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Isolated Capital Cities, Accountability, and Corruption:
Evidence from U.S. States

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Introduction

In the paper this policy brief is based on, *Isolated Capital Cities, Accountability and Corruption*, we show that isolated capital cities are robustly associated with greater levels of corruption across US states. This finding is in line with the view that spatial distance between citizens and the seat of political power reduces the accountability of government to its constituents, and in contrast with the alternative hypothesis that keeping distance between the capital and major economic interests might decrease the risk of political capture by special interests. We then show direct evidence that different mechanisms for holding state politicians accountable are indeed affected by the distribution of population across space: newspapers provide greater coverage of state politics when their audiences are more concentrated around the capital, voters are less knowledgeable and less interested in state politics when they are far from the capital, and voter turnout in state elections is greater in places that are closer to the capital. We find that the role of media accountability seems particularly important in explaining the connection between isolated capitals and corruption. We also find evidence that there is more money in state-level political campaigns in those

states with isolated capitals, again contrary to the capture hypothesis. Finally, we provide some evidence that these patterns are associated with lower levels of public good spending and outcomes. In sum, the evidence displays a strong connection between the spatial distribution of population and corruption, and this connection falls in line with the accountability view and in opposition to the capture view: isolated capital cities are associated with greater levels of corruption across US states. This sheds new light on the mechanisms of corruption and accountability, and adds a novel dimension towards understanding how institutional choices over the structure of the political system affect the incentives of the actors that operate in them.

Background

Corruption is widely seen as a major problem, in developing and developed countries alike, and a voluminous literature in the social sciences has tried to come to grips with its determinants and correlates, both at the cross-country level and within countries. This paper pursues the first systematic investigation of a hitherto underappreciated element in this story: the spatial distribution of the population in a given polity of interest. It does so in a context where its importance has long been speculated:

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US state politics, with its capital cities that are often relatively isolated from major population centers.

The spatial distribution of population relative to the seat of political power might affect the incentives and opportunities for public officials to misuse their office for private gain in different ways, and in potentially different directions. On the one hand, it may affect accountability: to the extent that people are typically more interested in what is more immediately salient, and that what is geographically closer gains salience, then where people are located will potentially matter for the effectiveness of accountability mechanisms such as the media and political participation. After all, the level of media coverage of the behavior of politicians will be affected by their audience's level of interest, and so will the degree of citizen involvement in politics. As a result of this "accountability view," one might expect that the prevalence of corruption would be greater when politicians are ensconced in relatively isolated capital cities. On the other hand, the spatial distribution of people and economic activity may also affect the degree to which economic interests intersect with government. Physical proximity might facilitate the interplay between the former and the latter, and from this interplay could arise opportunities for corruption and misbehavior, with political power being captured by economic interests. From this "capture view", one might in turn expect that the prevalence of corruption would be lower when politicians are ensconced in relatively isolated capital cities. As it turns out, these competing views have not been tested systematically, which we believe is due to the lack of appropriate measurement tools for the relevant idea of the spatial distribution of population around the capital city.

A Stylized Fact: Isolated Capital Cities Are Associated with Higher Levels of Corruption

Our first contribution is to establish a basic stylized fact, in the context of US states, that is very much in line with the accountability view: isolated capital cities are associated with higher levels of corruption. A simple depiction of that can be seen in Figure 1, where corruption is measured, following a long tradition in the literature on corruption in the US, by the average number (between 1976 and 2002) of federal convictions of public officials for corruption-related crime, relative to population size. This corruption variable is plotted against two measures of the concentration of a state's population around its capital city, averaged up to 1970 (that is, before the start of the period for which corruption is measured): one that does not control for the geographical size of the state (Panel A) and another that does (Panel B). These are two members of the family of axiomatically grounded measures of concentration around a point of interest, the Centered Index of Spatial Concentration ($GCISC_1$ and $GCISC_2$), recently proposed in Campante and Do (2010).

