

**STATE SIZE AND DEMOCRACY: UNPACKING THE BLACK BOX OF
CAUSALITY**

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As a somewhat tangential and anticlimactic note, the supplementary material and replication files for this thesis have been made available to the markers of this thesis. For access to the supplementary material and replication files, click on my GitHub page below or contact me should you lose access to the files. Supplementary material and replication files can be found at <https://github.com/wwinst/state-size-and-democracy>.

Abstract

State Size and Democracy: Unpacking the Black Box of Causality

How does state size cause democracy? Scholars have debated this question for centuries but have largely been unable to converge on the operation of causal mechanisms. To this, I argue, instead, that larger states tend to be more democratic than smaller states because a large population size constrains the operation of *negative institutional design*—institutions, in the form of legal-bureaucratic functions or informal practices, that undermine democracy. Larger states tend to be more democratic because their burgeoning size sets constraints on the spread of resources that political actors may activate to sequester political support from the populace through clientelism. Furthermore, larger states have a much smaller capacity for coercion relative to their population size. Population size thus sets limits on how political actors and incumbents may use these instruments to enact policies inimical to democracy.

Testing these arguments through pooled OLS, panel fixed-effects models, and causal mediation analysis on 27 island countries (43 in the supplementary materials), I find that populous states tend to be more democratic than less populous states. This effect is attributable to lower levels of clientelism and coercive capacity in larger states. A case study of Indonesia illustrates how population size functions through these two mediators to influence the level of participatory democracy. This thesis produces theoretical relevance in quantifying the treatment effect of population size attributable to causal mediators, which studies erstwhile have not done, and has further societal implications in informing academics and practitioners alike about the vulnerability of democracy in small states.

(11963 words)

List of Abbreviations and Shortened Names

ABRI—Angkatan Bersenjata Republik Indonesia

GDP—Gross Domestic Product

Gestapu—Gerakan September Tiga Puluh (Referring to the 1965 abortive coup)

GNI—Gross National Income

Golkar—Golongan Karya

IMF—International Monetary Fund

Jokowi—Joko Widodo

KPK—Komisi Pemberantasan Korupsi (Corruption Eradication Commission of Indonesia)

ODA—Official Development Assistance

PDI—Partai Demokrasi Indonesia

Pertamina—*Perusahaan Pertambangan Minyak dan Gas Bumi Negara*

PKI—Partai Komunis Indonesia

PPP—Partai Persatuan Pembangunan

V-Dem—Varieties of Democracy

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01 Introduction

That smaller states seemingly tend to be more democratic has both generated curiosity and doubts among scholars for millennia. Scholars tend to allude to the governability of such states as the source for democratic rule. The most widely cited of them—Aristotle (1959), Rousseau (1762/2002, pp. 185-189), and Montesquieu (1748/1989, p. 124)—argue that smaller states tend to have populations whose ideas and identity converge, giving rise to a polity that is more governable. Yet this argument finds opposition in the 4th President of the United States James Madison (1781/2003), who argues that a smaller polity with an attitudinally homogenous majority may not bode well for democracy; instead, a larger polity with an attitudinally heterogenous citizenry prevents oppression by a majority. This theoretical disagreement parallels that of modern-day political science scholarship. While some find that population size is negatively correlated with democracy (Dahl and Tufte, 1973; Hadenius, 1992; Ott, 2000), others, such as Acemoglu et al. (2008), Barro (1999), and Gerring and Veenendaal (2020) find little evidence of an effect.

Yet, the prevalence of the “small-is-democratic” claim is puzzling, even despite obvious evidence to the contrary. To visualise this, we consider 5 examples from smallest to largest: Tuvalu, Fiji, Bahrain, New Zealand, and Japan. Their democracy score on the Freedom House reversed 14-point scale are listed in Table 1, with higher values corresponding to higher levels of democracy. Tuvalu exists as the most stable small democracy, before this stability and score drastically drops in Fiji and Bahrain, small states larger than Tuvalu. This climbs back up in New Zealand, and plateaus in Japan. This table is not conclusive of any result, but it points towards a theoretical puzzle. While the small-is-democratic claim does not explain the cases of New Zealand and Japan, it crucially excludes other large states where democracy clearly thrives—Indonesia and the United Kingdom, for instance. As such, I ask: how does state size affect the level of democracy?

Country	Mean Population (Data)	FH (Start)	FH (2000)	FH (2020)
Tuvalu	10 085	12 (High)	12 (High)	12 (High)
Fiji	785 541	10 (High)	5 (Low)	8 (Mid)
Bahrain	832 987	4 (Low)	1 (Low)	1 (Low)
New Zealand	3 772 723	12 (High)	12 (High)	12 (High)
Japan	123 080 886	11 (High)	11 (High)	12 (High)

Table 1: Comparison of Freedom House scores for 5 countries

I challenge the existing small-is-democratic claim by hypothesising instead that larger states tend to be more democratic and develop a theory of “carrots-and-sticks”. First, I hypothesise that larger states tend to be more democratic because clientelism is less prevalent. In contrast, a less populous state may have a smaller support base from which political elites garner political support from, thereby putting less pressure on the resources elites need to keep their clients satisfied. Next, I hypothesise that larger states tend to be more democratic because state apparatus for repression tend to be smaller relative to the population. Conversely, smaller states tend to have larger repressive apparatus relative to the population since these apparatuses are, in the first place, built to such a size to defend against larger belligerents.

It is worth highlighting that I have performed restriction on the islandness variable—seeking inspiration from experimental methods—for theoretical and methodological reasons. Theoretically, authors have found that island countries tend to be more democratic than non-island countries (Hadenius, 1992; Ott, 2000). Anckar and Anckar (1995) crucially extends this, explaining that small island states tend to be the most democratic, hinting at a difference

even among island states. I thus limit my study to island states to discern the differences between larger and smaller island states. Methodologically, insularity may give rise to other variables that may interact with the mediators, violating the sequential ignorability assumption central to causal mediation analysis. While restriction does not fully eliminate such risks, restriction reduces, at least, the violation of this assumption on the set of latent confounders arising from geography.

In the following sections, I delve into the key debates of the small states literature in the literature review and further develop my theory. I then explain the data and empirical strategies of this thesis, highlighting causal mediation analysis as a means of unpacking causal mechanisms. Following the discussion of the quantitative results, the final substantive section is dedicated to examining Indonesia as an illustrative case study. I conclude by highlighting key limitations of this study and the potential areas of expansion for future research and the policy implications of this study.

02 Literature Review

In the comparative politics literature on state size and democracy, early works by Dahl and Tufte (1973) and Hadenius (1992) discovered that states that have a smaller population and a smaller land area tended to be more democratic than states with a larger land area or population. Since then, though many researchers and scholars generally converge on the same conclusion, that states with smaller physical sizes tend to be more democratic than their larger counterparts, they largely disagree on how specific mechanisms make this correlation possible. A litany of research, sometimes in direct debate, have surfaced to unpack the mechanisms through which a smaller state size may give rise to a higher likelihood of democracy to take root. This has led scholars to cast a wide net in proposing various mechanisms linking size and democracy, including ethnic heterogeneity (Gerring et al., 2016; Hadenius, 1992; Jensen and Skaaning, 2012; Reilly, 2001), consensual politics (Anckar, 1999; Dahl and Tufte, 1973), colonialism (Clague et al., 2001; Sutton, 1987), among many others.

One debate looming over the literature delves into elite-mass linkages as a potential causal mechanism. These arguments generally bifurcate into two strands. Authors of the first strand argue that democracy features in smaller states because of informal politics. Ott (2000) explain that a smaller population raises the stakes for citizens, enabling them to achieve greater participation and pursue closer informal relations with political elites, while Anckar (2002) and Sanches et al. (2021) argue that open channels of communication in smaller units enables the political elites to be recognise citizen concerns more easily than those of larger units. This does not go unchallenged. The second strand of arguments contends that such systems cannot be characterised as benign, informal politics but is patronage and clientelism which is facilitated by the same closeness of elite-mass relationships (Duncan and Woods, 2007). This direction of research suggests that closeness, especially forged through kinship (Corbett, 2013), religious, and financial connections (Corbett and Wood, 2013), typically allows elected government officials to exert tighter political controls and pressures on the population and the opposition (Veenendaal 2015; 2020). Most qualitative works, in essence, show that smallness does not bode well for democracy because it allows political elites, when in power, to establish systems of patronage to control political outcomes and the distribution of power (Berenschot and Aspinall, 2020; Veenendaal and Corbett, 2020). As Veenendaal (2015) hypothesises, any statistical significance in the smallness-democracy relationship may have more to do with clientelist politics operating under the veneer of nominally democratic institutions than the actual functioning of democracy itself.

If political elites can leverage on state and non-state resources to distribute incentives for political support, then they can leverage on state resources for coercive purposes too. Despite the vibrancy of the literature in exploring different causal mechanisms, physical coercion—especially through the military—has not been examined much. Thus far, Dahl and Tufte (1973) associate smaller political units with larger military establishments, arguing that smaller states establish relatively larger militaries to raise the costs incurred by larger states if they had wished to attack them, thereby reducing the chances of asymmetric conflict. Yet military establishments do not only function as deterrents of external aggression. Many works scattered across the wider comparative politics literature explain that military establishments serve as repressive instruments against forms of contentious politics (Bellin, 2012; Davenport, 1995). For instance, in their study of anti-government protests in Asia, Choi and Kim (2019) explain under the political opportunity theory of social movements that an increase in state repressive capacity through the military decreases the number of citizen-led protests. Others also explain the roles military establishments may play in negotiating and maintaining their institutional advantage in democratisation (Self, 2023) and how the military may influence

the success (and failure) of democratic consolidation in general (Tusalem, 2014). Though some of these works only control for population size rather than draw theoretical links between democracy, the military establishment, and size, they prove essential in generating insights into state repressive capacity as a potential mechanism.

While the state size literature has provided the bulk of the theoretical motivation behind studying the specific combination of clientelism and repressive capacity as causal mechanisms, the wider comparative democratic politics literature also motivates this research. Some major works coming from the new institutionalism tradition (Mainwaring, 1993; Power and Gasiorowski, 1997; Stepan and Skach, 1993) argue that the distribution of power between a head of state and representatives affect the levels of democracy. Others, prominently from the modernisation tradition, argue that a combination of economic development and the sophistication of state capacity give rise to democracy (Lipset, 1959; Boix, 2001). For one, Inglehart and Welzel (2005) argue that economic development and increasing state capacity to deliver on living standards increase the levels of democracy because of a shift in political culture from survivalist attitudes to appetites for self-expression. What is left understated are the constraints which environmental factors can place on institutions that are detrimental to democracy, one of few exceptions being Linz (2000). This thesis thus examines levels of democracy from another direction. Rather than looking at the “positive” institutional design, as is dominant in the comparative democratic politics literature, where the construction of institutions for democracy is at the centre of focus, I examine “negative” institutional design. While certain institutional designs can undermine democracy, environmental constraints—not least state size—may constrain these institutional detriments such that the levels of democracy increase.

In sum, the literature has undergone rigorous debate on the mechanisms linking state size to democracy but have generally been divided on how these mechanisms operate. Furthermore, this thesis takes a different direction—rather than study the institutions that give rise to democracy, it examines instead the mechanism of constraints on institutional detriments to democracy. Arguing that clientelistic practices and repressive capacity constitute such institutions, this thesis thus probes the constraints placed on such institutions to increase the levels of democracy.

03 Theory and Hypothesis

This thesis rests on a fundamental assumption: all incumbents and challengers wish to retain and attain power by any means possible but will always choose the less costly path. These costs may hinge on an array of variables, not least physical circumstances, such as size and distribution of population, and land area, which restricts or enables their ambit of activities. A rich literature speaks to the various ways political actors attempt to attain or remain in power. Levitsky and Way (2002; 2010) suggest that some states are *competitively authoritarian*, where democratic institutions formally exist and meaningful competition do take place, but incumbents hijack state functions and subvert key motifs of democratic processes: free elections, civil liberties, and fair political contestation. Riedl et al. (2020) and Slater and Wong (2013; 2022) argue instead that autocrats move towards formally democratising to maintain their position of strength to determine the direction of democratic reforms. These works generate bountiful insights into why institutions that may promote democracy are spontaneously established by political elites who otherwise function in autocratic settings. Yet these still fall within the ambit of positive institutional design. Erstwhile, there is less focus on the constraints to the institutions detrimental to democracy.

The logic outlined in this thesis is that the institutions detrimental to democracy operate under certain optimal conditions. When such optimal conditions exist, these institutions undermine and lower the levels of democracy. However, when constraints exist to remove such optimal conditions, the negative impact of such institutions on democracy diminishes, thereby increasing the levels of democracy. Under the fundamental assumption of this thesis, when political contestants face constraints to the institutions that undermine democracy, they are less likely to rely on such institutions to attain or maintain power. I refer to this as negative institutional design since democracy is not upheld by the virtues of but by the constraints imposed on such institutions. To be sure, other scholars have explored the transaction costs of clientelism, such as punishments at the ballot box by more affluent citizens (Weitz-Shapiro, 2012) or systemic party factionalism and embezzlement (Wang and Kurzman, 2007), but I advance a more systematic look at physical factors of the state, especially population size.

I examine two such institutions. The first concerns a set of practices between political contestants and their political supporters to whom they provide benefits. While these practices can be formalised into legal-bureaucratic functions or maintained as informal party linkages, they fall under the umbrella of clientelism, where political contestants typically identify supporters from within the masses and entice them by providing benefits. Yet if contestants can gain support by providing benefits to their supporters, then they may also rely on coercion to prevent threats to their attainment of power. The second set of institutions concerns the capacity of coercive apparatuses to exert control and coercion over the masses to prevent threats. These apparatuses include the military and law enforcement, which incumbents may be more likely to rely on if they are confident that the wider society is unable to fend off coercion. Clientelism and repression, put together, make up the proverbial “carrots” and “sticks” mechanisms, while the mechanistic constraint identified in this thesis is population size, the primary measure of state size.

Clientelism

Turning first to clientelism, I hypothesise that states with a larger population have a higher likelihood of being democratic because they diminish levels of clientelism that, if left unconstrained, undermines the procession of democracy. Clientelism often entails the provision of benefits in the form of state jobs, payouts, or the redirection of resources (or

redistribution) in exchange for continued political support from prospective supporters. Furthermore, the transactions in clientelism are targeted in that political elites identify their crucial support base from within the masses and gather political support from them by providing benefits, either through party mechanisms or sequestering resources from public office, unguided by motives of service delivery or public policy aimed at the population writ large. I take inspiration from Stokes et al. (2013) and Berenschot and Aspinall (2020) but, as a tangential point, I argue that this working concept of clientelism is applicable to not only incumbents and political parties but to political contestants—political actors vying for power—in general. Under the Stokes et al. (2013) framework, the added undemocratic effect of clientelism is found in (1) the levels of coercion and (2) vote-buying.

To the first, while patrons may promise a flow of benefits to potential supporters in exchange for their devotion, patrons may also coerce supporters into compliance by using the stoppage of benefits as threats (Fox, 1994; Mares and Young, 2016). One study finds that core voters are more likely to acquiesce to such sanctions, arguing that political contestants, if unable to monitor compliance, tend to manipulate voters' loss aversion (Mares and Young, 2018). Next, vote buying undermines mechanisms to hold underperforming incumbents or potential underperformers to task and obfuscates voter preferences regarding governance writ large (Stokes et al., 2013). Voting patterns thus become inaccurate in reflecting the performance of incumbents or true public opinion on political contestants. For one, Smith and Bueno de Mesquita (2011) argue that political contestants may motivate group-level coordination among voters to reward groups that show the highest level of support. Even if groups disagree with campaign platforms of their wealthier patrons, they may still provide support en masse. Under such undemocratic auspices of clientelism, accountability is thus overturned, where political contestants now hold voters to task for their voting decisions (Hicken, 2011; Wantchekon, 2003).

As a key note, the occurrence of “holding voters accountable” through vote-buying is usually only applicable in democracies and electoral autocracies. In fact, clientelism manifests in different ways in different regime types for many different clients (Hicken, 2011; Mares and Young, 2016). For one, a study on China finds that clientelism dons a different garb from the typical electoral regime, where political support comes to party officials in the form of non-dissent and cooperation (Ang, 2016). Lower-level patrons are also answerable to their superiors in the Chinese Communist Party, which looks unfavourably at protests and social instability. Thus, to encompass the different ways clientelism appears in different regime structures, I argue that the undemocratic effect of clientelism manifests as concretising the positional dominance of political contestants, which disables accountability measures, obfuscates true public opinion about government performance and service delivery, and reinforces a hierarchical chain across political elites, political patrons under them, and the masses. With different kinds of benefits catered to each level of the hierarchy and different goals of the actors making up each level in the hierarchy, political actors are often motivated to hold their clients accountable for their decision to support, abstain, or oppose. With the threat of loss looming large, clients are also coerced into refraining from exiting or voicing opposition (Hirschman, 1970).

What is less understood is the costs that state size imposes on clientelism such that political contestants are deterred from engaging in costly political transactions with prospective supporters. The simple logic is that if politicians are deterred from engaging in clientelism, the undemocratic effects of clientelism become diminished, enabling democratic processes to run unencumbered, increasing the levels of democracy in such states. I take inspiration from the selectorate theory literature, particularly from the seminal works of

Olson (1993) and Bueno de Mesquita et al. (2003), in which political elites, especially incumbents, are answerable to the *winning coalition*—a subset of political actors from within the selectorate which are essential to providing political power. To maintain or attain power, political contestants make decisions to siphon benefits to the winning coalition to amass political support. Controlling for other sources of revenue such as resource rents or foreign aid (Bueno de Mesquita and Smith, 2010), we expect that the size of the winning coalition is larger in more populous states, where political contestants experience strains on benefits that can be distributed to a larger winning coalition. The higher costs of providing benefits thus reduces the undemocratic impacts of clientelism. As such, I hypothesise that:

H₁: *Larger states are more democratic than smaller states.*

H₂: *Larger states are more democratic than smaller states because the former experience lower levels of clientelism, reducing the undemocratic impacts of clientelism. (Carrots Mechanism)*

H_{2a}: *Across time, population increases are likely to be associated with decreasing levels of clientelism, reducing the undemocratic impacts of clientelism. (Short-term effect)*

However, conventional theories of clientelism also demonstrate that rural areas tend to be more clientelistic than urban areas. Because rural residents are less educated, and rural areas are less developed, developmental programmes and jobs within rural areas tend to award political contestants with the highest profits since such inducements are attractive to rural residents (Grzymala-Busse, 2008). Furthermore, the likelihood of clientelism increases in rural areas since the opposition is less likely to have monitoring capacity over political contestation (Magaloni, 2006). If so, then we should expect that (1) levels of clientelism are higher within states with lower proportions of urban population. I also argue that among states with lower proportions of urban populations, there is also likely a strain on the capacity of incumbents to dispense benefits to a larger *winning coalition* and monitor compliance in the more populous states. Therefore:

H_{2b}: *The effect of state size on democracy through clientelism is likely to decrease with increasing levels of urbanisation. (Conditional mediation effect)*

Coercive Capacity

Turning next to coercive capacity, I hypothesise that larger states are more democratic because they place operational strains on coercive capacity—with a population size towering over coercive apparatuses, repression becomes an unviable method of maintaining power. To begin, I refer to coercive capacity as the possession of instruments which can be operated to crack down on civil liberties and political rights through intimidation and violence. state-affiliated institutions wielding physical coercive power, including the police, military, or intelligence agencies (Greitens, 2016). Behind the logic of the undemocratic effect of coercive apparatus is the finding that smaller states are more likely to build disproportionately larger militaries compared to their size to deter foreign aggression (Alesina and Spolaore, 2003; Dahl and Tufte, 1973). In doing so, however, this creates a “guardianship dilemma”: a military strong enough to defend a polity and its institutions is also strong enough to enforce its mandate, dismantle, or topple them (Feaver, 1999; Meng and Paine, 2022). Moreover, the decisions made by coercive institutions to mobilise against the state also hinges on the core institutional or economic motivations of salient actors staffing coercive institutions, such as resource rents accruing to military elites; coercive apparatuses may mobilise against their political masters should they find their interests at risk (Acemoglu et al., 2010; McMahon and Slantchev, 2015), rendering larger coercive

institutions more likely to flex their muscles against the regime, even in democratic ones (Albertus and Menaldo, 2012).

Considering the above, the challenges posed by coercive apparatuses become more pronounced the smaller the size of the state, since a disproportionately large coercive force may find better success in enforcing its will upon a smaller population, especially if potential democratic reforms initiated by elected officials threaten the interests of these coercive institutions and their agents. Conversely, smaller coercive institutions present a political opportunity for civilians to mobilise against poor service delivery and/or undemocratic governance (Choi and Kim, 2019) since they have a lower capacity to repress and enforce their will. On top of this, smaller coercive institutions may be unable to guard against democratic reform, either initiated by domestic political actors or through foreign assistance targeted at democratic institutional building (Savage, 2017). To this, I hypothesise that:

H₃: Larger states are more democratic than smaller states because the former possesses smaller coercive apparatuses relative to their population size, reducing the capacity of such instruments to coerce and repress. (Sticks mechanism)

Next, we should not expect short-term changes to affect the level of democracy. A democratic regime that inherits a military from its autocratic predecessor may find itself at risk of coups (Acemoglu et al., 2010) regardless of the growth of these apparatuses, but a military established by democracies to defend the public, state institutions, and democratic values may find its interests resonating with the larger public, thereby making them more likely to continue respecting their constitutional duty of subordination to civilian authorities irrespective of their growth of coercive capacity. In short, bureaucratic culture of coercive apparatuses, especially if democratic norms have rested in these apparatuses for a relatively long time (Schmitter, 1994) may be a more important factor than within-state growth of coercive capacity, rendering the latter inconsequential to changes in levels of democracy over time. As such:

H_{3a}: Across time, there should be no evidence of an effect between state size and democracy through coercive capacity. (No short-term effect)

Finally, the effect of state size on democracy through the size of coercive apparatuses may be conditioned by urbanisation, especially since urbanisation affords civilians with the capacity to pool their resources for mobilisation (Auvinen, 1996; Wallace, 2013). As such:

H_{3b}: The effect of state size on democracy through coercive capacity is likely to increase with increasing levels of urbanisation. (Conditional mediation effect)

Certainly, clientelism and repression may occur together (Ang, 2016; Gonzales-Ocantos, 2020; Harrijvan and Weerdesteijn, 2020; Rauschenbach and Paula, 2019; Whitehead, 2012). Incumbents have the added advantage of relying on party and state mechanisms to both distribute benefits and monitor patterns of political support (Medina and Stokes, 2007). But incumbency also provides the added advantage of access to coercive institutions which incumbents can either leverage on to intimidate the citizenry from mobilising (McCarthy, 2011) or already enjoy the political support of (Martin and Picherit, 2020; Shah, 2019). In some cases, non-incumbents may also possess the means to distribute benefits just like their incumbent counterparts or possess the means to violence that enable them to intimidate and coerce (Matanock and Staniland, 2018; Staniland, 2015). In any case, there already exists a litany of works on the decision-making process behind choosing the carrots or the sticks, which is not the aim of the thesis. The goal at stake is investigating the

relationship between state size (population) and democracy through looking at how the former constrains the institutions which may undermine democracy.

04 Research Design

In this thesis, I test my hypotheses by studying a time-series cross-sectional dataset of between 27 and 43 island countries within the period 1972-2020. Because of missingness and differences in the years at which the examined countries gain independence, all cross-sections are different in the number of annual observations studied. 16 countries are omitted as well from the V-Dem dataset. This gives a total of 1204 data points in the primary analysis and between 1171 to 1750 data points in the supplementary materials.

Independent Variable: State Size

This thesis makes use of existing measures of the physical sizes of state. The concept of state size is relatively straightforward: I am primarily interested in the physical size of the state as the independent variable. As such, the independent variable does not include any other indicator, be it the size of a state's administration, the size of its protective services (i.e. the military), and the size of the economy. While some authors argue for the inclusion of such facets into the measurement of state size, these approaches are clearly imperfect for several reasons. While administration, military, and economy clearly connote some physical ability of the state to govern, defend, and operate itself, it does not represent the physical characteristics of the states. In fact, such indicators are *caused by* the physical characteristics of the state rather than being, ex post facto, state size themselves. Broadly following the small states literature, I measure state size using the population size of the state as reported in the World Bank (2023b). With an extreme right-skew, however, I take the natural log of population size, consistent with the literature, as the first indicator of this independent variable.

To further account for the effect of geographic size, I develop an alternative measure of state size that addresses the key concern raised by Anckar (2008) that population size and land area exhibit collinearity in the same model as separate covariates. Indeed, a preliminary correlation test between logged population and logged land area yields a statistically significant correlation coefficient of 0.855 (3 s.f.). For comparability, I normalise both population size and land area. Using the arithmetic mean is problematic as some countries have extremely large land areas but extremely small populations, and the converse for others. A geometric mean allows us to derive a measure of state size that neither overpredicts population nor land area. For every country i and year j , the composite measure is thus given as:

(1) *State Size* =

$$\sqrt{\left\{ \frac{Population_{it} - \overline{Population}}{\sigma_{Population}} - floor \left[\min \left(\frac{Population_{it} - \overline{Population}}{\sigma_{Population}} \right) \right] \right\} \times \left\{ \frac{Land Area_{it} - \overline{Land Area}}{\sigma_{Land Area}} - floor \left[\min \left(\frac{Land Area_{it} - \overline{Land Area}}{\sigma_{Land Area}} \right) \right] \right\}}$$

Models reporting the composite measure for state size and land area as primary indicators for state size are further presented in Annex F of the supplementary material. My analysis primarily uses population size to measure state size.

