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Article

The Temporal Dynamics of Corruption in Decentralised Water Utilities: A Longitudinal Study

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Abstract: This study examines the temporal relationship between decentralisation and corruption in water supply schemes across two large Indian states. Utilising a difference-in-differences approach and experiential corruption measures, we analyse the impact of decentralising water utilities from state to local government control. Our findings challenge the prevailing assumption that decentralisation inherently reduces corruption. Instead, we observe a significant increase in corruption immediately following decentralisation. However, this surge diminishes substantially over time, though a residual rise continues in the medium term. These results suggest a nuanced connection between decentralisation and corruption, characterised by an initial learning curve for local governments. Our research contributes to the limited literature on sub-national decentralisation and corruption, offering insights into the dynamic nature of this relationship. The findings have important implications for policymakers and development practitioners, highlighting the need for targeted support during the transition to decentralised governance.

KEYWORDS: Water supply; local governance; decentralisation; corruption

Introduction

Following the Soviet Union's decline and fall, decentralisation emerged as a popular approach in governance and development. It was seen as a solution to various political challenges, from managing transitions in Eastern Europe and South Africa to addressing issues in Latin America and supporting economic growth in China and India. Decentralisation attracted diverse supporters, including free-marketeers sceptical of an overstretched state and those concerned about market failures, as well as various activist groups. Questioning the merits of decentralisation became almost unthinkable.

The high hopes placed in decentralisation partly stem from dissatisfaction with centralised governance models, which often bred corruption among officials. Arguments for decentralisation are frequently based on subjective assessments and unclear definitions. At its core, decentralisation involves transferring powers and responsibilities to lower levels of government. The concept has long been central to public administration, leading to various classification systems. The most widely accepted approach categorises decentralisation into three types. Deconcentration transfers authority over specific functions within the government's jurisdiction. Delegation involves transferring authority for defined tasks to organisations outside direct government control. Devolution occurs when higher levels of government transfer authority to lower levels of government by legally binding measures. Decentralisation literature typically focuses on devolution, based on the assumption that decentralised systems allow for greater citizen influence on outcomes.

While the standard decentralisation model doesn't explicitly address corruption, it's assumed that by empowering citizens, decentralisation enhances accountability and reduces corruption. Some argue that decentralising corruption could have redistributive effects, but this isn't typically used to justify decentralisation. Instead, proponents claim it will reduce corruption overall. This claim partly arises from conflating decentralisation with public participation, two distinct concepts often used interchangeably in development debates. For instance, the World Bank has suggested that decentralisation can achieve development goals by responding to local community needs and assigning control to those with relevant information and incentives. While development professionals

generally agree that beneficiary participation improves outcomes, this doesn't necessarily endorse decentralisation. Confusing these terms diminishes their individual potential.

Recent theoretical research has shifted focus from inter-jurisdictional externalities and preference heterogeneity to examining whether decentralisation can effectively discipline government officials. Some argue that local democracy allows citizens to control corruption using their knowledge of officials' behaviour. Critics counter that local levels may have fewer safeguards against corruption due to underdeveloped media and audit systems, potentially leading to clientelistic networks and elite capture. Ultimately, theory suggests that decentralisation's impact may be context-specific, making empirical assessment crucial.

Cross-country studies on decentralisation's effect on corruption have yielded mixed results. World Bank-sponsored research often finds that decentralisation reduces corruption, but these studies have been criticised for methodological issues such as confusing correlation with causality and inadequately addressing endogeneity. Other studies have found contrasting results, with some indicating that federal structures are associated with higher perceived corruption. The discrepancies in findings often stem from differences in control variables, data sources, and methodological approaches. Overall, cross-country studies have not provided clear guidance on the effect of decentralisation on corruption, with some researchers suggesting that the relationship is not robust.

Yet another factor is the problematic use of the term "sub-national government" in contexts where provinces or states may have populations larger than many countries. Additionally, these studies often fail to consider decentralisation between different levels of sub-national government. This lack of nuance can lead to flawed policy advice, as the effects of decentralisation may differ depending on the levels involved. For example, decentralisation from national to sub-national governments might promote democracy, while decentralisation to local governments could potentially weaken regional governments and consolidate central power, as seen in some autocratic regimes.

