

Does Increasing Turnout Led to the "Green Wave"?

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Abstract

In countries where ethnicity play a large role in voting choices, ethnic-based parties are incentivized to drive turnout for the ethnically-aligned electorate. The majority ethnic group typically dominate electoral contests which could weaken the voices of minority groups – the so-called "tyranny of majority" in the plurality system. In Malaysia, the end of a one-party state herald a new era of competitive electoral environment. Malay voters, which are both the largest ethnic group and electorate, are argued to vote for parties that campaign for Malay-based policies. The recent electoral successes of a Malay and Islamic-based political coalition called the *Perikatan Nasional* (PN) has led many commentators to argue for the rise of ethnic and religious voting with many commentators dubbing the phenomenon "Green Wave". In many districts where we see higher proportions of Malay voters, we also see larger turnouts in the state elections of 2021 – 2023 and subsequent ethnic voting. But, this neglects many potential confounders that may bias the estimate we observe, namely the difference between always-voters and marginal voters. By using the fact that bad weather depresses turnout, we show via a 2SLS estimator that turnouts have virtually null results on ethnic voting. Further analysis suggests that the null result is driven primarily by the substitution of marginal voters from one ethnic party to another.

Keywords: voter turnout, ethnic politics, populism, representation, and marginal voters.

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1 Introduction

Voter turnout is a fundamental measure in democratic system. There is a long tradition in political theory on the normative requirements of popular representation in establishing legitimate government [Rousseau](#). Equally as long is the tradition of critiquing the ability of the public to govern themselves [Hamilton et al. \[2014\]](#) [Tocqueville \[2002\]](#). On the one hand, if we assume that individuals have a probability of selecting the correct politician by more than $\frac{1}{2}$, by Condorcet's theorem we get that high turnouts should produce good outcomes. On the other hand, high turnouts may lead to decisions that are determined by the majority and can in some cases undermine the basic rights of the minority – the so-called "tyranny of majority".

A classic case of the latter is in ethnic politics. In countries where ethnicity is a salient issue – which in some cases arise among others from migration, colonial history, and past conflicts – tyranny of majority is much more likely as individuals may favor political candidates that aligns with their ethnic identity as opposed to other measures such as ability or policy preference. In these types of societies, descriptive representation become an important measure of electoral success if disproportionate ethnic favoritism is prevalent causing representation gaps among minority groups. One of the primary institution where we can observe cases of representation gap in ethnic-salient societies is in elections. Many studies have shown the impact of descriptive representation on public policy and office-holder behavior [Lowande et al. \[2019\]](#) [Pande \[2003\]](#). Thus, studying effects of turnouts on ethnic voting becomes important to understand if majority-ethnic voters can overwhelm the voices of minority-ethnic voters, pushing public policy disproportionately in favor of the majority-group.

In Malaysia, ethnicity is central to electoral politics. Beginning from the independence of the country in 1957 and the subsequent joining of Sabah and Sarawak into the federation in 1963, political salience of ethnicity can be tied to British colonialism. There is an established economic inequality between the majority Malay population and the minority Chinese, stemming from strict labor assignments of the colonial government. The federal government then began a redistributive program of affirmative action that favors the ethnic Malay as a way to increase social mobility and

reduce economic inequality. Today, the primary tension in Malaysia's electoral environment is on the question of sustaining or reducing the provisions of the affirmative action program.

To test the effect of turnout on ethnic voting, I first define ethnic voting as the combined vote share of the *Barisan Nasional* (BN) and *Perikatan Nasional* (PN) coalitions in state election. Although the design would be better if we compare voting outcomes when two or more political candidate differs in ethnicity, political races of this nature has a small sample size. The reason why I chose BN and PN as parties that define ethnic voting is because they overtly campaign for race-based policies as opposed to the *Pakatan Harapan* (PH) coalition. I also chose to drop Sabah and Sarawak from my analysis because the ethnicity dynamics is different from the Peninsula.

To get around the endogeneity concerns of turnout, especially the composition of always-voters, marginal voters, and never-voters on the voter roll, I took advantage of the fact that bad weather reduces turnout.

I found that the instrument indeed produced the first-stage relationships that I anticipated – bad weathers have low turnouts. Then, using the variation created by bad weather, I found that turnouts have virtually null results on ethnic voting. However, further analysis suggests that increasing turnouts increase the vote share for PPBM whilst decrease vote share for BN. And turnouts also has null effect on PAS' vote share. This suggests that the phenomena of "Green Wave" may have been misleading; at the margin, voters substitute ethnic party of one over another instead of choosing a religious one. The reason why this is important is because marginal voters are those that may not be politically active or those that know exactly who they are voting for in the next election. By showing that these voters are largely non-religious voters, lower turnouts may have contributed to the perceived rise of Islamic parties in areas with larger population of marginal voters. Not accounting for this effect will inevitably overestimate the impact of turnout on ethnic and religious voting.

In section 2, I will be going over the literature on turnout and political outcomes, whilst situating the Malaysian political environment in the context of growing populism in the world today. In section 3, I will be describing the methodology used in the paper as well as the reasons

why the argument of high turnouts imply high ethnic voting may be empirically flawed. In section 4, I will present the results of my empirical analysis, and in section 5, I will be discussing potential policy implications of my findings.

2 Literature Review and Institutional Background

2.1 Literature on Turnout and Political Outcomes

The connection between turnout and political outcomes has been explored with detail in the US and modern democracies. The literature of turnout's effects on political outcomes in the US is a bit mixed. On the one hand, some studies have shown that turnout has virtually no effect on political outcomes [Martinez and Gill \[2005\]](#) [DeNardo \[1980\]](#). On the other hand, higher turnouts have shown to be correlated with higher vote shares for Democrats as compared to Republicans [Citrin et al. \[2003\]](#). Some other studies found Republicans benefit from higher turnouts [Gomez et al. \[2007\]](#). The problem with measuring the political outcomes of turnout is bound to be filled with empirical problems. This is because the decision to vote is endogenous and depend on many covariates such as wealth [Lijphart \[1997\]](#), individual identity [Leighley and Nagler \[1992\]](#), entry of populists [Leininger and Meijers \[2021\]](#), and many others. Many empirical strategies take advantage of government policy, election timing, and weather shocks [Fowler \[2011\]](#) [Hansford and Gomez \[2010\]](#) [Anzia \[2012\]](#).

