Introduction

We consider a simple problem of moral hazard in local public services which has an efficient solution which is feasible only with political decentralization.

Many have argued that political decentralization and community empowerment may be essential for successful economic development.


Triesman (2007) argued that a unitary state could apply different policies in different regions, for regional differences or experimentation.

We argue that, without autonomous local politics, national leaders cannot be expected to hold centrally appointed local officials properly accountable for the quality of public services that only local residents observe.
A simple model of moral hazard in local public services

Consider a remote town with \( n \) residents.
Each resident initially invests \( C \) to start an enterprise in the town.
Each year, each resident's enterprise may return \( S > 0 \) (success) or 0.
The probability of success is \( \pi(k) \), independently across residents and years,
in any year when \( nk \) is spent on local public services in the town.
Here \( \pi(\bullet) \) is increasing concave differentiable, \( \pi(0)=0 \), and \( 0 \leq \pi(k) \leq 1 \ \forall \ k \geq 0 \).
Everyone is risk neutral, discounts future with annual discount factor \( \beta \), \( 0<\beta<1 \).

The budget for local public services must be managed by a local official who can
divert any portion to personal consumption, can flee with funds abroad.
The official prefers to retain office with annual salary \( nr \) rather than fleeing with
annual budget \( nk \) iff \( nr/(1-\beta) \geq nk \).
So to manage a budget of \( k \) per resident, the official must expect salary
\( r(k) = (1-\beta)k \) per resident per year.

The only evidence of the official's actual spending is the Binomial \( (n,\pi(k)) \) number
of successes among residents' enterprises.
Optimal solution for residents

Residents want to maximize expected benefit \( U(k) = \pi(k)S - (1-\beta)C - k - r(k) \). This \( U(k) \) is maximized by \( k_1 \) such that \( \pi'(k_1) = (2-\beta)/S \).
To avoid a trivial solution, we assume \( \pi(k_1)S > (1-\beta)C + k_1 + (1-\beta)k_1 \).

A simple plan: official gets budget \( b \), chooses per-capita spending \( k \in [0,b] \), then is paid \( \rho \) and retained in office if at least \( \theta \) fraction of residents report successes.
Let \( Q(k,\theta,n) \) be the probability that the Binomial-(\( n,\pi(k) \)) number of successes will be at least \( n\theta \): \( Q(k,\theta,n) = \sum_{h \geq n\theta} \pi(k)^h (1-\pi(k))^{n-h} n! / ((n-h)!h!) \).

The official's optimal payoff \( \bar{W} \) and induced public investment \( \bar{k} \) satisfy \( \bar{W} = (b-\bar{k}) + Q(\bar{k},\theta,n)(\rho + \beta \bar{W}) = \max_{k \in [0,b]} (b-k) + Q(k,\theta,n)(\rho + \beta \bar{W}) \).

**Proposition 1.** For any \( \varepsilon > 0 \), renewal thresholds \( \theta(n) \) and official salaries \( \rho(n) \) can be set as functions of local population \( n \) so that \( \lim_{n \to \infty} \rho(n) \leq r(k_1) + \varepsilon \) and, with the efficient investment budget \( b=k_1 \), the induced public investment levels \( \bar{k}(n) \) satisfy \( \lim_{n \to \infty} \bar{k}(n) = k_1 \) and \( \lim_{n \to \infty} Q(\bar{k}(n),\theta(n),n) = 1 \).

**Proof.** Use \( \theta(n) = \pi(k_1) - \log(n)/n^{0.5} \) and \( \rho(n) = (1/Q(k_1,\theta(n),n) - \beta)k_1 + \varepsilon \).
So \( \pi(k_1) - \theta(n) \) is small but is a large multiple of \( \sigma(k_1) = [\pi(k_1)(1-\pi(k_1))/n]^{0.5} \).
This salary \( \rho(n) \) makes official strictly prefer spending \( k_1 \) over stealing \( k_1 \).
(With \( \theta \neq 1/2 \), our results can be still achieved with majority voting, if voters on expected long side randomly abstain as in Feddersen-Pesendorfer 1996.)
Other equilibria in local politics

Voters would prefer to replace the official if they expected poor service in future, the official would prefer to steal the budget if she expected voters to replace her.

Alternative equilibria could have random public "scandals" switching to such distrust every period with some probability q. Then official salary per resident would have to be at least \( \hat{r}(k,q) = (1-\beta(1-q))k \).

