Who Reforms? The Political Economy of Digital Infrastructure



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Abstract

Social protection schemes and cash transfer payments are playing an increasingly central role in the strategies of low-income countries to tackle poverty. However, weak systems of delivery (especially in rural areas) continue to constrain the effectiveness of these programs in improving the lives of the world's poorest people. In this context, a growing literature demonstrates that digital infrastructure, such as secure payments systems to distribute government transfers directly into financial accounts controlled by program recipients, can dramatically reduce diversion of social protection payments by local intermediaries, disrupt systems of political patronage and improve democratic accountability by creating transparency and empowering beneficiaries.

But this presents a puzzle: in environments where incumbents may benefit from delivery systems that are distorted by clientelism, rent-seeking or the politicisation of social protection programs, when and why would politicians choose to implement policy reforms that disintermediate partisan actors from the administration of social spending and forfeit potentially powerful sources of electoral advantage?

I offer and test a theory of variation in reform outcomes, arguing that the digitisation of entitlements is not simply a technocratic, politically-neutral solution to logistical issues of distribution that can be easily explained by levels of national economic development or technological savviness. Digital infrastructure can be an important form of state capacity that allows governments to directly reach their citizens, and its absence can be a strategic choice prolonging the access of incumbents to resources and power. I find that the interaction of political economy factors, namely electoral competition and pre-existing clientelism, can influence the timing and extent to which political actors will distribute benefits to citizens digitally: when clientelism is prevalent and competition is high, reform is less likely as incumbents attempt to preserve all sources of advantage when they compete with challengers for power.

At the subnational level, in addition to these dynamics, incumbents in federal democracies often face a trade-off between aligning with a central reformist government and disintermediating their own local networks of patronage. In these circumstances, the extent to which subnational politicians share the partisan identity of the central government significantly influences reform timing and implementation, as can the degree to which state-level incumbents are enmeshed with local networks of brokers.

I find empirical support for these hypotheses at the cross-country and subnational levels, exploring global variation as well as disparities in state-level outcomes in the context of the world's largest social protection system in India. Using original data sets and mixed methods, I investigate whether politics matters in the adoption of digital infrastructure to improve government service delivery.

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Chapter 1: Introduction

In late August 2015, I was seated in a roadside banking kiosk about an hour's drive from the city of Gwalior in the state of Madhya Pradesh in India. The kiosk was operated by a retail financial services institution, which fulfilled many of the functions of a bank branch for those individuals, mostly farm laborers, who lived in the area.

A young woman walked into the kiosk and approached the desk. She told the agent staffing the kiosk, an employee of the bank, that she wanted to receive her government benefit made available to below the poverty line (BPL) families. She held out her thumb, which the agent pressed against a biometric fingerprint reader. Her thumbprint was associated with a unique 12-digit number, known as *Aadhaar*, that verified her identity to the agent as the owner of an account with the bank. The same *Aadhaar* number the week before had been matched against an entry in a state government database of welfare entitlements.

The agent checked the balance in her account, which included a deposit made under the program of the state government. He made a note in his ledger, printed out a receipt and handed the money to the woman. She counted out the notes carefully, nodded to the adults lined up inside the wall of the kiosk, and hurried outside. The transaction took less than two minutes, and the full value of her entitlements had moved directly from the government treasury into her personal account, and then into her hands in under 48 hours.

This episode may not seem particularly striking to inhabitants of OECD nations, where almost all if not every transaction between citizens and the state (such as the payment of income taxes in one direction, and the receipt of pensions, unemployment benefits or subsidies in the other) has been digitised. In most cases, it would be highly unusual for funds to physically pass through the hands of local bureaucrats or brokers to distribute on behalf of central or subnational government agencies. With these governments generally in possession of granular data on their citizens, welfare entitlements are largely determined on an individual basis and according to strict programmatic criteria: based on a person's income, age or other personal factors such as number of children or disability status. Intermediaries are rarely imbued with wide discretion to determine the individual eligibility of citizens for social insurance or assistance entitlements, or the ability to distribute them in person.

But outside of these nations, the experiences of citizens who make or receive government payments vary tremendously, both within and across regions, income groups and countries. Across the world, approximately one quarter of people who received a government payment in 2014 reported that they

received it in physical cash, which dropped to 15 percent in 2017 (Demirguc-Kunt, Klapper et al. 2018). However, this figure masks a wide range of variation across regions and levels of economic development.

For example, in Turkmenistan in 2014, one hundred percent of people who reported receiving a transfer from the government said that they had been given cash, with zero percent reporting that the transfer had been deposited into a bank account (ibid). In nearby Azerbaijan (of comparable wealth to Turkmenistan) and Georgia (which has half the GDP per capita of these two neighbours) 64 percent and 54 percent of people, respectively, who received a transfer said in the same survey they had received it in cash.

Back across the Caspian Sea in Kazakhstan, only 20 percent of people reported receiving transfers in cash, with the majority saying funds had been directly deposited by the government in their bank account (ibid). But in Iran, Turkmenistan's northern neighbour, more than 92 percent of citizens reported receiving government transfers directly into their bank account: a shared land border demarcating welfare systems that are entirely cash-based on one side and almost entirely digital on the other.

As seen in Table 1 (all data from Demirguc-Kunt, Klapper et al. 2018), across regions, substantial differences can be observed in the extent to which governments digitise the administration of social protection programs. In South Asia, for example, just over 50 percent of beneficiaries reported receiving a payment in cash in 2014, compared to between 2-3 percent in Europe. And in 2017, cash payments in Sub-Saharan Africa remained almost twice the global average.

Region	Percentage of adult recipients who received payments in cash only (2014)	Percentage of adult recipients who received payments in cash only (2017)
Middle East	38.79	16.23
East Asia and Pacific	34.48	16.47
Euro area	3.31	2.68
Europe & C. Asia (excl high income)	29.03	23.62
Latin America and Caribbean	25.79	16.29
North America	2.32	1.16
South Asia	50.51	22.14
Sub-Saharan Africa	32.84	28.62
World	26.92	14.65

Table 1 Government Payments in Cash by Region, 2014 and 2017.

Within regions, this variation is magnified at the country level. In South America, for example, the proportion of government entitlement beneficiaries who received their transfers in cash in 2014 varied from just 12 percent in Brazil and Puerto Rico to almost 90 percent in Bolivia.

Country	Percentage of adult recipients who received payments in cash only (2014)
Bolivia	89
Chile	62
Uruguay	55
Panama	45
Mexico	44
Belize	37
Argentina	30
El Salvador	23
Brazil	12
Puerto Rico	12

Table 2 Distribution of government transfer payment modalities in 2014.

In 2014, more than 80 percent of government payment recipients in Moldova, Cambodia and Nepal reported receiving entitlements only in cash. Between 70-80 percent of beneficiaries in Kyrgyz Republic, Bolivia, Tajikistan and Armenia reported the same thing. But this picture is not static over time.

Between 2014 and 2017, the proportion of citizens in Tajikistan, Armenia and Azerbaijan reporting that they received cash-based payments dived by 64, 43 and 42 percentage points, respectively. Yet over the same period that proportion barely changed in Vietnam, Romania, or Mexico (where 65, 35 and 30 percent of recipients reported receiving cash in 2017). And in some countries, such as Albania, Bulgaria, Algeria and Serbia, the proportion of beneficiaries reporting they received payments in cash *increased* (20 percentage points for Albania and approximately 10 percentage points for the others).

It is tempting to chalk up variation in the level of digitisation of government delivery to differences in economic development, but variations persist despite the resources available to incumbents. In 2017, for example, Ethiopia, Togo and Burkina Faso had similar levels of GDP per capita on a purchasing power parity basis (approximately $2000), but where Togo and Burkina Faso had around a quarter of citizens reporting their payment from the government was in cash, that figure was 71 percent in Ethiopia. Similarly, while Guatemala and Bolivia have similar levels of economic development, Bolivia delivers cash to twice as many citizens as Guatemala (52 percent vs 25 percent of program recipients).

This variation echoes across middle-income countries: where Croatia, Romania and Turkey have similar levels of economic development on a purchasing power parity basis, Croatia and Turkey have reduced their cash-based payments by the government to under 4 percent, but 47 percent of payment recipients in Romania reported receiving a cash payment. Similarly, Greece, Latvia, Poland and Hungary are on a

similar footing economically, but where the first three countries have around 6 percent of citizens reporting that they received a cash payment, that figure jumps to nearly a third for Hungary.

Why does this matter? Social protection and cash transfer payments have become a core component of poverty reduction strategies in many low-income countries (Slater 2011) and welfare transfers and other government payments to individuals represent large and growing flows of funds from the state to citizens. While welfare programs are largest and most well-established in OECD countries, well-known social protection programs in Latin America such as Mexico's *Oportunidades* and Brazil's *Bolsa Família* have inspired similar systems in other regions, and by 2016, social protection programs were operating in close to 130 low- and middle-income countries (Bastagli et al., 2016). In 2018, about 2.5 billion people worldwide received government entitlements of some kind, of which 650 million were in the bottom income quintile of the world's population (World Bank 2018b), and these figures rapidly escalated in response to the COVID-19 pandemic, with an estimated 1.7 billion people living in low- and middle-income countries having received COVID-related social assistance payments by the end of 2020 (World Bank 2021).

In developed economies, citizens who receive government payments are used to receiving entitlements deposited directly into their bank account. By contrast, in developing countries, social spending is often physically distributed in the form of small denomination currency or in-kind goods (such as rice or cooking gas) by street-level intermediaries, such as government employees or local elites (Aker, Boumnijel et al. 2016). In 2017 it was estimated that over a billion individuals received a government payment in the form of cash (Demirguc-Kunt, Klapper et al. 2018) and hundreds of billions of dollars of government payments and transfers are made in physical currency each year (Manyika, Lund et al. 2016).

The use of cash-based delivery systems is problematic for a number of purely logistical reasons. Welfare beneficiaries in developing countries must generally travel to specific locations (often government offices, post offices, community centres or marketplaces) to collect their entitlements, where their claims are validated against a central register and then released by an agent (Klapper and Singer 2017). This incurs transactions costs on both sides: transporting liquid currency entails costly logistics and security risks for the government, and travel time for recipients, who may need to walk or catch public transport substantial distances in rural areas. Long queues are common, as are instances where cash runs out or public officials are absent, which may then require several trips at the opportunity cost of forgone income. Security issues are also created, with beneficiaries (especially women, the disabled or elderly people who are often recipients of social protection payments) becoming targets for thieves when they face a long journey with their cash or when information on payment dates is made publicly available (Barca, Hurrell et al. 2013).

In addition to logistical hurdles to physically receiving benefits, the use of liquid currency creates opportunities for leakage and corruption: intermediaries involved in the delivery process can siphon funds directly for their own enrichment or withhold payments unless the beneficiary pays them a bribe (Muralidharan, Niehaus et al. 2016, Desierto 2022) . A recent estimate was that $110 billion is lost in corrupt leakage from government payments - government salaries, health payments, pensions and welfare - in developing countries each year (Manyika, Lund et al. 2016). The International Labour Organisation (2014) has documented how high levels of corruption and weak systems of delivery, especially in rural areas, continue to constrain the effectiveness of these programs in improving the lives of the poor.

Further, analyses of distributive politics in developing countries note that intermediaries who handle cash during the distribution process can often also represent the grassroots extensions of party machines and observe the political preferences of citizens where they operate (Auerbach and Thachil 2018). The ability of these local actors to withhold, make contingent or divert benefits unless beneficiaries vote or behave in a particular way therefore also enables clientelism: the practice of exchanging material benefits for quid pro quo political support. Scholars such as Chandra (2004) and others have demonstrated how politicians can distort and commodify social programs in order to extract rents and bribes, and expenditure tracking studies across the world have established how substantial resources intended for schools, pensioners, health systems and infrastructure programs never reach their intended destination (Reinikka and Svensson 2011, Aidt 2016).

The alternative to these cash-based payments are systems that use digital technologies to enable transfers to citizens made directly from the government, by authenticating the identity and eligibility of potential beneficiaries, communicating with them, and delivering their entitlements to them electronically.

When governments digitise payments, they contract with financial services institutions to manage the process of sending entitlements to welfare recipients. These systems reduce the number of intermediaries who can rent-seek or wield veto-power over the disbursement of payments, as the funds are usually transferred directly from a government treasury account to the account of the beneficiary. If beneficiaries wish to withdraw cash that has been sent to their account, the identity of the actors who interact with beneficiaries is converted from the public sector, political or community figures who previously distributed cash-based benefits to private sector employees of financial institutions. In this relationship, rather than being beneficiaries navigating a power dynamic with a local figure in a position of authority, welfare recipients interact with institutions as customers who may pay fees and can shift their accounts elsewhere if service is poor.

Digital government payments largely fall into three broad categories: direct electronic funds transfer (that is, account-to-account credit and direct debit transfers), card-based instruments (such as credit, charge, and debit card payments which typically still involve a plastic card) and electronic money ('e-money') based instruments where the beneficiary maintains a prefunded transaction account, often with a non-bank entity such as a telecommunications company who offers so-called 'mobile money' services such as m-Pesa in Kenya (Bank for International Settlements 2015). In all cases, the common element is that funds are electronically transferred from the government into a financial institution account controlled by a beneficiary, and do not require cash to be disbursed manually by an intermediary as part of the welfare distribution process.

Beneficiaries who do not live within easy reach of a bank branch (for example because they live in a rural area) physically access their entitlements through a network of branchless bank 'agents' – usually employees of private sector banks, telecommunications companies or local shopkeepers (Balasubramanian and Drake 2015). Depending on the design of the system, beneficiaries are issued a debit card, a personal identification number or way to verify their identity via their mobile phone or biometric identification technology – typically an iris or thumbprint recognition device (Barca, Hurrell et al. 2013). To release payments, a mobile phone or point of sale (POS) device is used to process the payment, providing an electronic record of the transaction or a paper receipt for the beneficiary and the agent.

It is during these last-mile interactions in cash-based welfare systems that risk of leakage is magnified as the ability of central governments to monitor interactions with beneficiaries weakens (Barnwal 2015). Niehaus and Sukhtankar (2013), for example, surveyed about 3,000 beneficiary households of a rural welfare program in the states of Odisha and Andhra Pradesh in India, comparing government records of disbursements against beneficiary reports in original surveys. They found that 79 percent of expenditures on the scheme were stolen prior to reaching their intended beneficiaries. Rajiv Gandhi, former Prime Minister of India, famously estimated that only 15 percent of benefits disbursed by the government of India actually reach the poor (Aiyar and Samji 2006). Estimates of theft from social protection programs vary across countries, but systematic leakages of up to 30 percent of citizen entitlements are typical (Gelb and Decker 2012).

In rich and middle-income nations, most citizens interact regularly with the state: they possess official, government-issued identification, such as a birth certificate, ID card or social security number, which form the basis upon which they can directly assert their right to entitlements from the state and each other. Starting with birth registration which establishes the existence of an individual, other political rights granted to citizens, such as the right to vote or to obtain a passport, protections such as the enforcement of

property rights and access to entitlements such as welfare, healthcare, and education, where publicly funded, depend on the state being able to uniquely identify individuals over time and understand their status, needs and rights (Harbers 2018).

However, it has been estimated that globally there are 1.1 billion people, often rural citizens, migrant workers, women or children, who have never been registered or lack proof to prove who they are (World Bank 2018). Citizens whose births were not registered face barriers to obtaining additional forms of identification, and have difficulty proving their entitlement for government welfare schemes, opening a bank account, and accessing many other rights and services. From an administration of welfare perspective, there are distinct challenges posed when individuals do not have an official identity. The state's ability 'to implement logistically political decisions throughout the realm' (Mann 1984) depends crucially on information (Harbers 2018) without which decisions about whether individuals are entitled to public goods and social safety nets cannot be made.

In these settings, governments often rely on community actors to identify appropriate recipients of social program programs who distribute benefits within a community on the basis of local personal knowledge. Those who lack identification which would prove their entitlements under these programs often turn to political brokers to help navigate government bureaucracies and secure public services, and it has been argued that dependence of citizens on politically-motivated brokers for access to state support creates a spectrum of other opportunities for partisan intermediation by brokers charged with mobilising electoral support for federal and state incumbents (Larreguy, Marshall and Trucco 2018).

But the extent to which states actually possess accurate information varies widely, not only across countries, but also within them, and in developing countries, comparative research has shown that comprehensive and accurate state records are the exception, not the rule (Harbers 2018). The universality of birth registration, for example, varies substantially across countries, even among those with similar levels of economic development (Hunter and Brill 2016). In these contexts, the use of remote authentication technologies, such as digital IDs, can function as the evidence of citizenship that governments in modern welfare states require access to entitlements and public services with the primary purpose of identifying individuals remotely and issuing officially recognised credentials that can be used for authentication by government providers (World Bank 2018).

Gelb and Mukherjee (2020) summarise the role that basic digital infrastructure can play in the end-to-end chain to deliver government programs and payments, replacing functions that were often performed by intermediaries in cash-based systems, namely (i) informing potential beneficiaries about social protection programs (ii) providing them the means to apply for these programs (iii) authenticating their identity and

screening for duplicate or ghost beneficiaries (iv) ensuring they meet all requirements for eligibility, such as income or residency requirements (v) making payments, and (vi) following up to resolve problems and grievances.

Recent advances in the payments industry and identification authentication technologies (such as mobile money services enabled by the global spike in phone ownership, and inexpensive biometric devices) have enabled low-cost transfers in countries with underdeveloped financial infrastructure and have been received with some excitement by governance advocates who believe they can improve the performance of welfare programs in developing countries (Muralidharan, Niehaus et al. 2016). Such innovations in the governance of social programs has been praised as a potentially effective way to improve welfare outcomes by ensuring that beneficiaries receive the full quantum of goods, services or money to which they are entitled (Reinikka and Svensson 2011).

But those same benefits to citizens can represent a clear cost to the intermediaries and other political actors who are currently profiting from the opportunities inherent in cash-based welfare systems, in terms of forgone influence from the control of social spending programs and lost income from theft and bribes. In high-corruption environments and patronage democracies - countries where politicians widely utilise the contingent distribution of benefits to mobilise voters – the politicisation of government spending is a highly effective source of electoral advantage and theft of funds from social programs can be a valuable source of campaign finance and voter inducements. This has been documented across multiple settings including South Asia (Wade 1985), Africa (Blundo et al 2008) and the Americas (Weitz-Shapiro 2014).

A large body of research has documented how the entitlements of citizens in these environments are routinely pocketed by intermediaries who operate in the gap between the state and its citizens: local elites, brokers and street-level bureaucrats who steal funds or divert them along partisan and ethnic lines, where – at the behest or with the tacit knowledge of their political bosses – cash and access to entitlements are used as inducements in clientelistic quid pro quo political arrangements with voters (Bardhan and Mookherjee 2006, Stokes et al. 2013, Dunning and Nilekani 2013). In this context, a growing literature demonstrates that digital infrastructure, such as the use of secure payments infrastructure to distribute government transfers can dramatically reduce corrupt diversion of social protection payments by local intermediaries and improve democratic accountability by creating transparency through electronic verification records and grievance redressal mechanisms (Barnwal 2015, Muralidharan, Niehaus et al. 2016).

As I show, variation in the adoption and use of digital infrastructure to improve welfare delivery (both across and within countries) is marked, but few scholars have sought to investigate the political origins of

these patterns. Divergent experiences in the use of technology to operate social protection systems has been noted by the policy community: a review of current practices, for example, cites the global diversity of designs and delivery arrangements to deliver benefits (International Labour Office 2010). And yet, the growing use of technology in the delivery of government programs and payments in developing countries is yet to be comprehensively described and theorised within the political science literature. Instead, the majority of studies concerned with these reforms to improve the efficiency of social protection programs treat them as politically neutral, technocratic measures, seeking to evaluate the impact on households and public sector performance once these policies have been implemented, without asking the analytically prior question of which governments choose to implement them and why.

Given the explosion of scholarship focused on clientelism, corruption and governance in recent decades, it is particularly surprising that the use of digital infrastructure, one of the arguably most effective tools to reduce leakage and mistargeting of social safety nets, anti-poverty programs, pensions and public sector salaries, is yet to receive a comprehensive theoretical treatment, especially since payments to beneficiaries are a significant and growing component of government expenditure in developing countries.

Further, subnational governments are responsible for a large and increasing share of global social spending. Yet the academic scholarship examining reforms to social welfare systems and the adoption of anti-corruption measures has largely focused on macroeconomic factors and political institutions at the national level (Kitschelt and Wilkinson 2007) and as a result, the implications of decentralisation, the diverse political incentives shaping the behaviour of regional politicians and the dynamics between local and state levels of government are underexplored sources of potential variation in reform.

Towards a politics of digital distribution

Over the last decade, social safety nets have become increasingly automated and digitised through mechanisms which existing theories of the state do not fully comprehend (Masiero 2017). These reforms can take diverse shapes: cash transfer schemes are utilising new mobile payment modalities (Devereux and Vincent 2010), and humanitarian assistance programs administered by UN agencies such as the World Food Program are increasingly shifting from in-kind commodities to electronic vouchers and prepaid debit cards.

A rapidly expanding set of information, communications and financial technologies is altering the operation of social safety net systems and the way that citizens interact with governments when accessing them. Digitally-enabled infrastructure such as government-operated kiosks and one-stop-shops where citizens can access programs and services, biometric identification systems used to verify the claims of

beneficiaries, and smart cards and electronic point-of-sale devices are increasingly being used to disburse entitlements.

For example, when the Benazir Income Support Program (BISP), the largest social transfer program in Pakistan started in 2008, payments were delivered in person and in cash by Pakistan Post. Two years later, BISP trialled the use of smart cards and mobile payments after reports that beneficiaries were not receiving the full quantum of their entitlements (Rotman et al 2013). Citizens who were accustomed to receiving free or heavily subsidised food and fuel in countries such as Iran and Egypt now receive government transfers into their bank accounts (Radcliffe 2016), and countries such as Niger have used new mobile payment modalities to get drought assistance payments to citizens in rural areas quickly and with minimal diversion by administrators (Devereux and Vincent 2010, Aker et al 2016). In countries such as Ecuador, e-payments are increasingly being used for social security payments, tax refunds, unemployment and health benefits, among other payments (Economist Intelligence Unit 2011).

An accumulating body of experimental evidence by development economists suggests that when locally-administered, cash-based or in-kind systems of welfare distribution are replaced by digital systems, disintermediating local brokers and enabling large-scale programs targeting individuals, the use of technology can drastically improve the delivery of government transfers to citizens in terms of curbing corrupt leakage from these programs (Barnwal 2015, Muralidharan, Niehaus et al. 2016; Muralidharan, Niehaus et al. 2017; Banerjee, Duflo et al. 2017).

This literature emphasises that in the context of government transfers, the liquid and untraceable nature of cash renders it vulnerable to siphoning off by the local officials or intermediaries who distribute benefits on the part of the government, and weak identification systems allow leakage through claims by ‘ghost’ recipients. By contrast, the electronic delivery of transfers directly into the bank accounts of citizens, and the use of identity systems to authenticate that the intended beneficiary was indeed the recipient of the full amount of the transfer, makes it easier to trace payments and harder for ghost recipients to remain undetected (Klapper and Singer 2014).

But in countries with long histories of patronage democracy, the spoils to be gained from intermediation of government payments are a valuable source of campaign finance and voter mobilisation. Government programs form a likely source of funds available for use in clientelist exchange (Weitz-Shapiro 2014) and not only is it on average more likely in regions where corruption is high that political actors are siphoning funds from social safety net programs or demanding bribes to release them to beneficiaries, voters may be more used to and expectant of the vote buying strategies that are bankrolled by these diverted funds.

As argued by Bussell (2015), the greater the share of bribes in overall campaign finance and thus the more dependent politicians are on bribes, the less motivated politicians are to support policies to increase transparency in government service delivery. Further, political clientelism – the practice of exchanging personal favours and material benefits in exchange for political support – has proven remarkably resilient in a variety of settings (Berenschot and Aspinall 2019). This can make the decision by incumbents (who are potentially profiting from corruption) to voluntarily implement reforms which will reduce opportunities for graft puzzling.

This takes us to the questions at the heart of this doctoral study: when and why do political actors adopt and use of digital infrastructure in the distribution of government payments to citizens in developing countries? Under what conditions do they perpetuate the status quo, or act to dismantle systems through which they had previously extracted rents and influence? How does variation in economic and political institutions affect these decisions?

The central policies examined in this dissertation - the use of digital payment and identity authentication systems in the delivery of social spending - are major new arenas of international administrative reform but our understanding of the causes of variation between and within country experiences and the mechanisms through which politics matter are underdeveloped. Studies of popular social protection programs, such as cash transfers in Latin America (De La O 2015), household commodity subsidies in India (Barnwal 2015) and theories of clientelism (Stokes, Dunning et al. 2013) occasionally reference the role that that citizen authentication systems or direct deposits may play in facilitating the delivery of social spending. But despite the potential to radically alter the design and targeting of social spending, for example by disintermediating street level brokers, these studies treat technological advances in social welfare administration as largely exogenous to the operation of transfer programs, and not something with its own distinct political economy.

Relevant literature

There is a long line of literature in the social sciences on welfare reform and the politics of social spending, especially in industrialised economies. The transformation of welfare states, including the degree of convergence or difference between countries, has been the subject of diverse academic disputes (Seeleib-Kaiser 2008) and the question of variation in social welfare regimes and outcomes has stimulated a substantial literature (Singh 2015). But despite the intense academic interest in theorising the causes and consequences of social protection policies, the politics of the *administration* of these policies– the 'delivery science' of social spending - has received far less attention (Henman and Fenger 2006). It has been argued that differences between welfare regimes in their use of administrative reforms – defined as

changes in the implementation and management structure of social programmes, without necessarily adjusting their contents – is under-researched and consequently not well understood (ibid). This is the case to an even greater extent in developing countries and yet is critically important: as was argued by Weitz-Shapiro (2014) 'understanding the nature of the differences in the way social policies are administered by local politicians—as well as the sources of that variation—is key to understanding the terms under which a polity's poorest citizens receive government social welfare assistance'.

Although nascent compared to the study of social spending in advanced industrial nations, there is a rapidly expanding field of literature concerned with the design and structure of welfare transfers in emerging economies. The main preoccupation of this scholarship, as noted by Doyle (2015) is 'the search for explanations for persistently low levels of spending in some developing democracies and the rather surprising absence of demand for social security transfers in countries with very high levels of inequality and economic insecurity'. A growing number of researchers have investigated sources of heterogeneity in social welfare spending levels both between and within low-income countries by testing the relationship between expenditures on social spending and a range of political and economic explanatory variables, such as regime form and partisanship (Huber, Mustillo et al. 2008), mobilisation of social groups (Singh 2015), choice of economic development strategies (Wibbels and Ahlquist 2011), financial and trade openness (Avelino, Brown et al. 2005) and flows of remittances (Doyle 2015).

A related literature, above and beyond the determinants of the *level* of social spending in developing countries, is concerned with *to whom* government payments are distributed and the political context in which social spending takes place. This literature focuses on the extent to which clientelistic vote buying strategies influence the targeting of welfare beneficiaries by politicians (and the brokers working on their behalf). Researchers in this field are focused largely on the recipients of distributive practices that politicians use to try to win and retain office, in terms of their ideological preferences. Cox and McCubbins (1986), for example, find that parties preferentially favour core supporters when targeting welfare benefits, although Lindbeck and Weibull (1987) contend they will target swing voters. Work by Stokes et al (2013) shows that street-level brokers working on behalf of parties will tend to target poorer voters, who value a given material reward more than middle-class or wealthy voters.

A third, closely related body of literature considers the political economy of *by whom* social welfare payments are physically distributed, and by extension, explaining transitions from broker-mediated clientelist strategies to technology-enabled or other means of programmatic distribution if politicians choose to abandon their local machines. This work extends the typical emphasis of the clientelism literature from the explicitly election-oriented political roles local actors play within party machines - namely the top-down targeting of party resources to voters, monitoring electoral behaviour and mobilising

support (Auerbach and Thachil 2018) - to also highlight the role for intermediaries in party machines outside the time period of elections (Bussell 2018).

Researchers in a variety of Asian, African and Latin American settings have found evidence that local intermediaries play an important role in facilitating access by citizens to welfare programs, basic needs and social services (Rizzo 2018) or advocating on behalf of citizens for public goods and services (Baldwin 2013, Auerbach 2016), frequently along partisan lines (Bussell 2019). This work characterises intermediaries as 'repeat players' who operate in fragmented systems where citizens cannot directly access benefits or have few avenues to pursue complaints (Rose-Ackerman 1997) and focuses on the distributive behaviours (such as targeting outcomes and biases) of local actors in a small set of social safety net programs (e.g. Bardhan and Mookherjee 2006, Olkin 2006).

Closely related to this work is an emerging scholarship on when transitions to programmatic politics occur, examining macroeconomic, demographic and other social or economic changes that will influence the cost–benefit analysis of politicians, making the disintermediation of brokers more attractive when the returns to machine politics decline and costs increase (Berenschot and Aspinall 2019). Theoretical treatments of this topic by Stokes et al (2013) emphasise structural forces such as economic growth and modernisation which influence the relative returns to clientelism, compared with other distributive strategies, and thus affect the incentives of leaders to subvert their machines. Subsequent empirical studies such as Bussell (2012) and Weitz-Shapiro (2014) test this logic by analysing the interaction of factors such as political competition, poverty and pre-existing levels of corruption within country settings to determine when politicians will 'opt out of clientelism'. A different strand of this literature points to the presence of reform-oriented 'externally mobilised political parties' as being key to disrupting corrupt equilibria (Berenschot and Aspinall 2019).

Once parties shift away from brokers as local agents of the state, a fourth, largely practitioner-oriented literature considers *how* social welfare payments are physically distributed and specific reforms that could improve efficiency and reduce leakage in the transfer of funds. This scholarship has documented the global diversity of designs and delivery arrangements to deliver benefits, including the use of technology (International Labour Office 2010) and the digitisation of government transfers and payments, in the form of case studies documenting country level experiences, such as Babatz (2013) and Zimmerman (2013). There is also a small set of largely descriptive studies in the fields of public administration and development studies, such as Devereux and Vincent (2010) which provide an overview of the costs, challenges and the benefits of digitisation, but these studies are largely atheoretical and treat changes to social spending delivery as a matter for bureaucrats who manage the financial plumbing of government

and international development agencies, and not the outcome of decisions faced by political actors seeking to maximise their chance of re-election.

Finally, and perhaps most closely related to the present study, there is an established literature on national and subnational variation in state capacity, and the incentives of incumbents to invest in infrastructure to improve delivery of programs and services to citizens. It has been noted that weak state capacity is both correlated with, and a binding constraint on, socioeconomic development in poor countries (Besley and Persson 2011). But an increasing number of scholars have noted that subnational variation in measures of state capacity in many cases cannot be simply explained by differences in wealth or development (Soifer 2008, Holland 2017, Gottlieb 2019).

Many of these studies focus on how investments in informational capacity, such as censuses, civil registries, or land titling which facilitates taxation by improving the 'legibility' of citizens and their socioeconomic status (Scott 1998, D'Arcy and Nistotskaya 2017, Lee and Zhang 2017). Previous scholars such as Kain and Baigent (1992) argued that political actors invested in this form of capacity when a cost-benefit analysis showed that expected revenues from taxation and private investments exceeded the substantial costs of map creation.

For example, Christensen and Garfias (2021) found that failures to invest in land registration systems which facilitate the collection of property tax, such as cadastral maps that record property ownership and values, reduce revenue by over 10 percent in Brazilian municipalities. But they also found, crucially, that municipalities varied widely in the extent that they invested in registration systems, and this variation was largely explained by the political, rather than financial, costs of reducing tenure informality. In a clientelist system, politicians may mobilise voters and owners of unregistered land by promising protection from eviction or access to public services. Where these systems of that record claims to ownership and tenure are formalised, especially in areas with high levels of poverty where residents are vulnerable to eviction threats, they may deprive themselves of a votebank susceptible to clientelistic appeals. The researchers found empirical evidence to bear out the hypothesis, namely that that investment was delayed in areas where incumbents were subject to re-election.

Bowles (2022) also suggests that weak incentives, and not just the level of resources, helps to explain variation in states capacity. In the empirical context of Ghana, he asserts that in the status quo, middle- and high-income citizens were able to access the state, but the 50 percent of the population who lacked identity documents that could serve as the basis of claims for entitlements (mostly rural and low-income citizens) faced high barriers to interact with the government and must rely on local brokers to intermediate access to entitlements. When estimating the impact of a policy to build civil registries—

administrative buildings where citizen could register and receive identity documents like birth certificates— he found that low-income citizens in areas where a registry had been built were better able to access programs and services. But, as a result, the compliance of relatively wealthier citizens with demands for taxation decrease as they lose preferential local access to public resources. In this case then, incumbents face both declining revenue from the rich and an impaired ability to extract clientelistic bargains from the poor.

Finally, Gottlieb (2019) argues that politicians have strategic incentives to maintain weak state infrastructure because investments in capacity risk increasing collective claim-making by citizens. This can then shift the criteria which voters evaluate politicians from clientelistic to programmatic ones – which lowers the value of future office. This is because when expectations of state capacity are low, citizens may be induced to vote for incumbents through the provision of small, clientelistic transfers but if they demand larger programmatic policies, fewer resources remain for political actors to extract or retain as rents. In her field research in Senegal, she finds that an improved ability of the government to collect taxation increases expectations by citizens of total tax revenue, which in turn induces demands for more programmatic goods.

The backdrop for all of these literatures is the seemingly exponential growth in empirical research on the causes and consequences of corruption and clientelism over the last thirty years as survey data (for example, by Transparency International) and more sophisticated methodologies for detecting clientelist exchanges have emerged and a corresponding 'governance' agenda has become embedded in the priorities of international development organisations (Fisman and Golden 2017). This literature has sought to describe and document quid pro quo exchanges between voters, politicians and brokers, and identify the enablers of clientelism and corruption in government service delivery. These include discretionary rather than rule-based decision making, low public sector wages, weak transparency and lack of monitoring and enforcement, and the proportion of one's peers who are perceived to be corrupt (Rose-Ackerman 2016). Researchers have also focussed on the implications of clientelism for democracy (Stokes 2007), and the conditions under which politicians opt out of clientelism and transition to programmatic politics (Stokes et al 2013, Weitz-Shapiro 2014).

There is a parallel literature on the political economy of reforms designed to reduce corruption in developing countries, such as increasing pay for bureaucrats, freedom of information laws and improved transparency initiatives and the establishment of anti-corruption institutions. Klitgaard (1988) identified the ideal conditions for clientelism and corrupt behaviour by intermediaries as being when a local official has monopoly power over a service combined with discretion to exercise that power and lack of accountability, and since then empirical work has suggested that these exchanges can be vitiated by

measures such as increasing detection and penalties, or by paying informational rents and efficiency wages (Mookherjee et al 1995, Paul and Dabla-Norris 2006). Works such as Rose-Ackerman (2016) have sought to isolate the structural factors that create favourable conditions for programmatic reforms and the scholarship of Barbara Geddes (1994) for example, outlines the dilemmas faced by politicians advocating civil service reforms that ends systems of patronage.

However, it has been noted by Banerjee, Duflo et al (2016) that these studies of corruption in the economics or political economy field usually hold the administrative structure of social programs constant, with the features of bureaucratic and government delivery architecture only rarely the subject of empirical study. While there is a body of empirical work that evaluates administrative and state capacity reforms (e.g Banerjee et al. 2012, Duflo et al., 2013) these studies investigate the efficacy of these reforms in attenuating corruption, and not who implements them, when and why.

Given that many reforms in this area involve the use of technology, this field overlaps with the question of when developing country governments adopt information and communication technologies, transparency initiatives and systems of e-Governance more broadly. However, few studies in this area are directly concerned with the political economy of these reforms: they may note in a general way the importance of champions at senior government levels, but rarely focus on political incentives as a key explanatory variable of reform. Studies such as Banerjee, Duflo et al. (2017) have conducted large-scale national experiments to evaluate whether technology reforms such as electronic fund flow which create transparency in fiscal transfer systems can increase accountability in the implementation of social welfare programs and have found that these reforms reduced leakage to intermediaries from the program. However, these studies do not assess the characteristics of the governments who implement these reforms or attempt to determine their motivations for doing so. Studies such as Milner (2006) examine the political economy drivers of technology use, finding that a correlation between regime type and internet users, with democracies on average likely to be more connected. These findings are robust to economic, demographic and telecommunications infrastructure controls, but while they help to understand how institutional factors condition technology use, they do not explain patterns of technology reforms by the government itself.

Within these literatures, there have been a very small number of analyses of specific reforms that seek to explain variation in the ways governments use new technologies to reform service delivery, such as Bussell (2012). However, to the best of my knowledge, no study has comparatively explored the drivers of the reform at the centre of this dissertation – namely the decision by incumbents in developing countries to disintermediate brokers in the distribution of government entitlements through the use of

digital systems that enable remote authentication of beneficiary identities and the depositing of payments into accounts that they control, and thus eliminating most links in the implementation chain.

Outline of the Dissertation and Hypotheses

This chapter provided a brief account of the empirical and theoretical context for this study. I reviewed current challenges encountered during the distribution of government payments in developing countries, namely the corrupt diversion of funds by local intermediaries and requests for bribes, as well as the exercise of discretion by local political actors that enable clientelist exchanges. In the next chapter, I provide an overview of how digital government infrastructure can address these challenges by undermining the ability of local actors to control access to public services and examine in a more detailed way the political costs and benefits posed by these reforms to re-election seeking incumbents.

Specifically, in Chapter 2 I argue that there are three mechanisms through which digital authentication and payment systems affect government-citizen relationships when used to distribute social spending. First, by building the infrastructure that a state can use to verify the entitlements and authenticate the identity of citizens and directly depositing welfare entitlements and other government payments into a financial account owned and operated by a beneficiary, these systems establish a direct connection between beneficiaries and the government, bypassing networks of local actors who previously functioned as the local arm of the state by physically distributing cash or in-kind goods. This mechanically reduces (if not eliminates) the ability of those local intermediaries to divert or control access to entitlements to benefit themselves or their political bosses.

Second, digital delivery of government payments increases transparency in the implementation of social programs, creating a reliable audit trail which enables increased potential scrutiny of governmental performance by citizens, NGOs and opposition parties. In this scenario, where local intermediaries act as the agent of the government, and the government acts as agent for the voting public, principal-agent models of transparency predict that the increased monitoring and sanctions enabled by better information may deter corrupt behaviour on the part of both sets of agents, improving outcomes for citizens.

Third, digitised systems of delivery can be ‘sticky’ – once they are in place, there are no precedents for returning to entirely cash-based systems, which represents a constraint on the ability of both current administrations and future ones to exploit social programs as a tool to win elections. This is important for cases where the persistence of rent-seeking systems can be characterised as a collective action problem and where the reforms predicted by the principal–agent anticorruption framework (i.e. monitoring and sanctions) are insufficient to disrupt corrupt equilibria (Persson, Rothstein et al. 2013).

Together, these three features translate into both political costs and benefits for an incumbent. In terms of primary costs: especially in a high-corruption environment, the reforms reduce the frequency of government-citizen interactions, diminishing the flow of funds through the hands of local elites that may previously have served as a form of patronage, with diverted monies or bribes extracted from access to government programs constituting a reward for loyalty to the incumbent and/or a valuable source of campaign finance. Electronic system records that provide oversight of which citizens received benefits (including how much, and when) and enable remote complaint for those who did not receive them will also make it more difficult for their political machines to engage in clientelistic behaviours, such as withholding or conditioning access to welfare entitlements on partisan grounds and provide the means for increased scrutiny which could uncover corrupt behaviour. Taken together, a key cost of the reform is the loss of the ability to generate and benefit from rents in the administration of social programs, which serve as key sources of electoral advantage in patronage democracies such as India.

On the other side of the equation, there are theoretically two key benefits of reform. First, politicians may be rewarded by voters during elections for enacting a policy that improves welfare services and delivery and enables more credible anti-corruption platforms and promises relating to programmatic benefits. The second benefit, given the stickiness of digital payment systems, is the reduced capacity of future administrations to engage in clientelistic bargains intermediated by local political actors and benefit from the proceeds of patronage and corruption. Digital platforms may potentially operate in a way that is similar to a number of other governance and transparency policies – such as freedom of information laws and independent judicial appointments – which are enacted as a form of 'insurance' especially when incumbents expect that they may soon be out of power and believe the costs of reform will be borne in the future by their political opponents.

When facing the calculus of whether to reform, when will an electoral boost from good governance and foreclosing future returns to corruption for opponents outweigh an incumbent's expected loss of campaign finance and patronage opportunities for local intermediary networks?

To answer this question, I review potential explanations in the literature on clientelism, starting with the claims of scholars who predict it is structural forces such as economic growth, urbanisation and the demographic changes associated with modernisation such as increased literacy that influence the incentives of leaders to disintermediate brokers and subvert their machines (e.g Stokes, Dunning et al. 2013). I also review sources of internal and external influence such as the role of civil society and international organisations. I then draw on the large body of scholarship that emphasises the role of political economy factors in the adoption of governance and transparency reforms, primarily electoral

competition and pre-existing levels of clientelism, in order to identify the conditions that are conducive to reform.

First, I examine whether theoretically electoral competition and/or pre-existing levels of clientelistic behaviour could explain reform outcomes. There is a body of research which argues that high levels of corruption impedes the adoption of anti-corruption reforms because if too many individuals profit from corrupt practices, corruption becomes a collective action problem (Persson, Rothstein and Teorell 2013). In an empirical test of this theory, Bussell (2012) argues that politicians who have greater access to corrupt rents and bribes from citizens will be less likely to implement policies that increase transparency and efficiency in government service delivery; she finds that higher levels of corruption are on average negatively associated with the adoption of a service centre reform in India designed to disintermediate local brokers from the process of applying for government services.

There are other studies, however, that suggest the effect of corruption in influencing reform outcomes may be conditional on the level of other factors. De Francesco and Trein (2019), for example, find that incumbents are most likely to adopt administrative reforms – in that case, the regulation of lobbying - when they face the combination of low to moderate levels of corruption, but this effect was conditional on levels of economic development.

Similarly, although there are several studies that find that political competition measures have a positive and statistically significant effect on the probability that a country would adopt reform - for example, Berliner (2012) - other researchers have found that the effect of political competition in influencing reform outcomes is often conditional on the level of other factors. Weitz-Shapiro (2014) for example, finds that it is the interaction of political competition with economic development that creates the conditions for incumbent politicians in Argentina to eschew clientelist politics in the provision of government services.

I therefore review the theoretical bases for an argument that it is interaction between political competition and corruption, rather than either alone, that creates the conditions for some policymakers to opt out of clientelistic exchanges in the implementation of social programs. I also investigate the direction of this effect given competing predictions that emerge from the literature.

The third chapter reports the results of a careful analysis of a novel dataset which measures the share of households who receive government transfers in cash versus digitally at the country level. In addition to my primary hypothesis that it is the interaction of political competition and pre-existing clientelism that explains the use of digital infrastructure to distribute entitlements, I test an additional range of variables identified by the literature on welfare reform, technology adoption and clientelism, such as economic

development, level of democracy, integration with the global economy, financial sector development, aid and foreign loan dependence, the presence of international NGOs and press freedom.

I find that neither pre-existing clientelism nor political competition have a linear relationship with the digitisation of government payments. Instead, incumbents in high-clientelism countries become less likely to implement reforms as competition increases, with this relationship being statistically significant. Additionally, explanatory variables drawn from other studies empirically testing the sources of variation in governance reform – such as levels of economic development - do not appear capable of explaining variation in the adoption by incumbent politicians of digital payments that bypass local brokers.

These results are consistent with the theoretical intuition of Scenario 2, which suggests that it is the *interaction* of political competition and clientelism that determines whether incumbents will on average adopt digital authentication and payment systems and not the *absolute level* of either variable, and the reform is on average less likely in countries where competition and clientelism are high. I find incumbents facing high levels of competition are likely to perceive that the costs of disrupting established systems of patronage and local support outweigh the potential benefits of a governance boost or locking-in higher standards of transparency for future administrations.

To be clear, this cross-country analysis is unlikely to unearth evidence of a causal nature. For example, correlations between the use (or not) of technology-enabled reforms in the administration of social spending and variables such as corruption are likely to be affected by omitted variable bias, even seeking to control for the level of economic and social development. Idiosyncrasies in social and institutional contexts also likely play a role in determining when reform occurs. This analysis serves to help us to understand at a basic level the generalizability of my findings across countries and inform my subnational analysis.

In the fourth chapter I turn to the incentives of subnational incumbents to opt out of clientelistic arrangements with voters by implementing digital infrastructure reforms. I propose a theoretical extension to my model when applied in subnational contexts that highlights the role of intergovernmental partisanship.

The central point of departure for this analysis is the observation that in recent decades, investments in state capacity have largely been propagated by reforming central governments to increase the ‘legibility’ of citizens and the ability to reach them with governments and services that previously relied on local intermediaries. Because social spending in large, decentralised federal countries such as India and Nigeria is often administered by subnational governments, when investments in state capacity curtail the flow of funds that pass through the hands of local brokers, a previously underexplored electoral trade-off is

created: state level leaders motivated by electoral survival may need to choose between siding with or opposing the national government in deciding whether to adopt or resist the use of digitisation infrastructure, which could come at the cost of (or represent the opportunity to) disrupt a flow of resources to their own local networks of patronage and brokers who intermediate access to (and distribution of) entitlements.

I theorise that subnational politicians face a unique set of costs and benefits from implementing technology reforms, as determined by the interaction of pre-existing levels of corruption and political competition in their electorate, with the additional consideration of partisanship dynamics – both upwards with the federal government and downwards with local elites. The intuition that partisanship may influence reform outcomes at the subnational level is grounded in the literature suggesting that regional party operatives and state level incumbents are usually embedded within larger political party organisations whose members often compete for federal level appointments or space on election tickets. The incentive for co-partisan subnational government leaders to adopt a policy propagated from the centre stems from their desire to placate national party leaders who are likely important in determining their future career trajectory. Conversely, subnational governments composed of opposition or other parties that do not hold government at the federal level should be less likely to implement the reform, because by resisting they can act as veto players to help stymie the realisation of a flagship campaign proposal of their political rivals at the federal level, which may weaken their subnational rivals drawn from the same party. Each incumbent will resolve the trade-off they face differently depending on the incentives that are created by partisanship, and the relative levels of corruption and political competition in each region.

In Chapters 5 and 6, I examine whether this theory holds at the subnational level by examining patterns in the timing of adoption and extent of implementation, respectively, of a specific set of digital infrastructure reforms in India. In describing and explaining variation in the use of digital systems to authenticate the identity of welfare beneficiaries of government entitlement programs and digitally deliver their payments, I seek to resolve a puzzle: why did some Indian states embrace ‘Direct Benefit Transfer’ - the digitisation of entitlements under social protection payments to be authenticated using the *Aadhaar* digital ID system and delivered directly into the bank accounts of beneficiaries, and other states refuse, in some cases for years?

In Chapter 5, I develop a hazard model to evaluate the impact of factors on timing of digitisation announcements by incumbents across the Indian states. The interpretation of the hazard rates on the theoretical variables of interest fall squarely within the predictions of Scenario 2 in terms of both the direction and statistical significance, and the model results are consistent with the cross-country findings in Chapter 3, namely that the interaction of political competition and pre-existing levels of clientelism

influences when incumbents at the subnational level in India will on average announce that they will use digital authentication and payment systems to distribute government entitlements. The results also support the claim that high levels of political competition do not have a uniform effect on reform. Instead, the incentive to announce reform when competition is high is negatively correlated with the level of clientelism.

This effect is demonstrated most dramatically by the state governments who implemented the policy shortly after becoming co-partisan with the federal government – sometimes in a matter of weeks or months. This occurred both in cases when there was a change in the state government and when the federal government changed from the Indian National Congress (INC) to the Bharatiya Janata Party (BJP) in May 2014.

While the federal-state copartisanship variable was highly significant in the expected direction, the variables capturing the link between state-level incumbents and local brokers was not significant in the main analysis. However, if large broker networks are considered an asset to the party to whom they are loyal and a threat to the politicians to whom they are not, it is possible that the strength of local networks may have very different effects on reform timing depending on whether the incumbent in that state benefits or is threatened by their existence, and these effects are masked when states with very different state-local dynamics are aggregated together.

In Chapter 6, I find evidence that when it comes to the implementation of DBT reforms, as was the case with reform timing, states that are aligned with the federal government digital technologies that disintermediate local brokers on average more extensively than those that are not. This is consistent with the theory in Chapter 4 which posits that when state level leaders are faced with a decision to implement a reform propagated from the centre, they are likely to weigh potential disciplinary action, a negative effect on their career advancement or other forms of partisan control if they resist. Further, I find that in states where subnational incumbents have weaker linkages with local networks of brokers (or face rivals who do control these networks), they also implement digital benefit reforms more extensively.

Clientelism also has a negative and significant relationship with reform implementation: states with higher reported rates of intermediaries extracting bribes on average have lower scores, implying that they have delayed or made weaker efforts to implement digital infrastructure reforms, a finding that is consistent with Bussell (2012) who found that the Indian states where levels of corruption were highest made the least effort to offer citizens services through one-stop shop government service centres, and automated their operations to a lesser extent, preserving access to rents.

In Chapter 7, I present three subnational case studies which complement my cross-case quantitative analysis and provide an opportunity to explore the interplay of political economy factors. I conduct a process tracing effort in Goa, Uttar Pradesh and West Bengal, three states that had very different trajectories of reform and significant variation in the underlying political economy variables of interest. I delineate the key actors, processes and events that shaped the embrace (or rejection) of digital benefit transfer programs in each one and to establish this chronology, I draw upon records of parliamentary debates, government documents and newspaper reports to provide a more nuanced picture of reform to complement my empirical analyses in the two previous chapters.

In Chapter 8, I engage with critiques of the use of digital infrastructure to deliver entitlements to citizens. I have characterised digital infrastructure through which the state can directly interact with citizens as an exciting innovation capable of reducing leakage from social protection programs and improving the quality of democracy in countries where voters are beholden to intermediaries who control access to their entitlements. But it is important to note that any reform of significant scope and complexity is likely to entail both logistical and other challenges, and I emphasise that these reforms are not a 'silver bullet' that will solve for all manner of services delivery challenges. I also spotlight concerns that digital systems may enable surveillance or predatory behaviour by the state and that poor-quality implementation could endanger beneficiaries.

I conclude with the implications of my findings for governance advocates and the study of technology-enabled reform. I reinforce the importance of understanding the role of factors such as electoral competition and intergovernmental alignment on the likely success of transparency and digitisation initiatives, which are in many contexts treated as neutral bureaucratic reforms and not key strategic decisions for political actors.

Conclusion

A veritable explosion of scholarship on clientelism and good governance around and since the turn of the millennium has demonstrated that corruption, leakage and politicisation of government social spending programs are detrimental to almost all dimensions of society, including inequality (Gupta et al. 2002), poverty (Chong and Calderon 2000), political trust and legitimacy (Seligson 2002) and macroeconomic factors such as capital accumulation, growth, and poverty reduction (Kaufmann and Kraay 2002, Paul and Dabla-Norris 2006). This understanding has spurred a large sub-field of literature examining the impact of a suite of potential reforms, such as anti-corruption laws and transparency measures, to tackle the causes and consequences of corruption. But particularly when it comes to technology-enabled state capacity reforms, such as digital delivery systems, few studies critically examine patterns of adoption,

within and between countries, and the extent to which these technocratic reforms can transform the relationship between citizens and the state.

While progress is being made, the social protection systems of many developing and transition countries continue to be characterised by widespread and enduring rent capture, inefficiency and politicisation. In this chapter I reviewed the distributional implications of digitised government payments to demonstrate how - by reducing leakage, bribes and politicisation of social programs, and constraining the ability of current and future administrations' social programs – they may be an underexplained source of variation in the adoption of governance initiatives. In the next chapter, I investigate under what conditions politicians choose to implement digital governance initiatives, and by better understanding these implications, we may more accurately predict the conditions in which incumbents are truly motivated to both adopt and ensure the success of these reforms.

Chapter 2: Theoretical Perspectives on the Reform of Government Service Delivery.

Procedural inefficiency, rent seeking, and bureaucratic capture in public programs have been argued to be common features of the state in many developing and transition economies and intertwined with the electoral strategies of political actors (Paul and Dabla-Norris 2006). When are the institutional inefficiencies in distributing social protection payments *intentional* – designed or maintained by elites and their agents to prolong access to rents and power, and when do politicians take deliberate action to remedy these inefficiencies?

In this chapter, I develop the theoretical intuition to explain when politicians use digital infrastructure designed to improve the capacity of the state to programmatically target and efficiently deliver social spending, reducing corrupt diversion of government funds and releasing citizens from the undemocratic influence of intermediaries and quid pro quo arrangements.

First, I outline three mechanisms through which technology can transform the relationship between citizens and the state (namely, the disintermediation of local actors, the creation of transparency and the stickiness of digital payment system) and can create political costs and benefits to incumbents. I then investigate the conditions under which the benefits of implementation may outweigh the costs and result in reform, or when the costs outweigh benefits and result in delay or resistance to the use of technology reform. Specifically, I focus on the roles of electoral competition and pre-existing clientelism in creating the conditions where incumbents may voluntarily adopt reforms that restrict their ability to engage in clientelistic exchanges with voters at the local level. With the literature in this area surfacing conflicting evidence on whether these variables induce or impede government reform, I outline three potential scenarios and conduct some preliminary bivariate tests with which I end the theoretical discussion, prior to the full multivariate evaluation in Chapter 3, where I evaluate the links between levels of cash-based welfare at the cross-country level and the variables of theoretical interest, along with a set of controls.

Given the significant role played by *subnational* levels of government in welfare administration in developing countries, in Chapter 4 I propose an additional dimension of the theory relating to what factors influence reform at the regional level in federal systems by adding an analysis of the role that intergovernmental politics and partisanship play in the adoption of anti-corruption reforms. By providing a theoretical framework to analyse when national and subnational parties choose to disintermediate brokers in the distribution of government payments, I seek to contribute to the growing scholarship that identifies the conditions under which politicians shift away from patronage-based electoral strategies.

If the use of digital infrastructure makes theft and subversion of government spending more difficult, why and when would politicians in developing countries voluntarily implement measures that reduce their capacity to benefit politically and financially from the distribution of welfare entitlements?

To answer this question, I first outline the political economy dimensions of digital delivery reforms and the three key mechanisms through which they can affect government-citizen relationships: the disintermediation of local actors from the physical delivery of benefits, the creation of transparency and democratic accountability through electronic records and citizen engagement tools, and the creation of binding constraints on the ability of both current administrations and future ones to exploit social programs as a tool to win elections. Each of these mechanisms can be examined in the context of the large political economy literature on corruption, and within the scholarship on institutions, principal-agent theory and collective action problems, respectively.

I discuss each of the three mechanisms in theoretical terms in turn below, and in the next chapter, I explain how they translate into potential costs and benefits to incumbents to develop a general theory of when the benefits of implementation outweigh the costs and result in reform, or when the costs outweigh benefits and result in delay or resistance to the use of digital delivery channels. I then propose a more nuanced theory of what factors influence reform at the subnational level in Chapter 4.

Disintermediation of local actors

The theoretical literature on corruption highlights the incentive and control structures of government as an important determinant of the level of rent-seeking by politicians and bureaucrats. This scholarship emphasises that institutional settings – such as lean administrative systems and efficient workflows - can act as important safeguards against corrupt behaviour (Shleifer and Vishny 1993, Acemoglu and Verdier 2000, Paul and Dabla-Norris 2006, Banerjee et al 2016) and investigates reforms which increase institutional quality, shrink the shadow economy and disrupts the so-called ‘corruption market’ (Bjørnskov 2011). By enabling direct financial linkages between the state and its citizens, digital platforms of delivery can reduce opportunities for intermediaries to divert or steal funds and engage in clientelistic behaviours.

Who are these intermediaries, and when are they typically involved in the disbursement of social spending? A growing body of research in the clientelism literature analyses the identities, functions and loyalties of local actors who interact with citizens across country settings. This work suggests that the character of the networks that facilitate clientelistic exchanges vary substantially in terms of the inducements and threats made by brokers in exchange for votes (Berenschot and Aspinall 2019).

