Economic Inequality and the Persistence of Clientelism

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Abstract

Why do some relatively poor countries have relatively little clientelism? And, more generally, why does clientelism often persist in other countries as they develop? There is a surprising amount of variation in the prevalence of clientelism in low income countries, suggesting the presence of determinants beyond poverty. We argue that economic inequality explains much of this variation because it shapes the tradeoff between public service provision and clientelistic vote-buying as electoral strategies. Our theory argues the level of income inequality affects the preferences of elites to supply public services versus targeted transfers to gain and maintain political power. This results in more clientelistic, individually-targeted, electoral strategies where inequality is high. We use Afrobarometer survey data to test empirical implications of the theory and demonstrate that inequality plays a role in the persistence of clientelism, measured as vote-buying, as countries develop economically.

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Introduction

Although research on clientelism is quite diverse, the most consistent finding from this literature is that low levels of economic development and high rates of poverty are associated with the presence of clientelism (Hicken 2011; Jensen and Justensen 2014; Kitschelt and Wilkinson 2007). Despite this consensus, there is significant variation in its prevalence across low GDP contexts. Figure 1 plots the 2016 V-Dem Clientelism Index for countries below median GDP per capita, from lowest to highest GDP per capita (Coppedge et al. 2021). While the index does appear to decrease, on average, as GDP per capita increases, several examples of relatively poor countries with low levels of clientelism exist (Sierra Leone and Togo) as do wealthier countries where clientelism is common (Turkmenistan, Mexico, and Oman). Why do low income countries exhibit such striking variation in prevalence of clientelism? We provide an answer to this question by exploring why clientelism persists, even as countries develop economically.

We do so in this paper by examining the relative efficacy of providing targeted benefits to individual voters, compared to providing broader public services. Previewing our argument, this trade-off is shaped, in part, by the level of economic inequality present in a country. Inequality often rises as countries develop economically (Stiglitz 2015), and with this, the preferences of citizens become more diverse. This surge in preference heterogeneity increases the attractiveness of clientelistic electoral strategies, relative to public service provision. In making this argument, we join a recent literature studying how and when clientelistic strategies are used by considering their relative value or accessibility, as complements or substitutes, vis-a-vis alternative electoral strategies (Brooke 2019; Hicken and Nathan 2020; Kitschelt and Wilkinson 2007; Luna 2014; Resnick 2014; Weitz-Shapiro 2014).[1]

[1]Hicken and Nathan provide a review of this emerging literature in the context of the broader clien-

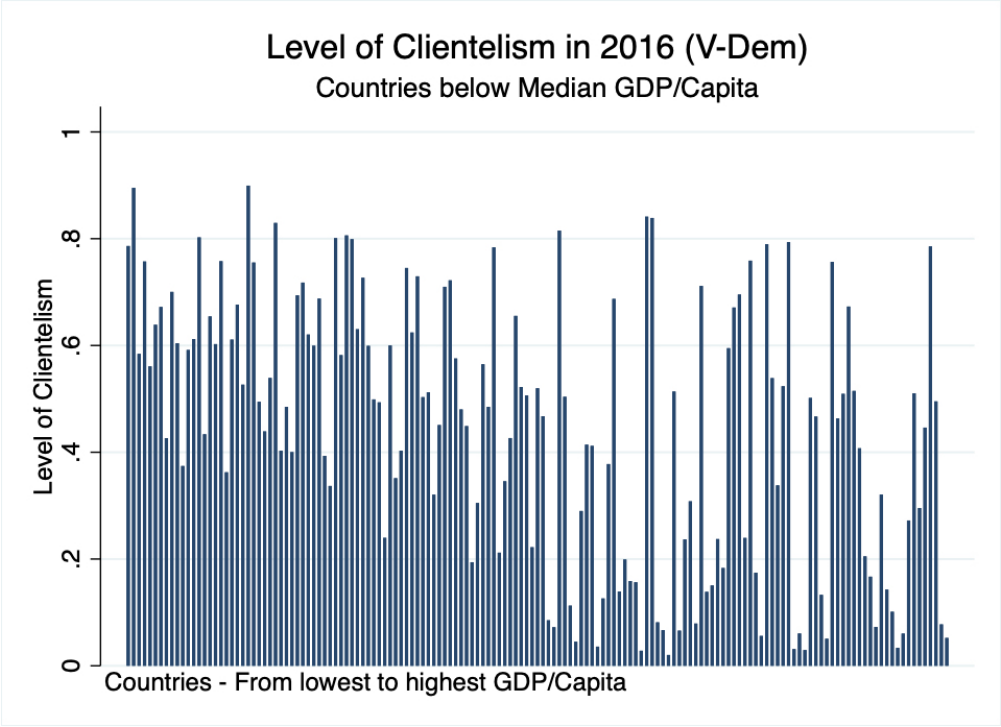

Figure 1: Clientelism by GDP Per Capita

We begin with the following observation: countries with a higher prevalence of clientelism have less public investment and public services provision (Bates 1981; Keefer 2007; Khemani 2015; Robinson and Verdier 2013). The basic problem is straightforward. Providing public services is less attractive to politicians seeking reelection because they are subject to the free-rider problem: both supporters and opponents can benefit regardless of vote choice. One solution to the free-rider problem is to provide selective incentives (Olson 1971). Mobilization through clientelistic, individually-targeted, strategies such as vote-buying is attractive because it allows politicians, through leveraging the exclusionary nature of such transfers, to incentivize electoral support (Kitschelt and Wilkinson 2007). In addition to this contingent nature, it has the added benefit of being targeted, for instance politicians can target benefits to those voters who will value them most, such as

telism literature (2020).

the poor, a feature that public services often lack.

We argue that a key factor explaining much of the variation of clientelism in low GDP states is economic inequality, because of how it shapes the tradeoff between public services provision and the provision of targeted goods as electoral strategies. Providing selective incentives to voters in the form of targeted benefits is often costly, not certain to work, and creates opportunities for rent seeking by local brokers (Brierley and Nathan 2021; Hicken and Nathan 2020; Greene 2016; Kitschelt and Kselman 2013). In more egalitarian societies, we argue, it will be relatively more efficient as an electoral strategy for politicians to provide public services. In societies where inequality is high, however, it will be relatively more efficient to provide targeted transfers to prospective voters.

Following much of the literature on clientelism, we focus empirically on vote-buying, an individually-targeted strategy, where material incentives are used to convince voters to vote for a particular candidate (Stokes et al. 2013).[2] We consider vote-buying versus other strategies designed to garner political support, in particular public service provision (Rosas, Johnston and Hawkins 2014). We leverage variation in the level of economies of scale across different types of public services to further test implications of our theory.

