



# Invalid Votes as Protest: Compulsory Voting and the Democratic Context in Ecuador

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## Abstract

Invalid votes are pervasive in many democracies and can threaten the legitimacy of elections. While often associated with factors such as choice complexity and disengagement, especially under compulsory voting rules, intentional ballot spoiling can also signal a political protest. We examine the argument that spoiling ballots as protest should occur under compulsory voting where voters perceive limited legitimacy to the electoral process and a lack of viable options. Using municipal elections in Ecuador, a context featuring both compulsory voting and a period of democratic erosion, we examine subnational variation in both spoiled and blank ballots. While factors related to sophistication and choice complexity explain variation in both forms of invalid voting, our results also reveal patterns consistent with the expectation that spoiled ballots reflect a protest of a lack of competition in the political system. Specifically, we find that areas opposed to Rafael Correa's dominant party had a higher rate of spoiled ballots in the 2014 mayoral elections, a period when party dominance was consolidated and competition weak. This pattern declined in 2019 when the system's competitiveness increased. A separate analysis of the 2019 elections for the Correa-era participatory governance body suggests continued use of spoiled ballots as protest by opposition voters, but primarily in higher connectivity areas where the online coordination on use of this tactic may have had greater influence. Overall, our study sheds light on factors shaping invalid vote patterns in compulsory systems and highlights spoiled ballots' potential as a means to signal protest under conditions where some voters would perceive a decline in the legitimacy of democratic institutions.

**Keywords** Ecuador · Invalid votes · Protest · Compulsory voting · Limited choice

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## Introduction

Widespread invalid votes can threaten the legitimacy of elections, particularly in developing countries and emerging democracies where these sometimes constitute substantial proportions of votes (Uggla, 2008). In Latin America, votes that do not count in an election due to being ‘spoiled’ by invalid marks or left blank often exceed 10% of total votes and have been consequential for election outcomes (Levitsky & Murillo, 2003; Power & Roberts, 1995; Carlin, 2006). While prior research has established that compulsory voting tends to increase invalid ballots as a form of abstention, questions remain about why and when citizens intentionally spoil their ballots as a form of protest in such systems.

Our study addresses this gap by analyzing invalid voting in Ecuador, where invalid ballots often account for over 10% of votes, with the frequency of spoiled ballots in particular representing a challenge to electoral legitimacy. We argue that under compulsory voting rules, the perception of limited or constrained electoral choice facing voters can lead to greater use of spoiled ballots to signal discontent with electoral options seen as lacking legitimacy. Leveraging subnational municipal elections in Ecuador surrounding a period of democratic erosion under Rafael Correa’s presidency, we provide new evidence that spoiled ballots serve as a form of protest in compulsory voting contexts where political choices may be perceived as unfair or insufficient among some voters.

Invalid votes have been linked to various factors, including institutional, sociodemographic, and political influences (Kouba & Lysek, 2019; Lundell & Högström, 2021). In particular, invalid votes are associated with compulsory voting (Martinez i Coma & Werner, 2019), where invalid votes are often used as a form of abstention (Katz & Levin, 2018). However, unlike those who abstain from voting, those reporting intentional invalid voting are often more knowledgeable about politics (Cohen, 2018b). Thus, some have argued that intentional invalid voting can also be a means of expressing discontent (Cohen, 2018b; Power & Garand, 2007), particularly in contexts with limited competitiveness (Cohen, 2018a; Heinsohn, 2018) and dissatisfaction with the political system (Driscoll & Nelson, 2014; Moral, 2016; Solvak & Vassil, 2015; Singh, 2019). Invalid voting can therefore be a form of protest to challenge the legitimacy of the election or political institutions (Superti, 2020; Uggla, 2008).

We argue that in compulsory voting environments, voters will be more likely to use spoiled ballots as a form of protest when they perceive little value in the available vote choices. Our study analyzes data from the 2014 and 2019 municipal elections in Ecuador, where we examine both spoiled ballots, which are intentionally marked to be invalid, and blank ballots, which are left unmarked. Our findings suggest that while voter sophistication and choice complexity play an important role in the frequency of invalid votes overall, spoiled ballots are associated with a pattern we would expect from political protest. Specifically, spoiled ballots are more frequent in areas with voters who are more likely to question the democratic legitimacy of the system and perceive less value in the available choices.

Ecuador provides an especially useful case for this study due to the exceptionally high rates of spoiled ballots observed in recent elections. In addition, Ecuador’s

compulsory system provides a context where we would expect discontent to influence invalid voting due to the costs of abstention. Examining subnational variation in invalid voting within Ecuador's compulsory voting context enables us to examine invalid voting variance under relatively consistent participation incentives to provide insight into this phenomenon. Most importantly, Ecuador provides a relevant case to analyze due to shifts in the political context that allow studying how dissatisfaction with democratic institutions correlates with invalid ballots.

Specifically, this study leverages Ecuador's political changes surrounding Rafael Correa's presidency to examine invalid voting as protest. We build on the theory of spoiled ballots as a form of protest by examining the context of the then-dominant populist party of former President Rafael Correa, *Alianza PAÍS*, (Movement for a 'Proud and Sovereign Homeland', hereafter PAIS), whose period of dominance was often characterized by forms of authoritarian backsliding. To do so, we aim to distinguish this pattern from other reasons for invalid voting, including disengagement associated with the submission of blank ballots and unintentional spoiling associated with complex ballots with numerous candidates. Accounting for these factors, we demonstrate that in the 2014 Ecuadorian municipal elections, spoiled ballots were significantly more common in areas where opposition to the incumbent PAIS party was strongest, suggesting that voters used spoiled ballots as a means of expressing their discontent with the lack of meaningful electoral competition under the dominant party system. Second, we show that this pattern of protest voting dissipated in the 2019 elections, following a major split in the PAIS party and a substantial increase in electoral competitiveness.

We also conduct an additional analysis of the 2019 election for Ecuador's Council for Citizen Participation and Social Control (*Consejo de Participación Ciudadana y Control Social*, hereafter CPCCS), an institution created under Correa and widely seen as lacking legitimacy by the opposition. We find political opposition to Correa's party is associated with a greater number of spoiled ballots for this election, but primarily in areas more likely to have exposure to the information surrounding the efforts to coordinate use spoiled ballots for protest. We interpret these results to suggest that the perception of the CPCCS as continuing Correa's influence was associated with using spoiling ballots as a protest in areas where the coordination around this mechanism was most likely to occur. This finding supports the idea that protest voting through spoiled ballots depends on the mobilization of voters around ballot invalidation as a specific form of dissent (Superti, 2020).