In some environments, intermediaries are local or village-level politicians, government officials or bureaucrats, who are directly involved in the delivery of social programs that are funded by central or regional governments. In others they are party workers, local elites, traditional leaders or community elders who often serve as intermediaries between elected officials and citizens, helping citizens access the state and assisting elected officials with the implementation of their policies. Despite drawing their influence from different sources in different settings, the common element is that local intermediaries in developing countries are usually in a position of authority and able to observe political affiliation and behaviours in their local communities, and in many cases channelling resources from their patron to their clients, and votes from their clients to their patrons (Auyero 2001).

These intermediaries have been described as community and neighbourhood leaders in Sudan and Mexico; party workers in Turkey, Malaysia and Ghana; state officials in Indonesia; and religious leaders, community elders and clan leaders in Philippines and Pacific island states (Berenschot and Aspinall 2019). Historically, they have been precinct captains in the Chicago political machine (Knoke 1990). Civil servants as brokers have been a focus of recent empirical studies of political clientelism. India in particular has a long history of *vichawlia* (middle-men) or *dalai* (brokers) who have been described as deeply embedded in local histories, power relations and social networks and central to the everyday functioning of the Indian state (Witsoe 2012).

This role often places these actors in a privileged position to influence the voting behaviour of citizens and whether they have access to government benefits. Accordingly, even where these local actors are not officially designated as playing a role in the distribution of welfare programs, they may informally control or influence allocation of resources through personal discretion over which citizens' requests will be addressed, often on a political basis (Kruks-Wisner 2015).

Bussell (2018), for example, demonstrated that being affiliated with the same party as the village council president is, under most conditions, highly correlated with an improved ability to receive public benefits. Dunning and Nilekani (2013) found that citizens in Karnataka that share the party of the village leader are more likely to have received a job or benefit from the council. Rizzo (2018) argues that the difficulties and obstacles that citizens incur in accessing government welfare programs creates a market for mediation, with citizens relying on local intermediaries instead of directly claiming and receiving benefits. However, she points out that this 'solution' of relying on local brokers is usually based on deeply rooted social norms of reciprocity and with the beneficiaries of these programs often usually unable to reciprocate financially, this debt is repaid with political loyalty that restricts individuals' political autonomy or favours (ibid).

Reducing leakage

Digitisation has the potential in many cases to remove or reduce opportunities for corrupt leakage that arise during the physical distribution aspect of welfare delivery that is intermediated by local actors. It is during these last-mile interactions in cash-based welfare systems that risk of leakage is magnified as the ability of central governments to monitor interactions with beneficiaries weakens (Barnwal 2015).

Especially in a high-corruption environment, the flow of funds through the hands of local actors may serve as a form of patronage, with politicians turning a blind eye to money diverted or bribes extracted by partisan intermediaries, with both sides considering these rents a reward for loyalty to the incumbent and/or a valuable source of campaign finance. This is supported by evidence that turning a blind eye to corruption by lower-level officials and brokers can be perceived by politicians to be necessary given the risk of defection (Fisman and Golden 2017).

Digitising government payments has been found to be a highly effective strategy to disrupt these forms of leakage from social spending projects. Mexico, for example, has experimented with the use of electronic payments directly into the accounts of beneficiaries of its flagship social protection program, *Oportunidades*, with mechanisms for targeting and transfer disbursement designed expressly to prevent leakage into the hands of regional elites (Grimes and Wängnerud 2010). Prior to the new centralised approach, government payments were cash-based and a 2013 study found that the new approach may be saving the state US$17 billion per year, part of which stemmed from the reduction in unauthorised or incorrect payments (Babatz 2013). In India, it has been estimated that the government saved almost $9 billion in less than four years by digitising social protection payments (World Economic Forum 2019).

Similarly, direct payment of entitlements to citizens in the Brazilian Bolsa Família program has been credited as a critical innovation which both reduced leakage from the program and reduced credit claiming by local patrons, with beneficiaries stressing in a focus group study how much they valued the personal autonomy afforded by the direct transfer (Sugiyama and Hunter 2013).

A growing body of research has documented the nexus between politicisation of public service delivery by local brokers and the electoral strategies of politicians driven by the need to generate campaign finance. Successful clientelistic parties usually build ‘political machines that reach from the summits of national politics down to the municipal level’ (Kitschelt 2000) and a growing number of researchers have suggested that many central and state development programs have facilitated the growth of these machines by securing campaign funds through kickbacks or outright theft (Wilkinson 2006).

This is because leakage from social protection schemes and bribes can directly fund or enable partisan targeting of voter inducements. Funds corruptly diverted from social protection schemes can go into the

war chest to be distributed as favours prior to elections, with documented instances of funds skimmed from national programs being used as resources for local election campaigns (Khera 2011). In these cases, local brokers and officials are extorting bribes and payments from citizens with a view to passing money up the chain that can be used in clientelistic exchanges between their superiors and voters during elections.

Wade (1985) for example, provides one of the earliest accounts of brokers extracting rents from citizens that are channelled to politicians used to finance future elections and of 'systematic linkage between top-level and bottom-level corruption and between administrative and political corruption'. He documents local officials in southern India skimming funds from maintenance budgets of the canal system and demanding bribes from farmers who are dependent on water from the canals to irrigate their crops and in turn, facing demands for payments and gifts from state level politicians who could forcibly transfer them to an undesirable or remote role or location if their needs were unmet. Wade reports that politicians in multiple departments (such as Agriculture and Labour) made use of the bureaucracy to generate funds for distributing short-term material inducements in exchange for electoral support and argues that the spiralling cost of fighting state elections and maintaining a constituency amplify the pressure that local officials are under to corruptly acquire revenue.

Reducing bribes

Related to outright theft from these programs by intermediaries are requests for bribes from citizens. Why would citizens pay bribes to local actors to access benefits to which they are legally entitled? As Paul (1995) found in an evaluation of public services in Bangalore, if officials possess 'monopoly power' over the distribution of benefits, they may manufacture scarcity by stalling or withholding payments or demanding documentation that is hard to obtain, and if there is low quality monitoring and enforcement, citizens might willingly pay a transaction cost (bribe) in order to access their entitlements.

Given the opportunity, intermediaries may allocate time towards activities focused on creating avenues for theft and the laundering of funds rather than implementing policies and programs (Sukhtankar and Vaishnav 2015). For example, local officials with the power to withhold payments from citizens may create fictional barriers, such as requiring unnecessary documentation to prove eligibility for benefits in order to extract bribes and rents further muting the effectiveness of social protection programs (Banerjee 1997, Chakraborty and Dabla-Norris 2005). This is known as the 'grabbing hand scenario' where corrupt officials create rents which they extract for themselves via bribery (Aidt 2016).

A recent analysis of pension payments in the Indian states of Karnataka and Rajasthan found that large number of pensioners – one in five in Karnataka, and one in four in Rajasthan – report paying bribes to

intermediaries in order to access their payments and a small number of pensioners in both states report receiving much less than they are entitled to, or no pension at all (Dutta et al. 2012). Similarly in Bangladesh, one study reported that more than 70 percent of pension recipients were asked to pay bribes, transport and meal costs to bureaucrats to process and access their entitlements (Haque 2005). In Kyrgyzstan, a country where 71 percent of government payment recipients reported receiving their entitlements in cash only in 2014, bribery is widespread in the social welfare system, with local officials often forcing benefit recipients to give them the first month's payment as a kickback to access their entitlements (Torogeldi-uulu 2019). In the Democratic Republic of Congo, over 80 percent of citizens reported paying a bribe or giving a 'gift' to access public services (Transparency International 2019).

Witsoe (2012) in the course of qualitative work in Bihar reports that it was typical for Block Development Officers (local officials that form the lowest level of state government civil service) to work with a range of brokers for programmatic reasons – for example because a lack of staff meant it was impossible to service the population within their catchment area (often numbering over a million) and brokers usually had large networks in villages and could provide early notice of problems and issues. However, Witsoe also reports that brokers were used to collecting 'commissions' charged by many block development officers, such as 'speed money' to advance applications for public services quickly or kickbacks for the award of a public works contract, and the payment of bribes in turn to higher level bureaucrats for promotions and desirable postings. He concludes that 'for every rupee that travels 'upwards', possibly hundreds are diverted as the system of brokerage is set in motion' (ibid).

Implementing digital delivery systems can make it more difficult for intermediaries to demand bribes to release social protection payments. First, once government payments are migrated onto digital platforms, operational decisions regarding the movement of money from government accounts generally move into the hands of centralised bureaucrats and technical staff who are removed from local contexts. Second, when funds are automatically released into beneficiary bank accounts according to a distributional schedule, communities may soon learn that threats to withhold entitlements are not credible. In Argentina, for example, after the Ministry of Social Development moved from cash to an electronic benefits card, the percentage of Jefes participants who said they paid a bribe to local officials to access their benefit dropped to almost zero (Duryea and Schargrodsky 2007).

Politicisation of social programs

In addition to reducing outright theft and bribes, disintermediating street level brokers can also reduce the politicisation of social programs by local political actors when distributing benefits. Analyses of distributive politics in developing countries note that such brokers often also represent the grassroots

extensions of party machines, who observe the political preferences of citizens and facilitate the targeting of resources to mobilise voters in the neighbourhoods where they operate (Auerbach and Thachil 2018).

A substantial body of research in a variety of developing country democracies suggest that these local brokers and politicians play an important role in facilitating access to welfare programs by providing access to basic needs and social services (Auyero 2001). However, evidence from these settings also suggests that this access to benefits is conditioned on quid pro quo electoral support and the central role of local brokers and intermediaries within the electoral politics of developing democracies is well established (Stokes, Dunning et al. 2013).

As early as the 1950s and 1960s, surveys of voters in India reported threats by 'rural notables' with loss of public services, credit and land tenancies if they did not vote for the incumbent government (Wilkinson 2007). More recently, and on the other side of world, in the 2014 Presidential elections in Hungary, a substantial share of rural voters who received government entitlements stated that they had been threatened that they would no longer be eligible for entitlements if they voted the 'wrong way' (Mares and Young 2016). These forms of partisan targeting and intermediation of benefits continue to persist across many regions of the world (Vincente and Wantchekon 2009, Finan and Schechter 2011, Schaffer 2017). Accordingly, while access to entitlements in developing countries are increasing on paper, as evidenced by the multiplying cash transfer and safety net programs cited earlier in this chapter, they are often 'structured not only by the nature of state institutions, but also through the micro social exchanges of bargaining, negotiation and power dynamics' (Pellissery 2006).

In summary, the use of digital government infrastructure has the potential to address the issues of corrupt leakage and the extraction of bribes as sources of patronage and campaign finance and the politicisation of social programs by reducing the frequency of (or eliminating) interactions between citizens and the local intermediaries or agents of the government, during which rents can be extracted and political bargains enforced. By directly depositing welfare entitlements and other government payments into a financial account owned and operated by a beneficiary, networks of local actors who previously physically distributed cash or in-kind goods can be bypassed and the ability of those intermediaries to divert or control access to those funds to benefit themselves or their political bosses, can be reduced.

Increasing Transparency

The second mechanism through which digital infrastructure can affect government-citizen relationships is by increasing transparency in the administration of social welfare programs in developing countries. Explanations of rent-seeking behaviour by politicians and government officials in the theoretical literature on corruption are commonly grounded in principal–agent theory (Persson, Rothstein et al. 2013). When it

comes to the delivery of social spending, principal-agent problems can arise on two levels: between citizens and the elected politicians to whom they delegate authority to act as their agents; as well as between the government and the intermediaries who interact with citizens on its behalf to distribute welfare.

In this framework, corruption occurs when either or both agents betray their principal's interest in the pursuit of his or her own self-interest. This betrayal is in turn made possible by an information asymmetry between the two groups of actors and imperfect monitoring (Becker and Stigler 1974, Persson and Tabellini 2000). Corruption in welfare delivery would not exist if citizens were fully informed about the behaviour of politicians (and governments had perfect knowledge about the acts of their agents) and if those agents had the same objectives as their principals, namely delivering the full value of entitlements to beneficiaries.

A burgeoning scholarship examines how, even if citizens were willing and able to punish corrupt officials for failure to control rent-seeking in the delivery of public goods through electoral accountability channels, they are constrained by a lack of information about politicians, their agents and how they behave (World Bank 2016). Transparency initiatives, which can both provide this information and incentivise better behaviour, have therefore been argued to be central to efforts to eliminate corruption in government service delivery by resolving this information asymmetry (ibid).

A range of empirical evidence supports this link between increased information about the activities and behaviour of political actors and downstream reductions in corruption. A study across almost 100 nations found that greater fiscal transparency contributes to lower levels of perceived corruption (Chen 2019), a randomised study where the media published detailed information about government funding of local schools in Uganda substantially reduced leakage of those funds (Reinikka and Svensson 2011) and in a study of road projects in Indonesian villages, Olken (2009) finds that the credible threat of project audits decreased unaccounted (corrupt) expenditures. While a relationship between increased transparency and reduced corruption has been documented empirically, the mechanisms are complex, with voters in many developing country settings willing to return politicians who have been exposed as corrupt to office. Rothstein (2005) provides an overview of why many transparency initiatives motivated by the principal-agent method alone have largely failed, owing to the rareness with which systemically corrupt societies produce leaders with the desire to control that corruption, and who are not rational, self-interested utility maximisers. Accordingly, the enhanced transparency aspect of digital reforms is an important, but likely not sufficient to effectively tackle clientelistic politics without the other dimensions I outline, such as the physical disintermediation of voters.

My study of digital government infrastructure contributes to a growing body of literature analysing initiatives that can potentially disrupt corruption by reducing the power and increasing scrutiny of local brokers and politicians in the administration of social spending. These include campaigns to increase awareness of welfare entitlements (Banerjee, Hanna et al. 2018), one-stop shops operated by government agencies where citizens can circumvent brokers in their application for benefits and government services (Bussell 2012), providing a facilitator trained to assist citizens in applying for welfare programs (Rizzo 2018), Freedom of Information laws (McCubbins and Schwartz 1984, Berliner 2014), community monitoring (Bjorkman and Svensson 2009), and strengthening weak property rights systems previously used to enforce clientelistic exchanges (Larreguy, Marshall and Trucco 2018).

However, in much of the theoretical and empirical literature on corruption, the degree of transparency is given as exogenous, a parameter determined outside of the model before the economic and political choices of interest are taken (Alt 2006). My work is in line with Ferejohn (1999), Berliner (2014), Vadlamannati (2015) and Alt (2016) that explicitly considers what Alt (2016) calls the 'constitutional choice' of an information structure. Vadlamannati (2015) for example, explicitly considers the possibility that political actors manipulate anti-corruption institutions to maximize their chances of re-election.

Digital reforms can directly shape both principal-agent relationships identified above by increasing levels of transparency around the implementation of social programs, and therefore providing the information on the actions of both sets of agents (i.e. the government as an agent of citizens, and local actors as agents of the government) that is needed by principals to monitor performance and punish corrupt behaviour in two key ways.

First, electronic system records that confirm which citizens received benefits (including how much, and when) creates a reliable audit trail which enables increased potential scrutiny of governmental performance by citizens, NGOs and opposition parties and the ability to uncover corrupt behaviour. Digital systems of delivery produce large volumes of high-frequency data that can be used to monitor program implementation and uncover patterns that suggest clientelistic behaviours, such as systematically withholding or conditioning access to welfare entitlements on potentially partisan grounds (Gelb 2018) Fiscal transparency and better-quality program data can then deter corruption by increasing the probability that corrupt behaviour is detected (Chen 2019).

Other aspects of digital platforms, including biometric systems to authenticate the identity of beneficiaries, pin-protected smart cards and electronic point-of-sale devices, when designed effectively and used appropriately can reduce corrupt leakage by improving the traceability of welfare payments and helping to identify spurious claims. For example, a major source of theft from social welfare programs is

the creation of 'ghost' beneficiaries which occurs when lists of citizens eligible for benefits compiled by local actors are padded with the names of dead or fictional people (Cangiano, Gelb et al. 2017). When Botswana used biometric enrolment for its pension and social grants registration system, the number of program beneficiaries decreased by 25 percent as ghost workers, duplicates, and deceased recipients were removed and the country reported saving about 1.7 million USD a year (Gelb and Decker 2012). Savings in the same range were estimated when South Africa adopted a similar reform and it has been estimated that Ghana has saved 35 million USD due to the detection and removal of ghost names from government payrolls (Gelb 2018). In Nigeria, biometric audits reduced the number of people claiming a federal pension by almost 40 percent (Gelb and Decker 2012). And it has been argued that the efficient delivery of payments through Brazil's *Bolsa Familia* program is underpinned by the *Cadastro Único* (Single Registry), which collates and updates information on household size, income and address. Once implemented, digital payment systems can be used to reduce other forms of public sector corruption and leakage. Nigeria, for example, estimates its wage bill was reduced by 12 billion Naira and it eliminated over 43,000 ghost workers when it biometrically enrolled civil servants, and a biometric census of bureaucrats and government works in Guineas-Bissau resulted in 4,000 workers being found to be ghosts or duplicates (ibid).

Second, digital systems also allow low-cost communication with beneficiaries to ensure they are aware of their entitlements and to enable remote complaints systems for those who did not receive them, for example through text messages confirming when entitlements are deposited and how much they should be. This beneficiary engagement function has been emphasised in empirical studies investigating the role of transparency in combating corruption in government spending. For example, Reinikka and Svensson (2004, 2005) argue that political reforms to address theft and leakage are most effective when they are 'complemented by a systematic effort to increase the citizens' ability to monitor and challenge abuses of the system, and to inform citizens about their rights and entitlement'. Investigating the effectiveness of audit and supervision mechanisms in Uganda in reducing corruption and capture of public funds, they find that creating channels for citizens to claims their funds is particularly important.

The Stickiness of Digital Systems

The third mechanism through which digitisation can affect government-citizen relationships is by institutionalising transparency in the administration of welfare programs in developing countries through the use of 'sticky' digital systems.

Although the theoretical literature on corruption, discussed above, largely explains the phenomenon as a principal-agent problem, recent scholars have pointed to the persistence of rent-seeking equilibria in developing countries despite the implementation of transparency initiatives that reduce information

asymmetries. In these analyses, the failure of reforms can, to a significant extent, be understood to be the result of an absence of 'principled principals' who are motivated or have the capacity to effectively monitor and penalize corrupt behaviour of the part of agents (Persson et al 2013).

It can be argued that the principals in both the citizen-government and government-broker relationships in patronage democracies are often co-opted into clientelistic or corrupt arrangements in the distribution of government spending. Not only do voters often re-elect individuals who have behaved corruptly (Welch and Hibbing 1997; Chang, Golden, and Hill 2007), citizens have been documented in multiple settings actively entering into clientelistic agreements with brokers by 'selling' their votes to politicians in return for inducements (Persson et al 2013) with day-to-day corruption becoming legitimised by the social and economic environment within which individual agents operate (Blundo and de Sardan 2006).

Similarly, when it comes to street level brokers, rather than punish their agents for diverging from a programmatic distribution of benefits, politicians may encourage (or turn a blind eye to) clientelistic or corrupt misallocation of resources if it improves their chances of re-election, for example by ensuring the political loyalty of brokers.

In such scenarios, scholars have argued that systemic corruption is more accurately conceived as a collective action problem, where rent-seeking and vote-buying persist because politicians are unable to commit to programmatic policies without at least one actor willing to punish breaches of the principal-agent agreement (Persson et al 2013). Similarly, voters are unlikely to reward or respond to campaign promises to curb corruption in the distribution of social spending because these promises are not credible in the absence of institutions that impose constraints on the capacity of politicians, their brokers and citizens to enter into clientelistic relationships.

Digitised systems of delivery can operate as a 'technology of commitment' in the distribution of welfare that can potentially overcome these challenges. In addition to physically removing the distribution of cash from the hands of intermediaries and creating an electronic record of payments that can be audited, the implementation of digital infrastructure is 'sticky' – once social spending has migrated from cash to digital, it is difficult – although not impossible – to revert to previous systems, which can represent a constraint on the ability of both current administrations and future ones to exploit social programs as a tool to win elections.

Why would we consider these reforms to have high costs of repeal? Digital payment systems, after all, are an administrative reform that usually does not have the force or law, and theoretically could be revoked or rolled back by any executive motivated to revert to a cash-based system.

First, implementation of digital financial reforms creates domestic constituents who have a stake in maintaining the system. In most countries, the domestic banking sector, which typically has strong lobbying power with the government and earns fees from distributing entitlements and operating accounts for beneficiaries, has an incentive in continuing to operate a digital payment system for welfare flows. In addition to providing both the required technological infrastructure and related services to deliver entitlements to beneficiaries, they also value the opportunity to reach the 'bottom of the pyramid' market by offering financial products and services to beneficiaries, which may be subsidised by the government (Gronbach 2020). If digital government payments are switched back to cash, banks lose this revenue and reach.

Second, digital reforms in developing countries are often implemented with the assistance of international financial institutions, who then also have a stake in the perpetuation of the system. There is a large financial inclusion movement comprised of donors and international organisations which advocates for digital payments as a key pillar of the global development agenda (Klapper 2014). The revocation of electronic government payment systems is likely to attract attention and potential criticism by international financial organisations who act not just as advocates for governance reforms but also as lenders and providers of credit to developing countries, such as the World Bank and International Monetary Fund.

Third, once digital payment platforms are built for government payments to citizens, they are often then utilised by multiple agencies for programs where cash is transferred to individual beneficiaries, which further institutionalises the system through widespread use. For example, in November 2020, the central government of India was digitally distributing payments from 334 different programs originating in 51 ministries, ranging from farmer income subsidies from the Department of Agriculture, scholarships from the Department of Youth Affairs to payments to artisans from the Ministry of Textiles. These ministries have developed new operating procedures and criteria to manage the distribution of government transfers using these systems, which would make it extremely costly and complex to unravel. As a cross-government platform for delivery and as argued by Berliner (2014), agency-level implementation systems both tend to be more difficult to roll back at a later date.

It is important to note that although these systems are sticky, there are a non-trivial number of cases where the percentage of beneficiaries who report receiving government payments in cash did rise over time, calling into question the stickiness of these systems, or the ability of incumbents to supplement digital payments with physical cash payments. In my dataset of 58 countries where data was available on countries in both 2014 and 2017, the proportion of beneficiaries reporting that they received a government payment in cash fell in 43 countries but rose in 13 countries.

Country	Received government payments in cash only (2014)	Received government payments: in cash only (2017)	Percentage point increase in cash payments between 2014 - 2017
Albania	24.5	46.2	21.7
Bulgaria	22.6	33.1	10.5
Algeria	6.6	17	10.4
Serbia	8	17.2	9.2
Dominican Republic	7.8	15.2	7.4
Belarus	18.8	24.8	6
Lithuania	15.2	20.6	5.4
South Africa	12.3	16.4	4.1
Uzbekistan	19.6	22.7	3.1
Bosnia and Herzegovina	17.6	20.7	3.1
Mauritania	29.5	32	2.5
Romania	45.7	47.1	1.4
Mexico	29.7	30.7	1

Table 3 Countries where beneficiaries reported increased cash-based payments

In some cases, the difference between 2014 and 2017 is not statistically significant, but the proportion of beneficiaries who reported that they received payments in cash all rose by approximately 10 percentage points between 2014 and 2017 in Serbia, Bulgaria and Algeria, and doubled in Albania from a quarter to nearly half of beneficiaries. Notably, all of these four countries had elections in 2016 or 2017, all of which were marked by accusations of vote-buying, which are consistent with an increase in cash-based payments that we see in the data. For example, it has been estimated that between 5 and 19 percent of the ballots cast in Bulgarian elections since 2013 have been influenced by vote-buying or other voter intimidation practices, according to the Anti-Corruption Fund, a non-governmental organisation. Accordingly, the data suggests that while rare, it is not impossible to partially unravel these systems to some extent of or supplement official entitlements with cash payments.

Solving the puzzle of reform?

Taken together, these three aspects which contribute to the 'stickiness' of digital systems have two consequences of note. First, they enhance politicians' ability to commit to programmatic policies, which may help to solve the collective action problem. By creating permanent mechanisms which reduce information asymmetries and improve monitoring capacity, actors such as civil society organisations, the media, opposition parties and the public can better operate as a 'principled principal' that is required to detect and punish corruption.

Second, digital infrastructure has a degree of permanence affect the capacity of both current and – importantly - *future* administrations to engage in corrupt or clientelistic behaviour. An administration which benefits from corruption today but anticipates they may be replaced by their political rivals in the near future may implement reforms to reduce the returns to (and increase the costs of) corruption in welfare administration for any future administration by disintermediating local actors and increasing transparency in the delivery of social spending.

Together with increased voter approval from improved service delivery, these effects explain the puzzle of why politicians in developing countries may voluntarily undertake measures that reduce their capacity to benefit politically and financially from corruption and clientelism in the distribution of entitlements. Building on Alt, Lassen, and Rose (2006) who showed that fiscal transparency measures at the U.S. state level imposed constraints on future officeholders from opposing parties, and Berliner (2014) who found that uncertainty over future control creates incentives for incumbents to pass Freedom of Information laws in order to ensure their own future access to government information, under certain conditions, digital finance reforms may be attractive as a form of political 'insurance' where elected officials take a pre-emptive strike at the capacity of their rivals to benefit from corruption if and when they assume office, and this may outweigh the current benefits from clientelism and rent-seeking.

In what circumstances is it rational for political actors to forfeit a current advantage in order to deny a rival a future one? In the next chapter I examine the mechanisms through which political competition and pre-existing levels of corruption may create the conditions for the announcement and implementation of digital delivery reforms by incumbents. This builds on the work of scholars who have contended that political actors in many contexts may implement transparency and anti-corruption initiatives with the specific intent of imposing limitations on electoral rivals. Grzymala-Busse (2008) for example argued that transparency initiatives and anti-corruption reforms such as civil service regulations and audit institutions were 'a way of constraining one's political opponents from exploiting their access to state resources for their own gain' in case incumbents lose power. It is also similar to the rationale provided for the creation of independent judiciaries: in a trade-off between being able to gain from influencing these institutions for political gain or not, incumbents may choose independence as a form of insurance and protection for their person and property if they are voted out of power (Epperly 2013).

A further reason why politicians may choose to implement digital finance reforms is that given the time needed for full implementation, incumbents may expect that if they lose office, the costs of exposure created will be largely borne by their political opponents. This calculation reduces the expected costs of exposure at the same time that the need for insurance is at its greatest. As incumbents' uncertainty over

maintaining office in the future increases, this option becomes more attractive. As argued by (Alt 2016), by committing themselves to transparency, they commit their opponents as well.

Costs and benefits of reform

When and why do leaders improve the infrastructure of a state? Theories of state reform emphasise the political costs and benefits faced by political actors and interest groups, along with the institutional context, in shaping choices over policy outcomes (Geddes 1994). Acemoglu, Robinson and Vindigni (2011) in their theory of inefficient states argue that the attitudes of elites towards technological and institutional innovations will be influenced by the extent to which they erode (or increase) incumbency advantage and future economic rents and an accumulating set of empirical analyses of state reform highlight the importance of the calculations of incumbents regarding the strategic implications – the costs and benefits - of a given institutional change (Heredia and Schneider 2003).

Although improvements in welfare and government delivery can materially improve the lives of the poorest people, they can also represent both financial and political costs to politicians and their intermediaries by reducing the expected returns to clientelism in terms of forgone income and influence. Digital modes of delivery reduce the frequency of government-citizen interactions, diminishing the flow of funds through the hands of local actors that may have previously served as a form of patronage. Electronic system records that provide oversight of which citizens received benefits (including how much, and when) and enable remote complaints by those who did not, will also make it more difficult for political machines to engage in clientelistic behaviours, such as withholding or conditioning access to welfare entitlements on partisan grounds, and provide the means for increased scrutiny which could expose corrupt activities. Along with the fact that these systems are often 'sticky' – difficult to roll back once implemented - these reforms are likely to result in the current and future loss of rents which serve as key sources of electoral advantage in patronage democracies.

If entitlement reforms make it more difficult for political actors to benefit from opportunities for clientelism that arise in the distribution of welfare, increase the likelihood that clientelism will be exposed, and limit both current and future rents, why would incumbents voluntarily implement these systems? To understand these choices, we need to understand the specific ways in which digital infrastructure creates costs and benefits to incumbents. I argue that there are two key benefits of reform: a potential governance boost and a 'lock-in' function that reduces the availability of clientelism as an electoral tool for future incumbents in the event of a change in government. I address these in turn.

Benefits: Governance boost

Issues of governance and 'graft' have become increasingly political salient during elections in developing and transitional economies. It has been argued, for example in the context of India by Wilkinson (2007) and Argentina by Weitz-Shapiro (2014), that the emergence of pro-reform middle classes twinned with improvements in literacy and access to mass media which publicise anti-corruption efforts and expose political scandals have incentivised politicians to position themselves and their parties as reformers and to encourage the belief on the part of voters that they have a zero tolerance attitude towards clientelism (Sukhtankar and Vaishnav 2015).

Performance voting theory posits that voters would prefer to elect competent leaders (Powell and Whitten 1993) which generates the hypothesis that in states where voters believe clientelism reflects the incumbent's competence (or lack of), citizens will vote against them under the assumption that replacement with a different leader will lead to programmatic distributions of entitlements. This implies voters can motivate leaders to focus on this issue by linking their vote to efforts to disrupt patronage systems (Vadlamannati 2015). Accordingly, in regions where clientelism is prevalent, a stated intent to disintermediate brokers may garner support from citizens, both from poor voters who may anticipate improved government service delivery and reduced loss of benefits to leakage and bribes, as well as from middle-class voters who may interpret it as a positive signal of the quality of government performance more generally.

However, the empirical evidence on voting for anti-corruption candidates, polices and platforms is mixed (De Vries and Solaz 2017). On one hand, there is a small scholarship that documents the positive effect of programmatic policies on incumbent support. For example, Manacorda, Miguel and Vigorito (2011) document short-run increases in incumbent electoral support when social welfare programs are designed to thwart clientelistic behaviour and argue that these effects reflect voters updating their beliefs about the incumbent's ability or willingness to deliver programmatic policies. In the case of *Oportunidades*, a large social transfer program in Mexico designed with several mechanisms to reduce clientelism, De La O (2015) has argued that beneficiaries of the social transfer program reward parties that propose and retain the program, even when those administering the program do not explicitly ask for their vote. Weitz Shapiro (2014) finds that citizens in Argentina presented with a profile of a politician who provided food assistance programs to poor people in exchange for promises to vote for him were far less likely to say they would vote for that candidate as mayor than those assigned to a control. Larreguy et al (2015) found that the electoral rewards from implementing a land titling program in Mexico which strengthened weak property rights that were used to enforce clientelistic exchanges predominantly accrued to the incumbent federal architects of the program.

Conversely though, it should be noted that voters have displayed a tendency to elect and re-elect politicians convicted of criminal activities, including corruption (Banerjee and Pande 2009, Vaishnav 2012, Aidt et al. 2013). Zucco (2013) further argues that 'good governance' effects can be short-lived and that programmatic policies are unlikely to induce substantial long-term voter realignment. Empirical evidence suggests that in addition to having incomplete information, voters also make attribution errors and may weight considerations other than patronage politics (such as the state of the economy) higher when casting their ballot (De Vries and Solaz 2017).

Regarding digital delivery reforms specifically, in addition to any boost that comes from citizen approval related to tackling clientelism, well-implemented policies to switch from cash to electronic payment instruments have been relatively popular with citizens: in Argentina, one year after switching to debit cards, 87 percent of Jefes y Jefas de Hogar beneficiaries reported that they believed the new system was an improvement on the old method of dispensing cash via local officials (Duryea and Schargrodsky 2007). In Niger, researchers conducting a randomised control trial found that recipients who received electronic cash transfers on average saved three to four hours in travel and queuing compared to those who received them manually at the point of distribution (Aker et al, 2013). Digitising payments reduces the ongoing cost of operating social benefit systems, freeing up resources for other priorities: in Brazil, for example, the shift to electronic delivery of entitlements under the Bolsa Familia program cut delivery costs from 14.7 to 2.6 percent of the value of transfers (Lindert et al. 2007). Digitising wage payments to health workers in Sierra Leone during the Ebola crisis reduced strikes by workers related to payment delays and wage theft, supporting better care for citizens and cost savings for the government (Bangura 2016). Votes associated with improved service delivery may complement the electoral benefit – if there is any – from the anti-corruption aspects of the policy.

Accordingly, creating and using technology-enabled infrastructure to improve government-citizen delivery may increase the likelihood of re-election due to a positive 'good governance' electoral boost, but the theory and empirical evidence is mixed on this point. Citizens who have long experience dealing with corrupt intermediaries and politicians may plausibly reward incumbents during elections for enacting a policy that improves welfare services and delivery and enables more credible anti-corruption platforms and promises relating to programmatic benefits. But given inconclusive evidence on the electoral effects of governance reforms, it is possible that the electoral advantages conferred by clientelism may outweigh the appeal to politicians of an uncertain governance boost.

Benefits: Lock-in function

The second benefit of delivery reforms stems from the stickiness of digital payment systems. By permanently institutionalising programmatic delivery of benefits, incumbents can reduce the capacity of

future administrations to engage in corruption and clientelistic behaviours and related sources of electoral advantage. This could be considered a form of 'lock-in' in the event of regime change which can stymie the future efforts of rivals who take office to build clientelistic networks and which may in certain conditions convince an incumbent that the electoral rewards of reform outweigh the political costs, even when they are currently enjoying the proceeds of corrupt behaviour.

The puzzle of why politicians would voluntarily impose constraints on themselves or increase transparency around their behaviour has previously been studied by scholars of governance reforms and strategic institutional design. In these analyses, if incumbents face exogenous risk of replacement during elections by their political rivals, they may pass reforms delegating policy choice to an independent institution (such as the judiciary), choosing to trade-off the current ability to manipulate the organs of state against future protection from partisan judicial officers appointed by their opponents who may indict them or expropriate their property (Hanssen 2004).

This analysis has been extended to other state reforms where incumbents voluntarily assume constraints on their own powers. For example, it has been argued that in relation to freedom of information laws, audit functions and fiscal transparency requirements, which may curtail the ability of incumbents to shield their corrupt behaviour from exposure, incumbents have enacted laws to guarantee access to information when incumbents expect that they may soon be out of power (Berliner 2014). Incumbents have also limited the powers of intermediaries through civil service regulations and increased the penalties for corrupt behaviour in government through anti-corruption laws. In these scenarios, incumbents gauge the probability of remaining in office and access to the benefits of a low transparency environment against the risk of replacement and the consequences of a new administration having access to those same benefits (Alt, Lassen, and Rose 2006). If politicians choose high transparency, they tie their own hands but also those of a likely successor (ibid).

Given digital platforms both increase transparency and physically limit the ability of incumbents to benefit from corruption and clientelism, I argue that one of the key benefits for reform is the foreclosure of future rents and patronage opportunities for their opponents. If incumbents expect that they may soon lose power, and believe the costs of reform (namely the loss of opportunities for rent extraction and greater detection of corrupt behaviour) will largely be shouldered by the political opponents who replace them, the expected costs of the reform to the incumbent is reduced at the same time that the incentives for insurance and a potential governance boost in elections are at their greatest (Berliner 2014). If the probability of being replaced is large, the expected benefits of restricting opponents outweigh the costs of restricting themselves; however, if incumbents are likely to be re-elected, the expected benefits from increasing transparency are by comparison small (Alt, Lassen, and Rose 2006).

Is it possible to know whether incumbents who elect to migrate benefits to digital authentication and payment systems do so to make a credible commitment ahead of elections in order to avoid losing office (a governance boost) or as a means of insurance in case they do lose office? In an analysis of adoption of access to information laws across Mexican states between 2001 and 2007, Berliner and Ehrich (2015) sought to distinguish between these two mechanisms through which political competition can influence adoption of anti-corruption reforms. Analysing changes that occurred in post-election periods in cases where incumbents had been voted out (but before their replacements had taken office), they found that a disproportionately large number of laws passed were passed during these 'lame duck' periods, which strongly suggests that politicians had implemented these reforms for insurance purposes.

Other Benefits

In addition to the two sets of benefits outlined above, there are other potential upsides to implementing these reforms. While clientelism is effective, it is also a costly strategy in terms of resources and reputation. Building and motivating a network of local brokers to monitor voters, distribute quid pro quo payments, and enforce bargains with citizens requires time and resources. Brokers can extract rents from politicians while simultaneously shirk their duties (Stokes et al. 2013, Aspinall 2014, Novaes 2018). Further, politicians risk penalties for being caught bribing electors and potential scandal if it is made visible through the media. Transitioning away from clientelism minimises these costs and risks.

There are also broader social benefits of digitisation which have been noted by researchers. Muralidharan al (2016) found that in India there were welfare-enhancing labour market outcomes and general equilibrium effects when government payments were digitised, because the certainty of receiving government wages that were not lost to corruption operated as a 'reserve wage' that increased wages in private sector employment. Pande et al (2019) found that women who received digitised government benefits into a bank account showed higher scores on empowerment scores, consistent with models of intra-household decision-making where women with higher levels of control over household resources wield increased bargaining power. Finally, implementing these reforms may earn the approval of external donors and multilaterals lenders who are advocating for improved governance, resulting in additional standing in the international community for the incumbent. Insofar as they influence the timing of reform, I classify these benefits as falling within a broader 'governance boost' mechanism.

Costs of reform

When facing the calculus of whether to implement policies to digitise government transfers, politicians may count as benefits the potential votes associated with an anti-corruption campaign platform and the ability to impose constraints on future political rivals who hold office. What are the expected costs they must balance these against?

By choosing the increased levels of transparency associated with digital government payments, incumbents reduce the informational advantages over voters which can hide rent-seeking practices and benefit them during re-election (Alesina and Perotti 1996). In low transparency environments, politicians who engage in corruption are less likely to be exposed and disciplined, and it is more difficult for voters to distinguish them from 'good' politicians (ibid). Golden (2003), for example, argued that inefficiencies in state and bureaucratic capacity in the post-war Italian system improved the electoral prospects of political actors by creating opportunities for patronage.

The specific costs to individual politicians imposed by digital authentication and payment systems will vary depending on the extent to which they are currently benefiting from rents and influence extracted through the manipulation of social programs by local intermediaries. In villages or regions where entitlements are distributed on a programmatic basis, without the taking of bribes or making of political quid pro quos, incumbents are unlikely to be worse off if welfare benefits can be effectively digitally delivered to citizens.

Conversely, in regions where politicians and their local broker networks routinely create and benefit from opportunities to extract corrupt rents in the administration of government programs, the implementation of a policy that disrupts these opportunities will pose costs in terms of those foregone sources of revenue and influence. Muralidharan et al (2014), estimating the impact of digitised government payment reforms, found that they are highly effective in disrupting corrupt leakage from social programs - with case studies cited by Reinikka and Svensson (2004) estimating that as much as 70 to 85 percent of government funds are siphoned from programs before reaching the poor, the rents at stake can be considerable. Magaloni et al (2007) argued that programmatic approaches forfeit an important element of incumbency advantage, namely the control of state resources, as voter selection of alternate policy visions equalises the government and competing parties.

Accordingly, politicians who digitise the delivery of social spending are potentially depriving themselves and the local brokers who operate in their electorates of these rents, as well as influence over beneficiaries from whom it becomes more difficult to withhold entitlements. In the next section, I explain the circumstances in which these political costs, as determined by the size of rents, outweigh the benefits outlined above, before turning to an examination of the role of partisanship.

Conditions under which benefits exceed costs

Given that both political benefits and costs flow from the implementation of digital infrastructure initiatives, incumbents face seemingly contradictory incentives, namely to preserve all sources of electoral advantage and benefit from patronage opportunities for as long as they can, versus seeking to

benefit from a governance boost and ensuring rivals that potentially succeed them in office do not have access to the levers of patronage and sources of campaign finance that will advantage them. Which dominates? I briefly review the literature on the links between the competitiveness of political environments, clientelism and the adoption of state reforms that increase transparency and impose constraints on future administrations.

Political Competition

There is a growing body of literature on the link between the competitiveness of political environments and the adoption of state reforms that increase transparency and impose constraints on future administrations. Many of the studies of reforms to constrain the power of incumbents, including limiting benefits from corruption, emphasise the role that political competition plays in adoption or delay of such policies, including civil service reform (Geddes 1994, Ting et al. 2012), new administrative procedures (De Figueiredo and Vanden Bergh 2004), independent judiciaries (Landes and Posner 1975, Ginsburg 2003), fiscal transparency (Alt, Lassen, and Rose 2006), and oversight institutions like national accounting offices and anti-corruption laws (Grzymała-Busse 2008).

When it comes to policies which increase the likelihood of exposing corruption by incumbents and their agents, as argued by Alt, Lassen and Rose (2006) 'an incumbent who is considering maintaining a low-transparency regime trades off the probability of remaining in office and enjoying the informational advantages afforded by low transparency against the risk of being replaced by an opponent who, if elected, would use a low transparency regime to pursue his own, opposing political goals.' As noted above in the section on the 'insurance' or lock-in benefits of digital delivery systems, scholars such as Berliner and Erlich (2015) have argued that that when competitive electoral landscapes introduce uncertainty over future political control, for example when opposition parties are credible challengers to incumbents or frequent turnover in office has taken place, reform will be more likely as ruling groups seek to protect their access to government information and to preserve the means to monitor future incumbents in the event they lose power.

Where incumbents face competitive elections, the performance voting model implies they should be more responsive to citizens who demand better public service delivery and lower levels of corrupt behaviour by politicians, and the more salient the potential gains from offering a credible reform to such constituents will be (Vadlamannati 2015). But it has also been noted that although interparty competition is central to increased politician effort (Key 1949) competition by itself is not sufficient to clean up government. Indeed, in some settings, political competition can lead to more rather than less corruption (Fisman and Golden 2017).

In India, for example, Wilkinson (2007) has argued that the rise in electoral competition since 1967 has dramatically increased the scope and magnitude of clientelism in India and the mere presence of stronger opposition parties after the late 1960s had an immediate effect in increasing the supply of goods delivered to voters. Higher levels of competition could then create stronger incentives to use clientelism because the votes corrupt practices can provide become relatively more valuable in competitive electoral environments (Weitz-Shapiro 2014). Instead of competing on who can govern most effectively, parties might choose to engage in a race to the bottom, generating an expensive equilibrium of vote buying that is funded by corruptly obtained revenue (Fisman and Golden 2017). This would be consistent with Scenario 2, where reform is on average less likely in countries where competition and clientelism are high, because incumbents with access to corrupt rents are motivated to preserve all avenues of electoral advantage when they are facing high levels of competition and have little incentive to implement reforms that disrupt established systems of patronage and local support.

Although it appears theoretically, then, that the effect of competition on corruption is ambiguous (Ades and Di Tella 1999), Weitz Shapiro (2014) characterises these two seemingly-opposing effects of political competition on clientelism as separate phenomena: accountability-increasing competition (politicians will adopt programmatic policies in response to voter demand for higher performance) and accountability decreasing competition (politicians will build or maintain patronage networks in order to win elections). What does this literature predict about the level of competition and the likelihood of an incumbent adopting digital reforms that could reduce corrupt diversion of welfare payments?

The foundational work in this area was conducted by Barbara Geddes, who in her study of Latin American civil service reforms, argued that when the advantages conferred by clientelism and corruption influence the outcomes of elections, incumbents will not adopt reforms unless they affect the extent to which competing parties benefit from patronage practices equally. This condition occurs when two major parties have about equal power and hence equal access to patronage opportunities which are most likely in a competitive two-party system, because the time that contending partisan forces have spent in office in the past or can be expected to spend in the future is likely to be more equal than in either uncompetitive or fragmented party systems (Geddes 1994, Heredia and Schneider 1994, Wibbels 2011).

What about when one party, for whatever reason, has better electoral prospects than its rivals? While there is a literature that suggests that political strength, whether built on majoritarian electoral victory or authoritarian repression, can facilitate reform (Wibbels 2005), it has been argued that the main impact of political strength is in the ability to delay and resist the implementation of administrative reforms — Michener (2011), for example, finds that weak leaders are more likely to prove unable to resist pressure arising from other domestic or international actors. Conversely, the weaker and more fragmented the

opposition relative to the government, the greater the problems of democratic accountability and the more attenuated the incentives for reforms that diminish patronage opportunities (Wibbels 2005). In places where elections have been dominated by one party, the benefits of patronage are enjoyed (and costs of disintermediation are borne) entirely by the dominant party and so political incentives for policy changes that reduce patronage opportunities and thereby undercut the political base of incumbents are therefore limited in uncompetitive settings (ibid). Accordingly, Geddes argued that 'for advantaged parties, the dominant strategy will always be to stick with patronage, unless the payoff for voting for reform is remarkably high and the future quite certain' (Geddes 1994).

Alt, Lassen, and Rose (2006) and Berliner (2014) argue that the likelihood of replacement increases as political competition increases, and so as uncertainty regarding the future rises, the expected returns to corruption in the current period will start to be outweighed by the potential costs of political opponents having access to corrupt opportunities in the future if a change of government occurs. This would be consistent with Scenario 3, where reform is on average more likely in countries where competition and clientelism are high, because the benefits of reform (such as an electoral boost from implementing good governance policies and the opportunity to foreclose future returns to corruption for their opponents) may outweigh the expected loss of campaign finance and patronage opportunities.

Berliner (2012) posited that the competitiveness of the political environment can create incentives to adopt pro-transparency policies, such as a governance boost in the form of greater support from voters who values transparency as a means of ensuring the accountability of political agents, and as a form of lock-in to impose constraints on the ability of future officeholders to benefit from patronage opportunities. In a cross-national test of this theory, he found that political competition measures have a positive and statistically significant effect on the probability that a country would adopt Freedom of Information systems. Adoption was more likely in the presence of competitive political environments, such as when opposition parties have recently increased in strength, and where turnover in party control of the executive has been frequent.

In conclusion, while a large number of studies have investigated the links between competitiveness of political environments and the adoption of state reforms that increase transparency and impose constraints on future administrations, there is evidence in a variety of settings that higher levels of political competition can either impede or impel reform. In the next chapter, I seek to empirically establish whether (and in which direction) electoral competition shapes incentives to adopt digital systems of delivery.

Pre-existing levels of clientelism

There is a relatively settled consensus that clientelism 'works'. It is an effective tool to deepen incumbency advantage and tilt the electoral playing field (Levitsky and Way 2010, Hicken 2011) and particularly in settings characterised by low levels of development, ethnic heterogeneity and weak institutions, clientelism is an important tool for political mobilisation (Van de Walle 2007). However, there is substantial variation both across and within countries in the levels of clientelism and corrupt behaviour (Acemoglu et al. 2011). How would we expect government payment reform outcomes to differ in countries where clientelism is prevalent to those where it is not, or less so?

There is existing evidence that pre-existing levels of corruption and clientelism have the capacity to mute or amplify incentives for reform by influencing the potential costs to incumbents: where politicians and their intermediaries in high-corruption settings have historically diverted funds from government sources as rents for personal enrichment, or regularly ask for bribes in order to facilitate access to services by citizens, there is more at stake than in countries or states where prevailing cultural norms, institutions and other factors have limited the extent to which broker-citizen interactions provides rents to politicians.

Bussell (2012), for example, found in both cross-country and subnational analyses of the relationship between corruption and governance reforms that in states that were more corrupt, reforms were delayed or not implemented. In her study of one-stop-shop citizen service centres in India, a reform that allowed citizens in India to electronically initiate requests for government services, which similarly reduced the ability of brokers and bureaucrats to demand bribes from citizens, she found that variation in adoption by politicians was closely linked to the anticipated political costs to politicians. This was in turn influenced by the extent to which they relied on income from corruption to fund their electoral campaigns, which led her to argue that the importance of corrupt income to electoral resources provides a critical and underexplored explanation for variation in the character of technology reforms.

This is particularly the case if rents are an important component of electoral finance. Incumbents who control local patronage networks and face closely-contested elections would be expected to preserve any electoral advantage that accrues to them through these networks who may campaign on their behalf, namely resisting efforts that would deprive local brokers and allies of the funds that they may skim from the administration of welfare programs or bribes paid by beneficiaries for documents in order to claim their benefits that could be used in clientelistic bargaining exchanges with voters. Although it is impossible to know or directly estimate the size of rents, given the illicit nature of corrupt activity, Bussell argued the quantum of bribes and influence gained from corrupt manipulation of government programs is shaped by levels of underlying levels of corruption, with politicians in more corrupt states more likely to draw an important part of their income from bribes. Conversely, in states where corruption

is low, it would be expected that, on average, the likely extent of corruptly gained resources being used to support clientelistic spending or taken as personal rents are smaller.

In her cross-country analysis, she found that governments with lower levels of corruption are more likely to implement higher quality technology enabled service reforms, when controlling for alternative explanations. Moving from the most corrupt county to the least corrupt country in the Transparency International corruption index is associated with between a 0.26 and 0.31 increase in eGovernment scores on a scale from 0 to 1. Although this suggests a correlation between the level of corruption and the likelihood of adopting eGovernance reforms, it is not a causal relationship.

Conversely however, Berliner (2014) argued in relation to the adoption of Freedom of Information reforms that 'even though greater corruption should increase the political costs of potential exposure and decreased ability to pursue private gain, greater corruption can also increase the salience of incentives to pass FOI laws as insurance or for political support' suggesting that reform may be more, and not less, likely in settings where corruption is higher.

Explaining Variation: Interactions between Political Competition and Corruption

Direct evidence that incumbents are embracing or delaying transparency and governance policies because of the impact on their political machines or those of their electoral challengers is difficult to locate given the nature of patronage politics: few politicians will openly admit that they want to preserve their networks of influence or that their actions are motivated by anything other than a commitment to programmatic politics. However, there is a growing body of empirical work on the relationship between pre-existing levels of clientelism and the propensity of incumbents to implement transparency and state capacity reforms.

Although there is empirical evidence that politicians in environments characterised by more frequent clientelist transactions with voters are on average less likely to implement governance reforms, there are important theoretical arguments that clientelism can also increase the salience of incentives to pass state infrastructure reforms, making them more likely to implement these reforms. Which effect dominates, and how is it moderated by levels of electoral competition, if at all? In the face of conflicting empirical evidence and theoretical reasoning, I outline the three most likely scenarios based on the literature reviewed in this chapter and present a set of descriptive statistics to establish a preliminary understanding of how the variables of interest may influence the adoption of digital delivery reforms, prior to full multivariate analyses in the next chapter.

In Scenario 1, political competition, or pre-existing levels of clientelism independently explain variation in the adoption and implementation of digital reforms to deliver entitlements to beneficiaries. In this

scenario, we would expect a linear relationship between reform outcomes and either the theoretical variables of interest or other explanatory variables, such as economic or technological development.

In Scenario 2, incentives to reform when competition is high are negatively correlated with level of clientelism: as clientelism increases, increased competition is associated with lower probability of reform, as summarised in Table 4 below. In this scenario, as political competition increases, access to clientelist strategies in high corruption environments is perceived to be increasingly important in winning elections. Incumbents facing real electoral threats perceive that the costs of disrupting established systems of patronage and local support outweigh the potential benefits of a governance boost or locking-in higher standards of transparency, and will be less willing to forfeit the electoral advantages that accrue to intermediated distribution of social spending and delivery of government services, the politicisation of bureaucracy and other state resources essential for clientelist exchanges. This may be the case, for example, if the use of intermediaries and politicisation of government benefits has been a proven strategy for an incumbent who has been re-elected multiple times, and so when competition remains high or increases, leaders may be more likely to more heavily weight the advantages of clientelism in the present over foreclosing them to a potential rival in the future, or the potential, unknown advantages of a governance boost.

In low corruption environments where citizen entitlements are reported to largely be distributed on a programmatic basis and do not factor into the electoral finances or strategies of politicians, Scenario 2 implies that increases in competition are unlikely to systematically lead to technological upgrades in welfare administration systems, although some incumbents facing higher levels of competition may be incentivised to implement digital systems in order to improve service delivery outcomes (speed, cost-saving efficiencies) and signal their pro-governance agenda. De Francesco and Trein (2020) for example, found that developing countries with low levels of corruption are most likely to adopt lobbyist registers, because policymakers in these conditions want to signal to citizens that transparency and abiding by international anti-corruption standards are important goals, and are electorally more valuable than sustaining existing clientelist systems.

	Low Competition	High Competition
Low Clientelism	Idiosyncratic factors determine implementation	
High Clientelism	Implement reforms earlier	Delay reform implementation

Table 4 Theoretical Predictions from Scenario 2

In Scenario 3, incentives to digitise government payments when competition is high are positively correlated with the level of clientelism: as clientelism increases, increased competition is associated with a higher probability of reform, as summarised in Table 5 below. If this was an accurate characterisation of patterns of reform, in countries where incumbents routinely manipulate or politicise state resources to engender electoral support through clientelist exchange, we would expect on average to see incumbents who face closer electoral contests being more likely to digitise government payments than those where the government faced a weak opposition and enjoyed secure tenure. Although they will experience the same type of costs as in Scenario 2 (namely, losing access to rents), in Scenario 3, the benefits of a governance boost and insurance become more salient when opposition parties pose credible challenges to those in power and political uncertainty is higher, and collectively outweighs the costs of reform.

	Low Competition	High Competition
Low Clientelism	Idiosyncratic factors influence reform timing	
High Clientelism	Delay reform implementation	Implement reforms earlier

Table 5 Theoretical Predictions from Scenario 3

In this scenario, we would not expect incumbents in countries where distribution is largely programmatic to behave systematically differently depending on whether they face competitive electoral landscapes or not. Where incumbents are on average less likely to be benefiting from the maladministration of social spending programs, the theoretical predictions are ambiguous and likely to be driven by idiosyncratic local factors. This is because neither the costs (in terms of foregone opportunities for corrupt rent extraction by incumbents and their future rivals) or benefits (in terms of a governance boost or insurance function) are likely to be significant. In high-competition settings, governments may be on average more

likely to implement this reform as a measure to improve service delivery to constituents who may not be losing their entitlements to corruption but need to travel long distances or face other inconveniences or risks in order to collect them. But if government service improvement is the main motivation, it seems unlikely that this would be an issue of substantial sway in an election, and significant enough to explain systematic differences in adoption.

Preliminary evidence

Having outlined these three potential scenarios that may explain patterns of digital infrastructure usage in developing economies, and the theoretical intuition that undermines them, which scenario does the empirical evidence support?

As an initial test of the links between pre-existing clientelism, competition and reform, I present some simple bivariate relationships to evaluate whether there is preliminary support for the hypothesis that levels of clientelism or political competition, individually or jointly, have the capacity to explain the incentives for incumbents to adopt digital infrastructure in payments to citizens at the cross-country level. The purpose of this analysis is to animate with data some of the questions that have been raised over these first two chapters, namely when looking across developing countries, is it possible to determine systematic (albeit descriptive) patterns in the use of electronic fund transfers by governments in the distribution of welfare payments, and if the theory developed in this chapter appears to potentially explain those patterns. I briefly describe the outcome variable, and my measures of clientelism and competition in these bivariate analyses, before providing an explanation of all variables prior to the multivariate analysis in the following chapter.

My primary outcome variable is drawn from a module of the Gallup World Poll surveying the beneficiaries of government payments across 80 countries. To measure the extent of (and variation in) digital delivery of entitlements across countries, I use the proportion of government payment recipients in each country who report receiving their entitlements in cash in 2017, and the specific variable I use is based on a question from the Poll asking survey respondents who received any payments from the government *how* they received it (in cash or into an account at a financial institution). The share of government payment recipients who report receiving a cash payment captures the size of the population who receive benefits that are distributed by political or administrative intermediaries, such as street level bureaucrats or local brokers. This provides a comparable way to estimate across countries the extent to which governments are utilising digital infrastructure (or not) to distribute benefits to citizens.

As a robustness check, I also present results using the change between 2014 and 2017 in the percentage of adults who reported receiving a government payment over past 12 months in cash, which represents the

rate of reform in the countries in which data was collected in both 2014 and 2017. This measure has a smaller sample of 59 countries given that data collection was expanded in 2017 from the 2014 round of data collection, and so provides a smaller universe of cases, but also the means to assess whether political competition and clientelism influence not just the *level* in reform outcomes, but also the rate of *change*.