By focusing on inequality, this paper moves beyond the consensus linking clientelism to poverty (Hicken 2011; Jensen and Justensen 2014; Amick 2018), and helps explain why relatively wealthy nations may continue to engage in it, while politicians in other low income countries engage in less clientelism than one might expect. Our paper furthers the understanding of its persistence as countries become wealthier (Bustikova and Corduneanu-Huci 2017; Nathan 2016; Kitschelt and Kselman 2013), because such growth is often associated with an increase, rather than decrease, in income inequality (Banerjee and Duflo 2003). It also provides a bridge between the literature considering the

[2]However, candidates may use similar transfers, but with different desired outcomes, such as turnout buying (Gans-Morse, Mazzuca and Nichter 2014).

individual-level determinants of vote-buying, for example that poorer people value targeted transfers more than others, toward structural determinants, such as economic inequality.

This paper has the following structure. First, we review the the academic literature as it relates to our research. Second, we present a novel theory which argues that inequality influences the relative efficiency of targeted transfers vs public services provision. Next, we introduce our data and methods. Fourth, we test the implications of our argument using data from the Afrobarometer survey. The final section concludes and discusses the implications of our findings for the broader clientelism literature.

Determinants of Clientelism: Background and Evidence

Much of the literature clientelism aims to explain the dynamics between the voter(s) and patron (Cox and Mccubbins 1986; Dixit and Londregan 1996; Gans-Morse, Mazzuca and Nichter 2014; Kramon 2016; Lindbeck and Weibull 1987; Nichter 2008; Stokes et al. 2013). These studies provide valuable information on *who* is involved in such transactions *when* clientelistic politics are the norm, but most do not say as much about *where* one should expect to see such politics.

However, there are a small but growing set of studies which make clientelism the dependent variable and attempt to explain its causes. Within this group, the most common cause identified is poverty, GDP per capita, or other related concepts. Studies of this type show that poverty is robustly, positively correlated with the use of targeted transfers (Amick 2018; Hicken 2011; Jensen and Justensen 2014; Kitschelt and Wilkinson 2007). The general logic is one of economic demand; transfers of private goods from politicians to voters are more valuable to the poor due to the law of diminishing marginal utility.

Although poverty plays an important role, it's not the only factor. In fact, Magaloni,

Diaz-Cayeros and Estévez (2007) show that clientelism is common at intermediate ranges of development, not just in the world's poorest nations. Kitschelt and Wilkinson (2007) go a step further by highlighting that some advanced countries, like Japan and Belgium, retain some aspects of clientelism in their politics. Though poverty is likely the most important determinant of clientelism, clearly, additional factors are at play. Factors that help ensure its persistence at higher levels of development, or that depress its prevalence among some poorer countries. The extant literature, however, has only just begun to explain such puzzling cases (Nathan 2016).

Our paper builds upon recent research showing there is great variation in patterns of clientelism, even among low income countries. For example, Rosas, Johnston and Hawkins (2014) find that in local jurisdictions with homogeneous political support for incumbents, voters tend to receive public services. Moreover, those same incumbents mobilize clientelistic strategies, such as vote-buying, in jurisdictions where support is heterogeneous. Similarly, Kramon and Posner (2013) study the provision of political favoritism toward co-ethnics and find evidence that public service provision is higher to households whose ethnicity is the same as the president's.

The determinants of clientelism beyond poverty and GDP per capita can be grouped into two broad categories. The first are structural determinants. Specifically, levels of formal taxation and education have been associated with clientelistic politics (Hicken 2007, 2011). The level of urbanization (Magaloni, Diaz-Cayeros and Estévez 2007; Nathan 2016) and whether a country has implemented civil service reforms also play a role (Diaz-Cayeros, Estévez and Magaloni 2016). Each of these factors, however, tend to be correlated with income, limiting their additional, independent explanatory power.

The second category focuses on determinants that stem from the design of electoral institutions, such as district population (Hicken 2007), political competition (Magaloni, Diaz-Cayeros and Estévez 2007), intra-party competition (Lijphart 1994; Reed 1994; Shugart

and Carey 1992), and the centralization of party decision-making (Carey and Shugart 1995). Each includes their own compelling rationales, but may also be endogenously chosen, making it difficult to pin down which way the causal relationship runs. Electoral rules may be chosen to suit the electoral strategies employed by winning politicians. Therefore, politicians that leveraged targeted transfers may maintain - or change - electoral rules to their advantage, rather than the rules themselves being the cause of clientelism.

Though there are theoretical reasons to believe inequality may be a partial cause of clientelism across contexts, especially as it relates to public employment (Robinson and Verdier 2013; Diaz-Cayeros, Estévez and Magaloni 2016), it remains understudied. Like the structural explanations discussed above, it is a (potential) determinant of the prevalence of clientelistic electoral strategies. Unlike the structural determinants above, however, inequality is not closely correlated with overall income levels (Frazer 2006; Stiglitz 2015). There is considerable variation in economic inequality among poor and wealthy countries alike.

Though inequality's impact on clientelism remains an open question, one which we explore in this paper, there is a rich literature on redistribution, inequality, and democracy (Meltzer, Scott and Richard 1981). In this literature, higher inequality is associated with weakened democratic institutions (Acemoglu and Robinson 2006; Beramendi and Anderson 2008; Boix 2003). However, these studies' focus on democratic institutions is quite abstract and does not examine specific mechanisms that could underlie their findings, such as clientelism. Micro-level mechanisms are left to the imagination of the reader.

Those studies that do examine discrete aspects of inequality on political outcomes in democracies do not consider clientelistic electoral strategies directly. For example, much research on inequality's impacts on political behavior exists, including a series of papers from western democracies show that economic inequality depresses political engage-

ment, including turnout (Beramendi and Anderson 2008; Ritter and Solt 2019; Solt 2008). Moreover, influential work in Latin America has shown that targeted, private transfers to voters increase voter turnout (Nichter 2008), while work in West Africa has shown the middle class is less likely to turnout when clientelistic strategies are used (Nathan 2016). Our paper shows that inequality has an impact on electoral politics beyond the turnout effect identified by these studies.

Furthermore, Wang and Kolev (2018) find that economic inequality across ethnic groups increases clientelistic politics, while Alesina, Baqir and Easterly (1999) find that ethnic fractionalization decreases the provision of public services. Similarly, in the United States, racial inequality is negatively correlated with the provision of public services (Troustine 2016). Our paper expands upon the logic of these papers to investigate how economic inequality shapes preferences over public services, and how politicians react to such preferences.

In the next section, we propose a theory which helps explain variation in levels of clientelistic strategies among low and middle income countries. In egalitarian contexts, even those characterized by an overall low level of income, it is relatively more efficient for politicians to provide public services rather than engage in clientelism. Conversely, in societies with highly unequal distributions of wealth, even at intermediate levels of development, clientelistic strategies are a more efficient means of garnering electoral support, relative to public services provision.

