Public Investment under Autocracy and Social Unrest

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Argument

- Governments concerned with political survival can use public investment to diminish protest.

- It's a strategic policy instrument along with, for example, repression and transfers

- We show that if the citizens can credibly threaten to protest, they can encourage self-interested political elites to increase public investment.

- Protest threats can substitute for electoral discipline.

Assumptions

- We study a 2-stage sequential move game:
- 1. The government invests in productive public goods, such as infrastructure and law enforcement
- 2. Then the citizens decide to work or protest
- The probabilistic protest outcome then determines how the output pie is divided

Timing

- 1. The elite invests G in productive public goods
- 2. The citizens allocate l labor units to protest and $(1-l)$ to producing
- 3. The citizens produce $y=\theta f(1-l,G)$
- 4. The elite survives in office with probability $q(\mu,l)$; μ is a protest-effectiveness parameter
- 5. If the elite survived the protests, it collects taxes τy from the citizens

Payoffs

$$u^e(\mathrm{G}, \mathrm{l}(\mathrm{G})|\theta, \tau, \mu) = q(\mu, l)\tau\theta f(1 - l, G)$$

$$u^c(l|\mathrm{G}, \theta, \tau, \mu) = (1 - q(\mu, l)\tau)\theta f(1 - l, G)$$

First-best solution

$$\max_{l,G} \theta f(1-l, G) - G$$

$$\Rightarrow$$

$$l^{fb} = 0$$

$$\theta f_2'(1, G^{fb}) = 1$$

Hard autocracy solution
(solution without the protest option)

$$\max_{G} \tau\theta f(1, G) - G$$

$$\tau\theta f_2'\left(1, G^{ha}\right) = 1$$

$$G^{ha} < G^{fb}$$

Since $\tau < 1$, the elite cannot appropriate the entire marginal product of capital and underinvests

Subgame perfect Nash/Protest equilibrium

In the second stage,
the citizens choose the protest level l:

$$\max_{l}(1 - q(\mu, l)\tau)\theta f(1 - l, G)$$

$$\Rightarrow$$

$$\underbrace{-q'_l\tau\theta f(1 - l, G)}_{\text{marginal expected}\atop\text{tax recovery}} = \underbrace{(1 - q\tau)\theta f'_1(1 - l, G)}_{\text{marginal expected}\atop\text{foregone labor income}}$$

The citizens' FOC implies that G↑ decreases protest

$$(l'_G(\mu, l) < 0)$$

if:

$$\underbrace{(f'_2/f\,)/(\,f''_{12}/f'_1) < 1}$$
The substitution elasticity between the public
capital and labor inputs is less than one

As long as public investments complement labor inputs, they
increase wages (the opportunity cost of protesting) relative to
the contestable rent (GDP), causing protests to drop

Public goods provision

In the first stage, the government takes the citizens' reaction function l'_G as given and chooses the public investment level G:

