Title:

Exploring citizen turnout and invalid voting in Indonesia: Two sides of the same coin?

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1. Introduction

Political participation has received substantial interest in academic scholarship. The various research themes in this field, however, have proceeded along parallel trajectories, as distinct but related aspects of participation: while a lot of research has focused on electoral turnout or invalid voting separately, the two are rarely studied together systematically, especially with a unified dataset in which all relevant indicators are measured in the same way, and all institutional factors are accounted.

This status quo is problematic both for theoretical and empirical reasons. Theoretically, for scholars relying on a Downsian perspective, there is no difference between voting for a given party or candidate and invalid voting, as either choice implies that individuals bear the cost of going to the polls. However, the substantive implications of voting for a given party as opposed to casting an invalid ballot are very different. Therefore, research on electoral participation has yet to develop a nuanced understanding of how structural, political and economic factors could lead to these two distinct outcomes. From an empirical perspective while quantitative studies of either turnout or invalid voting abound, the lack of joint research makes it hard to compare the effect of factors that are known to affect both.

We propose a more encompassing view of the participation process by considering the determinants of turnout and invalid voting as related and complementary elements. While turnout and invalid voting are distinct electoral behaviors with different implications, their practice is closely related, as the two are sequential: in order to invalidly vote, a decision first needs to be taken to participate to the electoral process by going to the polls. Empirically, these two processes are therefore intimately intertwined, and this suggests that turnout and invalid voting may be shaped, to a certain extent, by the same pool of socioeconomic, institutional and political factors. Studying electoral turnout and invalid voting together and in the same empirical context thus allows us to focus on a wide range of predictors and to ascertain their respective association with these two distinct but related aspect of citizen participation in politics. We rely on previous works to identify what factors may affect these two aspects of electoral participation, and we perform an empirical analysis to estimate and compare their impact on turnout and invalid voting. In doing so, we also assess the impact of other elements that are often overlooked in existing research, such as the ease of access to polling booth stations.

Empirically, we illustrate how electoral turnout and invalid voting could be profitably studied together with an analysis of the 2014 legislative elections in Indonesia, one of the world's largest democratic political systems. Indonesia is an excellent case for our purposes for various reasons First, voter registration in Indonesia is automatic. In settings such as the United States, citizens must register and, in order to provide a complete account of the participation process, registration figures should also be considered. But in systems in which a decision to be registered does not have to take place we can offer a full account of electoral participation by focusing exclusively, and simultaneously, on turnout and invalid voting. Second, Indonesia presents an exceptional degree of subnational diversity. By exploiting cross-district variation, we are able to estimate the effect of a wide range of potentially explanatory factors across Indonesian regions, such as socioeconomic development, ethnic and religious polarization, and electoral competitiveness.

Third, , both turnout and invalid voting rates vary substantially across Indonesian districts. Fourth, Indonesia is a young democracy in Southeast Asia, a region in which for which quantitative studies of turnout or invalid voting, such as Schraufnagel et al. (2014), are rare.

In choosing this case, we offer insights on participation in non-Western settings and we aim to help reduce the bias towards Western democracies that currently characterizes the literature (Remmer, 2010). Finally, Indonesia represents an intriguing case combining fairly high levels of electoral turnout with very high levels of invalid voting (in the elections under study here, about 75% in a voluntary voting setting and 8%, respectively). Indonesia's unusually high rate of invalid voting, the highest in Asia and second only to few countries in Latin America (Martinez i Coma and Werner, 2018), invites further scrutiny and provides a valuable opportunity to learn more about this understudied phenomenon in new democracies and non-Western political systems.

We offer several contributions to comparative research on turnout and invalid voting and research on Indonesian politics. First, for comparative research, we provide a thorough comparison of the different explanations for electoral turnout and invalid voting that could provide a blueprint for further research in the field. As we show, the predictors of participation that we study often affect both phenomena, although, in some cases, in diverging ways. Second, we are not aware of any other study combining an empirical analysis of turnout and invalid voting. By analysing and comparing the different explicative factors of these two phenomena, we gain a better understanding of both. Third, we leverage a subnational research design that allows us to control for a series of national-level institutional and political factors that are not usually accounted for in cross-national studies of participation. By focusing on subnational units, we reduce within-unit heterogeneity and provide more accurate estimation of the various explanatory factors we study. Finally, we contribute empirically by implementing the first analysis of district-level turnout or invalid voting in Asia. Our study of turnout and invalid voting at the sub-national level is easily replicable to countries in the region with automatic registration, placing our research in the intersection between political behaviour and Asian politics.

Regarding research on Indonesian politics, we pioneer the study of cross-district variation in turnout and invalid voting. To the best of our knowledge, this is the first analysis studying district-level electoral participation in Indonesia.¹ We have assembled a unique dataset from several official sources that allows us to perform the first systematic study of how and why turnout and invalid voting rates vary across space in this vast and diverse country, which holds the second largest pool of registered voters in the world. We consider a wide range of covariates, including socioeconomic ones (such as ethnic and religious polarization, which are important factor in Indonesian electoral politics), institutional ones (electoral district size, number of polling booths) and political (electoral competitiveness). We provide a novel and more complete analysis of the process of political participation.

Overall, we find that several predictors impact electoral turnout and invalid voting in the Indonesian context, but we also show that there is substantial variation in the magnitude, the significance and the sign of the association between these factors and the two outcomes we study. For example, just to preview some of our findings, larger populations and higher education levels have a negative relationship both with turnout and invalid voting. In contrast, population density and urbanization are associated with lower turnout rates but higher invalid votes. Furthermore, some predictors are only significantly associated with one of the dependent variables. For example, while turnout is positively affected by civic engagement, district magnitude and electoral competitiveness, invalid voting is negatively associated with religious polarization, macroeconomic performance and clientelistic

¹ But see Gueorguiev et al. (2019).

mobilization. We offer an interpretation of these findings in the analysis section, and we comment on broader implications and avenues for further research in the conclusions.