A Theory of Inequality's Impact on Clientelism

When politicians try to garner electoral support by providing public services, they face two opposing forces: demand for services and limited resources to spend on reelection.[3] The need for services within the country is closely related to poverty because the poorer citizens are, the more utility they will get from assistance provided by the government. This logic, however, has already been largely outlined in the literature (Bold et al. 2014). Moreover, if inequality's impact on the prevalence of clientelism is solely through the number of citizens at the bottom of the income distribution, including poverty as a control in empirical tests will wash out any association between the two variables. However, variation in clientelism remains substantial even as GDP per capita increases, as Figure 1 demonstrates above, so we need an explanation independent of poverty.

Drawing on the literature from public and experimental economics, we propose that income inequality shapes the level of aggregate heterogeneity in preferences over types of public services among the population.[4] We focus on public services here, rather than 'pure' public goods, because most public services retain some level of excludability, even

[3]We use the term "demand" in our theory as the economic concept of demand. In particular, we mean individual citizens derive some intrinsic utility from a service, not that they actively ask for services from politicians. This distinction is important because a citizen may derive positive benefits from a public service if offered, regardless of whether they actively asked for it.

[4]In public economics, see Alesina and Spolaore (1997), Alesina and Ferrara (2000), Bergstrom and Goodman (1973), Bergstrom, Rubinfeld and Shapiro (1982) Bhattacharya, Saha and Banerjee (2016), Bolton and Roland (1997), Calabrese, Cassidy and Epple (2002), Epple and Romer (1991), Gross (1995),and Lall and Lundberg (2008) *inter alia*. In experimental economics, see Angelovski et al. (2018), Anderson, Mellor and Milyo (2008), Cardenas (2003), Hauser et al. (2019), and Martinangeli (2021), *inter alia*. For a similar argument regarding ethnic heterogeneity and heterogeneity of preferences over types of public services, see Alesina and Ferrara (2005).

if only at the community level, and include the potential for large economies of scale ensuring the marginal cost of providing the service to additional beneficiaries is low. We define "preferences" as the demand function of individual citizens, or the amount of "utility" one gets, for different public services. Heterogeneity of preferences, then, is the variation in the amount of utility among individuals aggregated across different types of services, e.g healthcare, education, infrastructure, etc., or for different providers of similar services, e.g healthcare from a free versus a fee-based clinic.

For example, a voter with school-aged children might get more utility from the provision of public schools than from public health clinics because their kids benefit from public education daily, while they only use public clinics when they or their kids get sick. However, another voter may prefer the clinic to the school because they do not have children, or because they have chronic health needs. Simple differences between individuals like this are the source of heterogeneity in utility among voters from different public services. Continuing with this example, we can further define preference heterogeneity by its levels: from high to low. High levels of preference heterogeneity suggest there are large differences in utility across individuals gained by the provision of a particular good or service (Gross 1995).

The economics literature on public service provision has identified income as a primary source of preference heterogeneity regarding public services (Bergstrom and Goodman 1973; Bergstrom, Rubinfeld and Shapiro 1982; Bolton and Roland 1997; Epple and Romer 1991; Calabrese, Cassidy and Epple 2002; Gross 1995). Because income inequality, by definition, implies greater diversity of incomes, it follows that greater income inequality will lead to greater heterogeneity of preferences toward public services.

Many results in public economics and development studies support this assumption.[5]

[5]On this point see Kaplan et al. (1996), De Mello and Tiongson (2006), Lindert, Lizzeri and Persico (1996), and Moene and Wallerstein (2002).

While there is disagreement about the conditions under which this leads to a reduction (or increase) in public service provision due to diminished utility of any particular public good or service (Alesina and Spolaore 1997; Lall and Lundberg 2008; Bhattacharya, Saha and Banerjee 2016), the government must provide more services for the same aggregate utility increase (Fabre 2018; Schundeln 2013). The basic point that income inequality implies heterogeneity in incomes and preferences toward public services is agreed upon.

The international development literature on user fees for public services provides an example on preferences for free vs. fee-based services. Research shows that implementing fees on services, such as education and healthcare, affects usage of those services by the poor. Some citizens will move to affordable, private options, while others will reduce their use of that service (Birdsall and Francois 1996). However, Bold et al. (2014) show that abolishing school fees in Kenya caused the poorest Kenyans to increase their enrollment in public schools, while relatively wealthier households flee to private alternatives.

For our purposes, the literature establishes two things. First, the poorest do value public services, and use them if offered. Second, this literature also demonstrates that those with some disposable income, even citizens in poor contexts value differentiated services. As disposable income increases, they may choose to use their own resources to opt out of standard public services to pay for similar services of higher quality (Bolton and Roland 1997; Epple and Romer 1991; Calabrese, Cassidy and Epple 2002).

To summarize, income inequality is positively related with preference heterogeneity over public services. Lower income inequality suggests less preference heterogeneity in the population, either that society is largely poor as in many developing countries, largely middle class as in parts of Europe. In equal societies, heterogeneity of preferences across different public services is likely to be small because public services will be valued (relatively) uniformly. Even if individuals have preferences for which services they would most like to receive, differences in utility across services is small enough that individual

citizens receive significant positive utility from any good or service a campaign would decide to provide in order to garner electoral support. Combined with the economies of scale inherent in the provision of public services, this fact makes public service provision more appealing in relatively egalitarian contexts.

In unequal societies, however, there is more heterogeneity in preferences over public services so fewer citizens will want to consume any particular public service. There will be fewer beneficiaries who substantially benefit from any single public service, mitigating the positive electoral impacts of public investments, regardless of status as a low or middle-GDP country. Therefore, politicians using public service provision to garner electoral support would get less electoral return.

To understand how inequality shapes the prevalence of clientelism, one must examine the tradeoffs and limitations politicians face when spending campaign funds - i.e. their budget constraint - for public service provision or clientelism (Rosas, Johnston and Hawkins 2014). We turn to this issue next, considering the implications of our argument above for party electoral strategy.

Party Strategies: The Role of Budget Constraints

Parties face a tradeoff because they have finite resources to spend campaigning. Whether funds are raised from contributions from a wealthy elite, natural resource rents, or other mechanisms, they are limited. Given this, campaigns face a budget constraint when mobilizing support, whether through vote-buying or through providing public services. It is this constraint, and the fact that they may keep funds not spent for other campaigns or as rents, that causes them to consider the relative efficiency of different redistributive electoral strategies. We discuss the implications of the budget constraint for party strategy below.

First, in equal societies, a relatively small investment in public services may have the

ability to reach the largest group of potential voters because providing those services generates positive benefits to all citizens. Therefore, providing public services is quite attractive to parties because it limits the size of their contribution. The economies of scale in service provision make this an appealing option in the relatively egalitarian context. However, as discussed above, when the heterogeneity of preferences over public services becomes sufficiently high due to income inequality, it changes the calculus for those funding transfers. Citizens now demand several different services, each valued differently by prospective voters. Therefore the marginal return to each individual good or service provided diminishes.

