

Do Institutions Cause Strategic Voting?

Evidence from Taiwan

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Abstract

Existing research shows that institutions shape strategic voting, yet most evidence comes from parliamentary democracies. Other types of democracies remain less explored. This study investigates the causal impact of institutional change on strategic voting in Taiwan, a semi-presidential democracy, using a within-country research design. In 2008, Taiwan shifted from a multi-member to a single-member district system for parliamentary elections, while the rules for local council elections remained unchanged. Leveraging this institutional change, I implement a difference-in-differences framework, supplemented by individual-level survey evidence to assess strategic voting under different electoral rules. The results reveal a significant rise in strategic voting following the reform, particularly in districts that experienced larger seat reductions. Survey data further indicate that supporters of minor parties were especially likely to vote strategically or change their party identification. These behavioral shifts appear to be driven primarily by voters rather than by parties, suggesting that individuals responded quickly and adaptively to the new electoral incentives.

Keywords: Institutions, Strategic Voting, Electoral Reform, Difference in Differences

It is not always the case that people vote for their preferred candidates or parties in elections. On occasion, voters will make their decision based on their expectations of potential electoral outcomes, eschewing a preferred candidate or party for one that has a higher probability of success (Blais & Degan, 2019; McKelvey & Ordeshook, 1972). In Cox (1997)’s words, voters try their best to “make their votes count”.¹

What factors contribute to the emergence of this particular form of tactical conduct? It is plausible that institutions exert a significant influence.² According to Duverger’s Law (Duverger, 1954, p.205), “*simple-majority single-ballot favors the two-party system*” and his hypothesis suggests that “*simple majority with a second ballot [dual-ballot or runoff] or proportional representation favors multipartyism.*” It can thus be surmised that voters may respond in different ways under different electoral rules. Even though there is a huge literature on the impact of institutions on strategic voting, we are still left with questions about this relationship. First, it is not possible to conclude that the institution causes strategic voting methodologically by merely comparing the election outcomes of two democracies that employ disparate electoral rules because there may be considerable omitted variable bias. Second, current research focuses on the parliamentary system, with the semi-presidential getting short-shrift (Cox, 1997; Moser & Scheiner, 2009; Heath & Ziegfeld, 2022).

In this paper, I provide a causal analysis of the impact of electoral reform on strategic voting in a semi-presidential system. I focus on the case of Taiwan and the 2008 electoral reform. Prior to the reform, both the parliamentary and local council elections were

¹ In the existing literature, strategic voting is typically distinguished from sincere voting. Strategic voters do not always vote according to their direct preference, and their decision can be contingent on the actions of others (Blais & Degan, 2019).

² In general, institutions can be defined as comprising a variety of elements, including electoral rules, campaign regulations, and other pertinent aspects. In light of the constrained scope for modification in other domains of Taiwan’s electoral institutions, this paper will focus on the electoral rule. Therefore, the majority of the institutions discussed in this paper can be regarded as analogous to the electoral rule.

conducted using a multi-member district system.³ Subsequent to the reform, the majority of local constituencies in parliamentary elections are transformed from multi-member districts to single-member districts. In the meantime, the constituencies for local council elections remain unchanged. I employ a difference-in-difference analysis of electoral outcomes, complemented by individual survey data, to ascertain causally the impact of the reform on strategic voting. The results confirm the Duvergerian logic in a semi-presidential setting, and demonstrate that voters alter their behavior in accordance with the aforementioned factors. In the wake of the reform, voters demonstrated a heightened proclivity for strategic voting in the parliamentary election. However, this phenomenon did not manifest in the local council election. Despite the fact that the parliamentary election is not the most significant in Taiwan, there is nevertheless a strong motivation for individuals to engage in tactical voting. Moreover, survey data is utilized to determine which categories of voters are more prone to engage in strategic voting. The analysis indicates that supporters of minor political parties are more likely to engage in strategic voting. But the majority of all survey respondents indicated a preference for modifying their party identification rather than maintaining their affiliation with a minor party.