2. Turnout and invalid voting: an intertwined relationship

Turnout and invalid voting are different electoral behaviors in the processes that generate them and the implications they present. First, the reasons why a voter turns out and casts a ballot for any given party may differ sharply from those for casting an invalid vote. Most notably, ideology, partisanship and macroeconomic performance are often analyzed as drivers of vote choice (Fiorina, 1978), while invalid voting is attributed to error or protest (Power & Garand 2007). Second, the effects of those actions have different consequences for electoral outcomes. While valid votes in support for a specific party, when added, are fundamental to decide the winner of an election, invalid votes are normally ignored from the vote tabulation.² These important differences are well acknowledged by scholars of political participation, and empirical research has investigated the two outcomes separately, consistently with the idea that turnout and invalid voting are distinct phenomena in electoral behavior.

At the same time, however, theoretical work on turnout and invalid voting shows that the two are closely related. Succinctly put, once voters go to the polling booth, they have assumed the ‘cost’ factors of the voting equation, regardless of validly voting for a given party or doing it invalidly, voluntarily or involuntarily. First, both choices require assuming the cost of going to the polls. Second, invalid voting, like valid voting, entails the cost of gathering and processing information on candidates and parties. If invalid voting is unintentional, we can assume voters to have done some research on candidates and parties as if they were to cast a valid ballot. If invalid voting is a conscious act of protest, we can view this determination as resulting from a process in which voters have gathered information on available candidates/parties, and decided that none of them was worthy of their support.

Unsurprisingly, then, Downs (1957) does not distinguish between turnout and invalid voting in his seminal work. Indeed, this lack of nuance is consistent with the basic tenets of a Downsian understanding of electoral participation: as the chance of casting the pivotal vote is almost zero, the rational behaviour should be abstaining from voting, regardless of whether the vote cast is valid or invalid. Attempts to address the paradox of voting are likewise limited in their ability to differentiate between turnout and invalid voting. From an expressive understanding of voting (Riker and Ordershook, 1968), turnout and invalid voting are again very closely related. In Downsian terms, those who vote properly may have a similar ‘D’ as those who intentionally cast an invalid ballot (Schuessler, 2000), as both groups of voters may well be expressing their civic duty with the act of voting, just in two different ways. Overall, this lack of differentiation in the Downsian framework suggests that, at least from this perspective, turnout and invalid voting share their departure point.

We are thus confronted with an unresolved tension about the nexus between turnout and invalid voting. On one hand, empirical research suggests that the two phenomena originate from different decisional processes, are driven by different factors, and impact electoral

² Ironically, however, the decision to cast an invalid voting may also be decisive for aggregate electoral outcomes. To mention one example from our dataset, invalid voting rates are larger than the vote margin between the first two parties in 61% of our districts.

outcomes differently. Based on these premises, empirically oriented scholars have analysed turnout and invalid voting separately. On the other hand, theoretical studies -and in fact, in depth observation of any election- indicate that they are two closely intertwined aspects of electoral participation, to the extent that turnout and invalid voting are often not even differentiated in leading theoretical models of voting behavior.

We argue that these two perspectives should be integrated, and that they should both inform research on electoral participation. Specifically, turnout and invalid voting should be treated as distinct but closely intertwined phenomena because, as much as we often conceptualize them as diverging outcomes, the practice of electoral participation suggests that the two are, in fact, quite hard to disentangle. If the voting decision (turning out or not) is simultaneously taken with the decision of voting validly, then both behaviors should be analysed together, as it is highly plausible that the resulting outcomes will be affected by the same considerations. If instead the two decisions could be modelled as being sequential (i.e. with the voting decision preceding a second choice on whether to vote validly or invalidly), then the comparison is even more unavoidable, as we need to understand not only which are the common elements that are associated with the two behaviours, but also those that may affect the voting and the valid voting decision in different, and possibly countervailing directions.³

In short, joint examination of predictors of turnout and invalid voting can improve our understanding of the overall participation process. By estimating comprehensive models of turnout and invalid voting and benchmarking the effect of each predictor vis-à-vis theoretical expectations, we can disentangle commonalities and divergences between these two important and closely related aspects of political participation.

The starting point for a joint study of electoral turnout and invalid voting is a review of existing research with the aim to identify the main factors that should be included in empirical analysis. The literature on turnout at the aggregate level is vast, and the number of variables proposed is very extensive. In a recent meta-analysis, Stockemer (2017) identifies over 100 distinct variables, although, as several authors have pointed out, no variable seems to be “omnipresent” (Geys, 2006: 641). As for the literature on invalid voting, while it is more limited, it has also focused on a high number of variables (Uggla, 2008). To advance the comparison, we follow the literature’s argument classification into three groups - socioeconomic, institutional and political- and jointly discuss them.

2.1. Socioeconomic

One established hypothesis in existing research posits that socioeconomic development is positively associated with turnout. According to Powell’s (1982) logic and findings, economic development increases people engagement and levels of information. A similar argument could be made for invalid voting, which we should expect to be lower in more socioeconomically advanced settings. However, the relationship has been contested since Jackman (1987) -and several others- did not find support for it. The mixed empirical support for the development-turnout nexus thus suggests that the two might not be linked in a systematic way.

³ We are grateful to an anonymous reviewer for suggesting to develop this point.

Other socioeconomic explanations relate to the possession or attainment of certain civic skills. In this regard, , educational attainment is positively correlated with turnout (Verba, Scholzman & Brady, 1995). This logic applies to invalid voting, which should be associated with lower levels of educational attainment and voter sophistication. Evidence for Australia suggests that this is the case (McAllister and Makkai, 1993).