In unequal contexts, instead of investing in a small number of public services, parties must invest in society broadly in a variety of different services to maintain similar levels of political support. Clientelism becomes much more attractive to parties because targeted transfers aimed at winning support are limited in nature and only require one transfer per voter, especially if those transfers are fungible, such as cash or common staple items. As a result, politicians shift away from broad-based public service provision to more targeted clientelistic strategies, such as vote-buying. Because parties and campaigns have a finite budget, they optimize how they spend the budget on public service provision versus individually-targeted transfers (vote-buying) in order to get the best possible electoral return subject to the budget constraint.

Summarizing Predictions

Our theory states that voters in unequal countries have highly heterogeneous preferences, reducing the relative efficiency of providing public services; clientelism becomes more attractive for parties. Alternatively, voters in equal countries have low heterogeneity in preferences, increasing the relative efficiency of providing public services; clientelism becomes relatively less attractive. Figure 2 illustrates the predictions of the theory.

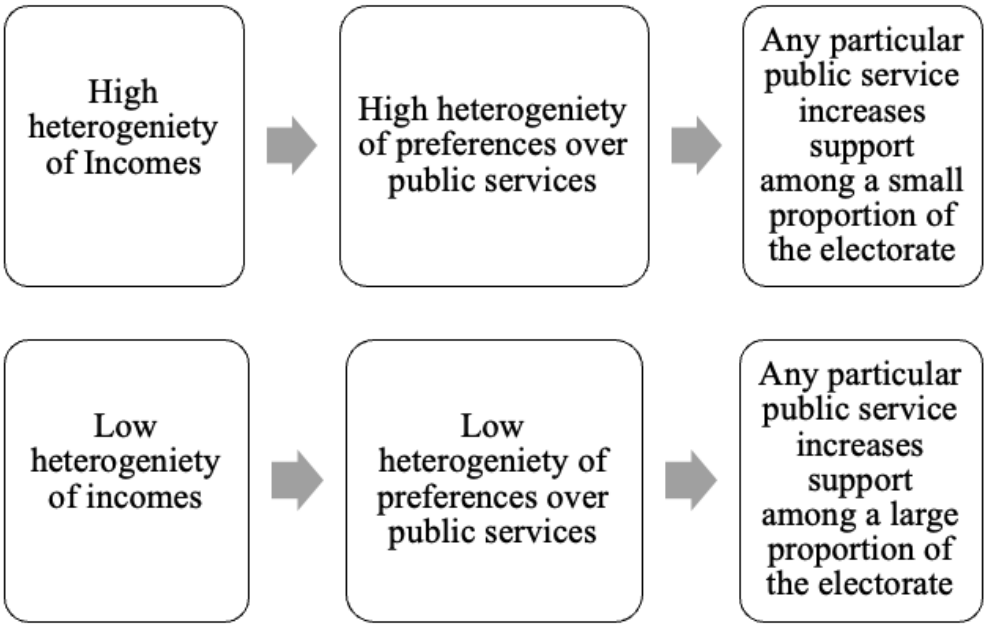

Figure 2: Income diversity, public services provision, and electoral support

In the next section, we focus on testing implications of our theory. Primarily, we test whether income inequality, controlling for poverty, explains variation in clientelism, proximated by a vote-buying measure, in low income settings. We also test implications of our theory for different types of public services, by leveraging variation in the level of economies of scale cross different types of public services. We also consider implications of the level of economic development and consider possible alternative explanations.

Data and Research Design

Selecting the Region: An African Focus

To test our argument empirically, a few things need to be in place. Most importantly, the geographic coverage for any data should include a substantial number of cases. The principal independent variable is inequality; an aggregate variable that measures the distribu-

tion of income across smaller units within each case. However, the outcome we attempt to explain with this theory is an individual-level behavior. Since we are not aware of any individual-level datasets with worldwide coverage that measures clientelism, we are left with the many regional public data sets that exist.

For this paper, the principal empirical constraint is the independent variable as it is a structural, aggregate measure. By construction, there will be a limited number of observations and less variation in observed values. Indeed, in the analysis that follows we cluster our standard errors at the country level to reflect this. Empirically, there are two additional considerations to account for. First, inequality should be prevalent in the region, and second, there should be substantial variation within the region in levels of inequality to ensure a relationship between inequality and the clientelism measure can be detected statistically. Therefore, before settling on a set of cases for which to test our theory, we first look for these patterns within the inequality data, presented in Table 1.

Africa meets all three of these criteria. It has the second highest average Gini value, the second largest number of countries, and the most variation in Gini values. With Africa meeting important criteria on the independent variable, next one must look to the dependent variable. Within Africa, prior work has used Afrobarometer data to conduct cross-national research on vote-buying (Jensen and Justensen 2014). Vote-buying is a specific manifestation of clientelism, one well suited for measurement in cross-national surveys due to the fact it is a discrete act prior to an election, allowing it to be measured empirically in a consistent manner.

Dependent Variable

The dependent variable is from the Afrobarometer, round 5 survey, which was in the field between 2011 and 2013. We use the round 5 survey because it is the most recent Afro-

Table 1: Gini Coefficient By Region

Region	Number of Countries	Mean Gini	Standard Deviation of Gini
East Asia and the Pacific	22	37	3.8
Europe and Central Asia	48	32	4.4
Latin American and the Caribbean	21	46	4.1
Middle East and North Africa	15	34	4.4
North America	2	37	5.5
South Asia	7	35	3.1
Sub-Saharan Africa	45	44	7.8

barometer wave that includes a question on vote-buying.[6] Afrobarometer surveys are designed to be nationally representative samples of voting aged adults in each country, exclusive of institutionalized citizens.[7] National samples consist of either 1,200 or 2,400 respondents selected through a stratified, multistage, cluster design based on national sub-units of government (e.g. state or province, district or county, etc).

Since our initial research puzzle was outlined using a broader measure of clientelism from the V-Dem data, we check to ensure the variation in the vote-buying measure is comparable - relatively speaking - along the dependent variable. Figure 3 plots the incidence of vote-buying of 29 low income African countries from lowest to highest GDP per capita based on the Afrobarometer Round 5 data. Much like Figure 1, while vote-buying does appear to decrease, on average, as GDP per capita increases, several examples of poor countries with little vote-buying exist (Mozambique and Togo) as do wealthier countries where vote-buying is common (Eswatini and Nigeria).

Additionally, this Afrobarometer wave also includes several questions on public service provision. These questions probe the ability of the survey respondent to access to certain public services, including assistance from the police, public schools, health clinics, household services, and identification documents. We include these questions as dependent variables in additional statistical models below, exploiting variation in the magnitude of economies of scale across these services to test further implications of our theory. However, the public service provision questions in Afrobarometer are not directly tied to electoral behavior -as the vote-buying measure is - so they are an indirect measure of our

[6]Specifically, it asked "And during the last national election in [20xx], how often, if ever, did a candidate or someone from a political party offer you something, like food or a gift or money, in return for your vote?" (Question 61F). The question allowed respondents to answer, "0=Never, 1=Once or twice, 2=A few times, 3=Often."