Overall, our study provides evidence that spoiled ballots serve as an important protest mechanism when choices are perceived as insufficient or unfair under compulsory voting. Empirically, the subnational research design helps clarify these effects amidst other factors shaping invalid voting. We find support for the expectation that opposition voters are more likely to engage in protest spoiling when systemic competitiveness and institutional legitimacy decline, such as during Ecuador's period of populist party dominance. These results highlight the potential of spoiled ballots for signaling protest and addressing inconsistencies in existing work by highlighting the contextual conditions that increase the probability that this behavior will manifest. The supplementary study also underscores the potential value of coordination for enabling spoiled ballots as a protest mechanism. Theoretically, we qualify the con-

ventional wisdom on compulsory voting and invalid ballots by demonstrating limited choice creates distinct protest incentives beyond just abstention. Our analysis also offers broader implications for how contexts where the weakening of democratic institutions encourages citizens to exploit compulsory participation rules to signal discontent through spoiled ballots.

## Theoretical Perspectives on Invalid Voting as Protest

Invalid votes arise from ballots that are either spoiled or left blank and thus not tallied in the final count. Spoiled ballots result from marks that render the ballot invalid, whether due to intentional protest voting or unintentional voter errors, such as selecting too many candidates or making extraneous marks. Blank ballots are submitted but left unmarked. Most literature on invalid voting aggregates blank and spoiled votes (Cohen, 2018a; Haman, 2021; Heinsohn, 2018; Kouba & Mysicka, 2019; Lysek et al., 2019; Silva & Crisp, 2021), although these do differ, with blank ballots being especially associated with disengagement (Stiefbold, 1965).

Spoiled ballots can arise from multiple processes. First, ballots may be improperly marked due to the complexity of the voting choices for citizens lacking political sophistication (Cohen, 2018a). This could be due to a political system with many parties and candidates on the ballot leading to higher information costs (Blais & Dobrzynska, 1998; Cohen, 2018a; Power & Garand, 2007; Cox & Le Foulon, 2024). While all voters are affected by this complexity, these factors disproportionately affect less-educated voters, lower-income voters, new voters, and elderly voters (Driscoll & Nelson, 2014; Cox & Le Foulon, 2024).<sup>1</sup> Second, voters may *intentionally* spoil ballots to signal their dissatisfaction or protest with the available choices. Several recent studies find correlations between spoiled ballots and forms of discontent and dissatisfaction with the political system. Superti (2020) finds that the use of spoiled ballots as a form of protest in Spain is linked to grievances and the political resources of the promoters of the protest.

Cross-national observational studies have shown that spoiled ballots are generally more prevalent under compulsory voting laws,<sup>2</sup> leading to much higher turnout where penalties for abstaining are enforced (Panagopoulos, 2008). Invalid votes provide a legal method of abstention by intentionally spoiling the ballot or leaving it blank. Therefore, in compulsory contexts, spoiled or blank ballots can be expressions of disaffection, disinterest, or dissatisfaction that would manifest elsewhere as

<sup>1</sup> Spoiling due to choice complexity – the number of options on the ballot – should be distinguished from complex *ballot* designs that facilitate unintentional spoiling, such as the infamous ‘butterfly ballot’ used in the 2000 US presidential (Brady et al., 2001; Wand et al., 2001) or the ballot used in Colombia before 2011, where Pachón et al. (2017) show that spoiled ballots were negatively correlated with sophistication in the context of a complex ballot.

<sup>2</sup> Compulsory voting laws usually require nonvoters to be sanctioned in some way, be it by fines (e.g., Singapore, Belgium, Ecuador, and Bolivia) or restrictions on financial activities or public services (e.g., Peru, Ecuador, and Bolivia).

abstention (Fossati & Martinez i Coma, 2020).<sup>3</sup> This is because the types of voters who would have chosen not to participate in the election in voluntary voting systems are compelled to do so in compulsory contexts.

The empirical literature exploring the reasons for invalid votes has produced inconsistent findings, in part due to differences in methods and contexts. For instance, McAllister and Makkai (1993) analyzed spoiled ballots in Australia and argue that invalid voting does not reflect a protest against the political system or relate to electoral competition, but instead correlates with sociodemographic variables, such as less sophisticated voters. Cohen (2018b), using individual-level data from Latin America, finds, however, that discontent is the most important motivator of intentional invalid voting behavior and that those who spoil ballots intentionally tend to be more knowledgeable about politics. Katz and Levin (2018), examining Brazil at both the individual and aggregate level, find that while absenteeism is affected by participation cost, education, and political knowledge, spoiled ballots can result from political discontent in addition to voter errors. Lysek et al. (2019), studying post-communist countries, also find that protest behavior is relevant to explaining the high shares of invalid votes.

Some literature suggests blank ballots are more likely to increase among disengaged voters, whether due to lower education, political disinterest, or distrust in institutions (Stiefbold, 1965, Zulfikarpasic 2001; Percheron et al. 1987). They also are known to rise under high choice complexity when ballots contain many parties or candidates, overwhelming disengaged voters with options (McAllister & Makkai, 1993; Cunow et al. 2023).

Intentionally spoiled ballots, by contrast, are seen as more likely to be the form associated with signals of discontent, such as protesting a lack of viable alternatives (Driscoll & Nelson, 2014; Stiefbold, 1965). Importantly, survey data shows that these protest voters reporting utilizing intentionally spoiled ballots tend to be more politically knowledgeable than those casting blank ballots (Driscoll & Nelson, 2014), in part because intentional protest spoiling would require shared understanding among these voters that spoiling should serve as a means to signal protest.

In summary, most literature indicates that compulsory systems increase invalid votes as a form of abstention, with blank ballots associated with disengagement and complexity in particular, and that spoiled ballots potentially signaling intentional protest, when not due to error. This suggests the need to distinguish between blank and spoiled ballots to better isolate protest effects amidst other invalid voting factors. Further, there is a need to identify a basis for protest by capturing the perceived lack of choice or legitimacy in the electoral context.

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<sup>3</sup> In contexts without compulsory voting, the large literature on voter participation explores the notion of abstention and its determinants, often focused on apathy, disengagement, and discontent (Garcia Albacete, 2014; Smets & van Ham, 2013).

## The Democratic Context and the Case of Ecuador

We argue that in a system with compulsory voting, the political context shapes citizens' decisions on whether to protest a perceived lack of choices. That is, for voters facing a mandate to participate, a perceived lack of meaningful electoral choices should motivate expressions of dissent through invalidating their ballots, as an expression of dissatisfaction toward a political system seen as lacking legitimacy. Such tendencies would be likely to be present in contexts where some voters perceive a system in which electoral choices are consistently less meaningful due to democratic backsliding, the dominance of a governing party, or institutional manipulation by incumbents. In these situations, the erosion of democratic norms and the consolidation of power can result in a political landscape where part of the electorate perceives their ability to effect change through voting to be limited and see spoiling their ballots as an outlet for dissent. Thus, under compulsory voting, areas with greater perceived constraints on political choice should exhibit higher shares of spoiled ballots, even when accounting for other factors such as choice complexity.

