries, Easterly and Rebelo (1993) supplement GFS data on central government public investment with World Bank country reports that most notably include data on investments by state-owned enterprise.

public investment across countries with different property rights and institutional environments. The institutional/property rights variables are measured at the beginning of the period to minimize endogeneity concerns.

Table 1: Average Public Investment to GDP (1974 - 98) Under Different Institutional Arrangements

	Range (see note)	Mean values of public investment/GDP (# of countries)	Significance of difference in means
Bureaucratic Performance	(0 - 6.99) (7 - 12)	5.9 (54) 3.5 (39)	.0001
Predictable Government	(0 - 11.99) (12 - 20)	6.0 (47) 3.8 (46)	.0001
Executive Constraints (*see note*)	(5 - 7) (1 – 4.99)	5.8 (60) 4.1 (45)	.0001
Checks3	(1) (>1)	6.3 (60) 4.2 (54)	.003
EIEC	(1 - 2) (3 - 7)	6.5 (31) 4.9 (83)	.054

N.B. Higher values imply better bureaucratic performance, more predictable government, more checks, more competitive elections, but fewer executive constraints.

The first and second rows show that public investment as a share of GDP (averaged over 1974-98) is significantly lower in countries that exhibit higher scores on the two property rights variables, predictable government and bureaucratic performance.[15] However, the institutional model of property rights further suggests that specific political institutions underlie the security of property rights. Again, public investment is higher in countries that exhibit lower values for these institutional variables: executive constraints, *checks3* and the competitiveness of executive elections. Table 1, therefore, supports both the predictions and the underlying institutional arguments of the institutional model of property rights.

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[15] Tanzi and Davoodi (1997) make arguments about the effects of corruption on public investment which lead them to consider the amount of public investment in corrupt and non-corrupt countries: they also find that

Table 2: Effect of institutions on public investment/GDP (1974-98)
(OLS, robust standard errors in parentheses)

	Bureaucratic Performance	Predictable Government	Checks3	Electoral Competitiveness (EIEC)
Institutional Variable	-0.327 (0.155)	-0.201 (0.124)	-0.945 (0.267)	-0.754 (0.218)
Intercept	20.625 (6.677)	23.049 (7.229)	25.050 (6.849)	26.058 (7.244)
Log initial income/capita	-0.757 (0.720)	-0.924 (0.767)	-1.282 (0.715)	-1.250 (0.790)
Area	-0.190 (0.202)	-0.258 (0.200)	-0.306 (0.229)	-0.321 (0.247)
Population	-0.533 (0.291)	-0.499 (0.314)	-0.389 (0.321)	-0.420 (0.366)
Secondary enrollment	0.022 (0.028)	0.014 (0.031)	0.013 (0.028)	-0.002 (0.030)
Primary enrollment	0.045 (0.025)	0.047 (0.026)	0.043 (0.024)	0.058 (0.021)
Initial price of investment goods	-0.249 (0.202)	-0.234 (0.197)	0.018 (0.208)	0.024 (0.213)
N	77	77	85	85
R^2	.45	.42	.43	.47

Table 2 examines the logic underlying Table 1, but controls for other variables that might influence the government decision to supply public investment, including initial income per capita, initial population and area, the initial price of investment goods in the country relative to the US, and average human capital (educational achievement) over the period. Public investment is consistently higher across all measures except for *Executive Constraints* (not reported), for which the coefficient is of the right sign, but has a *t*-statistic of only 1.08.

public investment is higher in corrupt countries.