A related perspective to account for participation has more closely focused on social capital, defined as the degree of connectedness and trust within a community.. Social capital may have a positive effect on electoral participation because more tightly connected communities may perform better in cooperative behavior. Voters may have more readily available information about the electoral process, which may lower the costs and emphasize the benefits of participation (Atkinson & Fowler, 2014). Higher social capital should therefore be positively associated with turnout, while the effects on invalid voting are indeterminate.

A third set of hypotheses refers to population size, structure and geographic distribution. Blais and Dobrzynska state the “relationship between community size and turnout is far from being unambiguous” (1998:242) as there is evidence in both directions. Relying on the argument that urbanization normally weakens interpersonal bonds and consensus on norms (Hoffman-Martinot, 1994: 14), population concentration -which normally is a proxy for the urban-rural divide- is expected that turnout is higher in rural settings than in urban areas. Such hypothesis normally rely on the ‘social pressure’ argument, which would be higher in smaller communities. However, as Blais and Dobrzynska (1998) suggest, it may well be that turnout is lower in less densely populated areas⁴ as people is less exposed to group pressure and are harder to mobilize.

Regardless of the direction between those arguments and turnout, the hypotheses are straightforward. However, we fail to see how the size of the community or urbanization may impact invalid voting in a direct manner. We do not claim that such factors are not relevant for invalid voting but following Kouba (2018), we believe that the effects of such variables are “context-dependent on other circumstantial factors” (2018: 17).

Finally, cleavages such as ethnicity and religion have received attention as drivers of participation. Arguing that diversity -understood as a complex construct of ethnicity, religious and linguistic heterogeneity- is a factor to consider when analysing participation is uncontroversial. In many countries, ethnic affiliations “provide a sense of security in a divided society, as well as a source of trust, certainty, reciprocal help, and protection against neglect of one’s interests by strangers” (Horowitz, 1993: 32). A different matter, however, is whether ethnic diversity may impact turnout and invalid voting in opposite directions.

In more diverse districts, we should expect lower turnout rates than in more homogenous ones. Following Alesina and La Ferrara’s (2000) findings that the levels of social capital are higher in more homogeneous societies, Martinez i Coma and Nai (2017) found that turnout is significantly lower when ethnic diversity is higher. Similarly, Lago et al. state that “if electoral participation is considered as a common good, social fractionalization should have a direct effect on decreasing turnout rates” because the minority group may have a “lesser attachment” (2018: 116) to the community. Hence, it is expected that turnout will be lower in more diverse districts.

⁴ They make the arguments comparing turnout rates for countries. Their argument -based on Lipset’s (1981)- also holds for internal country comparisons.

However, such reasonings are disputed. First, if heterogeneous districts have more diverse preferences than homogeneous societies, different ethnic groups should have distinct (and possibly divergent) interests. For those interests to be voiced, turnout is the first step that groups should take for their interests to be represented. Second, if ethnic groups do have different interests, we should expect candidates to exploit them for their own advantage. Hence, the expectation is that the higher the number of groups, the more parties should mobilise along ethnic lines and the higher the voter turnout.

In contrast, more diverse electoral districts usually show higher invalid vote rates. The 1996 and 2000 US presidential elections, for example, Knack and Kropf (2003) and Herron and Sekhon (2003) find that, respectively, invalid voting was higher in precincts with large proportions of black and Latino populations than in more homogeneous precincts. The evidence at the comparative level is similar: Martinez i Coma and Werner (2018) find that more ethnically diverse countries show higher rates of invalid voting. Hence, more diverse districts should observe higher rates of invalid votes than more homogeneous states.

2.2 Institutional

The institutional approach suggests that turnout and invalid voting are a function of the electoral setting. Specifically, the structure of the party system, district magnitude, the existence of compulsory voting and the concurrency of parliamentary and presidential elections have been argued to impact turnout and invalid voting (Uggla, 2008). For our study only the number of parties and district magnitude are factors worth considering, as the rest are constant across electoral districts.

First is the configuration of the party system, measured by the number of parties. The presence of more parties may lead to two competing and contradictory hypotheses impacting invalid voting. More parties create more confusion, increasing invalid voting, labeled as the ‘confusion’ hypothesis (Martinez i Coma and Werner, 2018). In contrast, the ‘supply’ hypothesis: more parties increase the number of votes, which in turn might lead to lower shares of invalid votes. With more choices, the probability of casting a ballot for the party or candidate close to the voter’s interest is higher, and the incentive to spoil ballots is lower. Hence, the impact of more parties on turnout is also framed within this countervailing logic: more parties lead to more confusion, keeping voters at home; or more parties lead to more choice, bringing voters to the polls.

Second, district magnitude leads to competing hypothesis. On the one hand, Radcliff and Davis (2000), among others, have found that turnout is systematically higher in larger districts. The logic behind this argument is that as there are more seats to be filled in given districts, more diverse preferences can be heard, consequently bringing more people to the polls as their voices can be represented. On the other hand, Tavits (2008) finds no significant relationship while Fumagalli and Narciso (2012) find a negative one. The same logic, we argue, should apply for invalid voting.

We introduce a new factor: the number of polling booths per electoral districts. When voting, citizens normally cast their vote in a polling booth. *Prima facie*, the number and the distribution of polling booths may seem a mere logistical matter, but it may impact the turnout rate: the higher the number, the higher the turnout rate. As Brady and McNulty (2011:116) found that in Los Angeles, “people make a decision about voting or not voting

based on the increased search costs from having their polling place moved, and if they decide to vote, they choose absentee or polling place voting based on both search and travel costs”.

In contexts with sparsely populated areas and dispersion of some groups within them, the number of polling booths per capita is an important turnout determinant to be considered. In contrast, the relationship between the number of polling booths and invalid voting should be non-significant.