The case of Ecuador during the era of President Rafael Correa has often been characterized as a period of personalization of power and constitutional changes that centralized authority, leading to unfair competition (Conaghan, 2016). Under Correa's presidency from 2006 to 2017, his party, the PAIS, created what has been described as a "competitive authoritarian" system, where democratic institutions exist but are manipulated by incumbents to create an uneven playing field, and gradually exert control over election laws and oversight mechanisms (Sanchez-Sibony, 2017). For opponents of Correa and his party, this led to an erosion of support for political institutions (Conaghan & De la Torre, 2008; De la Torre, 2018). Frequent electoral reforms altered ballot access and district magnitudes in ways that advantaged the incumbent regime (Castellanos Santamaría et al., 2021), a form of manipulation of electoral rules that was perceived as unfair by the opposition. Ecuador thus provides a pertinent case study where some voters would be motivated to protest against the legitimacy of the electoral environment with invalid voting under compulsory voting. The subnational variation in voter support for Correa's regime during this period provides a means to better understand the nature of spoiled ballots.

Ecuador is also an especially useful case due to the very high rate of invalid votes, with compulsory voting for all citizens aged 18 to 65<sup>4</sup> subject to sanctions.<sup>5</sup> Although typical of cases of compulsory voting (Kouba & Mysicka, 2019), Ecuador's high proportion of invalid votes—between 12% and 20%—is high even among compulsory voting cases in Latin America (Power & Garand, 2007). These high rates of invalid votes in Ecuador coincide with complex and changing electoral rules and a highly fragmented party system (Abad Cisneros et al., 2021; Mustillo & Polga-Hecimovich,

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<sup>4</sup> An exception is made for illiterate voters, and voting is voluntary for voters aged 16 to 18 and those over 65.

<sup>5</sup> In Ecuador the voter has to carry a stamped voting card after the election as proof of having voted. This stamp is required in order to obtain some services from some public and private offices (i.e. opening of bank accounts, tax returns). Those qualified who fail to vote are fined, most recently at an amount of about USD \$40.00 (10% of the minimum monthly wage).

2020), as well as negative attitudes towards political parties and institutions (Acosta & Polga-Hecimovich, 2011; Umpierrez de Reguero & Dandoy, 2011).

We use this context to examine the subnational variation of invalid votes within the country. We focus on two mayoral electoral periods, 2014 and 2019, the former during the height of Correa's dominance and the latter shortly after the end of his presidency. The municipal elections are useful for this study because they allow us to take advantage of within-country variation in the competitiveness of races, number of candidates, and other contextual factors. These municipal-level differences can be leveraged to examine how invalid voting is affected by electoral competitiveness and candidate supply, as well as preferences expected to be associated with protest voting in response to the national political context.<sup>6</sup>

## Municipal Elections in Ecuador

In the municipal elections of 2014, conditions that could lead to spoiled ballots due to limited competition at the system level prevailed due to Correa's political dominance and the weak, fractured, and ineffective opposition (De la Torre & Ortiz Lemos, 2016). That is, from the perspective of those opposed to Correa's political dominance, the limited competition at the system level created an environment in which electoral legitimacy would be perceived as weak.

In contrast, the 2019 municipal elections, following the end of Correa's presidency, marked Ecuador's return to more robust democratic competition, bringing an unprecedented number of parties and candidates (Arciniega, 2020; Chávez et al., 2019). In 2017, Lenin Moreno took office after winning an election as the leader of the PAIS party. Though vice-president during Correa's first term, Moreno broke ranks with his predecessor during his first year in office (De la Torre, 2018; Wolff, 2018). As a result, the 2019 mayoral elections represented a break from the political climate established under Correa's presidency and provided a greater opportunity for a more viable opposition in the political system.

To examine the nature of spoiled ballots, we make use of both the 2014 and 2019 mayoral elections, which enable a subnational empirical analysis to capture geographic variation in political preferences while also enabling a straightforward measure of choice complexity candidate numbers and local competitiveness. These mayoral races also offer the simplest available ballot design in Ecuador, with less potential for unintentional mistakes leading to spoiled ballots.

With compulsory voting and the expectation of potential protest as a result of the political dominance of the PAIS party, the subnational variation in invalid votes and support versus opposition for Correa's PAIS at the municipal level provides a useful opportunity to better understand the potential motivations behind this behavior.

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<sup>6</sup> Additionally, a single-vote contest allows for straightforward comparison of total valid versus invalid ballots across parishes. Municipal legislative races for example involve a 'free vote' system where voters can cast multiple votes, which complicates the ability to straightforwardly compare total valid versus invalid ballots. The single vote in the mayoral races provides a consistent basis to assess invalid voting as well as a measure of choice complexity in the form of the number of candidates.

## Expectations and Independent Variables

As noted, the political divide in Ecuador was closely associated with support versus opposition for Correa's PAIS, which marked the nation's chief political division regarding the legitimacy of elections and political institutions until 2017. As a result, if the motivation for casting spoiled ballots is deliberate protest, we would expect to see them concentrated in areas where political preferences are more opposed PAIS. We use the degree of support for PAIS during the 2017 presidential election as our measure for the degree of political support for Correa, the main independent variable. This variable is interpreted as the inverse of the level of political opposition in different areas of the country, with the expectation that those who oppose PAIS are more likely to cast spoiled ballots as a form of protest in a context where PAIS is likely perceived as dominant and undermining electoral legitimacy. Hence this variable should be negatively correlated with spoiled ballots. By analyzing the variation in spoiled ballots at the municipal level and correlating it with the level of support for PAIS during the 2017 presidential election, the study can illuminate if there is a pattern consistent with political protest motivating the use of spoiled ballots in Ecuador.

To better isolate this pattern, we account for other factors that contribute to invalid votes. First, if invalid voting is due to voter disengagement, we should see that these correlate with demographic characteristics similar to those associated with voting abstention. Just as education is often found to correlate with turnout, invalid voting due to analogous sociodemographic factors should be less common in areas with greater levels of formal education. Here, blank ballots are potentially the more analogous form of disengagement since they satisfy the legal requirement but do not require the additional deliberate effort of altering the ballot. Hence, we expect a negative relationship between blank votes and years of schooling. Similarly, the divide between urban and rural voters marks another basis for different levels of political sophistication in the context of invalid votes (Fornos et al., 2004), so we expect that voters in urban areas are also less likely to invalidate the ballot, all else equal.

Because spoiling may also be linked to the degree of competition in the specific municipal election, we also include a measure of the difference between the first and second mayoral candidates. This is to account for whether a voter may be likely to feel that their vote would be important to the outcome of the mayoral election itself due to the local competitiveness. That is, the measure is intended to serve as a proxy for the expected competitiveness of the race before election day, whether the race was anticipated to be close based on candidates' relative performance. Although this derives from the election itself, the approach allows us to partially account for the potential effect of expected competitiveness on invalid voting, helping to isolate the relationships of interest.