One of the primary strategies researchers have used is compulsory voting. In Australia, the practice of compulsory voting has shown large political gains for the Labour party [Fowler \[2011\]](#); while in Switzerland, compulsory voting increased vote shares for leftist parties [Bechtel et al. \[2016\]](#). Another strategy is election timing. On-election timing, which increase turnout, is correlated to weaker influence of organized groups [Anzia \[2013\]](#) and gains to the Democratic party in the US [Fowler \[2015\]](#). Bad weather is also used as a source of exogenous shock due to its depressing effect on turnout [Miguel et al. \[2004\]](#); the result is also favorable to the democratic parties [Fowler \[2015\]](#). To sum, the empirical finding thus far showed at least some positive or null effect on votes for parties

that campaign in favor of redistributive policies. The results make sense from canonical economic models [Meltzer and Richard \[1981\]](#) [Acemoglu and Robinson \[2000\]](#). The rich, who do not prefer redistributive policies would prefer to vote to prevent the implementation of redistributive policies. Expecting that high turnouts lead to positive outcomes to parties campaigning for redistribution, I will be employing bad weather for causal identification. In general, we can broadly categorize voters into 3 types: the always-voters, the marginal voters, and the never-voters. Variation of turnout will necessarily be driven by the marginal voters i.e. voters who only vote conditional on certain covariates such as weather.

| Voter Types | Turnout Condition |
|----------------|--|
| Always-voter | Will turn out no matter the weather |
| Marginal voter | Will turn out if it does not rain, does not turn out if it rains |
| Never-voter | Will not turn out no matter the weather |

Note: Although this categorization is a broad simplification of voter types, imposing this framework enables us to empirically test turnout effects

Table 2.1: Voter Types

However, there is limited literature on whether turnout affects political outcomes in the developing world. Certain stylized facts developed in the political science literature such as wealthy voters are more politically active than poorer voters may not hold in the developing world context especially in countries with weak redistributive preferences among the poor and low bureaucratic capacities [Kasara and Suryanarayan \[2015\]](#). One feature of the developing world is the salience of ethnicity in national politics especially when there is a strong correlation between wealth and ethnicity. Thus, this research seeks to add towards the literature of voting patterns of those who are deterred from voting: if these voters are more ethnically-aligned.

Another literature area we like to make contributions in is on the rise of ethno-nationalist populism. Many studies have documented the rise of populism in the West [Guriev and Papaioannou \[2022\]](#). Far-right parties that campaign on anti-immigrant and nationalist positions have gained a lot of traction in the US and European elections [Becker et al. \[2017\]](#). One of the main hypothesis to explain the rise of populism in the West is that "left-behind" voters are increasingly voting in favor of populism [Nyholt](#). The idea here is that there is a growing ideological or policy distance between

the political elite and the median voter; populist voting is a reaction of the commoner against mainstream parties increasingly neglecting their political needs [Crutzen et al. \[2020\]](#). Many studies have used examples such as immigration [Pupaza and Wehner \[2023\]](#) [Hangartner et al. \[2019\]](#), trade shocks [Autor et al. \[2020\]](#) [Colantone and Stanig \[2018\]](#), and cultural backlash [Rodrik \[2021\]](#) as a source of elite-common divergence.

As a result, turnouts become an important measure to test whether populist parties affect turnout via a voter backlash mechanism [Guiso et al. Morelli et al. \[2021\]](#) or whether populist demand drives turnout [Leininger and Meijers \[2021\]](#). The evidence in the literature is mixed. In the UK at least, high turnouts are correlated with pro-Brexit votes [Goodwin and Heath \[2016\]](#) but low turnouts are also correlated with high populist vote share in Europe [Guiso et al.](#) In Malaysia, many commentators have drawn parallels with the rise of populism in the West [Chin \[2020\]](#) [Ong \[2023\]](#). The domination of the Islamic party PAS and the PN coalition in the North of Malaysia have led many to comment on the rise of ethnic populism in the country – the so-called "Green Wave" [Wong \[2023\]](#). And due to the recent law that automatically registers voters and reduce the voting age from 21 to 18, many were quick to point out the effect of these two laws on ethnic voting [Washida \[2023\]](#) [Rahman \[2023\]](#). Indeed, if one were to do a naive regression, it is not hard to see that districts with higher turnouts have a larger ethnic vote share. Taking advantage of the recent increased political competition in the country, I wanted to investigate whether turnouts increase the vote share of ethnic parties to add on the literature of populism in two ways: to document the potential rise of populism in Malaysia and to see whether turnouts reduce or increase populism.

2.2 Institutional Background

To summarize this is the party arrangement in Malaysia in table 2.2:

Malaysia is a developing country where there is high bureaucratic capacity and redistribution along ethnic lines. Demands of redistribution is highly correlated with ethnicity. During the colonial period, the majority ethnic group – the Malay population – were prevented from capital ownership [Lee and Choong \[2019\]](#). Colonial laws were designed to restrict economic activity of the

| Party | Coalition | Ideology |
|--|-----------|----------------------------|
| United Malays National Organization (UMNO) | BN | Malay Nationalism |
| Malaysian Chinese Association (MCA) | BN | Malaysian-Chinese Interest |
| Malaysian Indian Congress (MIC) | BN | Malaysian-Indian Interest |
| Parti Pribumi Bersatu Malaysia (PPBM) | PN | Malay Nationalism |
| Parti Islam Se-Malaysia (PAS) | PN | Islamism |
| Parti Keadilan Rakyat (PKR) | PH | Social Democracy |
| Parti Amanah Negara (PAN) | PH | Progressive Islam |
| Democratic Action Party (DAP) | PH | Progressivism |

Note: PPBM was part of the PH coalition until 2020. BN denotes *Barisan Nasional*, PN denotes *Perikatan Nasional*, PH denotes *Pakatan Harapan*.

Table 2.2: List of Major Parties In Malaysia

indigenous community to subsistence farming [Hagan and Wells](#). As a result, capital ownership in the colonial period was dominated by the British and the subsequent replacement by the ethnic Chinese. After the independence, the government continued the laissez-faire economic model of the colonial era which allowed the persistence of colonial inequality into the post-independent economy as growth gains did not translate to returns for livelihood for the ethnic majority. Thus, demands for redistribution largely comes from the ethnic majority.