[7]`https://www.afrobarometer.org/surveys-and-methods/sampling-principles`

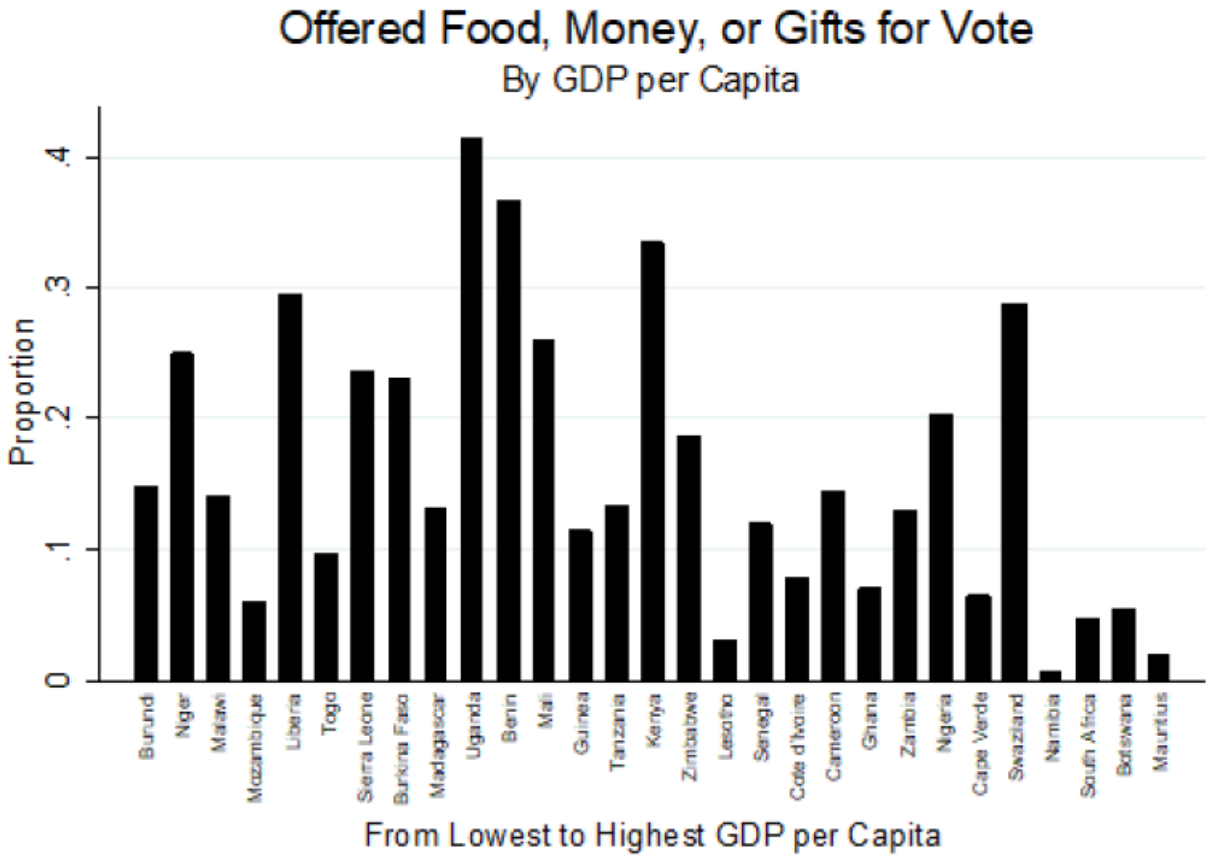

Figure 3: Proportion of Reported Vote-Buying and GDP

theory. As a result, we view the vote-buying measure as our primary dependent variable, while the public service provision questions as supporting evidence to our broader theory.

Independent Variables

To present a more complete picture of possible determinants of vote-buying and to reduce the possibility of omitted variable bias, we draw on the literature to identify additional independent variables as controls.

The first control variable we include is the *lived poverty index*, created by Afrobarometer researchers (Mattes, Dulani and Gyimah-Boadi 2016). This index is constructed by several survey questions that ask respondents about how often their households have gone without basic necessities during the year, including food, clean water, medicine or medical treatments, cooking fuel, and cash income. Ordinal responses are summed and averaged to create an index whose higher values indicate more poverty.

Because prior research has suggested clientelistic politics is more prevalent in rural areas (Nichter 2008; Magaloni, Diaz-Cayeros and Estévez 2007) we include a control variable for the urbaness of the area in which a respondent resides. Afrobarometer codes each sampling unit as urban, semi-urban, and rural. Based on this information, we create a variable where urban is the highest value and rural the lowest value, with semi-urban in between.

Next, we include a variable to control for political competition. Magaloni, Diaz-Cayeros and Estévez (2007) find that clientelism decreases as political competition increases. They argue that competitive elections induce political parties to switch toward the provision of public services, rather than invest in additional clientelism. Therefore, we include a variable that asks: "On the whole, how would you rate the freeness and fairness of the last national election, held in [20xx]." Ordinal responses range from "4=Completely

free and fair" to "1=Not free and fair."

We also include two additional demographic variables. First, a variable that measures educational attainment. This variable is measured from 0, which signifies that the respondent has never been in school to 9, which signifies completing post-graduate education. We view education as an important control because of its ability to both reduce inequality and its positive association with democratic consolidation (Krishna 2007). Moreover, low educational attainment makes citizens more likely to engage in vote-buying and dampens demand for public services (Hicken 2007; Kitschelt and Wilkinson 2007; Tawakkal et al. 2017). We also include gender for completeness. While the relationship between gender and vote-buying has been given little attention in the literature, it's often included as a control and found to be significant across numerous studies (Muhtadi 2019; Wantchekon 2003).

To the Afrobarometer data, we merge country-level measures from the World Development Indicators (WDI) for GDP per capita and the Gini Coefficient (World Bank). Because the Afrobarometer vote-buying question asked about whether the respondent was offered something for their vote in the last national election, we include the values for the Gini coefficient and GDP per capita that coincided with the year prior to the most recent national election before the survey in each country. GDP per capita is measured in thousands to ease interpretation. In the event that the Gini coefficient was missing for a particular country year, we linearly interpolated between two known values closest to the target year, one before the election year and one after. Our final merged dataset consists of individual-level variables from Afrobarometer, and country-level variables from WDI - Gini and GDP per capita - for over forty thousand individuals across 32 countries. For robustness, we cluster our standard errors by country.