To account for choice complexity, we control for the number of candidates in the race. Although there is no variation in the underlying complexity of the ballot design itself, invalid votes have also been linked to the number of choices available, which amplifies the possibility of incorrect ballot completion and may also contribute to disengagement.

Finally, as noted above, although voting is compulsory in Ecuador, turnout still varies meaningfully due to exemptions in the compulsory voting law for older



and younger citizens and because the penalties for abstaining are not consistently enforced. Although the behavior itself again coincides with the election, turnout can serve as a proxy to control for contextual factors driving abstention that may be an alternative to invalid votes, including typical sociopolitical drivers of abstention not captured by other variables.

## Data

The data are obtained from several sources. First, the 2014 and 2019 mayoral elections at the parish level are obtained from the Electoral Council. We derived sociodemographic data on parishes from Ecuador's National Institute of Statistics and Census (INEC). We use 2010 census data as the source of demographic data available at the parish level.

Our dependent variables are the blank and spoiled ballots at the parish (municipal) level, which we analyze separately for the mayoral elections of 2014 and 2019. To capture sophistication, we use schooling, the average number of years of education of each parish population. The models include our measure of electoral preferences, the share of votes from the 2017 presidential election for PAIS in each parish, which serves as an indirect proxy for political incentives for protest related to the Correa/PAIS influence. We include several control variables described above. The [Appendix](#) presents the descriptive statistics for these variables. In the analysis, we include province-level random effects for the twenty-four provinces to account for unmeasured factors at the provincial level.

## Analysis of the 2014 and 2019 Mayoral Elections

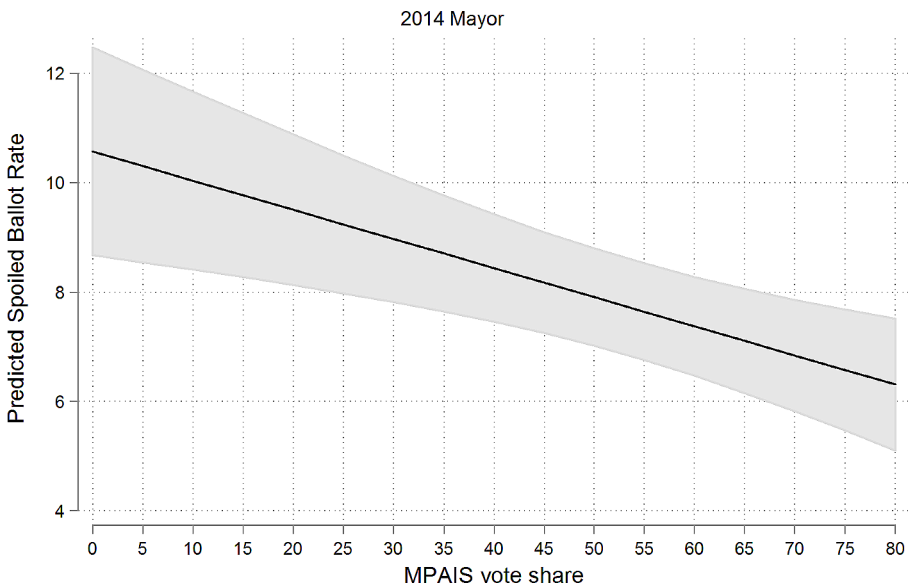
Table 1 presents the results of the regressions for spoiled and blank ballots in the mayoral elections in 2014 and 2019. The results show that more spoiled ballots are observed in areas with political preferences opposing PAIS in the 2014 Mayor's election, during the height of PAIS' political dominance, consistent with the interpretation that this pattern results from protest behavior. The predicted values for this relationship are plotted in Fig. 1. However, this effect diminished in the 2019 mayoral race, where the PAIS was divided and a more competitive environment was restored. These findings are consistent with the interpretation that the use of spoiled ballots as a form of political protest is more likely in areas with political preferences associated with voters likely to perceive a lack of viable political choices.

The analysis also finds several patterns potentially consistent with other reasons for ballot spoiling in both mayoral elections, including negative associations with higher education and urban areas, which are consistent with the sophistication mechanisms suggested in the literature. More ballot spoiling also occurs in areas with more candidates on the ballot, which is consistent with the complexity hypothesis in the literature. Additionally, the negative relationship found with a measure of low competition—the winning candidate's margin of victory—is in the opposite direction expected by arguments focused on local electoral dominance, suggesting any protest is not in response to perceptions of a lack of competitiveness in the mayoral

race itself. Finally, the study also finds a negative relationship between spoiled ballots and overall voter turnout, which may be consistent with the notion that intentional spoiling is more common in areas where institutional distrust or disengagement is highest.<sup>7</sup>

Given that compulsory voting creates a context in which voters with lower levels of political sophistication and information vote when they otherwise might not do so (Dassonneville et al., 2018; Singh & Roy, 2018), the results for blank voting are consistent with the interpretation that this behavior serves as a form of abstention. Overall, the effects of demographic factors associated with unintentional behavior and disengagement are similar for both blank and spoiled ballots. Additionally, both the candidate margin and the number of candidates have a similar effect on both blank and spoiled ballots. This is consistent with the interpretation that an abundance of candidates increases either unintentional error or abstention due to the choice complexity of the elections. There is no evidence found that lack of competition at the municipal level itself is associated with invalid votes.

Overall, the study of subnational variation in mayoral elections finds that demographic features play an important role in both blank and spoiled votes, with patterns consistent with sophistication arguments as well as the complexity of fragmented elections. However, the study finds that political preferences opposed to the dominant party are systematically associated with spoiled ballots, an effect that is strongest in the 2014 election when a protest motivation would be expected to be the most salient. This result is consistent with the idea that spoiled ballots serve as a form of political



**Fig. 1** Estimated rate of blank and spoiled ballots by PAIS vote share, mayor election 2014 95% confidence intervals indicated

<sup>7</sup> Note that the positive and statistically significant correlation between PAIS vote share and invalid voting remains substantively unchanged in models excluding the turnout variable.