Both panels show a pattern in which more isolated capital cities are associated with more corruption. As an illustration, if we compare two Northeastern states with similar levels of GDP per capita, we see that Massachusetts, with its population quite concentrated around Boston, is measured as considerably less corrupt than New York and its isolated Albany. To put this in perspective, Panel C depicts the raw correlation between corruption and a factor that has been consistently found in the literature to be (negatively) correlated with it: education. If anything, the correlation with education looks less pronounced than that with the concentration of population around the capital.(In fact, the concentration plots make less puzzling the observation of states that are
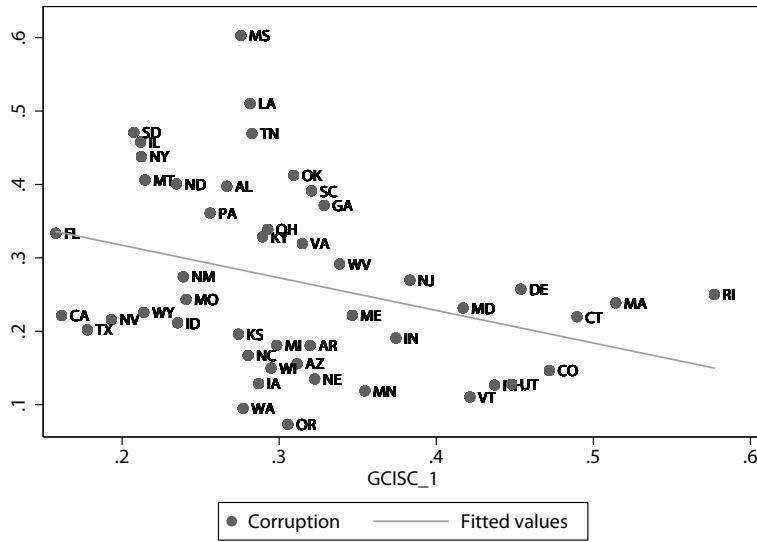
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Figure 1, Panel A: Corruption v. GCISC$_1$

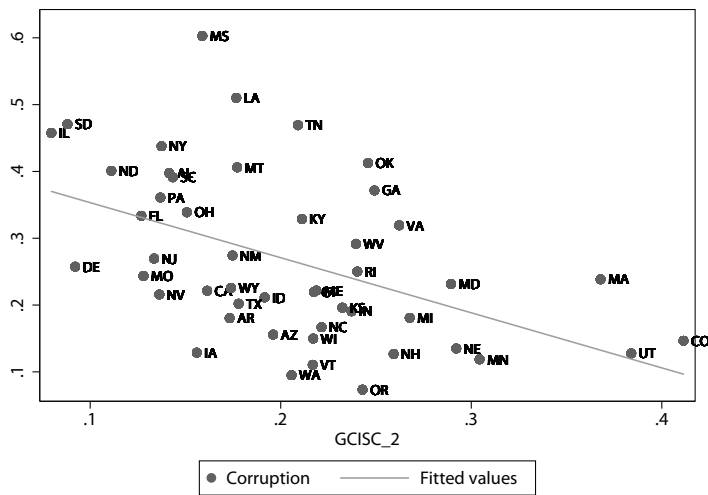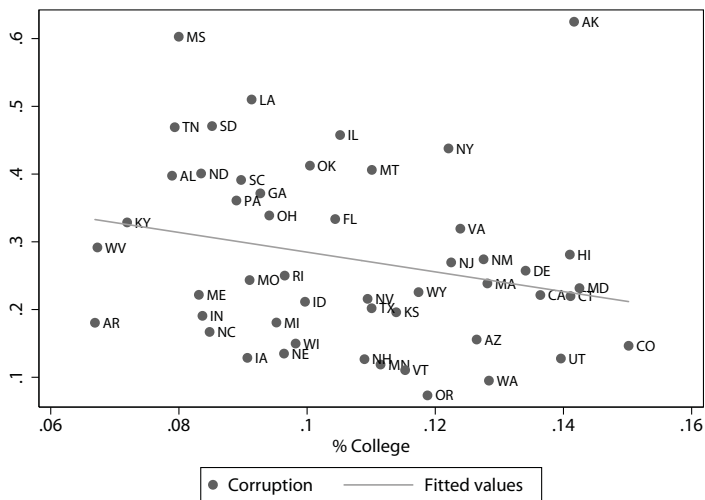
Figure 1, Panel B: Corruption v. GCISC$_2$

Figure 1, Panel C: Corruption v. Education

relatively rich and educated but are also seen as corrupt, such as Illinois or New York.)

The raw correlations in Figure 1 obviously do not provide a full picture of the link between corruption and the isolation of capital cities. After all, they do not control for the many other factors that also affect observed levels of corruption. More systematic documentation can be seen in Table 1. Column (1) displays the correlation with $GCISC_1$ without any additional controls, thus reproducing the message from Figure 1. Column (2) introduces a basic set of controls, namely (log) income per capita and education, plus (log) population size (to make sure that we are capturing the effect of concentration) and (log) area and (log) maximum distance (as previously mentioned, to control for geographical size, which is not built into $GCISC_1$). The coefficient of interest is highly significant, and its size is actually much increased (due to the inclusion of the geographical size controls). Column (3) adds controls other correlates of corruption that are established

in the literature: the size of government (share of total employment) and urbanization (share of urban population), plus regional dummies. This specification does not detract from the size or significance of the negative coefficient on population concentration, and is our preferred specification, as it controls for a number of correlates while keeping a relative parsimony that is called for by the limited sample size.