My measure of clientelism in the bivariate analysis is the variable measuring election vote buying from the Varieties of Democracy (V-Dem) Project which measures whether, in the national election closest to 2014 (the year from which I draw the value of all of my explanatory variables), there was evidence of vote and/or turnout buying. This captures the extent to which money or gifts were distributed to individuals, households and communities in order to influence their decision to vote/not vote or whom to vote for. This metric is more directly relevant to my theory than general indices of corruption which captures a wider variety of (mis)behaviour, such as bribery of police and judicial officers, or the payment of kickbacks in the private sector. This variable is coded (0-4) so that 0 signifies no evidence of vote/turnout buying and 4 indicates that there was systematic, widespread, and almost nationwide vote/turnout buying by almost all parties and candidates. In cases where there was no national election held in 2014, in constructing this variable I use the data corresponding to the closest election to that year. With data for the main outcome variable being collected in 2017, explanatory variables are drawn from 2014 to mitigate against endogeneity (where the implementation of digital platforms leads to changes in the level of vote buying, rather than vice versa).

To capture the extent to which electoral competition influences reform, I use the Electoral Democracy Index ('Polyarchy') from the Varieties of Democracy (V-Dem) Project (Teorell et al. 2019) which measures 'the competitiveness of access to power and the extent to which the ideal of electoral democracy in its fullest sense achieved' by taking the average of the weighted average of several V-Dem sub-indices, where a higher score indicates higher levels of competition (Coppedge et al 2020). This is not a perfect proxy for an incumbents' security of tenure, but which is common in the literature on policy reform as a measure for electoral competition (for example, in Pellegrini 2008) and also covers the complete sample of countries which I use for the analysis.

To illustrate the potential relationship and directionality between variables, an OLS regression line and correlation coefficient features in in each scatterplot. Country codes that appear in each graph appear in Appendix A with full country names. Figures 1 and 2 suggest that there is no obvious and significant relationship between pre-existing levels of clientelism and either the levels of cash-based government payments in 2017 or the extent of reform between 2014 and 2017. Similarly, Figures 3 and 4 suggest there is an ambiguous relationship between political competition and both the levels of cash-based government payments in 2017 or the extent of reform between 2014 and 2017.

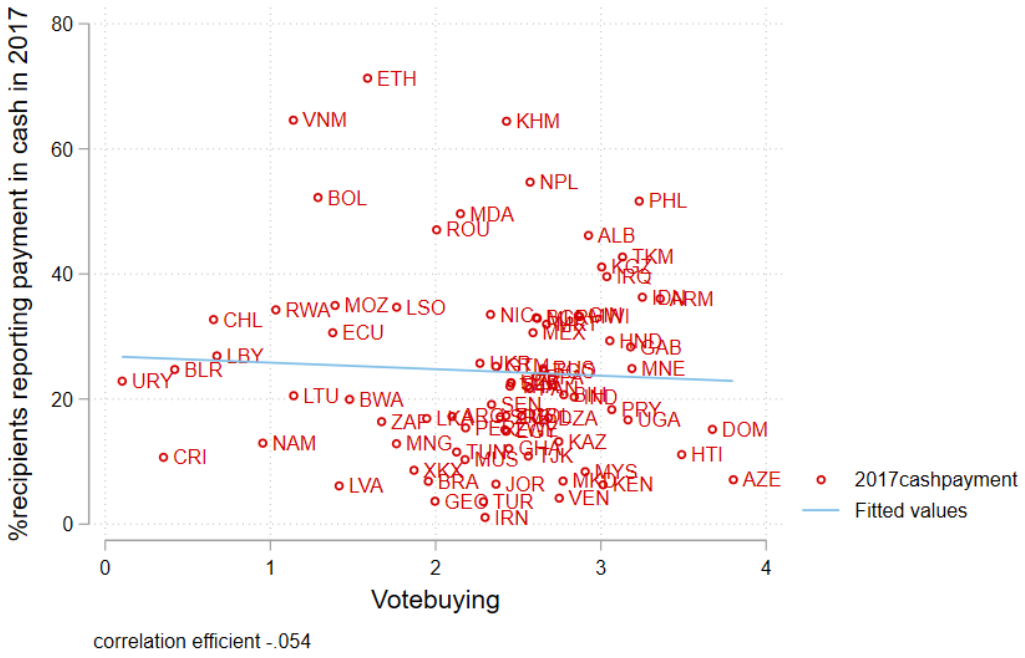


Figure 1 Cross-Country Clientelism and 2017 Cash Payments

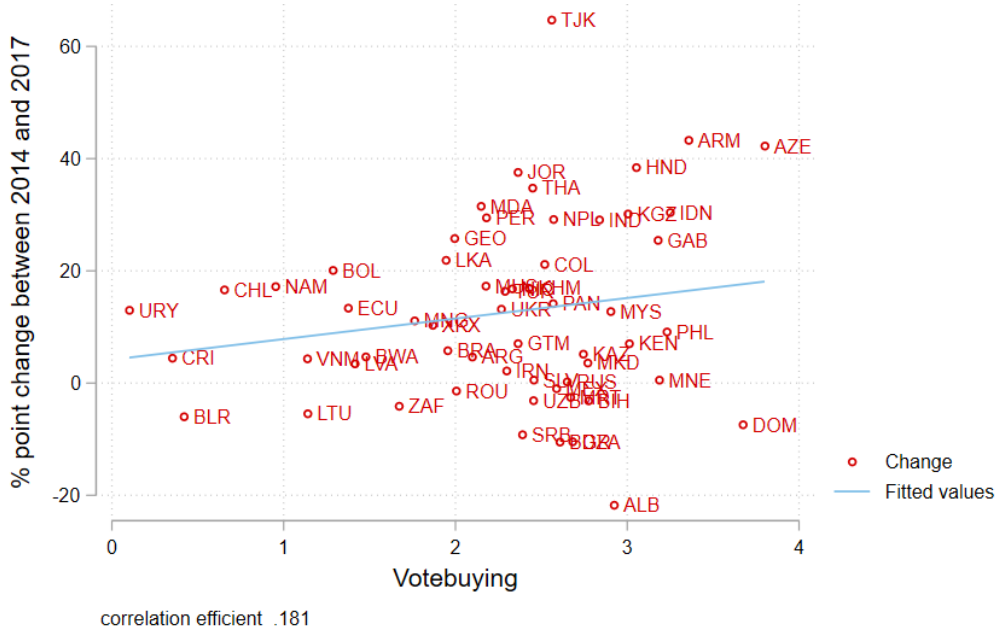


Figure 2 Cross-Country Clientelism and Change in Cash Payments (2014-2017)

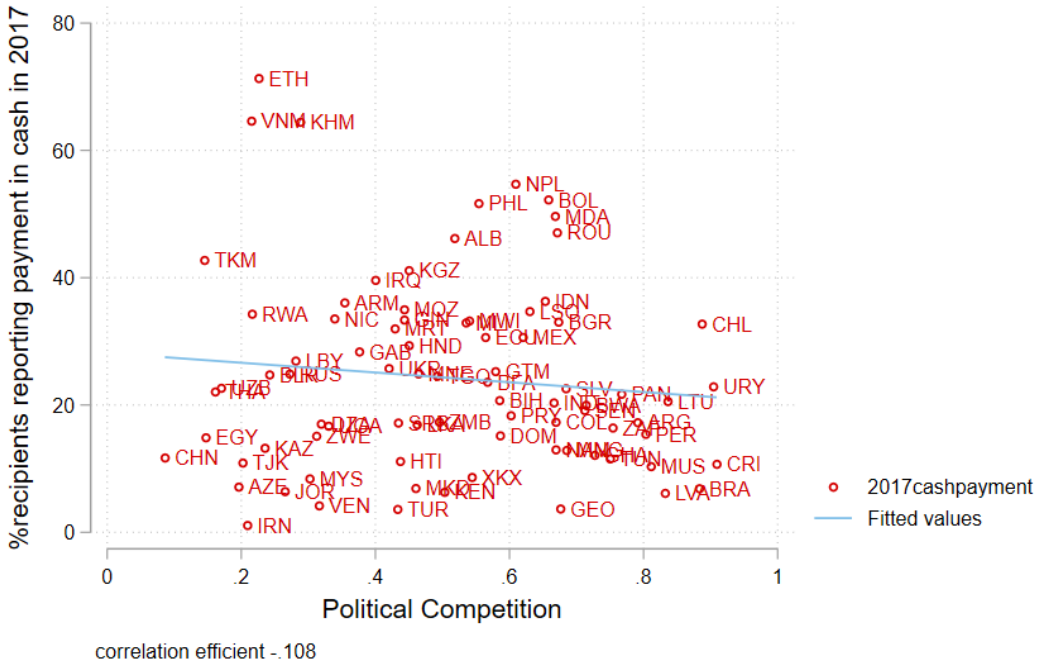


Figure 3 Cross-Country Competition and 2017 Cash Payments

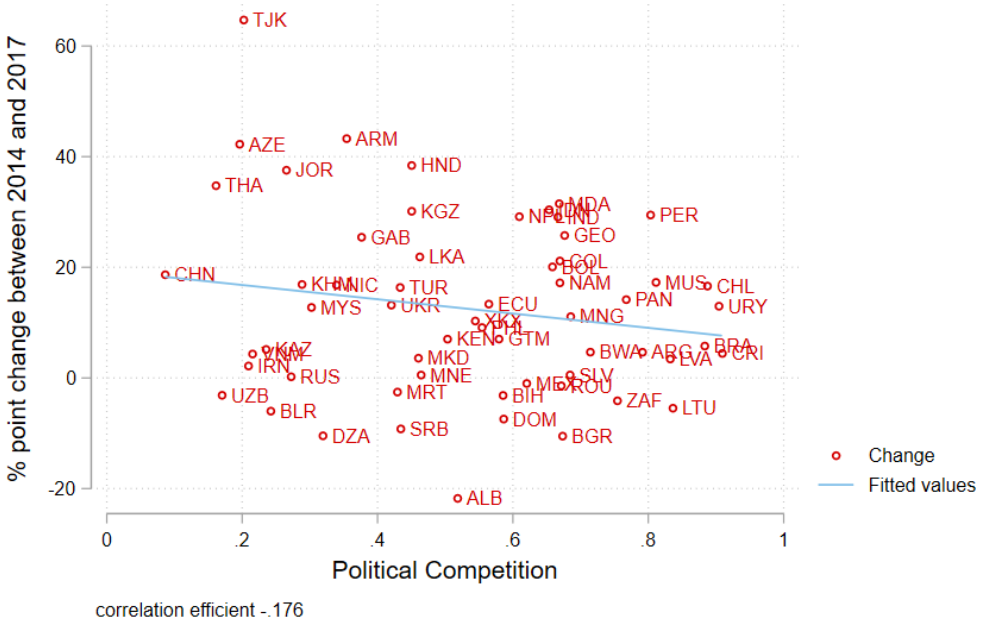


Figure 4 Cross-Country Competition and Change in Cash Payments (2014-2017)

What does this imply for my theoretical intuitions? Taken together, the graphs above are not prima facie consistent with the first theoretical scenario, namely that competition or clientelism independently have a

strong relationship with reform outcomes. Neither variable displays a clear relationship with either the level of cash-based payments in 2017 or with the extent of reform between 2014 and 2017.

What about the remaining scenarios which stem from the theory set out above that it is the *interaction* of political competition and clientelism that determines whether incumbents will on average adopt digital authentication and payment systems rather than individually? Before moving to the full multivariate analysis in the next chapter, I present a final set of bivariate relationships to understand whether there is preliminary empirical evidence suggesting that political competition and clientelism jointly explain incentives for the adoption of digital infrastructure.

Returning to the global survey of beneficiaries of government payments, I split my sample of 58 countries where data on payments to citizens was collected in both 2014 and 2017 into two subsamples: Table 6 includes low and middle-income countries with relatively higher levels of competition, defined as the cases above the average value of the polyarchy variable in 2014, as coded by the Database of Political Institutions, and Table 7 includes data from countries with below average levels of competition. Within each sample, I compare efforts to reduce the delivery of government payments in cash by countries where clientelism is above and below average. Specifically, I contrast cases where digitisation has been accelerated (defined as those countries where there has been at least a twenty percentage point reduction in cash payments between 2014 and 2017), between incumbents in high and low clientelism settings.

These simple bivariate statistics are consistent with Scenario 2, namely that competition and clientelism are capable of jointly, but not independently, explaining reform outcomes at the cross-country level, and that on average incumbents in high-clientelism countries become less (and not more) likely to implement reforms as competition increases. As the comparison between Tables 6 and 7 shows, incumbents in high-clientelism countries become *less likely* to implement reforms as competition increases, which lends initial support to Scenario 2: the theory that political competition amplifies the *costs* of reform, rather than the benefits, in patronage societies.

	Less Clientelism	More Clientelism	Total
Delay Reform	4	6	10
Accelerate Reform	15	5	20
Grand Total	19	11	30

Table 6 Reform and Clientelism, High Competition sample

	Less Clientelism	More Clientelism	Total
Delay Reform	3	6	9
Accelerate Reform	7	12	19
Total	10	18	28

Table 7 Reform and Clientelism, Low Competition sample

Comparing the performance of incumbents in high-clientelism settings across the two tables, we see that they are approximately as likely to implement reform as to delay it in high competition settings but are twice as likely to accelerate reform when competition is low. This contrasts with incumbents in low-clientelism settings who are much more likely to implement reforms improving the delivery of welfare payments when they are subject to vigorous electoral competition (four times as many countries accelerating reform as delaying it) than when they enjoy reasonably secure tenure (twice as many countries accelerating reform as delaying it).

We can also see in Table 7 that where elections are less competitive or incumbents are not subject to removal by democratic processes, clientelistic countries had similar track records of reform than in programmatic countries, with a similar 2:1 ratio of countries accelerating and delaying reform, but in Table 6 the performance of more clientelistic countries is dramatically different from their more programmatic counterparts: a relatively equal split compared to a 4:1 ratio respectively.

These bivariate analyses suggest that increasing competition decreases the incentive to reform the financial systems capable of sustaining patronage systems only in cases where clientelism is high, which lends support to the theory that an interaction effect is at play between the theoretical variables of interest and is consistent with the hypothesis that incumbents facing competitive electoral landscapes will behave systematically differently depending on whether they are in environments where the systematic use of clientelism as a distributive strategy is prevalent, or not.

These stark difference in reform outcomes along the political competition and clientelism dimensions appear to lend support to the general argument that the relationship between pre-existing clientelism and competition matters when it comes to determining digital delivery reform outcomes, and provide specific evidence for Scenario 2: conditional on high pre-existing clientelism, incentives for reform decrease as competition increases. These simple descriptive statistics start to build evidence for the case that competition on average amplifies the costs of reform, rather than the benefits, and exert divergent effects on reform conditional on levels of pre-existing clientelism. However, these results may be biased by omitted variables and in the next section, I use multivariate analysis to assess whether this theory – centred on the interaction between political competition and pre-existing clientelism - has explanatory

power at the cross-country level, and to evaluate broader arguments about transitions to programmatic politics using the digitisation of government payments in developing countries as an empirical case.

Conclusion

As noted earlier, there is empirical evidence that the strategic implications of a given institutional change systematically influence the calculations of political actors when they are contemplating state reform (Heredia and Schneider 2003). In this chapter, I extended the discussion of the political economy dimensions of digital delivery reforms in Chapter 1 to an overview of the costs and benefits to incumbents when local brokers are disintermediated in the distribution of government entitlements, and the conditions in which costs outweigh benefits.

In countries where the state's interactions with citizens have been marked with clientelism and poor service delivery, policies to transform welfare delivery could theoretically deliver two key benefits to incumbents: reform may be interpreted as a positive signal of the quality of government performance and translate into increased voter support (a governance boost) and also act as a restraint on future clientelist tactics by an opposition, should the incumbent lose power.

The preliminary analysis above suggests that the use of digital infrastructure to deliver entitlements is on average lowest in countries where competition and clientelism are high. This is consistent with the literature that links clientelism to the failure of public sector reforms and suggests that incumbents facing high levels of competition perceive that the costs of disrupting established systems of patronage and local support outweigh the potential benefits of a governance boost or locking-in higher standards of transparency.

A brief review of the literature suggests clear but conflicting channels through which the variables of theoretical interest could be expected to influence digital reform outcomes, namely by conditioning the relative size of the benefits and costs of reform, but also surface conflicting evidence on whether political competition and clientelism induce or impede governance reforms. Existing analyses predicting a linear, negative relationship between either pre-existing clientelism or political competition and adoption of reform are usually motivated by the extent to which anti-corruption reforms create political costs but fail to account for the political *benefits* of reform in high-corruption settings that I elaborated on earlier in this chapter. In the following chapter, I empirically test the three scenarios outlined above to evaluate the role of political competition, pre-existing clientelism and other variables in terms of the direction and channels these variables operate at the country level.

Chapter 3: Cross Country Analysis of Reform Timing

When do politicians in developing democracies maintain local networks of brokers to enable the individualised exchange of goods and services for political support, and when do they transition to non-contingent modes of distributive politics, such as the direct transfer of social policy entitlements into the accounts of beneficiaries?

As noted in earlier chapters, there is minimal academic scholarship seeking to systematically account for variation across countries in the use of digital payments by governments to reduce leakage and improve efficiency in the administration of social welfare systems. The purpose of this chapter is to test whether the theoretical variables of interest identified in the previous chapters, namely political competition and pre-existing levels of clientelistic engagement with voters, have explanatory power at the cross-country level. Specifically, I empirically evaluate which, if any, of the three theoretical scenarios proposed in the previous chapters is consistent with the patterns of adoption of digitised government payments to welfare beneficiaries. In doing so, I evaluate broader arguments about when politicians will proactively adopt governance reforms, using the digitisation of government payments in developing countries as an empirical case.

In the last chapter, I presented some brief bivariate relationships between my variables of interest and reform outcomes that suggested Scenario 1 (that competition or pre-existing levels of clientelism independently predict reform) is unlikely to describe the pattern of digitised delivery globally. Neither variable demonstrated a clear relationship with either the level of cash-based payments in 2017 or with the extent of reform between 2014 and 2017.

In this chapter, I use multivariate models to conduct a more complete test of the hypothesis that the interaction of competition and clientelism shapes the incentives of political actors to implement digital delivery reforms, along with other competing explanations such as economic, technological and financial sector development, and the influence of civil society actors. These regression results are consistent with my bivariate findings. Although neither pre-existing clientelism nor political competition have a linear relationship with reform, incumbents in high-clientelism countries become *less* likely to implement reforms as competition increases, and this relationship is statistically significant. Additionally, I find little evidence that explanatory variables drawn from other studies empirically testing the sources of governance reform – such as levels of economic development – are capable of explaining variation in the adoption by incumbent politicians of digital payments that bypass local brokers.

These results are consistent with Scenario 2, which suggests that it is the interaction of political competition and clientelism that explains whether incumbents will on average reform cash-based welfare

systems and not the absolute level of either variable. Further, digital delivery is on average less likely in countries where incumbents facing tenure insecurity perceive that the costs of disrupting established systems of patronage and local support outweigh the potential benefits of a governance boost or locking-in higher standards of transparency.

Multivariate analysis

Following the simple bivariate correlations in the previous chapter which provided preliminary evidence that incumbents in high-clientelism settings become less likely to implement reforms as competition increases, I use multivariate models to assess the influence of the variables of theoretical interest on reform outcomes along with other potential explanatory factors identified from the literature on clientelism and technology adoption.

Specifically, I assess whether the data is consistent with the second scenario outlined in earlier chapters, where high levels of competition amplify the *costs* of reform, which makes policy adoption *less* likely in high clientelism settings where politicians are more likely to be benefiting from corrupt income and voter inducements. If this scenario was accurate, the pattern of reform that we would expect to see in countries with high levels of clientelism would change with the level of political competition in the opposite direction to the scenario above: namely, in countries where competition is low and incumbents do not feel reliant on the electoral proceeds from clientelism, the benefits of implementing good governance reforms (for example, attracting the goodwill of the international community and investors) may in some cases outweigh the returns to pre-existing clientelism, but as competition increases, we would expect on average to see less reform because incumbents are unwilling to voluntarily forfeit the electoral advantage that control of government payment streams affords them.

In the third scenario, high levels of competition amplify the *benefits* of reform, namely a governance boost and future lock-in benefits, which may then outweigh the costs of implementing a policy to physically disintermediate brokers from the distributive process and which then makes reform *more* likely in high clientelism settings where incumbents at risk of losing an election are motivated to reduce the future proceeds to pre-existing clientelism available to their successor. If this scenario was accurate, we would expect to see a specific pattern of reform outcomes in countries with high levels of clientelism which changes with the level of political competition: namely, when competition is low, there are few or ambiguous incentives to adopt reform since neither a need for insurance nor the additional votes from a potential governance boost are likely to outweigh the returns to sustaining systems of intermediated patronage, but as competition increases, we would expect on average to see more reform, especially in

lame duck periods when an outgoing administration institutionalises digital authentication and payment systems as a lock-in measure.

It is important to note that while we can attempt to control for variables that may influence the rate of reform, such as economic development and technological sophistication, there is a very real concern that countries with high levels of pre-existing clientelism could be systematically different in terms of the administration of their social security systems from countries with low levels of pre-existing clientelism, for example, because weak institutions (such as the bureaucracy and civil society) might affect both the level of pre-existing clientelism and the probability of welfare system reform. The sample of countries included in this analysis is also limited by the countries selected for data collection by the World Bank in partnership with Gallup for the World Poll survey. More specifically, nationally representative estimates of the breakdown across different payment modalities through which entitlements are distributed to citizens (namely in cash and into financial institution accounts) were only available in countries where the population covered by social assistance programming was large enough to be able to confidently estimate representative sub-samples by payment modality.

As such, this analysis is unlikely to unearth evidence of a causal nature, given the presence of confounding factors and potential selection bias. However, given the paucity of empirical studies that have sought to explain variation in the use of digital payments for welfare spending at the cross-country level, this analysis will help to understand at a basic level the generalisability of my findings prior to the subnational analysis in the following chapters, and contribute to the accumulating research on the political economy of technology-enabled government service reforms.

I begin by describing my outcome and key explanatory variables, as well a range of additional macroeconomic and political controls assessing the role of alternative explanations before turning to my empirical analysis and discussion of my results.

As was the case in the bivariate analyses in Chapter 2, the primary dependent variable is the proportion of government payment recipients in each country who report receiving their entitlements in cash in 2017, and the specific variable I use is based on a question from the Poll asking survey respondents who received any financial support from the government how they received it (in cash or into an account at a financial institution). The share of government payment recipients who report receiving a cash payment captures the size of the population who receive benefits that are distributed by political or administrative intermediaries, such as street level bureaucrats or local brokers. This provides a comparable way to estimate across countries the extent to which governments are utilising digital infrastructure (or not) to distribute benefits to citizens and there is substantial variation in this variable, as evidenced by Figure 5 in

the next section. However, beyond analyses conducted by the World Bank, there appear to be few, if any, uses of this measure in social science literature, let alone attempts to explain what drives variation and change in it over time.

As a robustness check, I also present results using the change between 2014 and 2017 in the percentage of adults who reported receiving a government payment over past 12 months in cash, which represents the rate of reform in the countries in which data was collected in both 2014 and 2017. This measure has a smaller sample of 59 countries given that data collection was expanded in 2017 from the 2014 round of data collection, and so provides a smaller universe of cases, but also the means to assess whether political competition and clientelism influence not just the *level* in reform outcomes, but also the *change.*

Political competition

Electoral competition features prominently within the large literature that links political institutions to policy outcomes. It has been argued that the political equilibrium of patronage, where incumbents use public power to create and to distribute private benefits, is disrupted by when politicians must compete for approval from the citizens in order to secure political office (Hicken 2011). Conversely, clientelism can be a highly effective strategy to increase voter turnout, gain vote share and win elections (Vicente 2010, Gallego and Wantchekon 2012), and competition may prompt a race-to-the-bottom where incumbents who face credible threats to re-election may cling more tightly to the levers of patronage if they perceive them to be necessary for their political survival. Either way, competition increases the salience of the benefits and costs of entitlement reforms in low and middle-income economies.

To capture the extent to which electoral competition influences reform, I use five alternate cross-country measures of electoral competition drawn from the 2020 Database of Political Institutions, the Varieties of Democracy (V-Dem) Project (Teorell et al. (2019) and the Polity IV Project (Marshall et al. 2014), none of which are perfect proxies for an incumbents' security of tenure, but all of which are common in the literature on policy as measures for electoral competition and also cover the complete sample of countries which I use for the analysis in this chapter.

- The Electoral Democracy Index ('Polyarchy') from the Varieties of Democracy (V-Dem) Project measures 'the competitiveness of access to power and the extent to which the ideal of electoral democracy in its fullest sense achieved' by taking the average of the weighted average of a number of V-Dem sub-indices and scaled from 0-1, where a higher score indicates higher levels of competition.
- The Legislative Indices of Electoral Competition ('LIEC') from the Database of Political Institutions measures the extent to which including election contestability in the struggle for power affects the

composition of the legislature in a given country and is scored from 1-7 with the highest score (seven) assigned to countries in which multiple parties compete in legislative elections and where opposition challengers gained at least one quarter of the votes cast in the election.

- The Polity Score, Executive Recruitment and Political Competition concept variables, all from the subsequent edition of the Polity IV Project developed by Marshall and Jaggers (2007), measure different aspects of executive recruitment and competitiveness of the electoral process. The Polity Score is coded from − 10 (restricted political competition) to + 10 (unrestricted political competition) and is commonly interpreted as a measure of democracy more generally, but researchers such as Vanhanen (2000) have suggested that beyond functioning as an indicator of democracy or autocracy per se, it can reasonably be viewed as an indicator of political competition since it focuses largely on competition for executive power, whatever the extent of electoral participation in elections might be (Aidt and Eterovic 2011).
- The Executive Recruitment concept variable is comprised of the structural characteristics by which chief executives are recruited, namely the extent of institutionalisation of executive transfers, the competitiveness of executive selection, and the openness of executive recruitment is scaled from 1-10, where a higher score indicates higher levels of competition.
- The Political Competition concept variable measures the extent to which the political system enables non-elites to influence political elites in regular ways, namely by the degree of institutionalisation or 'regulation' of political participation, and by the extent of government restriction on political competition, is scaled from 1-10, where a higher score indicates higher levels of competition.

Clientelism

As outlined in earlier chapters, there is a growing body of scholarship that links clientelism to the failure of public sector reforms. The logic underpinning this relationship is that incumbents who are focused on building and appealing to personal constituencies as well as the political machines to engage them are incentivised to resist policies that curtail their powers to impose contingency requirements and extract rents and influence in the administration of social programs.

Qualitative work has suggested that politicians who rely on grassroots broker networks to target voters with inducements during elections or manipulate social spending and the machinery of government to engineer political support will seek to undermine reforms that reduce their freedom to do so (e.g. Spiller and Tommasi 2007) and more recent empirical work suggests that public sector financial management reforms specifically that promoted transparency in public sector spending are substantially less likely to succeed in the presence of parties who use clientelism as an electoral strategy. Cruz and Keefer (2015),

for example, find that across 109 countries, public sector reforms are significantly less likely to succeed in the presence of these parties.

Given its generally illegal nature, clientelism is a notoriously difficult phenomenon to accurately detect and measure. There is also a spectrum in terms of how widely researchers have defined the concept of clientelism: it has been read narrowly as the creation or exchange of patronage bureaucratic roles for patronage support (e.g. Robinson and Verdier 2003, Grzymala-Busse 2008) to a more expansive definition encompassing a collection of activities including gifts, targeting of public goods and discretion over state-provided commodities along with patronage roles (e.g. Chandra 2004).

While there are many different conceptualisations of clientelism in the literature, I focus on the dimensions most relevant to my theory, where pre-existing levels of clientelism condition the electoral costs of reform through the channel of influence over voters by partisan intermediaries who manipulate access to (and distribution of) government entitlements and services. Accordingly, my primary measure of clientelism incorporated into the model is the variable measuring election vote buying from the Varieties of Democracy (V-Dem) Project which measures whether, in the national election closest to 2014, there was evidence of vote and/or turnout buying. This captures the extent to which money or gifts were distributed to individuals, households and communities in order to influence their decision to vote/not vote or whom to vote for. This metric is more directly relevant to my theory than general 'perceptions of corruption' surveys, which capture a broader range of behaviour (including private sector bribery of officials, or large scale theft of resource rents) unlikely to be directly affected by the reform in question. In cases where there was no national election held in 2014 (the year from which I draw the value of all of my explanatory variables), in constructing this variable I use the data corresponding to the closest election to the year 2014.

Additional Control Variables

A central strand of the literature on clientelism emphasises the role of structural changes - such as economic development and urbanisation - in shaping the relative returns to clientelism, which in turn reduce the attractiveness of broker-mediated networks and increase the appeal of the kind of programmatic strategies and transfers enabled by digital payment systems. Other researchers point to the influence of external sources of pressure, such as civil society and the role of international organisations in inducing incumbents to adopt governance and transparency reforms. To address the possibility that these forces may have explanatory power on reform outcomes, I include variables measuring series of important control variables which might affect adoption of digitisation reforms. Data for the control

variables specified are all taken from the World Bank Development Indicators, V-Dem project and the United Nations (see Table 9).

Demographic variables

The demographic characteristics of a given country, such as population size, density and spatial distribution have also been theorised in the literature on clientelism as playing an important role in determining when politicians disintermediate their political machines and transition to programmatic politics. In addition to the wealth effects outlined below, industrialisation and socioeconomic development may translate into other changes in the electorate that may influence the attractiveness of using remote, digital platforms to deliver government benefits.

This could occur through two main channels. The first is a reduction in the capacity of intermediaries to monitor the political preferences of voters and enforce quid pro quo bargains when the size of the average electorate increases. The success of clientelistic strategies hinge on the social embeddedness of intermediaries: as populations grow and become more urban, larger and less intimate constituencies likely reduce the legibility of individual political preferences and the ability to monitor political behaviours, which in turn reduce the credibility of threats to punish voters who defect quid pro quo bargains, and the marginal electoral returns from the use of them (Stokes, Dunning et al. 2013).

Empirically, Ruhil (2003) found that a reduction in the incidence of patronage within the civil service at the municipality level in the United States was significantly more likely to occur when city populations grew, and in the developing country context, Brusco et al (2004) present evidence that vote buying in Argentina is more commonly reported by individuals residing in smaller towns than large cities. I test whether population size and levels of urbanisation help to explain variation in the level of cash-based welfare delivery.

The second channel is the reduced costs of direct communication between politicians and citizens enabled by increased literacy and access to media and technology. It has been argued that the combined forces of industrialisation and urbanisation reduced the relative returns to scale of clientelism in mature democracies because broker-mediated strategies of voter engagement lacked the economies of scale of direct, programmatic appeals that could be made to citizens. As Susan Stokes and her co-authors argue, ‘the ease of modern communications provided alternative avenues for reaching voters, now with words rather than with treats or bribes’ (Stokes, Dunning et al. 2013). As the returns to programmatic strategies increase, the lower the costs party leaders face in circumventing brokers and communicating directly with voters, the greater the payoff from nonclientelistic strategies. I include a variable measuring population access to the internet in my complete models.

Economic, financial and technological development

Higher levels of economic development may increase the likelihood of reform through two mechanisms. First, as incomes rise, broker-mediated distribution of entitlements may become less attractive to incumbents as an electoral strategy. Assuming diminishing marginal utility of income, voters will value a given material reward less as their income increases and are therefore less responsive to gifts and other payments to reward voting. There is empirical evidence that political machines do distribute fewer resources as income increases. Harding (2008), for example finds poverty has the largest impact on vote buying: an individual with the highest possible level of poverty is 23 percent more likely to be offered something for this vote than an otherwise identical voter at the lowest level of poverty, and individuals in countries with a greater GDP per capita have a lower likelihood of being offered money or gifts in exchange for their votes. Income and economic development also play a central role in the findings of Weitz-Shapiro (2014), partially explaining the decision of incumbents to opt out of clientelist practices. In that case, the mechanism was the growth and influence of middle-class citizens who represented a potential 'audience cost'. Wealthier voters insulated from clientelist influence were more willing to punish incumbents who engaged in vote-buying and other corrupt acts of which they disapproved or believed signalled low performance or poor quality.

The second channel through which economic development may influence outcomes is through the resources available to implement reform. Modernisation theories of the welfare state suggest that variation in policy outcomes may be driven by disparities in the levels of resources available, which is in turn conditioned by the level of wealth and economic development. The scholarship seeking to explain the 'digital divide' between nations that exists between early adopters of technologies such as the internet and those that lag behind, point to income and infrastructure as partial drivers (Corrales and Westhoff 2006). The implementation of technological reforms, especially ones which require new and dedicated IT infrastructure, can require substantial funding, which are likely to be more available in richer countries and scarcer in less developed ones. Accordingly, it is important to test that the adoption of a digital infrastructure is not driven solely by a country's level of economic development.

Bivariate correlations between GDP per capita and the level of government transfers received in cash confirm that while highly developed economies administer their welfare systems almost entirely through modern payments infrastructure, as shown in Figure 5 below, the way in which low and middle-income countries deliver transfers varies dramatically: from entirely cash-based to near completely digital. This wide variation across countries at similar income levels suggests that outside OECD economies, reform outcomes are not driven simply by levels of economic development.

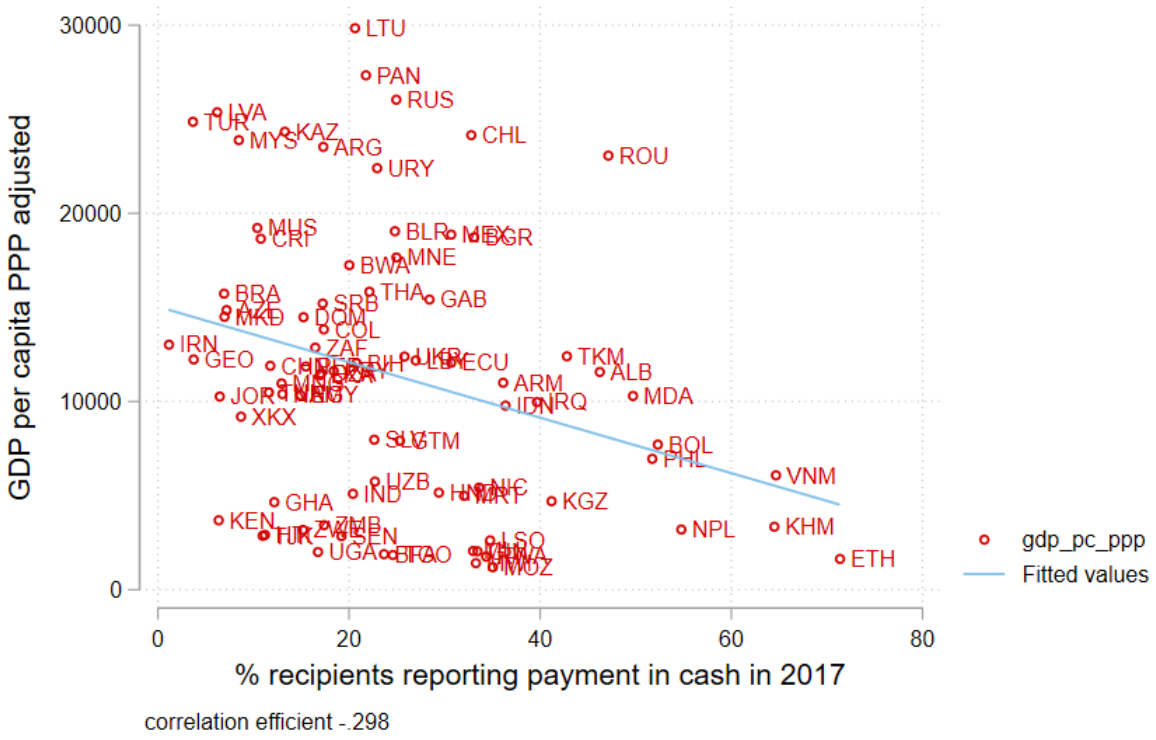


Figure 5 Economic Development and digital delivery of benefits

Table 8 shows that regions and countries that are the most economically developed have on average the highest rate of digitisation of government payments to citizens, with over 97 percent of citizens in high income countries reporting they received their entitlements into an account in 2017. In Australia, the Netherlands, Norway, Sweden, Belgium. In Denmark, New Zealand, Israel and Finland, zero percent of citizens who received a government payment said they were given physical cash. Similarly, almost no public-sector workers reported receiving their wages in cash.

In 2017, less than half as many people in middle income countries reported receiving a government payment as in high income OECD economies (20 percent), but almost ten times as many recipients reported receiving their transfers in cash only (19 percent). In low-income countries, half as many adults as in middle income countries reported receiving a government payment (11 percent) but twice as many reported receiving them in cash (43 percent).

Income category	Received government payments: in cash only (2014)	Received government payments: in cash only (2017)
High income	4.09	2.75
Upper middle income	26.02	14.60
Middle income	35.03	19.49
Lower middle income	51.61	27.01
Low income	..	43.22

Table 8 Economic development and digital delivery of benefits

However, economic development is not the entire story, especially when we narrow the universe of cases to low and middle income-countries, where variation between countries at similar levels of economic development can be dramatic. For example, as noted in Chapter 1, Ethiopia, Togo and Burkina Faso had similar levels of GDP per capita on a purchasing power parity basis (approximately $2000) in 2017, but where Togo and Burkina Faso had around a quarter of citizens reporting their payment from the government was in cash, that figure was 71 percent in Ethiopia. Similarly, while Guatemala and Bolivia have similar levels of economic development, Bolivia delivers cash to twice as many citizens as Guatemala (52 percent vs 25 percent). Conversely, countries where very similar levels of citizens report receiving their payments in cash can have very different levels of economic development: in 2017, the same proportion of beneficiaries received their entitlements in cash in Chile, Mali and Mauritania (Demirguc-Kunt, Klapper et al. 2018).

This variation echoes across middle-income countries: where Croatia, Romania and Turkey have similar levels of economic development on a purchasing power parity basis, Croatia and Turkey have reduced their cash-based payments by the government to under 4 percent, but 47 percent of payment recipients in Romania reported receiving a cash payment. Similarly, Greece, Latvia, Poland and Hungary are on a similar footing economically, but where the first three countries have around 6 percent of citizens reporting that they received a cash payment, that figure jumps to nearly a third for Hungary.

How can country with limited economic development build and use digital authentication and payment systems? A number of economies with very low levels of economic development have pursed programs digitise government payments despite constrained resources. Tanzania partnered with donors and development agencies to digitise the Tanzania Social Action Fund (TASAF), the largest social welfare program in the country. In order to overcome a limited financial sector, the government of India announced *Jan Dhan Yojana*, a program opening bank accounts for unbanked citizens in order to receive digital benefit transfers. Afghanistan used grant funding and technical support from the International Development Association (IDA), the World Bank Group's fund for the poorest countries, for the Pension Administration and Safety Net Project which allowed retirees to receive pension payments directly in

their bank accounts, significantly reducing theft and 'ghost' beneficiaries. Previously, it has been reported that government departments were demanding bribes to guarantee pension payments were issued (Habib 2017), with the new system of direct deposits, interaction and opportunities for rent extraction by government intermediaries were largely eliminated.

While the data above suggests that as countries graduate into the upper ranges of macroeconomic development, they almost inevitably upgrade the infrastructure of the state used to distribute entitlements and conduct the business of government, nations that are less mature economically are marked in the variation with which they retain the analogue mechanisms – physical cash and human brokers - to engage with citizens. In this dissertation, I seek to understand what incentives influence incumbents in developing and middle-income countries to implement digital authentication and payment system reforms, and what explains variation in those contexts.

Accordingly, in the multivariate analyses below, I include a variable for the size of the domestic economy with GDP per capita (logged) adjusted for purchasing power parity. Including GDP per capita as a control allows for comparisons between countries at similar levels of economic development (Rickard 2012) and if the variables of theoretical interest (political competition and pre-existing clientelism) remain significant even when this control is included, it will bring greater confidence that my results are not driven simply by economic development.

The level of **financial sector development** is also likely to affect the ability of a government to implement a reform to digitise payments (Aker, Boumnijel et al. 2016). The current level of financial inclusion, namely the ability of beneficiaries to access banking infrastructure, is one constraint on the level of digitised payments. Countries like Iran and India have demonstrated that this may not be a binding constraint: prior to digitising large government subsidy and transfer programs, both countries embarked on account-opening drives to increase the proportion of the population who could access formal financial services, as a precursor measure to the digitisation of welfare payments. I control for the level of financial sector development by including a variable measuring bank branches per 100,000 adults.

Internal and external influence

Domestic anti-corruption campaigns and external influence by international institutions or donor pressures on governments are also highlighted in the literature on governance reform. The presence of active and influential civil society actors may influence the timing and scope of measures to combat clientelism by highlighting instances of theft and electoral fraud or through domestic campaigns to adopt transparency reforms. I address this potential influence on the reform process by including a control for policymaker engagement with civil society organisations from the V-Dem Project which measures

whether and the extent to which major civil society organisations are routinely consulted by policymakers.

Finally, converting cash-based entitlements to digital transfers has been championed by organisations such as the World Bank, USAID and the United Nations Better Than Cash Alliance. I include a dummy variable to capture whether countries in my sample are currently receiving IMF loans or assistance, with the rationale that international technical and financial assistance can act as a structural facilitator and mechanism for diffusion of technology and this may provide leaders with the exposure to and knowledge of new technology and policy innovations. Additionally, as a recipient of international organisation financing, a country may be subject to more external pressure to adopt governance reforms as a condition of development assistance.

In Table 9 I provide the descriptive statistics for all of the variables in the regressions, including the expected signs on each coefficient for the regressions using the change between 2014 and 2017 as the dependent variable[1]. A positive coefficient indicates that the variable is associated with increased reform, and a decreased number of citizens who received government payments in cash between 2014 and 2017.

As noted above, the two main variables of theoretical interest are the level of political competition and pre-existing clientelism, and the interaction between these two forces. All of the additional variables have positive signs, meaning that as they increase in value, scholarship outlined in earlier chapters suggest that they may potentially account for increased adoption of financial technology reforms.

Variable	Measure	Source	N	Year	Mean	Std Deviation	Min	Max	Predicted coefficient
Reform Outcomes (Change)	Change between 2014 and 2017 in % of recipients who received government payments in cash	World Bank Global Findex Survey	60	2014 and 2017	12.7	16.07	-21.72	64.75	N/A
Reform Outcomes (2017 Level)	% recipients in 2017 who reported receiving government payments in cash	World Bank Global Findex Survey	81	2014	24.3	15.13	1.12	71.33	N/A
Clientelism	Vote buying	V-Dem Project	80	2014 or closest election to 2014	2.30	0.78	0.10	3.8	-
Competition	Expert Survey, higher	Database of	78	2014	6.67	0.84	2	7	+/-

[1] Where the dependent variable is the change between 2014 and 2017, a positive coefficient indicates that the variable is associated with a decreased number of citizens who receive government payments in cash. For the second series of regressions where the dependent variable is the level of cash payments in 2017, a positive coefficient indicates that a variable is associated with an increased number of citizens who receive government payments in cash. In table 3.6, I focus on the change in cash payments between 2014 and 2017.

(LIEC)	score indicates higher levels of political competition	Political Institutions							
Competition (Polyarchy)	Weighted average of a number of V-Dem sub-indices	V-Dem Project	81	2014	0.50	0.21	0.09	0.91	+/-
Competition (Polity Score)	Expert Survey, higher score indicates higher levels of political competition	Polity IV Project	81	2014	4.29	5.45	-9	10	+/-
Competition (POLCOMP)	Expert Survey, higher score indicates higher levels of political competition	Polity IV Project	78	2014	7.27	2.51	1	10	+/-
Competition (EXREC)	Expert Survey, higher score indicates higher levels of political competition	Polity IV	78	2014	6.63	1.87	2	8	+/-
Competition* Votebuy	Interaction Term	Interaction Term	*		*	*	*	*	+/-
Urban Population	Urban population (% of total population)	World Bank WDI Report	80	2014	55.45	20.37	16.13	94.94	+
Population	Log Total Population	World Bank WDI Report	81	2014	7.15	0.64	5.79	9.13	+
Access to information	Individuals using the Internet (% population)	World Bank WDI Report	80	2014	36.94	20.38	5.7	75.83	+
Financial sector development	Bank branches per 100,000 adults	World Bank WDI Report	75	2014	15.78	13.63	0.77	71.21	+
Civil society	Expert Survey on engagement by policymakers of civil society organisations	V-Dem Project	81	2014	0.98	0.49	0.02	1.91	+
Economic development	Log GDP per capita based on purchasing power parity (constant 2014 international $)	World Bank WDI Report	80	2014	3.94	0.36	3.09	4.48	+
Aid dependence	Dummy variable if country is receiving IMF loans or assistance	World Bank 'International Debt Statistics'	81	2014	0.86	0.34	0	1	+

Table 9 Multivariate Regression Summary statistics

Results

The model results strongly support the predictions set out in the previous chapter that the interaction of political competition and pre-existing levels of clientelism influences whether incumbents will on average digitise payments to citizens. Specifically, and consistent with Scenario 2, as competition increases,

increasing levels of clientelism are associated with a lower probability of reform. The results support the claim that high levels of political competition do not have a uniform effect on country-level outcomes. Instead, the incentive to reform when competition is high is negatively correlated with the level of clientelism.

I first use simple bivariate models, regressing the level in each country's level of welfare digitisation in 2017 on the clientelism and political competition variables, both drawn from 2014 to mitigate concerns of reverse causality, to test the strength of the relationship between reform and the level of these two variables. Across five different measures of competition, I report results first without, and then including an interaction term between clientelism and competition.

The first column for each model functions broadly as a test of Scenario 1 – the theory that there may be a monotonic relationship between either political competition or clientelism and the adoption of reform. The results across both models are broadly consistent with the initial bivariate scatterplots above. In Table 10 below, it can be seen that across all five models that omit the interaction term, neither the measure of clientelism nor competition are significant, again suggesting that these variables do not independently have a significant relationship with the level of cash-based transfers in developing countries.

	1	2	4	5	7	8	10	11	13	14
	Polity 2		Polyarchy		Polcomp		Exrec		LIEC	
Competition	*-0.15 (0.32)*	-1.91** (0.83)	-11.95 (8.55)	-44.19 (19.69)	-0.73 (0.74)	-4.05** (1.78)	-0.61 (0.97)	-6.29 (2.77)**	-2.44 (2.52)	-6.42 (4.57)
Clientelism	*-1.12 (2.21)*	-4.37* (2.58)	-2.03 (2.29)	-10.62 (5.25)	-0.87 (2.34)	-12.17** (6.01)	-0.67 (2.35)	-17.11 (7.87)**	-0.49 (2.37)	-23.84 (22.53)
Competition*Votebuy	-	0.79** (0.345)	-	16.38 (9.04)	-	1.56** (0.77)	-	2.49 (1.14)**	-	3.43 (3.29)
Observations	80	80	80	80	77	77	77	77	77	77
R squared	0.005	0.07	0.03	0.07	0.01	0.07	0.006	0.77	0.02	0.03

Standard errors in parentheses ∗ significant at p < .10; ∗∗p < .05; ∗∗∗p < .01

Table 10 Baseline Models of Reform Outcomes

However, when we introduce the interaction term between competition and clientelism (results shown in in the second column of each model above), we see that clientelism is clearly associated with the likelihood that a country will digitise cash benefits, and that this correlation varies with the level of competition in any given country. The interaction term surfaces the role that political competition and clientelism may play in driving an increased propensity to digitise government entitlements that would

not have otherwise been apparent, rendering explicit an association which varies with the level of competition across all five measures.

When the interaction term is included in the analysis, the coefficient on the clientelism variable across all five models including the interaction term is negative and significant at either the 5 percent or 10 percent level, indicating that where competition is low, increasing levels of clientelism were associated with lower levels of cash-based payments (i.e wider adoption of the reform). In contrast, the coefficient on the interaction term is positive and significant in three of the five models, suggesting that where competition is high, increasing levels of clientelism are associated with higher levels of cash-based welfare in 2017 (i.e. less reform).

This result is representing graphically in the figure below. In countries where clientelism is low, expected levels of cash payments declines as competition increases, but in high-clientelism settings, the level of cash payments increase as competition increases, consistent with Scenario 3.

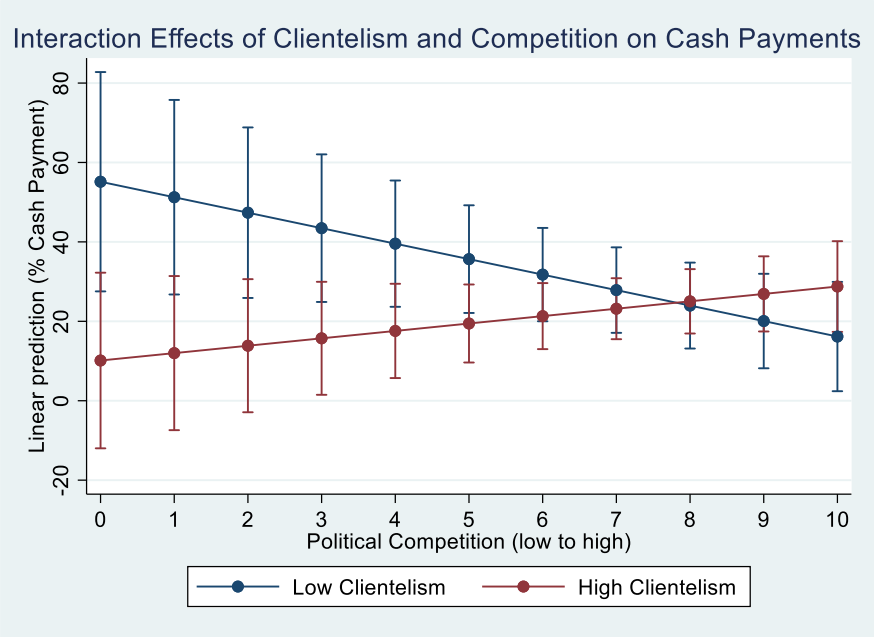


Figure 6 Interaction Effects of Clientelism and Competition on Cash Entitlements (2017)

I find similar results when using the change over time, rather than the 2017 level, in cash-based welfare payments as the dependent variable. Table 11 presents the results of the OLS regressions where the dependent variable is the change between 2014 and 2017 in the proportion of government payment recipients reporting that they received their payments in cash.

	Polity2		Polyarchy		Polcomp		Exrec		LIEC	
	1	2	4	5	6	7	8	9	10	11
Clientelism	-0.33	7.11**	2.69	13.76*	3.75	15.39**	2.21	2.98	4.63	75.20*
	(0.39)	(3.37)	(2.95)	(7.06)	(2.70)	(7.10)	(2.19)	(5.14)	(2.74)	(41.59)
Competition	3.46	1.23	-8.47	30.11	-0.47	2.76	-1.48	-1.12	-4.93	11.21
	(2.68)	(0.98)	(11.04)	(24.98)	(0.88)	(2.02)	(1.18)	(2.45)	(4.45)	(10.45)
Competition*Votebuy	-	-0.72*	-	-19.24*		-1.55*		-0.14		-10.28*
		(0.41)		(11.18)	-	(0.87)	-	(0.88)	-	(6.04)
Observations	58	58	58	58	57	57	57	57	55	55
R squared	0.04	0.14	0.04	0.09	0.04	0.01	0.05	0.05	0.06	0.11

All models use OLS. Standard errors in parentheses $*$ significant at $p < .10$; $**p < .05$; $***p < .01$

Table 11 Baseline Models of Reform Outcomes (change in cash payments)

The results are also broadly consistent with the initial bivariate scatterplots and results above, namely that for four of the five competition variables, without the interaction term there is no significant relationship between either of the explanatory variables and reform outcomes. For only the analysis using the Legislative Index of Electoral Competition (LIEC) as a measure does the clientelism variable become significant, and only at the 10 percent level, which does not serve as particularly strong evidence that either variable is capable of explaining variation in the use of digital delivery reforms.

This result also is representing graphically in the figure below. In countries where clientelism is low, the expected rate of change in the levels of cash payments increases as competition increases, meaning that reform is more likely in countries where incumbents face stronger opposition and have less security of tenure. Conversely, in high-clientelism settings, the expected level of change in digitization between 2014 and 2017 falls as increase as competition increases, consistent with Scenario 3.

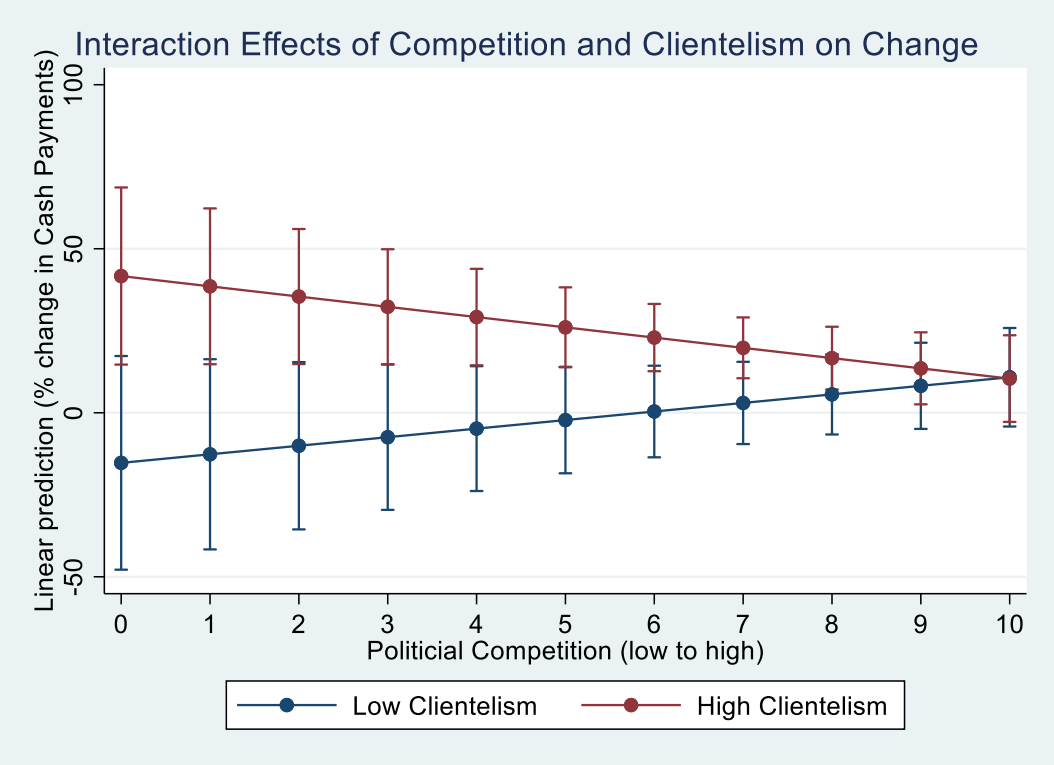


Figure 7 Interaction Effects of Competition and Clientelism on Changes in Cash Entitlements

The interpretation of the coefficients on the theoretical variables of interest fall squarely within the predictions of Scenario 2 in terms of both the direction and statistical significance. The coefficient on the interaction term is negative and significant in four of the five models, suggesting that as clientelism increases, increasing levels of competition are associated with lower rates of change (i.e less reform) between 2014 and 2017.

How do we interpret these results? The lack of significance of the theoretical variables of interest without the inclusion of the interaction term, suggests that neither pre-existing levels of clientelism or competition alone are compelling explanations for when and why incumbents adopt digital payment systems, and does not support previous findings of linear or monotonic relationships between the propensity of reform and either pre-existing levels of clientelistic behaviour (e.g. Bussell (2012) who found that levels of pre-existing corruption were negatively correlated with the adoption of e-governance reforms) or political competition (e.g. Berliner 2014) who found that reform was most likely when competition and political uncertainty was highest). Instead, a more nuanced picture emerges of how political competition and the prevalence of clientelism influence reform outcomes.

Moving to the multivariate results, we can see in Table 13 that when we include all control variables, the interaction term remains significant in three of the five models seeking to explain variation in the change

over 2014-2017. The level of economic development is significant in only one of these five models (where the Polity2 variable proxies for the level of political competition), which suggests that contrary to the modernisation narrative of reform, the primary driver of policy adoption is likely not the level of economic development or urbanisation.