Literature Review

What motivates voters to engage in strategic voting? Aldrich, Blais, and Stephenson (2018) point out that voters may have disparate objectives when they cast ballots, and voting for their preferred candidates may not always be an effective means of achieving those objectives. Consequently, voters will analyze the current situation and engage in

³ The local council elections examined in this paper include city, county, and municipal councils. Under Taiwanese law, sub-national administrative units are classified as cities, counties, or municipalities, depending on their population size. However, these councils share the same electoral rules and perform similar functions, primarily overseeing local governments.

tactical behavior, such as strategic voting, in order to achieve their own goals. The specific manner in which strategic voting is conducted varies according to the electoral system. Myerson and Weber (1993) and Cox (1987) offer theoretical insights into strategic voting under different electoral rules. Subsequently, Cox (1997) employs data to support his theory on strategic voting. He demonstrates that strategic voting occurs in both single-member and multi-member districts. Other studies also demonstrate that strategic voting may occur in runoff or proportional representation (PR) type elections (Cox & Shugart, 1996; Abramson et al., 2010).

According to Palfrey (1989), the efficacy of strategic voting is contingent upon the satisfaction of two essential conditions. The initial prerequisite is that the second-place finisher be situated in close proximity to the first-place finisher. The second condition is that voters are more likely to be pivotal between their second and last preferred choices than between their first and last choices. In essence, the availability of information is a crucial factor. In order to cast a strategic vote, it is essential that voters have access to sufficient information. As demonstrated by Cox (1997), individuals are more likely to abandon their preferred candidates if they believe that these candidates are certain to lose. Nevertheless, if the electorate is misinformed about the de facto front-runner in the election, the prevalence of strategic voting will be constrained. Heath and Ziegfeld (2022)'s work suggests that India has limited strategic voting due to the infrequency of public opinion polls. Consequently, voters lack sufficient and accurate information. Ultimately, they all believe that their respective parties will prevail and vote sincerely. In summary, institutions and information play a pivotal role in determining strategic voting.

Despite the abundance of studies that have examined the relationship between institutions and strategic voting, the majority of these studies are constrained by inherent

limitations. For example, the empirical test of the bimodality hypothesis presented in Cox's book (Cox, 1997) only demonstrates that strategic voting can occur under various electoral systems. However, the cases he employs to exemplify the disparate electoral systems are derived from countries with markedly divergent political and institutional contexts. It is difficult to make direct comparisons between the results and conclude that the institution is the cause of strategic voting because elections in different countries are held under very different contexts. Some other studies attempt to estimate the causal effect of various institutions on election outcomes (Blais, Lachat, Hino, & Doray-Demers, 2011; Fiva & Folke, 2016). It should be noted, however, that the aforementioned studies do not examine the distribution of votes at the constituency level. The studies in question focus exclusively on examining changes in the share of parliamentary seats. Furthermore, when estimating the causal effect of the institution, some only compare the simulation results in a counterfactual world to the actual election results.

Furthermore, previous studies have primarily concentrated on parliamentary democracies. Moser and Scheiner (2009) uses the second-to-first loser ratio (SF ratio) to assess strategic voting in countries with mixed-member electoral systems (e.g., United Kingdom, Japan, Canada, Switzerland, Norway, and New Zealand). The argument is put forth that newly established democracies are less likely to have strategic voters as a result of the absence of institutionalization of party systems. However, it should be noted that their study has limitations. Their conclusion is limited to parliamentary democracies, it is unclear whether the same result holds for other types of democracy, such as presidential or semi-presidential systems.

One of the most significant distinctions between parliamentary and non-parliamentary democracies is the function and significance of parliamentary elections. In parliamentary

democracies, citizens determine both the legislative and executive branches of government in a single election. In contrast, non-parliamentary democracies hold two elections: one for the executive leader and one for the majority of the parliamentary members. This suggests that voters may engage in a different decision-making process when casting their ballots in parliamentary elections. Furthermore, separate elections may result in the formation of disparate combinations of behavioral patterns among political parties. For example, a political party may opt for coordinated action in the presidential election but adopt divergent strategies in the parliamentary election. It is therefore crucial to determine whether this phenomenon persists in non-parliamentary democracies with disparate electoral regulations. Existing studies have discussed the consequences of electoral reform in Taiwan, but most focus primarily on changes to the party system or patterns of ticket-splitting under the mixed-member system (Achen & Wang, 2017; Wang, Lin, & Hsiao, 2016). Whether voters altered their party identification or actual voting decision in response to reducing the number of seats in the single-member district remains unexamined.

