



Does the Presidential Election Have Implications for a Better Environment in Indonesia?

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Abstract

According to the conventional wisdom, political actors and candidates are incentivized by electoral competition to compete for voter support through public good provision that is aligned with their preferences. This study aims to examine the validity of this assumption, especially regarding whether presidential elections have a positive impact on environmental quality, a subject with relatively little attention. Using annual time-series data for Indonesia (1970–2024) from the World Bank, Global Footprint Network, KPU, and V-Dem, we estimate the effect of presidential elections on one of the world's greatest environmental challenges: climate change. Contrary to general theories of electoral competition and political accountability, presidential elections do not significantly shape environmental governance in Indonesia. The study contributes to the literature by identifying issue salience as a key condition shaping electoral accountability and environmental policy outcomes.

Keywords

Electoral Competition, Environmental Policy, Public Goods, Indonesia

I. Introduction

In February 2024, Indonesia, one of the world's largest carbon emitters and the world's third-largest democracy, successfully held a presidential election with more than 204 million eligible voters. Elections are widely celebrated as a “festival of democracy”, but whether they produce tangible public benefits remains unclear. Specifically, does an election have a positive impact on environmental policy outcomes? This study examines whether presidential elections improve environmental policy outcomes in Indonesia. Indonesia's environmental governance has important regional consequences, as recurring forest fires

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often affect neighboring Malaysia and Singapore. Understanding the factors that shape environmental outcomes is therefore essential. Previous studies show that political incentives can undermine environmental policy implementation (Lipscomb and Mobarak, 2016), yet electoral competition may also encourage greater public goods provision (Sasmi and Park, 2024). This study examines whether such electoral incentives improve environmental governance in Indonesia.

Political scientists widely agree that the distribution of public goods increases with power turnover because elections increase political competition, thus maximizing societal welfare (Downs, 1957). Electoral competition also shapes political behavior, as demonstrated by the decisive role of battleground states in the 2024 U.S. presidential election (Biswas et al., 2024). Low competition is associated with anti-growth policies; higher taxes and reduced capital spending (Besley et al., 2010). Nevertheless, our understanding of this issue is still limited in developed regions such as Europe and North America (cf., Cremer et al., 2008; Fernández-i-Marín et al., 2024; Jacques, 2022). While environmental and economic growth policies are often at odds with each other in a growing economy such as Indonesia, does more electoral competition mean a better environment? We tested this using time-series data on Indonesia's environmental policies (2000–2017) and reviewed presidential campaign platforms. Pečarič (2020) argue that environmental systems are interactive, depend on each other and dynamic and diverse. This study provides insight into the complexity of environmental governance in emerging economies or early democracies, such as those in Indonesia, and investigates how presidential elections affect this influence. The next section is a review of the theories of electoral competition and provision public goods, then an empirical model of electoral competition influencing environmental. Finally, the analysis results and recommendations are presented.

II. Theoretical Framework for Examining the Impact of Electoral Competition on Environmental Policy Outcomes

There is still insufficient literature on the relationship between electoral competition and environmental policy. Existing theories offer three perspectives: electoral competition improves environmental performance, excessive competition is wasteful, or its effects depend on issue salience and public awareness. First, the classical theories view governments as vote-seeking actors that respond to voter preferences through policy provision (cf., Adams, 2001; Budge and Farlie, 1983; Downs, 1957), a logic later extended to politics by Stigler (1972). Empirical studies generally find that competition encourages public goods provision. More competitive districts in Tanzania receive greater public goods allocations (Rosenzweig, 2015), while competitive municipalities in southern Africa exhibit stronger democratic practices, accountability, decentralization, media freedom, and opposition participation (Zimbalist, 2022). Similarly, social fractionalization can enhance political competition and public goods provision, as shown in fragmented Philippine villages (Cruz et al., 2020), and proportional electoral systems tend to generate more public goods than winner-take-all systems because targeted benefits are harder to distribute selectively (Lizzeri and Persico, 2001).