Similarly, supply-side factors which may have been thought to condition the ability of governments to effectively digitise their payments, such as financial sector and technological development do not appear to have explanatory power over reform outcomes. Nor does reliance on aid, the influence of civil society, access to information or demographic factors such as total population or urbanisation.

These results are similar to the model with the alternate specification of the dependent variable: in the four of the five models that use the 2017 level of digitised payments as the dependent variable, the interaction term is significant. The direction of the relationships remains the same across both specifications as the bivariate models namely that for the 2017 level model, the coefficients on the competition variable are negative, which means that when the value of the clientelism measure is low, increasing levels of the competition variables is associated with lower rates of cash payments in a given country (that is, more reform has occurred) and this is statistically significant.

	1	2	3	4	5
	Polity 2	Polyarchy	Polcomp	Exrec	LIEC
Competition*Votebuy	-0.82*	-22.06*	-1.84**	-2.75	-9.27
	(0.41)	(11.84)	(0.88)	(1.32)	(9.35)
Competition	1.47	32.46	3.20	5.05	13.54
	(1.10)	(30.65)	(2.27)	(3.41)	(13.87)
Clientelism	*7.46**	14.99	17.13**	22.19	67.45
	(3.66)	(7.35)**	(7.15)	(9.34)	(64.63)
Urban Population	-0.05	-0.07	-0.05	-0.07	-0.08
	(0.16)	(0.17)	(0.16)	(0.16)	(0.17)
Total Population	1.41	1.79	-0.89	1.31	1.25
	(3.55)	(3.53)	(3.62)	(3.48)	(3.84)
Access to information	-0.16	-0.19	-0.16	-0.14	-0.05
	(0.22)	(0.23)	(0.22)	(0.23)	(0.23)
Financial sector development	-12	-0.09	-0.09	-0.09	-0.04
	(0.16)	(0.16)	(0.16)	(0.16)	(0.17)
Civil society	6.06	7.79	6.13	6.00	3.41
	(5.93)	(7.19)	(5.79)	(5.51)	(4.85)
Economic development	-11.96	-5.73	-11.21	-10.70	-14.28
	(17.69)	(18.23)	(17.65)	(17.69)	(18.50)
Technological development	16.71	11.05	15.37	14.69	8.37
	(28.67)	(28.81)	(28.44)	(28.57)	(30.33)
Aid dependence	-3.51	-3.06	-2.44	-3.81	-6.31
	(7.88)	(8.07)	(7.98)	(7.74)	(8.36)
Observations	54	54	53	53	52
R squared	0.21	0.20	0.22	0.22	0.13

Standard errors in parentheses ∗ significant at p < .10; ∗∗p < .05; ∗∗∗p < .01

Table 12 Full models of reform outcomes (change in cash payments).

In contrast, the coefficient on the interaction term is positive, so as the value of the clientelism variable increases, increasing competition is associated with a higher level of cash payments in a given country (that is, less reform). Conditional on high pre-existing clientelism, incentives for reform decrease as competition increases. Similar to the results in Table 13, there is limited evidence that reliance on aid, the influence of civil society, access to information or demographic factors such as total population or urbanisation have a significant impact on digitisation.

	1	2	3	4	5
	Polity 2	Polyarchy	Polcomp	Exrec	LIEC
Competition*Votebuy	0.74**	11.76	1.53**	1.99**	7.75**
	(0.34)	(9.45)	(0.76)	(1.13)	(3.57)
Competition	-1.28	-34.58	-3.39**	-3.76	-9.57**
	(0.88)	(22.78)	(1.91)	(2.88)	(4.53)
Clientelism	*-5.03*	-8.18	-11.96	-14.39**	-55.16**
	*(2.69)***	(5.41)	(6.00)	(7.83)	(24.48)
Urban Population	-0.12	-0.12	-0.111	-0.11	-0.17
	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)
Total Population	1.54	0.76	0.79	0.98	1.74
	(2.95)	(3.03)	(3.14)	(3.02)	(3.08)
Access to information	0.10	0.07	0.07	0.07	0.08
	(0.17)	(0.18)	(0.18)	(0.18)	(0.18)
Financial sector development	0.05	0.04	0.05	0.04	0.004
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Civil society	-1.21	4.38	1.15	-0.09	0.82
	(4.51)	(5.82)	(4.78)	(4.33)	(3.84)
Economic development	-20.55	-15.30	-18.21	-19.96	-18.61
	(11.93)**	(12.49)	(12.16)	(12.33)	(11.97)
Technological development	15.46	15.12	15.04	17.06	23.04
	(23.71)	(24.31)	(24.28)	(24.49)	(24.64)
Aid dependence	-2.42	-2.09	-3.10	-1.32	2.07
	(6.01)	(6.20)	(6.47)	(6.35)	(6.22)
Observations	73	73	70	70	71
R squared	0.23	0.19	0.22	0.22	0.23

Standard errors in parentheses ∗ significant at p < .10; ∗∗p < .05; ∗∗∗p < .01

Table 13 Full models of reform outcomes

Discussion

This chapter examined the role of political incentives in shaping patterns of digital delivery across low- and middle-income countries. In earlier chapters, I argued that the disintermediation of brokers and increased transparency enabled by the digitisation of government payments can undermine the advantages of incumbency by reducing rents and the ability to enforce clientelistic bargains with voters. To explain the stark variation that existed in the level of digitised payments across developing countries, I tested a range of theoretical scenarios. Unlike the more hopeful Scenario 3, where competition would prompt a race-to-the-top where politicians would voluntarily opt out of clientelistic arrangements with voters in order to avail of a governance boost and lock-in higher standards of transparency, the empirical analyses in this chapter suggest that in highly competitive countries where clientelism is widespread, political

actors will more heavily weight the costs than the benefits of digital platforms to distribute entitlements, resulting in lower levels of reform.

A key result of the analysis is that economic and demographic variables cannot explain variation across countries. This finding is consistent with the arguments made by Bussell (2012) that the cost of technology-enabled service reforms is minimal relative to other types of potential government investment, and as such political incentives are more likely to explain variation across countries than economic conditions as well as work of Milner (2006) who argued that 'political institutions in particular matter for the adoption of new technologies because they affect the manner and degree to which winners and losers from the technology can translate their preferences into influence'.

What are some examples of countries that faced strong or weak incentives to reform? In the subset of 19 countries in my dataset with below average levels of clientelism and above average levels of competition, ten countries experienced substantial reform, with levels of cash-based welfare reported by beneficiaries falling more than ten percentage points (Uruguay, Peru, Namibia, Mauritius, Bolivia, Chile, Mongolia, Moldova, Ecuador, Georgia) and six countries (Argentina, Brazil, Botswana, Costa Rica, Latvia, Guatemala) experienced some reform with rates of cash-based welfare falling up to ten percentage points. Only three countries experienced no reform, or a small increase in reported cash payments (South Africa, Romania, Lithuania), with South Africa and Romania close to the cut-off for average levels of clientelism. This pattern of high levels of reform is consistent with my empirical results and theory that suggest that when clientelism is low, increasing levels of competition are associated with higher levels of reform, as the desire of incumbents seek to improve service delivery for citizens outweighs lower expectations of rents.

A long line of political economists emphasise the importance of competition to motivate politicians to deliver results to voters (Schumpterer 2012) with V.O. Key noting that, high levels of political competition heighten the electoral imperative and increase political effort. In countries where the use of clientelistic strategies in elections is less prevalent, we see many of the greatest strides in adoption of digital platforms to interact with citizens, and the country of Georgia offers an illustrative example of this in practice. In 2014, almost a third of government payment beneficiaries reported receiving cash, but by 2017, this had dropped to just 4 percent. What was the political economy context against which this drop occurred, and is it consistent with the theoretical scenarios?

Before the 2003 'Rose Revolution', Georgia was widely regarded as one of the more corrupt nations in the post-Soviet bloc, particularly in terms of bribe-taking and graft, ranked 124th of 133 countries in the world for perceived corruption by Transparency International in 2003. The government of President

Saakashvili that took office in 2004 placed tackling corruption among its highest priorities, and over the next ten years, the government reformed the public sector and bureaucracy, strengthened state institutions, implemented anti-corruption policies and focussed on organised crime (OECD 2016). Internal and external observers agreed that the country has been largely successful in eliminating low-level corruption and dramatically reducing incidence of bribery in service delivery (USAID 2022).

By 2012, only 1% of Georgians believed that corruption was one of the most important national issues with very few known or suspected cases related to clientelism in local government (Lomtadze 2018). Georgia was considered to be in the low-risk category of Transparency International's Corruption Perceptions Index in 2018 and Eka Gigauri of Transparency International was quoted as saying 'we don't have petty corruption any more, like police asking for bribes' (New York Times 2019). The proportion of citizens who reported paying a bribe tumbled from 17 percent in 2000 to 3 percent in 2005 (Bonvin 2006).

Accordingly, in 2014, when the dataset starts, Georgia was relatively well-functioning market economy that had successfully eradicated certain forms of low-level corruption, such as bribery in public services. In terms of political competition, the Presidential elections held in October 2013 were viewed by international observers as highly competitive with fair electoral processes (US State Department 2014). Power changed hands in two recent watershed elections in 2003, when Saakashvili was elected and the 2012 parliamentary elections, when there was a surprise victory by the opposition Georgian Dream coalition.

The larger program of economic and institutional reforms implemented following the 'Rose Revolution' with specific emphasis on reforms to the social security system, specifically moving beneficiary targeting to be based on objective criteria and enhancing monitoring systems and delivering social transfers using its well-developed banking system is in line with the theoretical intuitions that the benefits of reform outweigh the benefits associated with preserving rent extraction opportunities. Today, social transfers are almost entirely delivered through the banking system. Once beneficiaries apply and are approved for social assistance, the social security agency (SSA) forwards the applicant's personal data to one of fourteen empanelled banks which immediately opens an account (if the applicant does not already have one) and sends the applicant a bank card. In some remote locations, banks also sends minivans on set dates every month. The beneficiaries can receive their transfers from these minivans using their personal ID cards or passports (UNICEF 2020).

In these conditions, the enthusiastic adoption of digital government infrastructure in Georgia is consistent with my empirical findings that reform is most likely to occur in high competition, low clientelism

contexts. Corrupt and kleptocratic networks in Georgia had specifically been described as being organised as a pyramid, with top officials benefiting the most and lower ranks receiving ‘peanuts’, which may have made it easier to disintermediate local brokers (Mungiu-Pippidi and Johnston 2017).

It should be noted that although the extensive reforms to public service delivery and the digitisation of government payments were largely successful in reducing leakage and the extraction of bribes, there have been some accusations that ‘grand’ corruption still exists in Georgia. Namely, that while public sector performance in delivering payments and services to citizens, the new administration has been accused of manipulating the economic structure of the state for private benefit (ibid). In Chapter 8, I engage with a critique of digital government infrastructure, namely that it can solve some but not all forms of corruption.

To conclude, this analysis suffers from a few key risks and limitations. The first is that some unobserved variable might be causally related both with a theoretical variable of interest, such as the selected measure of clientelism, and the outcome variable, biasing my results. I have used multiple, alternate metrics from a variety of sources for both the clientelism and competition variable, and a range of other controls but without panel data, it is not possible to include country fixed effects. The highest I can put it is that the independent variables which I have included in the models are likely to be comprehensive of most factors which could potentially be causally related with both the extent of digitisation and the main theoretical variables of interest.

Second, reverse causality is a concern for an analysis such as the above, where comparable data on the extent of digitisation across countries was available only in 2014 and 2017, but some countries may have started to implement these reforms at an earlier point. This is problematic because where countries had started to use digital platforms to distribute entitlements in earlier years, reduced intermediation of benefits may have influenced survey data on the levels of clientelism in that country, biasing my results. Including analyses both for the change between 2014 and 2017 helps to mitigate concerns on this point, since the impact of any early reforms should be captured in the 2014 level of digitisation and be unlikely to further influence the change between these two years.

Finally, the factors I have examined in this chapter operate at the country level, but in the next chapter, I make the argument that intergovernmental politics matters in the decisions of subnational governments to implement reform. The outcome variable in this chapter, namely the level of cash payments reported by beneficiaries in each country, is likely affected by the decision of both federal and subnational incumbents to digitise programs, but measures that account for subnational factors related to partisanship (for example, the extent to which the federal government also holds power) are not included in the analysis,

largely due to lack of systematic availability, but are likely part of the explanation for variation. For example, we would expect a party that holds power broadly throughout the subnational level, as well as the federal level, to be less likely to implement reforms affecting the patronage networks of those parties, than one that does not. In this way, I have endogenised the decision to reform, but a worthwhile future extension to this analysis would be the inclusion of subnational factors in the country-level analysis.

Chapter 4: Explaining subnational variation in the use of digital delivery infrastructure

In previous chapters, I have outlined how the use of digital infrastructure to deliver government payments can enable a significant shift towards a programmatic distribution of social welfare in developing countries by increasing transparency in the movement of money, inhibiting avenues of corrupt diversion and disrupting clientelistic arrangements with citizens by disintermediating brokers.

This analysis was conducted at the cross-country level, where I demonstrated that adoption of digital delivery reforms is not uniform across developing countries or simply explained as a function of national wealth or technological sophistication. Instead, reform is most likely to be delayed in countries where incumbents have relied on the benefits of patronage to successfully navigate a competitive electoral landscape: across the world, where clientelism is low, increasing levels of competition on average increased the level of digitally delivered entitlements, but where clientelism is high, increasing levels of competition are associated with a lower probability of reform.

In the following chapters, I transition from a cross-national to a subnational analysis and evaluate the arguments and evidence from earlier chapters in a within-country setting, namely India. The key question I seek to answer is whether there are theoretical reasons to expect that in federal systems with a long history of patronage-based politics such as India, Brazil, or Nigeria, those same interactions between clientelism and political competition which explain variation across countries also explain heterogeneity *within* them. Given that regional governments often administer significant portions of national social welfare spending, understanding the generalisability of the theory to subnational contexts is critical in understanding variation in government service digital delivery outcomes.

I start by considering the relationship between national and subnational reform before incorporating a subnational extension to the cross-national theory in Chapter 2. Following the theoretical discussion, I provide an overview of digital government delivery in the Indian context which forms the empirical backdrop against which I test my extended theory in the chapters that follow. Given that the Indian experience forms the backdrop for the remainder of this dissertation, where possible I illuminate my theoretical discussion with examples from that country to set the stage for the empirical testing of the theory.

India was chosen as the empirical site for the subnational analysis, given that it has one of the largest and most complex social protection and income redistribution systems in the world. There are thousands of programs that operate at the state and national levels to provide citizens with income support, in-kind assistance, subsidised goods (such as rice, kerosene and fertilizer) as well as targeted payments for education, maternity, sanitation and other government ‘schemes’ (as they are often referred to). Taken

together, the system has famously operated to prevent mass famine in India since its inception (Sen 1999) but at the same time, the impact of pro-poor assistance from the government has been severely blunted by corruption and weak service delivery. As early as 1938, Congress party leader Jawaharlal Nehru bemoaned the rise of 'Tammany Hall' politics in his correspondence to Mahatma Gandhi, citing the descent of his colleagues 'to the level of ordinary politicians who have no principles to stand by and whose work is governed by a day-to-day opportunism' (Brown 2003). A long line of recent studies has evinced the continuation of this phenomenon into modern times, with surveys and other studies routinely documenting the mechanisms through which elites undermine redistribution programs intended to improve the lives of the poor (Andersen et al 2015).

In this context, a reform to disintermediate local political actors from the distribution of government entitlements is particularly salient, given that multiple scholars have documented the substantial discretionary power wielded by brokers in India, along with the political capture of public goods, high levels of bureaucratic corruption and vote-buying (Chhibber and Ostermann 2013). It is also a country where researchers have emphasised the increasing relevance of governance and public sector performance in elections (Verma 2012, Yadav and Palshikar 2014) and where social safety net programs play a central role in the electoral promises by major parties (Deshpande et al 2019). In the following chapters, I empirically evaluate the extent to which partisanship, political competition and pre-existing levels of clientelism explain variation in the timing and implementation of a reform to distribute government payments directly into biometrically authenticated bank accounts of citizens in India.

The relationship between national and subnational reform

In recent decades, there has been a flurry of politicians in emerging economies who have run on anti-corruption or reformist platforms during national elections. Muhammadu Buhari's image as a crusader against corruption was central to his campaign and victory in becoming President of Nigeria in 2016 (Lewis and Kew 2015). In India, an analysis of the 2014 general election has suggested that anti-corruption sentiment was a key contributor to the BJP's winning an outright majority in parliament, with frequent references by Narendra Modi to his promises to root out 'black money' from the political system (Chhibber and Ostermann 2014, Sukhtankar and Vaishnav 2015).

Similarly, a policy to digitally deliver social welfare payments using the new micropayments gateway in Pakistan was associated with the political agenda of Prime Minister Imran Khan. In Georgia, in 2003, Mikheil Saakashvili was elected as President on an anti-corruption platform which promised to issue digital identity cards that would allow citizens to deal directly with a central office instead of multiple agencies, each of whom extracted rents and bribes from citizens in the course of their interactions with the

state (Fisman and Golden 2017). Most recently, Andres Manuel Lopez Obrador in Mexico in 2018 and Volodymyr Zelenskiy in Ukraine in 2019 are additional examples of candidates putting anti-corruption agendas at the heart of their campaigns. Rotberg (2017) provides an overview of countries (including Rwanda, Liberia and Georgia) where political will at the top motivated regulatory reforms and institutional innovations that brought about marked decreases in corruption.

In many of these cases, national politicians have announced flagship anti-graft policies or other transparency initiatives that require intergovernmental cooperation. This is because in many federal countries, it is subnational rather than national administrations who have primary jurisdiction and/or responsibility for administering policy domains which are affected by corruption, such as social welfare and the provision of public services, because of constitutional divisions of power or through ongoing processes of decentralisation. In India, for example, the constitution allocates functions between the central and state governments, and the Indian states spend about 80 percent of total government expenditures on welfare and public services including health, education and community development programs (Banerjee and Somanathan 2007). Although states or regions often have fiscal responsibility for social spending, in low-information environments and settings of weak delivery, or in countries where power has been deliberately devolved to local government units, local actors play a substantial role in last-mile delivery of government programs. For example, the Gram Panchayats (village councils) in India have played a pivotal role in selecting beneficiaries of both national and state programs at the local implementation stage (Besley et al. 2012, Dunning and Nilekani 2013).

Although decentralisation has been proposed as a more efficient way for governments to elicit and respond to citizen preferences, and improve the quality of those services through local competition between subnational units, a corpus of descriptive work documents the vulnerabilities of social programs to elite capture when their administration is devolved, leading to massive rent extraction by local actors (Duflo, Fischer and Chattopadhyay 2005). This has been specifically documented in India, a country where democratic decentralisation of governance is well-established, with studies such as Bertrand et al (2007) and Pande (2015) finding that the beneficiary identification and targeting process for public welfare schemes is systematically affected by local political capture.

It been argued that in federal systems, subnational elected officials often respond to different political incentives than national officials while controlling significant policy levers (Wibbels 2005). And while it is not particularly novel to contend that in a federal system, intergovernmental political dynamics are important in determining subnational policy adoption or implementation outcomes, prior research on both corruption and social policy outcomes in developing nations has generally focused on either drivers at the federal level, or relationships between federal and state levels of government, and ignored the potentially

significant role that relationships between *local* and state level actors play in shaping subnational policy outcomes, and how these dynamics may conflict or coincide with politics in the national arena.

Comparativists' explanations of corruption, for example, tend to focus on national political or economic institutions such as property rights and economic structure which are generally constant across subnational units (Fisman and Golden 2017) or macroeconomic changes which reduce the returns to clientelism (Stokes, Dunning et al. 2013) with the strategic decisions and diverse political incentives shaping the behaviour of regional politicians and the dynamics between local and state levels of government being much less frequently the focus of analysis. Similarly, an influential body of scholarship also attributes variations in social welfare policies and outcomes to differences in regime type, institutions such as constitutional structures and the nature of the bureaucracy which are relatively constant across subnational units (Singh 2015).

According to Kitschelt and Wilkinson (2007), for example, the first wave of research seeking to explain variance in patronage-based, party–voter linkages focused on levels of (and changes in) economic development. In the 1970s and 1980s, this evolved into a statist and an institutional emphasis, with scholars focused on the impact of national institutions which do not generally vary across subnational areas on systems of patronage (ibid). Later scholarship examines the role of international institutions and external pressure in supporting anti-corruption reforms in developing countries (Rose-Ackerman 1997), which are also mostly salient in the national political arena. Most recently, scholars have shifted from studies which focus on the face-to-face interactions between individual patrons and clients to investigations of clientelism as a complex system, in which patron-client pyramids stretch 'from the summits of national politics down to the municipal level (Aspinall 2014), but few studies have an explicit subnational focus (Bussell 2012, and Weitz-Shapiro 2014 are notable exceptions).

Given the size and importance of nations with federal political arrangements that also struggle with corruption in the administration of public services, such as India, Russia, Brazil, Argentina, Mexico and Nigeria, this omission is significant. Further, where community-level actors have significant influence over program implementation and beneficiaries lack the capacity to hold local and regional leaders accountable, scholars have documented local actors exploiting their role in the community to cultivate networks of political support that can function as important sources of advantage in competitive elections.

For example, Auyero (2001) explains how Peronist politicians in Argentina used a local maternal support program - *Plan Vida* - as a major source of political power, providing a flow of resources from above to brokers to cultivate clients. Aspinall and Berenschot (2019) catalogue decentralisation efforts in Indonesia cascading funds and program responsibility down to districts, villages and local agencies. Although a

range of anti-corruption efforts attempted to put funds beyond the discretionary control of officials, they document how elected politicians and their intermediaries effectively subverted these reforms for clientelistic and rent seeking purposes (ibid). Berenschot (2010) shows how municipal councillors in Gujarat, India, efficiently converted government funds intended for upgrading infrastructure and basic amenities into electoral assets. Substantial theft from government programs also occurs at the state level (witness the ex-governor of the state of Rio de Janeiro being jailed for skimming millions of dollars from public funding flows in November 2016).

Further, large developing countries such as India, Brazil, South Africa, China, Pakistan and Indonesia display clear variation in social welfare policies across their regions, and accordingly, subnational states are a key unit of analysis for researchers interested in understanding social welfare policy and administration (Singh 2015). Finally, there is an empirical payoff from complementing the cross-country analysis in the last chapter with a study within the framework of a single national system that holds constant several omitted variables that could bias the results of cross-country analysis.

Explaining subnational variation in digital delivery

This chapter theorises the conditions under which subnational governments adopt reforms to disintermediate local actors from the distribution of social spending, explicitly considering both the 'upward' and 'downward' dynamics that regional politicians uniquely face. The overriding insight is that digital delivery modes are more likely to be utilised when there is political alignment, or co-partisanship, across state and federal levels. Further, reforms are less likely to be adopted when there is co-partisanship between state and local levels, suggesting that partisanship – in addition to competition and pre-existing clientelism – is an important source of variation in digital reform at the subnational level.

I argue that the ways in which digital infrastructure create benefits as well as costs to incumbents hold in the subnational context: the interaction between the level of political competition and pre-existing levels of corruption influences the relative size of potential benefits, a potential governance boost and insurance or lock-in functions, and conditions the electoral costs, namely the financial and political costs to themselves and their intermediaries by reducing the expected returns to corruption in terms of forgone income and influence.

The central point of departure in my investigation of whether 'partisanship matters' at the subnational level is the observation that when cash-based payments are converted to electronic transfers, regional leaders motivated by electoral survival may face a previously underexplored trade off: aligning with a pro-reform national government or preserving their own networks of patronage. Regional politicians must negotiate a multilevel set of incentives and political dynamics which might oppose or reinforce each

other, depending on whether the government at the state level is drawn from the same party as the central government promoting the reform (**the central-state dynamic**) and as the local level controlling networks of brokers (**the state-local dynamic**). I explore these two sets of incentives and the hypotheses they generate in turn.

Partisanship: the central-state dynamic

My first hypothesis is that subnational governments that share the party of a reforming central government should be on average more likely to digitise entitlement programs than those that do not. It has been argued that sharing a political party would be expected to harmonise policies between state and central governments in a federal system (Riker and Schaps 1957) and there are two reasons why we would expect to see a demonstration of 'partisan harmony' between politicians at the state and federal levels of government in the adoption of digital delivery reforms.

The first is the desire of subnational political actors to cultivate national party leaders who are likely important in determining their future career trajectory. It has been previously argued, for example, that regional party operatives are usually embedded within larger political party organisations whose members often compete for federal appointments or space on election tickets (Benton 2018). Hart (1990) shows that this is the case specifically in India, where the 'institutional ladder' has been a well-established leadership path since India's independence to modern times. For example, Lal Bahadur Shastri, India's second prime minister, rose from being party secretary and minister in Uttar Pradesh to a federal minister of commerce and transportation to the prime ministerial role upon Nehru's death (ibid). Similarly, Narendra Modi's political career started as a regional organiser, rising within the BJP to become the national secretary. After being elected Chief Minister of Gujarat and serving 14 years in that role, he was named the BJP's prime ministerial candidate to contest the 2014 election. Accordingly, we would expect that state level leaders faced with a decision to implement a reform propagated from the centre may see this as an opportunity to demonstrate partisan loyalty, and are likely to weigh potential disciplinary action, a negative effect on their career advancement or other forms of party control if they resist.

A secondary reason why we might expect that incumbents at the state level that share the same party as the federal government might be more likely to implement reform is because of what has been termed the 'coattail effect' – namely, that they perceive their chances of electoral success at the state level to be influenced by the performance of their co-partisans at the federal level, and believe their response to reform could negatively affect the perceptions of this performance. Examples of the coattail effect in the United States has been established by researchers demonstrating that the degree of electoral strength of the national executive can shape the probability of success for politicians who share the same party label at the state level (Campbell 1986, Carsey and Wright 1998).

A similar argument was advanced by Wibbels (2005) when seeking to explain which subnational politicians cooperated with economic adjustment efforts introduced by the national government in Argentina. They theorised that although provincial governments had historically been profligate in their spending, triggering bailouts from the central government, partisan linkages between politicians at the national and subnational levels would be expected to generate compliance by regional incumbents with austerity measures. Although compatriots of the federal executive had to incur political costs of reforms measures (such as reduced patronage spending), copartisanship encouraged consideration of 'electoral externalities' in favour of reforms that benefited the party at both levels (namely an improved reputation with voters on macroeconomic management). In this way, intergovernmental partisan harmony was argued to work in favour of subnational adjustment, thereby contributing to the success of the national reform process.

Conversely, subnational governments composed of opposition or other parties that do not hold government at the federal level should be *less* likely to build and use digital platforms, because in addition to preserving their political machines, by resisting they can help stymie the realisation of a flagship campaign proposal of their political rivals at the federal level which may weaken their subnational rivals drawn from the same party.

The capacity of subnational leaders to act as partisan veto players constraining the implementation of policies propagated from the centre, inspired by the work of George Tsebelis (1995) has been explored by several researchers. Soderlund (2005) reviews the capacity of subnational governments to constrain the federal government and limit its power to introduce and implement policy change in the Russian Federation, and similarly Mainwaring and Samuels (2004) cast federalism in Brazil as a bargaining game between the president and representatives of the states (governors and members of the national congress) who have the capacity to constrain the power of the central government.

It is arguable that not all subnational leaders will be equally sensitive to the 'coattail' effect. Incumbents who face weak rivals may see their future as relatively independent of the survival of the central government. Conversely, co-partisans of the federal executive that hold power by only a narrow margin likely have more to fear from a weakened party at the central level. Accordingly, we would expect that the level of political competition in a given state would influence the extent to which that government is susceptible to the coattail incentive.

Partisanship: the state-local dynamic

My second hypothesis is that if subnational governments share a political affiliation with the brokers and politicians who have historically controlled local patronage networks, they will be on average less likely to digitise entitlement programs than those that do not.

Theories of clientelism emphasise the role of the broker as mechanically necessary to quid quo pro electoral strategies. In settings where central and subnational level governments are distant from the daily life of citizens in rural and remote areas, and individual citizens are unable to negotiate or secure their entitlements independently, the local elites who function as brokers are more likely to have earned the trust and understand the preferences of voters and so can act as a valuable agent whereby political parties can access, interact with and influence their electorates (Koter 2013).

Studies of decentralisation in federal states suggest that these local political elites often capture disproportionate amounts of resources through theft or partisan redirection of government funds (Fisman and Golden 2017). As early as the 18th century, the authors of the Federalist Papers were predicting that the lower the level of government, the greater the extent of capture by vested interests, and the more tenuous the protections for minorities and poor (Madison 1787). In the Indian context, Dreze and Sen (1989) predicted that, although local actors have the detailed knowledge of their community that would allow them to target benefits to the most deserving, reliance on local institutions to allocate relief can be problematic for the same reasons and can end up being 'at best indiscriminate and at worst blatantly iniquitous'.

These hypotheses have been empirically substantiated by a large number of researchers, with Sugiyama and Hunter (2013) noting that 'examples of ambitious social programs that become grist for subnational patronage mills fill the comparative politics and development studies literatures'. In India specifically, there is a large body of research suggesting that village councils in India have and use substantial powers of discretion in administering welfare schemes. Niehaus et al. (2013) for example demonstrates that although the list of households that will receive anti-poverty benefits is intended to be determined through a government census and then confirmed during village meetings, because these meetings are often not held, it falls to the local sarpanch to confirm the final allocation, over which he or she then can exercise substantial discretion.

A growing body of research has documented the nexus between politicisation of public service delivery by local brokers and the electoral strategies of regional and state level politicians in India, driven by the need to generate campaign finance. There is evidence that central and state development programs may have facilitated the growth of local machines through kickbacks or selecting the nominees of the MLAs and MPs as contractors (Wilkinson 2006). This dynamic is influenced by the notoriously high cost of elections in developing countries and India in particular, where it has been argued that in order to be competitive, politicians face incentives to use their political positions to extract rents (Sukhtankar and Vaishnav 2015).

Wilkinson (2007) explains how in the late sixties and early seventies, the Congress party 'struck at the capacity of rival parties to conduct election campaigns' by reforming political financing laws. A ban on corporate donations to political parties hampered the ability of the pro-market Swatantra Party which was gaining traction across the country to fund election campaigns (Kochanek 1987, Gowda and Sridharan 2012). By also reducing the substantial annual stipends of former feudal princes who had supported opposition parties in the 1967 election, Indira Gandhi successfully cut off her opposition's main source of income (Wilkinson 2007).

However, because these reforms were not accompanied by any form of state funding for elections, it is generally agreed that these changes were a key driver in politicians' reliance on 'black money' for election campaigns, as there was no other adequate and legal source of funds (Kochanek 1987, Gowda and Sridharan 2012). Coupled with reforms in 1975 that decoupled party spending and candidate spending for the purposes of calculating campaign expenditure limits, the result was 'electoral spending arms races in which parties tried to outspend each other and to attract voters with inducements of various sorts during election campaigns' (Gowda and Sridharan 2012).

Secondly, even where the bulk of funds diverted from programs remain in the pockets of brokers or local officials rather than being passed up the chain to state-level politicians, incumbents who rely on these local networks to marshal voters will be incentivised to prolong the access of local intermediaries to this income stream as a form of patronage. This is supported by evidence that turning a blind eye to corruption by lower-levels officials and brokers can be perceived by politicians to be necessary given the risk of defection (Fisman and Golden 2017). In India specifically, politicians need to abrogate the risk of defection by brokers (Auerbach and Thachil 2019) and so maintaining a flow of funds to these local brokers may be critical to keep them onside.

Conversely, if the party in power at the state level has *not* historically controlled the grassroots networks (for example because they are a national party that has taken power in a state with strong ethnic or caste-based parties), they may have an incentive to implement a policy that can constrain the ability of those networks to corruptly acquire resources and mitigate the effectiveness of local intermediaries in supporting their rivals in state (and possibly national) elections.

In what kind of cases can it be said that subnational politicians control networks of brokers? There are two main scenarios that I examine: first where an incumbent has been in power for a substantial period, and second where a party is affiliated with a network of co-ethnic brokers.

In the first scenario, where a party at the state level has historically held office (or has done so for long stretches in recent history), we would expect that their local network of supporters would be larger and

more established, relative to opposition parties who have had lesser access to the levers of patronage. Brokerage networks have been argued to be of great importance to the working of political processes throughout India, 'linking village leaders with district leaders, patrons with clients, state politicians with vote-banks, party bosses with financiers and panchayat president with contractors' (Béteille 1991). Kopecký (2012) argues that political parties engage in particularistic exchanges not only for the purpose of mobilising voters at specific points in time to win elections (patronage as an *electoral* resource), but also to develop local networks as a means of maintaining their electoral support (patronage as an *organisational and party development* resource). Similarly, Ball and Fischer (2019) demonstrate that to win elections, political parties engage in machine-building - developing large networks of local interlocutors that could invoke narratives of development and channel tangible material benefits to secure the votes of different social groups.

In these scenarios, in addition to individual politicians engaging in quid pro quo exchanges with voters, parties act as the 'collective' patron and clientelism becomes an instrument of governance rather than solely an instrument for rewarding loyalty at the ballot box (Kopecký 2012). They also argue that the use of patronage as an electoral resource is likely to become an increasingly important strategy through which parties in contemporary democracies to try ensure their organisational survival and success.

An example of this case is the state of Gujarat in India, where the BJP (and a splinter group, the Rashtriya Janata Party) has held power for more than two decades. Writing about the 1991 Lok Sabha elections, where the BJP swept 20 of the 26 seats contested in the state, Shah (1991) argued that in contrast to the other parties' organisational weakness in Gujarat 'the BJP has built up its organisation and support through sustained effort both on secular and communal lines since the end of the 60s'. Chhibber (2014) points out that the number of active BJP vote mobilisers active in Gujarat continues to grow, being higher in 2014 than it was in 2004. At the same time, a survey of households in 2018 found that one in ten households experienced corruption in availing themselves of public services (Transparency International 2018). Accordingly, with a dense network of party workers, brokers and local officials that have been critical to growing Gujarat into a BJP stronghold, we would expect that the incumbent government faces strong incentives to continue to be able to support their local networks through any available means.

Conversely, in states where the incumbent has *not* historically held power in the region, we would expect their network of brokers to be less well-developed, relative to the opposition, given they have likely had fewer opportunities to distribute patronage through public appointments and curry goodwill with voters using inducements funded through theft or bribes associated with the delivery of public services. An example of this is Maharashtra, where until 2014, the Congress party had held power at the state level since 1947, except for 1995-1999 when a regional party (Shiv Sena) briefly held power. In 2014, the BJP

won a majority in the state legislative assembly for the first time on the back of the nationwide BJP landslide known as the 'Modi wave' across India. In states like these, where the new incumbent is holding power for the first time, we would expect that their local networks could be relatively weak compared to the electoral machinery of parties who have controlled the delivery of public services for some time, and implementing a reform to disintermediate brokers would impose a lower relative cost, compared to established rivals.

In other cases, state level governments will have been led by multiple different parties (or coalitions) in recent history. After an initial period of dominance by the Congress party at the national and state level where it faced little organised opposition, the last five decades of state elections have been marked by intense competition and regular changes of government, with many states in the 1990s displaying a strong anti-incumbency bias (Kumar and Shreyas 2013). In these cases, an incumbent may have access to a strong local network of supporters and brokers, but so too may its opponents. In Kerala, for example, which has been led by both the Congress Party and the Communist Party at the state level in recent years, both parties are known to have strong local networks, with party offices and political apparatuses reaching down to the village and ward levels (Krishna 2007).

In the second scenario, where a region has a long history of being ruled by a regional, ethnic or caste-based party (such as the Samajwadi Party in Uttar Pradesh or Bangla Congress in West Bengal, and have strong local networks) or they pose a credible future threat to an incumbent, I theorise that implementing a reform that would disintermediate the co-ethnic networks of these actors would be attractive to national parties, such as the BJP or the INC in India, if they gained power at the subnational level. Conversely, if a state is ruled by an ethnic or regional party (or they are influential in a governing coalition such as in Punjab or Kerala) the adoption of a reform would be on average less likely.

In the scholarship on clientelism there appears to be a relatively settled consensus that high levels of ethnic heterogeneity or polarisation can lead to clientelistic behaviour by politicians to garner votes (Bardhan and Mookherjee 2000). Ethnically diverse societies have often struggled to transition to programmatic politics and Wilkinson (2014) argues that in India many ethnic groups believe that they can only secure the services of the state via a patron, most likely from their own ethnic group. Multiple studies in India have documented ethnic or caste leaders playing a central role in political brokerage during elections (Dunning and Nilekani 2013, Stokes, Dunning et al. 2013).

Identity – through ethnicity, caste, religion, regional-affiliations and language - have played a central role in the electoral politics of post-Independence India (Chandra 2000). Ethnic and regional parties characterise themselves as the champions of a cause or set of local issues to the exclusion of others, and

this representation is central to their electoral mobilisation of voters (Chandra 2004). Regional parties are a particular feature of India's political landscape – in a recent study of 111 countries, only seven countries had higher regional party vote share (Ziegfeld 2016).

In some Indian states identity politics is a particularly pronounced force at the ballot box – for example, all but one of the major parties that currently contest elections in Uttar Pradesh are associated with a particular set of castes and religious groups (Devasher and Gadjanova 2021) and party politics in Bihar has arguably centred caste for the past 30 years (Witsoe 2013, Vaishnav 2017). Chauchard and Sircar (2017), show that ethnic ties in some cases shape the contours of local-level influence networks much more strongly than partisan ones do.

The scholarship on ethnic politics suggests that in contexts where concepts of race, tribal affiliation and ethnicity resonate socially, in order to win elections, rival parties will focus narrowly on rallying their respective core ethnic constituents (Horowitz 2016). It may follow then that an effective strategy for candidates competing *against* ethnic parties may be to disrupt the ability of these organisations to rally their co-ethnics by reducing their ability to distribute patronage and largess.

An example of a state where this logic may hold is Uttar Pradesh, an ethnically heterogeneous state with no majority caste. Uttar Pradesh has multiple ethnic and regional parties, and power rotated between two of these (the Bahujan Samaj Party and Samajwadi Party) at the state level from 2002 until recently, when the BJP won power at the state level in 2017. In a state like Uttar Pradesh, implementing digital delivery reforms may substantially affect the patronage networks that support ethnic and regional parties. Why? As early as 1969, an analysis of Uttar Pradesh found that traditional brokers exercise 'enormous reserves of power and influence' that can be weaponised during elections (Burger 1969) and that a critical dimension of party operations included obtaining of material advantages for constituents. Uttar Pradesh has one of the largest public sectors in India, accounting for 80 percent of all formal employment in the state and representing a rich array of opportunities to appoint its own supporters to plum positions. Indeed, a widespread perception that ethnic parties heavily favoured co-ethnics in the distribution of patronage has been previously reported, with other scholars have noting that while in office, both the Bahujan Samaj Party and Samajwadi Party used their control over the Uttar Pradesh State Electricity Board to provide electricity development to their own constituencies (Balls and Fischer 2019).

Accordingly, when the BJP was elected to power in 2017 after fifteen years of rule by regional parties in Uttar Pradesh, embracing digital platforms to distribute entitlements within a number of months was a potentially powerful move in disintermediating the brokers of the regional parties who had links to voters based on both longstanding incumbency and regional identity.

Although local leaders may historically have been able to shape partisan linkage strategies by mobilising ethnic networks in states like Uttar Pradesh and Haryana, it has also been argued that ethnic identities are not necessarily deterministic of patronage politics (Baldwin 2016, Barthwal and Ali 2021) and that since the early 2000s, social cleavages based on religion and caste have become more difficult for politicians to activate (Yadav and Palshikar 2014). Deshpande et al (2019) argue that at the state level, political parties had very little success in building cleavage politics on an enduring basis, which may be contributing towards the move from the politics of identity towards programmatic politics. In my empirical analysis in the next chapter, I assess whether the strength of local networks plays a role in determining the timing of when subnational incumbents implement reforms.

Resolving conflicting partisanship incentives

Unlike the dynamic at the central-state level, where incumbents from the same party face the same incentives (to support the reform if they are co-partisans of the federal government, and resist if not), at the state-local level, politicians from the same party may face different and potentially conflicting incentives, depending on the strength of their grassroots networks.

As outlined above in the examples from India, politicians from the two major national parties who have won government in states traditionally controlled by ethnic or regional parties, or the other major party, will have an incentive to implement the policy, which represents the ability to disintermediate the fundraising and voter mobilisation agents of previous incumbents and future rivals. However, in states where incumbents have enjoyed a long period of governing or built its own local grassroots networks of brokers, a cost of the policy implementation will likely be lost revenue opportunities for their own supporters. Similarly, state politicians who may otherwise oppose the policy because of the state-central dynamic, may have a strong incentive to implement it, for the same reasons.

It can be seen then that state-level politicians operate within an overall framework of potentially divergent partisanship incentives to reform depending on who holds power above *and* below them: for incumbents at the state level, for example, who recently won power in a region traditionally dominated by an ethnic/regional party or the other major party, the central-state dynamic may impel them to implement the policy reform in question, but the incentives at the state-central may run in the other direction. I represent this framework in Table 15 below.

		Local patronage networks	
		Strong local networks	Weak local networks
Federal government	Co-partisan	Conflicting incentives to reform	Strong incentive to implement reform
	Not co-partisan	Weak incentive to implement reform	Conflicting incentives to reform

Table 14 Incentives faced by subnational incumbents to implement or delay reform.

Within this framework, the extent to which subnational incumbents are aligned with the party in power at the federal level and networks of brokers at the local level influences the strength of their incentive to reform. In the case of the Indian states of Tamil Nadu and West Bengal, the incumbents (AIADMK and the All India Trinamool Congress, respectively) did not share the party affiliation with the administrations that held power at the federal level during the period under observation, and both had access to strong local networks as regional parties that were effective at leveraging the shared identity of local elites. Accordingly, the incentive to implement financial technology reforms were weaker than a state like Uttar Pradesh when a national party, the BJP, was elected in March 2017 for the first time in that state. The theoretical intuition in Figure 4.1 is consistent with the policy outcomes in all three cases: the Chief Minister of Uttar Pradesh announcing the adoption of digital government payment reforms within a few months of being elected in 2017, where Tamil Nadu and West Bengal delayed reform for several years after given the opportunity.

This framework, which illustrates the potentially conflicting incentives faced by subnational incumbents, co-exists with Scenario 2, which sets out how political competition and pre-existing clientelism influences reform outcomes, namely:

	Low Clientelism	High Clientelism
Low Competition	Ambiguous incentives to implement reform	Ambiguous incentives to implement reform
High Competition	Strongest incentives to implement reform	Weakest incentives to implement reform

Table 15 Theoretical Predictions of Scenario 2

How do we reconcile these two frameworks? I theorise that the same factors identified in the cross-country analysis, namely the interaction between pre-existing levels of clientelism and political competition, will continue to have explanatory power when it comes to the variation in reform outcomes at the subnational level: specifically, the interaction between pre-existing levels of clientelism and the level of electoral competition will influence timing of reform. This is because the political leaders of subnational governments, like their peers at the national level, are motivated to be re-elected and will

make the strategic calculations about the political costs and benefits of entitlement reform, which are in turn conditioned by the levels of clientelism and competition present in their political environment.

I argue that partisanship further nuances these calculations: where two states face similar levels of clientelism and competition, we would expect that states aligned with the federal government would on average adopt digital infrastructure to distribute government payments earlier, and as would states that were not aligned with local brokers and controlled only weak networks.

Clientelism

Although in the previous chapter, countries were coded as having high or low levels of pre-existing clientelism, variation *within* countries in the use of clientelism has been observed by a number of scholars (e.g. Weitz Shapiro 2014). In the Indian context specifically, although it has been described as a 'patronage democracy' and a long line of studies reinforce the popular perception that corruption is widespread (Sukhtankar and Vaishnav 2015), levels of clientelism and the roles of intermediaries in the administration of government services across India do vary substantially.

According to a recent household survey on perceptions and experiences in the use of government programs and services, more than a third of citizens in Tamil Nadu, Karnataka, Bihar and Telangala reported encountering requests for bribes when attempting to access government programs, including social safety net schemes such MGNREGA and the public distribution system that provides subsidised food, over the last twelve months (CMS 2018). Yet in states such as West Bengal and Andhra Pradesh, less than half the number of households reported the same experience, and citizens in Kerala and Himachal Pradesh have also reported comparatively limited personal experience with corruption in their states (Charron 2010). A number of researchers have investigated what might account for variation in the level of corruption between the Indian states, and these analyses include variables such as the level of economic development (Charron 2010) and aggregate social capital (Widmalm 2005).

It has been generally noted (e.g. by Rose-Ackerman and Palifka 2016), that corruption scandals in emerging democracies are commonly associated with the financing of electoral campaigns by political parties. In regions where documented levels of clientelism and the corrupt activities that funds it– such as vote-buying and requests for bribes to access government services - are *high*, the spoils to be gained from intermediation of government payments are a likely valuable source of campaign finance and voter mobilisation. Not only is it on average more likely in these areas that local party members or brokers are siphoning funds from welfare programs in states, but voters may be more used to and expectant of the vote buying strategies that are bankrolled by these diverted funds. As argued by Bussell (2015), the

greater the share of bribes in overall campaign finance and thus the more dependent politicians are on bribes, the less supportive they will be of policies to increase transparency in service delivery.

In states where corruption is *low*, the likely quantum of resources being used by the incumbent (or potentially their electoral rivals who are elected in the future) to support clientelistic spending in that state is also likely low, and so the benefits to be had from preserving broker intermediation of welfare payments and the stakes in terms of potential electoral advantages to be gained or removed from rivals are correspondingly low.

Electoral competition

The political environment in the period immediately following India's Independence has been described as a one-party-dominant system (Kothari, 1964) with only the Indian National Congress (INC) functioning as a truly national party that competed for power in every state. Since then, India has evolved into a highly competitive democracy, with the BJP operating as the primary challenger to the INC at the national level, and a range of regional and ethnic parties that regularly hold power at the subnational level. Shaukat (2019), found that the average winning margin between the winner and runner-up candidate in subnational elections declined from between 15- 20 percent in the 1950s to approximately 12 percent in the 2000s, an indicator of highly competitive elections.

But, like with clientelism, there is real variation in the level of competition across subnational units in India and each state has its own unique electoral dynamics. In some states, such as Gujarat and Orissa, power has been held continuously by one party at the subnational level for over twenty years. At the other end of the spectrum, in states such as Arunachal Pradesh and Assam, power has alternated between the INC, the BJP and a regional party over that same period, and in others, such as Chhattisgarh, Himanchal Pradesh and Rajasthan, power has rotated between the two national parties (BJP and INC) or between a national party and a regional party, such as in Andhra Pradesh.

Scenario 2 would posit that incumbents in India who face closely contested elections would be more motivated than those who face less competition to preserve the electoral advantage that accrues to them through these networks who may campaign on their behalf, namely resisting efforts that would deprive their local allies of control over the administration of welfare programs that could be used in clientelistic bargaining exchanges with voters. In this scenario, reform will be on average delayed or less likely in states where competition and clientelism are high, because incumbents with access to corrupt rents are motivated to preserve all avenues of electoral advantage when they are facing high levels of competition and have little incentive to implement reforms that disrupt established systems of patronage and local support.

Alternatively, Scenario 3 predicts that reform will be on average earlier or more likely in states where competition and clientelism are high, because the benefits of reform (such as an electoral boost from implementing good governance policies and the opportunity to foreclose future returns to corruption for their opponents) may outweigh the expected loss of campaign finance and patronage opportunities.

Adding a partisanship lens, we would expect that a state-level incumbent who is enmeshed with local broker networks in a high-corruption state and faces a competitive path to re-election has incentives to resist the digitisation of government payments, since improvements in the distribution of welfare will likely diminish the flow of funds through the hands of local elites that had previously been systematically targeted towards supporters in the form of inducements. If these incumbents are not co-partisan with the central government (and so are motivated via the central-state dynamic to resist the reform already), the theoretical prediction is that reforms will on average be delayed. This outcome would be consistent with scenario 2 and the results of the cross-country analysis in Chapter 3. Conversely, where state level incumbents do not control these networks, I predict that they will seek to disrupt the ability of their rivals to marshal local support, and will push to implement the policy.

In states where political competition is low, the alignment of subnational incumbents with their federal counterparts may be more influential in influencing reform. Incumbents from parties who have enjoyed long tenures in government in their state, being relatively unconcerned about rivalries with other parties, may choose to either align with the central government if they share the same party, or to oppose the policy as a form of political point scoring if they do not. This prediction is consistent with the cross-country results in the previous chapter, along with literature on political strength, such as Remmer and Wibbels (2000), who - building on Geddes's (1994) insights into the importance of political incentives- argue that 'political incentives for policy changes that reduce patronage opportunities and thereby undercut the political base of incumbents are limited in uncompetitive settings'

It is possible that the dynamics of how voters and politicians in high corruption regions function differently at the subnational level. For example, a stated intent to adopt a policy that will reduce clientelism may be more likely to garner support from voters at the subnational level if citizens ascribe more weight to issues of social spending and failures of government delivery in state elections, especially if they associate subnational incumbents as having more responsibility for those programs. This may be the case both for poor voters who may anticipate improved welfare services and delivery, and from middle-class voters who may interpret it as a positive signal of the quality of government performance more generally. This would be consistent with performance voting theory which contends that voters prefer to re-elect competent leaders (Powell and Whitten, 1993) and in a state where voters believe corruption reflects the incumbent's competence (or lack of), the performance voting model predicts that

citizens will vote against the incumbent in the elections under the assumption that replacing the incumbent with different leader in office would produce different policies to tackle corruption (Vadlamannati 2015). In the following chapter, I test whether data on the adoption of financial technology reforms are more consistent with Scenario 2 or 3.

The Indian Context for Reform

To truly understand the political calculus facing subnational leaders, we need to understand the mechanics of digital infrastructure reforms and the empirical setting for policies to disintermediate brokers. In the remainder of this chapter, I walk through a detailed discussion of a specific digital delivery reform. Specifically, I review the use of beneficiary authentication and digital payment systems by state level governments in India for income support, cash transfer and subsidy programs.

India is a popular setting for academic researchers seeking to understand variation in social spending policies and administration as a large, multi-ethnic democracy where responsibility is largely devolved to the subnational level. The state provides basic social services for significant proportion of the population, but Indian states are characterised by striking variations in social welfare policies and outcomes, where citizens in some regions benefit from entitlements and services on par with those in middle income industrialised countries, and others are drastically underserved by public services that are intermittent, mistargeted or non-existent (Singh 2015).

A substantial proportion of entitlements are distributed through national programs such as the Mahatma Gandhi National Rural Employment Guarantee program (MGNREGA), one of the world's largest social safety net programs in terms of population coverage, pledging to provide up to 100 days per year of guaranteed paid labour on government infrastructure projects to all rural households, and the Public Distribution System (PDS), a massive, nation-wide program which makes available a range of government-subsidised goods such as rice, sugar, wheat and cooking oil.

The funding and operation of these programs are complex. Although many 'schemes', as they are locally known, like MGNREGA and the PDS are national programs, costs are split between the national and state governments. Policy decisions about implementation occurs at the state level, and administration is carried out at the local village level. Eligibility for payments and jobs under programs such as MGNREGA is often determined by village-level statutory institutions of local self-government called gram panchayats with an elected head known as the sarpanch who functions as a local intermediary between citizens and the state. Taken together, these comprise a social safety system that has been described as operating with unprecedented levels of decentralised funding (Chau et al 2021).

Leaders at the village level in India, and other countries, can often act as gatekeepers to social protection programs, because they operate at the critical points where the state (from where people gain welfare rights) and society interact (Véron et al 2003, Pellissery 2006). The sarpanch in particular has other formal responsibilities over the local implementation of central and state government programs including access to water, sanitation, electricity, housing, employment and a broad range of anti-poverty programs (Schneider 2015) and has been identified in the literature on brokers in the Indian context as the actor with the greatest institutional leverage to influence the distribution of state entitlements (Bussell 2021).

Although there are many programs that citizens theoretically should be able to access as a right, local brokers play a crucial role in enabling citizens to access these services or programmes (Auerbach and Thachil 2018, Deshpande et al, 2019). Researchers have documented patterns where citizens in search of access to government programs, benefits or favours will seek out the sarpanch, who may assist, either because they have networked access to senior bureaucrats and politicians contacts who can be activated where the state is otherwise unresponsive (Chhibber and Osterman 2013) or because local brokers may also have substantial powers of discretion in administering these benefits.

It is important to note that unlike the national and state levels of government in India, local officials (such as the sarpanch and gram panchayat members) do not campaign on explicit partisan platforms and party membership is not legally permitted by the 73rd amendment of the Constitution to be signified on the ballot in elections. However, individuals are usually considered to be associated or affiliated with a party, and researchers have documented the central role that parties play in resourcing candidates for gram panchayat elections. Dunning and Nilekani (2013) for example, explain that sarpanches will commonly mobilise the vote for politicians at the regional and state level elections in exchange for financing of their own campaigns, and they do so by preferentially selecting beneficiaries along party lines (ibid). Similarly, Schneider (2016) found that 92 percent of sarpanches reported that they campaigned for a state politician and Yadav and Palshikar (2008) also observed that parties have largely co-opted gram panchayats as a tool for recruiting and information about voter preferences.

Starting with the local political institutions established by the British after 1919 which have been considered by some historians to have operated as ‘enormous pools of patronage’ (Washbrook 1973), incumbents have used the resources and machinery of the state to build support and reward supporters (Wilkinson 2006). Schemes such as MGNREGA have been described as ‘a boon for the panchayat (local government) and functionaries’ rather than poor rural populations (ibid) and multiple studies of the operation of Indian social safety net programs have found that their administration is characterised by extremely high levels of corrupt leakage and mistargeting.

Estimates of leakage across these studies vary but consistently document systematic patterns of leakage during last-mile delivery. Khera (2011) found that 44 per cent of food grains procured by PDS in 2007 were not received by the intended beneficiaries. A 2005 Report by the Planning Commission estimated that over half of the commodities procured through the government's PDS scheme failed to reach the intended beneficiaries due to diversion. Niehaus and Sukhtankar (2012) found even higher rates of failure in Orissa and Andhra Pradesh, where corrupt diversion of MGNREGA payments could constitute 80 percent of reported program expenditures. Saxena (2009) found that almost two thirds of eligible beneficiaries was excluded from anti-poverty program and a number of similar analyses document social and geographic mistargeting along partisan lines from the 1990s onwards: both in terms of inclusion and exclusion errors with respect to which households receive anti-poverty benefits (Markussen 2011, Dunning and Nilekani 2013).

In a study of the Employment Assurance Scheme, a precursor to MGNREGA established in 1993, Corbridge and Srivastava (2013) estimated that no more than 20 per cent of funds from the program reached registered workers in any of the studied field sites: instead, funds were captured by well-connected contractors, local officials including the sarpanchs themselves, government bureaucrats and local politicians. An early employment guarantee scheme in Maharashtra was also found to have substantial levels of benefits lost to corruption and financial leakage (International Labour Office 2010).

Clientelism and corruption in the distribution of government payments can occur in multiple ways. First, local officials may use their powers of discretion in selecting beneficiaries to target benefits in the furtherance of partisan electoral strategies or favour their co-ethnics or family members. It has been noted that at the time of Independence in 1947, India already bore many of the hallmarks of a clientelistic polity, with the British using criteria including caste and religion for the state to allocate political positions and civil service roles (Wilkinson 2004). Chau et al (2012) document frequent incidents of preferential targeting of beneficiaries and patterns of distribution that suggest sarpanches are leveraging government programs to build their party's support base by strategically funnelling more resources to politically active households. Specifically, they find that in villages governed by a sarpanch with links to the INC party, households who were active in INC election campaigns and voter mobilisation efforts received significantly higher benefits in terms of days of work and payments under guaranteed worked programs than politically inactive households.

In addition to partisan targeting, there are a number of additional avenues through which local brokers can divert or misappropriate funds from beneficiary entitlements which are physically distributed in cash or in-kind. When politicians maintain cash-based systems, as it has been argued earlier, this can operate as a form of patronage, by enabling a flow of resources through the hands of intermediaries who can then

enrich themselves, reward their supporters, or funnel money back up the political chain. Examining the Indian context, there are multiple examples of how this occurs.