Given the limitations of cross-country studies, more localised and disaggregated empirical evidence may prove more useful. While numerous within-country studies examine decentralisation's effects on various economic and social factors, few directly address its relationship with corruption. One 2008 study in central India found higher corruption levels in water supply by local governments compared to those run by regional governments. However, this study provides only a snapshot and doesn't necessarily imply that decentralisation is inherently flawed. Some researchers suggest that corruption may initially increase with decentralisation but decrease over time as local governments learn and adapt.

Measuring corruption typically involves assessing transactions, either directly or indirectly. While observational approaches would be ideal, they are rare due to the risks and logistical challenges involved. Most empirical studies rely on reports of perceived or experienced corruption. Perception-based research is common and convenient, with indices from organisations like Transparency International. However, dependence on perceptions may lead to faulty results, particularly in dynamic situations where increased transparency might initially appear to increase corruption. Recent studies suggest that the empirical data may be more dependable than the perception data.

The Setting

The study focuses on Madhya Pradesh and Chhattisgarh, two substantial Indian states that span central India's rural and semi-urban landscapes. These regions, covering 440,000 km² with 81 million inhabitants, serve as a microcosm for South Asian demographics and socio-economic conditions, barring minor outlying states and highly developed metropolitan areas.

India's constitutional framework places water-related matters under state purview. Whilst the federal government's theoretical remit is limited to inter-state water allocation and international engagement, its practical involvement extends further through substantial funding for irrigation and potable water initiatives.

The financial structure of the drinking water sector has remained relatively constant over two decades. Sub-national governments provide sixty percent of funding for new and expansion projects, with 35% from federal sources and five percent from international aid agencies. Sub-national entities bear full responsibility of operations and management costs. This funding model ensures India's water supply programme maintains policy autonomy, with international aid serving primarily as intellectual capital and for demonstration projects.

A 1993 constitutional amendment formalised local government structures within India's long-standing federal system. State governments are incentivised to devolve functions to local bodies, with federal fund transfers often contingent upon such decentralisation. In some programmes, state governments retain authority whilst delegating provider functions to local entities. Despite commitments to transfer operations and management of drinking water schemes to local governments, implementation has been incomplete, largely due to local reluctance to assume responsibility for potentially unprofitable utilities. Currently there are no current plans for privatisation in small towns or villages.

Non-governmental organisations advocate for decentralisation whilst holding state governments accountable during crises. Since 2002, human rights commissions have become increasingly involved in the drinking water sector, holding state governments responsible for human rights violations in cases of utility failure, regardless of decentralisation status. This complex governance landscape reflects the multifaceted challenges and considerations in managing water resources and infrastructure in India's diverse and evolving socio-political context.

Methodology and data

In examining the effects of governmental decentralisation on corrupt practices, we utilise experiential metrics and scrutinise a 'natural experiment' via the difference-in-differences (DiD) methodology. This analytical framework harks back to John Snow's seminal 1855 research on waterborne disease transmission. During that epoch, miasma theory prevailed, attributing cholera to noxious air, leading to misguided interventions such as equine cadaver exhumation. Snow's groundbreaking work demonstrated water contamination as the true culprit by juxtaposing cholera mortality shifts across London districts served by distinct water purveyors. One supplier's relocation to less polluted upstream waters in 1852 resulted in a more pronounced mortality reduction, effectively debunking prevailing theories.

Despite its early origins, the natural experiment approach and DiD technique remained largely dormant in social sciences until the 1990s. Subsequently, they gained prominence, with methodological standardisation occurring despite ongoing debates on nuanced aspects. The past decade has witnessed a proliferation of public policy and administration studies employing this approach, culminating in a dedicated issue of *Political Analysis* in 2009. The DiD method's accessibility, requiring only rudimentary statistical knowledge, enhances its appeal and comprehensibility.

Our study focuses on water provision in small urban centres and large rural settlements, where approximately 85% of residents have access to piped water, either through domestic connections or nearby public taps. The remaining populace, typically in peripheral areas, relies on hand pumps or unsafe sources. Unlike African nations such as Kenya, water vending is not prevalent in our study area. Many households supplement their water needs from alternative sources due to limited piped water availability.

The data stem from a longitudinal survey, initiated in 2018. Annual sampling frames comprised the most recent census listings of settlements exceeding 2,000 inhabitants. A stratified two-stage random sampling approach was employed, with water supply schemes as primary units and households as secondary units. Villages lacking functional piped water systems were excluded, resulting in a final selection of 200 locales.

The initial 2018 survey revealed 49 centralised (state-controlled) and 151 decentralised (locally managed) utilities. Subsequent years saw increased local control, with the brief study period mitigating comparability issues over time.