The residents' net benefit \( \hat{U}(k,q) = \pi(k)S - (1-\beta)C - k - \hat{r}(k,q) \) would be maximized by a \( \hat{k}(q) \) such that \( \pi'(\hat{k}(q)) = (2-\beta(1-q))/S \).

This public investment \( \hat{k}(q) \) is a decreasing function of political instability q. Residents could still expect to benefit as long as \( \hat{U}(\hat{k}(q),q) > 0 \).
Optimal solution for a local aristocrat

With a local government that is less democratic but still politically autonomous, the town could have more public spending, but less benefits for typical residents. Suppose a local aristocrat can offer to serve as local official on terms that the other residents can only accept or reject, with no local public services if rejected. By offering to administer public services that cost nk, the aristocrat could hope to earn from each resident the amount $U(k) + r(k) = \pi(k)S - (1-\beta)C - k$. Aristocrat wants to maximize $U(k) + r(k)$ subject to $(\pi(k)S - (1-\beta)C - k)/(1-\beta) \geq k$. Aristocrat's optimum $k_2$ satisfies $k_2 > k_1$ (normal case: $\pi'(k_2) = 1/S$).

(For any $\varepsilon > 0$, we can pick $(b, \theta, \rho)$ with $k_2 \geq b \geq k_2 - \varepsilon$, $\pi(b) > \theta \geq \pi(b) - \varepsilon$, $\theta S - (1-\beta)C - b \geq \rho > (1-\beta)b$, such that, with annual per-capita budget $b$, renewal threshold $\theta$, and salary $\rho$, induced levels of public spending $\bar{k}(n)$ satisfy $\pi(\bar{k}(n)) \geq \theta$ for all sufficiently large $n$ and $\lim_{n \to \infty} Q(\bar{k}(n), \theta, n) = 1$.)

In all such mechanisms, however, it is essential that the local official must be politically accountable to the residents of the town. We are assuming here that only a resident can directly observe whether his or her private enterprise has succeeded or not in any given year. If the official's future rewards were not dependent on residents' approval, then the official would have no incentive to spend anything on public services.
A ruler's incentive to centralize local moral-hazard rents

The moral-hazard rents nr(k) of local offices make them valuable prizes for which candidates would pay, whether in cash or in costly political support. Promises of these offices as patronage prizes can help a leader to mobilize vital support against challengers for power.

If a national ruler could commit to permitting a town to elect an autonomous local government in exchange for a special tax to the national treasury, the town's n residents should be willing to pay annually up to U(k_1).

If the ruler also appointed the first local official, the office could be sold to a supporter for a debt worth nk, and residents could be taxed U(k) annually, providing up to U(k_2)+r(k_2) value in annual revenue per resident.

But these plans would require the ruler to make a credible commitment to a constitutional division of power, which would be against his interests ex post. With local accountability, the ruler cannot use local offices as rewards without making his reputation for rewarding supporters dependent on voters' approval, vulnerable to their distrust.

With political autonomy, successful local leaders can build reputations for public service and patronage to become serious competitors for national leadership. So a fiscally beneficial decentralization of power may be too politically costly for the incumbent national leader.
Separation of local information from political influence in centralized autocracy

Any successful leader needs a reputation for reliably rewarding loyal service. A leader can credibly recruit more support when key supporters monitor his treatment of others, so that a failure to reward one would raise distrust of all. My *APSR* 2008: In a simple model, if any leaders can organize such a court, then challengers cannot recruit any supporters without instituting such constraints.

An autocratic ruler is politically accountable only to this elite circle of courtiers. When the ruler can re-sell a vacant office, courtiers must deter wrongful dismissals.

An autocratic ruler can suppress any expression of popular political discontent, and can suborn or censor any testimony from residents about local public services. So the autocratic ruler incurs no costs ex post from disappointing common people's hopes for better public services.