First, in the context of large employment programs like MGNREGA, the sarpanch may withhold a certain amount of the wages owed (underpaying and thus stealing from the worker) or report that the worker worked more days than they actually did and pocket the difference (over-reporting and thus stealing from the system). A study sponsored by the Rural Development Ministry found that in many cases, workers were provided with a single day of work but were reported by local officials to have performed more than thirty days of labour, with the payment for the fictional days being misappropriated by local officials and functionaries (Ministry of Rural Development 2010).

Second, the sarpanch or administrator may create and claim the wages and entitlements of 'ghost' workers: Khera (2011) found in Khendra Khurd (in the Palamau district in Jharkhand) that 100 out of 108 names listed in the 'muster' rolls (compulsory labour attendance registers maintained at MGNREGA work sites) for one particular week were fake. They noted this was an extreme example but that the falsification of muster rolls was observed to varying extents in most of the sample districts in their study.

Third, sarpanches may demand that citizens pay a bribe to receive their entitlements or the documents which they need to apply for them (such as jobcards) or pay bribes in order for a work-for-welfare project on his land to be authorised under the auspices of government spending programs. In a case study documented by Khera (2011) a worker designated as being from a below the poverty line family applied to construct a well on his land under MGNREGA. The Panchayat Secretary informed him that if he could pay a bribe of Rs 2500, a well would be allotted to him.

Fourth, wages can be embezzled by contractors who manage government programs. It has been argued that many contractors enjoy the patronage of political leaders, who give them free rein in forging muster rolls, job cards and other MGNREGA documents, and they return this favour by funding election campaigns (ibid).

In summary, there is considerable evidence that the administration of social safety net programs, especially when it comes to the payment of entitlements, has historically been plagued by major leakages in the Indian context. I provide more detail in the Chapter 7 on how clientelism functions in the local contexts of Uttar Pradesh, West Bengal and Goa.

There have been occasional efforts by the Government of India to disrupt networks of corruption and clientelism that emerged around the implementation of poverty-alleviation schemes. By including citizens in implementation, verification, and monitoring schemes, such as social audit programs included in the Employment Assurance Scheme was introduced, an attempt was made to break the nexus between

bureaucrats and subnational politicians (Veron et al 2016). In other cases, the central government has sought to separate implementing agencies from payment agencies. However, without technologies that can remotely authenticate the identity of beneficiaries, researchers continued to document cases of clientelism and fraud. For example, during a social audit in the Deogarh district of Jharkhand, Khera (2011) found that local intermediaries were operating bank accounts in the names of MGNREGA workers, colluding with the Panchayat Sevak to 'inflate the muster rolls, steer inflated payments through people's bank accounts, collect the difference and share the gravy' (ibid).

In a subnational experiment to disrupt clientelism, in 2009 the state of Andhra Pradesh piloted the use of biometric 'smartcards' for citizens accessing government benefits payments pursuant to the MGNREGA program. Under the scheme, biometric data and digital photographs were collected during citizen enrolment campaigns and linked to newly created bank accounts. Beneficiaries were issued a physical card that featured their photograph and an embedded electronic chip storing their biographic, biometric, and bank account details. Beneficiaries then were required to furnish these cards to collect welfare payments and verify their identity matched the card through a biometric reader.

Prior to this, MGNREGA workers proved their identity to the agent issuing payments by exhibiting identifying documents, such as paper passbooks or ration cards, and the agent was responsible for verification and then payment. This identification system relied upon the integrity of paper-based identification documents, which created opportunities for corrupt diversion at both the front end, where the document presented before an authority could be a forged one, and at the backend, where the official database could be inflated with ghost beneficiaries (Sarkar 2014).

Under the new scheme, digital technology was used to authenticate and then transfer payments to beneficiaries. The steps for a worker to claim their MGNREGA entitlements as described by Muralidharan et al (2016) are as follows:

(i) Workers in Andhra Pradesh insert their smartcard into a point-of-service device operated by a customer service provider, which reads the card and retrieves account details;

(ii) the device prompts for one of ten fingers, chosen at random, to be scanned;

(iii) the device compares this scan with the records on the card, and authorises a transaction if they match;

(iv) the amount of cash requested is disbursed;

(v) the device prints out a receipt (and in some cases announces the transaction details in the local language).

The rollout of this reform was randomised at the district level to evaluate the impact of biometric identity authentication in the disbursement of MGNREGA welfare payments. Researchers found that the districts which received the 'treatment' of biometric ID authentication reduced combined payment leakages by $38.5 million per annum—over nine times the amount it cost the government to migrate to the new system (Muralidharan, Niehaus et al. 2016). They also found that as leakage dropped, household earnings through MGNREGA increased 24 percent while fiscal outlays remained the same. Beneficiaries in treatment districts spent 19 percent less time physically collecting their entitlements and the delays in receiving payments also fell (ibid).

In January 2009, the Unique Identification Authority of India (UIDAI) was established by the INC central government with a mandate to design and implement a national identification and authentication system now known as Aadhaar (meaning 'foundation' in Hindi). The Aadhaar card offers a form of proof of legal identity for the bearer in a country where a substantial proportion of the population do not have birth certificates.

Aadhaar created a unique biometric identity for Indian residents (not just citizens) and although it was inspired by the Andhra Pradesh experiment detailed above, it also has some important points of difference. Rather than an individual's biometric information being stored on a physical card, each person is assigned a unique 12-digit number and issued with a card which includes only their name, date of birth, gender and a photograph (along with their 12-digit number). Biometrics (fingerprints and an iris scan) for each individual are linked to their Aadhaar number and recorded in a government database. Biometrically enabled point-of-sale type devices in banks or government service offices are able to 'ping' the central government database when an individual provides his or her fingerprint, and instantly authenticate the identity of the citizen or resident by establishing whether their fingerprint matches the name and unique Aadhaar number provided to access services or entitlements. The chief architect of Aadhaar, Nandan Nilekani, argued that 'a national smart ID could be transformational. Acknowledging the existence of every single citizen, for instance, automatically compels the state to improve the quality of services, and immediately gives the citizen better access' (Nilekani 2009).

Shortly before the first Aadhaar number was issued in September 2010, the UIDAI released a report proposing a role for Aadhaar in improving the Public Distribution System, namely, to address exclusion errors, corrupt diversion and leakage, secure foodgrain storage and faster distribution, accountability and community monitoring along with mechanisms for grievance redressal and ensuring food security (Unique Identification Authority of India, 2010). In the report, it notes that Aadhaar is a flexible solution where states could choose to use only Aadhaar-based identification of beneficiaries, which would enable clear targeting of entitlements; Aadhaar-based authentication which could eliminate fake and duplicate

claimants and to confirm entitlements were delivered to beneficiaries; or a fully Aadhaar-enabled delivery system that would allow the government to communicate with, and transfer entitlements directly to, citizens electronically.

During this period, the Aadhaar initiative was vociferously attacked by the BJP party, who blocked legislation in parliament to give statutory backing to the Unique Identity scheme and argued that it violated constitutional rights to privacy (First Post 2013). Narendra Modi tweeted that in relation to Aadhaar, there was 'no vision, only political gimmick'.

In September 2012, the INC Prime Minister of India, Manmohan Singh, announced a set of pilots to authenticate the beneficiaries of a small number of programs using the Aadhaar identification system, using a process that closely emulated the SmartCards initiative from Andhra Pradesh. During the announcement, he explained that the move was intended to 'improve targeting, reduce corruption, eliminate waste, control expenditure and facilitate reforms' (Sinha 2012). Pilots were announced in a handful of states, and others were encouraged to 'seed' the bank accounts of MGNREGA workers with Aadhaar numbers. As part of the pilot, biometric data and digital photographs were collected during citizen enrolment campaigns and linked to newly created bank accounts. Beneficiaries were issued a physical card that featured their photograph and an embedded electronic chip storing their biographic, biometric, and bank account details. Beneficiaries then were required to furnish these cards to collect welfare payments and verify their identity matched the card through a biometric reader.

In some states, such as Maharashtra, the policy to digitally authenticate and deliver transfers was embraced. Speaking in 2012, the Chief Minister of that state said that by using the Aadhaar number in the delivery of MGNREGA payments would allow 'the right beneficiaries to get the money in their bank account directly. Such mass scale deployment of a personal identity project has never been done in any country. The fruits of the IT revolution were finally reaching the common man in the true sense of the term'.

Yet in other states, such as Chhattisgarh, the policy was deeply unpopular. In that state, the Legislative Assembly passed a resolution urging the Centre (central government) to keep the state out of the purview of the direct cash subsidy transfer scheme. In West Bengal, politicians refused to authenticate social security payments using Aadhaar. In short, real variation characterised the patterns of reform adoption.

On May 16 2014 the INC central government which had designed and promoted Aadhaar-based governance initiatives lost power and was replaced by the BJP at the central level. It was noted in the months prior to the election, the BJP promised in its campaign that it would review the Aadhaar programme if it was elected, with BJP national spokeswoman Meenakshi Lekhi calling the program a

‘fraud’ (Times of India, March 2014). But mere months after the election, media outlets were reporting that Prime Minister Modi had met with the Planning Commission and UIDAI and discussed the possibility of using the platform to radically expand biometrically authenticated direct benefit transfers in subsidy and income support programs, in conjunction with a large financial inclusion drive to open accounts for all citizens (Economic Times 2014).

By December 2014, it was announced that the central government planned to extend the direct benefit transfer programme to the beneficiaries of the Mahatma Gandhi National Rural Employment Guarantee Act as well as seven higher scholarship schemes. It was noted that ‘a large proportion of wages under rural jobs scheme is already transferred to the bank accounts of beneficiaries. However, many of these accounts are believed to be fake and the government hopes that linking the jobs programme with the unique Aadhaar number allotted by UIDAI will enable biometric verification of the actual beneficiary and prevent leakages in the system’ (Economic Times 2014).

By July 2015, Prime Minister Modi and the BJP party had launched the Digital India project, with a vision to scale up the use of Aadhaar and DBT far beyond the parameters communicated by the INC government who had initiated the reforms. Prime Minister Modi gave a speech sharing his ambitions, saying ‘I dream of a Digital India where government is open, and governance is transparent...I dream of a Digital India where technology ensures government is incorruptible’ (Economic Times 2015).

In March 2016, it was announced that all central government schemes involving transfer of benefits in cash or kind are expected to transition to Direct Benefit Transfer (DBT) platform by April 1. It was announced that the Cabinet secretary PK Sinha would hold meetings to review the status of all central schemes transitioning to DBT and seeding of 100% DBT accounts with Aadhaar. The media reported that ‘DBT has been accorded the ‘highest priority’ with Prime Minister Narendra Modi reviewing its progress at high level meetings every month’ (Economic Times 2016).

Aiyar and Sircar (2020) described the trajectory of direct benefit transfers as follows: ‘[The INC] left office with these projects in their nascent stage. On coming to power, Modi embraced and scaled up these technology solutions. Aadhaar and DBT were relaunched as flagship reforms initiated by the government. Politically, this created the opportunity to further entrench a direct link between the PM and scheme beneficiaries, as benefits quite literally went from the national government’s coffers (or Modi himself, as was publicised) to citizens’ bank accounts.’

In short, the use of digital infrastructure, known as DBT reforms, went from being identified as an INC initiative in the years up to 2014, to being firmly associated with the BJP and Prime Minister Modi after this date and up to the current day. This unique empirical set up, where a flagship set of digital

infrastructure reforms were associated first with one major party, and then the other, allows us the opportunity to see how subnational governments, many of which also changed parties over this period, were influenced by changes in alignment and rejected or embraced the policy accordingly.

Conclusion

In Chapter 1, I outlined a range of examples of the use of technology to improve welfare delivery systems across the world. What has been underexplored to date is whether there are systematic patterns in the way these reforms have unfolded. This is particularly the case at the subnational level (Weitz-Shapiro 2014), where politicians have substantial power over the administration of social spending in federal countries. Although there is a literature which argues that it is the largely structural changes in a country (such as increasing wealth and urbanisation) which reduces the returns to clientelism and prompts shifts towards programmatic politics and other non-broker mediated distributive strategies (Stokes, Dunning et al. 2013), there is also evidence that politicians and policymakers make highly strategic decisions about when to expand or limit clientelist strategies (Kitschelt and Wilkinson 2007). In this chapter, I outlined the role of intergovernmental partisanship in conditioning the incentives for reform at the subnational level, extending the theory I developed in earlier chapters to explicitly account for the role of local and intergovernmental dynamics. Over the next two chapters, I empirically test this theory in the context of India, one of the world's largest social safety net systems.

Chapter 5: Subnational Analysis of Reform Timing

When do subnational politicians implement policies that disintermediate their local broker networks in the distribution of government entitlements, and what factors influence this decision? In Chapter 4, I extended the theory I developed in earlier chapters to explicitly account for the role of local and intergovernmental dynamics at the subnational level and argued that the links between clientelism and political competition which explain variation across countries were also capable of explaining heterogeneity *within* them, with considerations of intergovernmental partisanship conditioning the incentives for reform at the subnational level.

The purpose of this chapter is to test whether the theory I have offered – centred on the interaction between political competition, clientelism and partisanship - has explanatory power at the subnational level, specifically in India, when it comes to the timing of when incumbents announce that they will use digital platforms to distribute entitlements. I empirically test whether the same variables influence the way that one of the most promising of these reforms – the direct depositing of welfare payments into the bank accounts of identity-authenticated beneficiaries (known as Direct Benefit Transfer or DBT)– has unfolded in India, a country which operates one of the world's largest social safety net systems. Why did some Indian states seize the opportunity to announce a reform which removed the physical distribution of government entitlements from local brokers and party apparatchiks, while others delayed or outright refused for up to almost a decade? In the next chapter, I analyse patterns of actual implementation. Preliminary considerations of the factors that influence timing, as argued by Bussell (2012) can 'provide us with insights into what factors influenced when governments were most willing to introduce computerized services to citizens at a time when this was a viable policy option for all states'.

First, I first analyse patterns of state-level variation in the introduction of DBT systems to distribute government entitlements to citizens in India. I then present some brief bivariate relationships between reform timing and my theoretical variables of interest: clientelism, competition and partisanship, along with measures that proxy for competing explanations identified by the literature on transitions to programmatic politics, such as economic and technological development and the influence of civil society. These analyses establish some preliminary evidence that my theoretical model may be capable of explaining variation at the subnational level in the timing of digital systems that bypass local intermediaries.

I then use multivariate analyses that evaluate my hypotheses in full and compare these findings to the broader literature on corruption, technology adoption and policy reform. Specifically, I evaluate the relationship between the date in each Indian state when the Chief Minister announced that payments

disbursed pursuant to social welfare programs (such as pensions, food subsidies and cash transfers) would be authenticated using biometric technology (known as Aadhaar) and/or directly deposited into Aadhaar-verified bank accounts, and a range of fixed and time-varying institutional, political and economic state characteristics.

The results of the event history model are consistent with the findings at the cross-country level in Chapter 3. Although neither pre-existing clientelism nor political competition have a linear relationship with reform, when competition and clientelism are high, states will on average delay in announcing the digitisation of government payments. Conditional on high levels of pre-existing clientelism, incentives to announce reform decrease as competition increases, which is consistent with the theoretical predictions of Scenario 2.

Additionally, partisanship matters: I find that sharing the same party at the state and federal level strongly influences reform timing, with co-partisan states on average announcing the use of digital payment infrastructure to distribute payments to citizens earlier. When considering the role of local broker networks in the calculus of incumbents, results are more complex: while measures of state-local copartisanship do not initially have a significant relationship with reform timing, when disaggregating behaviour by the strength of local networks, we see that in states where the incumbent has weak networks, they will on average announce reform much sooner when they share the party affiliation of the federal government, compared to when they do not. When this same analysis is run for the sub-sample of states where the state government has strong networks, for example because they have been in power for a long time, the relationship is no longer statistically significant. This hints at the complex nature of the multi-level incentives that subnational politicians must navigate: when they have access only to weak networks, they are more willing to disintermediate local brokers in order to secure the political benefits of aligning with the central government, but when they have control of strong networks that function as important electoral assets, concerns about aligning with their co-partisans at the federal level become less important than preserving their local networks of patronage.

The empirical analysis highlights patterns of adoption which are consistent with my theory, namely that political competition, pre-existing levels of clientelism and intergovernmental partisanship are more important that the structural macroeconomic factors emphasised in the clientelism literature in determining when politicians will adopt policies to disintermediate brokers in the distribution of welfare. There is limited evidence that alternative explanations, such as the modernisation hypothesis which predicts that increased levels of economic development are key forces in prompting reform and the influence of domestic and international advocates for reform, are drivers of financial technology adoption.

Given the relatively small sample involved in a comparative subnational approach at the state level in India, in Chapter 7, I examine these mechanisms in greater detail through three case studies. I undertake a qualitative analysis to review the experience of Indian states to illustrate how the forces of electoral competition, partisanship and clientelism influence the incentives and costs of implementation facing politicians and spur or delay reform.

Bivariate analyses

As noted in the previous chapter, a long line of researchers have conceptualised India as a patronage democracy, where politicians routinely seek to influence voting behaviour with promises or threats regarding access to state resources (e.g Chandra 2004). When the possibility of enhanced state capacity and programmatic public goods provision divorced from systems of patronage presents itself, which politicians move quickly to avail of these platforms?

To systematically understand variation in appetites for policy reform, I searched public newspapers and legislative records for when each state first announced their future intention to implement the use of Direct Benefit Transfer systems, creating a novel measure of policy timing. Figure 8 illustrates the substantial variation in when states embraced the direct deposit of welfare payments into the bank accounts of beneficiaries, with announcements across the Indian states stretching over a decade.

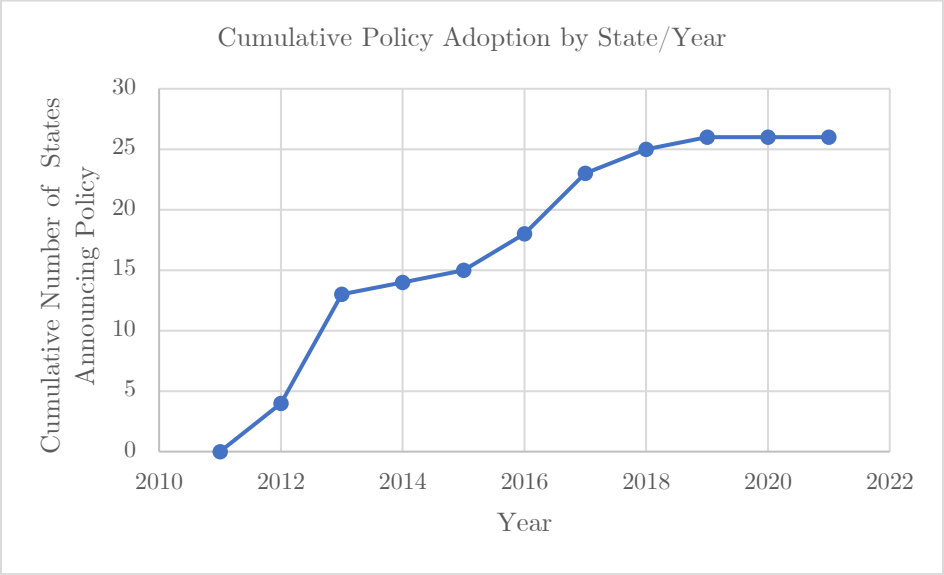


Figure 8 Cumulative adoption of Direct Benefit Transfer reforms.

What explains the different trajectories of these states? In Chapter 2, I outlined three theoretical scenarios regarding the relationship between reform outcomes and the political economy variables of interest. In the first scenario, political competition and/or levels of pre-existing clientelism independently have a strong

relationship with reforms outcome. As a preliminary test of the links between pre-existing clientelism, competition and reform at the subnational level in India, I present some simple bivariate relationships below between the policy timing variable and these variables, along with additional economic and demographic indicators to assess whether existing explanations in broader clientelism literature also explain technology reform in India.

In each graph below, I plot for each state the number of months it took for the DBT reform to be announced by a credible actor (usually the Chief Minister) against the values of the explanatory variables of interest, with a full list of state codes listed in Appendix 2. An OLS regression line and correlation coefficient features in each scatterplot to illustrate the potential relationship and directionality between variables. These simple bivariate scatterplots provide preliminary evidence that factors such as economic development cannot convincingly explain variation in the timing of the adoption of the reform, results that I confirm in the full multivariate analysis. Similarly, simple linear models between the political measures of competition or clientelism and reform outcomes do not appear to well explain the timing of policy initiation.

In Chapter 3, I outlined the literature which argues that it is the largely structural changes in a country - such as economic development and urbanisation - which reduces the returns to clientelism compared with other distributive strategies, and prompts shifts towards a programmatic politics that does not rely on party-affiliated brokers and machines. In these analyses, poverty is the engine of clientelist politics, and as a greater share of voters become affluent, political parties will transition away from vote-buying strategies because there will be fewer citizens willing to engage in quid pro quo arrangements, the cost to do so may be higher, and middle class citizens may be more willing to punish parties seen to be openly engaging in clientelist practices (Kitschelt and Wilkinson 2007, Weitz-Shapiro 2014, Barthwal and Ali, 2021).

Manor (2014) argues more broadly that economic development enables social protection programs that can be funded by the state, which can also enable ‘post clientelist’ programmatic politics. Economic development may also give rise to the growth of a middle class, which has been associated by multiple scholars with transitions to programmatic politics. More affluent voters in developing countries have a greater demand for increased state accountability for public goods, being more disapproving of clientelist distributions of government benefits (Weitz-Shapiro, 2014) and in India specifically, researchers have argued that early supporters for parties who campaign on anti-corruption platforms, such as the Aad Aaami Party in Delhi, are disproportionately drawn from the middle classes (Udupa 2014). To test the effects of economic development on the digitisation of welfare delivery, I use state-level measures of the 2010 Human Development Index, which is a common proxy for socio-economic development in subnational studies in India.

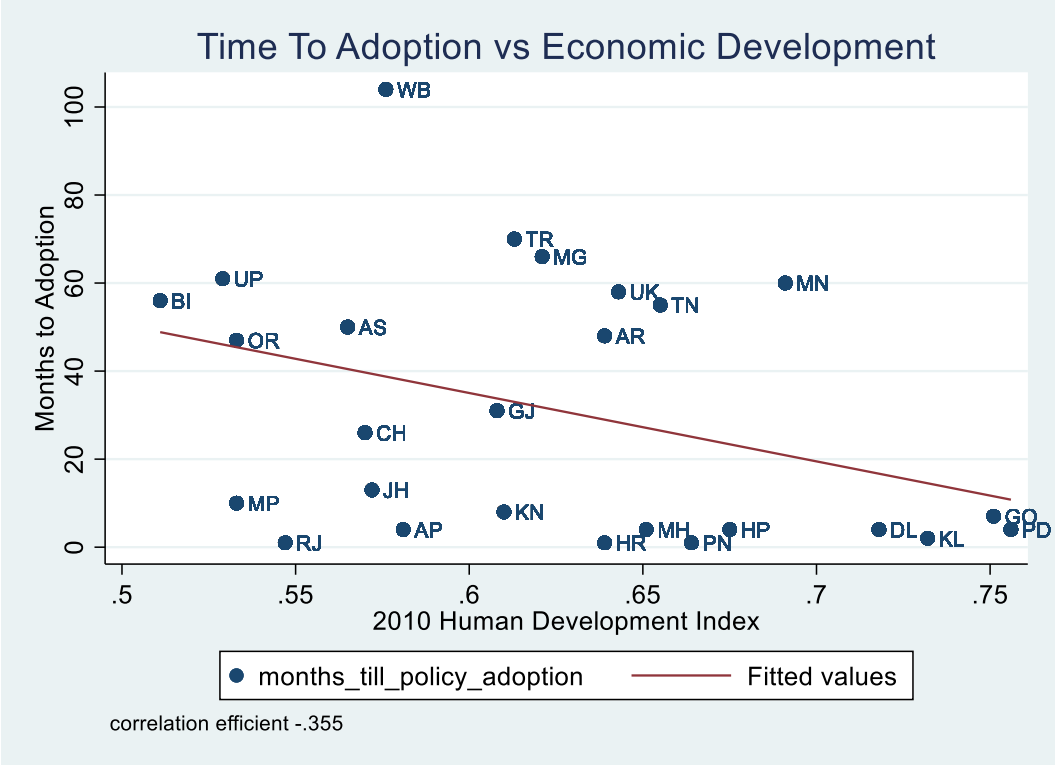


Figure 9 Economic Development and Policy Timing

As Figure 9 shows, contrary to the predictions of modernisation theory, economic development does not appear to drive variation in the timing of subnational policy announcements, with the OLS regression line that emphasises the direction of the relationship between the variables showing a negative but insignificant slope. When we look at the states who moved quickly to announce their use of the DBT platform to deliver payments to citizens, we see that those states (which appear along the base of the x-axis) are distributed along the full spectrum of economic development, from less developed states such as Rajasthan (which has a large, poor rural population), to middle-income states such as Haryana and Maharashtra all the way up to most developed states of Kerala, Goa and Pondicherry. Similarly, when examining the cluster of states who took longer to announce the reforms, or actively opposed them, experiences range from the least developed states of Bihar and Uttar Pradesh up to Manipur and Tamil Nadu. It cannot easily be concluded then that the timing of when states announced DBT reforms was simply a function of their economic development.

Demographic factors, such as the urbanisation of the population and levels of literacy, have also been argued to both reduce the returns to clientelism, as brokers struggle to navigate larger, more populous electorates, and increase the returns to programmatic strategies, as politicians are able to reach politicians directly through media channels, reducing the effectiveness and reliance on brokers.

Population growth and more urban environments, for example, can make it harder for brokers to monitor voters' electoral preferences and political behaviour, with a number of analyses demonstrating that quid pro arrangements are increasingly only viable in rural areas where local elites can more easily observe voters' preferences (e.g Sugiyama and Hunter 2013). Conversely, more densely-populated environments with large numbers of voters create environments where it can be more efficient for politicians to subvert their party machines and rely on more direct appeals and programmatic forms of political communication (Deshpande et al, 2019). However, when I plot the relationship between timing of reform and urbanisation in Figure 10 the variable does not appear to be influential in driving variation between states.

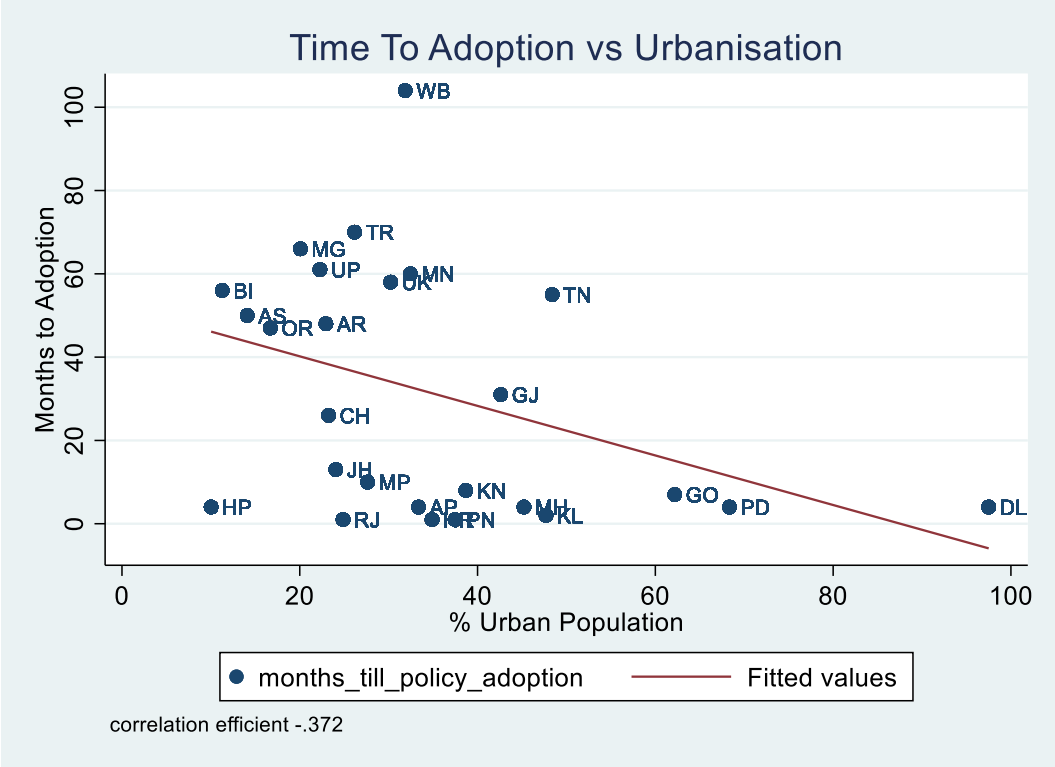


Figure 10 Urbanisation and Policy Adoption

Some researchers have hypothesised that the stickiness of patronage systems is partially accounted for by the lack of information voters have access to regarding the programmatic or distributive agenda of parties. Increased literacy can improve the ability of politicians to reach larger populations with programmatic messages which can then open the door to the disintermediation of the political machines that operate in the absence of the ability to directly reach voters (Kuo 2018). To address the possibility that these forces may explain may have on reform outcomes, I use measures of literacy to test and control for these effects, and in Figure 11 we can see that there does not appear to be a significant relationship with policy timing.

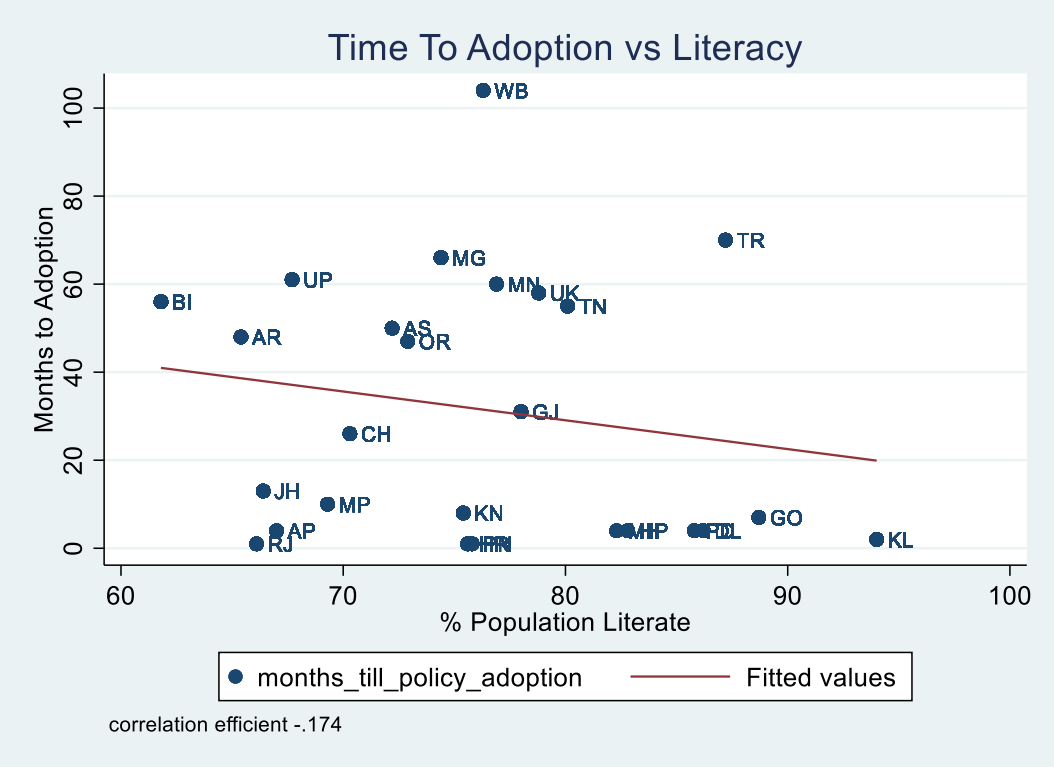


Figure 11 Literacy and Policy Adoption

Having seen that these macroeconomic factors do not appear to prima facie explain variation in my outcome variable, I turn to the three political economy variables outlined in my theoretical chapter. Simple bivariate analyses can point to potential relationships but are likely to be affected by confounding factors, and so following this discussion I then test all variables in the multivariate analysis.

As outlined in earlier chapters, pre-existing levels of clientelism have been cited in the literature on administrative reforms in developing countries as barriers to the adoption of programmatic policies. Bussell (2012) for example found that support for state capacity reforms was strongest in places where politicians extracted fewer rents from constituents in the provision of government services and entitlements.

Clientelism is notoriously difficult to measure and a number of datasets are limited only to the largest states. Although there are several general corruption indicators available, I use indicators that specifically seek to identify clientelistic behaviours in the administration of welfare and government services of local brokers who would be disintermediated by financial technology reforms. In India, the closest proxy for these behaviours are measures of perception and experience of corruption in at least one public service from the 2005 and 2017 India Corruption Studies surveys by Transparency International India and Centre For Media Studies. In each state, a sample of around 150 households was covered from at least 2 districts

(one of these districts covered was the state capital) spread across 10-12 locations (rural and urban) in each state. In all, more than 200 clusters were covered during the study (CMS, 2017). By using measures from 2005 for the early years of the period in the dataset (2012 to 2017), I mitigate the risk of reverse causation, where the implementation of digital reforms may have reduced perception and experiences of clientelistic behaviour by brokers.

In the bivariate analysis, corruption in public service delivery (Figure 12) does not appear to have strong, independent relationship with policy timing.

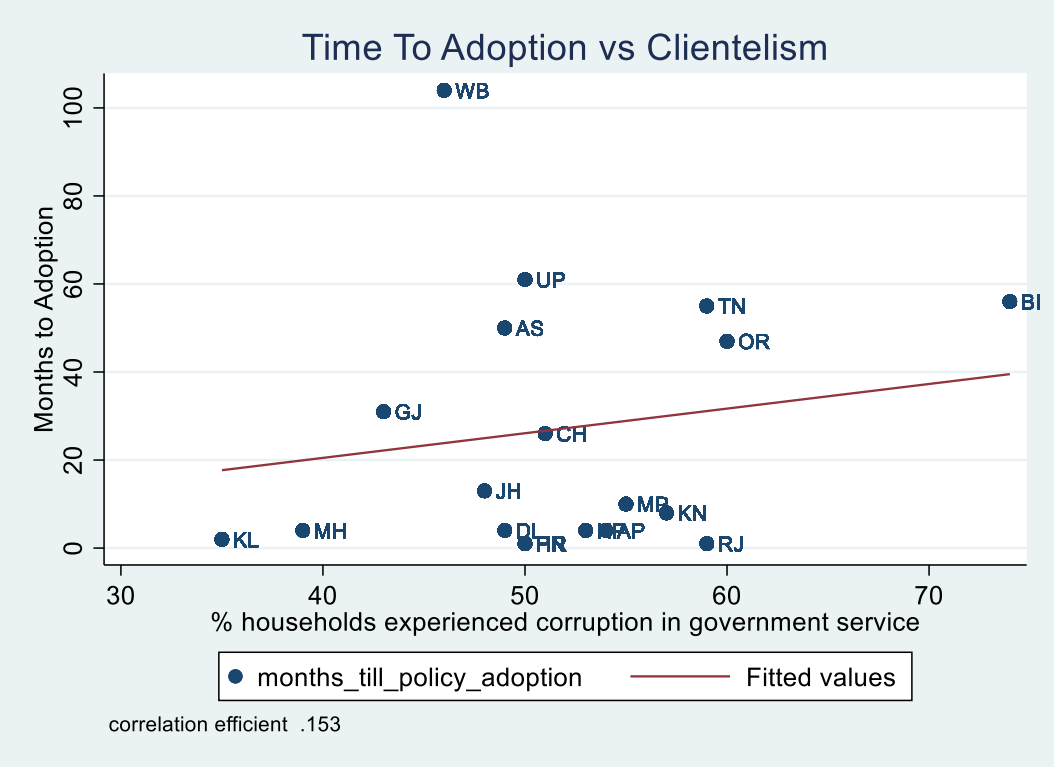


Figure 12 Clientelism and Policy Adoption

The conceptualisation and measurement of political competition varies widely in the political economy literature and measuring competition has been the subject of substantial debate in comparative politics (Weitz-Shapiro 2014). I use the effective number of parties (ENP) in the state legislature, which in India is the primary measure of competition (Bussell 2012) drawn from the work of More et al (2014). I test both Gross and Net ENP, and measures relating to both the last state election and the average of the last three elections.

Similarly, the level of electoral competition in a state does alone not have a statistically significant relationship with policy adoption. Measures of Gross Effective Number of Parties (ENP) in the last state

election along with Net ENP or the number of total parties all have weak explanatory power when it comes to the timing of policy reforms.

The theoretical intuition laid out in Chapter 2 predicts that, all else being equal, states that are co-partisans or coalition allies of the federal government would on average be more likely to adopt anti-corruption reforms that are promoted by national leaders than other incumbents, or to embrace the opportunity to do so earlier. To test this hypothesis empirically, I construct a dichotomous, time-varying measure of what I refer to as **federal-state copartisanship** between incumbents at the federal and state level by coding whether the same party holds power at both levels of government during each month over the period under observation.

From 2012 to May 2014, when the INC held power at the central level, states that were also governed by the INC such as Delhi and Andhra Pradesh would be coded as positive in my copartisanship variable, and negative where an opposition party, such as the BJP or a non-allied regional party was the incumbent at the state level. After the 2014 federal election, the DBT policy was embraced and then aggressively promoted by the BJP party, at which point the INC then distanced itself both from Aadhaar and the biometrically authenticated digital payments program, and the coding for this variable reverses: States that were governed by the BJP are coded as copartisan with the BJP central government, and negative otherwise. Because this variable is coded monthly, it will capture alignment between federal and state level governments, regardless of which party is propagating the reform federally.

The coding for this variable is set out in Table 17 below, and as can be seen, seventeen states implemented the policy when they were co-partisan with the federal government, and nine states (Bihar, Goa, Jharkhand, Madhya Pradesh, Odisha, Pondicherry, Punjab, Tamil Nadu and West Bengal) did so when they were not.

State Name	Date of Policy Announcement	State Government at time of announcement	Federal Government at time of announcement	Coded as federal state co-partisans at time of policy announcement
Andhra Pradesh	January 06 2013	INC	INC	Yes
Arunachal Pradesh	September 17 2016	People's Party of Arunachal	BJP	Yes
Assam	November 26 2016	BJP	BJP	Yes
Bihar	April 03 2017	Janata Dal United in coalition with Rashtriya Janata Dal and INC	BJP	No
Chhattisgarh	November 27 2014	BJP	BJP	Yes
Delhi	January 10 2013	INC	INC	Yes

Goa	April 5 2013	BJP	INC	No
Gujarat	April 17 2015	BJP	BJP	Yes
Haryana	October13 2012	INC	INC	Yes
Himachal Pradesh	January 2013	INC	INC	Yes
Jharkhand	October 03 2013	Jharkhand Mukti Morch	INC	No
Karnataka	May 31 2013	INC	INC	Yes
Kerala	November 28 2012	INC	INC	Yes
Madhya Pradesh	July 26 2013	BJP	INC	No
Maharashtra	January 01 2013	INC	INC	Yes
Manipur	September 20 2017	BJP	BJP	Yes
Meghalaya	March 23 2018	National People's Party/BJP Alliance	BJP	Yes
Odisha	August 11 2016	Biju Janata Dal	BJP	No
Puducherry	January 2013	All India N.R. Congress/BJP Alliance	INC	No
Punjab	October 12 2012	Shiromani Akali Dal/BJP alliance	INC	No
Rajasthan	October 20 2012	INC	INC	Yes
Tamil Nadu	April 1 2017	AIADMK	BJP	No
Tripura	July 26 2018	BJP	BJP	Yes
Uttar Pradesh	October 04 2017	BJP	BJP	Yes
Uttarakhand	July 28 2017	BJP	BJP	Yes
West Bengal	November 23 2019	All India Trinamool Congress.	BJP	No

Table 16 Federal-state copartisanship variable coding

A simple comparison of means suggests that states who were co-partisan with the federal government when they implemented the reform did so on average earlier than states that were not: with aligned states taking on average 29.2 months to announce reform versus 33 months. This is consistent with the theory laid out in Chapter 2, but in many cases, this simple statistic overstates how long it took for reform to occur in aligned states, because a number of states announced reform shortly after power changed hands at either the federal or subnational level. For example, in Uttar Pradesh, reform occurred in October 2017, five years after the first states embraced reform, but six months after the federal and state governments came into alignment, following the election of the BJP in May 2014 at the federal level and March 2017 at the state level.

In the eastern state of West Bengal, the last state to implement reform, Chief Minister Mamata Banerjee has opposed direct benefit transfer, arguing that the federal government ‘should respect the operational autonomy of the states in fiscal matters’ (Business Standard, 2016) and instead requesting that funds from

federal programs be routed through the State government to be disbursed through traditional channels (The Hindu, 2020). West Bengal has been ruled since May 2011 by the All India Trinamool Congress, a centre-left party, and previously by the Communist Party of India, and so was not aligned with the central government at any point during the period under observation. Theoretically, we would expect that it is strategic for the incumbent in this state to resist implementation, and I explore this dynamic in more detail in a case study of West Bengal in Chapter 7.

In three of the non-aligned states (Goa, Pondicherry and Punjab), however, adoption was in the early stages of the period of observation, where incumbents moved quickly to implement reforms. In Goa, for example, a state that has been largely ruled by the Congress Party since independence, the BJP won power in March 2012 and Goa Chief Minister Manohar Parrikar announced that it was mandatory to have Aadhaar cards for availing welfare schemes in April 2013, a year before the BJP won power federally. Goa was also a state with regional parties (Goa People's Congress and Goa Rajiv Congress Party) contested and occasionally won power. In this case, although the state and federal government were not aligned, new subnational administration may have seen an opportunity to disrupt the patronage networks of its predecessors.

Similarly in Puducherry, although the federal government and state government were not aligned, with the All India N.R. Congress, a breakaway party from the INC formed and in power since 2011, the new subnational administration may have seen an opportunity to disrupt the patronage networks of its predecessors. Both of these examples, demonstrate the potential relevance of local networks in the timing of policy reform, which I discuss further below.

State-local copartisanship

In Chapter 2, I argued that if state level politicians share a political affiliation with the brokers and local politicians who have historically controlled regional patronage networks, they may be motivated to preserve these networks by resisting or delaying implementation of the policy, given that resources diverted from welfare programs by brokers or overt politicisation of these programs can be used to support subnational politicians in elections through clientelistic mobilisations of voters (e.g. turnout buying or more direct quid pro quo threat-based exchanges).

I also noted that in India, that unlike the national and state levels of government, local officials (the Sarpanch and gram panchayat members) do not campaign on explicit partisan platforms and party membership is not legally permitted by the 73rd amendment of the Constitution to be signified on the ballot in elections. However, individuals are usually considered to be associated or affiliated with a party, and researchers have documented the central role that parties play in resourcing candidates for gram

panchayat elections. With no known datasets measuring the partisan loyalties of local brokers in each state, I construct three novel variables to proxy for the strength of state-local copartisanship.

First, using the intuition that parties that have been in power for longer are more likely to have developed stronger grassroots networks, I use the length of time in office at the time of policy implementation as a proxy for the intensity of state local networks ('regime duration'). The average period of time subnational incumbents were in power at the time reforms were announced was 67 months, but this masks dramatic variation across states. In Gujarat, for example, the BJP had been in power for 181 months at the time that Chief Minister Anandiben Patel announced the reform, but in the states of Arunachal Pradesh and Himachal Pradesh, reforms were announced by newly elected incumbents who had been voted into office in the last month.

The second proxy I use to measure the strength of state-local copartisanship is the total number of months that regional or ethnic parties have been in power in each state since 1992, twenty years prior to the start of the analysis ('Regional party dominance'). Where a state has a long history of being ruled by a regional or ethnic party that emphasise a subnational identity, such as the Samajwadi Party in Uttar Pradesh, I theorise that implementing a reform that would disintermediate the networks of these actors would be attractive to national parties who cannot appeal to a shared identity, such as the BJP or INC, if they gain power at the subnational level. The intuition underlying this measure is that in states where regional parties have had long stretches in power, incumbents from those parties are likely to have stronger local networks, because they share an ethnic or shared social identity that can be used to mobilise local elites. Subnational leaders in a state like Odisha, for example, where Biju Janata Dal (a regional political party) has been in power since 2000 and won 112 of the 147 seats in the Odisha state elections of 2019, or AIADMK in Tamil Nadu, which has been in power at the state-level since May 2011 could be considered to have a stronger nexus with local patronage networks than in states such as Chhattisgarh or Rajasthan where power has rotated regularly between the two national parties.

The final measure I use is a dichotomous variable coding whether the incumbent at the time of policy announcement is from a party that has never held power in a state before ('first-timer win'). The theoretical intuition underlying this measure is that where the new incumbent is holding power for the first time, we would expect that their local networks could be relatively weak compared to the electoral machinery of parties who have controlled the delivery of public services for some time. An example of a state where this was the case is Maharashtra, where the INC held power since 1947, with the exception of 1995-1999 when a regional party (Shiv Sena) briefly held power. In 2014, a BJP-led coalition won power in the state legislative assembly for the first time on the back of the BJP landslide known as the 'Modi wave' across India. In states like these, we would expect that states with first-time or unexpected winners

who do not have extensive local political machines may be more willing to embrace reforms earlier than long time incumbents.

In bivariate analyses of the relationship between reform timing and the three measures of state-local copartisanship, none of the variables demonstrated a significant relationship with reform timing. As I discuss below, the direction of the impact of co-partisanship variable likely differs depending on the identity of the party in power. For example, in states with a regional party incumbent, and where the regional dominance variable is high, we would expect the timing of reforms to be delayed, but where the regional dominance variable is high, but power now resides in the hands of a national party, we would expect incumbents to embrace reform earlier. An example of this dynamic is the state of Uttar Pradesh, where power rotated between regional parties (the Samajwadi Party and Bahujan Samaj Party) between 2002 and 2017. When the BJP, a national party, were elected in 2017, the newly elected BJP Chief Minister announced within a number of months of being elected the intention to implement the reforms.

Multivariate analyses

In Chapter 2, I outlined three theoretical scenarios regarding the relationship between reform and the political economy variables of interest. In the first scenario, competition or clientelism independently have a strong relationship with reforms outcome. As a preliminary test of the links between pre-existing clientelism, competition and reform at the subnational level in India, I presented some simple bivariate relationships between the policy timing variable and variables of theoretical interest, along with additional economic and demographic indicators to assess whether existing explanations in broader clientelism literature also explain technology reform in India. As was the case in my cross-country analysis, these simple descriptive statistics did not suggest there was evidence to support Scenario 1, namely that competition, clientelism or other variables are capable of independently explaining timing outcomes.

At the cross-country level, I found in Chapter 3 that when clientelism is low, increasing levels of competition are associated with *more* reform. This implies that incumbents see the electoral value of being associated with governance reforms as more valuable than preserving access to clientelistic resources. However, as clientelism increases, increasing levels of competition are associated with *less* reform. This implies that incumbents see the electoral value of being associated with governance reforms as *less* valuable than preserving access to clientelistic resources. Accordingly, consistent with Scenario 2, high levels of political competition do not have a uniform effect on reform. Instead, the incentive to reform when competition is high is negatively correlated with the level of clientelism.

Is this pattern replicated at the subnational level in India, for reform timing? In the multivariate analyses below I find that – similar to my cross-country results - in terms of *announcing* reforms, in states where

clientelism is low, increasing levels of competition are associated with *earlier* reform. However, as clientelism increases, increasing levels of competition are associated with reforms that occur later. These results support the claim that high levels of political competition do not have a uniform effect on reform. Instead, when competition is high, the adoption of policies that improve the ability of governments to serve their citizens directly is negatively correlated with the level of clientelism. Additionally, states which share the party of the central government are on average more likely to announce their reform earlier, implying that what I have called federal-state partisanship matters in addition to competition and clientelism. The strength of local networks does not affect the timing of reform announcement in an aggregate analysis of all states. However, when we compare sub-samples based on the strength of local networks, we see that when subnational incumbents have weak networks, they are more willing to disintermediate local brokers in order to secure the political benefits of aligning with (or opposing) the central government, but when they have control of strong networks that function as important electoral assets, concerns about aligning with their co-partisans at the federal level become less important than preserving their local networks of patronage.

Methodology and data

Because the phenomenon of interest in this chapter is variation in the duration of time that Indian states maintained cash-based government delivery systems, before transitioning to a technology-enabled endpoint, I use event history analysis. I evaluate the relationship between the date in each Indian state when the Chief Minister or another credible political actor announced that payments disbursed pursuant to social welfare programs (such as pensions, food subsidies and cash transfers) would be authenticated and directly deposited into Aadhaar-verified bank accounts, and a range of fixed and time-varying institutional, political and economic state characteristics drawn from the broader clientelism literature and my theoretical framework. The event history analysis utilises a Cox proportional hazards model because the hazard rate for the announcement of DBT policies is expected to change over time since theoretically, there is no reason to assume that it would be constant (Box-Steffensmeier and Jones 2004).

It is important to note that in this empirical design, there is a very real concern omitted variables may bias my results. For example, states with high levels of pre-existing clientelism could be systematically different in terms of the administration of their social protection programs from those with low levels of pre-existing clientelism, for example, because weak institutions (such as the bureaucracy and civil society) might affect both the level of pre-existing clientelism and the probability of welfare system reform. Further, I include 26 of India's 29 states and 7 Union territories, which account for 95 percent of the Indian population in the analyses. Smaller Indian states are often omitted from surveys and data collection efforts (such as Transparency International) as are new states which were created during the

period under observation (such as Telengana), Union territories which are directly governed by the federal government, and those for which data is generally unavailable because of small populations or ongoing conflict (such as Jammu and Kashmir). Some analyses have a smaller n due to the availability of data for the explanatory variables in those regressions, so states where there is no data leave the sample. The policy was eventually adopted in all states in the sample, so observations are not right-censored. However, given the paucity of empirical studies that have sought to explain variation in the use of digital payments for welfare spending at the cross-country level, this analysis will help to understand at a basic level the generalizability of my findings prior to the case study analysis in Chapter 7, and contribute to the accumulating research on the political economy of technology-enabled welfare reforms.

Outcome variable

The primary outcome of interest for my analysis is whether and when state level incumbents adopted the policy to link the disbursement of welfare payments to the Aadhaar biometric authentication and digital payment system in India. As I noted above, to construct the policy timing variable, I searched public newspapers and legislative records for when each state first announced their future intention to implement the reform. For each state in the analysis, I measure the period between the initial start time of the dataset, which for all states is October 2012 (when the first states made formal announcements they would utilise the DBT platform) and the first announcement of reform by a credible actor representing that state's government (in most cases the Chief Minister). The elapsed time between the two points constitutes the survival or duration time for each state.

Although in some states, such as Andhra Pradesh and Karnataka, small pilots of the policy had been directly implemented by the Indian National Congress Party (INC) central government from 2011 onwards, for the purposes of this study, I code the policy adoption variable for each state as the date when the state government publicly announced support for the policy. This captures the signalling of political acceptance (if not actual implementation, which I evaluate separately in the next chapter using program implementation data). Table 17 above provides an overview of the date when each state announced their adoption of the policy, along with the party that was in power both at the state and federal levels at the time of announcement.

It is important to note that my search was limited to announcements that were published in the English language. Although I was able to locate statements or press releases for all states, the outlets I was able to search are skewed towards the English-speaking middleclass, or official government announcements. It is possible that earlier or later communications may have been made in local language publications, but it seems unlikely that the timeline would have differed radically from what was reported in the in the business and political press.

Explanatory and control variables

In addition to the economic development and financial sector development variables that might act as resource or capacity constraints that I used in the bivariate analyses above, I include socio-demographic variables in the multivariate analysis which might influence the attractiveness of broker-based electoral strategies and their monitoring costs. In Table 18 below, I list the indicators used in the analysis, along with year, source and expected signs on each variable. Where the sign is positive, for example on economic development, that indicates that the literature predicts that increases in that variable should be associated with earlier adoptions of the policy, because a state with higher levels of that variable has either greater incentive or capacity to implement the reform. Conversely, if sign is negative, we would expect the coefficient on that variable to be negative.

Variable	Definition	Expected direction of effect	Variation	N	Mean	Std Dev	Source
Policy Initiation (outcome variable)	Duration between October 2012 and date that Chief Minister (or political representative of state) announces intention to adopt policy	N/A	State	26	38 months	21 months	Newspapers, legislative debates.
Electoral Competition	Effective Number of Parties (ENP) in State Level elections from 2012-2017	-	State	26	2.91	0.55	IDFC Institute
Clientelism	Percentage of Households who experienced corruption interacting with Public Service		State (2005 and 2017)	38			Transparency International India 2008
Federal-State Copartisanship	Coded 1 if state and federal government shared the same party in a given month (or are in a coalition at the state level), 0 if not.	+	State and Month	1951	-	-	Analysis of Election Commission of India data
State-Local Copartisanship	The number of months a regional party has been in power over the past ten years in that state	+	State	26	38.5	48.27	Analysis of Election Commission of India data
Economic Development	Log Real Gross State Domestic Product Per Capita	+	State and year	208	80317 rupees	49522 rupees	Reserve Bank of India
Financial Sector Development	Number of commercial bank branches	+	State (2011)	26	12965	6070	Reserve Bank of India
Literacy	Percentage of population who are literate	-	State (2011)	26	76	8	Economic Survey, Office of the Registrar

							General
Population Density	Number of persons per square kilometre	-	State (2011)	26	911	2139	Census Organisation of India
Urbanisation	Percentage of population who live in an urban area		State	26	-	-	Own analysis
Civil society	Log number of NGOs by state		State	26			State-wise NGO Directory, Government of India

Table 17 Summary statistics for multivariate regressions

Results

The hazard model estimates the effect of the explanatory variables upon the amount of time the announcement of direct benefit transfer policy takes to happen across the Indian states. The interpretation of the hazard rates on the theoretical variables of interest fall squarely within the predictions of Scenario 2 in terms of both the direction and statistical significance, and the model results are consistent with the cross-country findings in Chapter 3, namely that the interaction of political competition and pre-existing levels of clientelism influences when incumbents at the subnational level in India will on average announce that they are adopting digital platforms to distribute government spending. The results also support the claim that high levels of political competition do not have a uniform effect on reform. Instead, the incentive to implement reform when competition is high is negatively correlated with the level of clientelism.

I report results in Table 19, first without and then including, an interaction term between clientelism and competition before progressing to multivariate models incorporating first the partisanship variables, and finally the full set of control variables discussed above.

The first column of Table 19 functions broadly as a test of Scenario 1 – the theory that there may be a monotonic relationship between either political competition or clientelism and the timing of reform announcement. The results are consistent with the initial bivariate scatterplots above: both hazard ratios are close to one, indicating the effect of a change in the value of the variable on the probability of a reform being announced in a state would be small, and neither the measure of clientelism nor competition are significant, again suggesting that these variables do not independently explain the timing of reform at the subnational levels, with the caveat that simple bivariate analyses have the potential to be affected by confounding factors.

However, when we introduce the interaction term between competition and clientelism (results shown in in the second column of Table 19), we see that clientelism has a significant relationship with the timing of policy announcement, and that this correlation varies with the level of competition in any given state. The

ratios in in Cox regression relate to hazard; when a hazard ratio exceeds one, this indicates the variable is associated with the event occurring sooner, and conversely a ratio of less than one indicates that the variable is associated a delay in the event occurring. When the interaction term is included in the analysis, the competition variable shows a positive and significant relationship with timing, and the interaction term surfaces the role that political competition and clientelism may play in driving an increased propensity to digitise government entitlements that would not have otherwise have been apparent.