2.3 Political

Short-term political factors may be consequential determinants of electoral participation. Specifically, we rely on the stakes and protest dimensions to identify political factors that may relate with turnout and informal voting. The argument states that electoral participation will be higher when there is more at stake (Pacek, Pop-Eleches and Tucker, 2009). A first reason why elections may be described as being “high-stake” is that its closeness entails the possibility of change in government and a shift of power in the electoral district. This implies that turnout should be higher when electoral competition is more intense. By the same token, invalid voting should be lower in more competitive contests, as voters understand their vote as more decisive.

These hypotheses have been mainly tested in comparative settings. Pacek, Pop-Eleches and Tucker (2009) in an analysis of 137 presidential and parliamentary elections in 19 post-communist countries found support for the stakes approach on turnout. Similarly, Blais and Dobrzynska (1998), in their comparative analysis of 324 elections and Martinez i Coma (2016) in his study of 678 contests, found that more competitive elections have higher turnout. Results are less definitive regarding invalid voting. For example, Ugglar’s (2008) comparative analysis found that in less competitive contests (and more fragmented legislative elections), the proportion of invalid ballots is higher; Kouba and Lysek (2016) found the opposite and Martinez i Coma and Werner (2018) find no significant relation.

The protest perspective holds that invalid votes are a function of the voters’ desire to show their discontent. Voters might rely on invalid votes to show their rebuttal of the established rules and procedures or their “distaste for the choices between the candidates and parties on offer”. The actual reasons why voters may be engaging in such protest behavior may be varied, including perceived unresponsiveness of political elites, corruption, dissatisfaction with government performance, or general dissatisfaction with the status quo. For example, voters would inflict a higher level of invalid voting reflecting “poor economic conditions, rejection of incumbents, condemnation of the existing political regime (i.e., an anti-system orientation), or some combination of all of these factors” (Power and Garand, 2007: 434).

We therefore expect factors that are typically catalysts for protest, such as corruption and economic mismanagement, to increase invalid voting. As for turnout, theoretical expectations are more indeterminate. While protest voting could lead to voter apathy and higher abstention rates, protest sentiments could also be electorally mobilized by anti-systemic parties.

Existing research on turnout and invalid voting has explored how public discontent and protest affect either aspect of participation. For example, Birch has found that if citizens consider the electoral process corrupt, there is a lower incentive to vote. Along the same lines, Stockemer et al.(2011) and Martinez i Coma (2016) find that corruption decreases

turnout. As for invalid voting, Martinez i Coma and Werner (2018) develop the rationale: invalid voting can be used as a form of protest. Their results, however, do not confirm such logic.

Finally, a third process regarding actual or perceived stakes is top-down mobilization by political elites. While fact-based information on factors such as poor economic performance, corruption or other governance failures may trigger public protest, political elites have a crucial role in constructing such issues. In times of crisis, politicians may be successful in mobilizing voters and convince them that, given the high stakes, participation at elections is especially important and votes should not be wasted. Or, they could fail to do so, and leave voters to channel their dissatisfaction as abstention or invalid voting. The specific ways in which such mobilization will occur are, of course, context-specific, as they depend on the specific institutional feature in which the political process unfolds (Piattoni, 2001). In any case, we believe top-down mobilization to be an important factor in shaping both turnout and informal voting.

3. Electoral participation in Indonesia

After the breakdown of authoritarian New Order in the late 1990s, Indonesia held its first democratic elections in 1999. Since then, the country has been a stable democracy, successfully implementing a series of elections widely considered to be free and fair. Despite recent concerns about democratic decline because of increasing intolerance toward religious minorities and executive overreach (Power 2018), Indonesia remains one of the two countries in Southeast Asia, the other being the Philippines, to have been consistently ranked as an electoral democracy in recent years.

Indonesia is a multi-party presidential representative democracy in which voters directly choose executive leaders and members of the legislative branch at various levels of government (national, provincial, and district level). While recent studies indicate the resurgence of an ideological cleavage about the role of Islam in politics (Fossati, 2019), the Indonesian political system is typically described as being largely clientelistic. In-depth qualitative studies of voting behavior show the predominance of patronage politics in citizens-politician linkages (Aspinall & Sukmajati, 2016); quantitative analyses describe voting behavior as driven by non-ideological factors such as preference for political leaders and retrospective evaluations of government performance (Fossati, 2018; Mujani et al., 2018); studies of party politics emphasize the collusive behavior among Indonesian political parties (Slater & Simmons, 2013).

Legislative elections to elect members of the National Assembly (or DPR, the focus of this study), a body with law-making and oversight authority, take place every five years. After the first democratic elections in 1999, when representatives of the National Assembly were elected with a closed-list proportional representation system, Indonesia transitioned to an open-list system in 2009. Representative are elected from multi-member electoral districts of varying magnitude that are drawn to ensure representation proportional to population size. In the 2014 legislative election, ten parties contested a total of 74 electoral districts, whose size ranged from three to ten members. As for registration procedures, voter registration in Indonesia is automatic, as voter lists are compiled and updated by the electoral commission from population data provided by the Ministry of the Interior (Hillman 2011).