Dependent Variable: Democracy

The primary measure of democracy used in this thesis is the participatory democracy indicator from the V-Dem dataset. This measure of democracy comprises two components. The first component is the V-Dem polyarchy indicator, which measures Dahl's (1971) concept of polyarchy in the two dimensions of public contestation and participation in elections and public offices. Next, it introduces a participatory component, which measures

different manifestations of expression and organisation such as participation in the civil society sphere, participation in subnational divisions, and participation in direct voting (Coppedge et al., 2023). A key theoretical motivation of examining participatory democracy also comes from the existing literature, in which a smaller size is said to facilitate closeness in elite-mass ties and enable effective participation in local politics. As such, the V-Dem measure of participatory democracy is the most appropriate measurement of democracy.

In the supplementary materials, by way of a robustness check, the Freedom House index is used as a separate measurement of democracy. It is the most comprehensive dataset which includes all microstates, a group of minute states with population sizes of less than 250,000 which the V-Dem dataset omits.¹ However, the Freedom House index over-measures the concept of democracy. Most glaringly, corruption, patronage, and clientelism are used as an intension of democracy rather than being excluded for further analysis (Freedom House, 2020). I only use the Freedom House index as an alternative measurement of democracy.

Covariates

I also control for alternative explanations established in the literature. To control for the modernisation hypothesis, I include logged per capita GDP and government expenditure as a proportion of GDP (UNData, 2023). Within the broad literature on the selectorate theory, there are mixed results describing the effect of foreign aid on democracy, with some finding no effect on (Knack, 2004) or detriments to democracy (Bueno de Mesquita and Smith, 2010) and others finding a positive impact (Carnegie and Marinov, 2017). Nonetheless, foreign aid is an important variable to be controlled for as well, owing to the potential for exogenous resource inflows that can fund repressive institutions. I take the proportion of official development aid (ODA) to GNI of each country to represent a state's reliance on aid (OECD, 2023). Endogenous flows of resources may also explain the reverse wave of democracy, as in the rich literature on the resource curse (Dunning, 2013; Ross, 2001). To reflect dependence on natural resources, I take the World Bank measure of resource rents as a percentage of GDP (World Bank, 2023b). Other control variables capture social and demographic variations. I control for a binary measure of whether a state has a majority Muslim population, and ethnic fractionalisation from Alesina et al. (2003). My two causal mechanisms—the number of military personnel per 1000 people from the National Material Capabilities dataset (Greig and Enterline, 2021) and the variable for clientelism from the V-Dem dataset—are also selected as control variables. I also control for the proportion of the population living in urban areas, which measures the distribution of the population as an alternative to just controlling for land area or population density.

By way of sensitivity analysis, I use the proportion of the population which identify as Muslim, taken from the World Religions Database (WRD) (Johnson and Brian, 2023) as an alternative measurement for Muslim-majority statuses in Annex E. Since the WRD only records the values at long intervals, I impute the values for all other years.

Empirical Strategy

The main thrust of this thesis is to ascertain some causal processes—erstwhile proposed but under-examined in the literature—through which the physical size of states exerts an effect on democracy. Before identifying these processes, however, we must first identify the overall effect of state size on democracy, which I run a series of regression models to identify both

¹ The supplementary material enclosed includes separate analyses for the full sample (Annex C) and microstates (Annex D).

the short-term and long-term effects of state size on democracy. These models are, namely, the pooled OLS model and the fixed-effects model. Upon identifying the true effect of state size on democracy, we identify the process through which state size affects democracy through causal mediation analysis. Through structural equation modelling under causal mediation analysis, we identify the indirect effect of state size on democracy **operated** by the mediator, the *average causal mediation effect* (ACME). Finally, we ascertain this through a qualitative case study.

Though cluster-robust standard errors are typically used in the context of repeated cross-sectional structure of datasets, of which includes the one used in this thesis, the large-T dimension of my data structure also pushes me to account for potential complex serial autocorrelation in the same way as the Newey-West heteroscedasticity and autocorrelation standard errors. As such, the panel Newey-West (panel cluster-robust) standard errors (Hoechle, 2007, pp. 287-288; Millo, 2017, pp. 8-9; Zeileis et al., 2020, pp. 9-10) are more appropriate since it is robust to both traits of my data structure. I do not assume cross-sectional correlation since some island states are further apart from each other while some are closer, and reduce cross-sectional correlation to 0.

Empirical Strategy 1: Regression

I first estimate the effect of state size on democracy using pooled OLS to identify what has been dominantly proposed in the literature. It also represents the dominant mode of testing this hypothesis at the time. Since my data is structured in a time-series, cross-sectional form, the OLS estimator is biased. As such, the fixed effects model is used to derive the effect of state size on democracy, where deviations from country-level means of both the regressand and regressors capture year-on-year changes across time. This is, as some authors would suggest, the short-term effect of size on democracy (Chen and Li, 2018; Milner and Kubota, 2005). For country i and year t , the OLS equation is given by:

$$(2) \text{Democracy}_{i,t} = \beta_0 + \beta_1 \text{Size}_{i,t} + \beta_2 C_{i,t} + \beta_3 \Phi_i + \sum_{t=2}^T S_t + v_{i,t}$$

While the two-way fixed effects equation is given by:

$$(3) \text{Democracy}_{i,t} - \overline{\text{Democracy}_i} = \beta_0 + \beta_1 (\text{Size}_{i,t} - \overline{\text{Size}_i}) + \beta_2 (C_{i,t} - \overline{C_i}) + \sum_{t=2}^T S_t + \sum W_i + (e_{i,t} - \bar{e}_i)$$

Where C denotes the time-varying covariates, Φ denotes the time-invariant covariates, S and W as year and country units respectively.

Having suspected heterogenous effects in my theory, I run a regression with an interaction term made up of the logged population and percentage of the population in urban areas variables.

Empirical Strategy 2: Causal Mediation Analysis

Next, we use causal mediation analysis to uncover the causal processes through which state size might account for the variation in the levels of democracy in island states from the models which have been run. Causal mediation analysis relies on structural equation modelling first established in Baron and Kenny (1986) and subsequently generalised for non-parametric inference by Imai et. al (2010). The method is based on the following linear equations:

$$(4) \quad Y_i = \beta_{01} + \beta_{11} X_i + e_{i1} \text{ (Exposure-Outcome Model)}$$

$$(5) \quad M_i = \beta_{02} + \beta_{12}X_i + e_{i2} \text{ (Exposure-Mediator Model)}$$

$$(6) \quad Y_i = \beta_{03} + \beta_{13}X_i + \gamma M_i + e_{i3} \text{ (Mediator-Outcome Model)}$$

Imai et al. (2010, p. 57) explain that given the linearity assumptions of the structural equation modelling and sequential ignorability assumptions, in which there are no post-treatment confounders on the mediator and dependent variable, $\gamma\beta_{12}$ is an asymptotically consistent estimator of the ACME. Furthermore, Imai et al. (2010) also crucially explain that the average treatment effect (ATE) may hypothetically be non-significant if the ACME and the average direct effect (ADE) both cancel out. Effectively, the process comprises only equations (5) and (6). The ACME is also a product of two coefficients: that of the independent variable X_i in Equation (5), β_{12} and that of the mediator M_i in Equation (6), γ . Substituting Equation (5) into Equation (6), we get the following:

$$(7) \quad Y_i = \beta_{03} + \gamma\beta_{02} + (\beta_{13} + \gamma\beta_{12})X_i + e_{i3} + \gamma e_{i2}$$

Where $\beta_{13} + \gamma\beta_{12}$ represents the ATE, β_{13} is the ADE and $\gamma\beta_{12}$ is the ACME. $\beta_{03} + \gamma\beta_{02}$ is the composite intercept term and $e_{i3} + \gamma e_{i2}$ is the composite error term. The diagram below illustrates the relationship among the three coefficients. Equations (4) and (7) are analogous. To identify if the effect of population size on democracy is indeed operated by either coercive capacity or clientelism, the ACME is the quantity of interest.

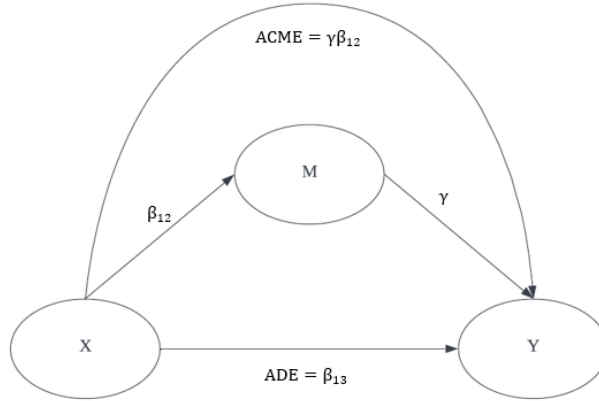


Figure 1: Illustration of Causal Mediation Analysis

05 Results

Main Results

Table 2 presents an assessment of H₁ that larger states tend to be more democratic. Model 1 shows the results when the indicators of both forms of negative institutional design—clientelism and coercive capacity—are not being controlled for. Model 2 includes the measurement for clientelism, while Model 3 includes the measurement for coercive capacity—military participation rate. These four models are pooled OLS models, which represent the effect of state size on democracy across countries—the long-term effects.

	v2x_partipdem					
	Exposure-Outcome, Pooled			Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Population (Logged)	0.0268*** (0.0034) p = 0.0000	0.0264*** (0.0032) p = 0.0000	0.0216*** (0.0032) p = 0.0000	0.0216*** (0.0031) p = 0.0000	0.0681*** (0.0216) p = 0.0017	0.0331*** (0.0098) p = 0.0008
Clientelism		-0.3274*** (0.0523) p = 0.0000		-0.2664*** (0.0447) p = 0.0000	-0.3203*** (0.0410) p = 0.0000	-0.1773** (0.0649) p = 0.0063
Military Participation Rate (MPR)			-0.0154*** (0.0017) p = 0.0000	-0.0145*** (0.0017) p = 0.0000	0.0003 (0.0007) p = 0.7212	0.0093* (0.0046) p = 0.0458
Urbanisation (% of Population)	-0.2181*** (0.0493) p = 0.00001	-0.1601*** (0.0493) p = 0.0012	-0.0575 (0.0424) p = 0.1751	-0.0190 (0.0415) p = 0.6469	0.5926*** (0.0729) p = 0.0000	0.5037*** (0.1620) p = 0.0019
Per Capita GDP (Logged)	0.1105*** (0.0111) p = 0.0000	0.0388* (0.0153) p = 0.0113	0.1030*** (0.0102) p = 0.0000	0.0451*** (0.0139) p = 0.0013	0.0143 (0.0131) p = 0.2767	0.0477*** (0.0149) p = 0.0014
Government Expenditure (% of GDP)	0.1128 (0.1162) p = 0.3318	0.0295 (0.1072) p = 0.7831	0.0683 (0.0989) p = 0.4898	0.0030 (0.0960) p = 0.9751	-0.1490** (0.0573) p = 0.0093	-0.0372 (0.0931) p = 0.6898
Foreign Aid Received (% of GNI)	0.0967 (0.1729) p = 0.5759	-0.0859 (0.1652) p = 0.6031	0.0877 (0.1554) p = 0.5725	-0.0604 (0.1520) p = 0.6910	-0.0269 (0.0501) p = 0.5909	0.2396 (0.1475) p = 0.1044
Resource Dependence	-0.0015 (0.0009) p = 0.1011	0.0013 (0.0011) p = 0.2431	-0.0024*** (0.0008) p = 0.0023	-0.00005 (0.0010) p = 0.9642	-0.0017* (0.0007) p = 0.0174	0.0003 (0.0012) p = 0.8046
Ethnic Fractionalization	-0.1121** (0.0412) p = 0.0066	-0.1778*** (0.0409) p = 0.00002	-0.0571 (0.0363) p = 0.1157	-0.1136*** (0.0370) p = 0.0022		-0.0949** (0.0344) p = 0.0059
Islamic	-0.1600*** (0.0320) p = 0.000001	-0.1753*** (0.0329) p = 0.0000001	-0.1509*** (0.0282) p = 0.0000001	-0.1639*** (0.0290) p = 0.0000001		-0.1715*** (0.0296) p = 0.0000
Population × Urbanization						-0.0216 (0.0132) p = 0.1029
Clientelism × Urbanization						-0.1469 (0.1052) p = 0.1629
MPR × Urbanization						-0.0329*** (0.0060) p = 0.0000001
Constant	-0.8763*** (0.1122) p = 0.0000	-0.1244 (0.1659) p = 0.4535	-0.7716*** (0.1029) p = 0.0000	-0.1655 (0.1524) p = 0.2777	0.0132 (0.0188) p = 0.4819	-0.4940* (0.2267) p = 0.0294
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	No
N	1204	1204	1204	1204	1204	1204
R-squared	0.4759	0.5179	0.6002	0.6276	0.5370	0.6637
Adj. R-squared	0.4508	0.4944	0.5807	0.6091	0.5035	0.6460
Residual Std. Error	0.1460 (df = 1148)	0.1401 (df = 1147)	0.1275 (df = 1147)	0.1231 (df = 1146)	0.0521 (df = 1122)	0.1172 (df = 1143)
F Statistic	18.9538*** (df = 55, 1148)	22.0059*** (df = 56, 1147)	30.7454*** (df = 56, 1147)	33.8867*** (df = 57, 1146)	16.0625*** (df = 81, 1122)	37.5965*** (df = 60, 1143)

***p < .005; **p < .01; *p < .05

Table 2: Relationship between Logged Population and Participatory Democracy

Across all four models, the relationship between population size and democracy are a reversal of prior expectations in the existing literature that less populous states tend to be more democratic. Instead, my results consistently show across the first four models of Table 2 a positive relationship between state size and participatory democracy significant at the 1%

level. Model 4 shows that a 10% increase in population size is associated with, on average, an increase in the V-Dem Participatory Score by 0.00206 units. As such, I reject the null hypothesis and confirm H_1 that larger states tend to be more democratic than their less populous counterparts.

Turning to the covariates, while the effect of urbanisation on democracy is negative and significant in Model 1, this significance of this effect peters out slightly in Model 2 and fully in Models 3 and 4. Next, the estimators of logged GDP per capita, ethnic fractionalisation, and the binary variable on Muslim-majority status largely conform to theoretical expectations. They show that states with higher GDP, which are less ethnically heterogeneous, and are not Muslim-majority states tend to be more democratic.

The estimators of resource dependence also somewhat conform to the robust ‘resource curse’ literature, which reports that states which are more resource-dependent are less likely to be democratic. Interestingly, while Models 1, 2, and 4 show non-significance, Model 3 shows a negative and significant relationship between resource dependence (resource rents as a proportion of GDP) and the V-Dem Participatory Democracy score, significant at the 1% level. Though not the focus of this thesis, this finding might warrant deeper probes in future research, especially since this thesis examines exclusively island states. Finally, the other variables of government expenditure as a proportion of GDP, which measures government size, the receipt of ODA (as a proportion of GNI), and resource dependence are not significant.

Assessing H_2 : The long-term operation of clientelism

We now bring back clientelism and military participation rate since my second empirical strategy is concerned with quantifying the effect of population size on democracy that is mediated by either mechanism. To prevent omitted variable bias, however, the model assessing the mediation by one mechanism must also control for the presence of the other. In this case, I present results from causal mediation analysis that assesses the mediation effect of clientelism while controlling for military participation rate. Recalling Model 4 of Table 2, a one-unit increase in the V-Dem clientelism index is associated with, on average, a decrease in the V-Dem Participatory Democracy score by 0.266 units, significant at the 1% level. We can thus reject the null hypothesis that there is no effect of clientelism on democracy and conclude that higher levels of clientelism are associated with lower levels of participatory democracy.

To assess H_2 , we should also investigate the effect of population size on democracy that is mediated by clientelism. Table 3 shows the results of the exposure-mediator model where clientelism is used as the dependent variable while all other covariates remain. Model 1 of Table 3 is a pooled OLS model which shows the long-term effect of size on clientelism. While negatively correlated, the coefficient of logged population in Model 1 is not significant. Furthermore, in the plot with clientelism as the mediator (see Fig. 2), we observe a non-significant ACME. Since this indicates that there is no evidence that the effect of population size on democracy is mediated by clientelism, we are thus unable to reject the null hypothesis and are unable to ascertain H_2 .

	v2xnp_client		
	Pooled (No Interaction) Model 1	Panel FE (No Interaction) Model 2	Pooled (Interaction) Model 3
Population (Logged)	-0.0002 (0.0026) p = 0.9284	0.1660*** (0.0298) p = 0.0000001	-0.0349*** (0.0114) p = 0.0023
Military Participation Rate	0.0031* (0.0014) p = 0.0244	0.0050*** (0.0009) p = 0.0000002	0.0084 (0.0044) p = 0.0558
Urbanisation (% of Population)	0.1446*** (0.0442) p = 0.0011	0.0701 (0.0595) p = 0.2386	-0.5869*** (0.2019) p = 0.0037
Per Capita GDP (Logged)	-0.2175*** (0.0091) p = 0.0000	-0.0531*** (0.0127) p = 0.00003	-0.2345*** (0.0118) p = 0.0000
Government Expenditure (% of GDP)	-0.2452*** (0.0809) p = 0.0025	-0.5217*** (0.1161) p = 0.00001	-0.3376*** (0.0898) p = 0.0002
Foreign Aid Received (% of GNI)	-0.5562*** (0.1770) p = 0.0017	-0.0595 (0.1350) p = 0.6596	-0.7069*** (0.1967) p = 0.0004
Resource Dependence	0.0087*** (0.0011) p = 0.0000	0.0002 (0.0011) p = 0.8443	0.0096*** (0.0012) p = 0.0000
Ethnic Fractionalization	-0.2120*** (0.0268) p = 0.0000		-0.2058*** (0.0277) p = 0.0000
Islamic	-0.0486 (0.0288) p = 0.0916		-0.0370 (0.0265) p = 0.1628
Population × Urbanization			0.0544*** (0.0160) p = 0.0007
MPR × Urbanization			-0.0076 (0.0056) p = 0.1780
Constant	2.2754*** (0.0911) p = 0.0000	0.0386* (0.0169) p = 0.0220	2.9128*** (0.2389) p = 0.0000
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.7688	0.5041	0.7756
Adj. R-squared	0.7575	0.4688	0.7642
Residual Std. Error	0.1255 (df = 1147)	0.0565 (df = 1123)	0.1237 (df = 1145)
F Statistic	68.1109*** (df = 56; 1147)	14.2699*** (df = 80; 1123)	68.2216*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

Table 3: Relationship between Logged Population and Clientelism

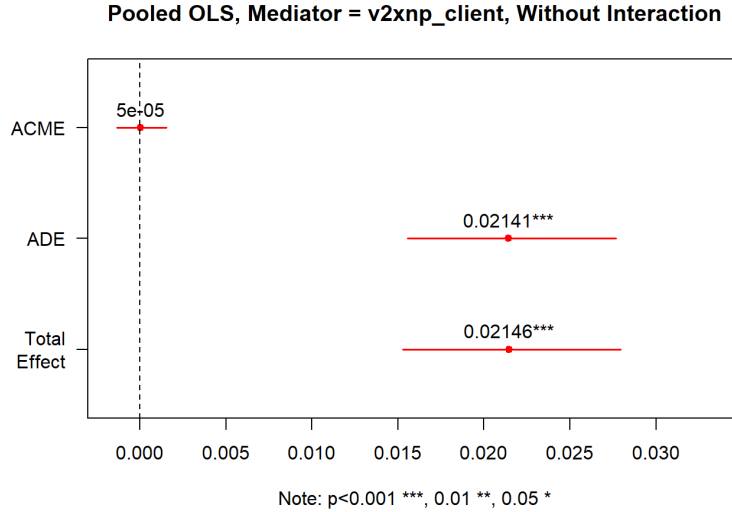


Figure 2: Coefficients plot for long-term effect of Population Size on Participatory Democracy through Clientelism

Assessing H_{2a} : The short-term operation of clientelism

We now turn to the short-term mediation effect through clientelism, where Model 5 of Table 2 is the mediator-outcome model and Model 2 of Table 3 is the exposure-mediator model. Focusing on Model 5 of Table 2 first, we observe that for any given state, a one-unit increase in the V-Dem Clientelism score is, on average, associated with a decrease in the V-Dem Participatory Democracy score by 0.320 units. Further looking at Model 2 of Table 3, we observe that a 10% increase in population size is associated with, on average, an increase in the clientelism score by 0.0158 units.

To put this into perspective, a mediation analysis coefficient plot is generated to illustrate the ACME of population size of democracy (see Fig. 5). The ACME takes on a value of -0.0536, indicating that, across time, a 10% growth in the population of any given state is associated with, on average, a decrease in the V-Dem Participatory Democracy score by 0.00510 units, this effect being operated by clientelism. This result is surprising. It directly challenges expectations in H_{2b} that population growth sets constraints on clientelism, thereby reducing clientelism and enabling democracy across time. As such, while we can reject the null hypothesis, we are unable to rule out the negative impact that population growth may have on democracy, especially since population growth is seen to have induced growths in the levels of clientelism in states across time.

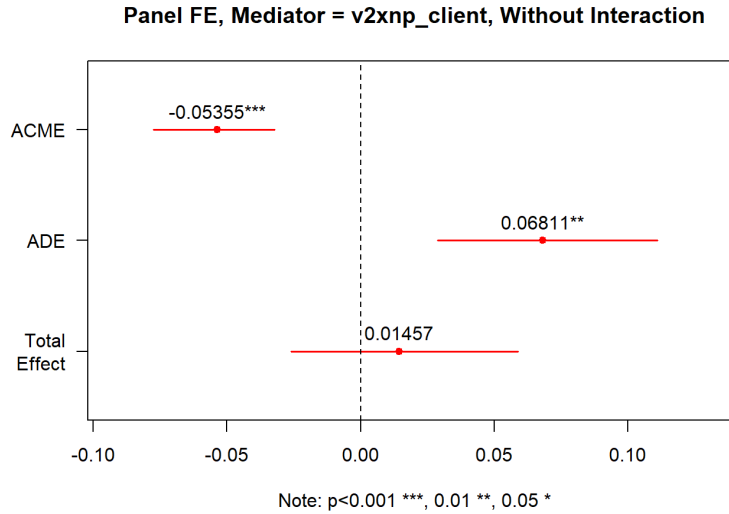


Figure 3: Coefficients plot for short-term effect of Population Size on Participatory Democracy through Clientelism

Assessing H_{2b} : The conditional operation of clientelism

In theorising the effect of state size on democracy, one potential source of heterogeneity was identified in the spread of populations through measuring the proportion of the population residing in urban areas (urban share of the total population). Corresponding to the system of linear equations in Imai et al. (2010), Model 6 of Table 2 is the mediator-outcome model while Model 3 of Table 3 is the exposure-mediator model, both of which contain the urban share of the total population measure as the moderator. Turning first to Model 6 of Table 2, a 10% increase in population size is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.00315 units, representing the ADE of population size. Additionally, a one-unit increase in the clientelism measure is associated with, on average, a decrease in the V-Dem Participatory Democracy score by 0.177 units. Turning next to Model 3 of Table 3, we observe that a 10% increase in population size is now associated with a decrease in the clientelism score by 0.00332 units, with a significant interaction effect detected between population size and urban share of the total population. This thus confirms that there are significant differences in the mediation effects between states that are more urbanised and states that are less urbanised.

How exactly does the mediation effect of population size on democracy through clientelism differ across different levels of urbanisation? Turning to the mediation analysis coefficients plot in Figure 3, we observe a significant difference in the conditional ACME between more urbanised states and less urbanised states. Among less urbanised states, a 10% increase in population size is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.000406 units, whereas a 10% increase in population size among more urbanised states is associated with, on average, a decrease in the V-Dem Participatory Democracy score by 0.000291 units, significant at the 1% level.

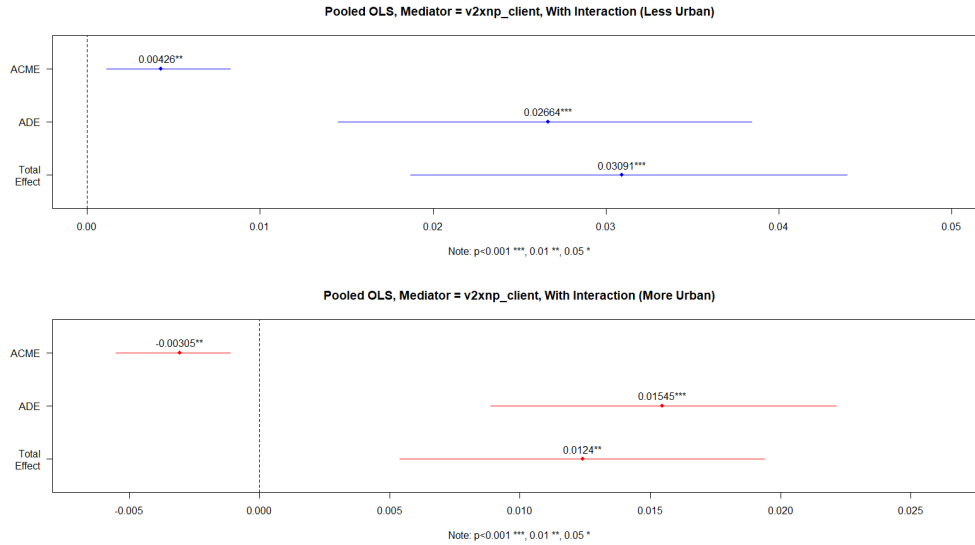
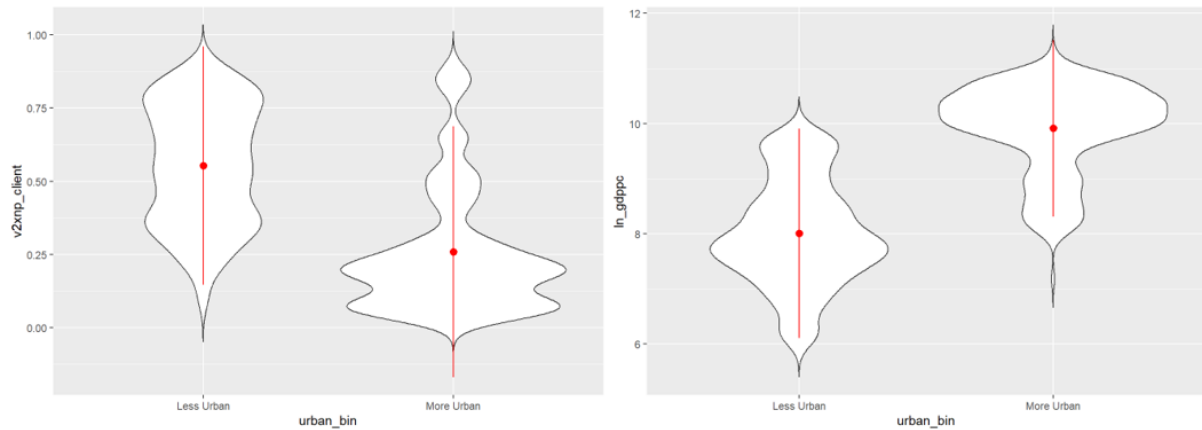


Figure 4: Coefficients plot for conditional long-term effect of Population Size on Participatory Democracy through Clientelism

Additionally, to unpack this relationship further, I ran a Student's t-test on the sample to yield the difference-in-means of the levels of clientelism between the more urbanised and less urbanised samples (see Fig. 5). On average, the value of the V-Dem clientelism index for less urbanised states is higher at 0.554 than the more urbanised states at 0.259. Running an ancillary t-test on GDP per capita yields the common expectation that less urbanised states are, on average, less economically developed than more urbanised states; the mean GDP per capita for the former is 3010.92 USD while the value is 20130.67 USD for the latter group (2015 constant prices).