Multivariate Models

We run a series of regressions to estimate the relationship between inequality and vote-buying. The main implication of our theory, that there is a positive relationship between inequality and vote-buying, restated as:

> *Hypothesis 1: Higher levels of income inequality are associated with higher levels of vote-buying.*

Each regression presented in this paper includes Afrobarometer's cross-national weights, clustered standard errors by country, and country-level fixed effects to control for other national factors that may affect the level of vote-buying. It should be noted that the clustered standard errors and county-level fixed effects make this a difficult statistical relationship to detect, despite a large number of survey responses, because our primary independent variable is also measured at the country-level. In Table 2 we present 4 separate models. Column (1) presents OLS regression results that model the dependent variable as a linear outcome. Column (2) presents the same model, but uses the natural log of the dependent variable because the distribution of the variable is not normally distributed, but skewed right (zero values are transformed to 0.001 to prevent being dropped). Column (3) presents the results from an ordinal logit model, the actual distribution of the dependent variable, and Column (4) presents the results of a logit model where the dependent variable is collapsed into those observations who have had their votes bought in the last election and those who did not. We include this last model to ensure that the results are driven by the presence (or lack of) vote-buying, consistent with the theory, and not by its severity across countries where vote-buying is more common.

Each model produces a positive and statistically significant relationship between inequality and vote-buying, consistent with the theory. Looking at other results from the model, the coefficients on GDP per capita (when one accounts for GDP per capita squared),

Table 2: Vote Buying and Inequality

	Linear DV	Log DV	Ordinal DV	Binary DV
Country Level				
Gini	0.0219**	0.0502**	0.0564**	0.0468**
	(0.000195)	(0.000762)	(0.000943)	(0.000926)
GDP per Cap.	0.265**	0.534**	2.215**	2.026**
	(0.0180)	(0.0673)	(0.0724)	(0.0687)
GDP per Cap. Squared	-0.0759**	-0.234**	-0.611**	-0.582**
	(0.00325)	(0.0121)	(0.0128)	(0.0120)
Individual Level				
Lived Poverty Index	0.0513**	0.186**	0.189**	0.183**
	(0.0105)	(0.0355)	(0.0418)	(0.0398)
Urban Voter	-0.0103	-0.0555	-0.0629	-0.0687*
	(0.00824)	(0.0322)	(0.0341)	(0.0338)
Male	0.0541**	0.173**	0.195**	0.178**
	(0.0117)	(0.0411)	(0.0431)	(0.0431)
Education	0.00684	0.0123	0.0139	0.00834
	(0.00371)	(0.0151)	(0.0163)	(0.0164)
Free and Fair Election	-0.0374**	-0.141**	-0.145**	-0.140**
	(0.00985)	(0.0360)	(0.0332)	(0.0329)
Constant	-0.505**	-6.510**		-3.851**
	(0.0486)	(0.195)		(0.199)
Observations	41,875	41,875	41,875	41,875
Pseudo R Sq.	0.093	0.101	0.087	0.118

Clustered standard errors in parentheses. All regressions include country fixed effects and cross country survey weights. * $p < 0.05$, ** $p < 0.01$

the individual-level lived poverty index, and being male are also positive and statistically significant. Moreover, voters living in urban areas are less likely to report receiving something for their vote, however this coefficient is only statistically significant in one of the models. The coefficient on the perception of election fairness is negative and statistically significant, as is GDP per capita squared. Education levels are not significantly associated with vote-buying in these models.

Public Services: Further Theoretical Implications

Our theory also posits that as clientelism becomes more attractive, the provision of public services decreases. Conceptually, these two phenomena are on opposite poles of a single spectrum (Bustikova and Corduneanu-Huci 2017). Since the argument is one of relative efficiency between these two strategies under a budget constraint, these two phenomena should be negatively correlated. Put differently, if we switch our dependent variable with one (or more) measuring the provisions of public services, our statistical models should produce the opposite result. The Afrobarometer data includes a series of five questions (Q67A-Q67E) about obtaining services from the government we can leverage to test these additional implications. Specifically, Afrobarometer asks respondents: "Based on your experience, how easy or difficult is it to obtain the following services from government? Or do you never try to get these services from government:" Following the colon, the five different services are asked:

1. An identity document, such as a birth certificate, drivers license, passport, or voter card?

2. Household services like piped water, electricity, or telephone?

3. Help from the police?

4. A place in a public primary school for a child?

5. Medical treatment at a public clinic or hospital?

The response set for these five questions then ranges from very difficult coded as one to very easy coded as four. For our purposes, we drop "never try" responses because we cannot determine if they had tried, where they would land on the scale.

There are two things to note about these specific services before generating a testable hypothesis. First, while the theory predicts that public service provision will be negatively correlated with the Gini measure, this prediction is based on the argument that politicians would provide public services to leverage economies of scale by providing those services. Leveraging economies of scale allows more citizens benefit, all else equal, increasing their utility and political support. Provided services therefore must gain efficiencies through reducing the marginal cost of providing that service to an additional citizen. However, when one examines actual public services, there is substantial variation in the economies of scale for different public services.

In this data, identity documents and household services require providing targeted services to individual citizens or households, while public schools and health clinics can be provided to the community as a whole. The latter two likely have a lower marginal cost vis-a-vis the first two as more citizens access them. Therefore, in our framework, public schools and health clinics closely resemble the 'public services' described in our theory. Police assistance is more ambiguous as responding to individual citizen concerns is potentially costly at the margins, while police presence in general may reduce anti-social behavior at the community-level without much additional effort. Given this, we might expect individual-level services to more closely resemble vote-buying in our theory, while community-level services to resemble public services in our theoretical framework. While this ambiguity leads to conflicting predictions, we present its results for purposes

of transparency.

Second, these measures are indirect. The vote-buying measure is worded specifically to reference elections, while the public service provision questions do not. For our purposes, the ideal question would tie the difficulty of obtaining a service back to electoral behavior or political ties, though these questions do not. Despite this, we do expect them to be correlated with this hypothetical 'ideal measure' and to produce similarly signed results. It should again be noted that this suggests it will be more difficult to detect statistically significant results using this measure.

We test implications of our theory for public service provision as Hypothesis 2.

> *Hypothesis 2a: Inequality is associated with reduced access to public schools and health clinics.*
>
> *Hypothesis 2b: Inequality is associated with increased access to household services and identification cards.*

Table 3 presents the results using these five public service measures as the dependent variables. We estimate models using the same set of independent variables as in the previous tables, minus all interactions. The results match our expectations. We find Schools and Clinics produce regression coefficients that are negative and statistically significant at the 99 percent threshold, indicating that as inequality goes up, it becomes more difficult to obtain these public services, even when controlling for both national per capita income and household level poverty. Police assistance follows this same pattern suggesting their provision resembles a community level service rather than an individually-targeted service. Moreover, the coefficient on Gini is positive and statistically significant for access to identification cards and household services such as piped water, electricity, and/or telephone connections. As predicted, these services require provision to the individual or household so the pattern of their provision more closely resembles that of vote-buying.