The strength of the concentration variable is further highlighted in Column (4), which adds yet another set of controls often related to corruption: measures of ethnic fractionalization (index of racial dissimilarity), quality of government regulation (Regulation index), and reliance on natural resources (share of value added in mining in the gross state product). The size of the coefficient is slightly reduced, but it is still statistically significant at the 1% level. The same pattern is also present for our other measure of concentration, $GCISC_2$, as shown by Columns (5)-(8) reproducing the four specifications.

Table 1:

Dep.Var.: Corruption	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$GCISC_1$	-0.4439*** [0.140]	-1.1166*** [0.247]	-1.0307*** [0.322]	-0.7932*** [0.276]				
$GCISC_2$					-0.8245*** [0.168]	-0.8383*** [0.190]	-0.8023*** [0.200]	-0.5734** [0.223]
Basic Control Variables		X	X	X		X	X	X
Control Variables I			X	X			X	X
Control Variables II				X				X
Observations	48	48	48	48	48	48	48	48
R-squared	0.114	0.465	0.532	0.609	0.232	0.406	0.525	0.598

Robust standard errors in brackets. OLS regressions. Dependent variable: Corruption = Federal convictions for corruption-related crime relative to population, avg.1976-2002. Independent vatiables as of 1970 (GCISC average 1920-1970). Basic Control Variables: Log area and Log Maximum Distance ($GCISC_1$ specifications only), Log Income, Log Population, % College. Control Variables I: Share of Government Employment, % Urban, Census Region dummies. Control Variables II: Racial Dissimilarity, Regulation Index, Share of value added in mining.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

We thus see a strong, systematic correlation: states with more isolated capitals are indeed found to display higher levels of corruption. Besides its statistical significance, the effect is also meaningful quantitatively. The average for $GCISC_1$ in our sample, for the mean up until 1970, is at around 0.31 (roughly the value for Nebraska or South Carolina), with a standard deviation around 0.09. With the coefficient of our preferred specification (-1.03), this means that if the population of a state becomes more concentrated around its capital by one standard deviation, the corresponding reduction in corruption (0.10) is around three-quarters of a standard deviation of the corruption sample. A similar calculation for $GCISC_2$, which has a lower standard deviation, would yield a shift of about 0.45 standard deviation.

The connection between isolation and corruption holds after controlling for a number of possible correlates of corruption highlighted by the extant literature.

Next, we establish that our findings are very robust. First, the connection between isolation and corruption holds after controlling for a number of possible correlates of corruption highlighted by the extant literature. Second, it remains when we use different measures of corruption, and different measures of the degree of isolation of the capital city. Third, it is indeed related to something specific about capital cities: there is no additional effect of the concentration of population around the state's largest city. Last but not least, it seems to be about corruption: there is no connection between the isolation of the capital and other types of federal criminal cases, as exemplified by drug offenses.

Quite importantly, we are able to address the issue of causality. Since the location of the capital city is an institutional choice, and since it might affect the distribution of population, one might worry that the correlation we observe is being driven by omitted variables (namely, some unobserved determinant of corruption that might also affect that choice or how it impacts the distribution of population). Fortunately, the historical record documenting the designation of state capitals provides us with a plausible source of exogenous variation: the location of the centroid, also known as the geometric center or barycenter, of each state.

There is ample evidence that a major concern as of the time when the location of capitals was being chosen was that it be located near "that spot which will be least removed from every part of the empire," as put by James Madison with regard to the federal capital. Consistent with that, we do see that the concentration of population around the centroid is a good predictor of the concentration of population around the capital city. The location of the centroid (conditional on the state's borders) is also essentially random, relative to the distribution of economic and institutional features affecting the distribution of population. Indeed, we find evidence that the isolation of the centroid is not correlated with a number of predetermined variables, suggesting that states whose population happens to be highly concentrated around the centroid were not systematically different from those where the centroid is relatively isolated. We develop instrumental variables based on that location, and complemented by the spatial distribution of land suitability relative to the centroid, which affects the spatial distribution of population while being arguably exogenous with respect to corruption. Using those variables, we find that the effect of an isolated capital city on corruption is again statistically significant when estimated using this strategy.

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Accountability and the Spatial Distribution of Population

This basic stylized fact is consistent with the view that isolated capital cities affect corruption because they bring about lower accountability. Our second contribution is to provide direct evidence in support of this accountability view. We investigate two different realms of accountability, certainly among the most important: the roles of the media and of the electoral process. Our main question of interest is whether they are indeed affected by the spatial distribution of population, along the lines that we have speculated about.