Parameter1	Parameter2	Mean_Parameter1	Mean_Parameter2	Difference	95% CI	t	df	p	Cohen's d	Cohen's d CI
Clientelism in Less Urban States	Clientelism in More Urban States	0.55	0.26	0.30	(0.27, 0.32)	24.33	1125.21	< .001	1.41	(1.29, 1.54)
Logged GDP per capita in Less Urban States	Logged GDP per capita in More Urban States	8.01	9.91	-1.90	(-2.00, -1.80)	-37.71	1200.22	< .001	-2.17	(-2.31, -2.02)

Notes:

Top left: Violin Plot of distribution of clientelism (v2xnp_client) across more urban and less urban states. Top right: Violin Plot of distribution of logged GDP per capita across more urban and less urban states. Bottom: Table of Student's T-test.

Figure 5: Violin Plots with Results of T-Test.

Pooling the findings above yields considerable insights into how state size might *conditionally* constrain clientelism. Less urbanised states may tend to be more clientelistic but given the comparative dearth of economic resources to maintain patron-client relationships, larger populations in less urbanised states may instead prevent clientelism from operating meaningfully, since patrons now find their resources stretched thin over a larger selectorate to win over. Contrarily, more urbanised states tend to be less clientelistic. But the relative abundance of economic resources may also mean that constraints population sizes impose on clientelistic policies are weaker. Across the urbanised states, patrons in more populous states may find themselves privy to greater amounts of resources than their counterparts in less populous states such that a greater population may, instead, have mildly undemocratic implications simply because it is unable to impose constraints on clientelism effectively. In this view, we may thus reject the null hypothesis that there is no difference in the ACME among states of different levels of urbanisation and accept H_{2b} .

Assessing H₃: The long-term operation of coercive capacity

We now examine the long-run effect of population size operating through coercive capacity, measured using the number of military personnel per 1000 people (military participation rate). Recalling Model 4 of Table 2, a one-unit increase in military participation rate is associated with, on average, a decrease in the V-Dem Participatory Democracy score by 0.0146 units, significant at the 1% level. We can thus reject the null hypothesis that there is no effect of clientelism on democracy and conclude that higher levels of coercive capacity are associated with lower levels of participatory democracy. To assess H₃, we also examine Table 4, which shows the results of the exposure-mediator model where coercive capacity is used as the dependent variable while all other covariates remain. Model 1 of Table 4 is a pooled OLS model which shows the long-term effect of size on coercive capacity. As expected, a 10% increase in population is associated with, on average, a decrease in military participation rate by 0.0315 units, significant at the 1% level. On both counts, we reject the null hypothesis that there is no relationship between coercive capacity and democracy, and state size and coercive capacity.

	milrate		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	-0.3305*** (0.1000) p = 0.0010	-1.7195 (1.3326) p = 0.1970	-0.2679 (0.3886) p = 0.4906
Clientelism	4.2004* (2.1143) p = 0.0470	12.7981*** (2.6913) p = 0.000002	0.0759 (2.5810) p = 0.9766
Urbanisation (% of Population)	9.7101*** (1.5506) p = 0.0000	-1.4779 (2.8998) p = 0.6103	7.2152 (7.8527) p = 0.3582
Per Capita GDP (Logged)	0.4310 (0.4574) p = 0.3461	0.8398 (0.8576) p = 0.3275	0.3736 (0.4874) p = 0.4434
Government Expenditure (% of GDP)	-1.8253 (3.8432) p = 0.6349	1.2144 (2.4228) p = 0.6163	-2.1592 (3.9420) p = 0.5839
Foreign Aid Received (% of GNI)	1.7549 (4.2458) p = 0.6794	0.0398 (3.7915) p = 0.9917	2.6850 (4.0212) p = 0.5044
Resource Dependence	-0.0945** (0.0342) p = 0.0058	-0.0900* (0.0359) p = 0.0123	-0.0665 (0.0358) p = 0.0633
Ethnic Fractionalization	4.4211*** (1.2785) p = 0.0006		3.8826*** (1.3140) p = 0.0032
Islamic	0.7829 (0.6123) p = 0.2011		0.4534 (0.6232) p = 0.4669
Population × Urbanization			-0.0077 (0.5930) p = 0.9897
Clientelism × Urbanization			7.0402 (4.3189) p = 0.1031
Constant	-2.8311 (5.6621) p = 0.6171	-0.9380 (0.9149) p = 0.3053	-1.2374 (8.3839) p = 0.8827
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.2563	0.1866	0.2611
Adj. R-squared	0.2200	0.1287	0.2237
Residual Std. Error	4.5989 (df = 1147)	2.8467 (df = 1123)	4.5882 (df = 1145)
F Statistic	7.0602*** (df = 56; 1147)	3.2203*** (df = 80; 1123)	6.9753*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

Table 4: Relationship between Logged Population and Coercive Capacity

To further illustrate the operation of the effect of population size through coercive capacity, a mediation analysis coefficients plot is generated where we observe a significant ACME of 0.00483 (see Fig. 6). The ACME thus informs us that, through coercive capacity, a 10% increase in population is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.000460 units. Paring the results from both the regression analyses and causal mediation analysis, we thus observe that since more populous states tend to have relatively smaller coercive institutions, this generates a positive impact on the levels of democracy. We thus accept H_3 .

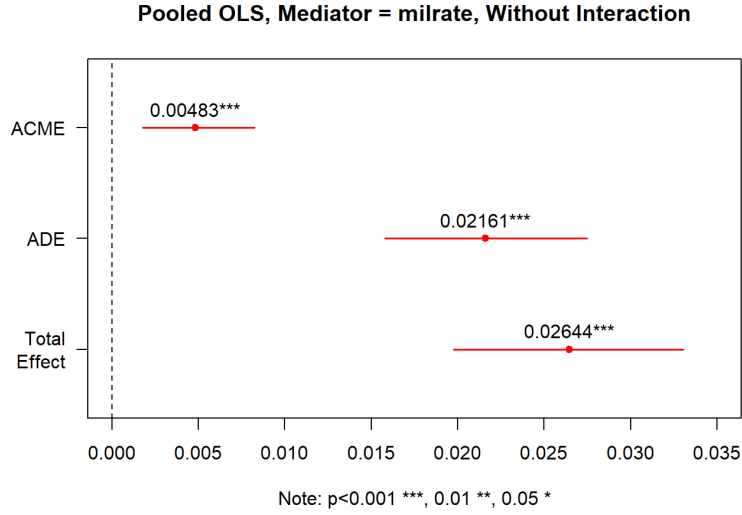


Figure 6: Coefficients plot for short-term effect of Population Size on Participatory Democracy through Coercive Capacity

Assessing H_{3a} : The short-term operation of coercive capacity

Next, we turn to the short-term mediation effect through coercive capacity, where Model 5 of Table 2 is, again, the mediator-outcome model and Model 2 of Table 4 is the exposure-mediator model. In Model 5 of Table 2, we observe that the coefficient of military participation rate is not significant. In Model 2 of Table 4 (recall, DV: military participation rate), we observe that the coefficient of logged population is not significant as well. Since causal mediation analysis requires that both the gamma- and beta-coefficients be statistically significant to conclude that there is mediation (Imai et al., 2010), we thus cannot reject the null hypothesis that there is no mediation of an effect of state size on democracy over the short-term. That is, this affirms our expectations in H_{3a} that short-term changes in the size of the military should not affect the level of democracy. To put things into perspective, the ACME in Figure 9 is not significant. We thus do not reject H_{3a} .

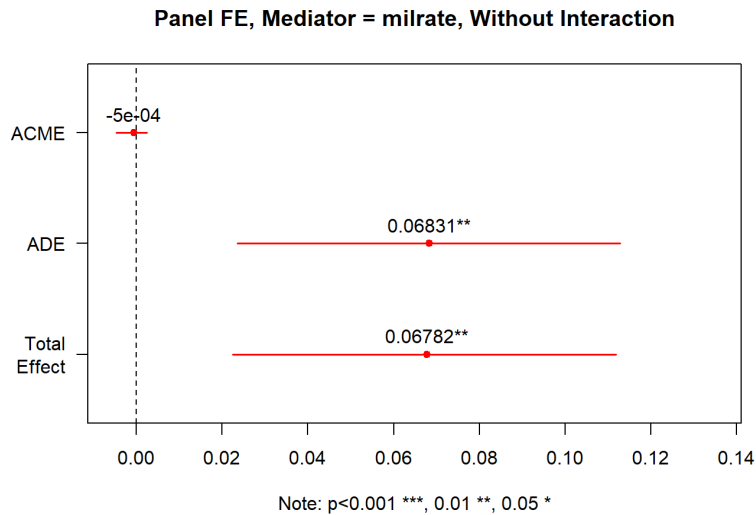


Figure 7: Coefficients plot for short-term effect of Population Size on Participatory Democracy through Coercive Capacity

This likely informs us about the prevalence of military bureaucratic culture and its relationship with democratic consolidation: that militaries subordinated to democratic, civilian authorities may, in the long run, also adopt similar democratic values, irrespective of

their growth in size over time. Conversely, larger militaries in autocracies may not be more likely than their smaller counterparts in other autocracies in eschewing and violating democratic values.

Assessing H_{3b} : The conditional operation of coercive capacity

Recall that H_{3b} draws insights from the social movements literature, stating that the effect of population size on democracy is likely to increase with increasing levels of urbanisation. This is because higher levels of urbanisation not only afford citizens the capacity to pool their resources to organise and mobilise, but also this imposes far greater costs on coercive institutions, especially if they are smaller relative to the size of urban masses.

We turn again to Model 6 of Table 2, which includes the interaction terms between (1) state size and urbanisation and (2) military participation rate and urbanisation. A 10% increase in population size is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.00315 units, representing the ADE of population size. Additionally, a one-unit increase in military participation rate is associated with, on average, a decrease in the V-Dem Participatory Democracy score by 0.0093 units, though this result is only marginally significant at $p=0.0458$. Turning next to Model 3 of Table 4, we observe that neither the coefficient of the logged population variable nor that of the interaction term between logged population and urban share of the total population is significant when regressed on military participation rate. As such, we cannot reject the null hypothesis that there is no interaction between state size and levels of urbanisation vis-à-vis coercive capacity, overturning our initial expectations.

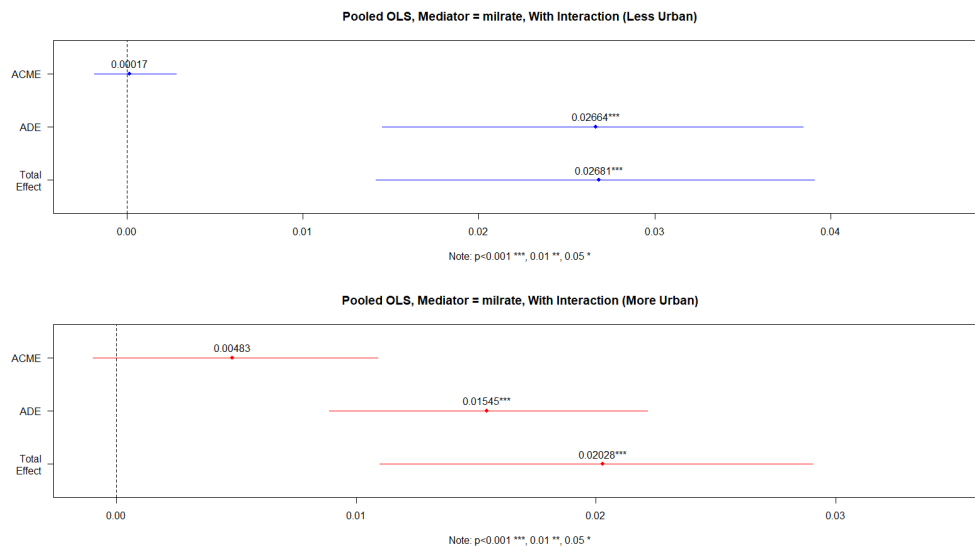


Figure 8: Coefficients plot for conditional long-term effect of Population Size on Participatory Democracy through Coercive Capacity

Robustness

I examine the robustness of my findings using alternative measures of democracy (Annex B), state size (Annex F), and the replacement of the binary *Islamic* indicator with a *percentage Muslims* measurement (Annex E). Switching the V-Dem measurement for participatory democracy with the Freedom House measure. Since the original 14-point scale in the Freedom House index reflects 1 as the most democratic and 14 as the least democratic, I use a reversed scale so that higher scores correspond with higher levels of democracy. By and large, the above annexes in the supplementary materials show that my findings are robust to the alternative measurements of state size, Muslim-majority status, and democracy. The ACME,

which is the primary quantity of interest, do reflect the different hypotheses set out in this thesis. Furthermore, switching the binary *Islamic* indicator for the continuous *percentage Muslims* indicator in Annex E retains both the sign and the significance of the coefficients of logged population on participatory democracy (Table E1), military participation rate (Table E2), and clientelism (Table E3). This goes the same for the coefficients of the composite measure for state size in Annex F.

A notable difference between the results in Annex B and the thesis should be pointed out. The coefficients of logged population in Table B1 (Annex B) show non-significance despite being of the same sign as the results in Table 2. I suspect that this is due to a smaller variation in the democracy index used. While the V-Dem Participatory Democracy index is on a continuous 0-1 scale, the 14-point scale used in the Freedom House index is effectively discretised, rendering a much smaller variation. Nonetheless, having the same sign of the coefficients for the variable of interest—population size—is an optimistic indication that the results in this thesis are potentially robust to other measurements for (participatory) democracy.

Finally, issues of endogeneity may continue to plague the analysis in this thesis, especially if there can be simultaneity between population size and participatory democracy—population size at once affects and is affected by levels of participatory democracy. This is especially true if states with smaller populations are unable to constrain coercive institutions from limiting freedoms of expression and organisation, and the already small populations are themselves susceptible to further lethal threats from a powerful military. To address this, I run a series of two-stage least-squares (2SLS) regressions in Annex J, with the instruments being the natural log of annual rainfall, average annual temperature, and the natural log of arable land from the World Bank (2023a).² These instruments should fulfil the exclusion restriction assumption, since rainfall may affect crop yield, which in turn has demographical outcomes, but are unlikely to affect levels of democracy much (Haber and Menaldo, 2011). We should expect the same case for temperature as well. As a further substitute for the amount of crops available to sustain population size and growth, logged arable land is suitable. Departing from the usage of arable land as a share of total land area Gerring et al. (2018), however, I use the natural log of arable land since the latter is a more direct substitute for the amount of crops. F-tests done on the first stage of every 2SLS model confirm that the three instruments used are not weak, ensuring instrumental relevance. The results of the 2SLS regression show that while the models in this thesis clearly underestimate the relationship between population size and participatory democracy, the results are still robust to sources of endogeneity, such as omitted variable bias and simultaneity with the signs of the coefficients of the different variables largely remaining the same.

² Refer to Annex G for more information on instrument selection.

06 Illustrative Case Study: Indonesia

An illustrative case study elucidates how population size, through the processes of negative institutional design, influences the outcomes of democracy. As such, this section qualitatively presents the mechanisms of clientelism and coercive capacity in operating the effect of state size on democracy through selecting a mixed case—Indonesia. While Indonesia, as a large state, has experienced autocratic rule during Suharto’s New Order period from 1965 to 1998, it also experienced a transition to democracy in 1998 that has lasted to the present day. This mixed case is thus valuable in illustrating how large populations exert constraints on negative institutional design. Principally, I argue that clientelistic networks during the period of New Order faced pressures due to a large coalition that Suharto had to maintain, which eventually gave way when resources ran dry. Furthermore, factional disputes within the military and the diminutive size of coercive institutions relative to the population size meant that while Suharto depended on the military to suppress contentious forms of political participation and voter intimidation, that gave way as well while Indonesia’s population mounted increasing challenges on the military, culminating in large-scale riots in Jakarta and across other regions of the country. Figure 9 shows the time trends of various indicators of interest in Indonesia.

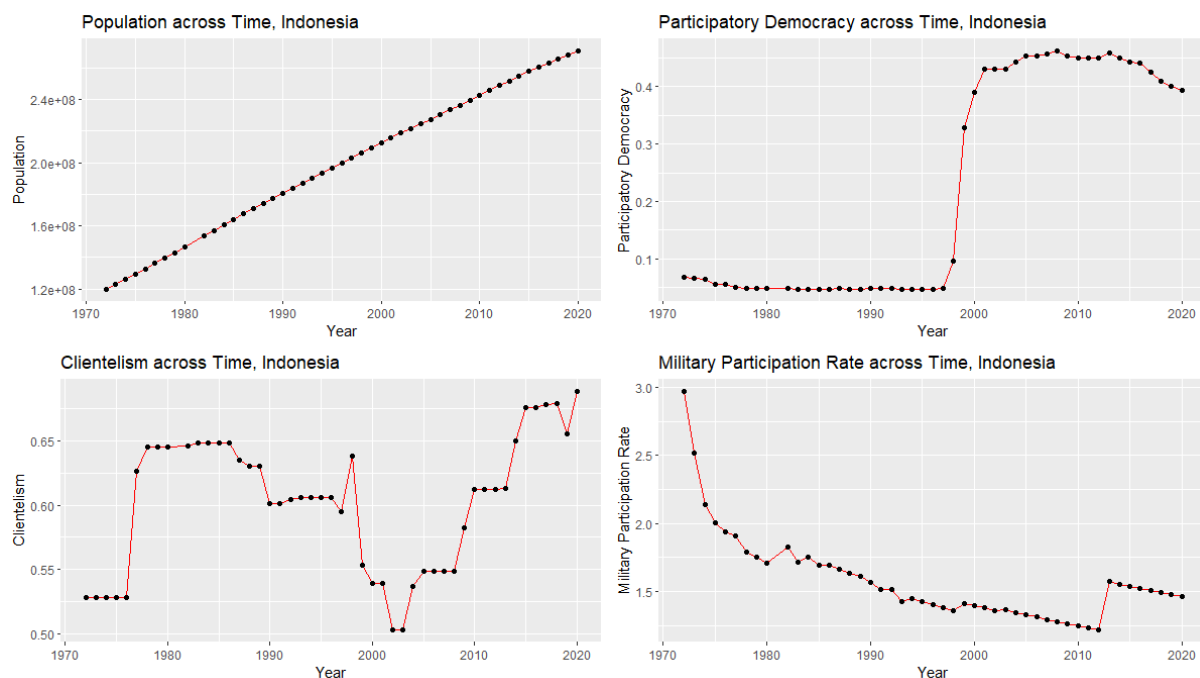


Figure 9: Key indicators, Indonesia

Case Study: Indonesia

Suharto’s New Order inherited a package of political turmoil, economic underdevelopment, and institutional baggage that blighted Indonesia’s early years as a sovereign state. While early conflicts, culminating in *Gestapu*, consolidated the ABRI’s role in civilian politics under the premise that the military was the only guardian of Indonesia’s sovereignty (Ricklefs, 2001), further institutional guarantees during the Guided Democracy era and Suharto’s rule emplaced the military firmly within the legislature. Under Suharto’s leadership throughout the coup and into his New Order, the ABRI enjoyed a broader range of coercive and legislative powers, with their political legitimacy buttressed by their track record of amputating treacherous political actors from Indonesia’s political system. Cudgelled by years of underdevelopment and political turmoil, Indonesia had incurred burgeoning public debts leading to economic freefall (Ricklefs, 2001; Woo et al., 1994). According to one IMF

document from 1970 (see Fig. 10), the first half-decade from the 1960s saw skyrocketing inflation rates in Indonesia. To reverse the trend of Indonesia's economic decline, the New Order regime enacted a series of reforms which not only stabilised the country economically but also allowed for expansive economic development. For one, as a continuation from the Indonesian military's Western slant, Suharto courted the favour of Western aid through economic policies often looked favourably upon by the IMF and rejoined the Bretton Woods system by 1967 (Martinez-Diaz, 2006) and economically liberalised to encourage the inflow of foreign direct investment (Ricklefs, 2001) while maintaining avenues for investments in technological upskilling of local labour. While Law 01/1967 promulgated exempted foreign investors from an extensive list of taxes, foreign investors were also required to provide training to Indonesians with the view of replacing foreign labour with Indonesian manpower (President of the Republic of Indonesia, 1967; Woo et al., 1994). By 1969, inflation rates in Jakarta had been suppressed to around 10% (Tómasson, 1970).

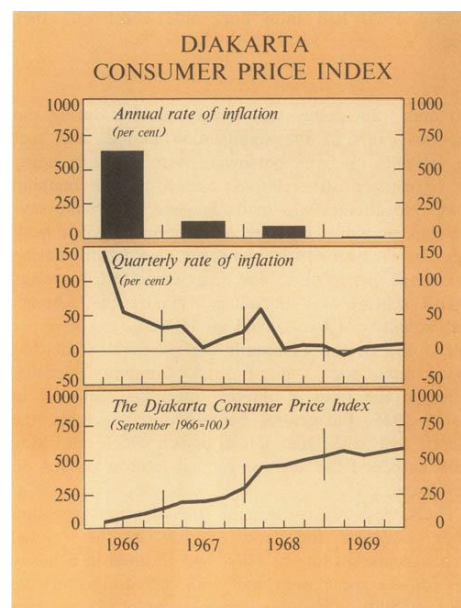


Figure 10: CPI in Jakarta from 1966-1969. Source: International Monetary Fund, Tómasson (1970).

Clientelism in the New Order

While the early administration of the New Order bureaucrats rescued Indonesia from the brink of economic collapse, the regime had, in the long run, relied on unsustainable practices. Nonetheless, from 1965 till the mid-1980s, clientelism in the New Order was, in large part, bankrolled by vast profits from oil, aid, and foreign investments. Clientelism ran through two gargantuan channels. On the one hand, a complex between the military and the business elites formed, which siphoned rents into the pockets of the military-economic coalition. On the other, the New Order regime relied on *Golkar*, a political party formed to absorb non-governmental organisations, trade and labour unions, and bureaucrats.

To the first, revenue streams secured by the New Order regime not only lifted Indonesia from economic crises but also enabled the New Order regime to build upon clientelistic networks among generals and Chinese business magnates—*cukongs*. To the ABRI, its involvement in Indonesia's economy was regarded as a natural extension of their *dwifungsi* doctrine, which maintained the ABRI's role not only as that of a traditional military but also of an institution which maintained Indonesia's political stability through extensive involvement in government (Honna, 2003). What is worth noting that the role of ABRI in the national economy had a long precedence as it had sought alternative avenues of income as

government of military spending became scarce under Sukarno (Crouch, 1975/1976), and continued to plateau at moderate levels during the New Order (Anderson, 1983). Continuing from practices during the Sukarno-era, generals with business positions often maintained economic linkages with *cukongs* (Crouch, 1979). In exchange for resources and financing, ties with the ABRI often ensured protection of the *cukongs* from the increasingly hostile environment towards the Chinese minority in Indonesia (Borsuk and Chng, 2014). For one, Suharto himself cultivated a close working relationship with Chinese magnate Liem Sioe Liong that persisted as the New Order provided the latter with monopolistic advantages and protection from ethnic marginalisation (Dieleman and Sachs, 2008; Mackie, 1991). As the New Order steamrolled economic reforms, businesses run by Sukarno-era elites, particularly that of the oil industry, were taken over by the higher echelons of the ABRI, including that of the head of the state-owned oil company *Pertamina* and Suharto's Minister of Oil and Natural Gas Ibnu Suwoto.

Turning next to Golkar, the consolidation of all non-governmental organisations and unions into Golkar was accompanied by coercion from the New Order regime to force Islamic parties to merge into the PPP and Christian and Nationalist parties to form the PDI, further weakening the participation of political parties as politicians traipsed between intimidation by the regime and infighting within the broad political blocs. While national elections were nominally maintained to retain a veneer of legitimacy to Indonesia's Western partners, it was also closely managed by Suharto's close circle of elites (Rogers, 1988). To ensure that Golkar continued to remain victorious in elections, Suharto relied on various forms of intimidation, usually spearheaded by the ABRI and local officials subservient to the New Order regime (Elson, 2002). At the top of Golkar leadership were generals, who coordinated electoral strategies (Crouch, 1988). Local level Golkar chairmanships were often assumed by militarymen, who commanded a vast network of village heads and officials to run its voter intimidation policies to ensure large voter turnouts in support of Golkar (Liddle, 1978). Moreover, while civil servants were not permitted to hold memberships in any political party, they were coerced into signing statements of loyalty to the government (Crouch, 1988; Elkof, 2003). Researchers also note the extensive clientelistic linkages in the villages in the form of extensive party patronage where government jobs were distributed among villagers (Aspinall and Berenschot, 2019). The spoils of government going to party stalwarts and generals and the intimidation of voters through Golkar thus characterised the other arm of clientelism in New Order Indonesia.