Electoral participation in Indonesia's legislative elections is often described as high from a comparative perspective, and turnout rates regularly exceed those of other Southeast Asian countries (Schraufnagel et al., 2014). Figure 1 below displays a historical series of electoral participation figures starting in 1955, the first general election after the Indonesian National Revolution. Electoral turnout was very high for this foundational election, and it maintained high levels throughout the authoritarian years of the New Order (a total of six elections, 1971-1997), in which voter intimidation played a big role in drawing citizens to the polls. After the first democratic election in 1999, which boasted a very high turnout figure of 92.6%, electoral participation started to decline, sliding to 84.1% in 2004, 70.7% in 2009, and ticking up to 75.2% in 2014.⁵

Figure 1. Electoral turnout in Indonesia, 1955-2014

Perhaps because of the fact that turnout rates have maintained relatively high in democratic Indonesia, scholars of Indonesian politics have devoted scant attention to discussing electoral turnout and analysing its determinants. In the few studies in which more than one or two sentences are dedicated to the subject, the decline in electoral turnout is typically attributed to decreasing public trust in public institutions and political parties in particular (see Tan, 2012), or just as an unavoidable side effect of democratic consolidation and socioeconomic development.⁶

With regard to invalid voting, we have already mentioned that rates of informal voting are exceptionally high in Indonesia. Historical research suggests that informal voting has a long legacy in this country. For example, in the first democratic election of 1955, the invalid voting rate reached 12.5%, an exceptionally high figure that was attributed to lack of communication on voting procedures and insufficient preparation in electoral committees (Tinker & Walker, 1956). Interestingly, invalid voting was closely intertwined with political protest during the New Order, when punching the white region of the ballot (thus joining the “white group”, or *golongan putih*) was a form of protest against the lack of democratic

⁵ Data from Soebagio (2008) and the Indonesian Electoral Commission.

⁶ For example, three leading scholars of voting behavior in Indonesia argue in a recent book that declining turnout rates are related to increasing cognitive mobilization in the electorate, and they leverage survey data to suggest that turnout rates are lower among Indonesians with higher educational attainment (Mujani et al. 2018 p.151-152).

accountability and genuine political competition (Cribb, 1984:659). Today, the term *golongan putih* (*golput* for short) has lost this connotation, as it refers more generally to abstention from voting. The significance of this legacy in the context of our study is that we expect invalid voting to be associated with factors capturing political protest.⁷

Scholarly work on electoral turnout or invalid voting in Indonesia is therefore limited. Our study contributes to existing research with the first district-level analysis of the determinants of electoral turnout and invalid voting in this country. We focus specifically on the latest general (legislative) elections, in which almost 140 million Indonesian citizens voted on April 9, 2014. These elections preceded the presidential contest in September of the same year, and featured competition among twelve political parties, of which ten gained seats and two failed to reach the 3.5% threshold. As we further detail below with the help of two maps of Indonesian districts, subnational variation in turnout and informal voting was substantial.

4. Data and estimation

To test the propositions outlined earlier, we compile a rich dataset with district-level data from various sources. For electoral data, we code all indicators directly from original documents published by the Indonesian Electoral Commission (KPU). For population and socioeconomic indicators (economic development, educational attainment, urbanization rates) data comes from the INDO-DAPOER, the World Bank's Indonesia Database for Policy and Economic Research, which includes a wide range of official statistics compiled from various government sources. We use indicators measured in the closest available years to 2014. Regarding associational life, our data source is the 2011 iteration of PODES, a survey of Indonesian villages run by the Central Statistical Office (BPS). Finally, we have built measures of ethnic and religious polarization directly from the 2010 Population Census, as described below.

Before proceeding with a description of the variables' operationalization, some remarks are necessary. First, three regions are excluded from data analysis. Aceh, in Sumatra with a recent history of secessionist armed rebellion, has an electoral landscape that is quite unique, and it is therefore excluded. Aceh is the only province where regional parties are allowed to contest national elections and the electoral commission is independent from the central government. For data reliability issues, we exclude the peripheral provinces of West Papua and Papua, which are also characterized by separatist tensions and a history of state violence. Furthermore, elections in some communities in Papua are implemented according to *nonken* - a collective voting system-invalidating data on electoral turnout.

Second, in this research design "district" refers to subnational political administrative units that are commonly analyzed in subnational research designs of Indonesian government and policy. Indonesian government is decentralized across two main levels of local administration, namely a first level constituted by provinces (currently, 34) and a second level made up by 514 districts, divided into rural districts, or *kabupaten*, and cities. For our purposes, it is important to note that such districts do not overlap with *electoral* districts. While electoral district boundaries are typically redrawn (although only with minor changes)

⁷ As discussed in the analysis section, this expectation is only partially borne out by the empirics, as invalid voting is also associated with factors such as religious polarization and educational attainment.

before every legislative election according to changes in population geographic distribution, they are typically larger than *kabupaten* or cities.

The unit of analysis is a level of aggregation that is lower to that of electoral districts, a choice that has two advantages. First, we can match electoral data with a wide range of quantitative indicators available from other sources. As such indicators are routinely collected at the *kabupaten*/city level, this is the ideal level of analysis to test the hypotheses. Second, level-2 districts, unlike electoral districts, are meaningful political unit in Indonesia. Since 2001, when decentralization reform devolved substantial autonomy to local government, districts have been crucial in providing public goods and various social services to millions of Indonesians, and they have become an important unit especially after the introduction of direct election for district heads in 2005. Here, district, unless otherwise indicated, refers to *kabupaten* and cities rather than to electoral districts.

4.1. Dependent variables

The dependent variables are turnout and invalid voting, which we have collected from the Indonesian Electoral Commission. The map in Figure 2, darker shades indicate higher levels of electoral participation, shows substantial variation in turnout rates across district. Turnout has a mean value of 75.8 %. The districts with the lowest turnout rate were Medan City in North Sumatra (51.8%), a well-known outlier with regard to electoral participation (Fossati 2018), neighbouring district Deli Serdang (55.1%) and Padang City in West Sumatra (53.7%). At the opposite end of the spectrum, three districts with very different characteristics, including Sampang (94.8%) and Bangkalan (91.1%) in the island of Madura, two highly homogenous Javanese-Muslim areas, and the district of Melawi in West Kalimantan (93.8%), which displays one of the highest levels of religious diversity in the archipelago.