Table 3: Public Service Access and Inequality

	ID	Household Services	Police	School	Clinics
Gini	0.0537**	0.302**	-0.0915**	-0.0992**	-0.534**
	(0.00679)	(0.00528)	(0.00656)	(0.00591)	(0.00715)
GDP per Cap.	0.390**	0.931**	-0.178**	-0.245**	-1.248**
	(0.0185)	(0.0169)	(0.0169)	(0.0155)	(0.0187)
Lived Poverty Index	-0.112**	-0.157**	-0.103**	-0.0767**	-0.149**
	(0.0168)	(0.0182)	(0.0153)	(0.0146)	(0.0184)
Urban Voter	0.0220	0.0985**	0.0178	-0.0292*	-0.0179
	(0.0133)	(0.0180)	(0.0135)	(0.0117)	(0.0102)
Male	0.00183	-0.00429	0.00199	0.00359	-0.0206*
	(0.0101)	(0.00848)	(0.00948)	(0.0110)	(0.00999)
Education	0.00320	0.0155**	0.00400	0.00834*	0.00175
	(0.00488)	(0.00413)	(0.00429)	(0.00386)	(0.00429)
Free and Fair Election	0.0566**	0.0415**	0.0754**	0.0563**	0.0668**
	(0.0119)	(0.00823)	(0.0127)	(0.00961)	(0.0125)
Constant	-0.822*	-12.38**	6.155**	7.491**	26.85**
	(0.340)	(0.259)	(0.327)	(0.301)	(0.358)
Observations	39,386	35,535	36,858	37,361	40,675
R Squared	0.179	0.241	0.157	0.152	0.154

Clustered standard errors in parentheses. All regressions include country fixed effects and cross country survey weights. * $p < 0.05$, ** $p < 0.01$

Next, we code the public service measures as dummy variables, with "Very Difficult" and "Difficult" responses coded as a 0 and Easy or Very Easy Responses coded as a 1. Table A1 in the Appendix presents the results of logit models with these dummy variables as the dependent variable. The results are generally consistent with those of Table 3, with the coefficient on Gini being negative and statistically significant for each model except for the fourth from the left, whose dependent variable is a dummy variable for ease of access to public schools.

Development and the Persistence of Clientelism

Next, we can more precisely test our theory. Our argument above is that as countries become more developed and economically diverse with respect to individual incomes, the preferences of their populations should become more diverse, limiting the relative return/effectiveness to any one public good or service provided. As a result, private transfers like vote-buying become more attractive. This means that inequality should be positively correlated with our dependent variables, as was demonstrated in Table 2, and that this relationship should be driven predominately by the higher income, yet unequal, countries in our sample. Therefore, an interaction of GDP/capita and the Gini coefficient should produce a positive result.

> *Hypothesis 3: The greater the GDP per capita of a country the stronger the relationship between inequality and vote-buying.*

Table 4 presents results from four regression models with a country-level interaction between GDP per capita and inequality. As one can see, the interaction is statistically significant and positive in all four models. The coefficient on inequality does flip, but the reader should note that the measured values of the interaction are much larger than the Gini coefficient because income is measured in thousands, meaning that the magnitude of

the interaction variable dominates the Gini across the entire range supported by the data. For our purposes, the results in Table 4 show that the relationship between inequality and vote-buying is driven by the higher income and unequal countries in our sample, as our theory suggests.

Table 4: Vote Buying and Inequality-GDP Interaction

	Linear DV	Log DV	Ordinal DV	Binary DV
Gini	-0.0640**	-0.214**	-0.635**	-0.612**
	(0.00371)	(0.0137)	(0.0145)	(0.0137)
GDP per Cap.	-1.403**	-4.602**	-11.21**	-10.76**
	(0.0534)	(0.198)	(0.210)	(0.195)
Gini * GDP per Cap.	0.0323**	0.0995**	0.260**	0.248**
	(0.00138)	(0.00513)	(0.00546)	(0.00510)
Lived Poverty Index	0.0513**	0.186**	0.189**	0.183**
	(0.0105)	(0.0355)	(0.0418)	(0.0398)
Urban Voter	-0.0103	-0.0555	-0.0629	-0.0687*
	(0.00824)	(0.0322)	(0.0341)	(0.0338)
Male	0.0541**	0.173**	0.195**	0.178**
	(0.0117)	(0.0411)	(0.0431)	(0.0431)
Education	0.00684	0.0123	0.0139	0.00834
	(0.00371)	(0.0151)	(0.0163)	(0.0164)
Free and Fair Election	-0.0374**	-0.141**	-0.145**	-0.140**
	(0.00985)	(0.0360)	(0.0332)	(0.0329)
Constant	3.385**	5.473**		25.98**
	(0.128)	(0.470)		(0.480)
Observations	41,875	41,875	41,875	41,875
Pseudo R Sq.	0.093	0.101	0.087	0.118

Clustered standard errors in parentheses. All regressions include country fixed effects and cross country survey weights. * $p < 0.05$, ** $p < 0.01$

Alternative Explanations: Individual-Level Behaviors in Unequal Countries

While our theory argues inequality's impact works through the tradeoff in relative efficiency at the community-level, skeptics of this structural explanation may argue that the relationship exists, but is driven by individual behaviors of voters within unequal societies. The ability to target poorer constituencies, possibly correlated with inequality, drives the tradeoff between public and private transfers (Lizzeri and Persico 2001). Recall, for example, a series of papers that showed inequality depresses turnout (Beramendi and Anderson 2008; Ritter and Solt 2019; Solt 2008), while other research showed that vote-buying increases turnout (Nichter 2008).

Given these results, one might argue as an alternative to our theory, that high levels of vote-buying in unequal and poorer societies may be a mobilization strategy to counteract inequality's depressive impact on turnout. As inequality increases, turnout decreases meaning fewer votes are needed to win an election. In response, campaigns target the low income voters simply to generate enough support to win. Since it is a low turnout election, not too many votes need to actually be bought. There may be other iterations of this logic,[8] but what's important to note is that if this explanation is true, then one should expect the results in Table 2 to be driven predominately by the poorest voters in unequal societies. Empirically, the cross-level interaction between inequality and individual level poverty status should be positive if this alternative theory is true. Modelling the interaction term allows us to explore possible heterogeneous effects, in particular, whether the inequality explanation has less "bite" when poverty is high, as suggested by the alternative explanation above. We summarize the testable implication as:

[8]For example, Pellicer (2009) argues that wealthy landowners provide redistributive transfers to prevent the poor from organizing.

Hypothesis 4: The relationship between inequality and vote-buying depends upon the level of poverty among respondents.

To check this, Table 5 presents results from the four base regressions in Table 2, but with the addition of an interaction between inequality and the lived poverty index. Columns (1)-(4) all produce statistically insignificant results on the interaction term suggesting that this relationship is not due to the alternative explanation discussed above, providing further robustness to our empirical results.

The reader should note that compared to the results in Table 4, these statistical tests are highly powered, relatively speaking. Between these two competing hypothesis then, we find a statistically significant relationship where it was difficult to detect, while finding a statistically insignificant relationship where it was easier to detect. In summary, there is not strong support for alternative explanations based on individual level behaviors. Next, we turn to a discussion of potential endogeniety issues.