Coercive Capacity, Weaknesses, and the decline of the New Order

Despite relying heavily on coercion to maintain civilian quiescence, especially in widespread voter intimidation (Utrecht, 1972), the New Order regime was plagued by the declining size of its coercive institutions, not least that of the military. While the number of military personnel since 1972 plummeted and only gradually picked up in the 1980s, the number of military personnel *per 1000 people* reflected a downward trend (see Fig. 11). We recall that the latter measure—*military participation rate*—represented the size of the military relative to the population. Besides enacting voter intimidation and suppression of contentious politics, the military also trained and outsourced such forms of state-sanctioned violence to youth groups and gangs, which, on the local level were able to enact the regime's practices of intimidation and repression. In 1980, the New Order regime established *Siskamling*, which organised street gangs under bureaucratic control (Barker, 1998). While this controlled street violence and crime, strengthening the authority of the local police, this also ensured that gangs could be operated by the New Order regime for street-level surveillance and intimidation of the everyday Indonesian. For one, this system of intimidation

and collusion with street gangs culminated in some of the largest mass killings since 1965—the “Petrus” killings from 1983 to 1985—where, under the guise of decreasing crime rates, the military organised troops to cull alleged criminals, at times even culling local gangsters themselves (Bourchier, 1990; Cribb, 2002; van der Kroef, 1985).

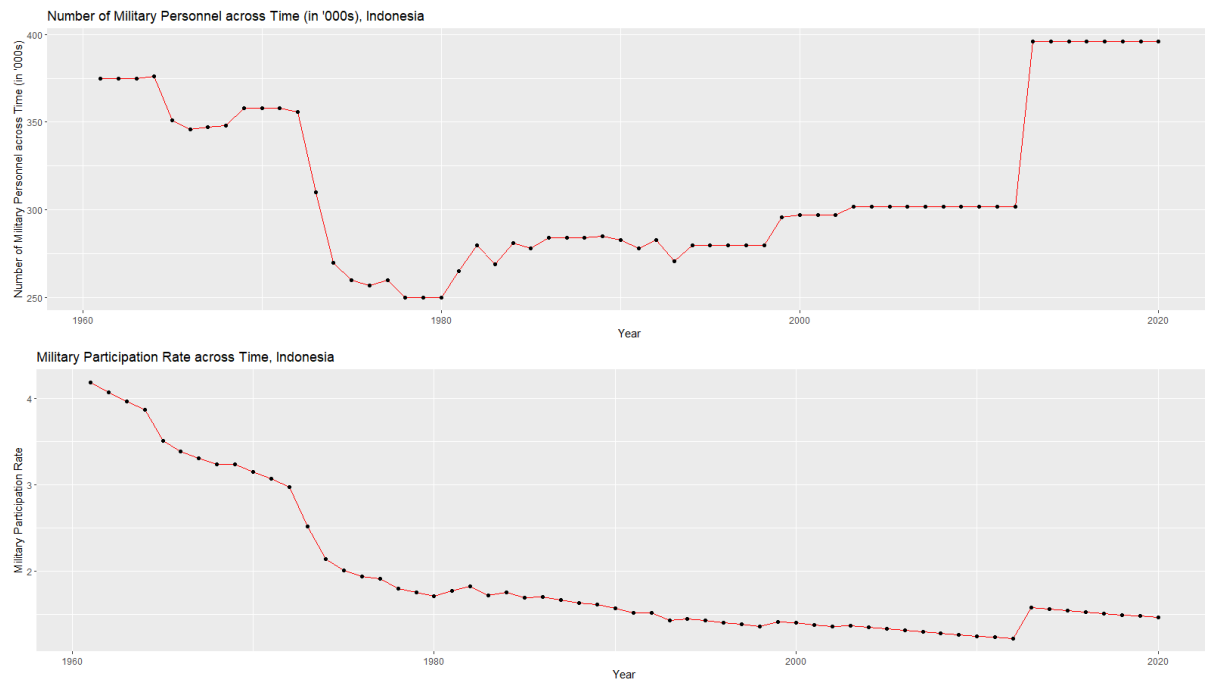


Figure 11: Indonesia's military strength and military participation rate, 1961-2020.

Yet cracks in the New Order system stemming, in part, from population size had formed. Two crucial problems had manifested in the ABRI. Firstly, there was already dissent within the ABRI, especially among officers who had been as radical as to suggest a systematic and periodic review of the ABRI's *dwifungsi* doctrine (Honna, 2003). Moreover, key members of the military had been willing to endorse student protests rather than suppress them. For one, General Sumitro, alongside retired members of the ABRI elite, supported one of the largest student protests in the New Order period—the Malari Incident in 1974—and, at the expense of Gen. Sumitro's employment, forced broad economic reforms (Crouch, 1988; Lee, 2015). While Suharto's monopoly over the system of coercive institutions still allowed his regime to effectively mobilise physical force against contentious forms of mass-based politics, regular dissension among the ABRI's elites often forced Suharto to frequently replace his lieutenants towards the latter half of his rule (Said, 1998; Sidel, 1998).

Streams of clientelism could still be sustained by the oil boom of the 1970s, which saw an increase in the New Order's dependence on oil (see Fig. 12). But by the late 1980s, effective revenue streams from which the New Order could finance its system of clientelistic linkages began to dry (Sidel, 1998). Furthermore, discontent, its first signs seen from the 1974 Malari Incident, had arisen among non-Chinese population. While economic growth in the former part of the New Order period had secured the quiescence of the middle-class in Indonesia (Aspinall, 2005), towards the latter part of the New Order, mass discontent had fomented among different groups within the populace. With rising income inequality and economic regression besieging the gargantuan non-Chinese population, economic grievances began surfacing along ethnic divisions (Mietzner, 2009), with a consciousness that the New Order had been characterised as *korupsi, kolusi dan nepotisme* (corruption, collusion, and nepotism), with Suharto at the pinnacle surrounded by his family, the Chinese business elites, and his generals (Robertson-Snape, 1999; Singh, 2000). Slater (2010) alludes to this as the

failure of the Suharto regime to effectively sustain its protective posture against contentious politics, while Aspinall (1996) alludes to the broadening social base of a growing well-educated working class with labour union ties, political parties, and non-governmental organisations outside of the ABRI-Golkar complex of the New Order—as Suharto found his regime balancing on a shrinking coalition and facing a fast-growing, large-scale opposition among student activists, the Islamic intelligentsia, scholars, and civil society actors (Berger, 1997). By this time, motions portending democratic transition began to surface, even as Suharto sought to maintain control. For one, Suharto acquiesced to popular pressures—initiated by civil society groups—mounting against decades of extrajudicial killings committed by the ABRI by establishing a commission of inquiry which not only probed into the mass killings in Timor-Leste in 1991 but also ordered for the courts-martialling of soldiers (Honna, 2003).

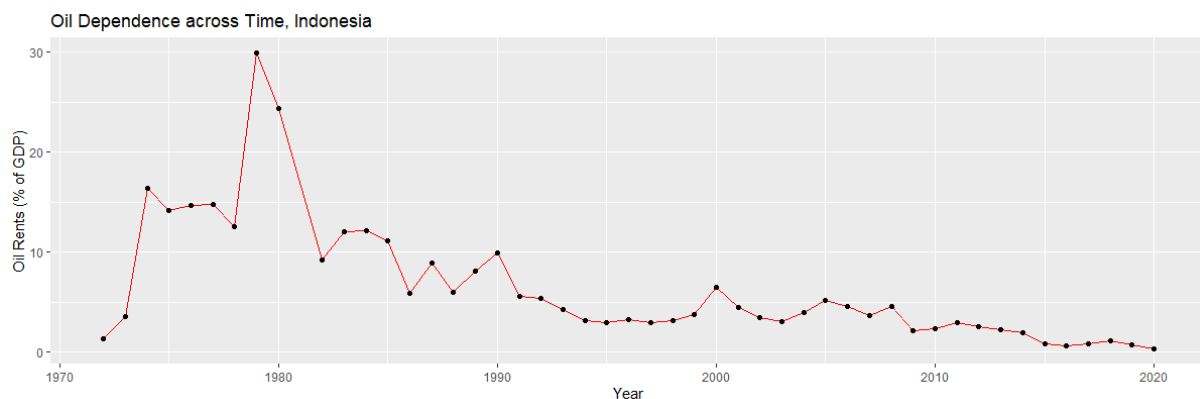


Figure 12: Indonesia's Oil Dependence, 1972-2020

As the Indonesian economy faltered following the Asian Financial Crisis, the opposition to Suharto intensified. In May 1998, mass protests sparked by student activists, Islamic organisers, and civil society began to mobilise for Suharto's departure. Even internally, coercive institutions succumbed to factionalism. Where there were still loyal generals behind Suharto, other generals began supporting the *Reformasi* movement, including key generals such as Wiranto (Lee, 2015; Singh, 2000). Furthermore, some generals had enlisted the support of street-level mercenaries (i.e., gangs) to incite riots (Wilson, 2006). Suharto's clientelistic and coercive systems crumbled under the pressures of Indonesia's large population base, diverse in interests but generally united in their grievances.

Conclusion: The Post-Suharto Years, 1998-2020

The period of the New Order regime's success faced pressures from a large population and fragmented military but held together when bankrolled by monetary gains from natural resources, foreign investments, and aid. Towards the end of the New Order, a growing coalition of non-governmental organisations, political parties, and labour unions, erstwhile resisting the regime while outside of Golkar began to challenge Suharto's shrinking coalition of elites. Furthermore, Islamic organisations such as Nahdlatul Ulama and Muhammadiyah, which commanded the mass following of the more devout Muslim population under prominent religious leaders such as Abdurrahman Wahid (colloquially *Gus Dur*) and Amien Rais, began defecting from the PPP and challenging Suharto independently (Elkof, 2003). Being unable to rebuild the coalition, and staring down the dual barrels of defection from within the military and pressures from a immense and diverse population, the New Order succumbed to *Reformasi* in May 1998. In the following years, extensive reforms were enacted. During the Megawati Presidency, the KPK was established to not only combat

corruption and clientelistic linkages within Indonesia but also probe Suharto's corruption and embezzlement from the New Order period, accompanied by high-profile arrests (Schutte, 2012). Furthermore, the mid-2000s saw the return of the military to the barracks, with a host of reforms such as removing business activities from the military to prevent off-record financing of its activities and civilian oversight of deployments and appointments (Sebastian et al., 2018). While the military still played an outsized political role in managing separatism and ethnic skirmishes in conflict-prone areas of Indonesia, the military had effectively lost its power, as an institution, to influence civilian politics (Mietzner, 2013).

Yet, Indonesia still suffers from the propensity to regress democratically. Despite the removal of military authority from civilian institutions, retired military officers tend to run for—and even succeed in—elections. Prominently, President Yudhoyono and General Prabowo are full-fledged politicians, with the latter having decried democratic processes in Indonesia by refusing to accept the results of the 2014 election (Warburton and Aspinall, 2019). Moreover, the civilian authority in the last decade has seemingly regressed into illiberalism, with President Jokowi's undermining the independence of the KPK, his dependence on the military to perform crackdowns, and his limits on freedoms of association and speech taking centre stage in his presidency (Mujani and Liddle, 2021; Warburton and Aspinall, 2019). Furthermore, the decentralisation of administration in Indonesia has given Indonesian bureaucrats and politicians a larger berth to control patronage systems. As Aspinall (2010) argues, decentralization provided elites with opportunities to buy off their losing opponents and afforded the democratic system opportunities to reduce the prospects for de-democratisation. Yet, the continuation of vast networks of clientelism has also sowed the seeds for discontent towards the system of democracy (Mudhoffir, 2019), with a large population espousing increasingly illiberal concepts of democratic rule (Aspinall et al., 2020).

07 Conclusion

The relationship between state size and democracy has had a long intellectual history stretching millennia. Quantitative studies on causal mechanisms, however, have not yielded much in the way of explaining the potential mechanisms linking size and democracy. The analysis in this thesis elucidates key insights into the causal process, highlighting that a greater physical size of the state, particularly that of the population, does impose constraints on negative institutional designs—clientelism and coercive institutions. This is because a larger population size not only demands costs on the part of political actors to provide concessions to a larger pool of beneficiaries but also diminishes the credibility of threats, particularly if coercive institutions, such as the military or police, are small relative to the population. In contrast, smaller states are more likely to succumb to both the “carrots” in clientelism and the “sticks” in coercive capacity since a smaller population reduces the strain on the resources political actors need to activate in distributing benefits and is more vulnerable to an outsized set of coercive institutions which disincentivises participation and organisation.

The brief study on Indonesia bolsters the validity of key insights arising from quantitative analyses. Clientelism in Suharto’s New Order often depended on revenues from oil and foreign aid but are usually spread across a large population. Furthermore, small coercive institutions, while operated to intimidate dissenters and voters, tended to experience factionalism. This culminated in the breakdown of clientelistic linkages during the last few years of the regime as revenue streams began to dry up with plummeting oil prices and the Asian Financial Crisis. Furthermore, splits in the military began widening, culminating in a breakaway faction of the military that provided support to student movements during *Reformasi* in May 1998. Yet worsening trust in democratic institutions today and increasingly illiberal conceptualisations of democracy among such a large population today may put democracy at risk in Indonesia today.

This study is not without limitations. The quantitative results enclosed within comprise only 27 states since V-Dem do not include microstates in its dataset on democracy and clientelism. Furthermore, consistent with the sequential ignorability assumption in causal mediation analysis, I limit the effect of latent factors arising from geography on the relationship between size and democracy by restricting this analysis to just island states. But this is not without its own risks. While this study may be valid to island states, the external validity of this study to non-island states is unknown. Several routes of expansion are inspired by these limitations, however. First, future research on state size on democracy can be directed at non-island states to determine the validity of the findings in this thesis to non-island states. Furthermore, future investigations should probe the interaction between the “carrots” and “sticks” institutional mechanisms as an extension of the guardianship dilemma, especially in small states, by exploring any potential interactions between clientelism and coercive capacity, as manifested in the two qualitative cases. But this would also require further methodological advancements in causal mediation analysis to account for and rectify violations of the sequential ignorability assumption.

Nonetheless, this thesis represents a determined effort to highlight the vulnerability of institutions in small states. While a smaller population size allows for ease of participation, it cannot effectively constrain undemocratic institutions as well, resulting in democratic regressions and autocratisation. This is theoretically relevant to future studies on social movements, authoritarianism, and service delivery in small states. The latter point is especially important if lower levels of participation in the face of stronger undemocratic institutions means that the population is unable to signal gaps in service delivery for fear of

reprisals. The framework in this thesis also provides policymakers, especially in international organisations examining governance, democracy, and foreign aid, key insights into the propensity for clientelistic networks and coercion as core vulnerabilities in small state democracy.

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Annex A: State Size and Democracy

List of Countries, Variables, and Data Sources

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1 Introduction

This annex covers the data collection methods for this thesis, including the independent variables, dependent variables, and the covariates. I will also be covering the formulae used in the calculation of specific variables.

2 List of Countries

Table A1: List of Countries in Samples

Sample	Countries
V-Dem Sample	Australia, Bahrain, Barbados, Comoros, Cuba, Cyprus, Dominican Republic, Fiji, Haiti, Iceland, Indonesia, Ireland, Jamaica, Japan, Madagascar, Malta, Mauritius, New Zealand, Papua New Guinea, Philippines, Seychelles, Singapore, Solomon Islands, Sri Lanka, Trinidad and Tobago, United Kingdom, and Vanuatu (27)
Microstates	Antigua and Barbuda, Bahamas, Cabo Verde, Dominica, Grenada, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Samoa, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Tonga, and Tuvalu (16)
Not in Samples	Brunei Darussalam, Timor-Leste, the Maldives, Taiwan, and Sao Tome and Principe (5)

Note: The V-Dem and Microstate Samples both make up the full sample used in the analyses in the supplementary materials. The 5 countries in the "Not in Samples" row are omitted from the dataset due to severe missingness on many variables. As a note, we cannot be sure about the kinds of biases that may be introduced from the omission of these countries.

3 List of Variables, Description, and Sources

Table A2: Variables, Description, and Sources/Calculation

Variable	Description	Source/Description
population	Population size of each country-year observation.	World Bank(2023b)
ln_popn	Natural log of population of each country-year observation.	ln(population)
landarea	Land area of each country-year observation.	World Bank(2023b)
ln_landarea	Natural log of land area of each country-year observation.	ln(landarea)
geom2	Geometric means of amended Z-scored population and land area. The floor values of minimum values of Z-scores are deducted from true Z-score values to shift all values above 0.	See Equation (1) in thesis or Introductory section of Annex F for more information.
ln_geom2	Natural log of the composite indicator for state size.	ln(geom2)
arable	Arable land area of each country-year observation.	World Bank(2023b)
rainfall_wb	Rainfall of each country-year observation (in mm)	World Bank (2023a)
ln_rainfall	Natural log of rainfall	ln(rainfall_wb)
temperature_wb	Average annual temperature.	World Bank (2023a)
gdp	GDP (in 2015 USD prices) of each country-year observation.	UNData (2023)
gov_expenditure	Amount of government expenditure of each country-year observation (in 2015 USD prices).	UNData (2023)
govexpend_ratio	% GDP comprising government expenditure for each country-year observation.	$\text{gov_expenditure} \div \text{gdp}$
urban	Urban population of each country-year observation.	World Bank(2023b)
prop_urban	Urban share of total population.	$\text{urban} \div \text{population}$
resourcerent	For every country-year observation, a resource dependence variable is created. This variable is conceptualised more fully in Dunning (2013). Because rents are already calculated as the subtraction of the cost of production from the total sales of natural resources, we use resource rents as a proportion of the total GDP.	World Bank (2023b)
oilrent	Concept consistent with resourcerent. Profits collected from oil for each country-year observation as a % of GDP.	World Bank(2023b)
ethfrac_alesina2003	Ethnic fractionalisation score of each country observation. Assumed time-invariant.	(Alesina et al., 2003)
total_odashare_oecd	Official Development Assistance.	(Organisation for Economic Co-operation and Development (OECD), 2023)
islamic	Binary Muslim-majority status.	Self-collected
muslim_pc_imputed	Imputed values for Muslim-majority status. Muslim share of total population.	World Religions Database (Johnson & Grim, 2023).
milper	Military personnel (in 1000s) of each country-year observation.	From 1961-2016: Greig and Enterline (2021). From 2017 onwards: International Institute for Strategic Studies (2023).
milrate	Military personnel per 1000 people for each country-year observation. This measures coercive capacity.	$((\text{milper} \times 1000) + 1) \times \frac{1000}{\text{population}}$
v2xnp_client	Clientelism Index.	V-Dem Dataset (Coppedge et al., 2023)
fh_total_reversed	Freedom House 14-point index.	Freedom House (2023) and R package 'democracyData' (Márquez, 2020)
v2x_partipdem	V-Dem Participatory Democracy Index.	V-Dem Dataset (Coppedge et al., 2023)

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Annex B: State Size and Democracy

Robustness Check: Freedom House 14-point Index as Dependent Variable

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1 Introduction

In this annex, the dependent variable in the following models have been substituted with the 14-point Freedom House democracy scores.

2 Empirical Strategy 1: Regression

Table B1: Relationship between Logged Population and Democracy (Freedom House Index)

	Exposure-Outcome, Pooled		fh_total_reversed		Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Population (Logged)	0.1136 (0.0602) p = 0.0590	0.1072 (0.0561) p = 0.0563	0.0259 (0.0527) p = 0.6233	0.0250 (0.0501) p = 0.6184	1.5536*** (0.5081) p = 0.0023	0.1530 (0.1840) p = 0.4059
Clientelism		-5.0229*** (1.1836) p = 0.00003		-3.9785*** (0.9932) p = 0.0001	-6.2735*** (1.1623) p = 0.0000001	-5.6409*** (1.5726) p = 0.0004
Military Participation Rate			-0.2611*** (0.0263) p = 0.0000	-0.2487*** (0.0256) p = 0.0000	-0.0479 (0.0254) p = 0.0601	-0.1876* (0.0901) p = 0.0373
Urbanisation (% of Population)	-6.5665*** (0.9144) p = 0.0000	-5.6761*** (0.8929) p = 0.0000	-3.8367*** (0.8258) p = 0.000004	-3.2615*** (0.8080) p = 0.0001	9.1325*** (1.5456) p = 0.0000	-1.5076 (3.1028) p = 0.6271
Per Capita GDP (Logged)	2.1756*** (0.2314) p = 0.0000	1.0752*** (0.3210) p = 0.0009	2.0479*** (0.2210) p = 0.0000	1.1824*** (0.2990) p = 0.0001	0.5058 (0.3136) p = 0.1068	1.2062*** (0.3094) p = 0.0001
Government Expenditure (% of GDP)	-0.7674 (2.5487) p = 0.7634	-2.0446 (2.5426) p = 0.4214	-1.5229 (2.3503) p = 0.5171	-2.4985 (2.3899) p = 0.2959	-0.1929 (1.9120) p = 0.9197	-2.6108 (2.5276) p = 0.3017
Foreign Aid Received (% of GNI)	-0.9304 (3.1271) p = 0.7661	-3.7332 (2.9799) p = 0.2103	-1.0842 (2.9254) p = 0.7110	-3.2968 (2.8669) p = 0.2502	-3.0260 (2.0719) p = 0.1442	-1.6073 (3.3861) p = 0.6351
Resource Dependence	0.0007 (0.0174) p = 0.9690	0.0436* (0.0222) p = 0.0493	-0.0146 (0.0149) p = 0.3272	0.0201 (0.0194) p = 0.3005	0.0181 (0.0154) p = 0.2383	0.0323 (0.0208) p = 0.1206
Ethnic Fractionalization	-2.4781*** (0.8160) p = 0.0024	-3.4866*** (0.8393) p = 0.00004	-1.5439* (0.7815) p = 0.0482	-2.3873*** (0.8150) p = 0.0035		-2.5773*** (0.7918) p = 0.0012
Islamic	-3.1879*** (0.6200) p = 0.0000003	-3.4227*** (0.6030) p = 0.0000	-3.0348*** (0.5564) p = 0.0000001	-3.2280*** (0.5438) p = 0.0000		-3.4277*** (0.5712) p = 0.0000
Population × Urbanization						-0.1691 (0.2527) p = 0.5034
Clientelism × Urbanization						2.9664 (2.4409) p = 0.2243
MPR × Urbanization						-0.0882 (0.1108) p = 0.4259
Constant	-7.0966*** (2.3798) p = 0.0029	4.4395 (3.5001) p = 0.2047	-5.3170* (2.2676) p = 0.0191	3.7355 (3.2620) p = 0.2522	1.2256*** (0.3878) p = 0.0016	2.2088 (4.3939) p = 0.6152
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	No
N	1204	1204	1204	1204	1204	1204
R-squared	0.4582	0.4891	0.5702	0.5893	0.2294	0.5923
Adj. R-squared	0.4322	0.4641	0.5492	0.5689	0.1738	0.5709
Residual Std. Error	2.6576 (df = 1148)	2.5819 (df = 1147)	2.3681 (df = 1147)	2.3159 (df = 1146)	1.2518 (df = 1122)	2.3104 (df = 1143)
F Statistic	17.6519*** (df = 55; 1148)	19.6043*** (df = 56; 1147)	27.1714*** (df = 56; 1147)	28.8469*** (df = 57; 1146)	4.1243*** (df = 81; 1122)	27.6752*** (df = 60; 1143)

***p < .005; **p < .01; *p < .05

Table B2: Relationship between Logged Population and Military Participation Rate (Table 4 in thesis)

	Pooled (No Interaction)	milrate Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	-0.3305*** (0.1000) p = 0.0010	-1.7195 (1.3326) p = 0.1970	-0.2679 (0.3886) p = 0.4906
Clientelism	4.2004* (2.1143) p = 0.0470	12.7981*** (2.6913) p = 0.000002	0.0759 (2.5810) p = 0.9766
Urbanisation (% of Population)	9.7101*** (1.5506) p = 0.0000	-1.4779 (2.8998) p = 0.6103	7.2152 (7.8527) p = 0.3582
Per Capita GDP (Logged)	0.4310 (0.4574) p = 0.3461	0.8398 (0.8576) p = 0.3275	0.3736 (0.4874) p = 0.4434
Government Expenditure (% of GDP)	-1.8253 (3.8432) p = 0.6349	1.2144 (2.4228) p = 0.6163	-2.1592 (3.9420) p = 0.5839
Foreign Aid Received (% of GNI)	1.7549 (4.2458) p = 0.6794	0.0398 (3.7915) p = 0.9917	2.6850 (4.0212) p = 0.5044
Resource Dependence	-0.0945** (0.0342) p = 0.0058	-0.0900* (0.0359) p = 0.0123	-0.0665 (0.0358) p = 0.0633
Ethnic Fractionalization	4.4211*** (1.2785) p = 0.0006		3.8826*** (1.3140) p = 0.0032
Islamic	0.7829 (0.6123) p = 0.2011		0.4534 (0.6232) p = 0.4669
Population \times Urbanization			-0.0077 (0.5930) p = 0.9897
Clientelism \times Urbanization			7.0402 (4.3189) p = 0.1031
Constant	-2.8311 (5.6621) p = 0.6171	-0.9380 (0.9149) p = 0.3053	-1.2374 (8.3839) p = 0.8827
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.2563	0.1866	0.2611
Adj. R-squared	0.2200	0.1287	0.2237
Residual Std. Error	4.5989 (df = 1147)	2.8467 (df = 1123)	4.5882 (df = 1145)
F Statistic	7.0602*** (df = 56; 1147)	3.2203*** (df = 80; 1123)	6.9753*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

Table B3: Relationship between Logged Population and Clientelism (Table 3 in thesis)

	v2xnp_client		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	−0.0002 (0.0026) p = 0.9284	0.1660*** (0.0298) p = 0.0000001	−0.0349*** (0.0114) p = 0.0023
Military Participation Rate	0.0031* (0.0014) p = 0.0244	0.0050*** (0.0009) p = 0.0000002	0.0084 (0.0044) p = 0.0558
Urbanisation (% of Population)	0.1446*** (0.0442) p = 0.0011	0.0701 (0.0595) p = 0.2386	−0.5869*** (0.2019) p = 0.0037
Per Capita GDP (Logged)	−0.2175*** (0.0091) p = 0.0000	−0.0531*** (0.0127) p = 0.00003	−0.2345*** (0.0118) p = 0.0000
Government Expenditure (% of GDP)	−0.2452*** (0.0809) p = 0.0025	−0.5217*** (0.1161) p = 0.00001	−0.3376*** (0.0898) p = 0.0002
Foreign Aid Received (% of GNI)	−0.5562*** (0.1770) p = 0.0017	−0.0595 (0.1350) p = 0.6596	−0.7069*** (0.1967) p = 0.0004
Resource Dependence	0.0087*** (0.0011) p = 0.0000	0.0002 (0.0011) p = 0.8443	0.0096*** (0.0012) p = 0.0000
Ethnic Fractionalization	−0.2120*** (0.0268) p = 0.0000		−0.2058*** (0.0277) p = 0.0000
Islamic	−0.0486 (0.0288) p = 0.0916		−0.0370 (0.0265) p = 0.1628
Population × Urbanization			0.0544*** (0.0160) p = 0.0007
MPR × Urbanization			−0.0076 (0.0056) p = 0.1780
Constant	2.2754*** (0.0911) p = 0.0000	0.0386* (0.0169) p = 0.0220	2.9128*** (0.2389) p = 0.0000
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.7688	0.5041	0.7756
Adj. R-squared	0.7575	0.4688	0.7642
Residual Std. Error	0.1255 (df = 1147)	0.0565 (df = 1123)	0.1237 (df = 1145)
F Statistic	68.1109*** (df = 56; 1147)	14.2699*** (df = 80; 1123)	68.2216*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

3 Empirical Strategy 2: Causal Mediation Analysis

3.1 H_2 : The long-term operation of clientelism

Figure B1 shows the effect of state size (population) on democracy which is operated by clientelism, denoted by the ACME. As the ACME is not significant, we cannot reject the null hypothesis that the effect of population size on democracy is not operated by clientelism. We will return to this in section 3.3 on the conditional operation of clientelism since I suspect heterogeneity in the ACME conditioned by the urban share of the population. We recall from the thesis that the urban share of the population

is meant to measure the spread of the population (as opposed to population density). This indicator gives us a much more direct approximation of how much of the population is clustered in urban centres.