A second perspective argues that excessive electoral competition can reduce policy efficiency, including in environmental governance. Fewer parties may produce more favorable outcomes (Banerjee and Hankla, 2014). In both China and the United States, higher levels of local competition have been associated with increased carbon emissions as governments engage in a “race to the bottom” to attract and retain businesses through growth-oriented policies (Ran et al., 2020; Bošković, 2015). Similarly, environmental enforcement in U.S. states may weaken when competing interest groups prioritize economic growth (Atlas, 2007). A third perspective suggests that electoral competition affects environmental outcomes only indirectly through economic development and rising environmental awareness (Inglehart, 1997) or through pressure from environmental NGOs on governments (Fredriksson et al., 2007). Despite these insights, research on electoral competition and environmental policy remains limited and focused primarily on advanced democracies, with little attention to emerging democracies such as Indonesia.

Drawing on this literature, we argue that presidential elections in Indonesia have limited effects on environmental governance. As an emerging economy, Indonesia prioritizes economic growth over environmental protection, while environmental issues remain relatively low in electoral salience. Moreover, five-year electoral cycles encourage politicians to focus on short-term economic gains, whereas the benefits of environmental policies are typically long term.

III. Empirical Research Design

Studies of electoral competition have primarily examined the allocation of public goods, particularly economic development (Rezki, 2018), social finance, and education spending (Banerjee and Hankla, 2014). This study explores the impact of electoral competition on environmental governance outputs, focusing on presidential elections. According to Przeworski et al. (2000), Indonesia has gone through three main political phases: a civilian dictatorship (1946–1965), a military dictatorship (1965–1998), and a democratic period since 1999. Building on this, my data tracks Indonesia’s elections from 1970 to 2024. Even though there have been six presidential elections since democratization; in order to better capture long-term trends and prevent selection bias, we also include elections held prior to 1999.

Defining and Understanding Environmental Policy Outcomes

In this study, we use “environmental policy” and “environmental governance” interchangeably to refer to the rules and institutions shaping government decisions. Environmental policy outcomes are defined as measurable environmental conditions influenced by these policies. Measuring these outcomes is challenging. First, environmental conditions do not always reflect policy effectiveness, for example, Indonesia’s recurring haze may result from weak regulation or natural factors like El Niño. Second, the impact of electoral competition on environmental outcomes is lagged and even more subtle to observe. To address these challenges, we compile multiple datasets from different sources, as detailed in the next section.

Model Specifications

This study employs an annual time-series dataset covering Indonesia from 1970 to 2024. The unit of analysis is the country-year. To examine whether presidential election cycles are associated with environmental policy outcomes, ordinary least squares (OLS) regression models are estimated with election-cycle indicators and a set of socioeconomic controls. The baseline specification is:

$$Y_t = \beta_0 + \beta_1 Election_{t-2} + \beta_2 Election_{t-1} + \beta_3 Election_t + \beta_4 Election_{t+1} + \beta_5 Election_{t+2} + \beta_6 GDP_t + \beta_7 Population_t + \beta_8 CivilLiberties_t + \varepsilon_t \quad (1)$$

where Y_t represents environmental policy outcomes in year t . Five dummy variables capture different stages of the presidential electoral cycle, including two years before an election, one year before an election, the election year, one year after an election, and two years after an election. GDP, population, and civil liberties are included as control variables. To reduce skewness and improve comparability across years, GDP and population are log transformed. Robust standard errors are employed to account for potential heteroskedasticity in the time-series data.

Dependent Variables

To ensure robust measurement of environmental policy outcomes, we develop two models. The first model captures climate-related outcomes using CO₂ emissions per capita and average annual temperature (World Bank, 2021), supplemented by carbon and forest footprints (Global Footprint Network, 2023). The second model assesses government commitment by counting the number of ratified International Environmental Agreements (IEAs), based on data from Mitchell (2020) and the QoG Environmental Indicators Dataset (Povitkina et al., 2021).

Independent Variables

To assess the impact of electoral competition, we construct dummy variables for the electoral cycle: two years before, one year before, the election year, one year after, and two years after. They are temporally dynamic around elections, they capture within-election changes (Balboni et al., 2021). The dataset extends from 1970–2024, covering 12 national elections in Indonesia, comprising data obtained from the General Election Commission. Includes even elections that predate 1999 to mitigate selection bias. These are the main explanatory variables, and we use dummies for this.

Control Variables

In addition to key explanatory variables, we also control for country characteristics: national per capita income (GDP), as economic development is believed to influence the environment; population growth, derived from research that associates it with environmental problems (Norton, 2000); and civil liberties score on freedom of speech being a contributor to more environmental consciousness (Cox, 2013). Both topline figures, GDP and population, are log transformed to allow for linearity. All controls are taken from the 2024 V-Dem Dataset Version 14. Summary statistics follow.