Figure 2. Electoral turnout in Indonesian districts

As for informal vote, our sample has a mean value of 10.6%. The districts showing the lowest rate are all located in remote regions in Eastern Indonesia: Nagekeo (1.1%) and Ngada (2.1%) in Eastern Nusa Tenggara and Maluku Barat Daya in Maluku (2%). In contrast, three

districts show invalid voting rates higher than 25%, namely North Nias (25.5%) in North Sumatra, Mojokerto City in East Java (26.6%) and Central Bengkulu in Bengkulu (28.8%).

Figure 3. Invalid voting in Indonesian districts

The correlation coefficient between the two dependent variables is very low at 0.023, and the scatterplot in Figure 4 shows the lack of a significant relation between them. For instance, several regions in Sumatra and East Java are marked by high levels of turnout *and* invalid voting. Yet it is easy to find, especially in Easter provinces such as East Nusa Tenggara and Maluku, districts in which high turnout is associated with low invalid voting. This this is a first indication in support of our insight that electoral turnout and informal voting, while are closely related conceptually, are empirically distinct phenomena that may be originating from different underlying processes.

Figure 4. Electoral turnout and invalid voting rates in Indonesia's 2014 general election

4.2. Independent variables

In compiling the dataset with the explanatory factors that, according to existing research, may affect electoral turnout or invalid voting, we have relied on some easily accessible indicators and built some new ones that, to the best of our knowledge, were not readily available before. Overall, the dataset comprises 2014 electoral data, socioeconomic, demographic, institutional and political indicators for a total of 428 districts clustered into 70 electoral districts.

4.2.1. *Socio-economic characteristics of the district*

We log GDP per capita before estimation to account for non-normal distribution. Indonesian regions vary dramatically in socioeconomic development: poorest districts are typically concentrated in the eastern islands and some parts of Java, while more developed regions overlap with cities and resource-rich areas.

To employ an accurate measure of the educational level by district, we rely on the percentage of 6 to 18 year-olds that are enrolled in schools which is more closely related to current variation in district-level educational attainment than self-reported measures such as literacy rates. Net enrollment rates vary substantially across Indonesian districts, ranging from 74.9% to 96.6%, with an average of 87.6%. Our third measure of socioeconomic development is urbanization rate, which measures the share of the total district population residing in urban areas.

To measure social capital, we use associational life, following existing research. We exploit data from the PODES survey, a large-scale project that in 2011 collected data on various types of association present in each Indonesian village (associations focusing on specific social interests, hobbies, professions, as well as charities, foundations, advocacy and religious associations). We aggregate these data at the district level to obtain the total number of associations in each district, and we divide by population to build a measure of density. We follow the same procedure with data on cooperatives.

For population size, we rely on official statistical data. Indonesian districts in our sample vary widely in population size: several districts in the Western areas of Java exceed two million and others in more remote areas of the archipelago count less than 100,000 people. As with GDP per capita, we log this variable before estimation.

We consider ethnic diversity relates to the size of groups, also known as polarisation. We build on Horowitz's (1985) observation that in extremely diverse and extremely homogeneous societies, ethnic conflict should be a rare event. However, in societies with a large minority group and a small majority group, conflict should be higher because 'group based (or party-based) governance problems are greatest when there are two equal-sized groups' (Huber, 2012: 987).

Following such premise, we rely on the ethnic polarisation (RQ) index -developed by Reynal-Querol (2002) and Montalvo and Reynal-Querol (2005a, 2005b)- is maximised when the groups are more equal. It is computed through:

$$RQ_i = 1 - \sum_{i=1}^n \left(\frac{1/2 - \pi_i}{1/2} \right)^2 \pi_i$$

where π_i is the size of group i ($i = 1 \dots N$). The index can range from 0 to 1; the higher its value, the more polarized the society. In our data, the index ranges from less than .03 in districts that are almost entirely Javanese (the largest ethnic group in the country) to values around 0.90 in highly heterogenous areas in Kalimantan, Sulawesi and Sumatra.⁸

We have followed the same operationalization strategy to measure religious diversity, and here too we find dramatic subnational variation. In various Indonesian regions it is possible to find districts that are almost entirely Muslim in their population, while more diversity is observed in others. Religious minorities are concentrated in areas such as North Sumatra, West Kalimantan and North Sulawesi.

4.2.2. Institutional characteristics of the district

We group under institutional characteristics the structure of the party system, the electoral district magnitude, and the number of polling booths. . Regarding the effective number of parties, we have followed Laakso and Taagepera's (1979) formula for each of the electoral districts, using data from the legislative elections in 2009. First, we estimated the proportion of votes for each party at each kabupaten. Then, we generated the number dividing one by the square of the percentage of the vote that each party obtained in a given kabupaten. Most Indonesian districts have a fairly large number of effective political parties, as the average is close to 9.⁹

Indonesian electoral districts in 2014 ranged from 3 seats to 10 and data was obtained from the Electoral Commission. Smaller electoral districts - only three seats- are mostly found in less populated provinces such as Gorontalo and Riau Archipelago, while larger districts are more common. As for the density of polling booths, which we measure as total number of booths for 1,000 people, it ranges from 1.43 in Denpasar, capital city of Bali, to 3.75 in South Nias, a district on a small island off the Sumatran coast. This measure is significantly correlated with population density (-0.268).

⁸ Fractionalization measures normally rely on the Herfindahl index defined as the probability that two individuals selected at random from a country will be from different ethnic, linguistic or religious groups. We built such indicator and explored its relationship with polarisation, relying on official census data from 2010 at the district level and estimated each indicator. The two indicators followed the pattern observed by Reynal-Querol, that is: for low (0.4) fractionalisation levels, there is a high correlation with polarisation levels and, inversely, with high fragmentation levels (above 0.8), polarisation is low (below 0.4). As both measures correlate to 0.75, we opt for polarisation. When using fractionalisation, results are virtually the same.