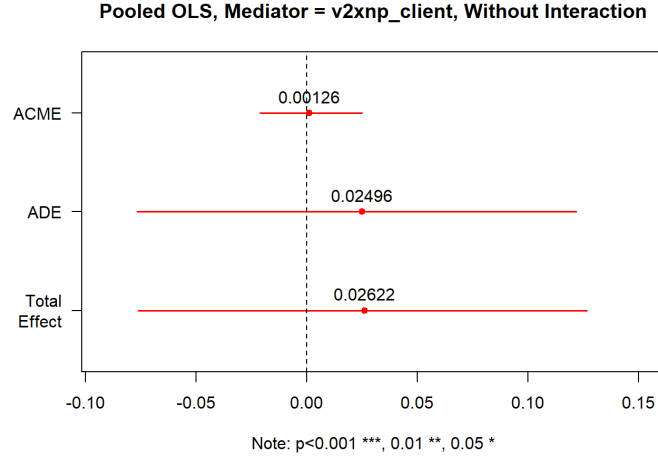


Figure B1: Long-term operation of clientelism.

3.2 H_{2a} : The short-term operation of clientelism

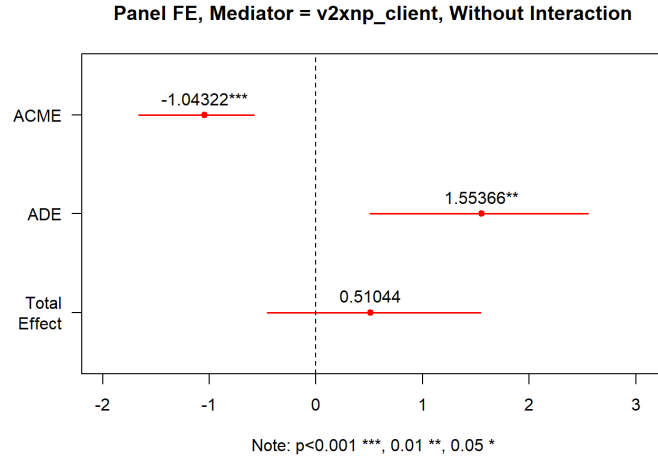


Figure B2: Short-term operation of clientelism.

Figure B2 shows the short-term effect of state size (population) on democracy which is operated by clientelism, denoted by the ACME. Since $ACME = -1.04322$ and is significant at the 0.001 level, we can reject the null hypothesis.

What is surprising about this result, as with the thesis, is that the ACME is negative. Furthermore, Model 2 of Table B3 also show a positive and significant relationship between population size and clientelism year-on-year. This means that as states experience population growth year-on-year, they are likely to experience higher levels of democracy because clientelism becomes more prevalent with population growth. The occurrence of this result may be due to a long-term effect of clientelism, where states that experience prior levels of clientelism are more likely to retain their clientelistic linkages, even if they grow to a larger size in the future. Further future research should be conducted to verify the institutional legacies of clientelism, where such institutional legacies may mirror the kind of patronage uncovered and explained in Poczter and Pepinsky (2016).

3.3 H_{2b} : The conditional operation of clientelism

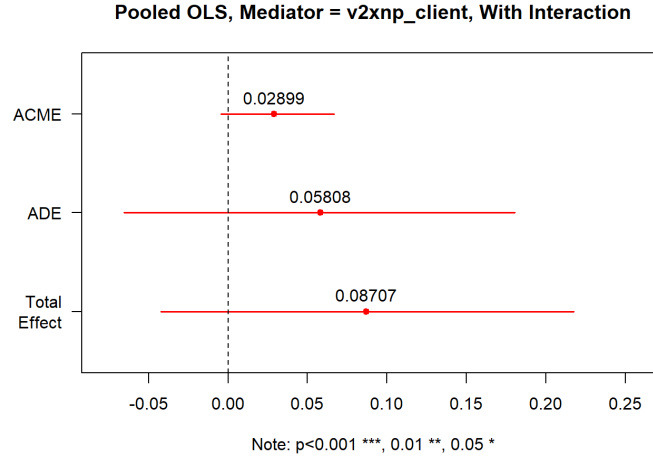


Figure B3: Conditional operation of clientelism.

From Figure B3, there does not seem, at first glance, to be any evidence of the effect of population size on democracy being operated by clientelism. However, further inspecting the model by modelling the less urban sample and the more urban sample yields the following observations. First, with an ACME of 0.09178 among the less urban states and an ACME of -0.03253 among more urban states, significant at the 0.01 level, we can conclude that there is heterogeneity in the operation of clientelism.

Turning first to the less urban states (see Fig. B4), we observe a positive and significant ACME. This ACME informs us that for every 10% increase in population size, the Freedom House democracy score is expected to increase, on average, by 0.00875. Turning to the more urban states (see Fig. B5), however, we observe a reversal in the relationship; for every 10% increase in population size, the Freedom House democracy score is expected to decrease, on average, by 0.00310. This may indicate that less urban states with larger populations place resource strains on clientelistic linkages, thereby diminishing the undemocratic effects of clientelism and increasing the levels of democracy as a result. Conversely, in more urban states, an increase in population size may, instead, prompt higher levels of clientelism since political elites are able to leverage on efficient clientelistic linkages bankrolled and driven by economies of scale. A further explanation is given in Chapter 5 of the thesis.

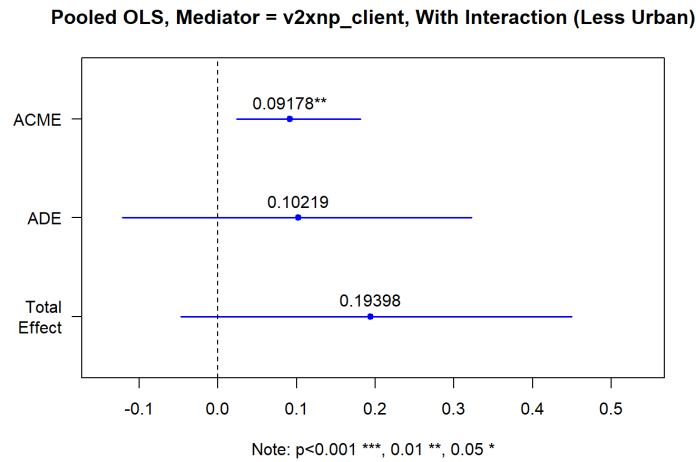


Figure B4: Conditional operation of clientelism in less urban states.

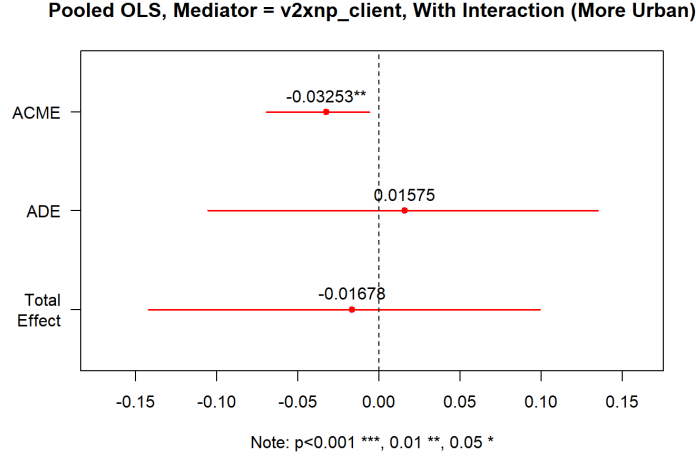


Figure B5: Conditional operation of clientelism in more urban states.

3.4 H_3 : The long-term operation of coercive capacity

Figure B6 shows the effect of population size on democracy which is operated by coercive capacity, measured using the number of military personnel per 1000 people (alternatively termed military participation rate), denoted by the ACME. The ACME is positive at 0.08269, significant at the 0.01 level. This means that for every 10% increase in population size, the Freedom House democracy score increases by 0.00788, with this effect being operated by military participation rate. Furthermore, Model 1 of Table B2 shows a negative and significant relationship between population size and military participation rate. We can thus reject the null hypothesis and conclude that there is an effect of population size on democracy that is being operated by coercive capacity. That is, smaller states, being more likely to possess larger coercive capacities relative to their population size, are likely to have lower levels of democracy.

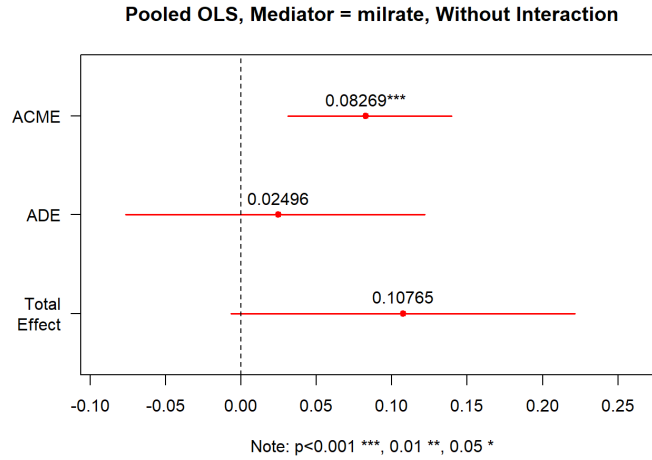


Figure B6: Long-term operation of coercive capacity.

3.5 H_{3a} : The short-term operation of coercive capacity

Figure B7 shows the short-term effect of population size on democracy which is operated by coercive capacity, denoted by the ACME. The ACME is, however, not significant. We cannot reject the null hypothesis that there is no operation of the effect of population size on democracy through coercive capacity on the short term. The potential explanation for this has been detailed in Chapter 5 of the thesis.

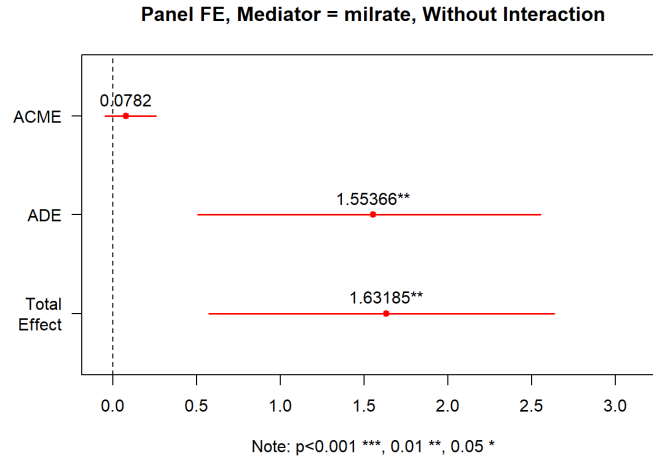


Figure B7: Short-term operation of coercive capacity.

3.6 H_{3b} : The conditional operation of coercive capacity

The ACME in Figure B8 shows a similar result with the ACME in Figure B6. However, there does not seem to be any difference among less urban and more urban states. This overturns our initial expectations that more urban states are likely to experience a stronger effect of population size on democracy.

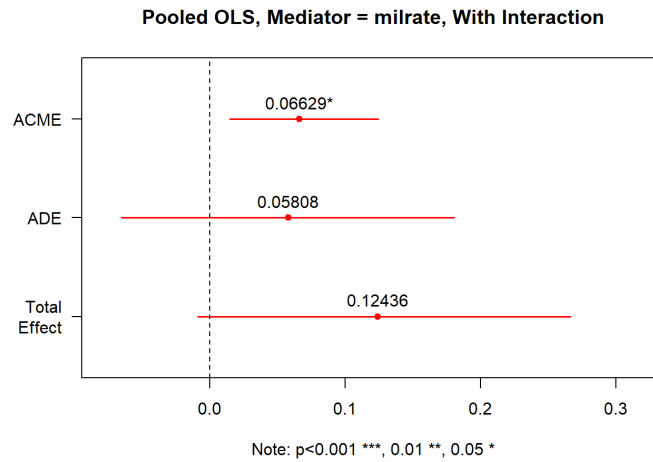


Figure B8: Conditional operation of coercive capacity.

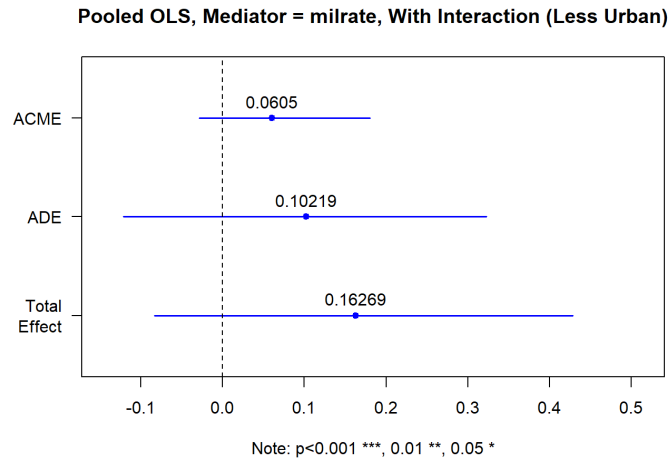


Figure B9: Conditional operation of coercive capacity in less urban states.

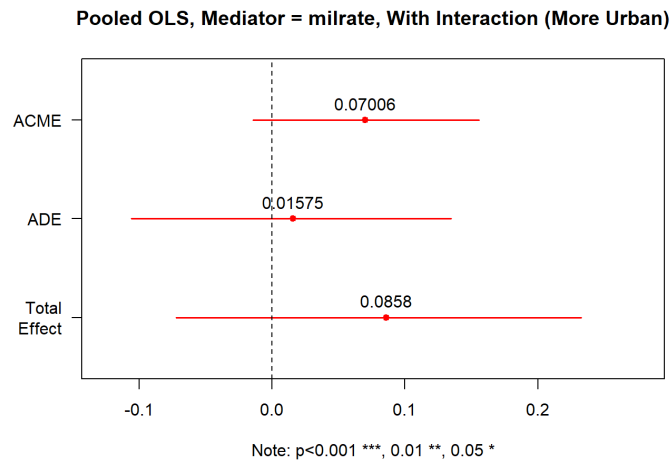


Figure B10: Conditional operation of coercive capacity in more urban states.

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Annex C: State Size and Democracy Analysis on Full Sample of Countries

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November 5, 2023

1 Introduction

In this annex, the sample used will be the full sample of 43 countries. As stated in Annex A, the full sample does not include the countries of Brunei, Timor-Leste, the Maldives, Taiwan, and Sao Tome and Principe since there is missingness in one or more covariates. Nonetheless, the full sample contains 43 out of the original 48 island countries. Running the regression models and mediation analyses on the full sample are also motivated by the omission of microstates from the Varieties of Democracy dataset. This also means that clientelism in these microstates have not been studied and coded in the eventual V-Dem dataset. On top of this, the usage of the full sample also requires that I substitute the original V-Dem Participatory Democracy index for the Freedom House 14-point index. However, as a matter of methodological and empirical robustness, I am motivated to study the ‘sticks’ mechanism even if data on the ‘carrots’ mechanism are not fully collected. The following results contain results from when only the ‘sticks’ mechanism is being accounted for for the full sample, which includes countries in the V-Dem dataset and microstates.

Important Note: Please look at Annex D for further information about microstates. Reversals in the results from the thesis reflected in this annex are driven by the presence of microstates, most of which are overwhelmingly democratic.

2 Empirical Strategy 1: Regression

Table C1: Relationship between Logged Population and Democracy (Freedom House Index)

	fh_total_reversed			
	Exposure-Outcome, Pooled	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3	Model 4
Population (Logged)	-0.1129* (0.0458) p = 0.0138	-0.0732 (0.0395) p = 0.0637	-0.3754 (0.4469) p = 0.4010	-0.0005 (0.1363) p = 0.9973
Military Participation Rate (MPR)		-0.2856*** (0.0268) p = 0.0000	-0.0737** (0.0282) p = 0.0091	-0.1394 (0.0877) p = 0.1118
Urbanisation (% of Population)	-2.6759*** (0.5875) p = 0.00001	-0.3681 (0.5275) p = 0.4853	6.0877*** (1.2229) p = 0.000001	2.0521 (2.6546) p = 0.4395
Per Capita GDP (Logged)	1.4193*** (0.1376) p = 0.0000	1.3660*** (0.1363) p = 0.0000	0.6011* (0.2934) p = 0.0406	1.4147*** (0.1600) p = 0.0000
Government Expenditure (% of GDP)	3.3132*** (1.0639) p = 0.0019	2.5572** (0.9529) p = 0.0073	0.7114 (0.9539) p = 0.4558	2.3889** (0.9191) p = 0.0094
Foreign Aid Received (% of GNI)	2.8880* (1.2901) p = 0.0252	2.3932* (1.1691) p = 0.0407	-1.7624*** (0.6177) p = 0.0044	2.8662* (1.2421) p = 0.0211
Resource Dependence	0.0040 (0.0169) p = 0.8151	0.0042 (0.0138) p = 0.7616	-0.0355 (0.0253) p = 0.1609	0.0037 (0.0145) p = 0.8006
Ethnic Fractionalization	-2.1935*** (0.5398) p = 0.00005	-1.5639*** (0.5161) p = 0.0025		-1.6402*** (0.5685) p = 0.0040
Islamic	-3.4659*** (0.6792) p = 0.0000004	-3.3426*** (0.5653) p = 0.0000		-3.3077*** (0.5702) p = 0.0000
Population × Urbanization				-0.1452 (0.2177) p = 0.5049
MPR × Urbanization				-0.1999 (0.1057) p = 0.0586
Constant	-0.1249 (1.5818) p = 0.9371	-0.5310 (1.4744) p = 0.7188	0.4419 (0.5184) p = 0.3940	-2.1812 (2.6315) p = 0.4072
Year FE	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes
N	1750	1750	1750	1750
R-squared	0.3950	0.5213	0.2091	0.5265
Adj. R-squared	0.3754	0.5055	0.1631	0.5103
Residual Std. Error	2.5713 (df = 1694)	2.2879 (df = 1693)	1.2567 (df = 1653)	2.2767 (df = 1691)
F Statistic	20.1113*** (df = 55; 1694)	32.9238*** (df = 56; 1693)	4.5516*** (df = 96; 1653)	32.4251*** (df = 58; 1691)

***p < .005; **p < .01; *p < .05

Table C2: Relationship between Logged Population and Military Participation Rate

	Pooled (No Interaction)	milrate Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	0.1388* (0.0704) p = 0.0486	-0.4411 (1.0404) p = 0.6717	-0.3525 (0.2277) p = 0.1216
Urbanisation (% of Population)	8.0810*** (1.0220) p = 0.0000	-1.5494 (2.0852) p = 0.4575	-2.6201 (4.5097) p = 0.5613
Per Capita GDP (Logged)	-0.1865 (0.1552) p = 0.2295	-0.1777 (0.7534) p = 0.8136	-0.4573* (0.2174) p = 0.0354
Government Expenditure (% of GDP)	-2.6472 (1.4895) p = 0.0756	-2.0006 (1.2127) p = 0.0991	-3.0256* (1.4278) p = 0.0341
Foreign Aid Received (% of GNI)	-1.7328 (1.5869) p = 0.2749	0.3082 (0.9015) p = 0.7325	-2.5663 (1.6360) p = 0.1168
Resource Dependence	0.0008 (0.0182) p = 0.9645	-0.0174 (0.0317) p = 0.5835	0.0055 (0.0179) p = 0.7589
Ethnic Fractionalization	2.2048** (0.8124) p = 0.0067		2.5733*** (0.8717) p = 0.0032
Islamic	0.4315 (0.7122) p = 0.5446		0.6435 (0.6832) p = 0.3463
Population × Urbanization			0.8195* (0.3720) p = 0.0277
Constant	-1.4221 (1.9126) p = 0.4572	-0.3963 (0.8126) p = 0.6258	7.4083 (4.2948) p = 0.0846
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1750	1750	1750
R-squared	0.2555	0.1075	0.2623
Adj. R-squared	0.2313	0.0563	0.2379
Residual Std. Error	4.1137 (df = 1694)	2.5174 (df = 1654)	4.0961 (df = 1693)
F Statistic	10.5707*** (df = 55; 1694)	2.0977*** (df = 95; 1654)	10.7499*** (df = 56; 1693)

***p < .005; **p < .01; *p < .05

3 Empirical Strategy 2: Causal Mediation Analysis

The following subsections show the mediation analyses based on the hypotheses set out in the thesis. We recall that:

- H_3 : Larger states are more democratic than smaller states because the former possesses smaller coercive apparatuses relative to their population size, reducing the capacity of such instruments to coerce and repress.
- H_{3a} : Across time, there should be no evidence of an effect between state size and democracy through coercive capacity.
- H_{3b} : The effect of state size on democracy through coercive capacity is likely to increase with increasing levels of urbanisation.

The issue with this analysis is that while smaller states in the V-Dem sample tend to have larger militaries, as a reversal of earlier expectations (Dahl & Tufte, 1973), microstates tend not to have a

standing military. As such, this study on the full sample is not particularly useful. The models below show the operation of the effect of state size on democracy through coercive capacity in the full sample, but I highly recommend reading through Annex D instead to get a more useful glimpse of the causal mechanism in microstates.

3.1 H_3 : The long-term operation of coercive capacity

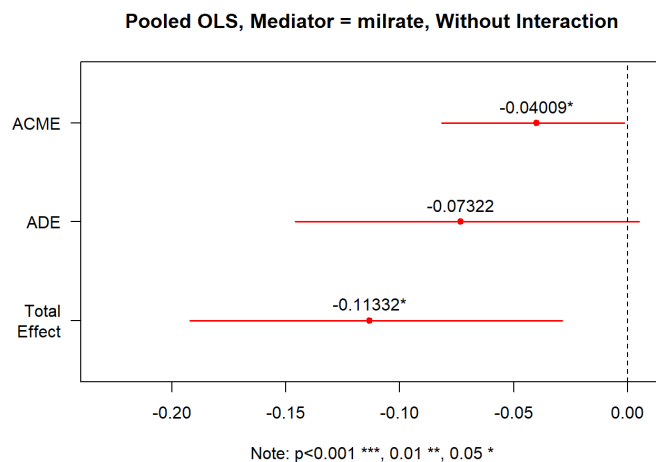


Figure C1: Long-term operation of coercive capacity.

3.2 H_{3a} : The short-term operation of coercive capacity

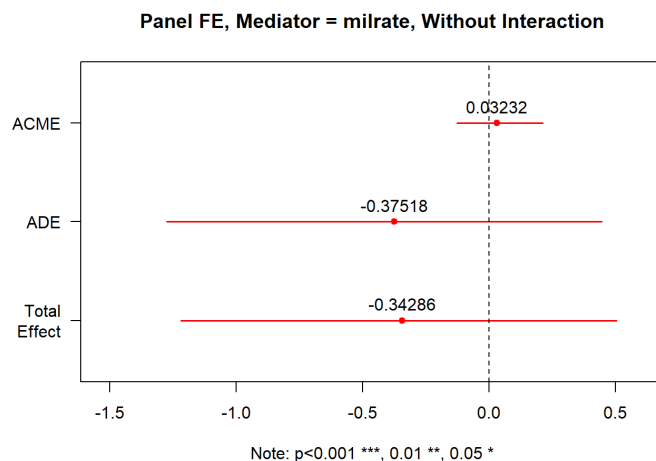


Figure C2: Short-term operation of coercive capacity.