Determinants of the ratio of public to private investment

Strictly speaking, the two property rights models, with rent-seeking, predict that where property rights are more insecure, the ratio of public to private capital is higher. Data on the stock of private capital is necessary to test these predictions directly, but is unavailable. Instead, we use investment ratios, focusing as before on the threats to property rights created by the potential of government expropriation.[16]

Table 3: Average Public to Private Investment Ratios (1974 - 98) Under Different Institutional Arrangements

	Range (see note)	Mean values of public/private investment (# of countries)	Significance of difference in means
Bureaucratic Performance	(0 – 6.99) (7 - 12)	27.0 (53) 15.5 (38)	.0001
Predictable Government	(0 – 11.99) (12 - 20)	28.7 (46) 15.5 (45)	.0001
Executive Constraints (*see note*)	(5 - 7) (1 – 4.99)	32.6 (54) 17.9 (44)	.036
Checks3	(1) (>1)	34.5 (54) 18.0 (53)	.0058
EIEC	(1 – 2) (3 - 7)	40.1 (29) 21.2 (78)	.002

N.B. Higher values imply better bureaucratic performance, more predictable government, more checks, more competitive elections, but fewer executive constraints.

Table 3 shows the country means of the ratio of public to private investment under different institutional arrangements. In all cases, the ratio in countries where institutional scores are lower is significantly higher than in countries with higher institutional scores, as the "institutional" model of property rights and public investment predicts.

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[16] At any given point in time, the stock of private capital is determined by the initial capital stock and the change in capital stock over time, dk/dt, or $k_0 e^{dk/dt}$. As long as the rate of depreciation of capital is not too low and the time period over which average rates of investment are compared is not too short, though, initial capital stocks are likely to be small relative to capital stocks in most subsequent periods.

Table 4: Effect of institutions on public to private investment
(OLS, robust standard errors in parentheses)

	Bureaucratic Performance	Predictable Government	Checks3	Electoral Competitiveness (EIEC)
Institutional Variable	**-1.229** (0.777)	**-1.155** (0.610)	**-5.058** (1.527)	**-4.176** (1.806)
Intercept	74.305 (35.038)	81.880 (33.905)	153.76 (65.632)	159.836 (65.309)
Log initial income/capita	-0.797 (4.455)	-1.010 (4.193)	-5.651 (4.574)	-5.545 (4.832)
Area	-0.277 (0.949)	-0.624 (0.961)	1.576 (3.463)	1.465 (3.314)
Population	-2.176 (1.232)	-1.800 (1.267)	-4.251 (4.028)	-4.361 (3.767)
Secondary enrollment	0.007 (0.121)	0.001 (0.122)	0.032 (0.149)	-0.034 (0.156)
Primary enrollment	0.067 (0.110)	0.062 (0.107)	-0.289 (0.340)	-0.206 (0.317)
Initial price of investment goods	-1.049 (0.889)	-0.878 (0.842)	0.530 (1.187)	0.642 (1.213)
N	76	76	83	83
R^2	.34	.35	.19	.20

As with Table 1, the results in Table 3 might be sensitive to omitted variables and to possible biases created by the use of private investment rather than the private capital stock. Table 4 presents a more controlled comparison of the determinants of the ratio of public to private investment across countries. The log of initial income per capita (from Summers and Heston, 1991) is used, and can be interpreted as a proxy for initial capital stocks. In addition, the regressions in the table include standard explanatory variables employed in cross-country investment equations, including primary and secondary school enrollment (averaged over the period), and the initial price level of investment goods relative to the U.S. (from Summers and Heston, 1991).

Although the effects of these on the ratio of public to private investment is unclear, education is expected to have a positive impact on private investment; investment goods prices and initial income should have a negative influence. The population and area of a country are also taken into account, as rough proxies of the demand for public goods and economies of scale in infrastructure provision. Both might be expected to increase the demand for public goods, although again their impact on the ratio of public to private investment is unclear.

Table 4 reports results for predictable government, bureaucratic performance, *Checks3* and the Executive Index of Electoral Competitiveness. The signs of each are as predicted and statistically significant. The less secure are property rights and the less constrained by political institutions are government decision makers, the higher is the ratio of public to private investment. That is, even controlling for a variety of other possible influences on the ratio of public to private investment, this ratio is still higher in countries with lower scores in the institutional indicators. *Executive Constraints* (not reported) is again of the correct sign, but not quite significant at conventional levels, with a *t*-statistic of 1.54.