After 1969, the government began a series of redistributive programs targeted to the ethnic Malays which increase the size of government for the first time since independence i.e. the formulation of the New Economic Policy (NEP). In 1969, poverty rates among the ethnic Malay is 65%, in 1991 poverty rates among the ethnic Malay is 20% [Ravallion \[2019\]](#) [Khalid and Yang \[2021\]](#). Wealth inequality among ethnic Malay and Chinese has undoubtedly reduced since 1969. However, there is still persistence of wealth inequality among the Chinese and the Malay population [Ravallion \[2020a\]](#) [Ravallion \[2020b\]](#).

The strong correlation between wealth and ethnic background in Malaysia gives us an opportunity to investigate the phenomena of ethnic voting. The traditional conflict in the West typically explored in electoral research is between the wealthy and the poor [Corvalan et al. \[2020\]](#). Due to the large majority of the Malay population as part of the electorate, all major party coalitions in the country campaigns in favor of redistribution. The only difference is redistribution for which ethnic group. This enables us to control for wealth-based preferences in determining voting outcomes due

to the lack of options for parties who represent the wealthy elite and study ethnic-based preferences as parties do differ in their campaign strategies when it comes to race. By studying ethnic voting, we are able to make sense of the role of ethnicity in electoral politics, which is a growing concern with the rise of ethnic and nationalist populism in the West.

If one were to glance at any campaign manifesto from all the parties, redistributive policies are not controversial – the difference is who benefits. In Malaysia, the central political tension is the ethnic group who benefits most from redistribution. On the one hand, the old BN and the new PN coalition heavily campaigns in favor of redistribution for the Malay and Bumiputera population [badra \[2022a\]](#) [badra \[2022b\]](#) [badra \[2022c\]](#). On the other hand, PH campaigns for redistribution for all races. If one were to observe the composition of party candidates of the three coalitions, it is fairly obvious that both BN and PN are ethnic-based coalitions and PH is much more ethnically diverse [badra \[2023\]](#). Using this qualitative cleavage between ethnic and non-ethnic parties who both campaigns in favor of redistribution, we are interested in the preferences of marginal voters i.e. if there are voters who go out to vote given the right conditions such as good weather, how do they vote? This is important for us to see whether turnouts can change outcomes that can potentially lead to different representation or different governments. And we also would like to see how marginal voters vote i.e. if ethnic voting is much more likely among marginal or always-voters and whether rise of populism is overestimated – if there is a substitution effect for always-voters from BN to PN or if there is a structural change in the demand for populist parties.

To define ethnic-based parties, I use the below categorization in table 2.3. This is because both PN and BN campaigned heavily by emphasizing their role in representing the Malay interests. But, as a result of joining the PH coalition in 2022, BN were campaigning alongside the multi-ethnic PH and minimizing their racialized past. To get around the arbitrariness of the definition on what defines an ethnic-based party I also included some analysis for the effect of turnout on partisan outcomes to get the decomposition of marginal voters voting choice.

| Election | Ethnic Parties | Date |
|-----------------------|----------------|---------------|
| Melaka | PN + BN | November 2021 |
| Johor | PN + BN | March 2022 |
| Perak, Pahang, Perlis | PN + BN | November 2022 |
| 2023 State Election* | PN | August 2023 |

Note: *2023 State Elections includes the state of Selangor, Negeri Sembilan, Pulau Pinang, Kedah, Kelantan, and Terengganu

Table 2.3: State Election Timeline

2.3 Motivation: Is Ethnic Voting Increasing?

One of the most salient questions in today’s Malaysian political environment is whether there is really a case to be made for the rise of ethnic voting as often made by both academics and the wider society. Is there a long-term divergence for ethnicity-based political preferences since the early 2000s for Peninsula Malaysia? To descriptively paint a picture of ethnic divergence I used the Asian Barometer survey to see if there is a divergence in trust in institutions, turnout in elections, and party identification¹ for [East Asia Democratic Studies](#). The reason for this exercise is to see if there is a sharp divide between the ethnic majority and minorities in terms of political preferences. In terms of economic variables such as income or employment, inequality between ethnic groups has not increased to the staggering levels of 1960s and has remain stagnant since the Great Recession [Lee \[2023\]](#). Thus, we would like to see if there is political polarization on a descriptive sense to merit further investigation into the causes of such polarization. Of course, this survey suffers from a plethora of psychological biases such as social desirability bias², so one will have to be careful in interpreting the results [Brownback and Novotny \[2018\]](#). Another source of concern is that the latest survey results following COVID-19 pandemic has not been released so the data is limited up till 2019. And since the Asian Barometer survey did not identify survey respondents by ethnic background, we will be using religious affiliation as a proxy for ethnicity³.

As one can observed in figure 2 and 3, trust of institutions especially the courts, local gov-

¹There are a variety of other variables included in the Asian Barometer Survey, I included some of the more important ones relevant to this study.

²Respondents answer in ways that the survey-takers wants them to do.

³This is not the best way to measure ethnic polarization, but since ethnic background is correlated to religion in Malaysia, this use is justified within the Peninsula Malaysia context.