We do find evidence of that sort. When it comes to the media, we show that newspaper-level coverage of state politics (measured by searching content in online editions) is increasing in the concentration of newspaper circulation around the state capital city. We also show some evidence that these micro-level connections aggregate up to the state level: the (circulation-weighted) amount of coverage is greater in states with less isolated capitals. Just as importantly, this is matched

When it comes to electoral accountability, we find evidence that people who live in counties that are closer to the state capital are more likely to turn out in state elections.

by the individual-level patterns: using data from the American National Election Studies, we find that individuals who live farther from the state capital are less informed and display less interest in state politics. In contrast, and quite tellingly, distance to the state capital does not affect the level of interest in politics in general. Whether these patterns are due to media coverage responding to the demands of

a given audience, or due to circulation and the degree of individual information responding to the level of coverage - or most likely a combination of these factors - there is in any case a connection between having an isolated capital and lower levels of media coverage, and of citizens' interest in and knowledge of state politics.

When it comes to electoral accountability, we find evidence that people who live in counties that are closer to the state capital are more likely to turn out in state elections, controlling for county demographics and state fixed effects. We show that this again seems to be about the special role of the capital, as we control for "placebos" such as the distance to the state largest city, or the state centroid. Most crucially, we also find that the effect of distance to the state capital is not present for state elections that coincide with federal polls (especially for president) , which are years in which one would presume that forces related to state politics would have a lesser impact on turnout.

Capture and the Spatial Distribution of Population

The evidence so far has been decisively in favor of the accountability view: isolated capital cities are associated with greater corruption, and both media and electoral accountability seem to be affected by the spatial distribution of population in ways that are consistent with that. However, it could still be the case that the capture view is also present and simply being overcome by the accountability forces in the opposite direction.

To check for that possibility, we also look at some direct evidence testing the capture view, by focusing on the role of money in state politics. If the isolation of the capital city hindered the capture of politicians by special interests, we would expect that this role would be more limited in states with relatively isolated capitals. We thus look at how the amount

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of campaign contributions to state politics correlates to the concentration of population around the capital. As it turns out, we find a negative correlation between concentration and contributions: a state like Nevada, with its isolated Carson City, witnesses a larger amount of contributions (controlling for the size of its economy) than does broadly comparable Utah and its population largely concentrated around Salt Lake City. This goes exactly against the presumption of the capture view, and could in fact be interpreted as consistent with a scenario in which low levels of accountability due to lower media scrutiny and citizen participation actually facilitate the influence of money in politics.

Isolated Capital Cities and the Provision of Public Goods

We also provide some evidence on whether this pattern of low accountability affects the ultimate provision of public goods. We find that states with isolated capital cities also seem to spend relatively less on things like education, public welfare, and health care, and more on administrative expenditures. This seems in turn associated with lower public good provision as measured by a combination of inputs and outcomes in education and health care. This seems to suggest that low accountability and corruption induced by isolation do have an impact in terms of government performance and priorities.

Conclusion

We have explored the connections between the spatial distribution of population and corruption, in the context of US states and their often relatively isolated capital cities. We contrasted two very different hypotheses that have been raised regarding those connections - the accountability view that sees public officials being subject to less scrutiny when the capital city is isolated, and the capture view that posits spatial separation between

political power and major economic centers as a bulwark against capture by economic interests – and established support of the accountability view when we found that isolated capital cities are robustly associated with greater levels of corruption .

We then looked for direct evidence for different accountability mechanisms by showing that newspapers tend to provide greater coverage of state politics when their audience is more concentrated around the state capital, that voters are less knowledgeable and interested in state politics when they live far from the capital, and that voter turnout in state elections (but not in presidential ones) tends to be lower in areas that are relatively far from the capital. A rough assessment suggested that media accountability goes a longer way in accounting for the link between isolated capitals and corruption. In a marked contrast, the direct

> **We find that states with isolated capital cities also seem to spend relatively less on things like education, public welfare, and health care, and more on administrative expenditures.**

evidence on the capture view goes in the exact opposite direction: campaign contributions are actually higher in states with isolated capitals, belying the fear that having the capital in a major economic center would lead to a greater risk of capture of state politics by economic interests. Finally, we provided some suggestive evidence that the pattern of low accountability induced by isolated capital cities also translates into worse provision of public goods.

From a broader perspective, our evidence sheds light on the long-run implications of institutional choices, and particularly their spatial content. Specifically, the importance of

the choice of where to locate the capital city is highlighted both by the historical record in the US, where the issue was prominently discussed and fought over both at the state and federal levels, and by the many historical instances of capital relocations across different countries. We have shown one reason that makes it important, as it affects institutional performance along important dimensions such as the degree of accountability and the prevalence of corruption, even in a fully democratic context. From a policy perspective, in particular, one is led to conclude that extra vigilance might be needed, when it comes to polities with isolated capital cities, in order to counteract their tendency towards reduced accountability. Put simply, watchdogs need to bark louder when there is a higher chance that people are not paying much attention.

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