Household selection involved systematic listing, excluding those without water connections, and ultimately choosing 30 households per scheme. The investigation primarily focused on consumer bribery experiences related to water billing within the past year. Smaller subsamples examined those requiring repairs or new connections.

Interviews were conducted with all relevant contractors, probing for any bribes paid to officials or politicians concerning the utility in the previous year. Additionally, key informants such as NGO staff and elected officials were consulted. Collection of data employed semi-structured interviews based on pre-tested, flexible questionnaires, with corruption-related inquiries strategically placed towards the end to foster rapport.

The validity of our estimations hinges on the assumption that outcome variable changes would not be systematically different between the decentralised schemes and the control schemes, absent decentralisation. While inherently untestable, this assumption likely holds in the absence of initial systematic trend differences. Decentralisation's impact is thus identified through cross-utility status differences over time.

We investigated whether decentralisation timing correlated with corruption trends. State government officials asserted that implementation timing was unrelated to past or anticipated future corruption levels. The non-random selection of utilities does not affect validation of our identification strategy, as it depends on similar temporal changes across decentralisation timing, and the process was unrelated to lagged of outcome variables or their expected future values. Three distinct checks corroborate our strategy's validity.

Results

Our results reveal that the most prevalent form of corrupt practice involves the manipulation of utility bills. This manifests in two primary ways: consumers offering bribes to utility officials to reduce their bills, or providing illicit gratuities to avoid inflated charges. In many instances, these payments serve both purposes simultaneously. The data indicate a statistically significant disparity in bribery rates between decentralised and centralised agencies. Specifically, 51.3% of respondents reported engaging in bribery with decentralised agencies, compared to 40.9% with centralised agencies. However, it's noteworthy that the monetary values of these bribes do not differ significantly between the two agency types.

We then narrowed our focus to a smaller sample, examining only those consumers who required repairs within the preceding year. This subset revealed that 39.7% of respondents interfacing with decentralised agencies had paid bribes, contrasted with 30.4% in centralised agencies. This difference in the proportion of transactions involving "speed money" is statistically significant, although the amounts exchanged remain statistically indistinguishable between agency types.

Our third, more limited sample – yet still sufficiently large for meaningful analysis – comprised households requiring new connections. Despite a relatively low incidence of bribery in this context, the data presented in Table 1 demonstrate a significantly higher percentage of bribe-payers in decentralised agencies compared to their centralised counterparts. The fourth sample focused on contractors. A significantly higher proportion of contractors reported having bribed officials in decentralised utilities compared to those in centralised utilities.

Our analysis reveals a positive and significant coefficient for decentralisation across all bribery types examined. The overarching trend suggests that corruption levels initially rise following decentralisation but subsequently decline. However, the disparity remains significant in the medium term. These findings underscore the complex dynamics at play in the relationship between decentralisation and corruption, highlighting the need for nuanced interpretation and targeted policy interventions to mitigate unintended consequences of governmental restructuring.

Conclusions

This study's findings present a nuanced picture of the relationship between decentralisation and corruption in water utilities in central India. Contrary to the oft-touted benefits of decentralisation, our empirical evidence suggests that, at least in the short to medium term, decentralised agencies

exhibit higher levels of corrupt practices across various dimensions of service provision. The statistically significant disparities in bribery rates between decentralised and centralised agencies—spanning bill manipulation, repair services, new connections, and contractor interactions—challenge the prevailing notion that decentralisation inherently enhances accountability and reduces corruption. Our longitudinal analysis reveals a concerning trend: corruption levels initially surge following decentralisation before showing signs of gradual decline.

These results underscore the complexity of governance reforms and caution against simplistic assumptions about decentralisation's efficacy in combating corruption. The observed patterns may be attributed to several factors, including the initial lack of robust oversight mechanisms in newly decentralised systems, the potential for local elite capture, and the time required for local democratic processes to mature and effectively constrain corrupt behaviours.

Our findings have significant implications for policy-makers and development practitioners. They highlight the need for carefully designed and implemented decentralisation processes that incorporate strong accountability measures from the outset. Furthermore, they suggest that the benefits of decentralisation in reducing corruption may only materialise over an extended period, necessitating patience and sustained support for local governance structures. Future research should explore the long-term trajectories of corruption in decentralised systems and investigate the specific mechanisms through which local democratic processes can eventually curtail corrupt practices. Such insights will be crucial in refining decentralisation strategies to realise their potential benefits while mitigating unintended negative consequences.

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