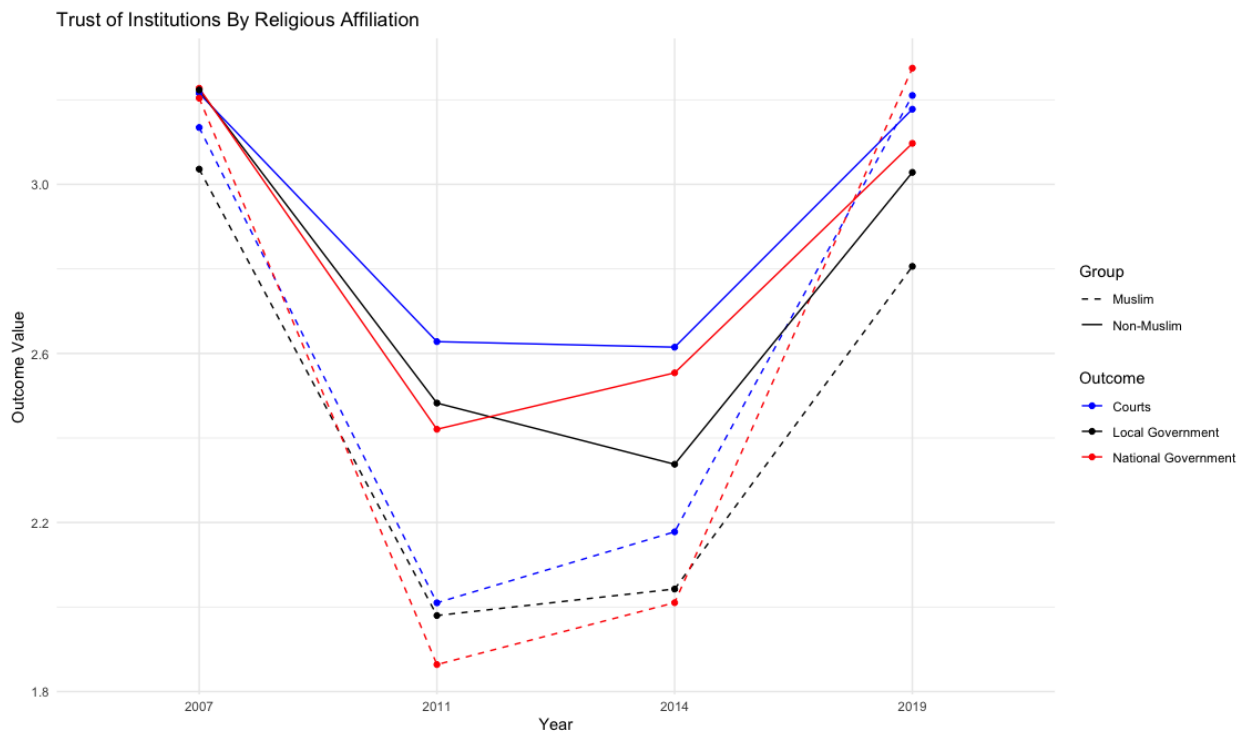


Figure 1: Trust in Institutions by Religious Affiliation

ernment, and national government declined rapidly for both Muslims and non-Muslim respondents from 2007 to 2011 possibly due to the 1MDB scandal. However, following the 2018 election, trust in institutions restored to 2007 levels as we see a convergence of trust in institutions between Muslim and non-Muslim respondents. Non-Muslims also disproportionately did not vote in the year 2007 and 2011, but overwhelmingly voted by 2014. However, growing number of both Muslims and non-Muslims have chosen not to vote although the difference between them is largely insignificant.

In terms of partisan affiliation in figure 4, it is not surprising that vote shares for BN has declined significantly since its hey-days in the early 2000s. For non-Muslim respondents, the decline in vote share for BN corresponds with the increase in vote share for PH. Whereas for Muslims, the increase in PH is not as steep as non-Muslims. Notice that vote shares for PAS has remain steady since 2007. In fact, most survey respondents – both Muslim and non-Muslims – are undecided or unsure of their partisan preferences. This reflects the growing political competition since the end of one-party rule in our country. Thus, this strengthens our case for studying voting patterns of marginal voters. Of course, we must be careful in interpreting the description above.

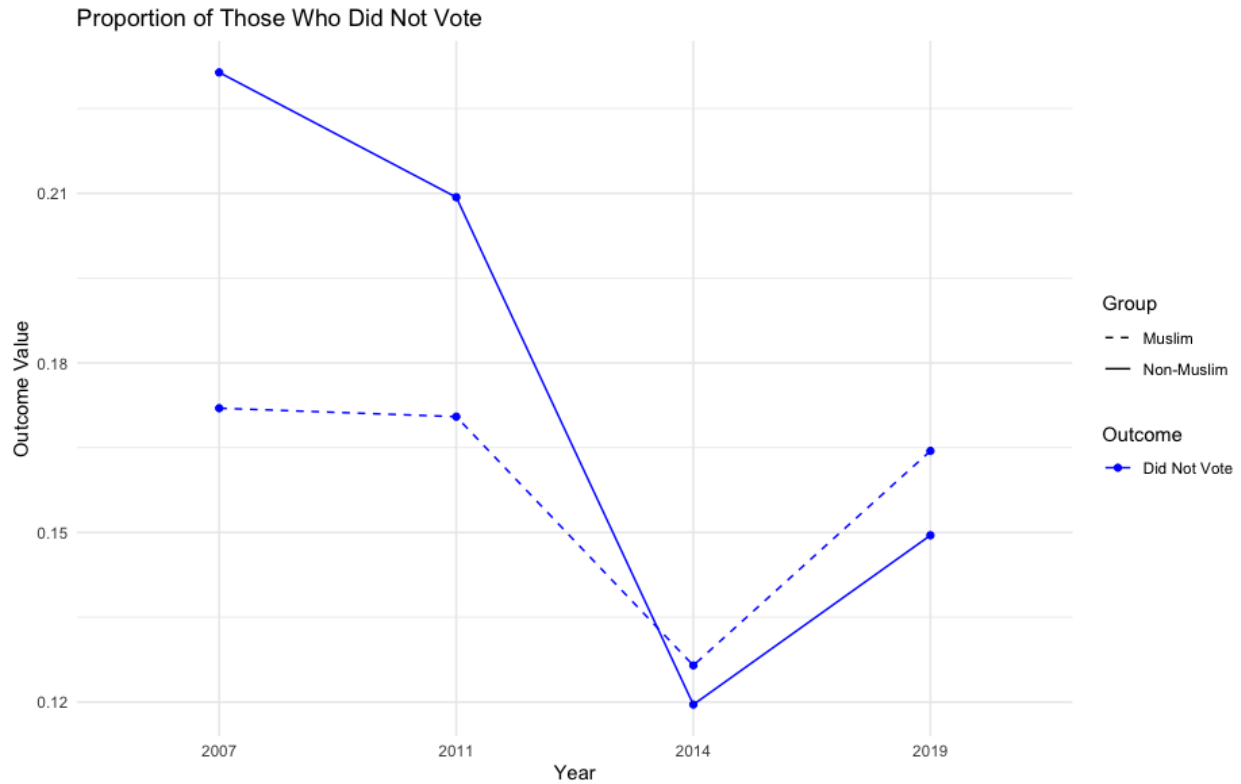


Figure 2: Proportion of Respondents Who Do Not Vote

Survey responses may suffer from social desirability bias. Specifically, partisan attachments may be strategically hidden if they perceive their information will be used against them [Brownback and Novotny \[2018\]](#) [Clinton et al. \[2022\]](#). Also, the survey is outdated as they have not been run in the post-COVID and post-Sheraton's Malaysia political environment. Therefore, one may be tempted to say that there is a sharp break between the political world before and after COVID. Even so, this criticism is only directed at a short-run phenomena of ethnic voting. The long-run survey data seem to suggest some convergence in political preferences – in the level of institutional trust, turnout, and partisan attachment – between Muslims and non-Muslim, which in the context of Peninsula Malaysia implies ethnicity as well. Prior to the 2022 election, there could be unchanging trends in ethnic and religious voting, instead of increasing.