**Table 1** Mayor election: determinants of blank and spoiled ballots

Variables	Mayor election			
	Spoiled		Blank	
	2014	2019	2014	2019
PAIS votes	-0.053*** (0.016)	-0.021 (0.014)	-0.005 (0.012)	0.002 (0.014)
Number of mayoral candidates	0.436*** (0.104)	0.381*** (0.034)	0.356** (0.155)	0.582*** (0.079)
1st and 2nd candidate Difference (%)	-0.029*** (0.006)	-0.021*** (0.007)	-0.031*** (0.009)	-0.031*** (0.011)
Schooling	-0.981*** (0.170)	-0.591*** (0.101)	-1.112*** (0.114)	-1.667*** (0.146)
Urban	-0.757*** (0.224)	-0.492** (0.243)	-2.540*** (0.293)	-2.178*** (0.472)
Population	0.150 (0.097)	0.145** (0.070)	0.024 (0.060)	-0.000 (0.071)
Turnout	-0.088*** (0.019)	-0.117*** (0.019)	-0.051** (0.024)	-0.070* (0.039)
Constant	23.166*** (2.748)	19.872*** (2.107)	17.436*** (2.685)	21.283*** (3.245)
Observations	1,015	1,016	1,015	1,016
R-squared	0.337	0.365	0.388	0.477

Significance levels: \* 10% \*\* 5% \*\*\*1%

protest under compulsory voting and are likely to be observed in areas where political preferences would suggest a motivation to signal a perceived lack of choice or electoral legitimacy.

### Additional Analysis: The Citizen Participation and Social Oversight Council (CPCCS) Election

The analysis of the 2019 municipal elections showed a dissipation of the pattern of spoiled ballots correlating with anti-PAIS political preferences compared to 2014, which we have suggested may be attributable to the post-Correa context where there was much greater political competitiveness. Nevertheless, while the new era was more competitive, an institution called the Citizen Participation and Social Oversight Council (CPCCS) was seen as a continuation of Correa’s power structure due to its ties to PAIS (Arciniega, 2020). The elections for representatives to this body in 2019 therefore provide a means to examine the continuing electoral reaction to the legacy of Correa’s regime, as the CPCCS created under Correa was perceived as lacking legitimacy by his opponents. The CPCCS is a body officially designed to represent civil society against corruption and promote citizen participation in the appointment of independent public authorities.<sup>8</sup> In practice, the CPCCS had appointed authorities

<sup>8</sup> Attorney General, Ombudsman, Controller General, National Electoral Council, and Judiciary Council.

close to Correa's PAIS party (Arciniega, 2020) and, as a result, PAIS opponents generally saw this institution as illegitimate.<sup>9</sup>

Leveraging this case allows us to examine a different context for the mechanism posited in the study of the municipal election data, where the pattern of spoiled ballots was consistent with protest by anti-PAIS voters when the legitimacy of the political system was weak from their perspective. The CPCCS first allows us to assess whether a similar pattern of spoiled ballots correlating with prior anti-PAIS preferences can be seen in an election where we would expect incentives to protest to remain salient among those who would see CPCCS as perpetuating Correa's influence, despite that the overall context was more competitive. Second, to draw attention to the reasons to oppose this institution, an explicit campaign promoting ballot spoiling occurred during this election, allowing us to examine how coordination on a method of invalid voting interacts with political preferences to drive spoiled ballots as protest. The CPCCS offers an additional context for evaluating the potential role of protest, where coordination could produce an identifiable pattern of spoiling ballots despite there being no longer the same incentives to signal dissatisfaction with the political system as a whole.

As the CPCCS was associated with the concentration of power under Correa, allied political forces were thus able to hold some influence via this institution even without the presidency. Correa's successor, Moreno, having broken with Correa, aimed to reform the CPCCS and, in February 2018, organized a referendum on the early termination of the terms of the acting members of the CPCCS and the election of a Transitional CPCCS through a popular vote held at the same time as the 2019 municipal elections. Despite this effort to retain the institution in some form, criticism that the body was not reformable persisted, and some politicians and opinion leaders encouraged citizens through social media posts<sup>10</sup> and websites<sup>11</sup> to use their compulsory vote to submit intentionally spoiled ballots to express their discontent with the CPCCS in hopes of creating momentum for the complete dissolution of the institution. The campaign for spoiling ballots in the CPCCS election from across the political spectrum was documented by major Ecuadorian media outlets,<sup>12</sup> as well as in an OAS electoral observation mission report.<sup>13</sup> Correa's supporters, meanwhile, strongly opposed the elimination of the CPCCS (Dávila, 2019).

<sup>9</sup> According to a July 2019 survey conducted by Perfiles de Opinión, only 12% of the population trusted the CPCCS.

<sup>10</sup> For example, a social media post from prominent politician Guillermo Lasso advocated specifically for 'null votes' on the CPCCS ballot.

<sup>11</sup> See in particular Hernández, J. (2019, February 14). 'Por qué hay que anular el voto por el CPCCS.' 4pelagatos. Retrieved from <https://4pelagatos.com/2019/02/14/por-que-hay-que-anular-el-voto-por-el-cpccs/>; and Basabe, S. (2019). Voto NULO=eliminar el Consejo de Participación Ciudadana. *Cuatro Pelagatos*. <https://4pelagatos.com/2019/02/19/voto-nulo-eliminar-el-consejo-de-participacion-ciudadana/>.

<sup>12</sup> See for example Ayala Mora (2019). Debate sobre el voto nulo. *El Comercio*. <https://www.elcomercio.com/opinion/debate-voto-nulo-enrique-ayala.html>; Telesur (2019, March 23). Campaña por el voto nulo se impone en Ecuador. <https://www.telesurtv.net/news/campana-por-el-voto-nulo-se-impone-en-ecuador-20190323-0034.html>.

<sup>13</sup> Organization of American States. (2019). Electoral Observation Mission Local Elections and Elections to the Citizen Participation and Social Oversight Council Republic of Ecuador, March 24, 2019: Final Report. <http://www.oas.org/EOMDatabase/Moes/2019/ECU/ECU-MOE-2019-final.pdf>.

As detailed in the [appendix](#), the CPCCS election produced large numbers of invalid votes with 15% spoiled and 36% blank ballots on average by municipality.<sup>14</sup> Spoiled ballots were highly concentrated in some areas and overall even more prevalent in those areas than in the mayoral election. The vast number of blank ballots in this election compared to the municipal elections reflects the relative obscurity of this institution, where disengagement would be an expected response.

In part due to the lower salience of these elections, the act of protest through spoiled ballots was emphasized in discourse through a campaign that relied heavily on the internet and social media to disseminate a call for spoiling ballots in the election to the CPCCS (Basabe, 2019; Telesur, 2019). This provides a context where, if spoiled ballots correspond with motivations to protest, we should see that the political preferences—as captured by the patterns of anti-PAIS voting—should be a stronger predictor of spoiled ballots where such communications were more likely to be accessed. To evaluate the possible role of communication exposure in moderating the effects of political preferences, we include the rate of internet subscribers in the parish reported by the 2010 Census. This measure is intended to serve as a proxy for structural patterns of connectivity that capture the baseline likelihood of exposure to internet-based efforts to specifically coordinate invalid votes in the CPCCS election in 2019.<sup>15</sup> The interaction with PAIS vote share allows us to examine if political preferences aligned with the anti-CPCCS campaign have a stronger association with spoiled ballots in locations where voters were more likely to be engaged with the types of communications by which the effort was coordinated. We use the log transformation of this variable because of its skewed distribution. The remainder of the analysis mirrors that used in the municipal elections above.