Rent-seeking, property rights and the quality of infrastructure

If the analysis in the paper is right, then we would expect the connection between observed public investment and the quality of public infrastructure to be highest in countries where property rights are secure – and where, therefore, incentives to extract high rents in the form of "white elephants" would be lowest. To the extent that observed public investment reflects rent-seeking, however, any relationship between spending and infrastructure services would be weakened.

Table 5 presents some preliminary evidence on these issues. The dependent variable is the change in quality of infrastructure over the 1900-2000 period, as measured by an index constructed from four variables: population with access to an improved water source (in percent); access to improved sanitation (in percent); electricity losses in distribution and transmission (as a percentage of output); and kilometers of paved roads.[17] Control variables include initial (1990) infrastructure quality, growth in per capita income and population over

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[17] Changes over the decade are measured in percentage points for the first three variables; because paved roads are measured in kilometers rather than percent, the percentage change is constructed by dividing the 1990-2000 difference by initial (1990) kilometers of paved roads. The infrastructure index is constructed by standardizing each of the four variables to have mean 0 and standard deviation of 1, and taking the mean. The electricity losses variable is reversed, so that greater losses are reflected in lower values of the index.

the decade, price level of investment goods (from Summers and Heston), and log of land
area (in square kilometers).

Table 5: Public Investment, Property Rights, and Improving Infrastructure

(robust standard errors in parentheses)

Equation	1	2	3
Institutional Variable	None	Bureaucratic Performance	Executive constraints
Public Investment/GDP	0.015 (0.016)	0.014 (0.028)	0.028 (0.016)
Institutional Variable		-0.060 (0.033)	-0.025 (0.026)
Public Investment* Institutional Variable		**0.014 (0.008)**	**0.014 (0.008)**
Initial infrastructure quality	-0.146 (0.084)	-0.018 (0.090)	-0.006 (0.084)
Per capita income growth 1990-98	-0.230 (1.562)	-1.735 (1.652)	-0.454 (1.581)
Population growth 1990-98	11.085 (3.972)	7.699 (4.336)	9.607 (4.058)
Price level of investment goods, 1990-98 mean	0.002 (0.003)	0.002 (0.004)	-0.002 (0.001)
Log of land area	0.033 (0.021)	0.041 (0.026)	0.050 (0.024)
Constant	-0.708 (0.466)	-0.320 (0.548)	-0.543 (0.396)
N	89	76	84
R^2	.17	.28	.31

Equation 1 in the table shows the weak overall relationship between public
investment over the decade and improvement in infrastructure. The coefficient on initial
quality is significant at the .10 level, and negative as expected. The strongest predictor is
population growth. Equation 2 adds *bureaucratic performance* and its interaction with public
investment. The coefficient on the interaction term is positive (and significant at the .10

level), indicating that public investment expenditure produces larger improvements in infrastructure where bureaucratic quality is lower and corruption is higher. This coefficient implies that the impact of public investment varies from a low of -.043 (with a standard error of .029) conditional on a *bureaucratic performance* value of 3 to a high of .079 (with a standard error of .06) when *bureaucratic performance* is 12.

Equation 3 uses an alternative measure of constraints on last period political decision makers to expropriate, *executive constraints*, which varies from a minimum value of one to a maximum of seven. Results are very similar, as the interaction term has a positive coefficient, significant at the .08 level. The impact of public investment on infrastructure, conditional on the minimum *executive constraints* value of one, is -.024 (a standard error of .025). Conditional on the maximum value of 7 – which characterizes 24 of the 84 countries in the sample – the marginal effect of public investment on infrastructure is .062 (a standard error of .031). In fact, spending is significantly associated with infrastructure improvement as well conditional on any *executive constraints* values of 5 or more.[18] Interactions are not significant, however, using *predictable government*, *checks3* and the executive index of electoral competitiveness (*EIEC*).