In this paper, I examine strategic voting in Taiwan. My study provides several advantages over the existing literature. First, it investigates the impact of institutional change within a single case over time, enabling better control over various contextual factors. Second, I test the impact of institution on strategic voting in a semi-presidential regime. Taiwan, as a newly established non-parliamentary democracy, provides a valuable context for comparing results with prior studies and testing the robustness of existing claims.⁴

As a semi-presidential democracy, Taiwan not only holds parliamentary elections but also

⁴ The starting point of Taiwan's democratization is contested because democratization is often seen as the outcome of a series of events. Here, I follow Rigger (1999)'s procedural definition, which identifies Taiwan's 1996 presidential election as the benchmark. Thus, the parliamentary elections in 2004 and 2008 were held only 8 and 12 years after the democratization.

conducts direct presidential elections. Given the considerable influence wielded by the president of Taiwan, the presidential election is regarded as the most important electoral event (Clark & Golder, 2006). The proximity of the presidential and legislative elections results in the former attracting the lion's share of attention (Stoll, 2015). In addition, the separation of presidential and legislative elections may result in a contamination effect, whereby parties realign and voters cast ballots in ways that diverge from the patterns observed in parliamentary democracies (Samuels & Shugart, 2010). In conclusion, the validity of the conclusion derived from the parliamentary-system cases remains uncertain in the context of other forms of democracy due to significant differences between the various regime types. Taiwan's 2008 electoral reform provides a valuable opportunity to estimate the causal effect of institutions on strategic voting at the constituency level without relying on simulation. It is feasible to observe how voters respond to institutional alterations and subsequently make informed voting decisions.

Background of the 2008 Electoral Reform

In 2008, Taiwan underwent a reform of its parliamentary electoral system. The reform was mainly driven by two major parties, Kuomintang (KMT) and Democratic Progressive Party (DPP). They claimed the purpose of the reform was to correct several problems caused by the features of multiple-member districts, so the transition to the single-member district became the priority of the reform (Stockton, 2010).

Prior to the reform, the parliament was constituted of 225 seats, with elections held every three years. A total of 176 seats (including 168 local constituencies and eight reserved seats for indigenous peoples) were elected under the Single Non-Transferable Vote with Multiple Member District (SNTV-MMD), and 49 seats were elected under

the party Proportional Representation (PR) list.⁵ In MMD seats, the individual voter exercises their franchise by casting a vote for a candidate, rather than for a political party. No party list is in place for the constituency seats. The eight indigenous reserved seats applied the same rule as other constituency seats, but there were only two constituencies across the country. The remaining 49 seats were elected on a nationwide district basis under the party-list proportional representation (PR) system. A distinctive feature of this electoral system is that each voter is provided with a single ballot, which is employed to calculate the results twice: initially for the local constituencies and subsequently for the party-list proportional representation (PR) system. Table 1 provides a concise illustration of the electoral regulations that existed prior to the reforms.⁶

⁵ Non-indigenous voters may cast one vote for their local constituency seats, whereas indigenous voters may vote for indigenous-reserved seats. This means that each group can vote only within its designated electoral category.

⁶ For the sake of illustration, let us assume that there were four constituency seats and one PR seat. If the vote distribution were to align with that illustrated in Table 1, the final results would be one seat for Party X, three seats for Party Y, and one seat for Party Z. It is customary for parties to field multiple candidates in a district with multiple seats. In order to ascertain the maximum number of candidates that they believe they can win, parties will refer to previous election results in the district. Consequently, candidates usually compete with candidates from the opposing parties and their own parties at the same time.

Table 1: Examples For Electoral Rules Before the Reform

Constituency	Ballot (Voters only vote for candidate)	Results
1 (2 seats)	Candidate A (Party X)*10 Candidate B (Party Y)*9 Candidate C (Party Z)*8 Candidate D (Party X)*7	Candidate A & B win district seats in 1 Candidate G & H win district seats in 2 Party X gets 24 votes in PR Party Y gets 27 votes in PR Party Z gets 17 votes in PR
2 (2 seats)	Candidate E (Party X)*7 Candidate F (Party Y)*8 Candidate G (Party Z)*9 Candidate H (Party Y)*10	 ⇒ Party Y wins the only seat in PR

After the reform, several rules were modified. First, total seats were reduced from 225 to 113, and the parliamentary election is now held every four years. Second, all the multiple-member seats were transferred to single-member districts (SMD), which is the main focus of the reform. Third, there are two independent ballots for voters, one is for the candidates in the SMD seats, and another is for the nationwide party PR list. Indeed, Taiwan is not the only country that has undergone such a transition. A similar reform was also implemented in Japan.⁷ Table 2 compares the election rules before and after the reform.