Variable	Model 1	Model 2	Model 3	Model 4
Clientelism	0.99 (-0.40)	1.23* (1.83)	1.41** (2.35)	2.11** (2.15)
Competition	0.99 (-0.27)	1.24** (1.94)	1.33** (2.19)	1.99** (2.13)
Competition*Clientelism		0.99** (-1.93)	0.99** (-1.99)	0.99** (-2.10)
Federal-State Copartisanship			7.71*** (3.15)	16.82** (2.16)
State-Local Copartisanship			0.99 (-1.25)	0.99 (-0.92)
Economic Development				0.05 (-0.33)
Financial Sector Development				1.00 (0.26)
Literacy				0.92 (-0.40)
Population Density				0.99 (-1.31)
Urbanisation				1.23* (1.66)
Civil society				0.00 (-1.50)
Observations	19 (481)	19 (481)	19 (481)	19 (481)
Prob > chi2	0.87	0.06	0.005	0.00

Z-ratios in parentheses *p < 0.05 ** p <0.01 *** p<0.001

Table 18 Estimated Cox Model Hazard Ratios

Where clientelism is low, increasing levels of competition are associated with increases in the hazard rate, meaning that earlier announcements are on average more likely. Contrasting states in these categories anecdotally demonstrates this effect: with low levels of reported clientelism and low competition, having been governed between 1993 and 2018 by one party (the Communist Party of India), Tripura announced their adoption of the policy 70 months after the first states did so, and only after the BJP won power in the

first change of power in 25 years at the subnational level, whereas Kerala, which has low rates of clientelism but is significantly more competitive, was one of the first states to announce reform, after just 2 months.

Returning to the interpretation of column 5.2, the hazard rate on the interaction term is less than one and significant, suggesting that where clientelism is high, increasing levels of competition are associated with announcements that occur on average later, where incumbents delayed or dragged their feet. An example of this effect is the contrast between Madhya Pradesh and Meghalaya: while both have higher levels of reported clientelism, power alternates between parties less frequently in Madhya Pradesh, where the INC was in power for 20 of the 23 years between 1980 and 1983, and the BJP then held power for the next 15 years. Madhya Pradesh was one of the earlier states to announce they would implement direct benefit transfers, less than a year after the first states did so, but Meghalaya – where power rotated between the INC, National People's Party and United Democratic party - was in the final five states, announcing the policy five years later.

When the variables measuring partisanship are included in the analysis, we can see from column 3 that the results from the earlier analysis persist, and the federal-state copartisanship variable is also positive and highly significant. With this variable being dichotomous, we can interpret the result to mean that states who are governed by the same party at the state and federal level on average implement the policy substantially sooner than states who are not, or that when states move from being unaligned to aligned with the federal government (i.e. the same party is in power at both levels), policy adoption becomes more likely.

This is consistent with the theory in the previous chapter which posits that when state level leaders are faced with a decision to implement a reform propagated from the centre, they are likely to weigh potential disciplinary action, a negative effect on their career advancement or other forms of partisan control if they resist. Further, in cases where the state governments have won elections plausibly on the strength of their party at the central level and its key initiatives, this may be judged to be sufficiently critical to success such that chief ministers who are also from the same party and responsible for implementing the policy at the subnational level have incentives to fall in line, because damage to the brand at the federal level from failure of a key initiative may weaken the party's showing in state elections.

This effect is demonstrated most dramatically by the state governments who implemented the policy shortly after becoming co-partisan with the federal government – sometimes in a matter of weeks or months. This occurred both in cases when there was a change in the state government and when the federal government changed from the INC to BJP in May 2014.

In Chhattisgarh, for example, the use of DBT was announced in November 2014, six months after the state and federal governments came into alignment when the BJP won at the national level in May. This was a policy reversal of the BJP controlled state Legislative Assembly's previous position: in December 2012, the state had passed a food security act with chief minister Raman Singh emphasizing that the state would *not* digitise cash transfers in the government food subsidy program. At the time, the Congress opposition members staged a walkout after the resolution was passed and state unit president Nand Kumar Patel had argued that not implementing the cash transfer scheme would encourage hoarding of foodgrains.

Conversely, states such as Tamil Nadu and West Bengal that were *not* aligned with the federal government are examples of politicians who were some of the last to announce DBT reforms, demonstrating the reverse situation, namely that where state-federal copartisanship is absent, incumbents may perceive the opportunity to delay reform as a tactic to stymie and antagonize their opponents at the federal level, as well as preserve their own broker networks. These are both states where the subnational government was not aligned with the federal government at any point since the policy was initially proposed, and where the party could be considered to have strong networks after being in power for a substantial period.

The southern state of Tamil Nadu has been governed since May 2011 (and for long stretches before that) by the All India Anna Dravida Munnetra Kazhagam (AIADMK) party and for years was strongly opposed to any efforts to digitise government payments. The state has written to Prime Minister Narendra Modi objecting to cash transfers multiple times, refused to share its welfare schemes' databases for an experimental matching exercise of its beneficiaries against the Aadhaar database or to comply with an ultimatum to implement central government legislation mandating the use of Aadhaar and end-to-end computerisation of the PDS, as mandated under the National Food Security Act in 2013. Similarly, in the eastern state of West Bengal which has been ruled since May 2011 by the All India Trinamool Congress, a centre-left party, and previously by the Communist Party of India, Chief Minister Mamata Banerjee wrote to the central government requesting for it not to make Aadhaar cards mandatory for those working under social welfare programs, such as NREGA in the state. I explore this dynamic further in a case study of West Bengal in Chapter 7.

While the federal-state copartisanship variable was highly significant in the expected direction, the 'regime duration' variable capturing the links between state-level incumbents and local brokers was not significant. Results for the two additional state-local variables I created ('regional party dominance' and 'first timer win') were also not significantly different from zero.

How do we interpret this result? At first blush, it suggests that the relationship between subnational incumbents and their network of brokers does not influence reform timing, or the indicators that I used are not capable of detecting the influence of the links between subnational incumbents and local elites. As I explained in the previous chapter, although brokers are a key part of the political landscape in India, there are few if any rigorous measures which capture the political affiliations of local actors because of the prohibition on campaigning on party platforms across the state and local levels in India are difficult to construct, given that local politicians are not allowed to campaign on explicitly political (e.g. party-based) platforms and there is little systematic data about the size of broker networks by state available, which makes it difficult to clearly identify when different parties have substantial links at the local level.

However, if large broker networks are considered an asset to the party to whom they are loyal and a threat to the politicians to whom they are not, it is possible that the strength of local networks may have very different effects on reform timing depending on whether the incumbent in that state benefits or is threatened by their existence, and these effects are masked when states with very different state-local dynamics are aggregated together.

In states where subnational incumbents do *not* control or have strong linkages with local networks of brokers (or face rivals who do control these networks), they have a greater incentive to adopt digital benefit transfers, because it represents an opportunity to directly reduce the resources that flow into the hands of their rivals' local networks, so we would expect they would adopt the reform earlier. An example of a state where the incumbent had weak networks during the period under observation is Assam in 2016, where the BJP won power for the first time in the state in the election that year, which some commentators have attributed to the 'Modi Wave' – namely the strength of the BJP party at the national level demonstrated in the 2014 federal election and some state elections subsequently. The BJP state government announced DBT reforms soon after taking power. Conversely, in states where the incumbent has invested in a political machine that it considers to be an electoral asset, they have an incentive to delay reform. An example of a state with strong local networks include is Gujarat, where the BJP (and a splinter group, the Rashtriya Janata Party) has held power continuously at the state level for more than two decades. The state-level BJP government did not announce publicly their embrace of DBT reforms for 31 months after the first states did so.

Are these examples of heterogeneous effects born out in the data? I create a novel combined qualitative measure to categorize whether an incumbent could be considered to have strong or weak local networks at the time they implemented the policy, weighting a party's time in power over the past twenty years and whether they are a regional party or are affiliated with a network of co-ethnic brokers. I set out the coding for each state in the table below.

Strong Local Network	Weak Local Network
Arunachal Pradesh	Andhra Pradesh
Bihar	Assam
Gujarat	Chhattisgarh
Jharkhand	Delhi
Meghalaya	Goa
Odisha	Haryana
Puducherry	Himanchal Pradesh
Punjab	Karnataka
Tamil Nadu	Kerala
West Bengal	Madhya Pradesh
	Maharashtra
	Manipur
	Rajasthan
	Tripura
	Uttar Pradesh

Table 19 Strength of state- local copartisan networks

In purely descriptive terms, incumbents coded as having weak networks at the local level in Table 20 above on average adopt the policy reform sooner than those strong networks: the mean number of months for states where incumbents with weak networks implementing the policy was 26 months compared to 44.5 months for those with strong networks.

Further, when I split the sample and run the multivariate analyses above separately, first only for states where the incumbent has weak local networks, the hazard ratio on the federal-state co-partisanship is large and significant at the 1 percent level, indicating that in states where the incumbent has weak networks, incumbents on average announce reform much sooner when they share the party affiliation of the federal government, compared to when they do not. When this same analysis is run for the sub-sample of states where the state government has strong networks, for example because they have been in power for a long time, the hazard ratio on the federal-state copartisanship variable is no longer statistically significant. One potential interpretation of this result is that when subnational incumbents have weak networks, they are more willing to disintermediate local brokers in order to secure the political benefits of aligning with (or opposing) the central government, but when they have control of strong networks that function as important electoral assets, concerns about aligning with their co-partisans at the federal level become less important than preserving their local networks of patronage.

As a caveat, the sample size for these disaggregated analyses is relatively small (10 states are coded as having strong networks, and 16 states have weak networks), too small for the confidence intervals to be interpreted precisely. However, the effect size observed for states with weak local networks are large, and

we can be more confident that we are observing a meaningful effect. I explore this dynamic by briefly comparing the experience of states with strong and weak networks before a more detailed examination of the role of state-local copartisanship in Chapter 7.

Assam, Uttar Pradesh and Karnataka are three examples of states that were aligned politically at the state and federal level, but had *weak* local networks, and seized the opportunity to disintermediate those potential power bases of rival parties. These can be contrasted with states such as Gujarat and Meghalaya where incentives to reform conflicted: where the state government was aligned with the federal government but also maintains *strong* local networks, and so faces a choice to either align with their national counterparts and disintermediate those networks or maintain their local powerbases at the cost of potentially undermining party leaders at the central level.

Assam is a northern state where the policy was announced on 26 November 2016 by Sarbananda Sonowal, the BJP Chief Minister who had been elected six months earlier, and who headed the first BJP-led government in Assam. Previously, the state had been ruled only by the INC and Asom Gana Parishad (a state political party in Assam) which meant that the BJP introduced a policy in a region where they likely had much weaker networks of local patronage, given their control of the government payment apparatus for the first time.

In the 2008 Transparency International India Corruption Study, 81.4 percent of households in Assam surveyed agreed that there was corruption in the administration of the National Rural Economic Guarantee Scheme, one of the largest state-administered social protection programs in India. This was the highest reported rate of corruption across all states in India, with approximately a quarter of households surveyed reporting that they paid a bribe in order to access the program, which was 10 percentage points higher than any other state. Assam also had the highest rate (68 percent) of households below the poverty line reporting that estimated to have paid a bribe to use one or more of eleven government services. Accordingly, in a state where the governing party is aligned with the federal government, has likely weak local networks because they have not previously had access to the sources of patronage in that state which accompany being in office, and the benefits that accrue to local brokers are high, incentives to implement the policy are aligned.

In this case, Chief Minister Sonowal used language which explicitly referenced an anti-leakage agenda in his announcement, arguing that ‘cashless payment has the potential to root out corruption from the system and citizens must adopt cashless transactions as a way of life’ going so far as to announce a ‘Chief Minister’s Award’ for the best performing district in adopting digital payment methods for government welfare programs.

Another example of a state that moved quickly to implement reform after becoming aligned politically at the state and federal level is Uttar Pradesh, the most populous state in India with 200 million residents where a BJP government came into power on 19 March 2017. The state had been ruled for the previous fifteen years by the Samajwadi Party, a regional organisation, and Bahujan Samaj Party, a centre-left party. Health Minister and government spokesman Sidharth Nath Singh announced in October 2017 that the government in Uttar Pradesh had decided to link all its beneficiary schemes to Aadhaar numbers for transferring subsidies directly to the accounts of the beneficiaries. Is there evidence that the decision to do so related to the disintermediation of brokers aligned to the previous regime?

Journalists in Uttar Pradesh, for example, have documented a recent history of government programs being subject to leakage orchestrated by politicians and local bureaucrats. In 2011, there had been a high-profile scandal where state politicians and bureaucrats were alleged to have diverted substantial funds from the state's National Rural Health Mission (NRHM) funds. In the previous decade, a government program providing food grain to households below the poverty line was the subject of allegations that entitlements from over 30 districts had been siphoned off and sold on the open market, involving hundreds of potentially thousands of government officials from the Regional Food Controller's office and District Rural Development Authority.

These experiences were corroborated by Transparency International that reported 71.9 percent of surveyed households in the state reported that they perceived there was corruption in the administration of the Public Distribution System (PDS) which distributes subsides rice and other food sources to the poor in India, the highest in India. 79 percent reported perceived corruption in the rural employment scheme, the second highest in India only after Assam, almost twice the average level of perceived corruption across all states.

Is there evidence that these diverted entitlements go beyond pocket-lining corruption by intermediaries to quid pro quo clientelism? Dutta (2012) finds evidence in Uttar Pradesh that 'the appropriation of public resources and the dispensation of patronage play an important role in sustaining and nurturing factional politics at the local level'. In his fieldwork, he finds that instead of neutrally devolving funding to the needy sectors of the village, local patrons nurture and rewards local network of supporters and alliances, funded by the brokering and embezzling of funds through the institutions that they control. Similarly, Singh and Hemrajani (2018) reported that in February 2017, a surveyed contractor explained that patrons often allocate tenders and rents to district council members and their families in return for their intermediary services.

With this backdrop, six months after the BJP Party won power in Uttar Pradesh, Health Minister and Government spokesman Sidharth Nath Singh announced in October 2017 that to ensure transparency in distribution of entitlements and stop leakages, the decision had been taken at a cabinet meeting to link all welfare schemes that provided a payment to beneficiaries with the Aadhaar system. 'Once we implement it, we will be able to reach the real beneficiary by weeding out unscrupulous elements' Singh said, referring to the disintermediation of local officials (Daily Pioneer 2017). He also referred to the other benefits of digitisation, namely an electronic audit trail. 'This will also bring in accountability and the government will also get to know how much budgeted fund was distributed to beneficiaries.' I provide a more detailed analysis of reform in Uttar Pradesh in Chapter 7.

A third and similar example is Karnataka, a southwestern state, the policy was announced by Congress Chief Minister Siddaramaiah in May 2013, just weeks after he was elected and the state and federal government were brought into alignment. The BJP and a regional party (Janata Dal Secular) had previously ruled the state since 2004, where 67 percent of the population below the poverty line reported paying a bribe in order to access a government service, which is second only to Assam.

What about in cases where the federal and state governments are drawn from different or opposing parties? Although both the bivariate and multivariate analysis indicated that the central-state effect is very strong, there are multiple cases of states that were *not* aligned with the federal government who *did* implement the policy.

In the case of states where the government in the state legislature has weak local networks, politicians face competing incentives: on one hand, implementing the policy will support the initiative of a party that is a rival at the federal level, however on the other hand, it may be helpful in disintermediating the networks that belong to that rival or another competitor party at the state level. The experience of Goa and Madhya Pradesh are examples of cases where the desire to reduce any electoral advantage that accrues to rivals who may have broker networks who are politicizing or stealing from these schemes at the subnational level dominates the desire not to support the flagship policy of a rival at the national level.

In Goa, the policy was introduced by a BJP state government in April 2013 when the INC were in power nationally. Looking at the history of government in Goa, we see the BJP has governed at the state level only twice in the history of the state, for approximately 5.5 years of the last sixty, with power previously alternating between INC and the Goa People's Congress (a regional party). We also see that perceived corruption in Goa in the administration of government service is extremely high, with the state ranked by Transparency International India as falling in the most corrupt category of states for almost all of the eleven government services surveyed by Transparency. In particular, 70 percent of households surveyed (the second highest in India) reported that they believed there was corruption in the PDS.

In the central state of Madhya Pradesh, it was announced by the BJP-ruled government that Aadhaar would be connected to the state government system for electronically depositing payments for health, housing and education in July 2013, while the INC was still in power federally. This led the media at the time to report that the INC was lamenting the way governments belonging to the BJP have profited politically by successfully implementing Congress-initiated central schemes. Transparency International India also, analogous to the case above, rates Madhya Pradesh as falling within the very highest category of corruption across almost all eleven government services, including the delivery of food and subsidies through the PDS. Given that in the 23 years between 9 June 1980 and December 2003, the INC held power for 20 of those years, this also would appear to be a case where a non-aligned state at the federal level has chosen to implement the policy in order to garner electoral advantage: both by disintermediating the networks of its rivals and also signalling that it is taking action to combat corruption in a state that was known for inefficient and leaky service delivery.

In both the Assam and Uttar Pradesh examples above, the state government did not need to make a trade-off between partisanship at the federal and local levels. What about cases where the state government is aligned with the federal government, but has networks at the local level that will be disintermediated if the policy is implemented?

In Gujarat, for example, the BJP has won a majority of seats in the last six state and eight federal elections and has built up a powerful machine of local party activists. Shah (1991) argued that in contrast to the other parties' organisational weakness 'the BJP has built up its organisation and support through sustained effort both on secular and communal lines since the end of the 60s'. Chhibber (2014) points out that the number of active BJP vote mobilisers in Gujarat continues to grow, being higher in 2014 than it was in 2004. In addition to its political dominance, it has been argued that the BJP in Gujarat derives some of its organisational strength from its ties with powerful regional political organisations such as the Sangh Parivar, a Hindu-nationalist group which serves as a conduit for citizens to gain access to politicians and public services, especially in poor areas, and also operates as an important brokerage network for the BJP (Berenschot and Bagchi 2019).

In such a scenario, why would subnational politicians implement the policy, and potentially risk disintermediating these local brokers both from the flow of government funds and reduce their ability to politicise and claim credit for government social programs in the eyes of voters?

In the TII-CMS 2008 Corruption Study, Gujarat was rated as falling in the second lowest of four categories of perceived corruption across all government services, as well as for both the Public Distribution Service and Employment Guarantee programs. Also, Gujarat is classified as having low

levels of electoral competition, with the lowest state-level ENP (a measure of electoral competition) over the period 1996-2014 in India (More, Trivedi 2018). Accordingly, given reported levels of corruption in government administration of welfare are relatively low, we could infer that the quantum of resources being pilfered from welfare schemes by local brokers that would be reduced by digitisation initiatives is also low, and so is not a major source of electoral advantage for the BJP as the incumbent. Further, given that electoral competition is also relatively very low, the adoption of the policy by Gujarat is consistent with my theory that incumbents from parties who have enjoyed long tenures in government in their state, being relatively unconcerned about rivalries with other parties, may choose to align with the central government if they share the same party. Finally, because Aadhaar-enabled government payments is a policy associated in particular with the Prime Minister Narendra Modi, who was formerly the Chief Minister of Gujarat, the pressure to align with the central government may be particularly strong.

Conversely, in the state of Meghalaya, implementing biometrically authenticated government payments was resisted by the Congress state government which was in power from May 2009 to March 2018, with Chief Minister Mukul Sangma saying in 2017 that he is yet to enrol himself for Aadhaar. Despite being aligned federally with the INC government which was in power until May 2014, why did the INC incumbent fail to announce their support for the policy, like other INC-run states like Kerala and Maharashtra? Examining the levels of competition and corruption in the state, we can see that Meghalaya is rated by Transparency International India as falling in the second highest corruption category overall, as well as for perceived corruption in the PDS. It is also rated as having the second highest level of ENP in the last state election by More, Trivedi et al (2018). Accordingly, consistent with my empirical results, the policy was not implemented in a competitive electoral landscape where the incumbent may be benefiting from leakage from government programs, and that concerns related to subnational partisanship dominated the incentive to align with the federal government.

However, when the BJP-supported National People's Party came to power in Meghalaya on 6 March 2018, the new Chief Minister made a speech less than a few weeks later supporting the implementation of the policy to curtail this electoral advantage, noting that the DBT mechanism 'ensures electronic transfer of funds directly to the bank account of the beneficiaries, thereby, curbing pilferage and duplication'.

Moving back to the full multivariate analyses, when I add the full list of explanatory variables to these restricted models, the results above continue to hold. With the exception of the level of urbanisation, none of the socioeconomic, demographic, or other variables proxying for alternate explanations for transitions to programmatic politics, such as the role of NGOs, media or existing infrastructure can explain variation across states in policy timing, with hazard ratios not significantly different from zero. This suggests that contrary to the modernisation narrative of reform, the driver of the policy adoption is likely not the level

of economic development. Similarly, supply-side factors which may have been thought to condition the ability of governments to effectively digitise their payments, such as financial sector sophistication or the size of the state, do not appear to have explanatory power over reform outcomes. Nor does the influence of other factors identified in the literature on transitions to programmatic politics of civil society organisations or literacy.

The level of urbanisation is positive and significant, albeit only at the 10 percent level. This result is consistent with the findings of other scholars such as Stokes et al (2013) who posit that brokers who operate in dense, urban areas with large electorates may be less effective in marshalling votes for their political masters, because they have more difficulty observing the political preferences of voters and compared to a rural environment where the state is more distant and complex to interact with directly and citizens may be more dependent on political brokers to access entitlements, politicians may feel more comfortable disintermediating them through policies that distribute benefits directly to citizens.

Conclusion

As I have outlined in earlier chapters, a large literature documents cases across developing countries where politicians maintain power thorough clientelist strategies that rely on the use of local brokers in contexts where they play a central role in distributing social spending. The broader scholarship on clientelism emphasises macroeconomic and structural changes in a country - such as poverty levels, urbanisation, increased voter wealth, literacy and the growth of the middle class – to explain the demise of these political machines and shifts to programmatic governance (Stokes, Dunning et al. 2013). This literature has few studies, however, examining the adoption of *specific policies and reforms* designed and enacted to reduce the influence of patronage politics within the distribution of government benefits and services, and the studies that do exist point to linear or monotonic relationships between the propensity of reform and political factors such as pre-existing levels of clientelistic behaviour or political competition.

This is the backdrop against which I found in this chapter, as was the case in the cross-country analysis, a more nuanced picture of reform timing. The model results are consistent with the cross-country findings in Chapter 3, namely that the interaction of political competition and pre-existing levels of clientelism influences when incumbents at the subnational level in India will on average announce that they are adopting financial technology reforms. The results also support the claim that high levels of political competition or clientelism do not have a uniform effect on reform. Instead, the incentive to implement reform when competition is high is negatively correlated with the level of clientelism. The lack of significance of the theoretical variables of interest without the inclusion of the interaction term, suggests that neither pre-existing levels of clientelism or competition alone are compelling explanations for when

and why incumbents announce transitions to digital authentication and payment systems. I do not find that the structural variables identified in the clientelism literature significantly influence timing.

Secondly, despite the fact that in large federal countries such as India, Brazil and Nigeria, subnational units of government are the key players in the administration of social spending budgets, the role of intergovernmental politics and partisanship has been an under-investigated source of potential variation in the adoption of anti-governance reforms, both in India and more broadly. Comparative studies of clientelism largely focus on the relationship between politicians, brokers and poor voters (Weitz-Shapiro 2014). This chapter highlighted the central role of partisanship across levels of government in conditioning the decisions of subnational governments when considering whether to adopt a reform to digitise government payments, and in doing so, disintermediate local politicians, brokers and actors from the administration of government programs and payments.

Sugiyama and Hunter (2013) argue that 'it is especially challenging to ensure clean social provisioning in large countries where federal authorities oversee programs that require local cooperation'. I provided preliminary evidence that interactions between political actors at the local, state and national level can indeed influence whether and when state-level politicians announce reforms that stem corrupt leakage from welfare systems, with this decision appearing to be a trade-off between aligning with reformist governments at the national level and disintermediating their own networks of patronage at the local level. State leaders appear to be heavily influenced by the partisan identity of the federal government, and in cases where state and federal leaders share the same party, there is a strong likelihood that subnational leaders will either announce or delay flagship initiatives based on whether they are co-partisans. The empirical setup of this analysis, where the identity of the party propagating DBT reforms at the federal level changes from the INC to the BJP during the period of analysis, creates opportunities to observe how changes in alignment affect reform timing. There is a clear pattern whereby states that are ruled by the INC at the state level prior to the federal election on 26 May 2014 (when the INC was the incumbent at the federal level), or states that were ruled by the BJP at the state level after 26 May 2014 (when the BJP governed at the federal level and aggressively promoted the policy) were on average more likely to adopt the policy earlier than states whose governments did not share the party of the federal government.

Further, alignment at the federal and state levels is not the full story: state level politicians must negotiate a multilevel set of incentives and political dynamics. In cases where corruption and competition are high, even states that are aligned with the federal government may delay embracing digital authentication and payment systems. As was suggested by some of the brief state-level vignettes, higher levels of competition may create stronger incentives to preserve access to patronage and clientelism because the votes that corrupt practices can provide become relatively more valuable in competitive electoral

environments, and incumbents may resist reforms that would deprive their local allies of funds that they could use in clientelistic bargaining exchanges with voters. Where incumbents have larger and more established local brokerage networks relative to opposition parties who have had lesser access to the levers of patronage, the results suggest they have an incentive to maintain a policy that supports this source of electoral advantage, even if they are aligned with the federal government. Conversely, politicians who are otherwise motivated to resist the policy because they do not share the party of the central government may be attracted to the possibility of disrupting the ability of their rivals to fundraise.

Although these initial empirical results suggest that - despite the emphasis on macroeconomic and structural factors in the clientelism literature - politics matters when it comes to the timing in announcements of policies to improve state performance using technology-enabled payments, timing is only one piece of the reform process. In the next chapter, I examine variations in the extent of reform *implementation*, which may shed light on whether different factors influence when politicians publicly announce their embrace of digital platforms – and when they actually take steps to disintermediate brokers using digital platforms.

Specifically, although the timing of announcements may be politically valuable when an incumbent is hoping to achieve a governance boost prior to an election or capitalize on the popularity of its co-partisans at the federal level (or conversely, attempt to act as a spoiler when it is from a different party to the federal government), the extent to which the reform is implemented in practice may point to different and contradictory motivations for reform, especially where a subnational government faced conflicting incentives to disintermediate a loyal machine. For example, in a state where a subnational incumbent had cultivated extensive networks of patronage at the local level but faced pressure or an incentive to disintermediate those networks from above, an early announcement that the state would transition to DBT platforms but a delay in actual implementation would be politically expedient. An analysis of the extent of reform implementation, in addition to reform timing, contributes an additional dimension to the picture of how and when policy change happens.

Chapter 6: Subnational Analysis of Reform Implementation

When do subnational politicians implement policies that disintermediate their local broker networks in the distribution of government entitlements, and what factors influence this decision? In Chapter 4, I extended the theory centred on the interaction between political competition and clientelism to include dimensions of intergovernmental partisanship and in Chapter 5, I demonstrated that the timing of direct benefit transfer announcements was not uniform across the Indian states, with some incumbents seizing the opportunity to announce their support for a reform which removed the physical distribution of government entitlements from local brokers and party apparatchiks, while others delayed, in some cases for years after the opportunity to utilise digital platforms because available.

In the empirical analyses to understand what influenced reform timing at the subnational level, I established that while neither existing clientelism nor political competition have a linear relationship with reform, the interaction of these two forces has explanatory power, with high levels of clientelism and competition on average associated with a slower rate of adoption, consistent with Scenario 2. Further, there was limited evidence that alternative explanations, such as levels of economic and financial development, literacy or lobbying by NGOs, were key forces in prompting incumbents to switch from cash and in-kind benefits to digital alternatives.

Those analyses dealt with the *timing* of reforms, specifically when incumbents announced that they would implement direct benefit transfer systems in their state, which are a key first step in the implementation of the reform. In this chapter, I assess the extent to which the announced reforms were *actually implemented*, what factors explain variation in reform outcomes and to what extent these are consistent with my previous findings. I begin by analysing patterns of variation in implementation of the direct benefit reform across the Indian states. Following my approach in earlier chapters, I then present some brief bivariate relationships between pre-existing clientelism, competition and implementation outcomes along with measures that proxy for competing explanations. I then use multivariate analyses that evaluate my hypotheses in full and compare the findings on reform timing and implementation.

These results are consistent with some elements of the findings in earlier chapters, but also differ in some important ways. The results reinforce that there is limited evidence that alternative explanations, such as the modernisation hypothesis which predicts that increased levels of economic development are key forces in prompting reform, or the influence of domestic advocates are drivers of digital authentication and payment systems adoption and use.

However, while pre-existing clientelism continues to exert influence over reform outcomes when it comes to implementation of the DBT policy, unlike in the previous chapter, where the interaction term between

competition and clientelism that was significant, indicating that the incentive to reform when competition is high varies with the level of clientelism, when it comes to implementation, pre-existing clientelism has linear, negative relationship with reform. Additionally, political competition does not exert an independent relationship, suggesting that when it comes to implementation, incumbents in states where clientelism has been more prevalent are less likely to implement reform, regardless of the level of electoral challenge that they face. But partisanship continues to have an impact, with co-partisanship with the federal government associated with more extensive implementation of reforms. Stronger links with local broker networks are also significant, but the effect size is small.

The chapter ends with an illustrative discussion of how the forces of partisanship and clientelism have played out to spur or delay reform implementation across a variety of states and reconciles the empirical findings of this chapter both with my cross-country findings in Chapter 3 and analysis of subnational policy timing in Chapter 5, prior to a deeper, qualitative analysis of the subnation reform process through a set of case studies in the next chapter.

Subnational variation in reform implementation

Although digital benefit transfer has now become a prominent feature of the central government's delivery system of entitlements to its citizens, with 312 programs from 53 Ministries delivered digitally to citizens in 2019 (Government of India Website, 2019) there is wide variation in the extent to which the Indian states have acted on their initial announcements that they would utilise direct benefit transfer in the delivery of entitlements to citizens. For example, states differ in terms of the number of departments who use digital platforms to deliver payments to citizens, as well as the number of social protection programs that utilise these platforms.

The state of Gujarat, for example, reported that at the end of 2019 that 253 state level programs utilised direct benefit transfer, the most of any Indian state. This was followed by 242 programs in Karnataka, and 221 programs in Uttarakhand. Conversely, zero programs in West Bengal had been reported as being digitally delivered (Government of India, DBT Portal 2019).

Similarly, states varied in how widely across the machinery of government the DBT technology was used. In Karnataka, 32 government departments reported that they were digitally delivering payments into the accounts of citizens, versus 11 in Kerala and Maharashtra and zero in West Bengal. Table 21 provides an overview of the variation across states in terms of the number of programs that were reported to utilise DBT delivery mechanism and the number of departments that did so at the end of 2019.

State	Number of Schemes delivered using DBT	Number of Departments using DBT
Andhra Pradesh	125	17
Arunachal Pradesh	102	19
Assam	97	17
Bihar	139	26
Chhattisgarh	172	25
Delhi	73	12
Goa	161	18
Gujarat	253	20
Haryana	135	19
Himachal Pradesh	164	16
Jharkhand	137	17
Karnataka	242	32
Kerala	59	11
Madhya Pradesh	147	23
Maharashtra	83	11
Manipur	77	15
Meghalaya	82	13
Odisha	72	20
Puducherry	89	20
Punjab	137	17
Rajasthan	70	22
Tamil Nadu	108	20
Tripura	140	22
Uttar Pradesh	152	29
Uttarakhand	221	22
West Bengal	0	0

Table 20 DBT Implementation by State Adoption by State

The states also varied in the extent to which they had developed the bureaucratic infrastructure needed to digitise and deliver benefits to citizens, such as passing the legislation needed to govern the use of identity information in the service delivery process. The central government 'in the spirit of competitive federalism' developed a methodology to score and rank states based on their performance in 2019 on parameters like Aadhaar saturation, data reporting, savings-expenditure ratio and volumes of DBT payments per capita (Reserve Bank of India, 2020), which provides a means by which to assess the extent to which states acted to implement the reforms that they earlier announced. The methodology for scoring states which is published by DBT Bharat, a federal government agency, comprises indicators which are relatively neutral (such as whether states reported data, passed legislation or not), but one possibility that

cannot be discounted is that states that were co-partisan with the federal government received more favourable ranking scores because of that affiliation.

Haryana tops this list, having implemented a State Aadhaar Act and with high levels of Aadhaar saturation, regular data reporting and a normalised DBT per capita score of 55.1. West Bengal, with no State Aadhar Act, failing to comply with reporting and data requirements and a very low DBT per capita score ranks last. In Table 22, I report the state rankings at the end of December, 2019. A higher score and a lower ranking indicates more extensive reforms. In the third column of the table, I include reform timing data from the previous chapter, namely the number of months it took after the first states announced reform for that state to do so.

State	2019 Implementation Ranking	2019 Implementation score	Months to Announcement
Haryana	1	88.8	1
Uttar Pradesh	2	85.2	57
Tripura	3	80.2	70
Gujarat	4	77.8	31
Uttarakhand	5	74.3	61
Jharkhand	6	73.1	13
Goa	7	69.4	7
Bihar	9	67.6	56
Madhya Pradesh	10	66.9	10
Puducherry	11	65.3	4
Odisha	12	63.3	47
Himachal Pradesh	14	60.7	4
Punjab	15	59.9	1
Tamil Nadu	16	59.3	55
Delhi	17	58.5	4
Rajasthan	18	57.5	1
Andhra Pradesh	19	54.9	4
Manipur	20	54.8	60
Kerala	21	53.8	2
Chhattisgarh	22	52.9	26
Karnataka	25	49.1	8
Maharashtra	26	48.4	4
Meghalaya	27	46.6	66
Arunachal Pradesh	31	39.9	48
Assam	35	26.4	50
West Bengal	36	13.2	104

Table 21 Extent of DBT Implementation by State

Contrasting the timing of announcements with the extent of implementation, we see that broadly speaking, many of the states which were amongst the last to announce they would utilise direct benefit transfer have also made the weakest efforts in terms of implementation. West Bengal, which was the last state to announce the reform, ranked 36th from 36 states in terms of implementation. Assam, which was also one of the later states to announce reform (after four years) ranked 35 out of 36 states and Arunachal Pradesh, which adopted the reform 2 months earlier than Assam, was ranked 31st.

Similarly, some of the states that were earliest to announce that they would implement reform have also made the greatest strides in terms of implementation. Haryana, which was one of the very first states to announce reform, also ranked first in terms of implementation. Others, such as Uttar Pradesh and Tripura, were some of the last states to announce reform, but did so shortly after changes in power at the state level, and were some of the strongest implementers, ranked second and third respectively, which is consistent with a narrative that they saw direct benefit transfer reforms as an effective way to disintermediate the broker networks of their predecessors.

Contrary to the predictions of modernisation theory, economic development does not appear to drive variation in the extent to which states use DBT platforms to distribute entitlements, with Figure 13 plotting the weak bivariate relationship between economic development and 2019 DBT implementation score.

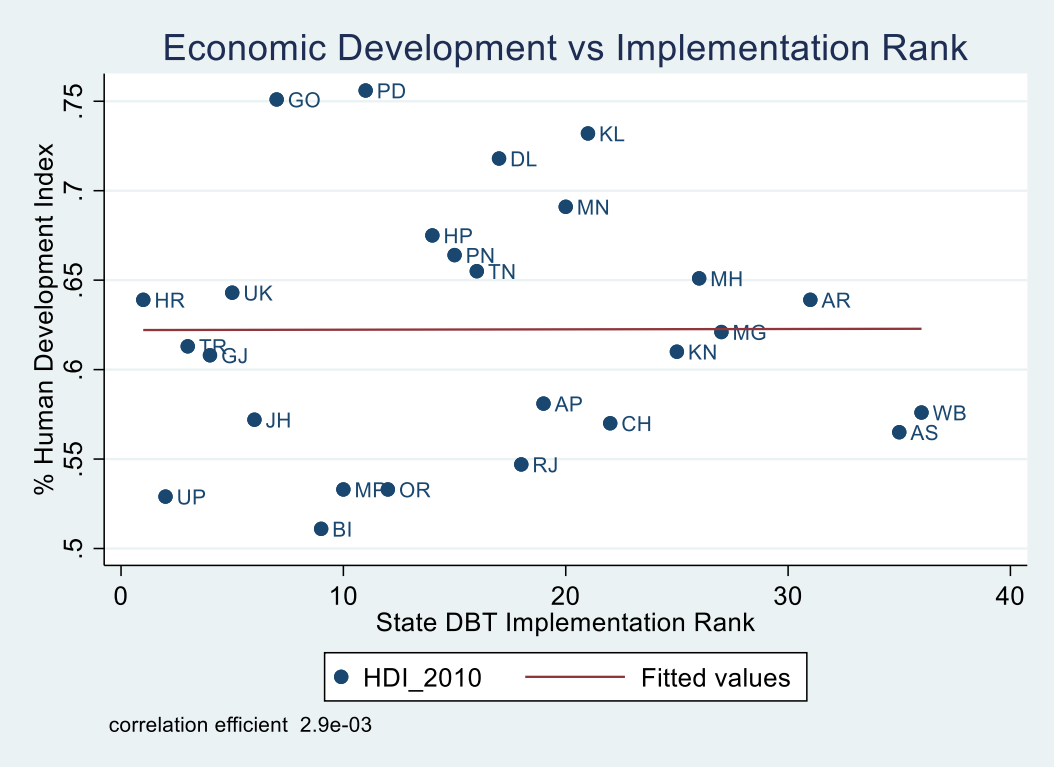


Figure 13 Economic Development and DBT Implementation

To evaluate the influence of the variables of theoretical interest on the extent to which states utilise digital platforms to deliver social program payments (such as pensions, food subsidies and cash transfers) to beneficiaries, as summarised in their rank and overall implementation score at the end of 2019, and test other potential explanatory factors identified from the literature on transitions to programmatic politics, I use multivariate models. It is important to note that while we can attempt to control for variables that may influence the rate of reform, such as economic development and technological sophistication across the states, as there was in the event history analysis, there is a very real concern omitted variables may bias my results.

It has been noted that for smaller sample quantitative analyses, the results from linear regression and OLS models should be interpreted with caution given the potential for findings to be overly influenced by outliers (Bussell 2012). However, given the paucity of empirical studies that have sought to explain variation in the use of digital payments for welfare spending at the subnational level, the results that follow have utility primarily in suggesting potential drivers of this variation, that can then be explored in more detail through case studies in the next chapter, and collectively contribute to the accumulating research on the political economy of technology-enabled welfare reforms.

Results

The model results are presented in the tables below. The outcome variable in Table 24 and 25 are the state overall score and rank, respectively, from the Government of India's DBT implementation analysis based on state performance at the end of 2019, which is a composite of eight criteria including volume of DBT payments per capita, and whether states have put in place the enabling infrastructure for digital payments such as the relevant legislation, the extent to which citizens are able to digitally authenticate their identity and data reporting.

I report results first without and then including, an interaction term between the clientelism and competition variables before progressing to multivariate models incorporating first the partisanship variables, and finally the full set of control variables discussed above. The first column of Table 24 functions broadly as a test of Scenario 1– the theory that there may be a monotonic relationship between either political competition or clientelism and the extent of DBT reform. The results are consistent with the initial bivariate scatterplots above: neither the measure of clientelism nor competition are initially significant, with the caveat that simple bivariate analyses have the potential to be affected by confounding factors. Similarly, when we introduce the interaction term between competition and clientelism (results shown in in the second column of Table 24), no variable demonstrates a significant relationship with the extent of DBT reform implementation.

When the co-partisanship variables are included in the analysis (column 3), we see that the Federal-State Copartisanship variable has a positive and statistically significant relationship with the extent of reform: states that share the partisan identity of the federal government are on average more likely to have a higher score, meaning they have made more extensive efforts to utilise digital platforms to deliver entitlements to beneficiaries.

In the previous chapter, we found that the federal-state copartisanship variable had a positive and highly significant relationship with reform announcement *timing*: states who were governed by the same party at the state and federal level on average announced the policy sooner than states who were not. This was consistent with examples of states such as Assam, Chhattisgarh and Karnataka that announced they would adopt digital payments shortly after the states moved from being unaligned to aligned with the federal government, with variables that change more slowly over time, such as economic development and literacy, effectively being held constant.

From a review of Table 23 it can be seen that of 9 of the top 10 implementation scores are held by states that were governed by the same party at the subnational and federal levels at the end of 2018, that is they were BJP-governed states at a time the BJP held power federally, which suggests that imperatives created by co-partisanship go beyond timing of reform announcements to implementation as well.

Co-Partisan States (2018)	Implementation Ranking (2019)	Not Co-Partisan (2018)	Implementation Ranking (2019)
Haryana	1	Puducherry	11
Uttar Pradesh	2	Odisha	12
Tripura	3	Punjab	15
Gujarat	4	Tamil Nadu	16
Uttarakhand	5	Delhi	17
Jharkhand	6	Andhra Pradesh	19
Goa	7	Kerala	21
Bihar	9	Chhattisgarh	22
Madhya Pradesh	10	Karnataka	25
Himachal Pradesh	14	Telangana	34
Rajasthan	18	West Bengal	36
Manipur	20	Mizoram	13
Maharashtra	26		
Meghalaya	27		
Arunachal Pradesh	31		
Assam	35		

Table 22 Implementation ranking by partisanship status

A number of small states received rankings but are not included in the other analyses I conduct, because they are excluded from almost all datasets on account of being either directly governed Union Territories, having very small populations or because of conflict. These are Lakshadweep, Daman and Diu, Dadra and Nagar Haveli, Chandigarh, Andaman and Nicobar Islands, Sikkim, Nagaland, Jammu and Kashmir.

Across both DBT reform timing in the previous chapter then and the results below, this variable remains positive and highly significant: states that are aligned with the federal government both announce and implement digital technologies that disintermediate local brokers on average earlier and more extensively than those that are not. This is consistent with the theory in Chapter 4 which posits that when state level leaders are faced with a decision to implement a reform propagated from the centre, they are likely to weigh potential disciplinary action, a negative effect on their career advancement or other forms of partisan control if they resist.

Turning to the complete model, when all control variables are included in the analysis, the Federal-State Copartisanship variable remains significant, emphasizing the role that political alignment with the federal government plays in influencing subnational incumbent decisions over policy reform. The State-Local Copartisanship variable (regional party tenure) is also significant and in the expected direction. As the length of time that regional parties have held power in a state increases, it is on average more likely that

states will have a higher implementation score, although the effect size is relatively small. These results are replicated across both outcome variables.

We see that clientelism has a negative and significant relationship with reform implementation: states with higher reported rates of intermediaries extracting bribes on average have lower scores, implying that they have delayed or made weaker efforts to implement DBT reforms, a finding that is consistent with Bussell (2012) who found that the Indian states where levels of corruption were highest made the least effort to offer citizens services through one-stop shop government service centres, and automated their operations to a lesser extent, preserving access to corrupt rents. She argued that 'because eGovernment service reforms can increase transparency in basic delivery of services to citizens, politicians in countries with established institutions of corruption that may be disrupted by increased transparency in service delivery should be more likely to resist service reforms than their counterparts in less corrupt countries' which is consistent with my results below.

Variable	Model 1	Model 2	Model 3	Model 4
Clientelism	-0.77 (-0.92)	3.37 (0.77)	-1.02 (-1.21)	-1.87* (-1.95)
Competition	-1.002 (-0.39)	4.99 (0.74)	-2.97 (-1.12)	-4.01 (-1.45)
Competition*Clientelism		-0.99 (-0.96)		
Federal-State Copartisanship			12.28* (1.82)	18.97** (2.46)
State-Local Copartisanship			0.09 (1.60)	0.155** (2.20)
Economic Development				-122.8 (-0.95)
Financial Sector Development				.001 (0.62)
Literacy				0.75 (0.96)
Population Density				-.00 (-0.01)
Urbanisation				.49 (1.22)
Civil society				-12.4 (-0.95)
Observations	26	26	26	26
R	0.04	0.07	0.27	0.44

OLS regression coefficients with t-ratios in parentheses. *p < 0.05 ** p <0.01 *** p<0.001

Table 23 Subnational DBT reform implementation (state overall score).

Unlike in the previous chapter, or the cross-country analysis in Chapter 3, political competition does not exert a significant effect on the extent of DBT reform at the subnational level in India, in either model or through the interaction term. How do we interpret this finding? When it comes to both reform timing and implementation, incumbents in states where clientelism is more prevalent are on average more likely to drag their feet when it comes to utilising digital systems to disintermediate local broker networks. The incentive to do so may be heightened in competitive environments when it comes to reform timing, because announcing the use of DBT systems is a clear signal to their networks of patronage that the government is prepared to disintermediate their local brokers, which may cause brokers to defect or exert less effort to mobilise voters at the time and in the settings when and where the government most need their support.

This is supported by patterns of announcement timing where reform was not announced in a number of high-clientelism, highly competitive states until after an election where power changed hands, implying that the previous administration delayed announcing reform up to and through election campaigns. When it comes to reform implementation though, once an announcement that a state will utilise DBT platforms has been made, the extent to which an incumbent will migrate payments from intermediaries and physical distribution channels to digital systems is more influenced by the size of opportunity to extract rents (by the level of clientelism) and partisan imperatives at the state-federal level.

Turning to the control variables in the full model, we see that none of the socioeconomic, demographic, or other variables proxying for alternate explanations for transitions to programmatic politics, such as the role of NGOs, media or existing infrastructure can explain variation across states in policy implementation. Unlike in the previous chapter, urbanisation is not significant. One explanation for this is that more voters in regions with highly urbanised populations may be more receptive to political campaigns emphasizing an anti-corruption agenda, and so politicians may be more likely on average to announce reforms in those states, but there is divergence between campaign promises and execution of those promises, and incumbents are not more likely to effect reform in states that are more urbanised.

Variable	Model 1	Model 2	Model 3	Model 4
Clientelism	0.42 (0.84)	-1.37 (-0.52)	0.56 (1.10)	1.11* (1.91)
Competition	0.77 (0.50)	-1.81 (-0.44)	1.9 (1.18)	2.52 (1.51)
Competition*Clientelism		0.43 (0.69)		
Federal-State Copartisanship			-6.8 (-1.66)	-10.54** (-2.26)
State-Local Copartisanship			-0.05	(-.09)**

			(-1.51)	-2.24
Economic Development				104.8 (1.35)
Financial Sector Development				-0.001 (-0.44)
Literacy				-0.61 (-1.30)
Population Density				0.0001 (0.12)
Urbanisation				-0.32 (-1.32)
Civil society				6.76 (0.86)
Observations	26	26	26	26
R	0.03	0.06	0.19	0.43

OLS regression coefficients with t-ratios in parentheses. *p < 0.05 ** p <0.01 *** p<0.001

Table 24 Subnational DBT reform implementation (state rank).

This suggests that contrary to the modernisation narrative of reform, the driver of the policy adoption and implementation are likely not capacity constraints or voter preferences related to the level of economic development. Similarly, supply-side factors which may have been thought to condition the ability of governments to effectively digitise their payments, such as financial sector sophistication or the size of the state, do not appear to have explanatory power over reform outcomes. Nor does the influence of other factors identified in the literature on transitions to programmatic politics of civil society organisations or literacy.

To what extent are these findings consistent with the empirical results of earlier chapters? In Chapter 3, I found that in a cross-country analysis, conditional on high pre-existing clientelism, incentives to improve the capacity of governments to digital deliver entitlements to citizens decreases as competition increases. In Chapter 5, I found consistent results at the subnational level in India when it comes to the timing of reform announcements: the incentive to share intentions to use digital infrastructure when competition is high is negatively correlated with the level of clientelism. Additionally, states which share the party of the central government are on average more likely to announce their reform earlier, implying that what I have called federal-state partisanship matters in addition to competition and clientelism.

In this chapter, where I extended my analysis to reform implementation, I found that clientelism has a negative and significant relationship with reform implementation: states with higher reported rates of intermediaries extracting bribes on average have lower scores, implying that they have delayed or made weaker efforts to implement DBT reforms. Additionally, and similar to the analysis regarding timing, states that share the partisan identity of the federal government are on average more likely to have a

higher score, meaning they have made more extensive efforts to utilise digital platforms to deliver entitlements to beneficiaries.

My findings on cross-country reform and subnational reform timing in Chapters 3 and 5 respectively, then, are consistent with Scenario 2, and the interaction effects that were observed at the national level in my cross-country analysis are also influential at the subnational level when it comes to reform timing.

The results on subnational reform *implementation,* however, partially resemble Scenario 1, with corruption demonstrating a negative and significant relationship with reform implementation: states with higher reported rates of intermediaries extracting bribes have on average have lower scores, implying that they have delayed or made weaker efforts to implement DBT reforms. Potentially, and as was argued by Bussell (2012), when it comes to actual reform and the loss of rents at the subnational level, histories of clientelism dominate the political imperatives imposed by corruption.

Across both Chapters 5 and 6, however, states that share the partisan identity of the federal government made earlier and more extensive efforts to utilise digital platforms to deliver entitlements to beneficiaries, clearly demonstrating that intergovernmental politics matters when it comes to reforms to disintermediate local brokers and improve service delivery to citizens.

These findings characterise the overall or average experiences of states. In the next chapter, I provide a more detailed examination of how the costs and benefits of reform faced by incumbents were reported during the period when they faced a decision on when and to what extent to implement the reform and to what extent these are consistent with my theoretical predictions. Specifically, I explore the political and economic circumstances surrounding these states' reforms review what incentives are created by the levels of competition, traditions of clientelism, local and intergovernmental dynamics, and in this context, whether the benefits of reform exceed costs (as conditioned by the interaction between pre-existing clientelism and rents) and lead to reform or delay.

Chapter 7: Case Studies

In this chapter, I present three subnational case studies which complement the empirical analysis in Chapters 5 and 6. I review the trajectories of three states which varied substantially along timing and implementation dimensions: Goa, which in 2013 was one of the earliest supporters of digital delivery of entitlements and ranked highly in the Government of India's DBT implementation rankings; Uttar Pradesh, which was a late adopter in 2017, but by 2019 was performing strongly and ranked second across all states; and West Bengal, which was the last adopter of reform and the lowest ranked of all states in terms of implementation.

These states also varied crucially on dimensions of partisanship: Goa made significant progress towards digitising payments when ruled by the BJP with the INC were in power federally and had what could be characterised as weak networks, which is consistent with a narrative that in these conditions, the governance boost and insurance benefits outweighed the loss of rents and patronage opportunities. Uttar Pradesh was also initially unaligned with the central government, and the incumbent had strong local networks. The state made limited progress in implementing digital systems until a change in power meant the new regime was aligned with the federal government and seized the opportunity to disrupt the broker networks of its predecessor. The subnational government in West Bengal was unaligned with the central government at any point, and has a long history of being enmeshed in the distribution of entitlements: in these conditions, there was little incentive to utilise digital platforms to directly deliver payments to citizens.

Case studies allow us to examine more carefully the dynamics of political decisions, which can be obscured in aggregated empirical analyses. Although I found in earlier chapters that on average, reform would occur later and less extensively in states where clientelism was high and elections were competitive, in Goa, for example, a state where power rotated regularly and that has a long and well-documented history of clientelism, the BJP incumbent seized the opportunity to announce and implement DBT reforms at a time when they were still primarily an initiative of the INC central government, likely because it lacked the strong networks of its predecessors. In West Bengal, where competition and corrupt leakage were below average levels, the TMC party government was the last state to announce reform. However, consistent with my empirical findings that when clientelism is low, incentives to reform strengthen as competition increases, once the BJP proved a threat, campaigning effectively with a promise to improve program delivery in the state, the TMC finally announced they would utilise digital platforms.

To explore the range of reform outcomes, and the factors in turn which drove them, I conduct a state-level process tracing effort in these three states beginning from the time that direct benefit transfers became

available to subnational governments, and delineating the key actors, processes and events that shaped the embrace (or rejection) of digitisation in each one. To establish this chronology, I draw upon records of parliamentary debates, government documents and newspaper reports, and attempt to delineate the key political actors, processes and events that shaped the embrace (or rejection) of digital benefit transfer programs in each one. I review the regional political landscape in each state, noting the features or party structures that condition the links between state governments and local brokers, such as levels of clientelism and competition, and where relevant, compare their trajectory to other, similar Indian states.

Goa

When do political actors seize the opportunity to dismantle the architecture of patronage? Although in earlier chapters, I found that incumbents are more likely to implement reforms when they are co-partisan with the federal government, the state of Goa is an example of when a subnational government is willing to implement a reform propagated by electoral rival at the centre.

Goa, located on the west coast of India, is the country's smallest state in terms of size, but one of the most economically developed in terms of per capita income. As a former Portuguese colony that was integrated into India as a Union territory in December 1961 and achieved full statehood in 1987, it has a large Christian Konkani-speaking minority in the south as well as a Hindu, Marathi-speaking population in the north, who in the early years of independence supported merging with Maharashtra, a neighbouring state (Das Gupta, 1970).

This linguistic and religious heritage served as a base for a distinct identity politics and early political institutions in the state were shaped by this legacy. Two communal parties emerged after the end of Portuguese colonial rule: the United Goans Party (UGP) which drew electoral support from the Catholic minority and the Mahaharashtrawadi Gomantak Party (MGP), which aimed to empower Goa's Bahujan Samaj, an informal collective of non-Brahmin castes, and which led the state for 18 years (Nagvenkar 2022). In this way Goa was an outlier state - during this period, the Congress Party largely held power across the rest of India but had little in the way of local organisation or grassroots support in Goa except among Hindu Brahmans (Joshi 1964).

Regional parties and local issues such as language and statehood were a powerful force in early Goan politics: in the first election of the 30-member legislature in 1963, the MGP and UGP won 14 and 12 seats respectively, with the Congress Party which was dominant at the state level across the rest of the country and which had largely architected the liberation of the state from the Portuguese colonial administration winning only one seat, and zero in the next election. The central issue of the 1963 election was the future political set-up of the state as an independent unit or as part of its neighbouring state,

largely Hindu Maharashtra, with Christians fearing that a merger would alienate them culturally and linguistically largely voting for the UGP (ibid). Although the MGP took power, the merger was ultimately rejected by Goan voters in the referendum of 1967 where the voters opted to remain a Union Territory.

Over time, once the emotive and constitutional issues of language and territory were resolved, and migration from other parts of India increased, regional parties were displaced from power by the Congress Party when it won office in the 1980s and dominated Goan politics for more than thirty years, with only minor periods out of power. Historically, the BJP was thought to have suffered a handicap in a state where nearly one-third of the population comprises Christians and Muslims (Noronha 2012). Regional parties and their connection to local issues remained a force in Goan politics, as the primary opposition through the 1980s-90s, and more recently, it has been parties such as the Goa Rajiv Congress in 1998 and the Goa People's Congress in 1999 which were able, in alliances with other parties, to force the Congress Party from power, albeit for short periods (Nagvenkar 2022). But ultimately, while regional parties continued to exist as a rump force (Rubinoff 1998) it has been argued that weak opposition 'stabilised the Congress as a dominant and corrupt system (Rodrigues and Da Silva 2004).

During this period of relatively low competition, clientelism and the use of it by politicians grew. Commentators have argued that broker-mediated interactions with voters were facilitated by the coastal state's relatively smaller population (in the 2011 Census, Goa had a population approximately one-tenth that of Mumbai and Delhi) and correspondingly small electorates, with constituencies each having about 25,000 to 30,000 electors, which has made it possible for politicians to establish a direct connect with voters over the years. Clientelism was argued to be a core electoral asset to politicians in Goa (The Hindu 2016) who as incumbents accumulated personal resources during ministerial tenures which further entrenched their ability to win elections (Noronha 1999).

The Congress party became notorious for buying votes (Noronha 2012) and entrenching themselves in the distribution of benefits and public sector jobs. An ethnographic study of clientelism in Goa found that 'patronage-dispensing Big Men or their underlings are present in almost every village of Goa. Citizens depend on them for Government jobs, finance for daughter's marriage or hospitalisation, ambulance to ferry critical patients, school admissions, transfers and postings and even getting a living certificate' (Dharmadhikari 2017).

Complementing this qualitative research, a 2008 Transparency International survey placed Goa in its most corrupt ('Alarming') category and rated the state as having very high or alarming levels of corruption in almost all of the eleven government services citizens were asked about. In particular, 70 percent of

households surveyed (the second highest in India) reported that they believed there was corruption in the PDS, the nation-wide scheme delivering in-kind food benefits for the poorest citizens.

An editorial in *The Herald* (6 February 2012) argued that despite the election code of conduct placing limits on spending, politicians plied voters in their constituencies with gifts in the lead up to elections. The Election Commission of India was berated for confiscating the occasional truck load of liquor but never publicly announcing the names of candidate(s) responsible for these clientelistic transactions. In May 1999, the *Navhiid Times* put things bluntly in its editorial comment saying 'the composition of the Congress candidates list is like a resounding slap on the face of all those who were crying for the restoration of some sense of sanity, integrity and steadiness in politics'.