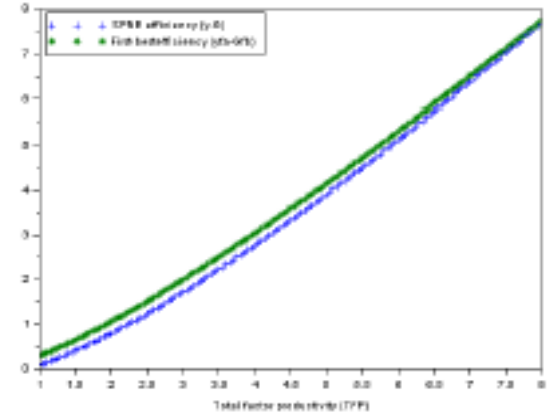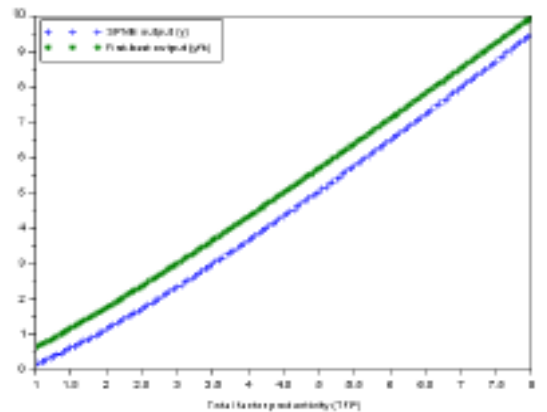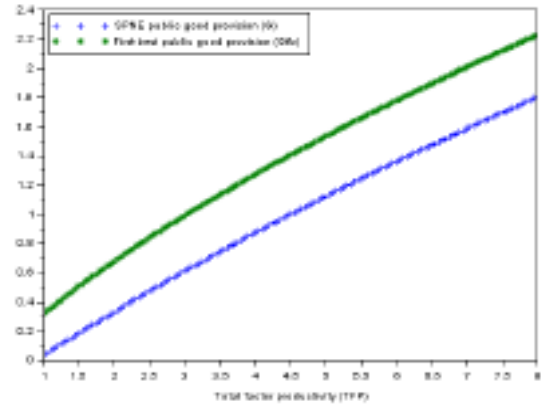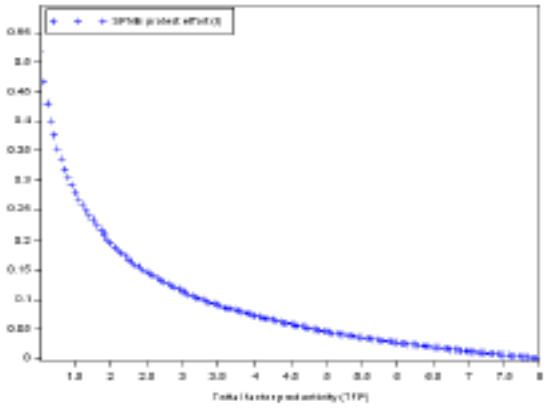$$\max_G q\big(l^*(G)\big)\tau\theta f(1 - l(G), G) - G \Rightarrow$$

$$\left\{ \underbrace{\theta\tau q f'_2(1 - l, G)}_{\substack{\text{Marginal increase in tax} \\ \text{revenues from investing} \\ \text{at the initial protest level}}} \quad \underbrace{-\theta f'_1 l'_G}_{\substack{\text{Marginal revenue gain} \\ \text{from protest decline,} \\ >0 \Leftrightarrow l'_G < 0}} \right\} = \underbrace{1}_{MC}$$

As long as $l'_G < 0$, capital provision pulls labor out of the protest sector, which benefits the elite
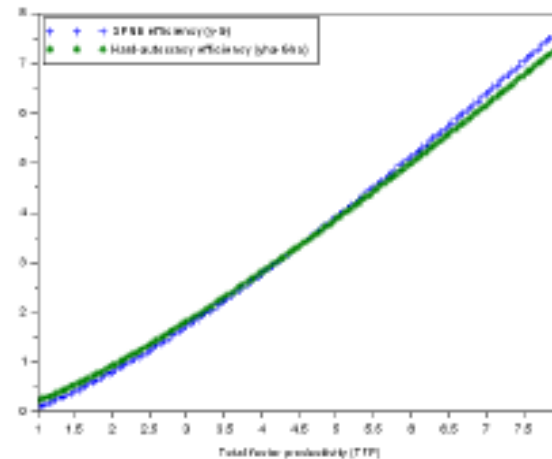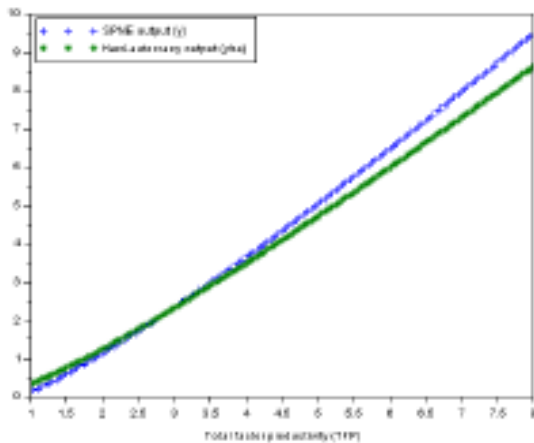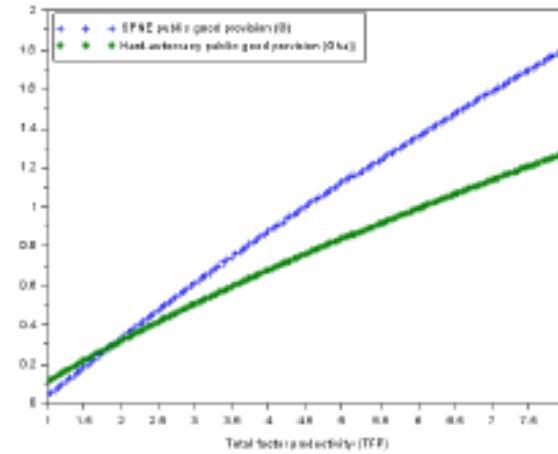
Factor market distortions