Public investment and growth

Conflicting or inconclusive results permeate the existing, extensive empirical literature on government spending in general and public investment in particular. Barro (1991), De Long and Summers (1991), Levine and Renelt (1992) and Landau (1983) report that public investment has an insignificant impact on growth. Easterly and Rebelo (1993), on the other hand, conclude that some types of public investment (transport and communication) have a positive correlation with growth, as does government investment in general. Devarajan et al. (1996) show that the substitution of government investment for other types of government expenditures has a negative impact on growth, however.

The foregoing analysis suggests that the neglect of property rights and rent-seeking considerations in this literature may have influenced its findings. When property rights are insecure, observed public investment is more likely to consist of rent-seeking, and therefore be unproductive. High levels of observed public investment due to rent-seeking, which would be associated with lower levels of growth (lower, because the taxes that finance higher

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[18] At 5, the coefficient is .033 and the standard error is .017; at 6, the coefficient is .048 and the standard error

rent-seeking suppress growth), are therefore conflated with high levels of productive public investment with potentially positive growth effects. This problem would not emerge if one could easily distinguish productive and non-productive public investment, but the data do not permit this. We test whether the property rights/rent-seeking nexus identified above in fact obscures the growth effect of productive public investment. We do this by including the interaction term (public investment x institutional variable) in the standard empirical growth equation that has been used in the past to examine the effects of public investment.

The control variables used are the school enrollment and initial income per capita variables from Tables 2 and 3, and private investment/GDP averaged over the period. Initial income is included to account for any "catch-up" effect that might exist, including the effect of initial capital stock.[19] Changes in human capital are proxied by primary and secondary school enrollment. The growth effect of public investment is determined in the model jointly with incentives to undertake private investments, so private investment over GDP is included. Any growth specification is vulnerable to the claim that omitted variables account for observed relationships; to mitigate this problem, we follow common practice in including continent dummies in the base specification to capture omitted effects that have continent-wide effects. We also control for inflation. To the extent that governments finance public investment through unsustainable mechanisms, such as money creation, it is less likely to have positive growth effects. Inflation is a better measure of unsustainable financing than tax revenue or deficit measures, since the efficiency with which governments can collect taxes and the extent to which money demand is sensitive to government deficits vary widely.

Table 6 displays the core results. Equation 1 is the base specification and includes no institutional variables or interactions. Consistent with Devarajan et al. (1993), the coefficient on public investment is negative and (marginally) significant. Other significant variables include inflation, initial income, and the Africa dummy (the OECD is the omitted category).

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is .024.

[19] However, see Keefer and Knack (1997) for institutional determinants of the strength of this effect.

Table 6: Public Investment, Property Rights, and Growth

(robust standard errors in parentheses)

Equation	1	2	3
Institutional Variable	None	Bureaucratic Performance	Predictable Government
Public Investment/GDP	-0.112 (0.057)	-0.054 (0.087)	-0.021 (0.075)
Institutional Variable		0.085 (0.100)	-0.054 (0.110)
Public Investment* Institutional Variable		**0.013 (0.017)**	**0.042 (0.020)**
Log of initial per capita GDP	-0.679 (0.350)	-0.853 (0.436)	-0.547 (0.369)
Secondary enrollment	0.002 (0.017)	0.002 (0.019)	0.007 (0.016)
Primary enrollment	0.015 (0.010)	0.015 (0.011)	0.016 (0.010)
Private Investment/GDP, Mean 1974-89	0.058 (0.049)	0.053 (0.049)	0.044 (0.049)
Latin America & Caribbean	-0.780 (0.890)	-0.679 (0.829)	-1.322 (1.055)
Sub-Saharan Africa	-3.186 (1.133)	-3.280 (1.130)	-3.593 (1.243)
East Asia & Pacific	1.371 (1.078)	1.231 (1.098)	1.062 (1.143)
Middle East & North Africa	-0.572 (0.902)	-0.424 (0.897)	-0.638 (1.103)
Eastern Europe and Central Asia	-1.287 (1.328)	-1.207 (1.437)	-1.724 (1.403)
South Asia	0.235 (1.053)	0.146 (0.981)	-0.166 (1.124)
Inflation Mean (log)	-0.524 (0.202)	-0.488 (0.209)	-0.563 (0.188)
Constant	7.005 (3.144)	7.566 (3.491)	6.625 (3.067)
R^2	.55	.56	.58

Note: Sample size is 80. Mean of dependent variable is 1.09.