Against this backdrop, corruption was the central issue in the 2012 state election campaign (Navhind Times 2012) and the issue of poor governance and vote-buying received high levels of press coverage in the lead up to the election. *The Herald* (December 2011) for example, thundered in an editorial that 'the Congress in Goa is nothing but a sum total of individual MLAs who run their fiefdoms in their backyard and have been wearing the Congress jersey.' The BJP's candidate for Chief Minister, Manohar Parrikar promised to 'weed out corruption from its roots' and build a 'Golden Goa' and a range of non-government organisations campaigned heavily on the issue of corruption (Noronha 2012).

Evidence cited in earlier chapters suggests that voters rarely vote on corruption as a lead issue, and this may particularly be the case in India. A recent meta-analysis of randomised experiments examining voting for corrupt candidates by Incerti (2022) found that respondents who on average punish these candidates in survey environments by 32 percentage points do not do so across field experiments, which suggests the 'true' or average effect of voter punishment of corrupt candidates is likely very small in real elections where the social desirability bias that may skew survey results is absent.

However, in the case of Goa in 2012, political pundits suggested that a Hindu nationalist party prevailing in a state with substantial Christian and Muslim minorities prior to the 2014 so-called 'Modi Wave' indicated that citizens were willing to vote to remove a state government on these grounds. A record voter turnout was recorded, with 81 per cent of eligible individuals casting votes, surpassing the 2007 record of 71 per cent and the BJP won 21 seats to the INC's 9 'on the mandate of good and corruption free governance' (Business Standard, 2014).

Soon after being elected in 2012, the new government launched its flagship *Ladli Laxmi* scheme. This was a program under the auspices of the Women and Child Welfare department to provide cash payments to 20,000 girls in Goa with the aim of reducing female foeticides and alleviating the financial burden on the families of girls when they are married. An innovation in this program was that the Goan government

announced that the beneficiaries be paid directly through bank deposit, with the beneficiary able to withdraw the amount for her use in business or for further studies. The cashless, direct deposit approach reduced the scope for leakage, although at this stage, ID authentication through Aadhaar was not mandatory (PTI 2012).

In 2013, one Goa district was selected for an Aadhaar-linked DBT scheme rollout for Liquid Petroleum Gas (DBT-L) by the INC-ruled central government. The DBT-L scheme was a Government of India program that aimed to use Direct Benefit Transfer to 'ensure that the benefit reaches intended beneficiary thereby curbing wastage/ leakage in the subsidy delivery system' of gas by directly depositing a commodity subsidy into biometrically authenticated bank accounts of consumers (Press Information Bureau, Government of India, 2013).

Despite belonging to the BJP, which in 2013 was in opposition to the INC government at the centre that was the proponent of DBT programs, Chief Minister Parrikar was supportive of the program. Goa, in this way, was the mirror opposite of Karnataka in 2017, where Chief Minister Siddaramaiah, from the INC, was supportive of Aadhaar-authenticated delivery of government payments, despite the reform by then being a flagship initiative of the BJP party in power federally. Chief Minister Siddaramaiah launched 'Parihara' a programme of direct benefit transfers to farmers saying his government's initiative would make use of technology to ensures the subsidies reach the targeted individuals (The Banking and Finance Post 2017).

In April 2013, South Goa became one of the eighteen districts across India to implement Aadhaar-linked DBT-L, which distributed subsidies to purchase cooking gas directly into the accounts of low-income Goan households. At this point, 87 percent of citizens in Goa were biometrically registered through the Aadhaar system and with saturation incomplete, during a speech in the state assembly, Chief Minister Parrikar announced a number of mitigating strategies, namely that state agencies would accept photocopies of Aadhaar card or even the card number for making available benefits of government schemes if an applicant is yet was yet to receive the physical Aadhaar card (Hindu Business Line 2013).

The Chief Minister than further announced that the state had decided to make it mandatory to have Aadhaar cards for all welfare schemes. Parrikar said for the initial three months, authorities would take a lenient approach, but 'thereafter the card would be compulsory' (ibid). At this point, DBT was embraced by a BJP state government in April 2013 when the INC were in power nationally, a year before the BJP won power federally and long before DBT had been embraced by the BJP party. What explains this early support?

First, looking at the history of government in Goa, we see the BJP has governed at the state level only twice in the history of the state, for approximately 5.5 years of the last sixty, with power previously alternating between INC and the Goa People's Congress (a regional party). Along with having little opportunity to build a network of loyal brokers through patronage, the BJP as a national party also lacked a shared ethnic or religious background with Goa's sizeable Christian minority, or any role in the regional politics which shaped the identity and contours of politics up until this point.

Conversely, commentators have suggested the Congress Party made liberal use of its time in power to build broker networks and vote banks, with an editorial in *The Herald* (6 February 2012) making the specific point that 'whichever way you look at it, it is public money that they make in power which is being spent to buy votes' and Goa's political history strongly features regional parties, especially in the post-independence years, mobilising voters. Accordingly, not only could the BJP be considered to have had reasonably weak networks when it took power in 2012, if displaced in the next election, it would face rivals who had a long history of clientelism or the means to mobilise local networks through appeals to a shared identity.

In this way, although the BJP was not aligned with the central government Goa's early announcement of the reforms may have been motivated by both of the benefits for reform that I outlined in Chapter 2: a governance boost from implementing an anti-corruption reform, and insurance benefits. First, with the BJP elected with a strong mandate to address corruption, from the very beginning, digital benefit transfer reforms were aligned with personal branding of Chief Minister Parrikar, whose full-throated embrace of a reform designed to curb clientelism and leakage was consistent with his campaign messaging that he would 'root out corruption'. His government were potentially rewarded by voters, winning both Goan seats in the 2014 General Election.

In the case of states where the government in the state legislature does not share the party of the federal government and has weak local networks, politicians face competing incentives: on one hand, implementing the policy will support the initiative of a party that is a rival at the federal level, however on the other hand, it may be helpful in disintermediating the networks that belong to that rival or another competitor party at the state level.

Although there was not strong empirical evidence for insurance in earlier empirical analyses, in a state where the BJP had held power for just one term in Goa, between 2000-2005, after which the INC then returned to power, the fact that Goa both announced the reform early and then followed through with strong implementation points to both hopes for a governance boost in the subsequent state and federal elections, which both materialised, as well as an actual desire to disintermediate brokers and prevent future administrations from utilising patronage networks.

Goa in this way resembles the case of Madhya Pradesh, another BJP- ruled state that announced in 2013, prior to the BJP taking power at the federal level, that they were set to achieve full DBT utilisation for a number of benefit programs, leading to a *Times of India* headline that noted 'Chouhan's Madhya Pradesh steals Congress's direct benefit transfer thunder'. Aruna Sharma, chief secretary of the panchayat and rural development department reported that the state had upgraded its electronic financial management system and achieved 100 percent rollout of DBT in the MGNREGS program, by mapping families in all of its 53,000 villages and identifying 7.5 million beneficiaries to whom to deliver Aadhaar-authenticated payments.

Although central-state partisanship then was not a motivating factor to announce DBT reforms in the early years, it is possible that once the state and central government were brought into alignment in 2014, when the BJP were elected at the federal level, this played a reinforcing role in the decision of Goa to extensively implement the reforms. By 2015, Goa had enrolled virtually its whole population in the Aadhaar system. In April 2015, it was announced that beneficiaries of the Dayanand Social Security Scheme would have to submit their Aadhaar card copy and life certificates to the government to continue receiving the monthly financial assistance (Times of India 2015) and in 2016, Goa announced its intention to go cashless, with the governor's official residence stating that all expenditure would be made via POS machine (Business Standard 2017).

In the context of the 2017 state elections, where former Chief Minister Parrikar decided to return from federal politics to campaign as the Chief Minister candidate, the BJP reiterated its commitment to DBT and announced it would continue to link all social welfare schemes to Aadhaar, which aligned with the BJP's push at the central level to make Aadhaar mandatory for various government benefits and processes. It promised financial assistance to address the problem of spiralling prices in the state, and noted the entitlements would be disbursed each month directly into the savings bank account of the eligible beneficiary through the Aadhaar Bridge Payment System.

After forming government as a result of the 2017 elections, Goa continued its digitisation push. The state initiated new programs utilising digital infrastructure, such as 'Deendayal Swasthya Seva Yojana Scheme', a family health insurance initiative providing cashless hospitalisation in government and private hospital and announced it would introduce Point of Sale (POS) machines in all fair price shops to move towards 100 percent cashless transactions, similar to what was being announced in Uttar Pradesh around this time.

In 2018, state revenue minister Rohan Khaunte announced an intention to bring more government services online through the Goa e-District portal over the next six months, saying that it would make it

much simpler for citizens to apply for and access governments services. The program also received national recognition after 150,000 certificates requested by citizens certifying income, caste, residency and other factors which entitled them to benefits were directly delivered, without the use of intermediaries (Times of India 2018). In 2019, when Prime Minister Modi announced his flagship DBT scheme PM KISAN, Goa launched a unique registration drive partnered with India Post to enrol eligible farmers in the scheme. Later that year, it was ranked second in the National e-Governance Service Delivery Assessment, an evaluation comparing state performance delivering government services to businesses and citizens (Department of Administrative Reforms and Public Grievances 2019).

During the COVID-19 crisis, the government sought to manage the pandemic using digital infrastructure. The government utilised DBT tools to distribute relief payments, with state government officials suggesting that Goa had become the leading state in delivering government assistance during COVID-19, a claim that received some support in a January 2021 report from the Reserve Bank of India that showed Goa leading states on per capita DBT metrics. Goa was also one of the first states to successfully implement the 'One Nation One Ration card' initiatives of the central government that enables beneficiaries to purchase subsidised commodities from any part of the country, which required Aadhaar authentication of all ration cards, and automation of government-operated fair price stories in order to eliminate duplicate or fake ration cards (The Print 2021) and continues to emphasise efforts to make Goa a cashless society. In 2022, after three successive election wins at the state level, the government continues to regularly announce plans to upgrade its financial infrastructure and use Aadhaar to verify beneficiaries and potential employees to ensure genuine people benefit from the scheme.

In conclusion then, and reconciling the trajectory of reform in Goa with my theory, political economy factors in the state operated to emphasise the electoral benefits of reform, and minimise the costs, which made the use of digital infrastructure to deliver benefits an attractive policy to the BJP incumbent. The primary costs to politicians from digital delivery stem from decreased income from rents and ability to extract votes from citizens through control of social programs. Although Goa was a state in which reported levels of both corruption and clientelism were relatively high historically, the literature surveyed above suggests that it is the INC, with its long history of governing the state, and Goan regional parties who are able to mobilise grassroots networks through identity-based appeals, who disproportionately benefited from these rents while in office, compared to the BJP which when elected in 2012 and given the opportunity soon after to implement DBT reform had spent very little time in a position in power to be able to build patronage-based networks. Further, the rents and influence that would be forgone by disrupting the role of established broker were likely relatively lower than if the BJP had been in power for a long time, as was the case in BJP-run states like Gujarat or Punjab.

In terms of the benefits to the incumbents, corruption was particularly salient in the 2012 state election, with the press and civil society organisations campaigning vociferously on the issue and a historically high turnout of voters. In an electorally competitive state where power rotated regularly, announcing these reforms as key to the campaign may have secured the 'governance boost' elucidated in Chapter 3, with commentators after the fact arguing that Chief Minister Parrikar had been voted in with a strong governance mandate. This is consistent with the literature suggesting that corrupt activities can in some cases impose a considerable electoral cost on incumbents (e.g Ferraz and Finan 2008, Winters and Weitz-Shapiro 2013).

What about the potential benefits of insurance? If the main benefit sought from announcing the reform was purely a governance boost, we would expect to see an early announcement but not necessarily extensive implementation, for example, if the BJP sought to benefit from both voter approval of its proposal to tackle corruption, but then seek to benefit from clientelism by delaying or minimally implementing DBT transfers. That is not what occurred: within months of the 2012 state election, Chief Minister Parrikar ensured that Aadhaar-authenticated accounts would be required for all welfare schemes, going well beyond a nominal approach to DBT implementation. Accordingly, though I did not find systematic empirical evidence for an insurance mechanism in earlier chapters, in Goa, the strength of regional party networks and the historical dominance of the INC may have made the disintermediation of those networks particularly attractive for a party that had previously held power only briefly in the state. If the BJP anticipated holding power for only one term, implementing DBT would potentially have levelled the playing field in future elections.

A final incentive driving Goa's extensive implementation of digital infrastructure stems from central-state partisanship. Although the state level BJP was not aligned with the INC central government who was propagating the reform in 2012, once the BJP took power federally in 2014 and the parties were aligned, continuing to act as a demonstration case for DBT federally may have brought benefits in terms of alignment with an electorally successful federal government.

Uttar Pradesh

Uttar Pradesh was one of the last states to firmly commit to using digital benefit transfers. By 2019, however, it received the second highest implementation ranking across all of the Indian states, with benefits from 130 government programs delivered digitally across 29 departments (Government of India, 2020). This trajectory, although prima facie puzzling, is consistent with and can be well-explained by the theoretical factors examined in this dissertation.

Located in the Hindi-speaking belt of north India, Uttar Pradesh is the largest Indian state by population and one of the least economically developed, ranking in the bottom three of the multidimensional poverty index with more than a third of the population falling below the poverty line and the highest levels of child mortality in the nation (Planning Commission, 2021). It also has a large rural population and high levels of ethnic diversity, with more than 54,000 sub-castes recorded in the 1891 census (Economic Times 2012) that has given rise to a unique identity politics.

Between 2002 and 2017, power rotated between the Samajwadi Party, a regional party based in Uttar Pradesh and Bahujan Samaj Party, a centre-left party that is also primarily based in the state. A national party, the BJP, were elected in a landslide in the state election early in 2017, at which point Uttar Pradesh moved quickly to announce the digitisation of entitlements, with the newly appointed BJP Chief Minister Yogi Adityanath declaring within a number of months of being elected the intention to implement DBT reforms.

With a population of over 200 million people (making it the largest subnational unit in the world) and having supplied multiple Indian prime ministers, as a diverse and iconic state Uttar Pradesh plays a unique role in India's geopolitical history. State elections are contested vigorously by both national and regional parties, and it is often the launching place for new, flagship initiatives. In 2010, for example, the name for the country's digital identity solution, 'Aadhaar' was unveiled by Dhaneshwar Ram, a man from the rural village of Azamgarh, who was selected to represent rural citizens' hardship in proving their identity. He explained to the media the difficulties he faced, including accessing entitlements, and said that he hoped the Aadhaar initiative would empower millions of citizens like him (The Hindu 2010).

For the nearly four decades until 1989, Uttar Pradesh was largely governed by the INC, but regional parties that were able to mobilise voters by emphasizing a subnational identity based on caste or religious group and providing material benefits to their social bases were successful in the decades since in winning power (Singh and Kumar 2014). In addition to the ethnic and caste-based appeals that have been central in the politics of the state, social protection programs have played an important role in the party's messaging to voters. From as early as the 1970s, the INC sought to strengthen its social base among the rural poor through anti-poverty programmes such as Indira Gandhi's '20-Point Programme' and 'Garibi Hatao' (remove poverty) (Kaviraj 2000) with the politics of human development increasing in prominence in campaigns across the party spectrum from the 1990s onwards (Singh and Kumar 2014).

However, there is a long history of these programs being subject to leakage orchestrated by local politicians and local bureaucrats and diverted entitlements going beyond pocket-lining by intermediaries to quid pro quo clientelism that was key to subnational government electoral strategy. As early as 1969,

an analysis of Uttar Pradesh found that traditional brokers exercise ‘enormous reserves of power and influence’ that can be weaponised during elections and that a critical dimension of party operations including obtaining material advantages for constituents (Burger 1969). Similarly, Oldenburg (1987) highlights the role of political intermediaries who act as middlemen assisting villagers, many of whom are illiterate and wary of the bureaucracy, in land matters in Uttar Pradesh.

Dutta (2012) argues that in Uttar Pradesh ‘the appropriation of public resources and the dispensation of patronage play an important role in sustaining and nurturing factional politics at the local level’. In his fieldwork, undertaken while regional parties were in power at the state level, he documents local politicians providing benefits from government-sponsored programmes or access to basic services, such as telephone or electricity connections, to voters in exchange for their vote, and finds broader evidence in the state that leakage from public programs were critical in building and sustaining grassroots political networks. Instead of neutrally devolving funding to the needy sectors of the village, local patrons nurture and reward local network of supporters and alliances, funded by the brokering and embezzling of funds through the institutions that they control, and illegally benefiting supporters through pro-poor schemes launched by co-operatives, non-profit organisations, and government organisations.

He gives a specific example showing that benefits were targeted along partisan lines, stolen outright or used to enforce clientelistic bargains with voters: of the forty-two households in a village who were selected for the Indira Awaas Yojana scheme, only twelve households were legally entitled to benefit from this scheme. Of the remaining thirty, only eight households received their money in full, while the remainder were promised by the pradhan that they would receive their share once he (or his candidate) was elected.

Dutta makes the connection between clientelism and the cost of elections, noting that election campaigns in the villages he studied were characterised by vigorous spending by candidates, in contravention of rules set by the Election Commission of India. To gain power, local politicians skilfully exploited the resources of the institutions they control to buy votes, making local politics salient in broader electoral contests because of ‘the grand prize being access to government funds’ and the voters they are able to marshal when in control of them.

This context forms the backdrop to both efforts of the central government to digitise benefits in Uttar Pradesh, and local resistance to those efforts. In 2010, Uttar Pradesh was initially selected as one of the four states allocated to UIDAI for Aadhaar enrolment. However, by early 2012, the process of enrolling citizens in Aadhaar had stalled. The Government of India announced in December of that year that they wanted to introduce Aadhaar-linked cash transfers in the state, but the process of UID enrolment had been suspended in Uttar Pradesh for almost a year and the Director of Census Operations in Uttar Pradesh

reported that the date for kickstarting the program would be decided by the Government of Uttar Pradesh (Indian Express 2012).

Around the same time, INC Party President Sonia Gandhi, whose constituency of Rae Bareli was located in Uttar Pradesh, kicked off her campaign, with a focus on the issues of corrupt leakage of funding sent from the Central Government to the state for social protection programs. In 2011, there had been a high-profile scandal where state politicians and bureaucrats were alleged to have diverted substantial funds from the state's National Rural Health Mission (NRHM) funds. The Indian Central Bureau of Investigation investigated bureaucrats and conducted raids across Uttar Pradesh and Delhi. Sonia Gandhi argued that 'these people (BSP regime) do not feel the pain of the poor. Even in distribution of medicines and healthcare, they have indulged in rampant corruption' (DNA 2012).

Leading up to the election, Election Commissioner S Y Quraishi said in an interview that, anticipating 'money problems' the Commission had strengthened its election expenditure machinery, including 'keeping a tap on airports, railway stations and inter-state bus terminus, from where the money may come in for use during elections. We will also keep an eye on farmhouses and hotels, because they are mostly distribution centres for money during elections' (Indian Express 2012).

The reigning Bahujan Samaj Party led by Chief Minister Mayawati lost power in the 2012 Uttar Pradesh Legislative Assembly election in a landslide to the Samajwadi Party, led by former wrestling star Mulayam Singh Yadav, whose thirty-eight-year-old son, Akhilesh Yadav, became the youngest chief minister in the state. Social protection programs were central to the election campaigns of the parties, with the Samajwadi Party promising to launch a pension for low-income women if elected, as well as a range of other measures such as free laptops and unemployment allowances (The Economic Times, 2012)

In July 2013, the Central Government selected six districts in Uttar Pradesh to roll out DBT to cover 26 schemes, including Congress president Sonia Gandhi's constituency, Congress vice-president Rahul Gandhi's constituency Amethi, and Samajwadi Party chief Mulayam Singh Yadav's native district Etawah, Chitrakoot, Shravasti and Sant Kabir Nagar. Although there had been a change in government at the state level, the new administration voiced little support for DBT.

The central government continued to emphasise efforts to include Uttar Pradesh in DBT programs. Sonia Gandhi was reported by the media to be urging party workers to take an active interest in implementing the direct benefits transfer programme ahead of the national election in 2014. It was announced the government would hasten to include India's most populous states such as Uttar Pradesh and Bihar in its ambitious programme to transfer cash directly into the bank accounts of beneficiaries of key welfare schemes (Livemint, 2013).

By January 2014, the federal Cabinet was considering proposals to expand the Unique Identification Authority of India's (UIDAI) mandate in four states (Uttar Pradesh, Bihar, Chhattisgarh and Uttarakhand) which had been slow to scale Aadhaar across the population. At the time, there was speculation by the media that the move was aimed at accelerating DBT rollout across in politically crucial states before the 2014 federal elections (Times of India, 2014). This is consistent with an attempt by the central government to reduce leakage and politicisation of benefits in the lead up to the federal election later that year.

Ahead of the federal election in 2014, Chief Minister Akhilesh Yadav launched his government's ambitious cash transfer scheme called the 'Samajwadi Pension Scheme.' This scheme did not require beneficiaries be authenticated using Aadhaar (Economic Times 2014) and in subsequent years was alleged to have been marked by serious anomalies in its implementation, with social welfare minister Ramapati Shastri saying in the state assembly that a substantial portion of beneficiaries were found to be ineligible, and 43,000 entitlements were going to deceased pensioners (Times of India 2018). After the BJP won 71 of Uttar Pradesh's 80 Lok Sabha seats, a range of the social spending programs started by Chief Minister Akhilesh when he took power in 2012 were discontinued, with the State mining minister Gayatri Prasad Prajapati quoted in the media as saying there was no need to run such schemes when the voters had supported the BJP in 2014 federal elections (India Today 2014).

By 2016, when the central government, which was now a BJP regime, was advocating Aadhaar-linked DBT schemes across the nation, Uttar Pradesh was far behind. Newspaper editorials at the time pointed out that states ruled by the opposition like Uttar Pradesh, Bihar and Karnataka were set to miss the Centre's July-end deadline of seeding all their MGNREGA workers with Aadhaar and ensure wages were paid to them through Aadhaar-based Payment Bridge. Only 5 percent of workers in Uttar Pradesh had completed the authentication process to be paid by Direct Deposit (Economic Times 2016).

In the lead up to the 2017 Uttar Pradesh Assembly Election campaign, Prime Minister Modi emphasised DBT at both the federal level, where it was announced it would include 500 central schemes under the Direct Benefit Transfer (DBT) scheme during the next fiscal year and at the state level in Uttar Pradesh, where he announced the BJP government in Uttar Pradesh would focus on expediting the implementation of DBT systems. The BJP won the election by an overwhelming three-quarter majority of 325 seats despite campaigning without a chief minister candidate, choosing instead to have the party's central parliamentary board appoint the role after the election. With the BJP in power federally since May 2014, the subnational government was now aligned with the central government.

Reviewing the political economy factors at play in the Uttar Pradesh context, there are several reasons which emerge to explain the initial delay in announcing the reforms by the two regional parties, namely

the high levels of pre-existing clientelism and competition, strong links with local brokers and the lack of state-federal co-partisanship. When the BJP were elected in 2017 for the first time in the state, bringing the state into political alignment with the party governing at the federal level, the factors that initially militated in favour of delay then acted as an imperative for reform, which is consistent with a narrative that the regional party incumbents saw digital authentication and payment systems as a threat to their political machines, but the newly elected government saw the same reforms as an effective way to disintermediate the broker networks of their predecessors.

After the BJP were elected at the state level, the pace at which DBT reforms were announced and implemented moved quickly. In March 2017, the expedition of DBT implementation for payment of fertiliser subsidy was announced, with payments to be disbursed to companies based on actual sales to farmers captured on point-of-sale (POS) machines. In June 2017, the government announced that Aadhaar-linked bank accounts would be required for farmers to access subsidies for seeds and agricultural inputs and in order to widen the relatively low population coverage of digital IDs, the state initiated bulk authentication through Common Service Centers (CSCs) to assist with the massive task of matching and biometrically authenticating the bank accounts of tens of millions of beneficiaries with digital IDs (Times of India, 2020).

A few months later, in October 2017, and five years after the first states embraced reform, Uttar Pradesh Health Minister and government spokesman Sidharth Nath Singh announced that to ensure transparency in distribution of entitlements and stop leakages, the decision had been taken at a cabinet meeting to link all welfare schemes that provided a payment to beneficiaries with the Aadhaar system, such as pension schemes, government scholarships, commodity subsidies and the PDS. He argued that ‘once we implement it, we will be able to reach the real beneficiary by weeding out unscrupulous elements’ and noted that DBT was a model that had been tested in Haryana and had been successfully replicated by the Maharashtra and Gujarat governments (Daily Pioneer 2017). He also referred to the other benefits of digitisation, namely an electronic audit trail, that would ‘bring in accountability and the government will also get to know how much budgeted funds was distributed to beneficiaries’.

In February 2019, when Prime Minister Modi launched his flagship program PM-KISAN, which provided smallholder agricultural households with Rs 6,000 annually as direct benefit transfers from the Centre, he did so from Gorakhpur in Uttar Pradesh. The program required digitised land record databases linked to Aadhaar numbers, with Uttar Pradesh being one of four states (the others being Gujarat, Maharashtra, and Tamil Nadu) that were the most advanced in authenticating beneficiary land records through digital IDs (Scroll 2019).

By early 2020, it was reported that in Uttar Pradesh 97 percent of all transactions at 'Ration Shops' where low-income citizens accessed subsidised commodities were biometrically authenticated using Aadhaar, more than 99 percent of vehicles delivering in-kind goods were GPS enabled, and 100 percent of the subsidised or free food grains distributed through government systems were digitally verified (Times of India, 2020). It was also claimed that 80,000 government-operated ration shops across the state had been equipped with electronic point of sale machines to create an audit trail which provided records of transaction price and quantities, making it more difficult for shop workers to tamper with the entitlements of beneficiaries (ibid). Digitisation efforts meant that when rations arrived in the store, linked beneficiaries received automated SMS messages on their mobile phones so they did not need to check multiple times with the ration shop owner about the availability of the food grains, and also had proof that their entitlements were available for collection (ibid).

The Food and Civil Supplies Commissionerate reported that regional and field level officers had access to an integrated online system and dashboards through which officers can monitor the end-to-end supply chain, from trucks leaving government warehouses to confirmed receipt by the beneficiary, and generate reports on transactions, route deviations and on-time delivery. Uttar Pradesh also reported it was the first state to pay farmers for their produce through an automated Public Finance Management System (PFMS) with payments directly in their bank accounts within 72 hours of the purchase, which used to take days or months earlier (ibid).

Despite being late to announce reform, by 2019 Uttar Pradesh had implemented digital disbursement of entitlements to beneficiaries in programs across 29 departments, the second most departments of any state after Karnataka. This is striking, given Karnataka is one of the most technologically advanced states in India, with capital city Bangalore being the birthplace of the information technology industry in India, and Uttar Pradesh being one of the least economically developed states in India. In Central Government reporting, only two programs are listed in 2016-2017 as being digitised in Uttar Pradesh: PAHAL, from the Ministry of Petroleum and Natural Gas and MGNREGA, from the Department of Rural Development. By 2017-2018, this had grown to 18 schemes, and by 2018-2019, it was up to 56 schemes.

The central government's 2019 state-wide rankings for DBT implementation ranked Uttar Pradesh second in the country with a score of 85.2, behind only Haryana which had a score of 88.8, and leading with a per capita DBT of Rs. 2,355 amongst large states (Government of India 2019). During the budget session of the Uttar Pradesh assembly in November 2021, Governor Anandiben Patel, while referring to DBT, noted that the state government had remitted Rs 56,000 crore directly to the accounts of the beneficiaries and 'in this process, middlemen were eliminated and payments became transparent'. A government spokesman

announced the state had set the record in DBT transfers, which represented a ‘revolutionary step towards transparent government’ (Daily Pioneer 2021).

Uttar Pradesh was also a committed user of the Government e-marketplace, or the GeM portal, that was launched by the central government in 2016 to improve transparency in the procurement of goods and services by government departments. From 2017-2020, Uttar Pradesh made the most transactions through the portal of any state. In 2020-21, the state made purchases of ₹4,611 crore through the portal, followed by Gujarat that purchased ₹1872 crore, demonstrating the enthusiasm with which the state has participated in e-governance initiatives (Economic Times 2019).

A range of studies report that the DBT reforms have decreased corrupt leakage in the state by reducing the presence of intermediaries in government service delivery. The government claimed that the process of authenticating beneficiaries identified 2.5 million ‘ghost’ ration cards and saved billions of dollars using Aadhaar seeding and ePOS-based ration distribution (Times of India, 2020). The state also claims that DBT initiatives and IT-enabled knowledge extension to farmers have led to a significant increase in agricultural production in the past two years, with the Reserve Bank of India reporting Uttar Pradesh showing a significant improvement in reducing banks’ credit outstanding to agriculture. The report indicated a host of steps, including replacing the interest subvention scheme with the DBT improved institutional credit reach (Indian Express, 2019).

Similarly, the International Food Policy Research Institute in conjunction with the Indian Council of Agriculture Research conducted a study in the rural districts of Uttar Pradesh to assess the effectiveness of DBT in the context of the PM-KISAN program in reaching smallholder farmers during the COVID-19 pandemic. They noted that although programs like this are often subject to elite capture and selection biases, their findings detected minimal bias in terms of social, economic, and farming characteristics. Further, 93 percent of non-beneficiary farmers had already applied for the scheme, indicating high awareness of the program. They concluded that the government was able to provide emergency relief to citizens with lower transaction costs, minimal leakages, and rapid delivery due to their use of the DBT platform (Varshney et al 2021).

Having outlined the slow and then fast trajectory of DBT payments in Uttar Pradesh, what factors explain the contrasting approach of incumbents in Uttar Pradesh to digital delivery of entitlements? In an environment of high levels of political competition and corruption, my theory predicts that incumbents with strong local networks who are not aligned with the federal government would be incentivised to delay reform in order to preserve opportunities for rents and patronage. This is consistent with first the Bahujan Samaj Party and then Samajwadi Party, who were both able to leverage their regional identities

to build political machines and were not aligned with the federal government, acting slowly to digitise payments.

Singh and Hemrajani (2018) for example, quote a prominent Samajwadi Party candidate who argued, 'the candidates can't do all the work... [An intermediary] takes care of all work related to his village' and a Bahujan Samaj Party state level politician who says, 'I cannot be present everywhere ... but I still help people through my intermediaries'. They find that intermediaries perform election campaigning and voter mobilisation functions for subnational politicians, which is consistent with the work of scholars who have focused on politics in Uttar Pradesh and documented the strong links between subnational political leaders and local brokers. Bhatnagar (1975) was one of the earliest to document how these linkages operate as a two-way affair: local leaders get concessions from the state-level officials and, in turn, extend support to their benefactors during parliamentary or assembly elections. The high levels of interactions between voters and party workers have been documented in surveys such as the National Economic Survey that found in 2014 that 65.5 per cent of the electorate in Uttar Pradesh reported they had been contacted directly in the national elections either by the candidate/party or any other person working for the candidate/party (party worker, local leader, etc.)

In addition to there being strong links between subnational party leaders and local brokers in Uttar Pradesh, there is a long history of local intermediaries operating as key distributive actors in clientelistic relationships with brokers, with important implications for the ways in which citizens access basic state services and benefits. Most recently, Bussell (2019) in field work conducted in 2010 during BSP's reign under Chief Minister Mayawati found that local brokers in Uttar Pradesh systematically targeted benefits disproportionately to their political supporters: sharing the partisanship of the village council president is associated with a 56 percent increase in the likelihood of receiving a benefit from the local council. She argues that parties in regions with a long history of local democratic elections are much more likely to be entrenched locally and that in Uttar Pradesh, where local elections were consistently held from 1947 onwards, there is a strong correlation between the extent of partisanship in village council elections and local partisan targeting, as well as 'partisan blocking' - where citizens who need benefits do not receive them.

This is consistent with the findings of other scholars who have documented both rent extraction and partisan targeting by intermediaries, which together suggest that implementing reforms to directly deliver benefits may substantially affect the patronage networks that support ethnic and regional parties, by making the extraction of rents and withholding of benefits difficult, if not impossible.

For example, while the INC were in power at the state level, Dreze (1990) documented the obstacles the poorest people encountered in attempting to access entitlements, finding that most beneficiaries of the

Integrated Rural Development Programme (IRDP) needed to pay a bribe of Rs200 to access the program, and that local village leaders and supporters exercised disproportionate power in selecting beneficiaries.

Similarly, ethnographic work by Akerkar (2016) in Bahraich, Uttar Pradesh found access to government programs and services by the poor was mediated through local political economies, with reciprocal exchanges with influential patrons ultimately grounding the social protection entitlement claims of low income villagers. He documented instances of multiple vulnerable people being forced to forfeit the first instalment of widow and disability pensions to an influential person in order to receive benefits.

Singh and Hemrajani (2018) also documented clientelistic exchanges in Saharanpur, Uttar Pradesh, between clients and intermediaries where local brokers charged fees to help navigate various state institutions in order to access programs and services. They refer to the practice as 'guardianship' which is along the same lines of what Auerbach (2016) calls 'everyday acts of problem solving and brokerage' which 'provide a stream of rents for leaders who can attract a following'. They also reported that in February 2017, a surveyed contractor explained that patrons often allocate tenders and rents to district council members and their families in return for their intermediary services.

Prior to the 2012 election, the business sector expressed frustration that Chief Minister Mayawati's government had implemented changes which substantially increased the scope for bribes and corruption, such as scrapping the centralised systems of public procurement that had been operated by the directorate of industries (DI) since prior to independence, with the government announcing each department would conduct its own procurement. According to industry associations, even although the DI bureaucrats were not 'purer than anyone else', each department now potentially became a hub of graft. One Kanpur-based businessman suggested that 'if the selling price of top posts in the bureaucracy itself has gone up sharply in recent years, then it's logical that they [bureaucrats] will try and recover those costs from us' (Economic Times, 2012).

Further, a government program providing food grain to households below the poverty line was the subject of allegations that entitlements from over 30 districts had been siphoned off and sold on the open market, involving hundreds or potentially thousands of government officials from the Regional Food Controller's office and District Rural Development Authority (The Economic Times, 2012).

Finally, a study in northern Uttar Pradesh found that government programs that distributed entitlements to the rural poor, such as the PDS scheme, were ineffective at strengthening food security, despite the program enabling access to staple cereals (Petrikova and Hudson 2017). The intended beneficiaries of the program explained to the researchers that subsidised in-kind benefits provided by the government to 'Fair Price Shops' were often diverted to the open markets, which is consistent with other studies (e.g.

Kochar 2005, Kaushal and Muchomba 2013) which found the PDS had no measurable impact on food security due to corrupt leakage effected by intermediaries.

These experiences are corroborated by large-scale surveys such as by Transparency International (2008) that reported 71.9 percent of surveyed households in the state perceived there was corruption in the administration of the Public Distribution System (PDS) which distributes subsidised rice and other food sources to the poor, the highest in India. 79 percent reported perceived corruption in the rural employment scheme, the second highest in India only after Assam, and almost twice the average level of perceived corruption across all states. Similarly, in surveys by the National Sample Survey Organisation, Uttar Pradesh, along with Bihar and Jharkhand, was one of the poorest performers in 2004-05 and 2009-10.

In conclusion, the newly elected BJP administration in 2017 had little recent governing experience in the state, and accordingly had much weaker historical or co-ethnic links with local elites, which, as described above, have a long history of mobilising voters through the politicisation of social security programs, along with obtaining resources through corrupt leakage from these programs. Accordingly, when the BJP was elected to power after fifteen years of rule by regional parties in Uttar Pradesh, implementing digital platforms to distribute government payments within a number of months was a potentially powerful move in disintermediating the brokers of the regional parties who had links to voters based on both longstanding incumbency and regional identity. This would be consistent with both the speed and extent to which the BJP implemented digitisation of government services and entitlements.

In addition to the benefits from disintermediation of local brokers aligned with their rivals, the theory in Chapter 4 suggests the subnational BJP government may also have been incentivised to align with the federal government to support a key policy, the success and 'electoral externalities' of which could have benefitted both levels of government, and indeed there is some anecdotal evidence that the full-throated support of DBT initiatives by the new BJP administration in Uttar Pradesh benefited the party at both levels. Campaigning in Kushinagar, in eastern Uttar Pradesh in the lead up to the 2022 state assembly election, Prime Minister Modi argued that the previous Samajwadi Party regime had blocked development and welfare schemes launched by the central government but swift implementation of DBT by the new state administration had allowed the government of India to credit ₹80,000 crore into the accounts of the farmers for procurement of agriculture products and ₹27,000 crore under the PM Kisan Nidhi Samman scheme (Hindustan Times 2021).

This led political commentators to speculate that cooperation between the tiers of government had enabled the BJP to create a 'strong narrative of the need for another term of 'Double Engine' government in which transparent and efficient welfarism will be jointly practiced' (Sahoo and Ghosh 2022). Other

commentators have referred to DBT as Modi's 'Deadly Battle Tank' and argued that it has 'reaped a rich harvest for the BJP in the Assembly elections held after 2015' (Sanjeev 2022). Finally, it has been speculated that the swift implementation of DBT by Uttar Pradesh's government's made the state the biggest beneficiary of the Centre's DBT funds (The Print 2021).

West Bengal

West Bengal was the last state in my dataset to announce that they would implement digital benefit transfers and ranked 36th from 36 states in a state-wide comparison of DBT implementation. This outcome is one of the clearest examples of where incentives to reform, as conditioned by partisanship, competition and pre-existing clientelism, are highly attenuated, and is consistent with the theoretical intuitions discussed in earlier chapters. I review each of these factors and how they affected the behaviour of subnational politicians in West Bengal over the reform period.

On the eastern seaboard of India and the fourth most populous state with over 90 million people, West Bengal is famous for being home to the world's longest standing democratically elected communist party government. Jyoti Basu from the Communist Party of India (CPI) held power as the Chief Minister from 1977-2000, and the CPI reigned continuously until May 2011, when the party lost power in a landslide to the All India Trinamool Congress (TMC), a centre-left party. Mamata Banerjee of the TMC was elected as Chief Minister; she would go on to lead her party to three consecutive election victories at the state level and remains in power in 2022.

In both Chapters 3 and 5, I found that states that were co-partisan with the federal government were on average more likely to announce reform earlier, and implement it more extensively. The government of West Bengal has not shared the party of the federal government at any point during the last fifty years, and so did not face the pressure to announce DBT reform in order to satisfy the demands of the central government or make a partisan contribution to the success of a flagship policy.

Instead, Chief Minister Mamata Banerjee has consistently opposed direct benefit transfer, arguing that the federal government 'should respect the operational autonomy of the states in fiscal matters' (Business Standard 2016) and requesting that funds from federal programs (such as the Pradhan Mantri Kisan Samman Nidhi Yojana scheme) be routed through the State government, to be disbursed through traditional channels (The Hindu 2020). This is consistent with my theoretical prediction that where state-federal copartisanship is absent, subnational incumbents may perceive the opportunity to delay reform as a tactic to stymie their opponents at the federal level, as well as preserve their own broker networks.

Indeed, while Chief Minister Mamata Banerjee was opposed to the scheme when it was first announced by the Congress government, she appears to have delighted in her role as an antagonist when it was taken up by the BJP after being elected federally in 2014. She accused the party of 'unleashing an autocratic rule and destroying the federal structure of the country' and said that her party would play a role in ousting it from power at the Centre (The Wire 2017).

Examining media and parliamentary records, we can see that the opposition of the TMC party continued for years, even as states around West Bengal embraced reform. In December 2012, when the Congress led federal government announced the direct cash transfer of subsidies to beneficiaries where the entitlement amount would be transferred to beneficiaries' bank accounts linked to Aadhaar cards, Chief Minister Banerjee said to the media that 'We don't agree with the scheme. West Bengal never agreed to this' (Economic Times 2012). West Bengal was not alone in this position: Chief Minster Jayalalitha of Tamil Nadu, another subnational government with strong local networks that did not share the party of government at the centre, wrote to the Prime Minster arguing that 'in a federal structure like ours, the choice of designing and implementing welfare schemes is best left to the States', positing that bypassing the states in the distribution of benefits was violative of the constitutional distribution of powers (Economic Times 2011).

In 2013, the INC federal government selected two districts from West Bengal for the roll out of direct benefit transfer, and the Chief Minister threatened 'gherao' (protests) if the linkage of Aadhaar with subsidies went ahead (Times of India 2013). When power changed hands at the federal level after the 2014 election, and the BJP continued and extended the ambition of the DBT program, Chief Minister Banerjee continued to oppose the reform.

In 2016, Chief Minister Banerjee wrote to the Centre asking it not to make Aadhaar cards mandatory for those working under the NREGA scheme, with a source quoted saying the state had shown the way to pay beneficiaries such that 'the credit goes to the state and not the Centre' (First Post 2016). There is some survey evidence that supports the concern that digitising payments from government programs, especially when doing so is a reform propagated by the federal government, may lead voters to attribute those benefits to the federal, rather than the state government. In large-sample surveys conducted after the 2016 and 2021 state elections in West Bengal, voters were asked to whom they would give credit for various social welfare programs: the central government, the state government or someone who may act as local broker, namely a local politician, party worker, bureaucrat or government officer. In 2016, when West Bengal was still actively resisting DBT reform, 52 percent of valid survey responses said that they gave credit to the state government for the benefits that they or their family members received from a government program. 23 percent gave credit to local brokers, which was twice as many as the 10.4

percent of citizens that attributed the benefits to the federal government (Lokniti Programme for Comparative Democracy 2016). In 2021, which was after DBT had finally begun to be implemented in West Bengal, results for programs that were delivered by DBT were dramatically different: 76 percent of valid responses gave credit to the central government when asked about the Pradhan Mantri Ujjwala Yojana program (a program subsidizing gas for low income women), with 20 percent crediting the state government, and only 0.1 percent crediting local brokers bureaucrats (Lokniti Programme for Comparative Democracy 2021). This is consistent with evidence that Indian voters have been increasingly more likely over time to credit the central government for entitlements they receive under welfare schemes as opposed to state governments or local politicians (Deshpande et al 2019).

Later in 2016, at a meeting of the Inter-state Council Secretariat, Prime Minister Modi shared his vision for DBT to extend beyond cash transfers for in-kind goods like kerosene, foodgrain and cooking gas, to the authentication of beneficiaries of government programs and services, such as education and health and subsidies for utilities like water, transport, electricity. At this meeting the Chief Minister of Madhya Pradesh, Shivraj Singh Chouhan, provided evidence of how the use of Aadhaar-based DBT had helped his government save substantial amounts of money by eliminating seventy thousand duplicate beneficiaries on pension rolls and thousands of duplicate students from government scholarship programs. The Modi government celebrated opposition run states such as Odisha noting their appreciation of the DBT program but Chief Minister Banerjee maintained and voiced her opposition to DBT at that meeting (Economic Times 2016).

In the midst of this, Banerjee led the TMC party to a landslide victory of 212 of 294 Assembly seats in the 2016 subnational elections. This was in spite of the *Narada News* media sting, a highly publicised incident two weeks prior to the election where 12 of the TMC's top leaders were caught on video taking bribes. At the time, commentators argued this election result demonstrated that 'corruption in the state is conceived as a necessary evil, linked with quick and tangible delivery of public services' (Nath 2017) and that voters, unlike those in states like Goa, were not likely to vote on corruption as the dominant issue in the campaign, undermining the value of a potential governance boost as a benefit of implementing DBT reforms.

In 2017, West Bengal initiated legal proceedings in the Supreme Court arguing that federal action to makes Aadhaar mandatory for all citizens to avail government benefits was inconsistent with Article 32 of the Constitution. When the Supreme Court declined to arbitrate the matter, ruling that Article 32 could only be asserted by individuals against state actions which violate their fundamental rights, Chief Minister Banerjee threatened to file a plea in her personal capacity. In September 2018, the Supreme Court ruled that the Aadhaar scheme was constitutionally valid, but limited the ability of the government to link the

Aadhaar system with mobile phone numbers. Chief Minister Banerjee claimed this verdict as a personal victory vindicating her stand against the Modi Government, saying the ‘days of the BJP government are over in the country’ (Times of India 2018).

In 2019, a new DBT-enabled federal health scheme called the Ayushman Bharat Pradhan Mantri Jan Aarogya Yojana (AB-PMJAY) was launched. Political commentators at the time pondered whether opposition-ruled states - especially Madhya Pradesh, Rajasthan and Chhattisgarh, where recent state elections saw the fall of BJP governments - might withdraw from the scheme, perceiving it to be launched at a politically convenient time to help BJP win votes in the elections. However, these states continue to be part of the scheme and other states that were slow to join - Kerala, ruled by the Communist Party of India and which was a strong critic of the scheme when first launched and INC governments in Punjab and Puducherry, where it was conjectured that the Congress governments were waiting for the election dust to settle to be a part of it, eventually joined. West Bengal was the only state not to join (Business Insider, 2019).

Similarly, when in 2019 Prime Minister Modi announced his flagship DBT program, PM-KISAN, a program to provide payments and subsidies directly into the accounts of rural famers, West Bengal did not initially join. In early 2020, West Bengal Chief Minister Banerjee agreed to implement the program, on the condition that the funds be routed through the state government instead of DBT. This led to Kailash Vijayvargiya, National General Secretary of BJP, to ask if in West Bengal, DBT was an acronym for ‘Didi[2] Benefit Transfer’. He was reported asking ‘Why would you need money to be routed through the State government? Does someone need cut money from it?’ (Business Line 2020).

While I outlined above the incentive to resist reform based on the non-alignment of parties at the central and state level, does this account for this long history of refusing to implement the policy? As I set out in earlier chapters, other considerations – such as the strength of regional networks, the level of clientelism and competition may influence incumbent preferences.

In terms of state-local partisanship, West Bengal is an example of a state where subnational governments have a long and documented history of being intimately intertwined with the local administration of benefits, an arrangement that would be disrupted by the digitisation and direct transfer of benefits to citizens. Despite the TMC having been elected in 2011, only shortly before DBT reforms started to be promoted at the state level, the party could also be considered to have strong local networks based on a common regional identity, and both of these factors in my theory would predict delay in adopting DBT.

[2] Chief Minister Banerjee was often referred to as 'Didi' (meaning ‘elder sister’ in Bengali).

First, as I argued in Chapter 2, when state level politicians share a political affiliation with the brokers and local politicians who have historically controlled regional patronage networks, they will be motivated to preserve these networks by resisting or delaying implementation of digitised benefit delivery, given that resources diverted from welfare programs by brokers or overt politicisation of government benefits can be used to support subnational politicians in elections through clientelistic mobilisations of voters (e.g. turnout buying or more direct quid pro quo threat-based exchanges). Although West Bengal performs well in large country-wide surveys on the prevalence of corruption, ranking as one of the least corrupt states in the 'India Corruption Survey 2019' conducted by Transparency International India and similar, earlier surveys, researchers have documented instances where intermediaries extracted rents or intimidated citizens.

Bussell (2017) found in her work that under the previous Communist Party of India government in West Bengal, a policy to expand services offered in government-run IT centres that would allow citizens to directly pay bills and apply for services, and consequently disintermediated brokers, faced both a lack of political support and active resistance from various departments across the state who did not provide technology companies with the data needed to digitise government services. Departments 'had their own infrastructure in place for collecting payments and they didn't see why they should go along with a new model' according to a bureaucrat interviewed in 2008.

Bussell argued that while the Chief Minister was quick to take credit for the initiative in public forums, bureaucratic resistance to administrative reform was successful because there was a lack of political effort to ensure that the centres themselves functioned as intended. Her explanation for this was that political leadership saw a potential benefit from providing government information and forms via an online portal and service centres—services that elicit minimal to no rents— but once other 'higher-value' services were proposed for inclusion in the centres, departments were allowed to resist the state technology organisation and maintain their own established service delivery practices.

Qualitative work by Nath (2017) also found evidence that intermediaries in West Bengal extracted bribes from beneficiaries. For example, across multiple districts in the state, he found that families were conditioned to pay to access government programs such as the Indira Gandhi National Old Age Pension Scheme, and generally expect to pay between 10,000 and 15,000 rupees to access benefits under the Indira Awaas Yojana scheme. Similarly, he estimated that between 10 – 15 percent of the wages under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is extracted from the beneficiaries by local TMC party leaders.

However, there is some evidence that in West Bengal, the main incentive for refusing reform is prolonging the ability not just to extract rents but to politicise access to (and claim credit for) social benefit programs. A growing body of research has documented the nexus between politicisation of public service delivery by local brokers and officials and the electoral strategies of regional and state level politicians in India (Wilkinson 2006) and scholars have argued that political leaders in West Bengal have entrenched themselves in the administration of government benefits with a long history of intermediation and gatekeeping by both the Communist Party historically and the TMC in more recent times. Specifically, political parties in West Bengal have been successful in casting the government as something remote and inaccessible that could only be reached through an intermediary, and this arrangement would be threatened by the direct, digital delivery of government benefits.

Nath (2018) for example documented an elaborate mediating role played by local brokers, where this intermediation role was literal and physical: he documented the Communist Party systematically establishing its party offices near the gram panchayat, so that it would be difficult for individuals seeking any form of municipal service, such as a license, or to register for entitlements to do so without knowledge of, and interaction with, a party representative. He argued that 'it was clear that an elaborate gatekeeping mechanism was pushing the villagers away from accessing the gram panchayat and empowering the party mechanism instead'. As a result, the domination of the party and its mediating role in getting access to local governance institutions was in West Bengal was normalised: government institutions were widely perceived as 'unknown systems of paperwork, bureaucracy and restrictions' with the gap between citizens and the state bridged by the party which presents itself as the 'friendly' and accessible extension of the government (ibid).

The TMC came to power in West Bengal in 2011 after a long and historic reign by the Communist Party of India. Why didn't it view DBT as a potentially powerful weapon to disintermediate the networks of its predecessor, as the BJP in states like Goa or Uttar Pradesh did?

First, ethnographic work by Bhattacharyya (2016) suggests that in the 'party society' of West Bengal, where the primary mechanism available to marginalised people to access state benefits is political mediation, many villagers accepted party affiliations as an prerequisite to benefit from government schemes, and the TMC may have seen the ability to capitalise on this as more powerful than an anti-corruption agenda.

The TMC party also greatly expanded welfare programs when it came to power in 2011. This expansion in social safety net programs is argued to have won it votes – including the largest-ever mandate in the history of West Bengal in 2016. But beyond expanding coverage, there is evidence that continuing the

broker-mediated strategies of the Communist Party has arguably been highly effective in terms of credit claiming and ensuring voters associated benefits not with the government and bureaucracy but with specific parties and politicians. Nath (2018) gives the example of bicycles given to students under a government program being bright green, the party colour of TMC. 'Jai Bangla' (Bengal wins) was both the campaign slogan of the TMC as well as the name of a pension program to provide financial support to needy people across the state.

Further, rejecting DBT as a policy associated with a national party in the name of more state autonomy in a federal structure was consistent with the emphasis on regional identity that has been argued to enable the TMC's success in reaching out to the tribal populations, scheduled castes, women, and rural populations of Bengal. Identity has played a central role in the electoral politics of post-Independence India (Chandra 2000) and ethnic and regional parties who have characterised themselves as the champions of the cause of local issues has been central to their electoral mobilisation of voters (Chandra 2004).

Chatterjee and Debnath (2021) for example, argue that central elements of the TMC's political campaigns have been regional pride and promotion of Bengali identity, with national parties such as the BJP portrayed as cultural outsiders bent on destroying Bengali culture, secular society, and intellectual heritage. They argued Mamata Banerjee's campaign slogan 'Jai Bangla' was evidence of two strategies: the first 'to mobilise the Bengalis against the so-called cultural outsider BJP' and second, to seek more state autonomy pertaining to the centre-state relations under the Indian federal structure. In maintaining broker-mediated government entitlements, the TMC may have believe it would be able to mitigate both credit claiming by the BJP, and provide local brokers with the means to make identity-based appeals to citizens during elections.

Adoption and resistance

In November 2019, it was reported that 'Mamata Banerjee has apparently taken a 180-degree turn on Aadhaar with the Bengal government approving a proposal to link people's 12-digit unique identification numbers to rations cards' (The Telegraph 2019). While my theory explains why West Bengal delayed announcing reform almost ten years after most other states, why did the West Bengal government finally announce reform, and was the policy implemented in line with announcements?

Earlier in the year, during the 2019 Indian General Election in April, Prime Minister Modi personally campaigned in West Bengal for the BJP, promising development initiatives and attacking corruption in the TMC government. The BJP won 18 parliamentary seats, an improvement of 16 seats from the last election, compared to the TMC's 22 seats (12 fewer than in 2014).

The November 2019 announcement was made leading into a year of campaigning ahead of the 2021 legislative assembly elections in West Bengal, where the BJP's campaign centred again on government entitlements and corrupt diversion of these by the TMC (Chatterjee and Debnath 2021). BJP President JP Nadda argued that 'cut-money', or illegal commission was extracted from beneficiaries of social welfare schemes by TMC leaders and district officials, and the government was facing allegations of nepotism and corruption during the distribution of compensation for villagers affected by cyclone Amphan (Hindustan Times 2020). Prime Minister Modi, when campaigning in the state, accused the TMC as standing for 'Transfer My Commission' and promised that DBT reforms would improve the lives of the poorest citizens by guaranteeing them the full value of their entitlements (DNA 2021).

This campaigning occurred in the context of an estimate released by the state food and supplies department that suggested that over 15 per cent of government funds could be saved if West Bengal could stop corrupt leakage along the supply chain for subsidised commodities for the poor, which amounted to Rs 500 Crore (~ $67 million) annually in food distribution, and further increased pressure on Chief Minister Banerjee over corruption allegations. Against this backdrop, announcing DBT reforms potentially alleviated pressure through demonstrated action to reduce corrupt leakage from entitlements.

Despite the 2019 announcement, in February 2020, West Bengal was ranked 36th of 36 states and territories in the ratings comparing state performance on direct benefit transfers (Government of India, 2020). Media reports noted that the state did not implement several central schemes in which subsidies are involved and had not implemented a number of infrastructure and regulatory reforms to enable DBT fund flows (Economic Times 2020). In March 2021, for example, 17 states had implemented the 'One Nation One Ration Card' system which enabled them to borrow up to 2 percent of their Gross State Domestic Product from the central government, half of which needed to be used to implement 'citizen-centric' reforms, including the installation of electronic point of sale devices at Fair Price Shops which distributed subsidised government commodities. The loans were contingent on Aadhaar seeding of all the ration cards and beneficiaries in the State, and West Bengal was one of the largest states not to have implemented the system.

Further, in February 2021, a few months prior to the May state assembly election, Mamata Banerjee announced a range of government programs that were not digitally delivered, and that were launched by and identified with her specifically, such as 'Maa's Kitchen' or 'mother's kitchen' for the poor and new bicycles to students (India Today, 2021). Had DBT eradicated interactions with citizens for programs with regularly scheduled payments (such as pensions), these programs all provided the scope for personal interaction with voters.

In conclusion then, the delayed announcement and weak implementation of digital infrastructure in West Bengal can be likely explained by the considerable costs it would pose to the incumbent TMC party, in an environment where the benefits of reform were not initially salient. In a state where the incumbent had expanded the scope of social programs but the rate of theft of entitlements was relatively low compared to other Indian states, voters showed little appetite to punish political actors for instances of corrupt behaviour, such as the Narada news sting. Accordingly, the putative benefits of a 'governance boost' were of questionable value when voters continued to return the TMC to office in the face of various scandals.

Similarly, in a state where the incumbent has comfortably won the last three state elections, weighting the present value of patronage networks more highly than the future value of locking-in opponents to a high-transparency regime (the insurance mechanism) made sense given the considerable value of those networks. As a bureaucrat noted in 2010, the threat to rents was a major deterrent to service reforms in the state: 'one of the biggest issues or challenges for eGovernment and kiosks is all of the people who will lose money from the new system' (West Bengal Technology Corporation Representative, Calcutta, January 18, 2008) in Bussell (2012).