3.3 H_{3b} : The conditional operation of coercive capacity

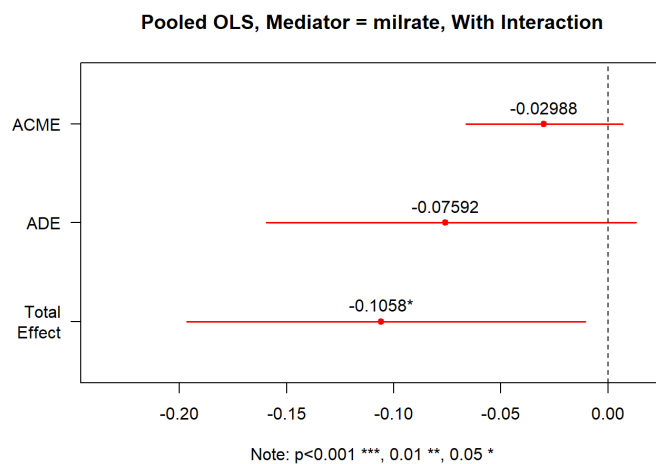


Figure C3: Conditional operation of coercive capacity.

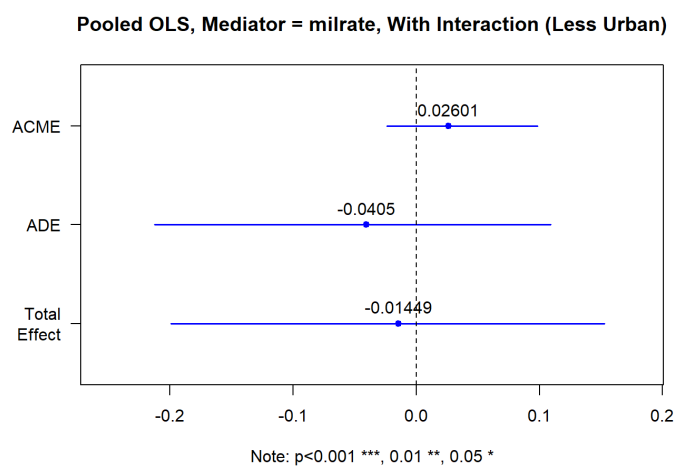


Figure C4: Conditional operation of coercive capacity in less urban states.

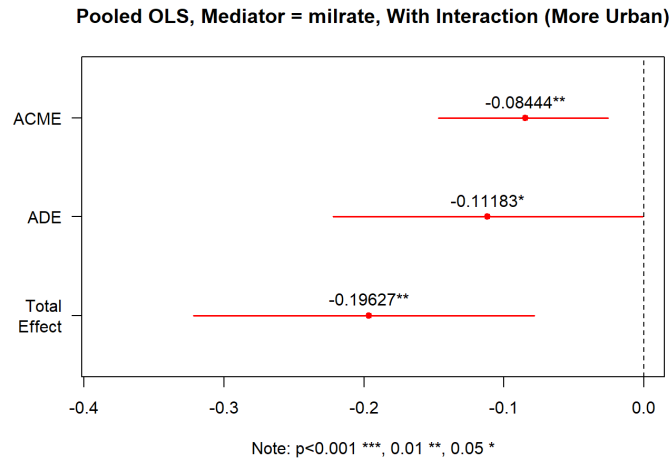


Figure C5: Conditional operation of coercive capacity in more urban states.

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Annex D: State Size and Democracy Analysis on Microstates

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November 5, 2023

1 Introduction

The sample examined in this annex is that of microstates. As explained in Annex C, the V-Dem dataset does not collect any data on microstates, including the Clientelism and Participatory Democracy indices. As such, the only causal mechanism to be studied here is the constraints on coercive capacity mechanism. The *Islamic* variable is omitted as well since none of the microstates recorded are Muslim-majority states.

Continue to the next page for the models.

2 Empirical Strategy 1: Regression

Table D1: Relationship between Logged Population and Democracy (Freedom House Index)

	fh.total_reversed			
	Exposure-Outcome, Pooled	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3	Model 4
Population (Logged)	0.0085 (0.1218) p = 0.9445	0.0966 (0.1371) p = 0.4809	-0.2730 (0.9510) p = 0.7741	-1.5558*** (0.3373) p = 0.000004
Military Participation Rate		-0.2165* (0.1093) p = 0.0478	-0.1825 (0.1560) p = 0.2422	-0.3507 (0.2795) p = 0.2097
Urbanisation (% of Population)	2.7275*** (0.5121) p = 0.0000002	2.8925*** (0.5285) p = 0.0000001	-0.6295 (1.5355) p = 0.6819	-27.1018*** (5.8177) p = 0.000004
Per Capita GDP (Logged)	-0.4422* (0.1990) p = 0.0263	-0.3499 (0.2062) p = 0.0898	-0.2824 (0.6043) p = 0.6403	-0.5655** (0.2194) p = 0.0100
Government Expenditure (% of GDP)	-0.0791 (0.6855) p = 0.9082	0.1667 (0.6999) p = 0.8118	-1.7313* (0.8048) p = 0.0315	-0.7925 (0.7384) p = 0.2832
Foreign Aid Received (% of GNI)	-0.3518 (0.6746) p = 0.6020	-0.2901 (0.6945) p = 0.6761	-0.2139 (0.4941) p = 0.6651	0.3881 (0.5983) p = 0.5167
Resource Dependence	-0.0664** (0.0245) p = 0.0067	-0.0482* (0.0215) p = 0.0252	-0.1005*** (0.0323) p = 0.0019	-0.0399* (0.0202) p = 0.0489
Ethnic Fractionalization	1.4391* (0.5680) p = 0.0113	1.4214* (0.5724) p = 0.0131		1.9474*** (0.4503) p = 0.00002
Population × Urbanization				2.6333*** (0.5236) p = 0.0000005
MPR × Urbanization				0.0277 (0.4267) p = 0.9482
Constant	12.9559*** (2.6291) p = 0.000001	10.7713*** (3.0507) p = 0.0005	-0.6742 (0.7080) p = 0.3410	31.6285*** (5.2091) p = 0.0000
Year FE	Yes	Yes	Yes	Yes
Country FE	No	No	Yes	No
N	546	546	546	546
R-squared	0.3464	0.3559	0.5736	0.4221
Adj. R-squared	0.2760	0.2851	0.5129	0.3560
Residual Std. Error	1.4277 (df = 492)	1.4188 (df = 491)	0.9447 (df = 477)	1.3466 (df = 489)
F Statistic	4.9206*** (df = 53; 492)	5.0246*** (df = 54; 491)	9.4379*** (df = 68; 477)	6.3791*** (df = 56; 489)

***p < .005; **p < .01; *p < .05

Table D2: Relationship between Logged Population and Military Participation Rate

	Pooled (No Interaction)	milrate Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	0.4071*** (0.0831) p = 0.000001	0.2997 (0.6759) p = 0.6576	-0.1915 (0.1286) p = 0.1365
Urbanisation (% of Population)	0.7623*** (0.2547) p = 0.0028	-1.0939 (1.0435) p = 0.2946	-9.8454*** (2.4598) p = 0.0001
Per Capita GDP (Logged)	0.4263*** (0.1104) p = 0.0002	-0.4345 (0.3459) p = 0.2092	0.3330*** (0.1105) p = 0.0026
Government Expenditure (% of GDP)	1.1356** (0.4050) p = 0.0051	-0.9193 (0.5383) p = 0.0877	0.7524 (0.4152) p = 0.0700
Foreign Aid Received (% of GNI)	0.2849 (0.4240) p = 0.5016	0.3805 (0.3417) p = 0.2655	0.5112 (0.3878) p = 0.1875
Resource Dependence	0.0840*** (0.0212) p = 0.0001	0.0834** (0.0320) p = 0.0091	0.0833*** (0.0219) p = 0.0002
Ethnic Fractionalization	-0.0817 (0.1913) p = 0.6695		0.1081 (0.1874) p = 0.5640
Population × Urbanization			0.9288*** (0.2234) p = 0.00004
Constant	-10.0930*** (1.9908) p = 0.0000004	-1.9416*** (0.5504) p = 0.0005	-2.3392 (2.3244) p = 0.3143
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	546	546	546
R-squared	0.5705	0.5248	0.5886
Adj. R-squared	0.5243	0.4582	0.5434
Residual Std. Error	0.7946 (df = 492)	0.7407 (df = 478)	0.7785 (df = 491)
F Statistic	12.3314*** (df = 53; 492)	7.8802*** (df = 67; 478)	13.0110*** (df = 54; 491)

***p < .005; **p < .01; *p < .05

3 Empirical Strategy 2: Causal Mediation Analysis

3.1 H_3 : The long-term operation of coercive capacity

Figure D1 shows the effect of state size (population) on democracy which is operated by coercive capacity, denoted by the ACME. As the ACME is not significant, we cannot reject the null hypothesis that the effect of population size on democracy is not operated by clientelism. We will return to this in section 3.3 on the conditional operation of clientelism since I suspect heterogeneity in the ACME conditioned by the urban share of the population.

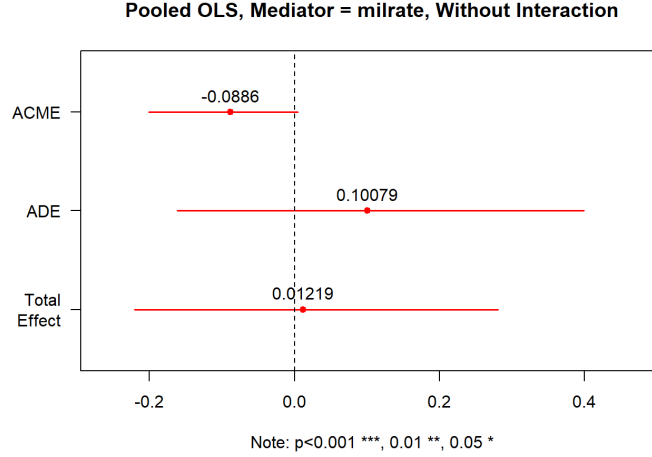


Figure D1: Long-term operation of coercive capacity.

3.2 H_{3a} : The short-term operation of coercive capacity

Through the ACME, which is not significant, Figure D2 shows that there is no evidence that the effect of population size on democracy is operated by coercive capacity. Two potential explanations may account for this observation. Firstly, the size of coercive institutions may not change by very much among microstates year-on-year. This thus leads to a negligible effect that is being generated by population size on democracy through changes in the size of the military. The next explanation, as covered in the thesis, surrounds the idea that military culture may negate any short-term effect of population size on democracy, especially given that microstates tend to be very democratic in the first place. We should expect that, given the strength of institutionalisation of democratic reforms or length of time of democratic reformation, coercive institutions may come to accept their role in espousing and upholding democratic norms and values doctrinally (Burk, 2002; Fitch, 2016).

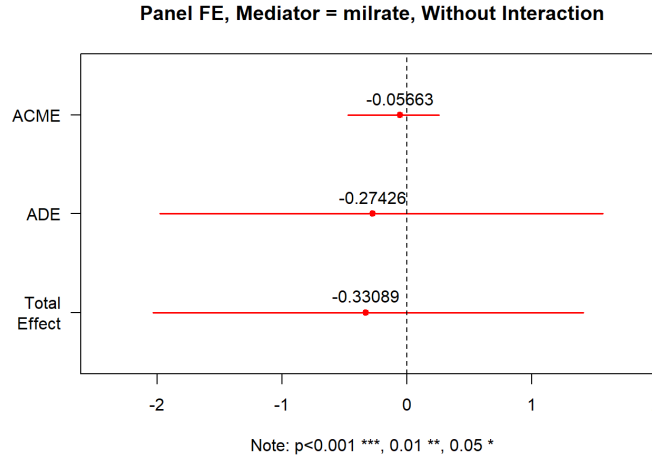


Figure D2: Short-term operation of coercive capacity.

3.3 H_{3b} : The conditional operation of coercive capacity

Unlike their larger counterparts in the V-Dem sample, among microstates, we observe that there is a stronger negative effect of state size on democracy among the more urbanised states (see Fig. D5). Since more urbanised states tend to be more economically developed, they may have access to greater amounts of resources to establish a larger standing force as the size of the population increases from state to state. We would thus expect that larger microstates tend to be more economically developed

and are able to draft a standing military. We also observe that among the less urban states, the effect of state size on democracy ebbs to insignificance (see Fig. D4). This is likely because less urban states tend to not be able to draft a standing military, or are only able to eke out a small one even relative to its population size. In all, among the more urban states, a 10% increase in population size is associated with, on average, a decrease in the Freedom House democracy score by 0.0135 units.

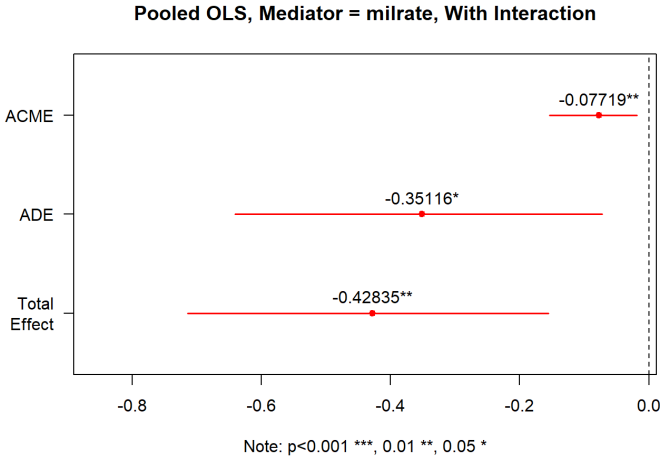


Figure D3: Conditional operation of coercive capacity.

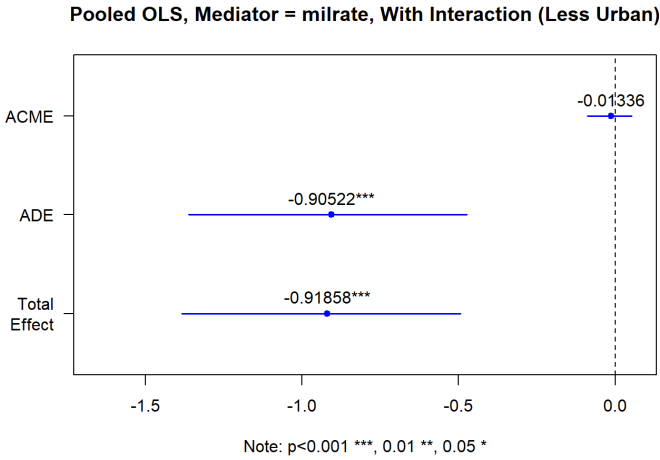


Figure D4: Conditional operation of coercive capacity in less urban states.

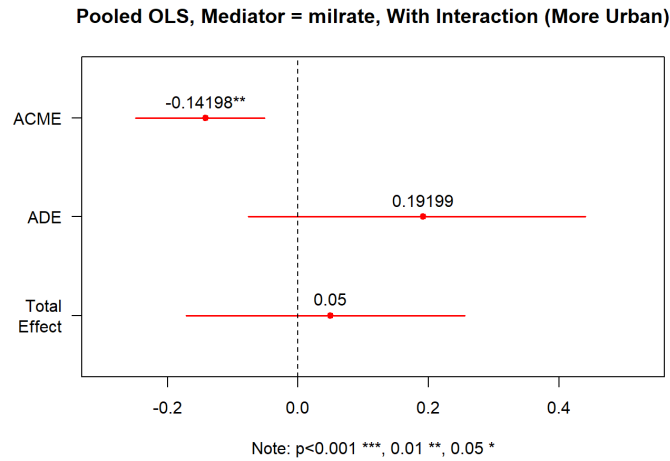


Figure D5: Conditional operation of coercive capacity in more urban states.

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Annex E: State Size and Democracy

Usage of Alternative Variable to Measure Muslim-Majority Status

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November 5, 2023

1 Introduction

2 Empirical Strategy 1: Regression

Table E1: Relationship between Logged Population and Participatory Democracy

	Exposure-Outcome, Pooled			v2x_partipdem Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Population (Logged)	0.0256*** (0.0034) p = 0.0000	0.0250*** (0.0033) p = 0.0000	0.0206*** (0.0032) p = 0.0000	0.0205*** (0.0031) p = 0.0000	0.1061*** (0.0263) p = 0.0001	0.0272** (0.0098) p = 0.0058
Clientelism		-0.3498*** (0.0529) p = 0.0000		-0.2821*** (0.0462) p = 0.0000	-0.3202*** (0.0390) p = 0.0000	-0.1584* (0.0645) p = 0.0141
Military Participation Rate (MPR)			-0.0147*** (0.0017) p = 0.0000	-0.0136*** (0.0017) p = 0.0000	0.0006 (0.0007) p = 0.3655	0.0101* (0.0049) p = 0.0385
Urbanisation (% of Population)	-0.2192*** (0.0481) p = 0.00001	-0.1547*** (0.0478) p = 0.0013	-0.0742 (0.0430) p = 0.0844	-0.0326 (0.0417) p = 0.4339	0.5428*** (0.0699) p = 0.0000	0.4148* (0.1615) p = 0.0103
Per Capita GDP (Logged)	0.1117*** (0.0111) p = 0.0000	0.0351* (0.0154) p = 0.0227	0.1048*** (0.0102) p = 0.0000	0.0436*** (0.0142) p = 0.0022	0.0101 (0.0123) p = 0.4146	0.0442*** (0.0152) p = 0.0037
Government Expenditure (% of GDP)	0.0814 (0.1134) p = 0.4731	-0.0190 (0.1045) p = 0.8560	0.0675 (0.0984) p = 0.4931	-0.0124 (0.0950) p = 0.8959	-0.1203* (0.0533) p = 0.0241	-0.0566 (0.0926) p = 0.5414
Foreign Aid Received (% of GNI)	0.0991 (0.1698) p = 0.5597	-0.0907 (0.1629) p = 0.5777	0.0731 (0.1564) p = 0.6404	-0.0790 (0.1536) p = 0.6115	-0.0208 (0.0517) p = 0.6876	0.1831 (0.1513) p = 0.2262
Resource Dependence	-0.0019* (0.0009) p = 0.0347	0.0012 (0.0012) p = 0.3054	-0.0032*** (0.0008) p = 0.00003	-0.0006 (0.0010) p = 0.5305	-0.0028*** (0.0008) p = 0.0004	-0.0005 (0.0011) p = 0.6582
Ethnic Fractionalization	-0.1047** (0.0405) p = 0.0098	-0.1717*** (0.0401) p = 0.00002	-0.0608 (0.0371) p = 0.1014	-0.1179*** (0.0377) p = 0.0018		-0.0954** (0.0350) p = 0.0065
% Muslims	-0.1964*** (0.0370) p = 0.0000002	-0.2293*** (0.0411) p = 0.0000001	-0.1435*** (0.0333) p = 0.00002	-0.1739*** (0.0356) p = 0.000002	1.5956*** (0.4156) p = 0.0002	-0.1730*** (0.0344) p = 0.0000005
Population × Urbanization						-0.0147 (0.0132) p = 0.2636
Clientelism × Urbanization						-0.2109* (0.1045) p = 0.0436
MPR × Urbanization						-0.0327*** (0.0061) p = 0.0000001
Constant	-0.8588*** (0.1106) p = 0.0000	-0.0536 (0.1665) p = 0.7477	-0.7598*** (0.1021) p = 0.0000	-0.1177 (0.1543) p = 0.4458	0.0215 (0.0194) p = 0.2680	-0.3736 (0.2296) p = 0.1037
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	No
N	1204	1204	1204	1204	1204	1204
R-squared	0.4768	0.5242	0.5878	0.6180	0.5573	0.6521
Adj. R-squared	0.4518	0.5009	0.5677	0.5990	0.5249	0.6338
Residual Std. Error	0.1458 (df = 1148)	0.1391 (df = 1147)	0.1295 (df = 1147)	0.1247 (df = 1146)	0.0509 (df = 1121)	0.1192 (df = 1143)
F Statistic	19.0228*** (df = 55; 1148)	22.5623*** (df = 56; 1147)	29.2063*** (df = 56; 1147)	32.5255*** (df = 57; 1146)	17.2105*** (df = 82; 1121)	35.7055*** (df = 60; 1143)

***p < .005; **p < .01; *p < .05

Table E2: Relationship between Logged Population and Military Participation Rate

	milrate		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	−0.3307*** (0.0992) p = 0.0009	−2.6021 (1.4220) p = 0.0673	−0.4565 (0.4014) p = 0.2555
Clientelism	4.9753* (2.1054) p = 0.0182	12.6894*** (2.6786) p = 0.000003	2.2609 (2.6382) p = 0.3915
Urbanisation (% of Population)	8.9641*** (1.5279) p = 0.0000	−0.2919 (2.8753) p = 0.9192	3.7647 (7.9146) p = 0.6344
Per Capita GDP (Logged)	0.6215 (0.4490) p = 0.1664	0.9329 (0.8550) p = 0.2753	0.4811 (0.4799) p = 0.3161
Government Expenditure (% of GDP)	0.4804 (3.7976) p = 0.8994	0.5276 (2.4023) p = 0.8262	−0.1321 (3.8634) p = 0.9728
Foreign Aid Received (% of GNI)	0.9281 (4.2603) p = 0.8276	−0.1054 (3.7852) p = 0.9778	0.4468 (4.0770) p = 0.9128
Resource Dependence	−0.1339*** (0.0372) p = 0.0004	−0.0630 (0.0354) p = 0.0748	−0.1128*** (0.0383) p = 0.0033
Ethnic Fractionalization	3.9453*** (1.2833) p = 0.0022		3.6001** (1.2953) p = 0.0055
% Muslims	4.0699*** (1.0797) p = 0.0002	−37.6325* (18.4322) p = 0.0412	3.9073*** (1.1061) p = 0.0005
Population × Urbanization			0.2537 (0.6039) p = 0.6744
Clientelism × Urbanization			4.3852 (4.3292) p = 0.3111
Constant	−4.7050 (5.5675) p = 0.3981	−1.1250 (0.8925) p = 0.2075	−0.3073 (8.4619) p = 0.9711
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.2767	0.1933	0.2795
Adj. R-squared	0.2414	0.1351	0.2430
Residual Std. Error	4.5354 (df = 1147)	2.8362 (df = 1122)	4.5308 (df = 1145)
F Statistic	7.8365*** (df = 56; 1147)	3.3192*** (df = 81; 1122)	7.6566*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

Table E3: Relationship between Logged Population and Clientelism

	v2xnp_client		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	−0.0003 (0.0026) p = 0.9101	0.1659*** (0.0339) p = 0.000002	−0.0330*** (0.0113) p = 0.0036
Military Participation Rate	0.0037** (0.0013) p = 0.0053	0.0050*** (0.0010) p = 0.0000002	0.0087* (0.0043) p = 0.0435
Urbanisation (% of Population)	0.1474*** (0.0435) p = 0.0007	0.0703 (0.0591) p = 0.2343	−0.5424** (0.1999) p = 0.0067
Per Capita GDP (Logged)	−0.2173*** (0.0091) p = 0.0000	−0.0531*** (0.0127) p = 0.00003	−0.2335*** (0.0118) p = 0.0000
Government Expenditure (% of GDP)	−0.2833*** (0.0820) p = 0.0006	−0.5218*** (0.1174) p = 0.00001	−0.3689*** (0.0903) p = 0.00005
Foreign Aid Received (% of GNI)	−0.5358*** (0.1760) p = 0.0024	−0.0595 (0.1350) p = 0.6596	−0.6775*** (0.1946) p = 0.0005
Resource Dependence	0.0092*** (0.0011) p = 0.0000	0.0002 (0.0011) p = 0.8428	0.0101*** (0.0011) p = 0.0000
Ethnic Fractionalization	−0.2027*** (0.0285) p = 0.0000		−0.1970*** (0.0288) p = 0.0000
% Muslims	−0.1076* (0.0421) p = 0.0107	−0.0060 (0.3539) p = 0.9865	−0.0943* (0.0387) p = 0.0149
Population × Urbanization			0.0514*** (0.0158) p = 0.0012
MPR × Urbanization			−0.0073 (0.0056) p = 0.1921
Constant	2.2766*** (0.0916) p = 0.0000	0.0386* (0.0173) p = 0.0257	2.8780*** (0.2373) p = 0.0000
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.7732	0.5041	0.7792
Adj. R-squared	0.7621	0.4683	0.7680
Residual Std. Error	0.1243 (df = 1147)	0.0565 (df = 1122)	0.1227 (df = 1145)
F Statistic	69.8131*** (df = 56; 1147)	14.0812*** (df = 81; 1122)	69.6732*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

3 Empirical Strategy 2: Causal Mediation Analysis

3.1 H_2 : The long-term operation of clientelism

Figure E1 shows the effect of state size (population) on democracy which is operated by clientelism, denoted by the ACME. As the ACME is not significant, we cannot reject the null hypothesis that the effect of population size on democracy is not operated by clientelism. We will return to this in section 3.3 on the conditional operation of clientelism since I suspect heterogeneity in the ACME conditioned by the urban share of the population.

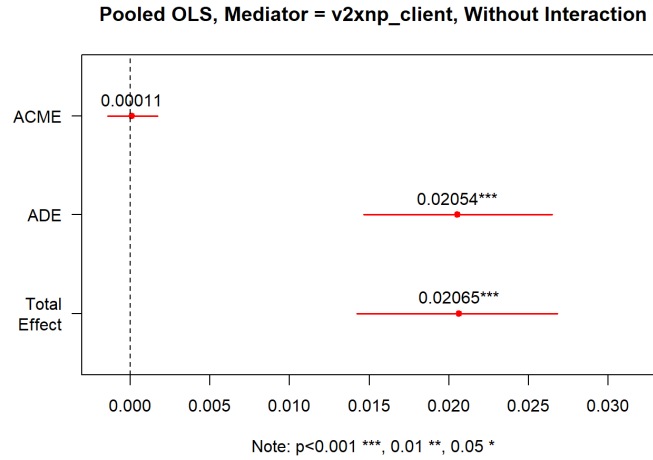


Figure E1: Long-term operation of clientelism.