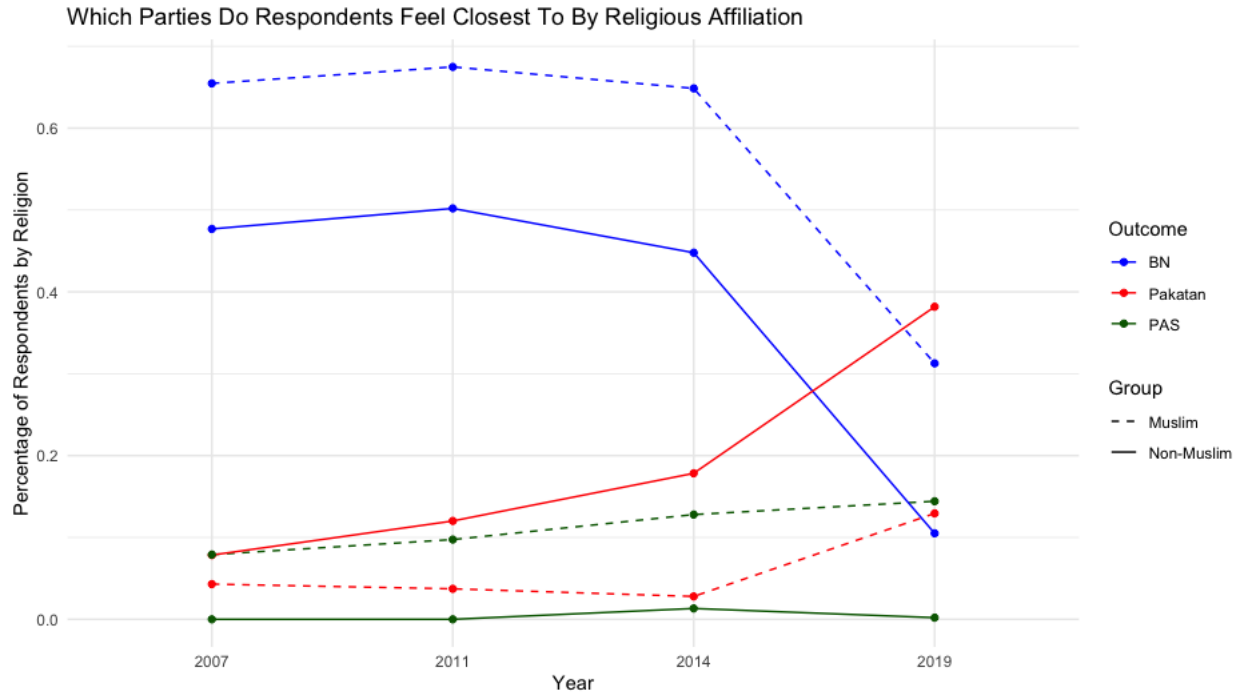


Figure 3: Parties That Respondents Feel Closest To

2.4 Why Define Ethnic Voting as Voting for Malay-led Parties?

The reason why studying marginal voters for Malay-majority constituencies is because these constituencies are significantly more competitive than minority constituencies. As a result of this increased competition, Malay-led parties such as UMNO, PPBM, and PAS have increasingly engage in a race to court the Malay voter, each claiming their position as representatives of Malay interest. On the other hand, minority-led parties such as GERAKAN, MCA, and MIC which traditionally campaign as ethnic complements to UMNO have increasingly lose their voter base as there has been a strengthening of the minority coalition bloc in the ethnically-diverse DAP. As a result, ethnic voting in Peninsula Malaysia has been increasingly defined by a beauty contest between Malay-led parties in terms of their position on Malay-based policies. To illustrate the difference in the level of competition in Malay-majority constituencies and the competition in minority constituencies, I plot the winning margins of different parties in 2018 and 2022 in figure 4.

To interpret the figure 4, the x-axis represent the party and the y-axis represent the winning margins of seats that these parties contest in for 2018 and 2022. One can observe here that the