Of potentially even more influence than the loss of corrupt rents was the potential of digital delivery platforms to reshape how voters attributed credit for social programs, which have played a critical role in the electoral success of the TMC party. As noted above, post-electoral surveys show that the proportion of citizens who gave credit to local brokers and the state government for government programs plunged after DBT had finally begun to be implemented in West Bengal (Lokniti Programme for Comparative Democracy 2021). In a state where incumbents have a long history of utilising their local networks to politicise access to - and enable partisan credit claiming for - social programs, the strength of the TMC's local networks based on shared regional identities reinforced the incentive to delay reform as the TMC sought to maintain the intermediated distribution of social spending.

Finally, with electoral competition in the state being relatively low during the initial period due to a diminished Communist Party of India and the poor performance of national parties in state assembly elections in West Bengal, Chief Minister Banerjee was in a position to exploit her relative safety to antagonise her central government counterparts by delaying reform. Consistent with my theory that when clientelism is low, incentives to reform strengthen as competition increases, once the BJP proved a threat, campaigning effectively with a promise to improve program delivery in the state, the TMC finally announced they would utilise digital platforms.

Conclusion

Incumbents in Goa, West Bengal, and Uttar Pradesh all faced different political landscapes in terms of electoral competition, histories of clientelism and relationships with federal and local actors. This chapter highlighted the very different trajectories that subnational governments took in terms of the timing and scope of implementation of digital platforms to disintermediate brokers. Examining statements made by political leaders and the proximity of these to state and federal elections, qualitative research about the shape and nature of political networks specific to regional areas and the nature of identity politics all help shed light on the context in which decisions regarding the use of digital infrastructure to distribute entitlements to beneficiaries in very different areas of India. In the next chapter, I discuss some of the ways that digital authentication and payments systems evolved during the COVID-19 pandemic, and the implications for the quantitative and qualitative findings I have made in this dissertation.

Chapter 8: Conclusion

On 30 January 2020, the World Health Organisation declared COVID-19 a public health emergency of international concern. As the virus spread across the planet, it spurred a worldwide increase in social protection measures as governments sought to mitigate the risks to health, livelihoods and incomes faced by communities in lockdown. By July 2020, almost 200 countries had announced fiscal support measures for citizens and businesses with payments reaching over one billion people, the largest mobilisation of social assistance that the world had ever seen (International Labour Organisation 2021).

More than ever before, politicians and bureaucrats looked to the kind of digital infrastructure theorised in this dissertation to rapidly and efficiently facilitate the processing and distribution of millions of payments to citizens, on a scale that would have overwhelmed paper and people-based systems, as well as limit the spread of the coronavirus by curtailing physical interaction within communities. Preliminary data suggests that states that had built more extensive digital delivery infrastructure were far better able to disburse emergency assistance (World Bank 2022) and those that did not took longer to identify and send help to citizens (Palacios 2020). India, for example, was able to utilise its DBT infrastructure to send payments to more than 200 million women within days of the government announcing assistance, and similarly, Pakistan was able to digitally deliver financial assistance to low-income women through its existing Benazir Income Support Program (Gelb and Mukherjee 2020).

While digitisation of COVID-related assistance occurred at most or all stages of the administration process in high and middle-income countries, there are multiple examples of ‘digital first’ assistance programs that identified target beneficiaries or authenticated applications using digital IDs and used digital wallets or direct deposits to make payments to beneficiaries in developing economies. Gelb and Mukherjee (2020) give the examples of Namibia, South Africa, Brazil, Pakistan and Togo, which solicited and received large volumes of applications for emergency relief via chat applications or websites on mobile phones and used digital IDs to rapidly verify eligibility and eliminate fraudulent applications. Namibia, for example, needed to validate almost 2.3 million applications resulting in some 970,000 unique individuals, and similarly in in Pakistan, the Ehsaas social protection program received 146 million SMS requests for assistance, of which a third were found to be unique claimants. Without the ability to remotely identify beneficiaries, the incidence of payments to ‘ghost’ or duplicate applicants would likely have been much higher or the process to identify them much slower. Governments in these cases were able to open accounts remotely for citizens who didn’t own one already to be able to deposit their entitlements, once authenticated.

If governments didn't possess or choose to use digital infrastructure to solicit, verify and deliver assistance, governments relied on intermediaries to exercise their discretion in these matters. An analysis of developing country COVID response found that the Philippines was an outlier in using a paper-driven application process operated by local government officials to identify beneficiaries and distribute benefits, despite having a social registry that covered around 75 percent of the population (Palacios 2020). This necessitated physical contact between officials and families in the early days of the pandemic when treatment was limited, took substantially longer than other countries to deliver relief and created opportunities for clientelistic distribution strategies.

Researchers conducting interviews with beneficiaries, community leaders and officials distributing relief under the major Philippines government COVID-19 assistance, the Social Amelioration Program (SAP) argued that the allocation of SAP funds was distorted at the local level because the creation of SAP beneficiary lists was devolved to barangay (district) leaders (Eadie 2022) and documented clientelistic interactions where entitlements were targeted along partisan lines.

Community workers, for example, reported that needy families were systematically excluded from the program if they were not close to the barangay captain or councillor, with one quoted as saying 'of course you know that in the Philippines if you're not in the same party or in the same group you don't receive your allocation' and another noting 'officials find ingenious and cunning ways to justify why these households were not eligible to receive aid'. Conversely, other families aligned with local government officials or local community leaders received two stubs (used to claim government food packs) while others only received one stub or none at all (ibid).

Intermediated distribution of entitlements also created opportunities to politicise access to the program along partisan lines. A field manager for the distribution of aid from the office of Vice President Leni Robredo of the Liberal Party reported that local politicians in areas not politically aligned to the Vice President would not allow his team to distribute relief goods, because those politicians did not want voters to credit an opponent with the assistance, or their loyalty to their patron questioned. The researchers also found cases where supplies or food donated by aid organisations or local businesses were repacked by local officials and branded with party logos, with one relief foundation associated with the Vincentian Missionaries refusing to work with political actors because they wanted their relief packs to be 'distributed to those who are really in need and not on the basis of how they would vote in an election' (ibid).

Further, by the end of October 2020, more than 7,600 complaints of corruption in SAP had been received by the Presidential Anti-Corruption Commission (Philippine Star, 2020). This is consistent with reports

from researchers that in order to receive entitlements, some families reported that officials forced them to sign waivers giving up future payments or goods under the SAP to which they were entitled (Eadie, 2022). Interestingly, in the cases where citizens had proof that they were entitled to payments under the SAP (such as low-income families who were already in receipt of 4Ps—an existing income support programme) the researchers found that SAP disbursement had lower rates of exclusion errors because they were able to more easily establish grounds for their claim. But in cases where the status of the beneficiary depended on discretion exercised by local officials, clientelistic exchanges were more regularly encountered (ibid).

The massive acceleration in digital payments by governments precipitated by the COVID-19 pandemic builds on a 'quiet revolution' that has taken place across the last three decades in social assistance programs across emerging economies (Hanlon et al. 2010). Large scale programs that involve payments or in-kind benefits to citizens have increasingly become a key policy lever to alleviate poverty and increase the resilience of communities in many developing countries who face risk, vulnerabilities, and economic shocks. A wide variety of programs have emerged over the past decades, including cash transfers to smooth consumption during humanitarian crises, age and disability related pensions, subsidies for food, fertilizer and energy, and public employment programs which operate as a form of income support.

Although definitions of social protection and assistance schemes vary across studies, scholars have consistently documented that the coverage of these programs has expanded dramatically since the 1990s across the global South, as has the size of the public sector, representing large and increasing flows of government funds which together constitute billions of dollars in payments from the state intended to improve the living standards of their citizens (Hickey et al, 2019).

At the same time that these programs have expanded, a rapidly growing set of information, communications and financial technologies is altering the operation of social safety net systems and the way that citizens interact with governments when accessing them. Digitally-enabled infrastructure such as one-stop service centres where citizens can apply online for government services and benefits, digital identification and payment systems that can remotely receive, verify and distribute the claims of beneficiaries can disintermediate networks of local actors who previously physically distributed cash or in-kind goods. When designed carefully and used appropriately, these systems can reduce corrupt leakage by improving the traceability of government payments, helping to identify spurious claims, and mitigate the ability of intermediaries to divert or control access to those funds to benefit themselves or their parties as sources of patronage and political power.

Governance advocates around the world have largely welcomed these innovations, because a large literature has shown that the impact of social protection programs in improving the lives of the most vulnerable beneficiaries is attenuated when these programs are targeted by political actors as sources of influence, power, personal enrichment, and electoral advantage. Social protection programs in particular have been systematically plagued by inclusion and exclusion errors, which scholars have attributed variously to political clientelism, elite capture, targeting inefficiency, leakages and corruption, information asymmetries and poor design (Akerkar 2016) and have gone so far to describe these dysfunctions as 'structural violence' when they deny some of the poorest people the means to sustain life by commodifying goods and services that are supposed to be provided free or at subsidised prices (Gupta 2012).

Clientelism remains a key electoral strategy around the world (Stokes 2021) and has been recently documented by scholars in sub-Saharan Africa (Isaksson and Bigsten 2017), southeast Asia (Tomsa and Ufen 2013) and Latin America (Nichter 2018). A large body of research has documented how the entitlements of citizens in these environments are not just stolen outright, but are often weaponised in electoral contests by politicians and their intermediaries who operate in the gap between the state and its citizens: local elites, brokers and street-level bureaucrats who divert or withhold cash and access to entitlements along partisan and ethnic lines, and use them as inducements in clientelistic quid pro quo political arrangements with voters (Bardhan and Mookherjee 2006, Besley et al. 2012, Stokes et al. 2013, Dunning and Nilekani 2013).

Although these interactions are well-documented in the political science literature, it has been argued that broader governance debates minimise the consequences of the extraction of rents or political allegiances in exchange for legal entitlements by street-level brokers as relatively unimportant 'petty corruption' and media attention is usually focused on the abuses of high-level power, or so-called grand corruption or crony capitalism (Chayes 2017).

While 'grand corruption' is of course extremely serious and causes widespread harm to individuals and society, it has been argued this framing underplays the degree of vertical integration in institutional structures as well as personal ties that link so called kleptocratic networks – in countries as diverse as Honduras, Afghanistan and Azerbaijan to Nigeria and Uzbekistan, varying amounts of these street-level rent extractions from citizens are handed up the chain of command in the form of cash or the outright purchase of office (ibid).

Further, the inability of many developing countries to raise revenue, formulate and implement policy throughout their territory, provide goods and services that meet the basic human needs of their population

and establish security and control within their borders is often attributed to ‘weakness’ in their capacity. A long line of development economists and political theorists have explored the efforts of states to expand their capacity and the constraints that prevent them from doing so (Scott 1998, Besley and Persson 2009). While the role of wealth and bureaucratic capacity in constraining governments from investing in state capacity is highlighted in this literature, a growing body of scholarship argues that national and subnational variation in state capacity cannot simply be explained by levels of economic development, and that weak state capacity can be an *intentional* outcome explained by the electoral strategies of the actors who control distributive spending, which are in turn influenced by political economy factors.

Scholars such as Stokes (2021) have argued that ‘the political economy of clientelism creates incentives for incumbents to defer or delay investments in institutional capacity, and that an incumbents’ desire for rents may cause them to underinvest in developmental public goods, with the effect of perpetuating the poverty of the very voter–clients who elect him’. These analyses have examined patterns of adoption of a variety of improved service delivery, governance and transparency reforms, such as civil registration systems (Bowles 2021), land registration and titling programs (Christensen and Garfias 2021) and government e-service centres (Bussell 2012) to understand in what conditions politicians may voluntarily relinquish the electoral advantages that accrue to systems of patronage and the commodification of social programs.

I contribute to this scholarship by investigating the sources of variation in the digitisation of government benefits and the infrastructure that governments use to deliver social protection payments, a major arena of international administrative reform that has the capacity to affect the entitlements of hundreds of millions of beneficiaries globally, but where an understanding of the mechanisms of how politics matter are underdeveloped.

The use of secure payments infrastructure to distribute government transfers and authenticate the identity of beneficiaries at the point of receipt, I have argued, are not just technocratic politically neutral solutions to logistical issues of distribution. They are important forms of state capacity that will allow governments to directly reach their citizens, and their absence is a choice which can prolong access of incumbents to resources and power. As social protection programs and payments increase, these institutions that are capable of defeating the widespread rent-seeking that has historically characterised their operation can only become more impactful to a growing section of the world’s population.

Within that context, I asked when are institutional inefficiencies in distributing social protection payments, *intentionally* designed or maintained by elites and their agents, and when do politicians take deliberate action to remedy these inefficiencies? Under what conditions do they perpetuate the status quo,

or act to dismantle systems through which they had previously extracted rents and influence? How does variation in economic and political institutions affect these decisions? In the remainder of this concluding chapter, I review my argument and findings, engage with critiques of digital infrastructure and consider the implications of my findings for reform of social spending systems.

The argument and the evidence

This dissertation attempts to solve a puzzle: in environments where incumbents have historically benefited from the proceeds of clientelism and corruption, either through direct enrichment, the provision of patronage opportunities for their political machines or the politicisation of government social programs, when and why would politicians voluntarily choose to implement reforms to disintermediate local brokers from the administration of social spending and forfeit potential sources of electoral advantage?

In Chapter 1, I brought to light the variation in experience of citizens outside the OECD who make or receive government payments, both within and across regions, income groups and countries. I used data on the digitisation of government-to-citizen payments to produce one of the first systematic analyses in the political science field to show that variation in the adoption of digital payments to improve welfare delivery (both across and within countries) is marked.

Further, there is a wide range of variation across regions and levels of economic development. In South America, Asia, Africa and the Middle East, substantial differences can be observed in the extent to which governments digitise the administration of welfare. In some countries, such as India, national incumbents have moved quickly to build and use infrastructure that reduces the use of cash as a medium to deliver benefits to citizens. In others, governments continue to delay, prolonging broker-intermediated systems that facilitate clientelistic politics and outcomes.

Contrary to the modernisation hypothesis, I found that this variation does not appear to be driven simply by levels of economic development. Bivariate correlations between GDP per capita and the level of government transfers received in cash, for example, suggest that although in general, industrialising countries transition to digital systems of governance as part of their development, with wealthy OECD countries administering their welfare systems entirely through modern payments infrastructure, the way in which low-income countries deliver transfers varies dramatically: from entirely cash-based to near completely digital.

Scaling up digital infrastructure, then, is not a bygone conclusion that follows the trajectory of economic development and I argued that the variation that exists in the use of cash-based systems in emerging

economies is driven by incentives that re-election seeking politicians face. In particular, I argued that those incentives are shaped by differences in levels of clientelism and political competition and proposed potential mechanisms though which politics influences patterns of digitisation. Specifically, I argued that there are three mechanisms through which technology-enabled delivery of entitlements affect government-citizen relationships.

First, by requiring the authentication of citizen identities through biometric technologies and directly depositing welfare entitlements and other government payments into a financial account owned and operated by a beneficiary, these systems establish a direct connection between beneficiaries and the government, bypassing networks of local actors who previously functioned as the local arm of the state by physically distributing cash or in-kind goods. This mechanically reduces (if not eliminates) the ability of those local intermediaries to divert or control access to entitlements to benefit themselves or their political bosses. Analyses of distributive politics in developing countries note that intermediaries who handle cash during the distribution process can often also represent the grassroots extensions of party machines and observe the political preferences of citizens where they operate (Auerbach and Thachil 2018). Other scholars have previously noted that government programs form a likely source of funds available for use in clientelist exchange (Weitz-Shapiro 2014), and ability of these local actors to withhold, make contingent or divert benefits unless beneficiaries vote or behave in a particular way therefore also enables clientelism: the practice of exchanging material benefits for quid pro quo political support.

Second, digital delivery of government payments increases transparency in the implementation of social programs, creating a reliable audit trail which enables increased potential scrutiny of governmental performance by citizens, NGOs and opposition parties. In this scenario, where local intermediaries act as the agent of the government, and the government acts as agent for the voting public, principal-agent models of transparency predict that the increased monitoring and sanctions enabled by better information may deter corrupt behaviour on the part of both sets of agents, improving outcomes for citizens.

Third, digitised systems of delivery can be ‘sticky’ – once they are in place, there are few precedents for returning to previous cash-based systems, which represents a constraint on the ability of both current administrations and future ones to exploit social programs as a tool to win elections. This is important for cases where the persistence of rent-seeking systems can be characterised as a collective action problem and where the reforms predicted by the principal–agent anticorruption framework (i.e. monitoring and sanctions) are insufficient to disrupt corrupt equilibria (Persson, Rothstein et al. 2013).

Together, these three features translate into both political costs and benefits for re-election-seeking incumbents, which I examined in Chapter 2. In terms of primary costs: especially in a high-corruption

environment, the reforms reduce the frequency of government-citizen interactions, diminishing the flow of funds through the hands of local elites that may previously have served as a form of patronage, with diverted monies or bribes extracted from access to government programs constituting a reward for loyalty to the incumbent and/or a valuable source of campaign finance. In high-corruption environments and so-called 'patronage democracies' – countries where politicians widely utilise the contingent distribution of benefits to mobilise voters – the politicisation of government spending is a highly effective source of electoral advantage and theft of funds from social programs can be a valuable source of campaign finance and voter inducements.

When politicians exploit government programs to fund clientelism, they create a perverse form of redistribution. As argued by Kitschelt (2000) 'resource-rich but vote-poor constituencies provide politicians with money in exchange for material favours, dispensed by politicians when they are empowered with public office (public works contracts, regulatory decisions, subsidies, monopolies, etc). Vote-rich but resource-poor constituencies receive selective material incentives before and after elections in exchange for surrendering their vote'.

The liquid and untraceable nature of cash renders it vulnerable to siphoning off by the local officials or intermediaries who distribute benefits on the part of the government, and weak identification systems allow leakage through claims by 'ghost' recipients. By contrast, the electronic delivery of transfers directly into the bank accounts of citizens, and the use of payment and identity verification systems to remotely verify that the intended beneficiary was indeed the recipient of the full amount of the transfer, makes it easier to trace payments and harder for ghost recipients to remain undetected (Klapper and Singer 2014). As argued by Singer (2009), clientelistic systems require politicians and street-level bureaucrats exercise discretion in the allocation of resources, and that these exchanges be made with minimal transparency. This creates incentives for politicians to resist reforms that would increase oversight and public accountability.

In this way, digitisation of government payments is similar to other transparency initiatives which attenuate the benefits of incumbency. Writing about freedom of information laws, Ackerman and Sandoval-Ballasteros (2006) note that 'although in the long run they [FOI laws] significantly improve governance, they do not represent an immediate benefit for those who are in power. FOI laws open the government to external scrutiny, making elites much more vulnerable to outside criticism and significantly empowering civil society. There are numerous individual freedom of information pioneers within governments throughout the world. But government leaders 'as a group' do not favour FOI laws because it is not in their interests to do so.'

In the face of these costs, why would incumbents voluntarily digitise payments? I argued that implementing reform may also bring two key benefits, which may in some conditions outweigh the proceeds of clientelism. First, a number of scholars have hypothesised that politicians may be rewarded by voters during elections for enacting a policy that improves welfare services and delivery and enables more credible anti-corruption platforms and promises relating to programmatic benefits.

The second potential benefit, given the stickiness of digital payment systems, is the reduced capacity of future administrations to engage in clientelistic bargains intermediated by local political actors and benefit from the proceeds of patronage and corruption. I argued that this second benefit, in certain conditions, may convince an incumbent that the electoral rewards of reform outweigh the costs even when they are currently enjoying the proceeds of corrupt behaviour. Specifically, incumbents who anticipate they may plausibly lose power in the next election have an incentive to prevent or make it more difficult for future governments to benefit from the electoral returns to corruption.

In this way, digital delivery reforms may potentially operate in a way that is similar to a number of other governance and transparency policies – such as freedom of information laws and independent judicial appointments – which are enacted as a form of 'insurance' especially when incumbents expect that they may soon be out of power and believe the costs of reform will be borne in the future by their political opponents. When facing the calculus of whether to reform, an electoral boost from good governance and foreclosing future returns to corruption for their opponents may outweigh the expected loss of campaign finance and patronage opportunities for local intermediary networks, especially if high levels of competition sharpen political incentives for insurance.

So when does reform actually occur? I offered and empirically validated a theory of variation in reform timing and implementation, arguing that the level of political competition influences the relative size of potential benefits of digitisation (namely a potential governance boost and an 'insurance' function) and pre-existing levels of corruption conditions the electoral costs (namely the loss of rents and clientelistic influence). More specifically, it is the interaction of political competition and pre-existing clientelism which determines the timing and extent to which incumbents will on average build and use digital public infrastructure reforms: when corruption and pre-existing competition are high, reform is less likely. There is a body of research which argues that high levels of corruption impede the adoption of anti-corruption reforms because if too many individuals profit from corrupt practices, corruption becomes a collective action problem.

Similarly, although there are several studies that find that political competition measures have a positive and statistically significant effect on the probability that a country would adopt reform - for example,

Berliner (2012) - other researchers have found that the effect of political competition in influencing reform outcomes is often conditional on the level of other factors. Weitz-Shapiro (2014) for example, finds that it is the interaction of political competition with economic development that creates the conditions for incumbent politicians in Argentina to eschew clientelist politics in the provision of government services.

I reviewed the theoretical bases for an argument that it is interaction between political competition and corruption, rather than either alone, that creates the conditions for some policymakers to opt out of clientelistic exchanges in the implementation of social programs. I also investigated the direction of this effect given competing predictions that emerge from the literature. I consider two scenarios: first, that reform is on average *less likely* in countries where corruption and competition are high, because incumbents with access to corrupt rents are motivated to preserve all avenues of electoral advantage when they are facing high levels of competition and have little incentive to implement reforms that disrupt established systems of patronage and local support. Conversely, I considered whether reform may actually be on average *more likely* in countries where corruption and competition are high, because the benefits of reform (such as an electoral boost from implementing good governance policies and the opportunity to foreclose future returns to corruption for their opponents) may outweigh the expected loss of campaign finance and patronage opportunities.

Having described the differences in the digitisation of government payments globally and considered the political economy dimensions of the reform, in the third chapter, I reviewed potential alternate explanations from a wide set of literatures for this variation and empirically tested these against my theory using cross-country data on cash-based government payments.

I found that neither pre-existing clientelism nor political competition have a linear relationship with the digitisation of government payments, and that incumbents in high-clientelism countries become less likely to implement reforms as competition increases, with this relationship being statistically significant. Additionally, explanatory variables drawn from other studies empirically testing the sources of variation in governance reform – such as levels of economic development – do not appear capable of explaining variation in the adoption by incumbent politicians of digital payments that bypass local brokers.

These results are consistent with the theoretical intuition of Scenario 2, which suggests that it is the *interaction* of political competition and clientelism that determines whether incumbents will on average adopt digital delivery reforms and not the *absolute level* of either variable, and that reform is on average less likely in countries where competition and clientelism are high, where incumbents facing high levels of competition may perceive that the costs of disrupting established systems of patronage and local

support outweigh the potential benefits of a governance boost or locking-in higher standards of transparency for future administrations. Further, there is limited evidence that alternative explanations - such as the modernisation hypothesis which predicts that increased levels of economic development and urbanism are key forces in prompting reform - are influential drivers of digital delivery platform adoption within developing countries.

To be clear, the findings of this cross-country analysis cannot be interpreted as causal. Correlations between the use (or not) of technology-enabled reforms in the administration of social spending and variables such as corruption are likely to be affected by omitted variable bias, even seeking to control for the level of economic and social development. But this analysis, the first in my knowledge relating to the digitisation of social safety nets, serves to help us to understand at a basic level the role that political economy factors may play in trajectories of reforms that can affect hundreds of millions of people.

In the fourth chapter, I turned to the incentives of subnational incumbents to implement reforms disintermediating local interlocutors in the distribution of welfare and other government social programs. Subnational governments are responsible for a large and increasing share of global social spending. Yet the academic scholarship examining reforms to social welfare systems and the adoption of anti-corruption measures has largely focused on macroeconomic factors and political institutions at the national level (Kitschelt and Wilkinson 2007) and as a result, the implications of decentralisation, the diverse political incentives shaping the behaviour of regional politicians and the dynamics between local and state levels of government are underexplored sources of potential variation in reform.

I proposed a theoretical extension to my model when applied in subnational contexts that highlights the role of partisanship. The central point of departure for this analysis is the observation that when reforms implemented at the state level curtail the flow of funds that pass through the hands of local brokers, a previously underexplored electoral trade-off is created: state level leaders motivated by electoral survival may need to choose between siding with or opposing a reforming national government in deciding whether to adopt or resist digitisation, which could come at the cost of (or represent the opportunity to) disrupt a flow of resources to their own local networks of patronage and brokers who intermediate welfare payments.

I theorised that subnational politicians face a unique set of costs and benefits from implementing digital infrastructure reforms, as determined by the interaction of pre-existing levels of corruption and political competition in their electorate, with the additional consideration of partisanship dynamics – both upwards with the federal government and downwards with local elites. The intuition that partisanship may influence reform outcomes at the subnational level is grounded in evidence that regional party operatives and state level incumbents are usually embedded within larger political party organisations whose

members often compete for federal level appointments or space on election tickets, and may benefit from 'electoral externalities' if copartisans at the federal level perform strongly, and so are incentivised to implement the flagship reforms.

Conversely, subnational governments composed of opposition or other parties that do not hold government at the federal level should be less likely to implement the reform, because by resisting they can help stymie the realisation of a flagship campaign proposal of their political rivals at the federal level, which may weaken their subnational rivals drawn from the same party. Digital infrastructure reforms then, create a trade-off for incumbents, for whom it is likely to have electoral costs, as well as benefits.

I theorised that the same factors identified in the cross-country analysis, namely the interaction between pre-existing levels of clientelism and political competition, will continue to have explanatory power when it comes to the variation in reform outcomes at the subnational level: specifically, the interaction between pre-existing levels of clientelism and the level of electoral competition will influence timing and implementation intensity of reform, but where two states face similar levels of clientelism and competition, we would expect that states aligned with the federal government would on average adopt digital infrastructure to distribute government payments earlier, as would states that were not aligned with local brokers and controlled only weak networks.

To test this theory, in Chapters 5 and 6 I examine patterns in the adoption and implementation of a specific digital infrastructure reform in India, namely the use of biometric identity systems to authenticate the identity of beneficiaries and digitally deliver their payments. India is an ideal arena to examine the political drivers of reform, as a highly competitive democracy that has a long history of clientelism, where subnational governments play a substantial role in the administration of social safety nets and have faced robust elections since Independence. I seek to resolve a puzzle: why did some Indian states voluntarily require all beneficiary payments under social protection programs to be digitally authenticated and remotely delivered, through the Direct Benefit Transfer scheme, and other states refuse to do so, sometimes for years?

My results in Chapter 5 are consistent with the cross-country findings in Chapter 3, namely that the interaction of political competition and pre-existing levels of clientelism influences when incumbents at the subnational level in India will on average announce that they are adopting digital delivery reforms. The results also support the claim that high levels of political competition or clientelism do not have a uniform effect on reform. Instead, the incentive to implement reform when competition is high is negatively correlated with the level of clientelism. The lack of significance of the theoretical variables of interest without the inclusion of the interaction term, suggests that neither pre-existing levels of clientelism nor competition alone are compelling explanations for when and why incumbents announce

digital infrastructure reforms. I find little support that the structural variables identified in the clientelism literature significantly influence reform timing.

In Chapter 6, where I extended my analysis to DBT implementation, I found that clientelism has a negative and significant relationship with the extent of digital platforms being utilised to distribute payments to citizens: states with higher reported rates of intermediaries extracting bribes on average have lower scores, implying that they have delayed or made weaker efforts to implement DBT reforms. Additionally, and like the analysis regarding timing, states that share the partisan identity of the federal government are on average more likely to have a higher score, meaning they have made more extensive efforts to utilise digital platforms to deliver entitlements to beneficiaries. I found limited support for economic or demographic influencing the extent of reform.

Taken together, the three empirical chapters suggest that political economy factors play an influential role in the timing and scope of implementation of digital infrastructure reforms at both the cross-country and subnational levels. The results are not neatly consistent – my findings on cross-country reform and subnational reform timing in Chapters 3 and 5 respectively are consistent with Scenario 2, but the results subnational reform implementation resemble Scenario 1, with corruption demonstrating a negative and significant relationship with reform implementation: states with higher reported rates of intermediaries extracting bribes have on average have lower scores, implying that they have delayed or made weaker efforts to implement DBT reforms. Across both Chapters 5 and 6, states that share the partisan identity of the federal government made earlier and more extensive efforts to utilise digital platforms to deliver entitlements to beneficiaries, clearly demonstrating that intergovernmental politics matters when it comes to reforms to disintermediate local brokers and improve service delivery to citizens.

In Chapter 7, I presented three subnational case studies to complement my empirical analysis. I reviewed the timing and announcement of digital benefit transfer in the states of Goa, Uttar Pradesh and West Bengal in a state-level process tracing effort delineating the key actors, processes and events that shaped the decision to announce and implement DBT in each one. In the context of efforts to develop and implement digital infrastructure reforms for government payments that take effect at the subnational level, tracing histories of reform and resistance may prove enlightening to those designing, implementing and evaluating these systems, and contribute to the scholarship on the political economy of policymaking, technology adoption and corruption.

I conclude the dissertation by addressing critiques of digitisation and discussing a few areas in which future research could be carried out to extend this work.

Addressing critiques of digital government infrastructure

Like a number of governance advocates, I have characterised digital infrastructure through which the state can directly interact with citizens as an exciting innovation capable of reducing leakage from social protection programs and improving the quality of democracy in countries where voters are beholden to intermediaries who control access to their entitlements. However, any reform of significant scope and complexity is likely to entail both logistical and other challenges, and I address three main critiques of digitisation in this section: namely, that is it not a 'silver bullet' that will definitively eradicate clientelism, concerns that it may enable surveillance or predatory behaviour by the state and finally that poor-quality implementation could endanger beneficiaries.

The first critique is that digital infrastructure to deliver government payments and services are not a panacea that will eradicate clientelism, corruption and solve the many challenges of economic development. Further, reducing rents from petty corruption may prompt politicians to turn to instances of 'grand' corruption, which digitisation does not prevent or may perhaps even enable.

The experimental evidence generated in studies to date provide a growing body of evidence that digital infrastructure reforms are highly effective in reducing leakage and improving the efficiency of government payment processes. Muralidharan (2016) for example finds that digitising India's National Rural Employment Guarantee Scheme (MGNREGA) payments in Andhra Pradesh reduced payment leakages by 40 percent. Costs to deliver payments significantly fell, as did the time MGNREGA beneficiaries spent collecting payments, with the new payment system generating 92 percent customer satisfaction rates.

However, while digitisation of government payments may be highly effective at reducing one form of non-programmatic distribution – namely clientelism effected by party-affiliated intermediaries in the course of interactions with citizens – it should be acknowledged that this reform will not solve all manner of governance ills: it is ineffective at mitigating other forms of non-programmatic electoral strategies, such as unmediated forms of partisan bias like pork barrel politics, or other forms of corruption, such as grand corruption.

In the United States, for example, clientelistic strategies in decades past have been documented by scholars such as Erie (1988), who reported that party machines in Chicago served as welfare brokers with the ability to politicise access to government programs, with two-thirds of the machine's precinct captains in 1936 reporting that they intermediated client contacts with social service agencies. Today, with government payments in the United States administered digitally by a largely non-partisan bureaucracy,

the practice of clientelism by local party machines in terms of rendering government payments conditional has been largely eliminated.

However, multiple scholars have documented partisan patterns of distribution of both federal funding to states and of state funding to local government units, both for job-generating projects and public infrastructure, such as major highways (known as pork barrel politics) and for non-conditional benefits to individuals, such as targeted programs for citizens in specific locations or socio-economic groups (Stokes et al 2013). Accordingly, while citizen-facing digital infrastructure can eliminate one form of non-programmatic distribution, that may simply prompt politicians to utilise other, non-conditional strategies to reach voters.

Further, if payments are digitised but beneficiaries are not authenticated, for example by reference to a national ID or identity documents, fraud can still occur. In the United States, where a large COVID-19 pandemic relief program was operated and payments were sent digitally or by cheque, beneficiaries of programs operated by the government were largely not required to validate their identity, and huge sums of government funds were lost to fraud. An estimated $45.6 billion was made in duplicate payments, payments made to dead people, individuals with suspicious email accounts or federal prisoners (New York Times 2022).

Second, while digitisation of benefits is highly effective at reducing corrupt leakage by intermediaries, it could potentially enable forms of grand corruption, where malfeasance occurs at an earlier stage, prior to payments being made to citizens.

Building the infrastructure to digitally administer social programs has the potential for large procurement contracts, and these may provide opportunities for the collection of significant rents. For example, beneficiary authentication technologies can be an important component of digital delivery, and the Ugandan civil society organisation Unwanted Witness raised concerns that the procurement process for the digital ID scheme in Uganda proceeded with restricted public access to key parts of the tender process through a ‘classified procurement’ program, contrary to Uganda’s Public Procurement and Disposal of Public Assets Act, 2003 (Faith 2021). A lawsuit won in 2019 by civil society organisation Corruption Watch also forced Cash Paymaster Services, the private company engaged by the South African Social Security Agency to deliver grants to 18 million citizens, to repay R 316 million to the agency after it was determined there was no lawful basis for the decision for that payment (Ray 2021).

Reducing the potential for future incidents of this type is an emerging consensus in the development community that digital infrastructure needs to more forcefully focus on inclusion, safeguards, and equity, which is driving a movement for open-source digital public infrastructure that supports the ability of

governments to serve their citizens more effectively (Voorhies 2021). Many of the components of digital infrastructure reforms, such as digital ID systems and payment systems, are now being developed as best-in-class digital public goods so they can be inexpensively implemented by developing countries, which should reduce both the opportunities for grand corruption and monopoly behaviours by private sector distribution parties.

The second critique related to efforts to build the digital delivery infrastructure of the state is that these efforts may directly or indirectly perform functions of surveillance or predation by government or create other risks for citizens if poorly implemented. This relates to debates about legibility of citizens, and the 'right to be invisible' of vulnerable populations, which could be threatened by efforts to identify them in order to deliver entitlements (Willitts-King et al. 2019).

The foundational role that identification plays in economic development is explicitly enumerated in Sustainable Development Goal (SDG) Target 16.9, to 'provide legal identity for all, including birth registration' by 2030 and the use of mechanisms to remotely identify and authenticate the eligibility of beneficiaries, such as digital IDs and biometrics, have been praised in the development community as a policy success, as seen above in the rapid response of countries who utilised them during the COVID pandemic. According to the United Nations High Commissioner for Refugees, for example, they are 'vital to the distribution of humanitarian aid' (Jacobsen 2015).

However, some elements of digital government delivery, including beneficiary identification and authentication, may require uniquely personal data, and robust safeguards are necessary to ensure privacy and security (Arendt-Cassetta 2021). Countries where digitisation of benefits occurs before consent and privacy regulations are in place are a particular concern. For example, a recently released internal audit of the World Food Programme's provision of digital assistance services in Iraq, Namibia, and Nigeria found that none of the projects had processes in place to ensure data protection and privacy (Faith 2021).

Further, when government payment systems are integrated with other databases through a unique citizen identifier, it becomes possible to coordinate programs across departments, screening against multiple criteria from the health, education, public education, tax and social security departments to design and deliver anti-poverty programs that support specific objectives, such as grants for education to boost female school completion, or drought assistance for farmers. In Pakistan, for example, applicants for government programs are checked against the National Socio-Economic Registry and assigned a proxy-means-test poverty score, as well as reviewed against several other criteria, including tax records and public employment rolls (Gelb and Mukherjee 2020).

However, while integration facilitates more sophisticated and targeted anti-poverty programming and can increase the speed at which governments can respond in crises – as was seen during the pandemic – it can also raises concerns around data privacy, specifically risks related to 'function creep' where digital infrastructure and the data that is collected data in the course of its operation is used for other purposes than the ones originally designated (Narbel and Sukaitis 2020). Civil society organisations have highlighted the potential use of biometrics by governments for law enforcement, border control, counterterrorism activities and national security as well as concerns that sharing data increases the risk of those receiving assistance being profiled or targeted by hostile governments (Willitts-King and Spencer 2020, Narbel and Sukaitis 2020).

In response to these specific concerns, a range of principles and partnerships have emerged, such as the ID2020 Alliance, which promotes safe and ethical digital identification globally and in developing country environments, namely digital ID that is privacy protecting and allows individuals to control access to their data (Arendt-Cassetta 2021). These actors are putting together frameworks for the appropriate legal controls, including comprehensive institutional frameworks safeguarding data and assuring user rights, management controls for monitoring and oversight, operational controls that promote security awareness, training and fraud detection, and technology controls that limit the processing of personal data and ensure the security of systems with access to that data (World Bank 2021). Digitisation advocates argue that when designed with data protection measures, which in turn offer better guarantees of data privacy, digital identification and authentication systems can be more secure than in analogue times and low-information environments where a person could prove their identity only if they could keep a paper-based birth certificate or passport secure – if they had one at all.

The third critique relates the challenges of implementing digital delivery systems. In settings with low levels of literacy or technological connectedness, concerns have been voiced that vulnerable citizens may struggle to transition to digital systems, or that the proponents of digital transformations are not doing enough to avoid unintentionally excluding or further marginalising the most remote and vulnerable citizens (Willitts-King et al. 2019). These critiques caution against 'techno-optimism or - solutionism' in suggesting that digital fixes can overcome the complex local challenges of government delivery.

The key risks highlighted in these debates are that the underlying elements needed to effectively implement reform are not in place, or that poor quality implementation may endanger beneficiaries. Poor quality implementation is a risk of any policy reform, but particularly for programs targeting low-income communities, who may be particularly susceptible to economic or health shocks and so more reliant on assistance programs for survival.

For example, while the Government of India's Public Distribution System (PDS) suffers from serious inefficiency and leakage, with the Planning Commission estimating only 27 percent of outlays reach beneficiaries, it is also the key instrument for combating food insecurity for many communities. An example of an implementation challenge occurred when PDS food subsidies were transitioned to digital benefits transfer for food in three Indian territories - Chandigarh, Puducherry and Dadra and Nagar Haveli – in 2015. A process monitoring study which tracked beneficiary experience during the process found that, in contrast to administrative and transaction data that showed the failure to transfer rate of payments was negligible, in general beneficiaries had very low awareness of receiving these transfers in their accounts (Muralidharan et al 2021). The study found there were no clear communication channels either for beneficiary notification of benefit disbursement (via auto-generated SMS messages or outbound calls to beneficiaries for example), or for reporting grievances around non-receipt, which meant many beneficiaries were unaware that they had been credited with the payment at all.

Despite this, in that same study, the authors documented a growing preference for DBT over time: less than 35 percent of beneficiaries reported a preference for cash transfers over food grains in the first survey round, compared to 65 percent in the third round. This preference is influenced by the choice and flexibility afforded by receiving cash, despite the flaws in reform implementation and beneficiary awareness. They also found that once they had received their payments, beneficiaries reported purchasing more and higher quality food than they had received as in-kind benefits and diversifying their diet (ibid).

Similarly, an evaluation of a social transfer program to low-income women in Pakistan brought to life some of the challenges that come with making digital payments to a population that is, for the most part, illiterate. Researchers found that some recipients did not understand the process to withdraw their entitlements at banks and were not able to independently use an ATM, forcing them to rely on family members to access their entitlements. It was found that subsequent education teaching beneficiaries on how to access their entitlements led to an increase in the understanding and use of the product (Klapper and Singer 2017).

Finally, there are also several practical and technical issues involved in digitising payments. A number of cases have been documented of citizens in India not being able to access benefits because of technical malfunctions, with the most recurring source of exclusion in DBT schemes in a study of the delivery of social protection entitlements in India being benefit processing, i.e., a failure that occurred during the process to credit a beneficiary's accounts with a cash transfer (Seth et al, 2021). These failures arose if beneficiary accounts were improperly linked to the Aadhaar-enabled Payment System, for example because of misspelt of beneficiary names that lead to rejection in the DBT back-end.

Promising policies to reduce harm from implementation challenges include pre-implementation diagnostic tools to improve program quality, flexible implementation that provides beneficiaries choice in when and how they access their entitlements, and strong grievance redressal mechanisms. In India, a DBT 'Readiness Assessment' was created to be able to pre-emptively determine and address logistical complexities or bottlenecks in each geography prior to implementation (Sharma 2015). The tool comprised 6 elements including beneficiary awareness, beneficiary data digitisation, bureaucratic readiness as well as financial infrastructure coverage, quality and sustainability, which can then indicate what precise improvements need to be made before entitlements are digitised. Further, flexible implementation can mitigate the risk of digital exclusion. Recognising that some citizens or households might not own a mobile phone, during the COVID-19 pandemic Namibia allowed up to ten emergency relief applications to be submitted through a single SIM, as long as each application had a unique ID number (Gelb and Mukherjee 2020).

Seth et al (2019) argued that clear mechanisms for citizens to seek redressal can mitigate implementation issues that arise during the digitisation of payments. They investigated the different pathways for resolution of beneficiary grievances that allowed citizens to obtain more information relating to their benefits (such as the amount and programs to which they are entitled, escalate issues to higher officials or request direct assistance and recommended a unified national DBT complaints system (ibid).

An example of such a system exists in Pakistan, where the design of Ehsaas, a social safety and poverty alleviation programme launched by Government of Pakistan in March 2019, included grievance redressal systems that have been integrated into administrative system of the program. Complaints from beneficiaries that are not addressed are escalated directly to higher level officials in the Ehsaas Delivery Unit (EDU) which provided technical support and monitor the implementation of the program, and if still unresolved, to officials in the Prime Ministers Delivery unit, creating multiple layers of oversight (Barber and Shahzad, 2022).

Experimental evidence also demonstrates that efficient grievance redressal systems that take advantage of the rapid increase in mobile phone penetration in low-income countries can be effective in improving last-mile delivery errors and delays for beneficiaries. Muralidharan el al (2019) conducted a large-scale survey to evaluate the impact of phone-based monitoring on a government program that transferred payments to 5.7 million Indian farmers. This program distributed physical checks, rather than directly deposited digital payments, but employed a methodology that could be utilised across a range of payment modalities. The government contracted a local call centre that surveyed 22,127 farmers within two weeks and collected information on implementation outcomes (including whether and when farmers received their checks, and any corruption during the process). The researchers found compelling evidence that the cheap, simple,

and flexible approach of monitoring beneficiary experiences using outbound phone calls can be a cost-effective tool for improving last-mile service delivery. This contrasts favourably with other smaller-scale studies of interventions to improve monitoring of bureaucrats, as the results suggest that phone-based monitoring can be rapidly deployed at the scale. Other countries and regions have begun to use outbound phone calls to gather data on service delivery, with Pakistan's Citizen Feedback Monitoring Program and Andhra Pradesh's Real Time Governance initiative as the most prominent examples (Gelb, Mittal and Mukherjee 2019).

Similarly, a randomised controlled trial study by Dodge et al (2018) found that even small improvements in administrator access to program operation information can have a significant impact on improving beneficiary experience. Researchers partnering with the Indian Ministry of Rural Development in two states (Jharkhand and Madhya Pradesh) to study the impact of a monitoring platform for wage payments that provided information about the status of pending payments ('PayDash') and actively identified actions to assist beneficiaries access their benefits resulted in a statistically significant reduction in payment delays. Technology that can rapidly surface issues such as failures to authenticate beneficiary accounts can then lead to improved delivery.

Finally, accounting for beneficiary choice in how they prefer to receive their benefits is a promising improvement to early digital systems. When choice is designed into the distribution model, citizens can select the provider, location and accounts they use to receive funds, are able to switch accounts, and they have a wider array of service points from which to withdraw cash. For example, Zambia introduced a payments model in 2017 where beneficiaries choose the provider they want to use to access their entitlements. The Girls Education and Women's Empowerment and Livelihoods project asked beneficiaries to choose among six different financial service providers and more countries are beginning to build greater beneficiary control like this over the entitlements process (Gelb and Mukherjee 2020).

Particularly in areas where financial infrastructure is limited or in the process of being upgraded, citizens should be able to express a preference to receive in-kind goods and payments rather than a cash transfer, paired with strong grievance redressal and monitoring mechanisms described above to ensure that the citizens in the most hard-to-reach areas are not subject to the kind of clientelistic bargains that digitisation efforts are intended to disrupt. This recognises that in countries with gaps in infrastructure and extremely vulnerable populations, there is no operational model (digital or otherwise) that will work perfectly from the very beginning. As argued by Gelb and Mukherjee (2020), digital infrastructure should be seen as a way to deliver the majority of claims efficiently and completely (that is, without leakage or delays), leaving scarce and costly human resources to focus on the most difficult to reach beneficiaries.

To conclude, digital payments of government benefits can be highly effective in solving for many of the concerns that have plagued their delivery across a wide range of settings but the challenges in delivering entitlements to beneficiaries in developing countries, particularly in rural areas, mean that digital tools may not always provide an immediate, straightforward and perfect 'fix' (Willitts-King et al. 2019). Careful implementation, appropriate safeguards and a promising and evidence-based range of mitigating policies, can ultimately can help transition the experience of beneficiaries in low-income countries away from the corrupt or clientelistic arrangements which continue to characterise social protection programs in the status quo.

Policy implications and directions for further research

The central implication of this thesis for the implementation of state capacity projects is that when public sector reforms that create winners and losers, a careful analysis of domestic political landscapes should be conducted in order to be able to systematically anticipate resistance to reform. This represents an important evolution in how technology projects to improve service delivery have been designed and developed in the past: assessing not just cost and technical factors as barriers to success, but also the incentives of political actors as a key cause of potential project delay or failure. In this section, I briefly summarise the policy implications that flow from my findings, as well as the areas where further research would be valuable.

In this dissertation, I provided one of the first theoretical treatments of a policy reform that has been puzzlingly understudied in the literature. Brokers pay a central role in clientelistic exchange, but brokers without resources cannot mobilise clients (Zarazaga 2014) and despite the potential to radically alter the design and targeting of social spending by disintermediating street level actors, technological advances in welfare administration (and levels of digitisation specifically) have been largely treated as exogenous to the operation of government programs, and not something with its own distinct political economy.

There is a body of research that asserts that transitions to programmatic politics can be largely explained by the modernisation hypothesis, with clientelistic phenomena such as vote-buying and turnout buying eventually rendered extinct by macroeconomic forces and structural changes to electorates wrought through industrialisation, urbanisation and the growth of the middle class. Although I found that higher income countries do largely deliver entitlements directly to citizens, when it comes to developing and transition economies, there is a wide range in the extent to which cash transfers are intermediated and can potentially be diverted, withheld or rendered conditional by local actors. With a growing evidence base suggesting that these kinds of digital infrastructure reduce the opportunities for quid pro quo politics,

there is a potential opportunity to disrupt clientelistic equilibria prior to countries reaching the levels of economic maturity that are usually associated with the collapse of machine politics.

It has also been argued that while public sector performance is a large and growing component of international development assistance, with around a sixth of World Bank lending dedicated to building state capacity to serving citizens, initiatives to improve the efficiency of government operations have proven particularly difficult to implement (Cruz and Keefer 2015). But as Rothstein (2021) notes 'it seems to be rather difficult to trace any major results from the many 'good governance' programs the World Bank and other international development organizations have launched since the mid-1990s'. In seeking to explain the low success rate of these projects, the empirical results in Chapters 3, 5 and 6 strongly suggest that domestic political contexts matter when it comes to digital infrastructure reforms, in terms of who adopts them, when, where and why, but explicit analyses of political economy factors are rarely included in project planning and evaluation of multilateral funders and proponents of these systems.

As noted by De La O (2015), there has been extensive research on social protection systems but 'the political processes behind the adoption and design of poverty relief programs (i.e., decisions about program benefits, eligibility criteria, operational rules, etc.), remain elusive'. Cookie-cutter approaches where reforms are applied without analysis or discrimination across geographies are unlikely to be effective, as are 'quick fixes' that disregard the specific political economy factors and history of a country (Mungiu-Pippidi 2020, Rothstein 2021).

There are signs this is slowly changing: Sugiyama and Hunter (2013) argue that 'given that the clean delivery of basic services is a cornerstone of the development of social rights, it is important to learn ways to design and implement antipoverty programs that avoid clientelism' and in 2022 the United States Aid Agency (USAID) published a 'Dekleptification Guide' which specifically emphasises 'windows of opportunity' to implement improved transparency and governance policies, explicitly recognising that political economy factors condition the success of state capacity investments.

This dissertation contributes quantitative evidence that this approach has merit and suggests that to improve the likelihood of success when building infrastructure that can link the state with citizens, policymakers should undertake a detailed consideration of the political economy factors elucidated in Chapters 2 and 3 and conduct an analytical differentiation between settings for state capacity investment and service delivery reform. Settings where has clientelism is low but political competition is high or increases are likely to be ripe for investments that enable digital distribution of government benefits, but

contexts where election margins are slim and incumbents have a history of engaging in quid quo pro arrangements with voters should be approached with intentionality and caution.

This shouldn't be taken to mean that improvements in state capacity should not be attempted in those states (where they would likely have the greatest impact) but that in those cases, reforms that improve entitlement distribution to citizens will very likely pose political costs to those charged with building and operating those systems. In these cases, it is worth considering how the potential benefits of implementation could be amplified, such that they start to outweigh the electoral costs in forfeiting the advantages of patronage. For example, baseline surveys and impact evaluations that track citizen satisfaction and improvements in government service delivery over time could be helpful in documenting governance gains made by incumbents.

Further, where subnational governments play a critical role in the implementation of these programs, considerations of partisanship (in terms of how they relate to both local actors and the central government) may help anticipate potential challenges or identify windows of opportunity - the circumstances in which political actors have incentives to embrace reform. But this is rarely called out - or is done so in a very limited way - in analyses of state capacity projects.

For example, in a paper on regional approaches to e-government initiatives in the Caribbean, Williams and Marius (2016) list 'national politics' as a key challenge to e-government projects implemented at the subnational level and note that the change in political leadership in Trinidad and Tobago in 2010 was a likely contributor to the delays experienced when implementing e-government projects. But their analysis was limited to only a few sentences, noting in a general way that t 'with a change of government, planned projects or projects that are in progress might get side-lined, or even abandoned'. A more detailed inquiry of what I termed central-state and state-local partisanship would enable a more precise understanding of the operating context for these reforms and may assist in determining when we can reasonably expect anti-corruption reforms to emerge by themselves and when outside actors or additional strategies are needed to disrupt established systems of rent-seeking (Berliner 2014).

Similarly, a chapter on the political economy of Multi-level Governance Reforms by the OECD notes that reforms which require the cooperation of subnational and local actors are complex but stops short of recommending any form of analysis of partisan landscapes. The report recommends creating structures to create dialogue across layers of government and increase the efficiency of coordination, and the use of pilots to demonstrate the effectiveness of reforms but fails to address whether these actors have any incentive to co-operate on these reforms in the first place (OECD 2017).

In terms of future research, a recent publication noted that ‘many countries are aiming to digitise their economies in the hope that this will allow them to centralise systems, make them more efficient, and reach a wider range of beneficiaries, among other benefits. While there is some relevant evidence on the merits and weaknesses of digitising government payments, there is still a great deal left to be studied and understood’ (Poverty Action Lab 2020). In this chapter, I have summarised some of the critiques that have been made of digital initiatives by governments and suggested some promising mitigating strategies. But further research to understand how to design and optimise entitlement transfers without harming beneficiaries in the process is critical.

Second, outside the scope of this dissertation but an important question for future research concerns the distributional consequences of state capacity reforms. Recent scholarship by Bowles (2022) and others argues that efforts to deepen state capacity may induce political opposition from elites, who believe that an enhanced ability of the state to implement programmatic agendas may pose a redistributive threat risk: wealthier citizens may anticipate reduced preferential access to state resources, as well as increased redistribution to newly included groups. This is because investments in capacity enable collective claim-making by previously excluded citizens (Gottlieb 2019). Studies in this literature mostly relate to taxation-related informational investments (such as Hollenbach and Silva 2019), although Bowles (2022) finds empirical evidence that investments geared towards facilitating service delivery can trigger these responses from elites.

In this framing, the digitisation of government benefit systems reduces state-citizen transaction costs and facilitates unbrokered access to the state among previously excluded groups, who were reliant on local intermediaries to assert their eligibility for programs and distribute their benefits. Digital systems of authentication and program application may increase claims by these groups at the same time it improves the ability of the state to redistribute resources to them. Demands on government may grow from small and targeted transfers to much larger, universal programs. Weigel (2018) for example, documents that after an experimentally assigned property tax campaign in the Democratic Republic of Congo, taxpayers positively updated their beliefs about state capacity. Elites may react to the ability of the state to provide welfare broadly rather than narrowly (Besley 2020) and refuse to comply with the state’s demands for taxation. Accordingly, further research should be conducted on the distributional impacts of digital infrastructure systems.

Third, I focused on India as an empirical case to test my theory, because it was a large, multi-ethnic democracy where responsibility for social spending is largely devolved to the subnational level. There is widespread variation in state capacity and performance, with persuasive evidence that local political

actors significantly influence who gets entitlements and under what conditions. However, the external validity of the findings should be tested in other developing country settings.

This is especially the case given that, as mentioned above, COVID-19 radically shifted governments towards digital infrastructure. Data collection for this dissertation largely occurred prior to the pandemic, and so a systematic analysis using more recent data and trends would help to understand how COVID-19 may have modified the strategic calculations of political actors in preserving weak state capacity. Given the evidence that countries with stronger digital infrastructure were better able to send assistance to citizens, and lower appetite for interpersonal interactions, it is possible that the benefits of digital delivery that I have outlined in this dissertation may be greatly amplified in the cost-benefit analyses of incumbents.

Appendix 1: Country Codes

Country Name	Country Code	Country Name	Country Code
Albania	ALB	Moldova	MDA
Argentina	ARG	Mexico	MEX
Armenia	ARM	Macedonia, FYR	MKD
Azerbaijan	AZE	Mali	MLI
Burkina Faso	BFA	Montenegro	MNE
Bulgaria	BGR	Mongolia	MNG
Bosnia and Herzegovina	BIH	Mozambique	MOZ
Belarus	BLR	Mauritania	MRT
Bolivia	BOL	Mauritius	MUS
Brazil	BRA	Malawi	MWI
Botswana	BWA	Malaysia	MYS
Chile	CHL	Namibia	NAM
China	CHN	Nicaragua	NIC
Colombia	COL	Nepal	NPL
Costa Rica	CRI	Panama	PAN
Dominican Republic	DOM	Peru	PER
Algeria	DZA	Philippines	PHL
Ecuador	ECU	Paraguay	PRY
Egypt, Arab Rep.	EGY	Romania	ROU
Ethiopia	ETH	Russian Federation	RUS
Gabon	GAB	Rwanda	RWA
Georgia	GEO	Senegal	SEN
Ghana	GHA	El Salvador	SLV
Guinea	GIN	Serbia	SRB
Guatemala	GTM	Togo	TGO
Honduras	HND	Thailand	THA
Haiti	HTI	Tajikistan	TJK
Indonesia	IDN	Turkmenistan	TKM
India	IND	Tunisia	TUN
Iran, Islamic Rep.	IRN	Turkey	TUR
Iraq	IRQ	Uganda	UGA
Jordan	JOR	Ukraine	UKR
Kazakhstan	KAZ	Uruguay	URY
Kenya	KEN	Uzbekistan	UZB
Kyrgyz Republic	KGZ	Venezuela, RB	VEN
Cambodia	KHM	Vietnam	VNM
Libya	LBY	Kosovo	XKX
Sri Lanka	LKA	South Africa	ZAF
Lesotho	LSO	Zambia	ZMB
Lithuania	LTU	Zimbabwe	ZWE
Latvia	LVA		

Appendix 2: India State Codes

State	State Code
Andhra Pradesh	AP
Arunachal Pradesh	AR
assam	AS
Bihar	BI
Chhattisgarh	CH
Delhi	DL
Goa	GO
Gujarat	GJ
Haryana	HR
Himachal Pradesh	HP
Jharkhand	JH
Karnataka	KN
Kerala	KL
Madhya Pradesh	MP
Maharashtra	MH
Manipur	MN
Meghalaya	MG
Odisha	OR
Puducherry	PD
Punjab	PN
Rajasthan	RJ
Tamil Nadu	TN
Tripura	TR
Uttar Pradesh	UP
Uttarakhand	UK
West Bengal	WB

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