Table 1: Summary Statistic for Environmental Policy Outcome Measures and Key Variables

	Obs	Mean	Std. dev.	Minimum	Maximum
CO ₂ emissions per capita	50	1.151	0.586	0.267	2.321
Annual average temperature	51	25.990	0.237	25.458	26.417
Carbon footprint	47	0.351	0.195	0.080	0.664
Forest product footprint	47	0.374	0.161	0.176	0.714
Election in 2 years	55	0.2	0.404	0	1
Election next year	55	0.218	0.417	0	1
Election this year	55	0.218	0.417	0	1
Election last year	55	0.2	0.404	0	1
Election 2 years ago	55	0.2	0.404	0	1
Civil liberties	48	4.5	0.945	3	6
Ln (GDP)	49	27.495	0.757	26.120	28.754
Ln (Population)	52	19.073	0.256	18.562	19.427

Source: Authors’ calculations based on data from the World Bank (2021), Global Footprint Network (2023), General Election Commission of Indonesia (KPU), and V-Dem Dataset Version 14 (2024)

IV. Results

Table 1 summarizes results from two regression models that evaluate the relationship between environmental policy outcomes and electoral competition in Indonesia. It examines the impact of dummy variables for presidential election cycles on CO₂ emissions per capita and mean annual temperature. The central claim is that electoral competition with respect to presidential elections does not matter much for environmental governance. If this were not the case, predictor variables would have a significant negative effect on outcomes. Nonetheless, regression indicates that most variables of interest have no meaningful relationship to CO₂ or temperature, consistent with the hypothesis.

In the first column, Model 1 examines how different stages of the electoral cycle affect CO₂ emissions per capita. To account for time lags in environmental policy, we use dummy variables for election timing (two years before to two years after), along with GDP, population, and civil liberties as controls. The model has a good fit ($R^2 = 0.9848$; F-statistic $p < 0.001$), accounts for nearly all variation in emissions, about 98%. We generally do not find evidence of a large impact of the election on environmental outcomes. Although the coefficients are positive, none are statistically significant, indicating that election timing does not meaningfully affect CO₂ emissions. In contrast, GDP has a strong positive and significant effect ($\beta = 0.651$), while civil liberties are negatively and significantly associated with emissions ($\beta = -0.075$), suggesting that higher civil liberties are linked to lower CO₂ emissions.

In the second column, Model 2 examines the relationship between the electoral cycle and average annual temperature and yields largely similar results. No meaningful impact of electoral timing: no coefficients are statistically significant ($p > 0.05$). The degree to which the model itself is significant ($F(8, 37) = 12.86$; $p < 0.001$), explains approximately 73.6%

of the variance ($R^2 = 0.7355$). One exception is the “election last year” variable, which shows a small but significant increase in temperature ($\beta = 0.201$). This may reflect indirect effects of elections, such as increased campaign-related consumption or economic activity that raises emissions.

Table 2: Regression Analysis of Electoral Competition and Environmental Policy in Indonesia

VARIABLES	(Model 1) CO ₂ Emission per capita	(Model 2) Annual Avg Temp
Election in 2yrs	0.0596 (0.0467)	0.111 (0.0790)
Election next year	0.0628 (0.0464)	0.0951 (0.0785)
Election this year	0.0692 (0.0437)	0.118 (0.0740)
Election Last year	0.0542 (0.0467)	0.201** (0.0790)
Election 2yrs ago	0.0518 (0.0469)	0.0892 (0.0794)
Ln GDP	0.651*** (0.110)	0.224 (0.187)
Ln Population	0.0986 (0.337)	0.110 (0.570)
Civil Liberties	−0.0752*** (0.0160)	0.0101 (0.0270)
Constant	−18.39*** (3.486)	17.54*** (5.900)
Observations	46	46
R-squared	0.985	0.736