Issues of Endogeneity

While we focus on the impact of economic inequality upon the prevalence of vote-buying, it is possible that vote-buying also has an effect upon economic inequality. It could be that such clientelistic electoral strategies promote inequality (Robinson and Verdier 2013).

We consider the robustness of our findings to endogeneity concerns through instrumental variable designs following recent work on effects of inequality. For our instrumental variable, we use the age dependency ratio. This quantity is the ratio of dependents-to the working-age population. Data are shown as the proportion of dependents per 100 working-age population. Recent work has found that an increase of the age dependency ratio is associated with an increase in inequality. (Goldstein and Lee 2014; You and Khagram 2005; Leigh 2006; Piketty et al. 2014; Rashad, Sharaf and Mansour 2018). Indeed,

Table 5: Vote Buying and Inequality-Lived Poverty Interaction

	Linear DV	Log DV	Ordinal DV	Binary DV
Gini	0.0227**	0.0541**	0.0556**	0.0463**
	(0.000766)	(0.00262)	(0.00446)	(0.00420)
GDP per Cap.	0.265**	0.535**	2.215**	2.026**
	(0.0181)	(0.0676)	(0.0722)	(0.0684)
GDP per Cap. Squared	-0.0759**	-0.234**	-0.611**	-0.582**
	(0.00323)	(0.0121)	(0.0128)	(0.0119)
Gini * Lived Poverty	-0.000837	-0.00409	0.000780	0.000458
	(0.000770)	(0.00279)	(0.00419)	(0.00405)
Lived Poverty Index	0.0872*	0.361**	0.157	0.164
	(0.0385)	(0.131)	(0.185)	(0.177)
Urban Voter	-0.0104	-0.0557	-0.0629	-0.0687*
	(0.00822)	(0.0321)	(0.0340)	(0.0337)
Male	0.0539**	0.172**	0.195**	0.178**
	(0.0118)	(0.0414)	(0.0431)	(0.0431)
Education	0.00680	0.0121	0.0139	0.00835
	(0.00372)	(0.0151)	(0.0163)	(0.0164)
Free and Fair Election	-0.0372**	-0.140**	-0.145**	-0.140**
	(0.00987)	(0.0361)	(0.0332)	(0.0329)
Constant	-0.540**	-6.680**		-3.832**
	(0.0658)	(0.248)		(0.275)
Observations	41,875	41,875	41,875	41,875
Pseudo R Sq.	0.093	0.101	0.087	0.118

Clustered standard errors in parentheses. All regressions include country fixed effects and cross country survey weights. * $p < 0.05$, ** $p < 0.01$

the first stage regressions, provided in the appendix, show that the age dependency ratio is a powerful predictor of inequality in our context. Despite possible measurement error due to labor market informality or other factors in this context, the ratio of dependents to those of working age is a robust structural factor which is strongly related to income inequality.

In our application, the exclusion restriction is also plausible. While the age dependency ratio is related to inequality, it should not have a direct effect on the prevalence of vote-buying. The reason for this is that dependents are present on both ends of the age distribution. Both the proportion of elderly and children can drive values of the age-dependency ratio upwards, yet only one of these groups will be offered goods or money for their vote. However, many African countries have a disproportionate number of youth relative to elderly. If the ratio's observed value is mostly driven by the presence of children, not elderly, then it could be negatively correlated with vote-buying. Therefore, we present a second set of IV models using an age dependency ratio that excludes children.

Indeed, this instrument is highly powerful for all four specifications, achieving statistical significance in the first stage regressions with a highly significant F statistic greater than 8, and statistically significant (first stage regressions provided in Appendix Table A2). The results of this analysis are presented in Table 6. These endogeneity-adjusted results are substantively similar to those presented above. In particular, the coefficient on the Gini coefficient is positive and statistically significant.

Table 6: Instrumental Variable Estimates

	Linear DV IV - ADR	Log DV IV- ADR	Linear DV IV - Old ADR	Log DV IV - Old ADR
Gini	0.0686**	0.282**	0.0593**	0.250**
	(0.00755)	(0.0331)	(0.0202)	(0.0801)
GDP per Cap.	0.0293	0.0588	0.00113	-0.0387
	(0.0236)	(0.102)	(0.0619)	(0.245)
Lived Poverty Index	0.0435**	0.149**	0.0435**	0.149**
	(0.00980)	(0.0328)	(0.00980)	(0.0328)
Urban Voter	-0.0201*	-0.0906*	-0.0201*	-0.0905*
	(0.0100)	(0.0362)	(0.0100)	(0.0362)
Male	0.0561**	0.182**	0.0561**	0.182**
	(0.0127)	(0.0445)	(0.0127)	(0.0445)
Education	0.00774	0.0147	0.00773	0.0147
	(0.00420)	(0.0174)	(0.00420)	(0.0174)
Free and Fair Election	-0.0448**	-0.168**	-0.0448**	-0.168**
	(0.00994)	(0.0351)	(0.00994)	(0.0351)
Constant	-2.346**	-16.20**	-1.913*	-14.70**
	(0.341)	(1.498)	(0.927)	(3.686)
Observations	39,135	39,135	39,135	39,135
R Squared	0.094	0.104	0.094	0.104

Clustered standard errors in parentheses. All regressions include country fixed effects and cross country survey weights. * $p < 0.05$, ** $p < 0.01$

Conclusion

This paper presents a theory of clientelism which argues that inequality is an important determinant for whether politicians engage in vote-buying. Our theory also helps explain why clientelism is so persistent, even as countries develop economically. It contributes to the literature on the determinants of clientelism, by suggesting a novel explanation, beyond absolute poverty, for how the economic structure of a country influences redistributive electoral strategies. In relatively egalitarian societies, it is more efficient for politicians to provide public services in order to garner electoral support. When inequality is high, however, it is relatively more efficient to provide targeted transfers, such as vote-buying.

The implications of this theory are supported by our empirical analysis. In a variety of model specifications, we find a strong positive relationship between income inequality and the prevalence of clientelism, approximated by our vote-buying measure (Hypothesis 1, Table 2). We also find that inequality is associated with a reduction in access to community-wide public services with high economies of scale (Hypothesis 2a, Table 3), but positively associate with individually-targeted public services (Hypothesis 2b, Table 3) which lack such economies of scale. Finally, we find that the relationship between inequality and vote clientelism is strongest in the higher GDP states among our sample of 29 African countries, and that the effect of inequality on clientelism is particularly pronounced for higher income states (Hypothesis 3, Table 4).

In doing so, this paper contributes to the literature on clientelism, by showing that inequality can be a driver of vote-buying and possibly other individually-targeted electoral strategies. Therefore, even as countries develop we should expect to see clientelism remain a part of electoral politics for longer than one would think if we focus only on absolute levels of poverty. If such growth is associated with rising inequality, we may see a resurgence rather than a decrease in clientelism as developing economies grow.

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