### Analysis of the 2019 CPCCS Election

To examine the pattern of invalid votes in the 2019 CPCCS election, we conducted a similar regression analysis to that in the previous section. We estimated a model with both the proportion of blank ballots and the proportion of spoiled ballots as the dependent variable. In this analysis, presented in Table 2, we included the same independent variables as before, with the addition of the indicator variable for internet access rate.

As in the 2014 municipal election, we find generally that spoiled ballots are observed in areas with political preferences that oppose PAIS, albeit to a lower extent than in 2014. This contrasts with the 2019 mayoral race, where we found that the

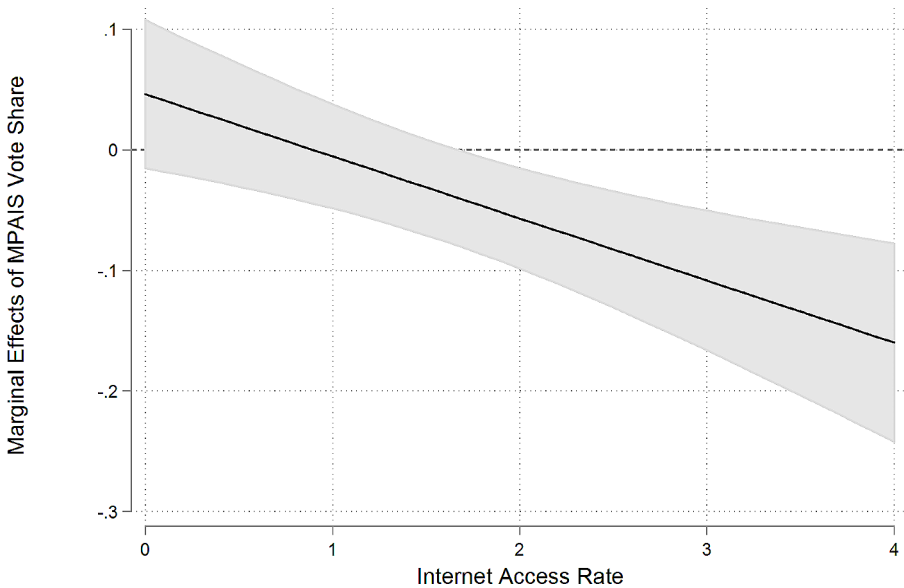
<sup>14</sup> The 2019 CPCCS election utilized a unique ballot structure developed to promote gender balance and minority representation. Rather than having a single integrated ballot, voters received three separate ballots to elect the seven CPCCS councilors and would cast a vote in using all three. Two were a “men’s ballot” and “women’s ballot” listing only male and female candidates, respectively, each allowing voters to select up to three candidates. A third was a ballot with only indigenous, Afro-Ecuadorian, and expatriate candidates, where voters could choose one candidate. In our analysis, we focus on the results from the minority-reserved ballot that only allowed one vote. This minimizes the potential for unintentional over-voting given the simpler ballot structure. However, the results are similar for all three ballots.

<sup>15</sup> That is, while other forms of internet access exist, this measure of the penetration of internet infrastructure reflects the potential depth of information flow. While an imperfect measure, this is expected to roughly proxy for exposure to online campaigns within the limitations of the available data.

effect had largely disappeared, as was expected due to the increase in competition during this period. However, this effect is present with the CPCCS election held at the same time, an institution associated with the previous regime.

With regard to the interaction with internet access, the effect of the PAIS voting rate was greater in areas with the most established access to communication technologies, providing further evidence that this represented a protest activity against the CPCCS. This pattern is shown in Fig. 2 with a plot of the marginal effects of PAIS voting by internet access rate. This shows that the pattern of spoiled ballots in the CPCCS race in 2019 being correlated with opposition to PAIS was primarily a phenomenon of the higher connectivity areas.<sup>16</sup>

Interestingly, the direction of the effect of schooling is reversed in the context of the CPCCS election, suggesting that the tendency of more educated individuals to spoil the ballot for this election deliberately was substantially greater than any negative correlation with proxies for voter sophistication of the type seen in the other contests. That the high internet access areas also had more spoiled ballots overall, but fewer blank ballots, corroborates the interpretation that higher sophistication individuals were, on average, more likely to spoil their ballots in this race. The larger coefficient in the CPCCS for schooling with regard to blank voting suggests that this



**Fig. 2** Marginal effects of PAIS vote share on spoiled ballot rate by internet access, CPCCS election 2019. 95% confidence intervals indicated

<sup>16</sup> We also estimated models interacting PAIS vote share and internet access in the 2014 and 2019 mayoral races, as was done for the CPCCS election. However, there was no meaningful conditional effect revealed in either year. The lack of an interactive relationship in those elections corroborates the interpretation that the interaction observed for the CPCCS race reflects the context-specific coordination of spoiled ballots, rather than merely the separate effects of political preferences and technology access. While internet access itself likely proxies for relevant factors related to voter demographics, the interaction results support the interpretation that the 2019 CPCCS election involved coordination efforts present in that context.

behavior corresponds to an even greater lack of engagement and information regarding the electoral process for this unique institution. Unlike in the case of spoiled ballots, PAIS support is not negatively associated with blank ballots and here is even positive, albeit not at conventional levels of statistical significance.

To summarize the results from each of the studies, we find that in the 2014 mayoral elections, where anti-Correa protests would most be expected, there was a clear pattern of using spoiled ballots as a form of protest. This supports the argument that some citizens in Ecuador used spoiled ballots to express their discontent with the political system and institutions. However, in the 2019 mayoral elections, where the overall electoral environment was more competitive, this effect has largely disappeared. Despite this, the election of members to the CPCCS, which was established by Correa and associated with continued political influence, continued to be associated with a similar pattern consistent with using spoiled ballots as protest, particularly in areas where coordination on this activity was likely to be more effective. These findings suggest that the use of spoiled ballots as a form of protest under compulsory voting is contingent on contexts where citizens would lack other options to express their political discontent and, further, that this form of signal likely depends on coordination.