Source: Authors' calculations

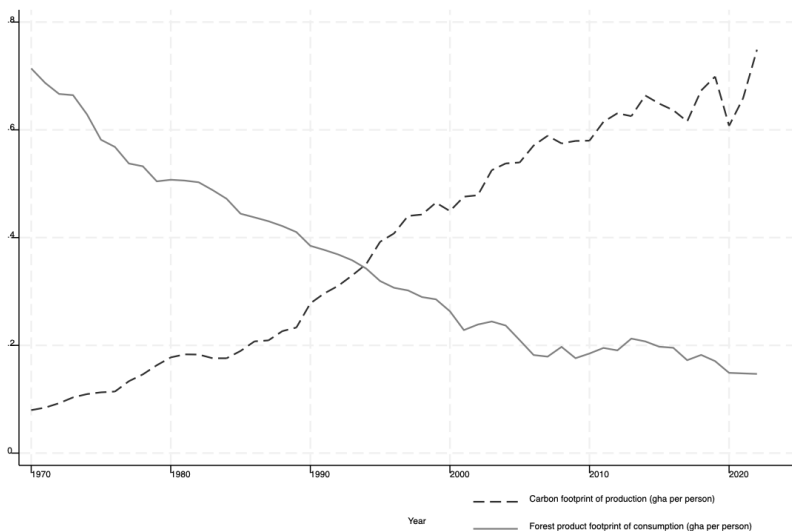
Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Indonesia, electoral competition seems to have negligible effects on environmental outcomes since environmental issues are less salient among voters or other forms of support. The general predisposition of public opinion is towards matters that concern economic conditions, welfare, and corruption; hence, candidates emphasize these areas too (Aspinall, 2005). Consequently, when issues relating to the environment are not publicly salient, political actors have very weak incentives to respond. In sum, the results demonstrate a nuanced connection between elections and policy outputs when it comes to environmental policy. As expected, electoral cycles do not affect CO₂ emissions or temperature substantially. This implies that environmental concerns are peripheral to Indonesian politics, one in which policy options are stymied by electoral pressures.

V. Temporal Analysis of Environmental Governance Performance in Indonesia

To what extent is environmental governance effective in Indonesia, and does electoral competition increase accountability? In contrast to the US, where environmental issues are prominent election issues (Bomberg, 2001), they are less salient in Indonesia. Voters' priorities are shaped more by economic conditions, welfare, and corruption concerns (Aspinall, 2005), while political competition often centers on short-term controversies and elite conflicts rather than long-term challenges such as environmental governance (Okthariza, 2023). While post-materialism theory suggests environmental concerns rise with affluence (Inglehart, 1981), its relevance in Indonesia remains limited. Measuring environmental outcomes is equally challenging because previous studies employ diverse indicators, including carbon emissions (Sasmi and Shi, 2024), resource use (Sasmi and Park, 2024), social spending (Wu et al., 2013), environmental quality indices (Konisky, 2007; Sigman, 2005), and carbon footprints (Nordhaus, 2015). To improve robustness, this study incorporates multiple measures, including carbon and forest footprints, ratification of International Environmental Agreements (IEAs), and presidential campaign platforms.

Figure 1: Carbon and Forest Footprints Trend Over Time in Indonesia



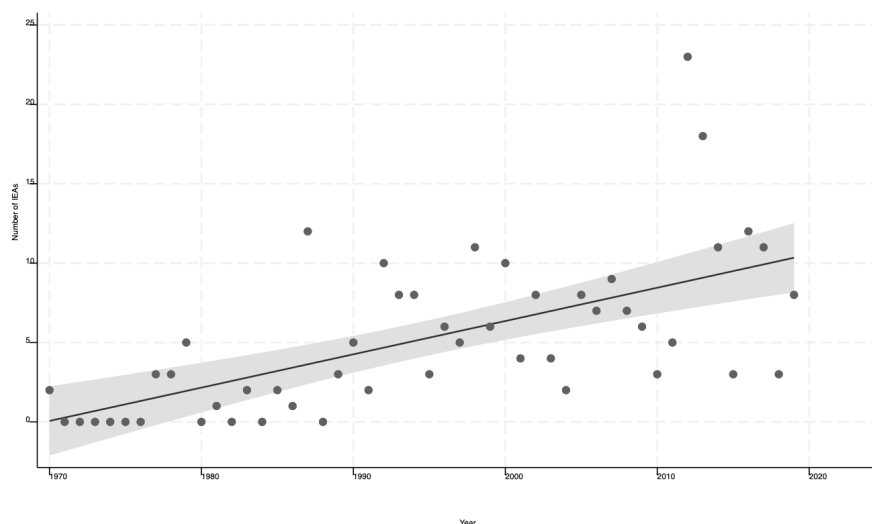
Source: Global Footprint Network (2023)

To assess environmental change, we use per capita carbon and forest product footprint data from the Global Footprint Network (2023), measured in global hectares (gha). As illustrated in Figure 1, the carbon footprint has increased gradually since its introduction in the year 1970, with a short drop during the year of COVID-19 2020, which is expected, immediately followed by growth. By contrast, the consumption of forest products showed a slow downward trend; it's not use or argument of decreasing dependence on forests. Crucially, neither trend indicates sharp deviations around the time of elections, meaning

that electoral competition does not seem to have a strong role in determining environmental policy in Indonesia.