3.2 H_{2a} : The short-term operation of clientelism

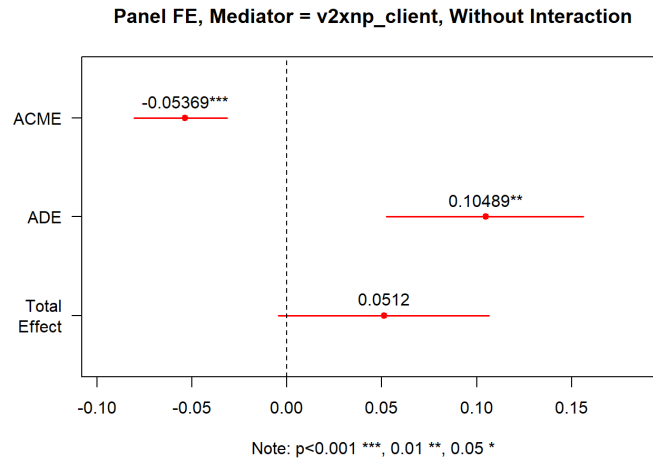


Figure E2: Short-term operation of clientelism.

Figure E2 shows the short-term effect of state size (population) on democracy which is operated by clientelism, denoted by the ACME. Since $ACME = -0.05369$ and is significant at the 0.001 level, we can reject the null hypothesis.

What is surprising about this result, as with the thesis, is that the ACME is negative. Furthermore, Model 2 of Table E3 also show a positive and significant relationship between population size and

clientelism year-on-year. This means that as states experience population growth year-on-year, they are likely to experience higher levels of democracy because clientelism becomes more prevalent with population growth. The occurrence of this result may be due to a long-term effect of clientelism, where states that experience prior levels of clientelism are more likely to retain their clientelistic linkages, even if they grow to a larger size in the future. Further future research should be conducted to verify the institutional legacies of clientelism, where such institutional legacies may mirror the kind of patronage uncovered and explained in Poczter and Pepinsky (2016).

3.3 H_{2b} : The conditional operation of clientelism

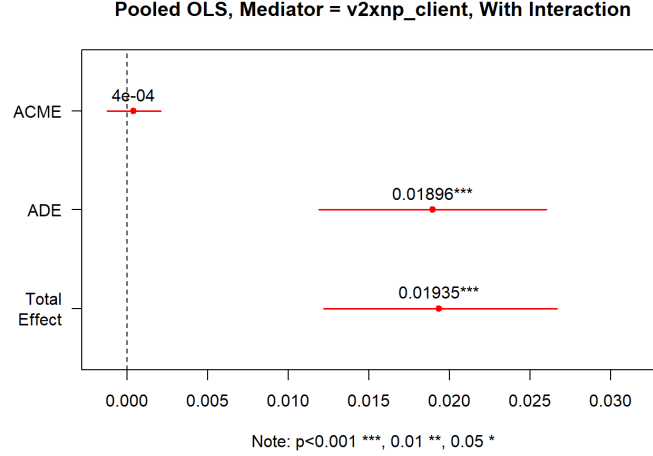


Figure E3: Conditional operation of clientelism.

From Figure E3, there does not seem, at first glance, to be any evidence of the effect of population size on democracy being operated by clientelism. However, further inspecting the model by modelling the less urban sample and the more urban sample yields the following observations. First, with an ACME of 0.00404 among the less urban states and an ACME of -0.00321 among more urban states, significant at the 0.01 level, we can conclude that there is heterogeneity in the operation of clientelism.

Turning first to the less urban states (see Fig. E4), we observe a positive and significant ACME. This ACME informs us that for every 10% increase in population size, the V-Dem Participatory Democracy score is expected to increase, on average, by 0.000385. Turning to the more urban states (see Fig. E5), however, we observe a reversal in the relationship; for every 10% increase in population size, the Freedom House democracy score is expected to decrease, on average, by 0.000306. This may indicate that less urban states with larger populations place resource strains on clientelistic linkages, thereby diminishing the undemocratic effects of clientelism and increasing the levels of democracy as a result. Conversely, in more urban states, an increase in population size may, instead, prompt higher levels of clientelism since political elites are able to leverage on efficient clientelistic linkages bankrolled and driven by economies of scale. A further explanation is given in Chapter 5 of the thesis.

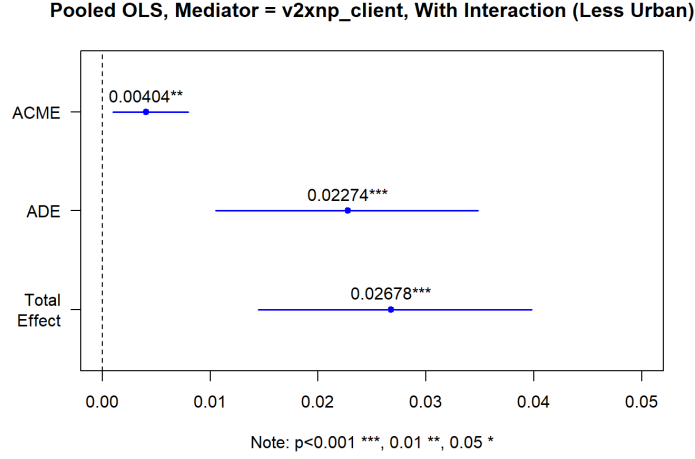


Figure E4: Conditional operation of clientelism in less urban states.

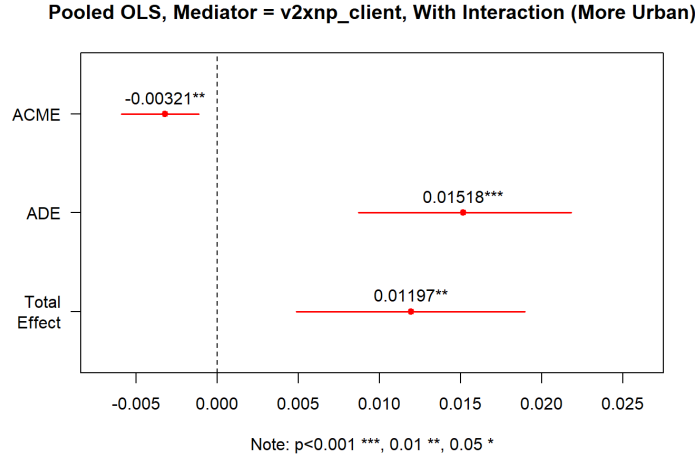


Figure E5: Conditional operation of clientelism in more urban states.

3.4 H_3 : The long-term operation of coercive capacity

Figure E6 shows the effect of population size on democracy which is operated by coercive capacity, measured using the number of military personnel per 1000 people (alternatively termed military participation rate), denoted by the ACME. The ACME is positive at 0.00453, significant at the 0.01 level. This means that for every 10% increase in population size, the v-Dem Participatory Democracy score increases by 0.000432, with this effect being operated by military participation rate. Furthermore, Model 1 of Table E2 shows a negative and significant relationship between population size and military participation rate. We can thus reject the null hypothesis and conclude that there is an effect of population size on democracy that is being operated by coercive capacity. That is, smaller states, being more likely to possess larger coercive capacities relative to their population size, are likely to have lower levels of democracy.

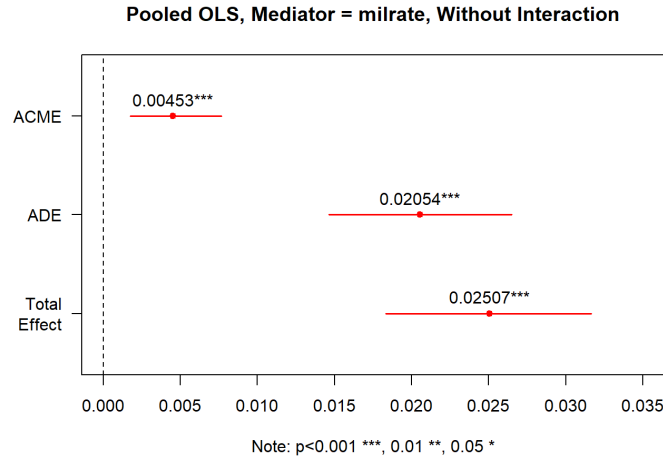


Figure E6: Long-term operation of coercive capacity.

3.5 H_{3a} : The short-term operation of coercive capacity

Figure E7 shows the short-term effect of population size on democracy which is operated by coercive capacity, denoted by the ACME. The ACME is, however, not significant. We cannot reject the null hypothesis that there is no operation of the effect of population size on democracy through coercive capacity on the short term. The potential explanation for this has been detailed in Chapter 5 of the thesis.

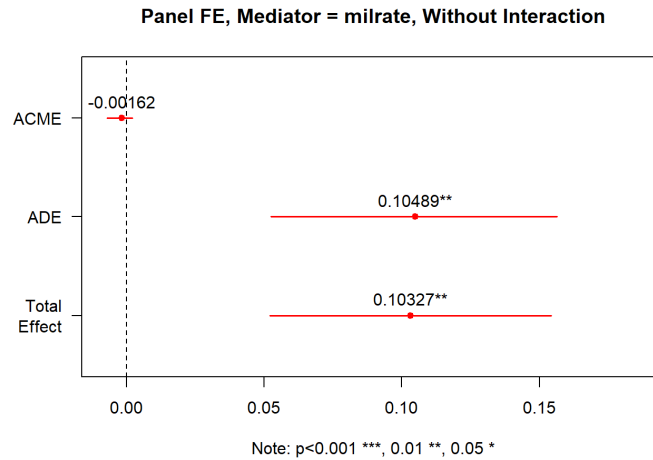


Figure E7: Short-term operation of coercive capacity.

3.6 H_{3b} : The conditional operation of coercive capacity

The ACME in Figure E8 shows a non-significant result in the ACME when the interaction term is included, and there does not seem to be any difference among less urban and more urban states. This overturns our initial expectations that more urban states are likely to experience a stronger effect of population size on democracy.

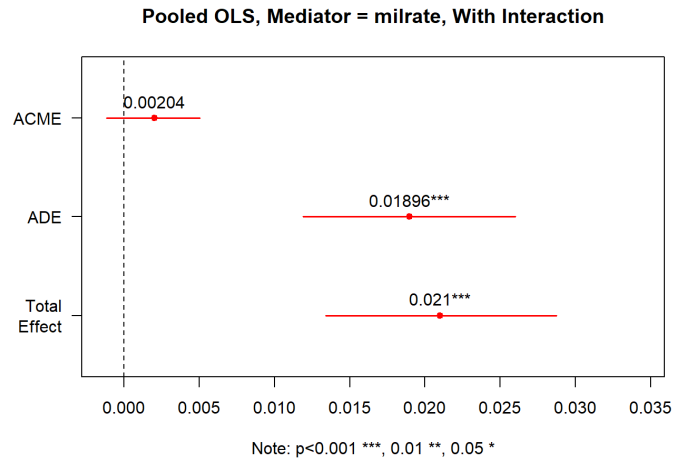


Figure E8: Conditional operation of coercive capacity.

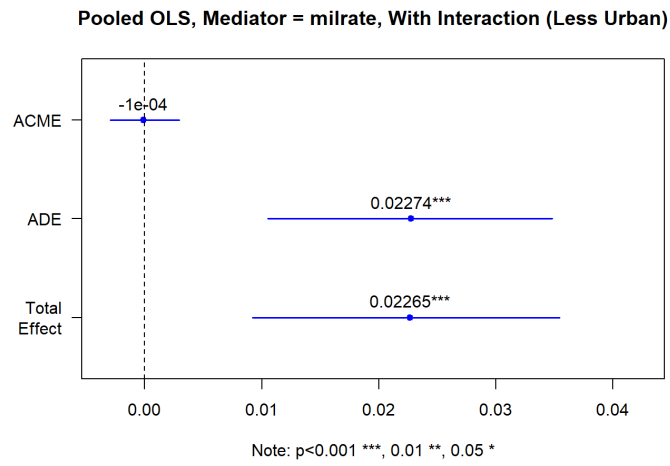


Figure E9: Conditional operation of coercive capacity in less urban states.

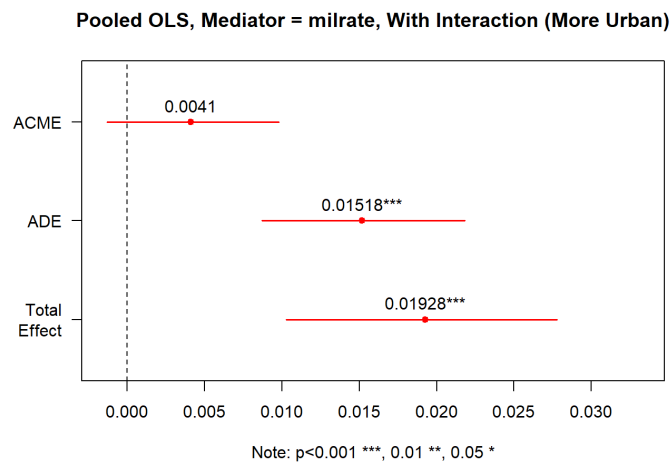


Figure E10: Conditional operation of coercive capacity in more urban states.

References

- Poczter, S., & Pepinsky, T. B. (2016). Authoritarian Legacies in Post–New Order Indonesia: Evidence from a New Dataset. *Bulletin of Indonesian Economic Studies*, 52(1), 77–100. <https://doi.org/10.1080/00074918.2015.1129051>

Annex F: State Size and Democracy

Usage of Alternative Indicator for State Size: V-Dem Sample

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1 Introduction

We recall that the composite measure for state size comprises two time-varying variables: population size and land area. I construct this measure to account for the high collinearity in any models that include both population size and land area as predictors. This measure thus ensures that any models used will control for both population size and geographic land area. The formula for the composite measure is formally:

$$\text{StateSize}_{\text{composite}} = \ln \sqrt{\left\{ \frac{\text{Population}_{i,t} - \text{Population}_i}{\sigma_{\text{Population}}} - \text{floor}[\min(\frac{\text{Population}_{i,t} - \text{Population}_i}{\sigma_{\text{Population}}})] \right\} \times \left\{ \frac{\text{LandArea}_{i,t} - \text{LandArea}_i}{\sigma_{\text{LandArea}}} - \text{floor}[\min(\frac{\text{LandArea}_{i,t} - \text{LandArea}_i}{\sigma_{\text{LandArea}}})] \right\}}$$

We subtract the floor values of the minimum values of the Z-score of each component in this composite indicator to shift the Z-scores of both components above zero, since the natural log function typically cannot take any negative values, which can only be defined in terms of complex numbers. Because some states exhibit odd characteristics of having large population sizes over a compact area, or minute population dispersed over a vast area, we take the geometric mean of both components so that the composite measure is not biased towards either component. To account for skewness, we then take the natural log of the resultant value. This annex uses the composite measure for state size as the primary predictor in the following models.

Consequently, the results will be expressed in terms of 10% changes in this composite indicator. Let A be the shifted Z-score of population size and B be the shifted Z-score of land area. The changes in the dependent variable is formally expressed as:

$$\begin{aligned} Y_1 &= \beta_1 \ln \sqrt{AB} \\ Y_2 &= \beta_1 \ln(1.1 \times \sqrt{AB}) = \beta_1 \ln \sqrt{1.21 \times AB} \\ \Delta Y &= Y_2 - Y_1 = \beta_1 (\ln(1.1 \times \sqrt{AB}) - \ln \sqrt{AB}) = \beta_1 (\ln 1.1 + \ln \sqrt{AB} - \ln \sqrt{AB}) = \beta_1 \ln 1.1 \end{aligned}$$

Given the set of equations above, a 10% increase in the non log-transformed measurement is actually analogous to the increase in the product of the two shifted Z-scores by 21%. For interpretability, this is also analogous to the increase in the product of both population size and land area by 21%. This annex will, however, only parse changes in the dependent variable in terms of 10% increases in the non log-transformed composite state size measure (i.e. the square-root portion of the indicator).

As an aside, this composite measure is nothing but running the regression on both logged population and logged land area, and yielding the standardised coefficients for both. As a proof, we first regress Y on the natural log of the root of AB. By concatenating logged population and logged land area into a single predictor, we eliminate collinearity arising from the two variables. We observe that:

$$\begin{aligned} Y &= \beta \ln \sqrt{AB} = \beta \ln(\sqrt{A}\sqrt{B}) \\ Y &= \beta(\ln \sqrt{A} + \ln \sqrt{B}) = \beta(0.5 \ln A + 0.5 \ln B) \\ \therefore Y &= \beta_1 \ln A + \beta_2 \ln B \end{aligned}$$

2 Empirical Strategy 1: Regression

Table F1: Relationship between Composite Measure for State Size and Participatory Democracy

	Exposure-Outcome, Pooled		v2x_partipdem			
	Model 1	Model 2	Model 3	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
Composite: State Size	0.1334*** (0.0128) p = 0.0000	0.1214*** (0.0131) p = 0.0000	0.0970*** (0.0124) p = 0.0000	0.0881*** (0.0127) p = 0.0000	0.3343*** (0.0973) p = 0.0006	0.0921* (0.0454) p = 0.0428
Clientelism		-0.2686*** (0.0538) p = 0.000001		-0.2275*** (0.0470) p = 0.000002	-0.2869*** (0.0410) p = 0.0000	-0.1167 (0.0632) p = 0.0648
Military Participation Rate			-0.0143*** (0.0017) p = 0.0000	-0.0138*** (0.0017) p = 0.0000	-0.0001 (0.0008) p = 0.9052	0.0110* (0.0046) p = 0.0178
Urbanisation (% of Population)	-0.1841*** (0.0484) p = 0.0002	-0.1357** (0.0493) p = 0.0060	-0.0391 (0.0439) p = 0.3721	-0.0033 (0.0435) p = 0.9391	0.5224*** (0.0699) p = 0.0000	0.2435*** (0.0642) p = 0.0002
Per Capita GDP (Logged)	0.1010*** (0.0109) p = 0.0000	0.0413** (0.0158) p = 0.0090	0.0946*** (0.0101) p = 0.0000	0.0443*** (0.0146) p = 0.0025	0.0071 (0.0120) p = 0.5526	0.0393* (0.0156) p = 0.0119
Government Expenditure (% of GDP)	0.0242 (0.1060) p = 0.8194	-0.0417 (0.0995) p = 0.6754	0.0002 (0.0930) p = 0.9980	-0.0547 (0.0909) p = 0.5474	-0.1491** (0.0574) p = 0.0095	-0.1170 (0.0868) p = 0.1779
Foreign Aid Received (% of GNI)	0.0638 (0.1675) p = 0.7031	-0.1084 (0.1639) p = 0.5085	0.0337 (0.1558) p = 0.8289	-0.1111 (0.1559) p = 0.4761	-0.0597 (0.0548) p = 0.2760	0.1146 (0.1607) p = 0.4758
Resource Dependence	-0.0010 (0.0009) p = 0.2277	0.0012 (0.0011) p = 0.2832	-0.0020** (0.0008) p = 0.0097	-0.0001 (0.0010) p = 0.9508	-0.0016* (0.0006) p = 0.0134	0.0004 (0.0012) p = 0.7084
Ethnic Fractionalization	-0.0784* (0.0395) p = 0.0475	-0.1355*** (0.0401) p = 0.0008	-0.0366 (0.0357) p = 0.3056	-0.0865* (0.0372) p = 0.0202		-0.0702* (0.0345) p = 0.0418
Islamic	-0.2254*** (0.0287) p = 0.0000	-0.2307*** (0.0305) p = 0.0000	-0.1975*** (0.0263) p = 0.0000	-0.2029*** (0.0276) p = 0.0000		-0.2009*** (0.0290) p = 0.0000
Population × Urbanization						-0.0289 (0.0605) p = 0.6326
Clientelism × Urbanization						-0.2127* (0.0985) p = 0.0309
MPR × Urbanization						-0.0345*** (0.0058) p = 0.0000
Constant	-0.4010*** (0.0882) p = 0.00001	0.2180 (0.1524) p = 0.1527	-0.3787*** (0.0795) p = 0.000002	0.1449 (0.1397) p = 0.2996	-0.0011 (0.0178) p = 0.9495	0.0391 (0.1445) p = 0.7868
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	No
N	1204	1204	1204	1204	1204	1204
R-squared	0.5003	0.5279	0.6037	0.6234	0.5456	0.6563
Adj. R-squared	0.4764	0.5049	0.5844	0.6047	0.5128	0.6383
Residual Std. Error	0.1425 (df = 1148)	0.1386 (df = 1147)	0.1270 (df = 1147)	0.1238 (df = 1146)	0.0516 (df = 1122)	0.1185 (df = 1143)
F Statistic	20.8982*** (df = 55; 1148)	22.9036*** (df = 56; 1147)	31.2032*** (df = 56; 1147)	33.2792*** (df = 57; 1146)	16.6295*** (df = 81; 1122)	36.3821*** (df = 60; 1143)

***p < .005; **p < .01; *p < .05

Table F2: Relationship between Composite Measure for State Size and Military Participation Rate

	Pooled (No Interaction)	milrate Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Composite: State Size	-2.4146*** (0.3244) p = 0.0000	4.8697 (3.2117) p = 0.1295	-0.3519 (1.0995) p = 0.7490
Clientelism	2.9770 (2.1384) p = 0.1639	11.6418*** (2.7363) p = 0.00003	0.1341 (2.2951) p = 0.9535
Urbanisation (% of Population)	9.5976*** (1.4806) p = 0.0000	-3.2474 (3.3127) p = 0.3270	7.2753*** (2.1087) p = 0.0006
Per Capita GDP (Logged)	0.2147 (0.4600) p = 0.6408	1.0858 (0.7696) p = 0.1583	0.3166 (0.4584) p = 0.4897
Government Expenditure (% of GDP)	-0.9452 (3.7470) p = 0.8009	1.5073 (2.4459) p = 0.5378	-0.9565 (3.6265) p = 0.7920
Foreign Aid Received (% of GNI)	-0.1982 (4.2331) p = 0.9627	0.4059 (3.7209) p = 0.9132	1.7761 (4.2720) p = 0.6776
Resource Dependence	-0.0922** (0.0339) p = 0.0066	-0.0784* (0.0389) p = 0.0440	-0.0707* (0.0335) p = 0.0348
Ethnic Fractionalization	3.5540** (1.2932) p = 0.0060		2.9871* (1.3150) p = 0.0232
Islamic	2.0111*** (0.6235) p = 0.0013		1.1739 (0.7121) p = 0.0993
Population × Urbanization			-2.8287 (1.7885) p = 0.1138
Clientelism × Urbanization			5.2307 (3.8310) p = 0.1722
Constant	-5.3001 (5.1305) p = 0.3016	-0.3095 (0.7754) p = 0.6899	-4.5061 (4.9887) p = 0.3664
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.2819	0.1853	0.2857
Adj. R-squared	0.2469	0.1273	0.2495
Residual Std. Error	4.5191 (df = 1147)	2.8489 (df = 1123)	4.5112 (df = 1145)
F Statistic	8.0421*** (df = 56; 1147)	3.1933*** (df = 80; 1123)	7.8957*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

Table F3: Relationship between Composite Measure for State Size and Clientelism

	v2xnp_client		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Composite: State Size	−0.0391*** (0.0113) p = 0.0006	0.0938 (0.1017) p = 0.3565	−0.1077* (0.0469) p = 0.0218
Military Participation Rate	0.0023 (0.0015) p = 0.1278	0.0051*** (0.0010) p = 0.0000004	0.0050 (0.0045) p = 0.2617
Urbanisation (% of Population)	0.1574*** (0.0434) p = 0.0003	0.1035 (0.0647) p = 0.1095	0.1906*** (0.0542) p = 0.0005
Per Capita GDP (Logged)	−0.2210*** (0.0089) p = 0.0000	−0.0822*** (0.0147) p = 0.0000001	−0.2258*** (0.0099) p = 0.0000
Government Expenditure (% of GDP)	−0.2415*** (0.0791) p = 0.0023	−0.5974*** (0.1186) p = 0.0000005	−0.2620*** (0.0836) p = 0.0018
Foreign Aid Received (% of GNI)	−0.6365*** (0.1791) p = 0.0004	−0.1266 (0.1484) p = 0.3936	−0.6559*** (0.1910) p = 0.0006
Resource Dependence	0.0085*** (0.0011) p = 0.0000	−0.0004 (0.0014) p = 0.7887	0.0086*** (0.0012) p = 0.0000
Ethnic Fractionalization	−0.2193*** (0.0273) p = 0.0000		−0.2091*** (0.0286) p = 0.0000
Islamic	−0.0240 (0.0278) p = 0.3872		−0.0062 (0.0298) p = 0.8346
Population × Urbanization			0.1030 (0.0634) p = 0.1045
MPR × Urbanization			−0.0038 (0.0056) p = 0.4943
Constant	2.3013*** (0.0738) p = 0.0000	−0.0122 (0.0150) p = 0.4173	2.3226*** (0.0790) p = 0.0000
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
N	1204	1204	1204
R-squared	0.7729	0.4492	0.7743
Adj. R-squared	0.7618	0.4100	0.7629
Residual Std. Error	0.1244 (df = 1147)	0.0596 (df = 1123)	0.1241 (df = 1145)
F Statistic	69.7094*** (df = 56; 1147)	11.4487*** (df = 80; 1123)	67.7386*** (df = 58; 1145)

***p < .005; **p < .01; *p < .05

3 Empirical Strategy 2: Causal Mediation Analysis

3.1 H_2 : The long-term operation of clientelism

Figure F1 shows the relationship between the new state size measure used on democracy which is operated by clientelism, denoted by the ACME. Unlike the other models in the main thesis and in the supplementary materials for the V-Dem sample, the ACME for the composite state size measure is significant in Figure F1 at 0.00869. This means that a 10% increase in the composite state size measure is associated with, on average, an increase in the V-Dem Participatory Democracy Score by 0.000854 units. Recalling that the relationship between the composite measure for state size and clientelism is negative (Model 1, Table F3) and the relationship between clientelism and democracy is negative (Model 4, Table F1), we can thus observe that both population size and the geographic size of the state diminish the negative impact of clientelism on democracy. Consequently, higher levels of democracy are thus achieved in more populous and geographically larger states.