- First best solution: $\theta f_2'(1, G^{fb}) = 1$ vs. the protest equilibrium $\theta \tau q f_2'(1 - l, G) - \theta f_1' l_G' = 1$

- The labor supply is downward distorted as workers switch to protesting

- The public investment level is downward distorted due to finite taxation ability ($\tau < 1$), political myopia ($q < 1$), and diminished labor supply ($1 - l < 1$)

- But it's upward distorted by the elite's incentive to increase wages and discourage protest if $l_G' < 0$.

Simulation results for (clockwise) protest, public investment, output, and output net of investment costs using a CES production function with <1 substitution elasticity as the exogenous productivity level θ increases.

Protests can improve the hard autocracy solution (as long as the productivity level θ is large enough)

Using gains in neighbor democracy to proxy gains in protest effectiveness

Table 4: Regional Democratization, Government Spending, and Democratization (Non-Fuel Exporting Economies)

	(1)	(2)	(3)	(4)
Estimation Method	LSDV	LSDV	LSDV	LSDV
Dependent variable	Δ(G/Y)(t)	Δ(G/Y)(t)	Democratic transition	Democratic transition
ΔNeighbor Dem(t-1)	0.399*	0.589**		0.053**
	[0.201]	[0.262]		[0.026]
ΔND*I(low GDP/CAP)		-0.429*		
		[0.241]		
I(low GDP/CAP)(t-1)		-0.57		
		[0.983]		
Δ(G/Y)(t-1)			-0.007**	-0.007**
			[0.003]	[0.003]
Neighbour Dem (t-2)				0.051***
				[0.015]
Observations	1,202	1,202	1,193	1,193
R-squared	0.09	0.09	0.23	0.26
Number of countries	55	55	55	55
Pr (ΔNghbor Dem+I(poor)=0)		0.39		
Country dummies	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y
Country time trends	Y	Y	Y	Y

Using gains in neighbor *protests* to proxy gains in protest effectiveness

Table 7: Regional Social Unrest (mean Protests and Riots per capita), Government Spending, and Domestic Unrest (Non-Fuel Exporting Economies)

	(1)	(2)	(3)	(4)
Estimation Method	LSDV	LSDV	LSDV	LSDV
Dependent variable	$\Delta(G/Y)(t)$	$\Delta(G/Y)(t)$	$\Delta Ln((\#protests +riots per capita)$	$\Delta Ln((\#protests + riots per capita)$
ΔLn(neighbor unrest) (t-1)	0.14	2.71**		1.35**
	[0.46]	[0.98]		[0.57]
$\Delta NU*I$(low GDP/CAP)		-2.56***		
		[0.83]		
I(low GDP/CAP)(t-1)		-		
$\Delta(G/Y)(t-1)$			-0.08*	-0.15***
			[0.04]	[0.05]
Ln(neighbor unrest) (t-2)				1.62*
				[0.79]
Observations	140	140	198	127
R-squared	0.15	0.17	0.16	0.34
Number of countries	17	17	22	16
Pr (ΔNghbor Dem+I(poor)=0)		0.76		
Country dummies	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y

Conclusion

- We show that the citizens' threat of protesting can force autocratic/imperfectly-accountable governments to increase public investment.

- Protest can substitute for electoral discipline.

- But in poor countries and countries where public investment replaces labor inputs, the protest option can decrease the government's investment incentive.

Limitations

- We would have liked to allow transfers, repression, information manipulation, and other policy instruments, and to develop a dynamic autocratic growth model
- Endogenize more parameters (μ and τ)
- Allow migration ("exit" options).