⁹ There are some extreme values in the sample, however, as 18.3% of the 2009 vote went to small parties that failed to gain seats (a total of 38 parties competed in those elections). As we show in the robustness section, results are not sensitive to the inclusion of such outliers.

4.2.3. Political characteristics of the district

The relevance of stake-based explanations of participation, is measured through electoral competitiveness. Our indicator, the Pedersen index, focuses on changes between electoral cycles and can be understood as measure of volatility. We calculate the absolute values of gains and losses in vote share between 2009 and 2014 for all parties. We add up all these values and divide the sum by two, obtaining a general measure of electoral competitiveness that is easily comparable across district. The mean value of this indicator in our sample is 0.237, and it ranges from .072 to 0.677.

As for indicators of factors related to protest voting, we are unable to measure district-level corruption or dissatisfaction with the political system. However, we can build a measure of macroeconomic performance from the same data as GDP per capita. We calculate district-level GDP growth rates for the three years before the elections, and we compute the mean of the three values to build a summary measure of economic performance in the three leading to the elections. The average value of this indicator is 5.8%, which is aligned with national GDP growth rates. However, 18 districts in our sample have negative growth values, while 11 have average growth rates exceeding 10%, which again indicates substantial cross-district variation.

We also use a measure of top-down mobilisation to explore if appeals by political elites affect turnout or invalid voting. Since the introduction of an open-list proportional representation electoral system in 2009, Indonesian politicians have had strong incentives to cultivate the personal vote, and research on electoral campaigning, and specifically on the 2014 elections, suggests that Indonesian politicians predominantly use personalistic, clientelistic appeals to mobilize support (Aspinall & Sukmajati, 2016; see also Dettman et al., 2017). We follow existing research (Allen, 2015) in using personal vote as a proxy of clientelistic mobilization, as we calculate the share of votes cast for specific candidates in addition to votes for the party label of the ten largest parties.¹⁰ Our data indicate that personal voting is prevalent in all districts in our sample (the mean value is 77%), although values range substantially from a low of 50% to a high of 98%.

Finally, we hypothesize that turnout will have a positive impact on invalid voting. We rely on the classic differentiation in American politics on electorates made up of concentric circles (Campbell, 1960; DeNardo, 1980). The electorates are composed of voters who do vote in every election ('core voters') and those who enter and exit the electorate ('peripheral voters'). Turnout, in this case is the result of adding core and peripheral voters. As more peripheral voters join in, the higher the turnout but, at the same time, the higher the turnout, as they are less familiarized with the voting process. The descriptive statistics table is in the Appendix.

4.3. Estimation

Given the structure of our data, in which districts (*kabupaten* and cities) are nested into electoral districts, we believe the most appropriate estimation procedure is to estimate hierarchical linear models with random effects for electoral districts. This estimation strategy

¹⁰ Voters can either choose to vote for a candidate and a political party, or exclusively for a political party.

allows us to estimate accurately the effect of covariates at either level of analysis. We further cluster standard errors for electoral districts to account for non-independence in the data structure. This approach understands each district as its own electoral race and acknowledges the commonalities of the race across electoral districts. In the robustness check section, we discuss the possibility of alternative model specification.

5. Results

Table 1 presents the results of the estimation of two models in which electoral turnout and invalid voting, respectively, are a function of the sociodemographic, institutional and political factors discussed above.

A first set of hypotheses outlined earlier in the socioeconomic characterization include factors such as population size and the urbanization rate. According to modernization theory, in higher populated, and more urbanized districts, turnout would be expected to be lower compared to those less densely populated and more rural areas. We find that effectively the two factors show negative coefficients and size of the population and are significant. Such results are consistent with results for cross-national comparative studies (Blais and Dobrzynska, 1998).

The results provide partially a similar image for invalid voting at the district level: more urbanized districts show higher rates of invalid votes but higher populated districts show lower rates. Such results may reflect our previous point on the importance of the context of such factors.

Table 1. Drivers of turnout and invalid voting in Indonesian districts

	Turnout	Invalid
Population (log)	-0.0297*** (0.00422)	-0.0131*** (0.0028)
GDP (log)	-0.0155*** (0.00462)	0.0069*** (0.0026)
Urbanization rate	-0.000371*** (0.000103)	0.00025*** (6.63e-05)
% 6-18 year old school	-0.00237** (0.000970)	-0.0015** (0.00067)
Ethnic polarisation	0.00811 (0.0110)	-0.0071 (0.0093)
Religious polarisation	-0.00541 (0.0139)	-0.0306*** (0.0099)
Cooperatives per capita	0.0287*** (0.0110)	-0.0026 (0.0053)
Association per capita	0.00647** (0.00286)	0.0034 (0.0024)
Polling booth per capita	0.0131 (0.00968)	-0.0015 (0.0056)
District size	0.00708*** (0.00202)	0.0027 (0.0018)
Effective Number of parties '09	-0.00117 (0.00111)	0.0007 (0.00059)
Electoral Volatility	0.0985***	-0.0321

	(0.0299)	(0.0214)
Growth rate (3 year average)	-0.00748	-0.116***
	(0.0571)	(0.0372)
Personal Voting	0.0642	-0.201***
	(0.0574)	(0.0313)
Turnout		0.125***
		(0.0475)
Constant	1.233***	0.449***
	(0.130)	(0.0895)
Districts	399	399
Electoral Districts	69	69

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

To estimate the effect of socioeconomic development, we look at the measures of GDP and net enrolment rates among students aged between 6 and 18 years. As discussed, GDP should be negatively associated with electoral participation, as social pressure to participate in elections is expected to be lower in more developed districts. Results suggests that this is the case, as we find negative effects on turnout for economic development. At the same time, higher GDP districts are associated with higher proportion of invalid voting.