**Table 2** CPCCS 2019 election: determinants of blank and spoiled ballots

Variables	CPCCS 2019			
	Spoiled		Blank	
	(1)	(2)	(3)	(4)
PAIS votes	-0.047** (0.019)	0.046 (0.031)	0.073* (0.042)	0.102 (0.064)
Log Internet Access	1.912*** (0.457)	4.035*** (0.735)	-5.847*** (0.631)	-5.204*** (1.415)
PAIS votes*Log Internet Access		-0.051*** (0.015)		-0.016 (0.026)
1st and 2nd candidate Difference (%)	-0.020 (0.020)	-0.019 (0.019)	-0.035 (0.040)	-0.034 (0.040)
Schooling	1.700*** (0.246)	1.664*** (0.239)	-2.865*** (0.294)	-2.864*** (0.294)
Urban	-1.424*** (0.467)	-1.512*** (0.451)	0.678 (0.551)	0.652 (0.562)
Population	0.178 (0.143)	0.176 (0.143)	-0.095 (0.080)	-0.100 (0.080)
Turnout	-0.003 (0.018)	-0.003 (0.017)	0.027 (0.039)	0.027 (0.039)
Constant	1.404 (2.247)	-2.296 (2.287)	62.930*** (3.735)	61.765*** (4.327)
R-squared	1,016	1,016	1,016	1,016
Observations	0.638	0.644	0.770	0.770

Significance levels: \* 10% \*\* 5% \*\*\*1%

## Discussion

Our study provides new insights into the factors driving invalid voting patterns in compulsory voting systems with a focus on the potential of spoiled ballots as a form of protest. Survey evidence suggests that discontent can be a motivator, and observational studies have shown that compulsory voting can increase the likelihood of using spoiled ballots overall. Our findings support the argument that voters use spoiled ballots as a form of protest when they perceive the available political choices as limited or lacking legitimacy. By leveraging the political context surrounding Rafael Correa's presidency in Ecuador, we demonstrate that opposition voters are more likely to engage in protest spoiling when systemic competitiveness and institutional legitimacy are in dispute.

Using data from the 2014 and 2019 mayoral elections in Ecuador, we examine the relationship between political preferences and invalid votes, while accounting for the effects of sophistication and choice complexity. In areas with higher opposition to Correa's dominant populist party, PAIS, a greater rate of spoiled ballots is observed in the 2014 municipal elections. This coincides with a period of systemic perception of a non-competitive environment during the height of Rafael Correa's political dominance of Ecuador. However, this pattern declined in 2019, a period when electoral competition had increased.

Our findings indicate that the level of spoiled voting can be a signal of dissatisfaction, even where blank and spoiled ballots are already widespread due to factors such as voter sophistication and choice complexity that may drive disengagement. Our results confirm that patterns typically associated with abstention in voluntary voting systems are also relevant to invalid votes, particularly blank ballots. However, while the political correlates for spoiled ballots were found, similar effects were not observed for blank ballots. Although the observational data precludes any causal claims about the relationship between protest and invalid voting patterns, the results are consistent with the interpretation that spoiled ballots serve as a form of political protest, separate from measurable variance associated with other factors in the literature.

Our analysis of the 2019 CPCCS election provides additional evidence that aligns with these interpretations of the results for the 2014 and 2019 municipal elections. The persistence of a correlation between anti-Correa political preferences and high shares of spoiled ballots in the CPCCS race suggests protest voting against legacies of Correa's presidency remains evident, at least when there is coordination directing this effort toward invalidating ballots. Spoiled ballots did not occur substantially among areas of PAIS opposition that were low in internet access, suggesting that specific forms of invalid voting serve as protest may be conditional on coordination around it as a signal of dissent. We interpret this finding as supporting the idea that using invalid votes as a political protest, distinct from general disaffection, depends on a common understanding of the mechanism among participants, consistent with previous findings that this type of spoiling is associated with greater political knowledge (Driscoll & Nelson, 2014).

The findings add to our understanding of the effects of choice under compulsory voting. Previous studies argue compulsory voting combined with high choice com-



plexity from many candidates imposes cognitive burdens, inadvertently increasing invalid voting. This study argues that compulsory voting in contexts of limited perceived choice in the political system – not only the features of the specific election – can lead to invalid voting in the form of spoiling ballots. The results suggest that invalid voting overall may be associated with both low and high degrees of voter choice. However, these may derive from different mechanisms of disengagement and protest and may be associated with differing types of invalid voting, where the lack of viable options provides incentives to intentionally spoil ballots in particular.

This study builds on an extensive body of prior research examining protest voting through invalid ballots, including under compulsory voting systems (Knack & Kropf, 2003; Kouba & Lysek, 2019; Power & Garand, 2006; Ugla, 2008). In addition to corroborating the effects of complexity and sophistication (McAllister & Makkai, 1993; Power & Garand, 2007), our findings support the notion that compulsory voting rules can channel discontent into invalid ballots (Power & Garand, 2006; Ugla, 2008; Singh, 2019). By exploiting subnational political variation in Ecuador, where compulsory rules are held constant, our data provides leverage to identify variation in invalid voting that corresponds to expectations of protest voting within this context. In particular, our analysis of the periods surrounding Rafael Correa's presidency explores an important case where we would expect invalid voting as protest to manifest for some voters. Our results contribute to adjudicating among competing findings by demonstrating protest is likely conditional on political context, complementing cross-national studies on the topic (Kouba & Lysek, 2019). Examining this political context allows us to provide original confirmatory evidence that spoiled ballots serve as protest under some conditions (Pion, 2010; Superti, 2020). We also advance the literature distinguishing blank and spoiled ballots to isolate protest incentives (Pilet et al., 2019). Theoretically, we qualify conventional wisdom on compulsory voting and invalid ballots by showing that limited choice may be associated with protest spoiling, not just abstention (Cohen, 2018).

While this paper utilizes Ecuador as an empirical case study, the theoretical perspectives can inform analyses of other cases and, in particular, transitional regimes with compulsory voting. The concepts identified here around democratic decline and threats to free and fair electoral competition provide testable propositions for how context shapes invalid voting in diverse cases. Further comparative studies can evaluate these theoretical mechanisms across compulsory voting systems experiencing varying degrees of institutional manipulation.

An important limitation of this study is the inability to make definitive claims about individual-level voter motivations based on aggregate invalid voting patterns. The analysis relies on electoral data at the municipal level to examine explanations for blank and spoiled ballots. However, inferring individual-level behavior from aggregate results poses inherent ecological inference challenges. The aggregate correlations cannot determine individual motivations and we rely on the overall correlations in the aggregate data to cautiously infer likely relationships. We are cautious not to make definitive claims about individuals' decision-making processes based on the municipal-level results alone. Additional work based on survey data and qualitative evidence would bolster the inferences about individual-level voter motivations suggested by the aggregate invalid voting patterns.