Equations 2 and 3 display results for the two property rights variables, *Bureaucratic Performance* and *Predictable Government*, and their interactions with public investment.[20] As the "institutional" model of public investment and property rights predicts, the interaction term in equation 3, with *Predictable Government*, is positive and statistically significant. This is the variable that most precisely relates to the threat of government expropriation. Although positive, the interaction in equation 2, *Bureaucratic Performance*, less directly related to government expropriation, is not significant. When *predictable government* equals its sample mean (12.4 on the 20-point scale), the net effect of public investment on growth is near zero (-.021). When *predictable government* is equal to 10 or less (as it is for 28 of the 80 countries in the sample), a one percentage point increase in public investment has a significant negative association with growth. When *predictable government* is at its maximum level, a one percentage-point increase in public investment as a share of GDP increases growth by nearly 0.3 percentage points.[21]

Conclusion

The analysis in this paper exposes and explains an important effect of insecure property rights that has not been previously noted: insecure property rights not only drive down private investment; they also distort important public policy decisions of government. We document significant variation in public investment across countries with secure and insecure property rights, showing that observed public investment as a fraction of national income or private investment is far higher in the latter than the former. The intuitive explanation for this finding is not correct: governments do not have an incentive to invest more in productive public investment in order to offset the negative effects of insecure property rights on private investment. On the contrary, we show that productive public investment is, at best, unaffected by insecure property rights (when insecure property rights are due to the threat of government expropriation), and at worst is significantly reduced, when property rights are a law and order problem that can be remedied by government spending.

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[20] Interactions are computed as the product of the deviations of public investment and the institutional variables from the ir sample means. Thus, the coefficient on public investment in equations 2 and 3 indicates the effect of a 1 percentage-point increase in that variable conditional on the institutional variable being equal to its mean value.

[21] Only Luxembourg scores a perfect 20, however, followed by Switzerland (19.6), Netherlands (19), and the U.S. and U.K. (18.8). Most developed nations score above 17. Therefore, the effect is significant at the .076

Instead, we show that insecure property rights increase government rent-seeking. Rent-seeking governments are willing to accept lower rents in the current period if the correspondingly lower tax rate triggers higher private investment and a correspondingly larger stream of future rents. Insecure property rights reduce the future stream of rents and therefore encourage rent-seeking. We show that the effect of insecure property rights on rent-seeking can be dramatic, and indeed is likely to be substantially greater than any reduction in productive public investment. At the same time, we note that observed public investment in many countries is associated with rent-seeking activity, thereby suggesting a solution to the puzzle with which we begin the paper. Significantly higher observed public investment in countries with insecure property rights – and the scant or negative effect of that investment on economic growth — is in fact a reflection of the enhanced rent-seeking incentives of governments in environments where property rights are more insecure.

The results of this analysis go beyond the usual arguments underlining the importance of institutional issues in economic growth. For example, development policy often focuses on a two-pronged approach that emphasizes both non-distortionary and investment-friendly tax policies, but also secure property rights and protection of investors against unexpected expropriatory activities. The analysis here suggests that these two prongs are not independent: the very insecurity of property rights induces governments to distort fiscal policy in growth-suppressing ways. The results therefore draw attention to the complementarity of institutional quality and policy effectiveness and are likely generalizable to other policy settings: the success of policy interventions generally, like the effectiveness of public investment in boosting growth, is likely to depend on the institutional environment in which those policy changes are made.

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level for a one-tailed test.

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