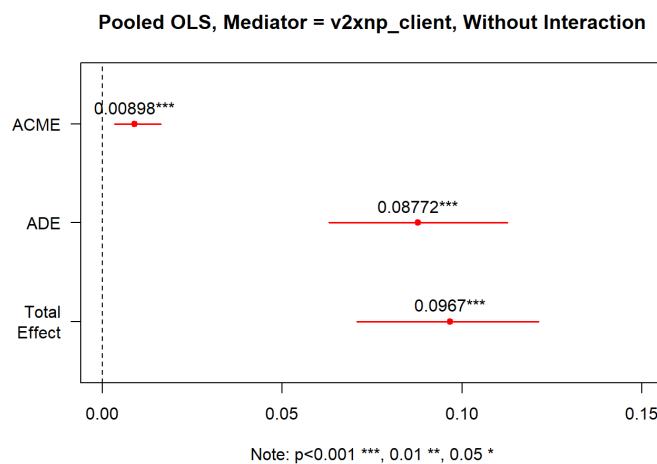


Figure F1: Long-term operation of clientelism.

3.2 H_{2a} : The short-term operation of clientelism

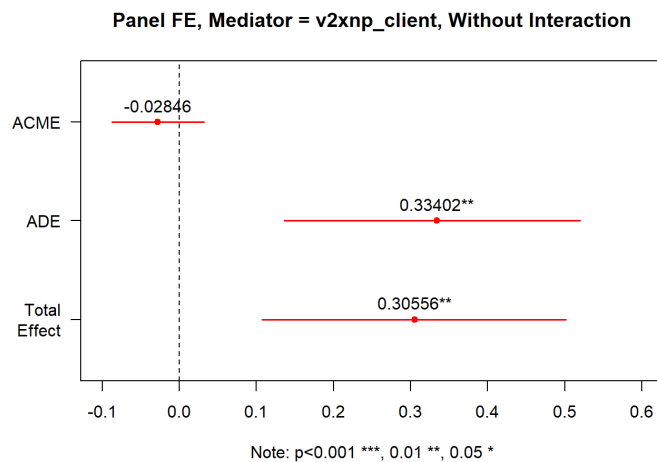


Figure F2: Short-term operation of clientelism.

Figure F2 shows the short-term effect of state size on democracy which is operated by clientelism, denoted by the ACME. Unlike models where only population size is used, the ACME in this model is

not significant. We cannot reject the null hypothesis that clientelism does not operate the joint effect of both population size and geographic area on democracy.

3.3 H_{2b} : The conditional operation of clientelism

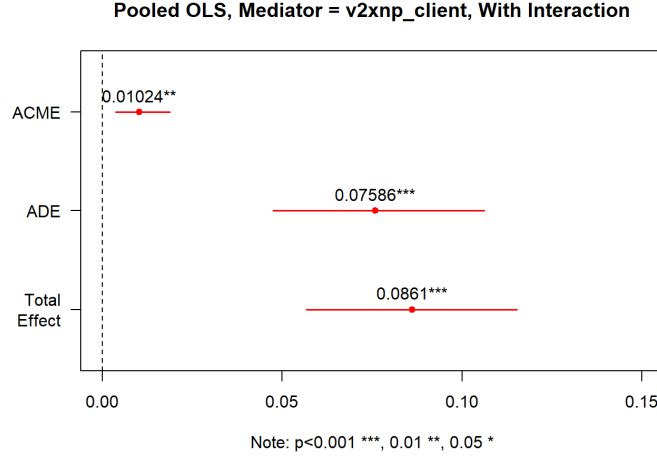


Figure F3: Conditional operation of clientelism.

From Figure F3, we observe that the ACME is 0.01024, indicating that a 10% increase in the composite measure is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.000976 units. However, further inspecting the model by modelling the less urban sample and the more urban sample shows that having controlled for land area through the composite measure, there is no heterogeneity in the results. Among less urban states, with an ACME of 0.01425 significant at the 0.01 level, a 10% increase in the composite measure is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.00136 units (see Fig. F4). However, there is a positive but non-significant ACME among the more urban states, leading us to conclude that there is not enough evidence of an effect of state size on democracy among the more urban states (see Fig. F5).

Again, this may indicate that less urban states with larger populations and geographic areas place resource strains on clientelistic linkages, thereby diminishing the undemocratic effects of clientelism and increasing the levels of democracy as a result. However, in the more urban states, the joint effect of land area on the population may not be as significant since the population is already pooled in urbanised polities. While the main results (Fig. 4 of the thesis) show a negative relationship between population size and democracy among the more urban states, owing to the fact that more urban states tend to be more economically developed and can therefore bankroll informal, clientelistic practices, the effect of land area seems to not be significant anyway; clientelistic practices that are being bankrolled through a greater population size and stronger economy are unlikely to be affected by geographic areas, especially when populations and political power of patrons are concentrated in urban centres.

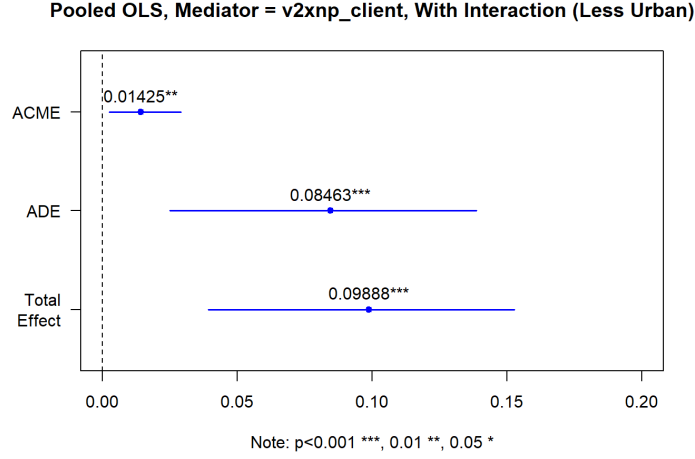


Figure F4: Conditional operation of clientelism in less urban states.

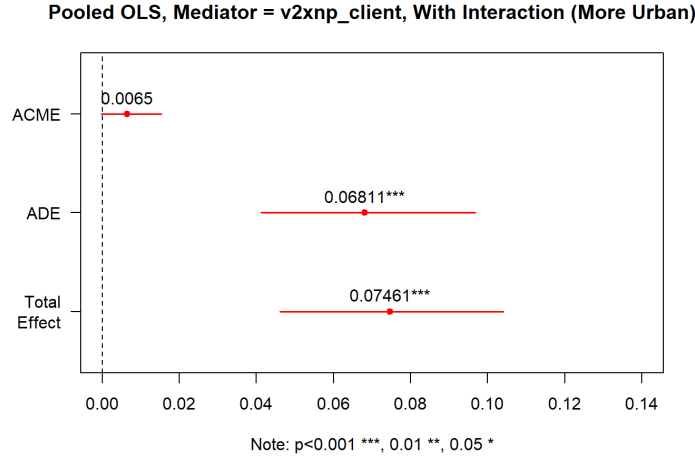


Figure F5: Conditional operation of clientelism in more urban states.

3.4 H_3 : The long-term operation of coercive capacity

Figure F6 shows the effect of state size on democracy which is operated by coercive capacity, denoted by the ACME. The ACME is positive at 0.03316, significant at the 0.01 level. This means that for every 10% increase in the composite measure of state size, the V-Dem Participatory Democracy score increases by 0.00316 units, with this effect being operated by military participation rate. Furthermore, Model 1 of Table F2 shows a negative and significant relationship between state size and military participation rate. We can thus reject the null hypothesis and conclude that there is a joint effect of population size and geographic area on democracy that is being operated by coercive capacity. That is, less populous and geographically smaller states, being more likely to possess larger coercive capacities relative to their population size, are likely to have lower levels of democracy.

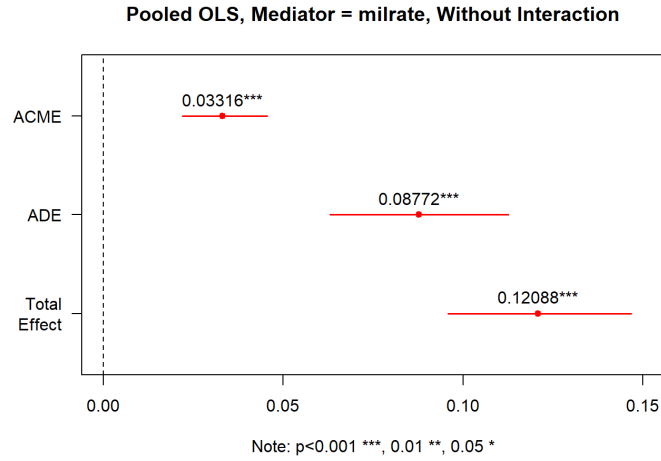


Figure F6: Long-term operation of coercive capacity.

3.5 H_{3a} : The short-term operation of coercive capacity

Figure F7 shows the short-term effect of state size on democracy which is operated by coercive capacity, denoted by the ACME. The ACME is, however, not significant. We cannot reject the null hypothesis that there is no operation of the joint effect of population size and geographic area on democracy through coercive capacity on the short term. The potential explanation for this has been detailed in Chapter 5 of the thesis.

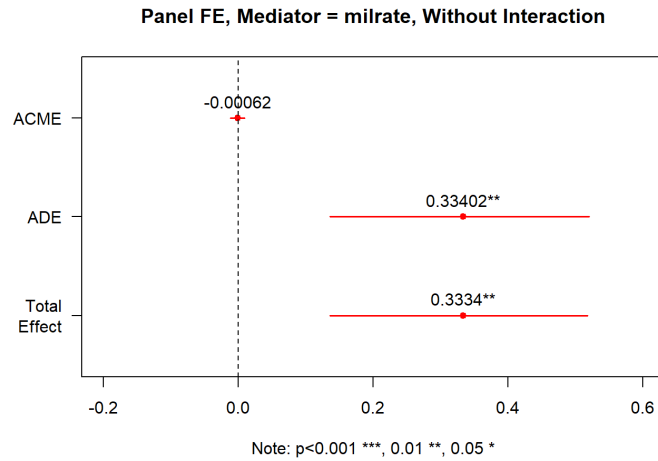


Figure F7: Short-term operation of coercive capacity.

3.6 H_{3b} : The conditional operation of coercive capacity

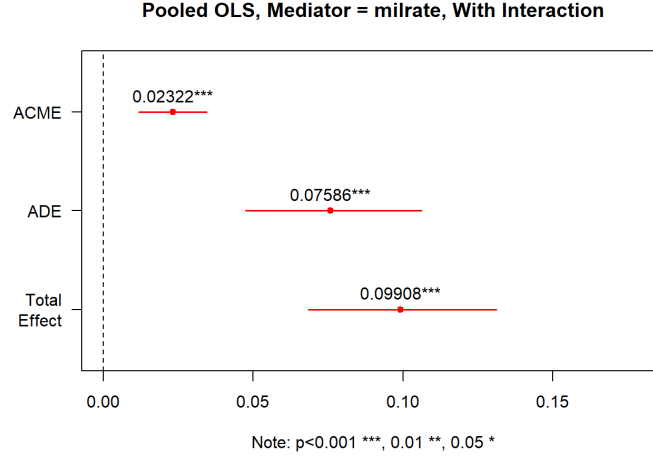


Figure F8: Conditional operation of coercive capacity.

The ACME in Figure F8 shows a positive and significant result in the ACME at 0.02322 when the interaction term is included, and there does seem to be a difference among less urban and more urban states. This ACME indicates that a 10% increase in the composite measure of state size is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.00221 units. We can thus reject the null hypothesis that there is no joint effect of population size and geographic area that is operated by coercive capacity.

On further inspection, we observe that the relationship between state size and democracy operated by coercive capacity is not significant among less urban states but significant in the more urban states. Turning first to the less urban states (see Fig. F9), a non-significant ACME leads us to conclude that the null hypothesis, that the joint effect of population size and geographic area on democracy is not operated by coercive capacity, cannot be rejected.

On the second count, the ACME of the more urban states indicated that a 10% increase in the composite measure for state size is associated with, on average, an increase in the V-Dem Participatory Democracy score by 0.00444 units (see Fig. F10). We can thus conclude that there is a joint effect of population size and geographic area on democracy that is operated by coercive capacity. In all likelihood, having established in the thesis that less urban states are also less economically developed, one key mechanistic insight is that less urban states are constrained by economic resources to fund their militaries, or are unable to pool manpower for their militaries, that it ebbs the effect of population size or geographic area on coercive capacity and consequently democracy.

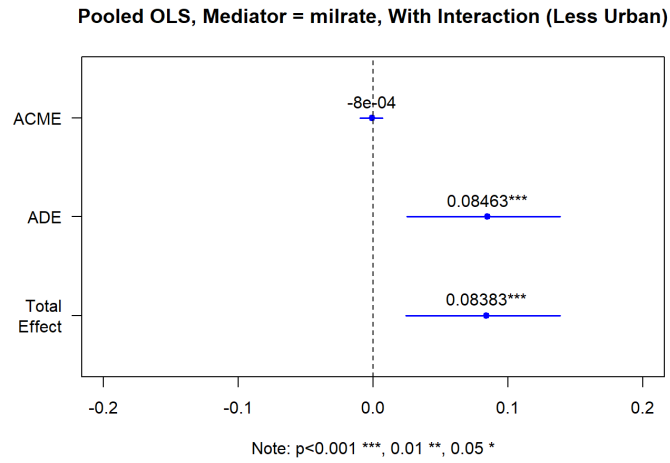


Figure F9: Conditional operation of coercive capacity in less urban states.

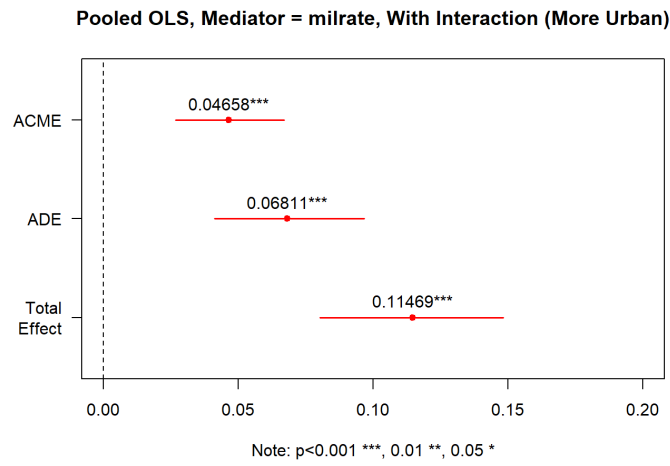


Figure F10: Conditional operation of coercive capacity in more urban states.

Annex G: State Size and Democracy

Two-Stage Least Squares (2SLS) Models

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November 5, 2023

1 Introduction

Presented in this Annex are the two-stage least-squares models. Table G1 highlights the relationship between state size and participatory democracy, while Tables G2 and G3 highlight the relationship between state size and the two mediators, clientelism and coercive capacity, respectively.

2 Explanation of Results

In tables G1, G2, and G3, the instruments used for the 2SLS models are the natural log of annual rainfall, average annual temperature, and the natural log of arable land. These instruments should fulfil the exclusion restriction assumption, since rainfall may affect crop yield, which in turn has demographical outcomes, but are unlikely to affect levels of democracy much (Haber & Menaldo, 2011). We should expect the same case for temperature as well. As a further substitute for the amount of crops available to sustain population size and growth, logged arable land is suitable. Departing from the usage of arable land as a share of total land area (Gerring et al., 2018), however, I use the natural log of arable land since the latter is a more direct substitute for the amount of crops.

The F-tests (Weak instruments row in the regression tables) done on the first stage of every 2SLS model confirm that the three instruments used are not weak, ensuring instrumental relevance. All F-tests conducted are statistically significant at the 0.01 level. We can thus reject the null hypothesis that the instruments used are weak. However, the F-statistic shown for the panel fixed-effects models—Model 5 of Table G1, and Model 2 of Table G2 and G3—are less than 10, putting us at risk of a type-I error of rejecting the null hypothesis. Ideally, the total amount of fertilisers was intended as an alternative instrument but was eventually omitted due to missingness. I cannot be certain about the biases that may be introduced due to this missingness nor can the eventual 2SLS models be comparable with the models in the thesis had fertiliser usage been used. In the most ideal case, I would have used data for total crop yield, but even missingness has occurred for that variable. Nonetheless, the results of the 2SLS regression show that while the models in this thesis clearly underestimate the relationship between population size and participatory democracy, the results are still robust to sources of endogeneity, such as omitted variable bias and simultaneity with the signs of the coefficients of the different variables largely remaining the same.

3 Results

Table G1: Two-Stage Least Squares Regression, Relationship between Logged Population and Participatory Democracy

	Exposure-Outcome, Pooled			v2x_partipdem Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Population (Logged)	0.0462*** (0.0046) p = 0.0000	0.0456*** (0.0044) p = 0.0000	0.0358*** (0.0040) p = 0.0000	0.0358*** (0.0039) p = 0.0000	-0.1574 (0.1815) p = 0.3858	-0.0022 (0.0127) p = 0.8604
Clientelism		-0.3221*** (0.0524) p = 0.0000		-0.2656*** (0.0442) p = 0.0000	-0.1822 (0.1192) p = 0.1265	-0.1481* (0.0640) p = 0.0208
Military Participation Rate			-0.0146*** (0.0017) p = 0.0000	-0.0138*** (0.0017) p = 0.0000	-0.0003 (0.0010) p = 0.7685	0.0140*** (0.0047) p = 0.0032
Urbanisation (% of Population)	-0.2543*** (0.0516) p = 0.000001	-0.1968*** (0.0506) p = 0.0001	-0.0912* (0.0434) p = 0.0356	-0.0530 (0.0420) p = 0.2070	0.6544*** (0.0960) p = 0.0000	-0.3800 (0.2410) p = 0.1149
Per Capita GDP (Logged)	0.1260*** (0.0113) p = 0.0000	0.0553*** (0.0149) p = 0.0003	0.1145*** (0.0102) p = 0.0000	0.0567*** (0.0135) p = 0.0003	-0.0147 (0.0277) p = 0.5965	0.0272 (0.0167) p = 0.1037
Government Expenditure (% of GDP)	0.1650 (0.1244) p = 0.1849	0.0825 (0.1156) p = 0.4752	0.1078 (0.1032) p = 0.2961	0.0430 (0.0998) p = 0.6669	-0.1733** (0.0651) p = 0.0078	-0.1235 (0.0944) p = 0.1910
Foreign Aid Received (% of GNI)	0.3336* (0.1599) p = 0.0371	0.1513 (0.1500) p = 0.3133	0.2576 (0.1481) p = 0.0820	0.1109 (0.1430) p = 0.4380	-0.0970 (0.0808) p = 0.2302	0.0917 (0.1513) p = 0.5443
Resource Dependence	-0.0014 (0.0009) p = 0.0960	0.0013 (0.0011) p = 0.2104	-0.0023*** (0.0007) p = 0.0017	0.00003 (0.0009) p = 0.9770	-0.0025* (0.0010) p = 0.0129	0.0012 (0.0012) p = 0.2951
Ethnic Fractionalization	-0.1106* (0.0430) p = 0.0103	-0.1753*** (0.0427) p = 0.00004	-0.0587 (0.0378) p = 0.1202	-0.1150*** (0.0383) p = 0.0028		-0.0884* (0.0361) p = 0.0142
Islamic	-0.1728*** (0.0295) p = 0.0000	-0.1877*** (0.0310) p = 0.0000	-0.1606*** (0.0269) p = 0.0000	-0.1735*** (0.0281) p = 0.0000		-0.1584*** (0.0268) p = 0.0000
Population × Urbanization						0.0449* (0.0186) p = 0.0161
Clientelism × Urbanization						-0.2564* (0.1057) p = 0.0153
MPR × Urbanization						-0.0389*** (0.0063) p = 0.0000
Constant	-1.2978*** (0.1233) p = 0.0000	-0.5536*** (0.1697) p = 0.0012	-1.0783*** (0.1109) p = 0.0000	-0.4758*** (0.1538) p = 0.0020	-0.0565 (0.0583) p = 0.3330	0.1722 (0.2852) p = 0.5461
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes	No
Weak Instruments (Population Logged)	1190.091***	1188.59***	1260.753***	1259.945***	4.55**	944.001***
Weak Instruments (Population × Urbanisation)	NA	NA	NA	NA	NA	641.766***
N	1204	1204	1204	1204	1204	1204
R-squared	0.4443	0.4870	0.5837	0.6109	0.4344	0.6446
Adj. R-squared	0.4177	0.4620	0.5634	0.5916	0.3936	0.6260
Residual Std. Error	0.1503 (df = 1148)	0.1445 (df = 1147)	0.1301 (df = 1147)	0.1259 (df = 1146)	0.0575 (df = 1122)	0.1205 (df = 1143)

***p < .005; **p < .01; *p < .05

Table G2: Two-Stage Least Squares Regression, Relationship between Logged Population and Military Participation Rate

	milrate		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	−0.7957*** (0.1234) p = 0.0000	6.9835 (10.3779) p = 0.5010	−0.0146 (0.5260) p = 0.9779
Clientelism	4.0725 (2.1577) p = 0.0592	7.7209 (6.6790) p = 0.2477	0.1548 (2.5559) p = 0.9518
Urbanisation (% of Population)	10.6012*** (1.5979) p = 0.0000	−3.9070 (4.1138) p = 0.3423	15.1715 (11.1517) p = 0.1737
Per Capita GDP (Logged)	0.0321 (0.4771) p = 0.9464	1.9819 (1.5543) p = 0.2023	0.5060 (0.5411) p = 0.3497
Government Expenditure (% of GDP)	−3.1102 (4.0331) p = 0.4407	2.1846 (3.0529) p = 0.4743	−1.6270 (4.0711) p = 0.6895
Foreign Aid Received (% of GNI)	−3.9944 (4.2101) p = 0.3428	2.7561 (5.0736) p = 0.5870	3.7214 (4.4593) p = 0.4040
Resource Dependence	−0.0946** (0.0347) p = 0.0064	−0.0584 (0.0544) p = 0.2832	−0.0745* (0.0367) p = 0.0423
Ethnic Fractionalization	4.3594*** (1.3044) p = 0.0009		3.8681*** (1.3112) p = 0.0032
Islamic	1.0843 (0.5725) p = 0.0583		0.3801 (0.6292) p = 0.5458
Population × Urbanization			−0.5665 (0.8175) p = 0.4884
Clientelism × Urbanization			7.3487 (4.3876) p = 0.0940
Constant	7.5708 (6.2044) p = 0.2224	1.7431 (3.2853) p = 0.5958	−6.1319 (11.1103) p = 0.5811
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
Weak Instruments (Population Logged)	1188.59***	4.351**	931.674***
Weak Instruments (Population × Urbanisation)	NA	NA	594.929***
N	1204	1204	1204
R-squared	0.2304	0.0965	0.2582
Adj. R-squared	0.1928	0.0322	0.2206
Residual Std. Error	4.6786 (df = 1147)	3.0002 (df = 1123)	4.5972 (df = 1145)

***p < .005; **p < .01; *p < .05

Table G3: Two-Stage Least Squares Regression, Relationship between Logged Population and Clientelism

	v2xnp_client		
	Pooled (No Interaction)	Panel FE (No Interaction)	Pooled (Interaction)
	Model 1	Model 2	Model 3
Population (Logged)	0.0003 (0.0033) p = 0.9330	0.4361* (0.2074) p = 0.0356	-0.0599*** (0.0125) p = 0.000002
Military Participation Rate	0.0032* (0.0014) p = 0.0253	0.0049*** (0.0011) p = 0.00001	0.0106* (0.0043) p = 0.0149
Urbanisation (% of Population)	0.1434*** (0.0440) p = 0.0012	-0.0253 (0.1006) p = 0.8018	-1.1299*** (0.2433) p = 0.000004
Per Capita GDP (Logged)	-0.2171*** (0.0090) p = 0.0000	-0.0047 (0.0384) p = 0.9036	-0.2463*** (0.0123) p = 0.0000
Government Expenditure (% of GDP)	-0.2438*** (0.0812) p = 0.0027	-0.3931*** (0.1385) p = 0.0046	-0.3990*** (0.0944) p = 0.00003
Foreign Aid Received (% of GNI)	-0.5500*** (0.1773) p = 0.0020	0.0449 (0.1580) p = 0.7761	-0.8307*** (0.2021) p = 0.00004
Resource Dependence	0.0087*** (0.0011) p = 0.0000	0.0013 (0.0012) p = 0.2691	0.0102*** (0.0013) p = 0.0000
Ethnic Fractionalization	-0.2120*** (0.0268) p = 0.0000		-0.2019*** (0.0286) p = 0.0000
Islamic	-0.0489 (0.0289) p = 0.0904		-0.0281 (0.0248) p = 0.2574
Population × Urbanization			0.0940*** (0.0189) p = 0.000001
Military Participation Rate × Urbanization			-0.0109 (0.0057) p = 0.0547
Constant	2.2643*** (0.0978) p = 0.0000	0.1245 (0.0689) p = 0.0709	3.3750*** (0.2573) p = 0.0000
Year FE	Yes	Yes	Yes
Country FE	No	Yes	No
Weak Instruments (Population Logged)	1260.753***	7.072**	1028.237***
Weak Instruments (Population × Urbanisation)	NA	NA	660.032***
N	1204	1204	1204
R-squared	0.7688	0.3554	0.7721
Adj. R-squared	0.7575	0.3095	0.7605
Residual Std. Error	0.1255 (df = 1147)	0.0644 (df = 1123)	0.1247 (df = 1145)

***p < .005; **p < .01; *p < .05

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