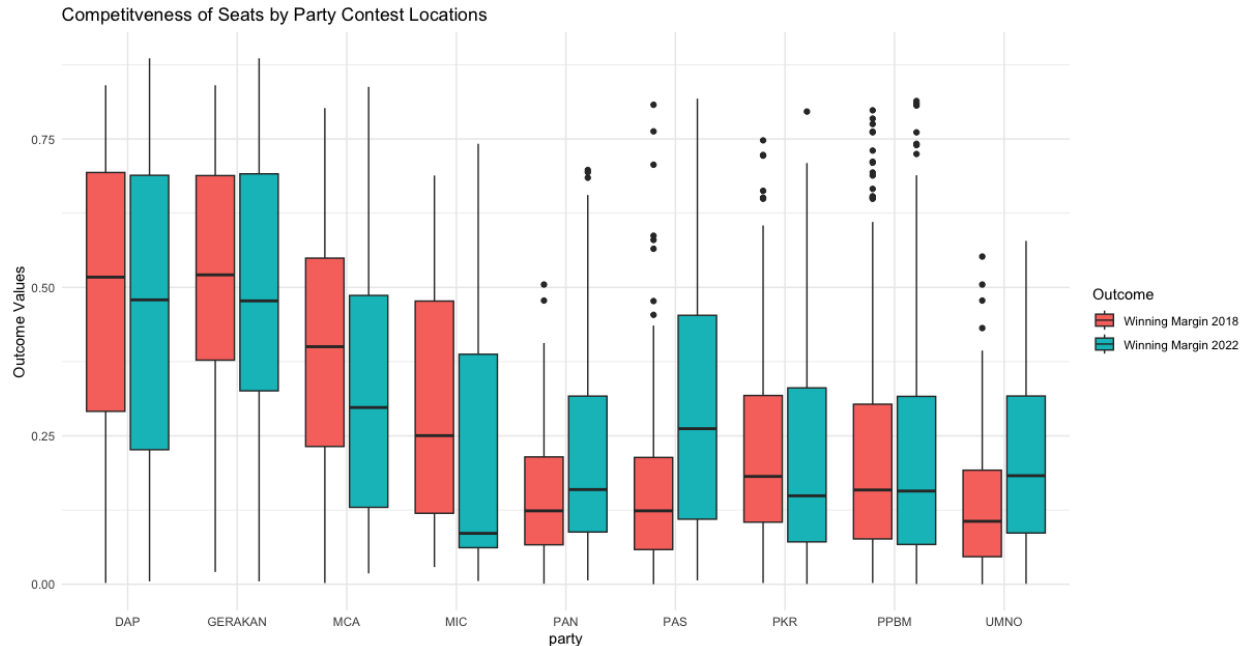


Figure 4: Winning Majorities and Seat Allocation for Major Parties

seats contest by minority-led parties is highly uncompetitive compared to their Malay counterparts – DAP, GERAKAN, MCA, and MIC all contest in seats with winning margin at least above 25% for both 2018 and 2022. This is not surprising considering that there is a strong consensus among the minorities in favor of the PH coalition since at least 2008. One can also observe the high degree of competition among all the Malay-led parties – PAN, PAS, PKR, PPBM, and UMNO. Among the Malay-led parties, PAS seats are the least competitive, although not as uncompetitive as the minority party competition.

Figure 4 is important to understand where the marginal voter will have the largest incentive to vote i.e. where the marginal vote will be the most likely to decide the election. Thus, we can see that seats where we see contests of Malay-led parties is where we will most likely to find marginal voters. One can argue that competition does not drive turnout and vice-versa but again this argument does not account for the composition of always-voters and marginal voters. If we assume marginal voters turnout at higher rates when they most likely decide the election, then we can infer that the district is most likely to see a contest between Malay-led parties. Thus, we think that defining ethnic voting in a Malay-ethnic sense is appropriate given the higher-stakes competition face in Malay electoral races.

2.5 Summary of Argument

To sum up my argument thus far, I argue that claims that high turnout drives ethnic voting neglects the inherent difference in unobservables between always-voters and marginal voters. Always-voters may have been those who are party-loyalists or those in which parties do not need to campaign to earn their vote. Marginal voters are those who are still debating on whether or not it is worth it to turn out to vote. Most debates of ethnic voting tend to focus on the increasing dominance of parties in high-turnout constituencies. I argue that to show that turnouts drive ethnic voting, one will need to show that marginal voters are voting for ethnic parties as this group of voters are the ones generating variation in turnout. As I will show later in the paper, the evidence that marginal voters are ethnically-aligned is absent.

3 Methodology

3.1 OLS Estimator

A straightforward analysis between the correlation of turnout and ethnic voting reveals that when more people turn out to the polls, the higher rates of ethnic voting. Typically, we can use the OLS estimator to derive the relationship for a constituency i :

$$EthnicVoteShare_i = \beta_0 + \beta_1 Turnout_i + \beta_p X_p + \epsilon_i$$

$EthnicVoteShare_i$ represents the vote share variable of ethnic voting i.e. vote shares of PN (and BN prior to 2023). $Turnout_i$ is the turnout variable. X_p is a set of controls.

Now, there is a major problem in this simple regression i.e. selection bias. To see this, we can categorize the set of voters in a constituency by three groups – always-voters, marginal voters, and never-voters. The always-voters will vote regardless of any cost of voting they have to endure. Never-voters will not vote in spite of any allowance given to them to vote. Marginal voters will

vote if certain conditions are met and not vote if these conditions are not met. When we compare turnouts of different constituencies and see the corresponding ethnic vote share outcome, we are not accounting for the fact that the cost of voting within a district may vary and that these costs are endogenous in a district. Although traditionally costs are referred to the difficulty in voting such as poverty or distance to the polling booth, costs can also be interpreted as voter enthusiasm. The costs of voting can be increased due to the economic difficulties but can be lowered if voters are invested enough. For example, people who live and work in a different constituency travel through traffic jams to vote across state lines. Thus, in any given constituency, there will be people who are always voting, people who are always not voting, and people who sometimes vote given the right conditions. To find the effect of turnout on ethnic voting, we need to find the electoral behavior of marginal voters.

3.2 Empirical Strategy

Our empirical strategy thus relies on the unbiased estimation of marginal voter turnout on ethnic voting. We will be employing an instrumental variable that generated exogenous variation: rainfall. By using the instrumental variable approach, we will be deriving an unbiased local average treatment effect (LATE) for marginal voters [Angrist and Pischke \[2009\]](#).

There are four different conditions that needed to be assumed for a valid identification strategy. First, instrumental variables needed to fulfill first-stage relationship i.e. instrumental variables needed to be correlated with the independent variable. In the case of rainfall, there is a wide literature in political science that show the negative correlation between voter turnout and rainfall precipitation [Dell et al. \[2014\]](#) [Miguel et al. \[2004\]](#) [Lind \[2020\]](#) [Gomez et al. \[2007\]](#). The source of this correlation comes from the fact that bad weather deters some marginal voters due to commuting difficulties or the simple nuisance of lining up in the rain. Since Malaysia is a tropical country with reliable amounts of rain, we can expect that some areas in the country experiencing rain on election day. Being on a tropical climate also helps in terms of temperature since there is very little temperature we have to account for.

| <i>Dependent variable:</i> | |
|----------------------------|-----------------------|
| | Turnout |
| Rainfall | −0.001*** (0.0002) |
| Observations | 373 |
| Controls | ✓ |

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors are in parenthesis. Controls include proportion of men, Bumiputera share of population, labor unemployment, median income, and poverty incidence, and election date.

Table 3.1: Effect of Rainfall on Turnout

To interpret: 1 mm of rain is correlated with 0.1 percentage point decrease in turnout, which seemed to be a modest decrease but one need to factor the fact that going from no rain (0 mm) to median rain (23.7 mm) yields a turnout effect of 2.37 percentage points – a potential turnout effect that can swing constituencies. To give a tangible example, a median rain of 23.7 mm in Kota Anggerik (a constituency) with 95,104 voters will deter about 2250 marginal voters.

Next, we also need to assume that none of the voters are part of the defier group. A defier group is an assumption where if a voter experienced lower cost of voting, they will be less likely to vote. A defier voter is one where they are more likely to vote when there is higher rainfall. This assumption is reasonable given that a defier voter is someone that chooses to vote when it is the most inconvenient for others to do so. Although untestable, I will be providing a robustness check where I will run the effect of rainfall on turnout for a random subsample of the full sample.