The courtiers can impose political costs on the ruler, but these costs cannot depend on information that the ruler controls (which he could manipulate to reduce cost). So the ruler's costs of dismissing officials cannot depend on whether local residents think that these officials have provided the worst public services or the best. (A ruler might prefer to dismiss those who provided the best public services if he is concerned that they might become popular challengers for national power.)
Can an autocrat be a neutral judge of local officials' public services?
The courtiers can observe the set D of dismissed officials and can compel the ruler to pay some political penalty $\kappa(D)$ that depends on this set. Let $g(j)$ be the net value of service that the ruler could gain by replacing official j, which may be somewhat less than the office's moral-hazard rents. Then the ruler should choose D to maximize $\left[\sum_{j \in D} g(j)\right] - \kappa(D)$. Courtiers should choose $\kappa(\cdot)$ so that the optimal dismissal set D is likely to be empty or a small fraction of all offices. (Perhaps allow one free dismissal per year.) If $g(\cdot)$ and $\kappa(\cdot)$ treated officials symmetrically, the ruler might be willing to pick whom to dismiss based on his information about local public services. Suppose the $g(j)$ are random variables that are observed only by the ruler, and given the others each $g(j)$ has a continuous distribution on some interval. Then for any cost function $\kappa(\cdot)$ that the courtiers could impose, the probability of the ruler being indifferent among two or more dismissal sets would be 0. Neutrality could also be subverted by influential courtiers raising slightly the ruler's cost of dismissing an official who has better connections with them (as patrons).

Proposition 2. In a nation where people have no protected independent channels for expressing political grievances, an autocrat who has unrestricted power to appoint and dismiss local officials cannot be credibly committed to hold them accountable for public services that are observed only by local residents. But ex ante, residents will not invest if good public services are not credibly assured.
Extensions to the case of centralized democracy
Democratic political leaders also need reputations for reliably distributing patronage rewards that motivate active supporters and contributors in contests for power. National democratic competition raises political risk (q) for retention of appointees. Freedom of speech in democracy has advantages for credible communication of grievances against corrupt local officials to the national political elite. Under democracy, local autonomy also threatens to increase competitive entry into national politics, against the interests of incumbent national officials. (Pakistan) But if local accountability yields better public services for voters, could national democracy induce leaders to promise it, even with no constitutional requirement?

With sequential bids (Kramer 1977) for local public spending, the challenger can win offering $\varepsilon$ more than incumbent in a majority of districts, 0 elsewhere; results can converge to small offers everywhere (as in Ferejohn 1986).
A model of endogenous decentralization in unitary democracy

Suppose instead local public budgets are legally fixed (K) in every district, but candidates can compete on promises of local accountability for local officials. Where a candidate does not promise local accountability, the candidate can instead sell the office for a campaign contribution (expected value 0.5K).

Of voters, a fraction $1-\alpha$ are informed and vote for the best promise to their district. The other $\alpha$ fraction are uninformed (impressionable) and vote for candidates in proportion to their campaign spending, which is financed by selling local offices.

Let $x_i$ denote the fraction of districts that candidate i sells to a donor.

The net difference of votes for candidate 1 minus votes for candidate 2, will be

$$V_1 - V_2 = \alpha(x_1 - x_2)/(x_1 + x_2) + (1-\alpha)[(1-x_1) - (1-x_2)].$$

Candidate 1 chooses $x_1$ to maximize this, candidate 2 chooses $x_2$ to minimize it. (First order conditions: $0 = \frac{\partial (V_1-V_2)}{\partial x_i} = 2\alpha x_{-i}/(x_1+x_2)^2 - (1-\alpha).$)

**Proposition 3.** In equilibrium of a two-candidate election for national leadership of a unitary state, each candidate would maintain inefficient centralized control of local public services in a fraction $x_1 = x_2 = \min\{0.5\alpha/(1-\alpha), 1\}$ of all districts.

The possibility of such politically neglected regions should be considered extremely dangerous for a nation's territorial integrity, if there is any outside option for disaffected regions to secede. (Ukraine)
Conclusions

We analyzed a model of moral hazard in local public investments which could be efficiently managed by officials who are locally accountable. But in a centralized unitary state, local accountability may be incompatible with the use of government offices as patronage rewards for national political supporters. A ruler who can re-sell vacant offices is not a neutral judge of local public services. When the quality of local public investments is observable only by local residents, an autocratic national government may be unable to provide such investments efficiently without granting some basic guarantee of local political rights.

National leaders have strong political reasons to maintain centralized control of local public services, even when it harms national economic development. In a unitary democratic state where informed voters would prefer a candidate who promised decentralized accountability, leaders may keep inefficient centralized control of many local offices, as patronage rewards for campaign contributors.

But federal democracy can become stable once it is established, as elected governors and mayors become vital local power-brokers in national coalition-building. Founders of USA had to accept substantial decentralization of power in their new nation, because autonomous local governments had been established first. Since then, democratic local governments in America have overseen local public investments that provided the basic framework for the richest nation on earth.