Using data from the International Environmental Agreements Database Project (Mitchell, 2020), we track Indonesia's ratification of IEAs over time. Figure 2 shows no consistent increase around election periods, suggesting that environmental issues have limited electoral salience. While ratifications spiked in 2010 following Susilo Bambang Yudhoyono's 2009 re-election and sustainability agenda, this appears to be an isolated case. Overall, electoral competition plays only a minor role in Indonesian environmental policy.

Figure 2: International Environmental Agreements (IEAs) Ratifications in Indonesia Over Time



Source: Own Elaboration based on Mitchell (2020)

VI. Implications of Indonesia's 2024 Presidential Election on Environmental Governance

After two unsuccessful presidential bids, Indonesia's former defense minister, Prabowo Subianto, won the 2024 election against Ganjar Pranowo and Anies Baswedan. Despite judicial confirmation of the result, concerns about his human rights record and environmental commitments persist. As a major producer of palm oil and fossil fuels and home to the world's largest nickel reserves, Indonesia remains under global scrutiny for its resource governance. Yet the results show no meaningful relationship between electoral cycles and environmental outcomes. CO₂ emissions and temperatures do not decline during election periods, while trends in carbon footprints, forest footprints, and ratification of International Environmental Agreements (IEAs) show no apparent association with election timing.

We suggest that this result could be explained by some aspects, where one possible explanation could be a lack of public awareness amongst Indonesians to the climate change

issue. When political leaders face uncertainty and competing institutional pressures, issues that attract little public attention tend to receive less political focus (Kotnik et al., 2020). This tendency is reinforced by Indonesia's personality-centered party politics, where candidates' personal traits remain influential (Lau and Wihardja, 2024). Yet whether the regression analysis fully captures political contestation remains unclear. Recent research finds that environmental sustainability remains contested in Indonesia, with competing technocratic and environmental justice narratives reflecting broader conflicts over ecology and development (Firdaus, 2026). One means of enhancing the robustness of the findings is to supplement quantitative analysis with qualitative evidence, such as a review of presidential candidates' policy platforms over time. All three recent presidential candidates, including Prabowo Subianto, have claimed support for Indonesia's transition to sustainable energy, but doubts about their commitment and serious care for environmental protection remain.

In the following section, an analysis is provided on the platforms brought forth by presidential candidates during debates aimed at securing electoral victory. We compile an extensive list of platforms from Indonesia's presidential elections over the years, starting from the presidential election in 2004–2024. In particular, we will focus on the environmental or climate issues addressed in each candidate's platform, including the statements made by the candidates and the promises they have offered to improve environmental conditions. By evaluating these platforms, we can gain insight into the salience of environmental problems in Indonesian election competitions. We begin the dataset with presidential candidate campaigns from 2004, as this marks the first direct election of Indonesia's president and vice president. Additionally, it's important to note that the presidential platforms included in this dataset are extracted from their main platform (*Visi Misi* in Indonesian), meaning that detailed candidate programs are excluded.

Most Indonesian presidential campaign platforms never highlight environmental issues. The 2004 election saw candidates concentrate upon human rights, police work, and economic recovery, clearly influenced still by the post-authoritarian transition plus the aftershocks of the 1998 economic crisis. Jobs and living conditions dominated public discussion, with scant regard given to environmental sustainability. Looking at the 2009 election, one can clearly observe that the candidates of then shifted towards social security, healthcare, and security issues, followed by democracy, human rights, and economic welfare. A clear environmental agenda, in which reforestation and environmental restoration were put forth as key proposals, was only part of the SBY-Boediyono ticket.