We also have to assume that our instrument is exogenous. For rainfall, we know that this condition is straightforward; elections are pre-determined at a given date and rainfall cannot be sufficiently anticipated in advance. There is however some concern here because politicians who benefit from low turnouts can strategically call for an election during rainy season. These concerns were in fact called out in the public as many protested against the former Prime Minister Ismail Sabri who called the general election in November – a rainy season [noa](#). However, we will be controlling for election date so that we will compare districts that have rain and no rain within the same election day. Our regression will be set up in such a way where in any given election day, we

will compare turnouts on districts with more rain and no rain. To show this, I will be running a placebo test where I will use different rainfall days to show if the effects still hold for turnout.

The final assumption we need for instrumental variable identification is exclusion restriction i.e. the variation of the instrument on the dependent variable has to only come through the independent variable. Rainfall changes the outcome of ethnic vote share only through the change in the composition of marginal voters – higher amounts of rain contributes to lower marginal voters which then produce an outcome in the ethnic vote share. This assumption is also not testable but what I could do is to show that rainfall has virtually null effects on a host of socioeconomic outcomes.

The empirical specification is as follows for a district i ,

$$Turnout_i = \beta_0 + \beta_1 Rainfall_i + \beta_p X_p + \epsilon_i$$

Above is the first stage regression where $Rainfall_i$ is a rainfall variable which is the total rainfall on the day of election. $Turnout_i$ is voter turnout.

$$Y_i = \alpha_0 + \alpha_1 \widehat{Turnout}_i + \alpha_p X_p + \epsilon_i$$

Above is the instrumental variable estimation. $\widehat{Turnout}_i$ is the predicted turnout rate generated by the instrumental variable and the Y_i is the outcome variable such as ethnic vote share, PN vote share, and religious vote share. I also conducted similar strategy if we define PN as the only ethnic vote for the 2023 election since BN formed a coalition with the ethnically diverse PH coalition. Note that I will be controlling for a host of socioeconomic variables for a given constituency and election-day to get within-election day variation. I will not be controlling for the state variable because of possible bias amplification cite econometrics paper. Namely, we know that certain states receive more rain than others (e.g., Northeastern states rain a lot more than the Southwest) i.e. states are correlated with rain. States also affect the political arrangements of the constituency

involved, which will affect turnout and political outcomes independent of rain and vice-versa. But I know that rainfall will not affect states because that would require rainfall on a specific day to affect how borders are being drawn, so exclusion restriction still applies here. Put simply, I am interested in measuring overall LATE of turnout on the outcome variable and conditioning my estimate on states will risk introducing spurious correlation. For example, a state like Kelantan (with relatively homogenous voting profile) that systematically rains more than a state like Negeri Sembilan (with more diverse voting profile) may have pre-existing biases. Controlling for state will further exacerbate these biases. What I will do is to compare voting outcomes in constituencies that experiences rain and no rain on a given election day and derive the average voting trends among the marginal voter group regardless of which state they come from.

α_1 will be the primary quantity of interest in our study. The reason for that is because the coefficient measures the party or ethnic vote share of marginal voters that are varied by the amount of rainfall on election day. For example, given that we know that rainfall deters marginal voters, how would they vote when there's no rain? α_1 gives us the vote share of the marginal voters. For example, if $\alpha = 0.1$ for ethnic voting outcome, that means that the average ethnic vote share for marginal voters that are deterred from voting due to poor weather is 10 percentage points i.e., 10% of the marginal voter group voted in favor of the ethnic party. This is the quantity of interest because this is the type of voters that may change perceptions in political outcomes. If a constituency has a group of always-voters who vote for ethnic parties⁴ and marginal voters do not turn out to vote, then the results will show that ethnic parties dominate in that constituency.

4 Data

The data for electoral outcomes, turnout, and state constituency composition was obtained via Tindak Malaysia [Malaysia \[a\]](#) [Malaysia \[b\]](#) [Malaysia \[c\]](#). The data for economic and population variables was obtained via the 2020 census. Data for rainfall was obtained via the CHR-UCI website [Sorooshian](#). The schedule of the election is as follows:

⁴Think of the voters who are mobilized by parties through party machinery

| Election | Date |
|-----------------------|-----------------------|
| Melaka | Sunday, Nov 21 2021 |
| Johor | Saturday, Mar 12 2022 |
| Perak, Pahang, Perlis | Saturday, Nov 19 2022 |
| 2023 State Election* | Saturday, Aug 12 2023 |

Note: *2023 State Elections includes the state of Selangor, Negeri Sembilan, Pulau Pinang, Kedah, Kelantan, and Terengganu

Table 4.1: State Election Timeline

Due to all elections being held on weekends, we do not have to worry about the effect of non-weekend elections on turnout. I will only be analyzing state elections in Peninsula as opposed to those in Borneo. The reason for this is because of the large difference for ethnic politics between Peninsula and Borneo which will make our design incomparable.

4.1 Descriptive Statistics

Here is the summary statistics of the state constituencies involved in the state elections 2021 – 2023. All the states in the Peninsula took part in the election. As one can observed, turnouts in Malaysia are relatively high when compared to the rest of the developed country with a mean of 69.7%, ranging from 43.3% to 83%. Typical constituencies have a makeup of 72.8% Bumi, 20% Chinese, and 6.5% Indian shares of population. Reported unemployment rates are also pretty low with an average of 3.9% and average poverty incidence is 5.951 households per 1000 households.

| Variable | Mean | SD | Min | Max | N |
|--------------------|-------|-------|-------|--------|-----|
| Turnout | 0.697 | 0.079 | 0.433 | 0.830 | 445 |
| Proportion of Male | 0.521 | 0.023 | 0.458 | 0.656 | 445 |
| Bumiputera | 72.8 | 24.0 | 8.7 | 99.9 | 445 |
| Chinese | 20.0 | 19.7 | 0.0 | 85.5 | 445 |
| Indian | 6.5 | 7.0 | 0.0 | 49.6 | 445 |
| Unemployment | 0.039 | 0.014 | 0.011 | 0.092 | 445 |
| Median Income | 5208 | 1672 | 2069 | 12533 | 445 |
| Poverty Incidence | 5.951 | 5.482 | 0.000 | 39.400 | 445 |

Table 4.2: Summary Statistics of State Constituencies

5 Results

5.1 Effect of Turnout on Ethnic Vote Share

| | <i>Dependent variable:</i> | | |
|--------------|----------------------------|------------------------------|-------------------|
| | Ethnic Vote Share | | |
| | <i>OLS</i> | <i>Instrumental Variable</i> | |
| | (1) | (2) | (3) |
| Turnout | 1.099*** (0.172) | -0.028 (0.208) | -0.075 (0.118) |
| Observations | 373 | 373 | 373 |
| Controls | | | ✓ |

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors are in parenthesis. Controls include election day, proportion of men, Bumiputera share of population, labor unemployment, median income, and poverty incidence.