**Table A1** Descriptive statistics

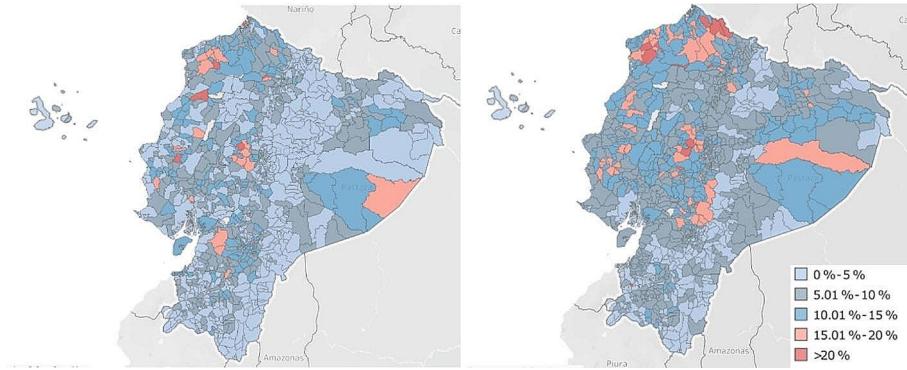
Variables	Election	Observations	Mean	Std. Dev.	Min	Max
Blank votes (%)	Mayor 2014	1037	6.15	4.25	0.00	32.85
	Mayor 2019	1039	7.74	5.70	0.00	32.99
	CPPCS 2019	1039	35.89	11.84	6.95	70.95
Spoiled votes (%)	Mayor 2014	1037	8.16	4.10	0.00	25.65
	Mayor 2019	1039	11.30	6.19	0.00	43.50
	CPPCS 2019	1039	14.80	6.21	1.99	43.50
Turnout (%)	Mayor 2014	1036	84.11	8.77	35.98	100.00
	Mayor 2019	1039	85.10	8.29	19.61	100.00
	CPPCS 2019	1039	84.58	9.61	16.32	100.00
Difference between first and second candidate (%)	Mayor 2014	1036	14.92	12.89	0.00	90.53
	Mayor 2019	1039	12.45	11.35	0.00	70.09
Number of mayoral candidates	Mayor 2014	1038	5.35	1.88	2.00	12.00
	Mayor 2019	1039	8.86	4.20	2.00	22.00
Schooling		1019	7.08	1.64	2.61	14.29
Urban		1042	0.18	0.38	0	1
Population (100,000)		1019	0.14	0.91	0.00	22.91
PAIS votes (% 2017 presidential election)		1036	41.94	13.31	5.64	88.60
Log internet access rate		1019	2.07	0.83	-1.17	4.10

Overall, our findings highlight the importance of considering each election's political context, motivations, and incentives, distinguishing between blank and spoiled ballots. While ballot spoiling appears consistent with political protest behavior in these elections in Ecuador, in other cases it may be blank ballots that have served as a coordinated protest mechanism (Krastev, 2014). Context is therefore vital to understanding this behavior because multiple factors work in different directions that must be disentangled to understand the disparate findings in this literature.

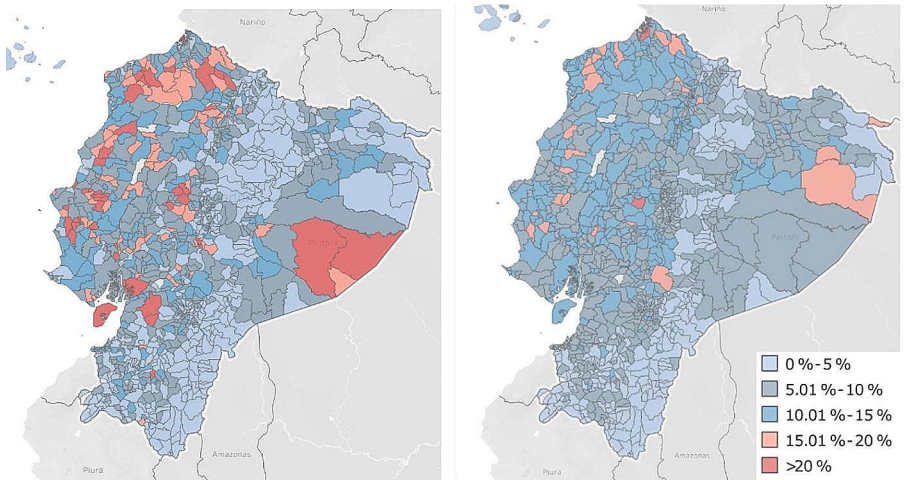
## Appendix

### Geographic Distribution of Invalid Votes in Ecuador

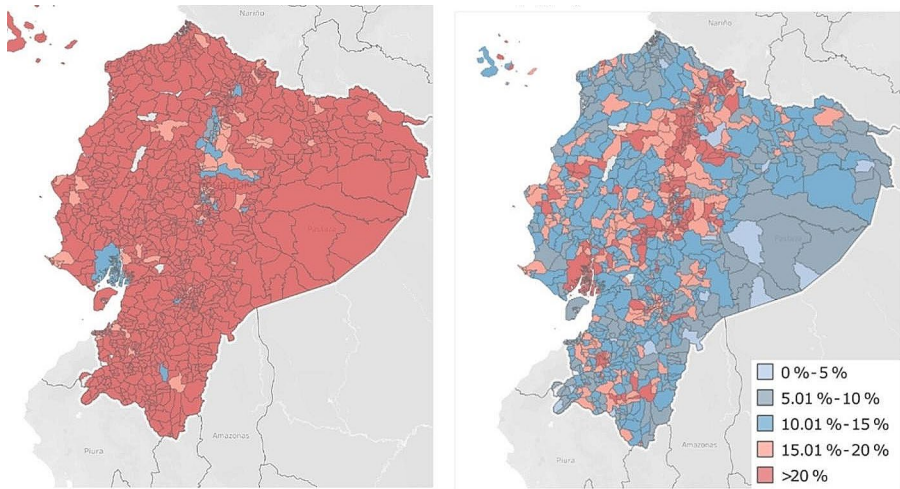
Figures A1 and A2 depict the geographic distribution of both forms of invalid votes in 2014 and 2019, showing the remarkable frequency of blank and spoiled votes, as well as the substantial differences between the patterns of blank and spoiled ballots. Figure A3 presents the same information for the CPPCS election (Consejo Nacional Electoral, 2019).



**Fig. A1** Blank ballots (left) and spoiled ballots (right) 2014 mayor election



**Fig. A2** Blank ballots (left) and spoiled ballots (right) 2019 mayor election



**Fig. A3** Blank ballots (left) and spoiled ballots (right) 2019 CPCS elections

## Declarations

**Competing Interests** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. To facilitate the replication of our work, we are also providing the dataset and the code used in our analysis, which can be accessed here: [https://www.dropbox.com/scl/fi/cyhbwqe1etk4g137tjpw2/Final\\_PolBehav\\_2024.zip?rlkey=16z1tq1xa69cbnzdj4cm2wv92&dl=0](https://www.dropbox.com/scl/fi/cyhbwqe1etk4g137tjpw2/Final_PolBehav_2024.zip?rlkey=16z1tq1xa69cbnzdj4cm2wv92&dl=0)

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