The second indicator of socioeconomic development we use is the net enrolment rates among students aged between 6 and 18 years. Turnout was expected to be higher in the districts with higher enrolment rates while invalid voting should be lower. As can be seen, the negative coefficient for turnout points out precisely the opposite dynamic -in higher educated districts turnout was lower- while our expectation regarding for invalid voting -higher educated districts should portray lower invalid voting rate- seems to be supported.

To measure the degree of civic engagement among district population, we rely on the two measures of associational life described above. Results for turnout are in line with our theoretical expectations, as the positive signs of coefficients for associations per capita and cooperatives per capita indicate that a vibrant associational life is positively associated with electoral participation. This finding resonates with analyses of Indonesian politics that emphasize the importance of associational life for the resilience of democracy in Indonesia since democratization in the late 1990s (Lussier & Fish, 2012). Furthermore, as expected, we do not find an association between civic engagement and invalid voting.

The models we estimate also include two measures of social diversity, namely ethnic and religious polarization. Results for turnout show no effect of either factor on electoral participation¹¹ which goes against the findings of comparative analysis (Lago et al. 2017).

As for religious polarisation, however, we identify a negative effect on invalid voting. This finding might be consistent with a partial “stake” explanation of invalid voting. As religious issues are the only ideological cleavage driving competition among Indonesian political parties, we may hypothesise that this cleavage is more salient in religiously diverse districts, and voters would be more reluctant to waste their vote with informal voting under such

¹¹ Results do not change when changing the polarisation measures for fractionalisation measures based on the Herfindahl index.

circumstances. This explanation, however, is only partially supported by our analysis, as religious polarisation has no effect on turnout.

We study the effect of institutional arrangements by estimating the effect of two factors. The first, which measures the density of polling booths, appears to be irrelevant to account for either turnout or invalid voting. By contrast, district size increases electoral participation as suggested by the prevailing view in the literature (i.e., by allowing more voices to be heard and thus drawing more voters to the polls). However, this increase in electoral choices does not lower invalid voting; rather, it increases them, though not in a significant manner. Neither the confusion nor the supply hypothesis find empirical support.

The political factors we consider play an important role in driving turnout and invalid voting. First, after controlling for structure of the local party system electoral competitiveness has a strong effect on turnout rates, which is in line with stake-based accounts. Higher electoral competitiveness offers stronger incentives for politicians to mobilize voters, which is reflected in higher turnout numbers. By contrast, however, competitiveness has no effect on informal voting.

To test the hypothesis of whether dissatisfaction with macroeconomic performance is driving invalid voting or turnout, we estimate the effect of district-level GDP growth on both outcomes. We find no effect of growth rates on turnout, but a negative effect on invalid voting. This is the strongest piece of evidence that we find in our data in support of a conception of invalid voting as protest voting, as these results suggest that invalid voting is higher in economic downturns. In the context of Indonesian politics, where attributing responsibility for economic mismanagement is difficult due to multi-level governance and collusive behavior among political parties, dissatisfaction with macroeconomic outcomes may be channelled toward protest behavior such as informal voting.

We find that personal voting, our indicator for top-down clientelistic mobilisation, has a strong, negative effect on invalid voting. This suggests that voters are more reluctant to waste their vote in districts in which politicians are most successful in appealing to voters through personalistic-clientelistic appeals. This is consistent with our idea that political elites have a crucial role in addressing public dissatisfaction with the political system. However, we do not find a positive effect of clientelistic appeals on electoral turnout, which indicates that top-down appeals have different implications for turnout and informal voting. Finally, higher district turnout rates lead also to higher invalid voting rates.

To probe the robustness of our findings, we have run several robustness checks¹². The results, reported and discussed in detail in the online appendix, suggest a high degree of robustness of our findings.

7. Conclusion

¹² Specifically, we have estimated all the analysis excluding all cases above and below 2 and 1.5 standard deviations; excluding 20% of the cases; dropping one variable at a time; clustering by province and by island; excluding one island from the analysis; just running the analysis for the islands of Java and Sumatra, respectively; with two different estimation methods; and with province fixed effects.

In this study, we have proposed a joint analysis of turnout and invalid voting determinants and have illustrated it for the 2014 Indonesian general election. In order to gain a comprehensive understanding of the participation process, we have argued for the need of a simultaneous analysis. Relatedly, we have presented a series of hypotheses relying on the arguments of previous scholars and tested them by combining several data sources. Summarizing the main results, turnout was positively affected by civic engagement, as measured by the density of associational life, by electoral district magnitude and electoral competitiveness. By contrast, population size and GDP per capita, urbanization rate and educational attainment depressed turnout. As for invalid voting, we found a positive association with urbanization and district magnitude, and a negative association with educational attainment, religious polarization, macroeconomic performance and clientelistic mobilization.

Our line of analysis has policy implications. As we provide a comprehensive study of the determinants of both turnout and invalid voting, we offer insights on how a wide range of socioeconomic, institutional and political factors affect these two sides of electoral participation. In doing so, we shed more light on electoral dynamics and, more importantly, we provide guidance on what factors policy intervention design should focus on.

We envision several future avenues for how our study could be developed in further research. First, our research could be extended to other contexts, especially with cross-national research. While we have emphasized the advantages of our subnational research design, joint analyses of turnout and invalid voting that extend to other countries, world regions and time periods can shed light on the generalizability of our findings. Second, this paper is a cross-sectional study. Future research could design longitudinal studies to probe if, and to what degree, the relationship between the various factors analyzed here and the two aspects of participation change over time. Finally, we have assumed throughout this study the effect of sociodemographic, institutional and political factors on electoral turnout and informal voting to be unconditional. Future research can build on this study by exploring the role of a wide range of factors that could moderate the effect of any of the explanatory variables considered here on political participation. This step is crucial to build a more solid theoretical understanding of the various structural, political and microlevel processes that drive political participation.

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