Table 5.1: Effect of Turnout on Ethnic Voting Outcomes

As observed by the table above, although the straightforward OLS shows a strong positive effect, the instrumental variable estimation yields a null effect. Interestingly, the estimate also yields a sign change which is notable. However, we cannot really say anything beyond the fact that there is still limited evidence that marginal voters are voting in favor of pro-ethnic parties. What we can do now is to check some of the potential reasons why the null results were obtained i.e. where the effect of turnout goes as far as partisan outcomes are concerned.

5.2 Effect of Turnout on Party Outcomes

| | <i>Dependent variable:</i> | | | | |
|--------------|----------------------------|----------------------|-------------------|--------------------|---------------------|
| | PN | BN | PAS | PPBM | PH |
| | (1) | (2) | (3) | (4) | (5) |
| Turnout | 0.259** (0.117) | -0.549*** (0.111) | -0.024 (0.184) | 0.370** (0.177) | 0.361*** (0.105) |
| Observations | 373 | 264 | 185 | 148 | 264 |
| Controls | ✓ | ✓ | ✓ | ✓ | ✓ |

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors are in parenthesis. Controls include election day, proportion of men, Bumiputera share of population, labor unemployment, median income, and poverty incidence.

Table 5.2: Effect of Turnout on Partisan Outcomes

The estimation above paints a richer picture on the electoral choices of marginal voters. As observed above, turnouts increase the vote shares of both PN (specifically PPBM) and PH whilst decrease vote shares for BN. The vote share for PAS is relatively unchanged as it yields a null effect. To better interpret the results using tangible examples, going from no rain to mean rain precipitation (23.7 mm) for the November 2022 elections decrease turnout by 2.37 percentage points which equates to 900 voters for an average state constituency. In turn, this will lead to a 0.6 percentage point increase in vote share for PN, 1.3 percentage point decrease in vote share for BN, 0.8 percentage point increase in vote share for PPBM, and 0.8 percentage point increase in vote share for PH.

What this means is that if we see an electoral contest between BN-PAS-PH, we will observe that high turnouts lead to a negative effect on BN vote share but a positive effect for PH vote share and no effect for PAS vote share. In this scenario, PH benefits from high turnouts as marginal voters are disproportionately voting in their favor as these types of voters are more likely to not be voting for PAS; thus, we see an overall decrease in ethnic voting in this constituency. When we see an electoral contest between BN-PPBM-PH, high turnouts will penalize BN, but marginal voters vote PH and PPBM at similar rates; thus, in this constituency the trend of ethnic voting is null. Hence, the overall direction of ethnic voting if we have larger samples is negative – in fact,

our initial specification shows suggestive evidence of this.

5.3 Robustness Check: Testing the Effect if Different Definitions of Ethnic Voting is Used

| <i>Dependent variable:</i> | | |
|----------------------------|---------------------|------------------------------|
| Ethnic Vote Share | | |
| | <i>OLS</i> | <i>Instrumental Variable</i> |
| | (1) | (2) |
| Turnout | 0.359*** (0.090) | -0.139 (0.510) |
| Observations | 264 | 264 |
| Controls | ✓ | ✓ |

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors are in parenthesis. Controls include election date, proportion of men, Bumiputera share of population, labor unemployment, median income, and poverty incidence. In this specification, ethnic vote share is defined as the vote share combination of BN and PN coalition.

Table 5.3: Effect of Turnout on Ethnic Voting Outcomes Using Different Parties

6 Discussion

6.1 Policy Implication of Higher Turnouts

A natural question to follow is: what if we introduce policies to increase turnout? Our analysis suggest that there are partisan winners and losers for increasing turnout but the evidence of ethnic voting is still unclear. And these partisan winners and losers are arbitrarily defined depending on the context of the election. Policies designed to increase turnouts may increase participation inequality among the voters and non-voters as they effectively increase participation for marginal voters without the consideration for never-voters. Specifically, if marginal voters are similar in characteristics as always-voters, then political candidates can only observe the preferences of these

two groups and not the never-voters. Voluntary voting will necessarily exclude the never-voters from participating and exhibiting their preferences in the ballot box. Thus, introducing policies that facilitate voter turnout will need a normative basis in excluding the never-voters from political participation i.e. is it fair for political systems to neglect the preferences of never-voters since they do not contribute to the maintenance of the political system?

7 Conclusion

In this paper, I seek to show the effects of turnout on ethnic voting in the state elections – a set of elections where many observe increased levels of ethnic voting. Using clear parameters that define ethnic voting, I did not find evidence that higher turnouts leads to increase vote shares for ethnic voting. The reason is because higher turnouts lead to partisan outcomes that are not anticipated ahead of time. In the specific context of the previous state election, higher turnouts lead to a decline in votes for BN (a major ethnic party). But, it also leads to a corresponding increase in votes for PH (a non-ethnic party) and PPBM (an ethnic party), while a null effect for PAS (an Islamic party)⁵. Thus, the preferences of ethnic voting among marginal voters is a bit unclear. What we do know however is that religious vote shares do not improve with higher turnouts which weakens the "Green Wave" narrative.

I also descriptively analyze the long-run trends for an overall voter between 2007 – 2019. Although the data is not available to see the short-run ethnic voting trends, the long-term trends in institutional trust, voter turnout, and partisan affiliation seemed to be converging among Muslims and non-Muslims in the Peninsula which can be extended to preferences in the context of ethnicity. Combining these two findings, the evidence of an overall increase in ethnic voting is still unclear.

However, one should not accept that there is no ethnic voting either i.e. we found no evidence of increased ethnic voting, but that does not mean ethnic voting did not increase. Further research study is needed to understand some of the potential causes to the increased ethnic voting in Malaysia and if the claim frequently made by political commentators is warranted in light of new evidence.

⁵Many attribute this party as the one responsible for the rise of ethnic voting

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