During the 2014 presidential election, once again, environmental concerns were overlooked. Topics of security dominated, with the candidate's giving emphasis on sovereignty and cooperation, with statements such as, *"Achieving a sovereign, independent, and culturally vibrant Indonesia based on mutual cooperation."* Democracy, human rights, education, social security and healthcare were all covered equally. Both Jokowi (PDI-P) and Prabowo (Gerindra) have written nothing about environmental issues in their platforms. Security trumped in 2019, though candidates moved to social security and a move towards independence and global cooperation. Environmental concerns showed barely even once in Jokowi's platform, phrased vaguely as *"Achieving a sustainable environment"*.

Table 3: Presidential Candidate's Platform Evolution in Indonesia Over the Years

Issue	Presidential Election 2004	Presidential Election 2009	Presidential Election 2014	Presidential Election 2019	Presidential Election 2024
Democracy and Human Rights	5	3	2	1	4
Economy Welfare	4	3	1	2	7
Education	3	1	2	4	3
Security	7	4	3	1	3
Social Security and Health Care	3	7	2	5	3
Technology Development	1	3	1	0	2
Unity and Tolerance	1	1	1	2	1
Environment and Climate Change	0	1	0	1	1

Source: Authors' calculation based on data from the General Election Commission (KPU), Indonesia, covering national elections from 1970 to 2024

Notes: The number represents how many times the issue was mentioned in the candidate's platform during the presidential campaign. We categorized the candidates' statements into eight categories: democracy and human rights, economic welfare, education, security, social security and healthcare, technology and development, unity and tolerance, and environment and climate change. For instance, "Creating a just, prosperous, democratic, and self-assured Indonesia in confronting globalization" was placed in the democracy and human rights category, and "Restoring degraded environments and preventing natural disasters through reforestation, afforestation, and watershed rehabilitation efforts" was placed in the environment and climate change category. We focused on the presidential candidates' platforms to analyze salient issues in Indonesia's political landscape.

The focus of the 2024 presidential competition was economic welfare. Voters responded favorably to the candidates' emphasis on downstream mining and agricultural development as ways to combat poverty. Democracy and human rights also attracted attention, particularly in debates over Prabowo Subianto's record. By contrast, environmental issues received limited attention and were mentioned only once in the Prabowo-Gibran platform. Although Ganjar Pranowo and Anies Baswedan demonstrated stronger environmental commitments than Prabowo Subianto (Dahalan and Aziz, 2024), environmental concerns remained secondary to economic development. Candidates also endorsed green development in Indonesia's new capital, Nusantara, but offered few concrete policy proposals.

VII. Conclusion

Elections hold a pivotal role within the democratic process. It serves as the primary mechanism through which the public exert control over the policies implemented by the government. While this strand of research does not generally align with the consensus theory of electorate competition, it clearly calls into question the importance of salience issue within public opinion. Part of purpose of this paper is to reconcile this literature by developing theory that argued electoral competition not always has significant effect on public policies. It will only have effects when the public think that the issue is important. It

then complements to the literature by provide contextualization under what circumstance electorate competition play role in exerting influence on public policies.

In this paper, we contend that electoral competition will lead to positive outcomes for environmental policy. This argument stems from the theory of electoral competition, which posits that elections promote competition among political actors to distribute more public goods to the people. However, the empirical results suggest the opposite. In the first model, where we assess CO₂ emissions and annual average temperature, we found no meaningful correlation between the variables. The second model, which examines carbon and forest footprint trends in Indonesia, also reveals contradictory trends, indicating that environmental policy outcomes are not significantly influenced by any electoral cycle. Similarly, in the third model, we found that the ratification of international environmental agreements (IEAs) over time shows no significant effect during the electoral cycle.

To obtain a more robust empirical result, we add an analysis on Indonesia's presidential candidate platform starting from 2004 to 2024. Rationally, salient issues will be shown within candidate platforms. Yet, we can see from the analysis on presidential candidate platforms throughout the time that economy welfare as well as democracy and human rights has the most stated within presidential candidate platforms. The environmental and climate change issues have received little attention, and there have been occasions where they were not mentioned at all. Overall, based on our empirical result and analysis on presidential, we could conclude that electorate competition has an effect toward public policies only when the issue being addressed is salient. The implication of these results suggests to us the importance of public opinion in pushing agenda to the political actors. Thus, for policy-makers, it is necessary to improve education on environmental protectionism area. Finally, future research should investigate how public opinion toward green policy or environmental policy outcome in Indonesia.

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