⁷ The major difference between Taiwan and Japan is that dual candidacy is not allowed in Taiwan. A candidate can only be nominated on the district or closed party list, but not both.

Table 2: Parliamentary Electoral Rules Before and After the 2008 Reform

	Before	After
Total Ballots per voter	1	1 for SMD and 1 for PR
Total Seats	225	113
District Seats	168	73
# of the seats in the local district	1 - 13	1
PR List Seats	49	34
Indigenous Reserved Seats	8	6

Hypothesis and Empirical Design

The most significant consequence of the reform is the introduction of the single-member district system. As demonstrated by Cox (1997), the single-member plurality system is more prone to result in strategic voting. He examines the distribution of the SF ratio in British lower house elections (single-member, single-ballot) and Japanese lower house elections (multi-member, single-ballot) to investigate strategic voting patterns in different electoral systems. He finds that voters from competitive districts under a single-member system (British lower house elections) are more likely to engage in strategic voting than in other cases. However, the lack of direct comparability between the two cases is a consequence of the empirical evidence being drawn from two countries with disparate electoral systems. Consequently, an examination of the Taiwanese case allows for the observation of how the SF ratio fluctuates when other variables remain constant.

The most prevalent method for measuring strategic voting is the SF ratio, which is developed by Cox (1997). Cox's research indicates that strategic voting will result in

$M+1$ competitive candidates in equilibrium if the district has M seats. Consequently, the SF ratio serves as a metric for comparing the vote share of the second-place runner-up to that of the first-place runner-up. In the event that the second-place runner-up is in close contention with the first-place runner-up, the ratio will be approximately equal to 1. This indicates that the second-place runner-up does not lose all of their support, a scenario that typically arises in non-Duvergerian equilibria. In Duvergerian equilibria, the ratio will be approximately zero, indicating the occurrence of strategic voting. In other words, the second-place runner-up is rejected by the majority of supporters. In conclusion, there are only two potential equilibrium scenarios: The two equilibrium scenarios are Duvergerian and non-Duvergerian. Therefore, the anticipated distribution of the SF ratio should exhibit a bimodal pattern, with a peak at approximately zero (Duvergerian equilibrium) and another peak at approximately one (non-Duvergerian equilibrium).

Furthermore, alternative measurements have been utilized. For instance, Fujiwara (2011) utilizes the aggregated vote share of the third and subsequent candidates as a means of quantifying strategic voting. Nevertheless, this approach is not optimal for identifying strategic voting. The vote share for third- and lower-ranked candidates is susceptible to interpretation. In two disparate scenarios, the same numerical value may be interpreted as either an expression of sincerity or a strategic voting decision. Consider two cases with five candidates, in which the vote shares for the third and lower-ranked candidates are equal. Two simultaneous cases may be posited for consideration. The initial potential outcome is that the first-place party receives 60% of the total votes, whereas the remaining four parties each receive 10% of the votes. The second scenario features a first-place party with 36% and a second-place party with 34% of the vote. The remaining three candidates receive 10% each. Two cases exhibit the same proportion of

third and lower-placed candidates (30%), yet the first case is more likely to reflect sincere voting, whereas the second is more likely to reflect strategic voting. To circumvent this issue, this study will employ the SF ratio as a means of measuring strategic voting.

Moreover, Cox posits that districts with a greater number of seats under a multiple-member system should, in general, see a reduction in strategic voting. According to his book, the districts in Japan's Lower House election with five seats exhibit less compelling evidence regarding strategic voting than those with three or four seats. One potential explanation is that it becomes increasingly challenging for voters to ascertain the likely victor and vanquished as the magnitude of the district in question increases. In other words, one of the prerequisites for strategic voting is the possession of information regarding the probable winner, which becomes increasingly challenging to obtain in districts with a greater number of seats and candidates. In summary, two primary hypotheses will be tested:

Hypothesis 1: *Following the implementation of electoral reform, the SF ratio (defined as the vote share of the second-to-first loser) of each local constituency will typically exhibit a reduction in magnitude relative to its value prior to the reform.*

Hypothesis 2: *The SF ratio will exhibit a more pronounced decline in constituencies that held a greater number of seats prior to the implementation of the reform. This suggests that voters possess more detailed information regarding the probable victor when the number of seats is reduced, which motivates them to cast strategic ballots.*

In order to test these hypotheses, a comparison will be made between the data from

parliamentary elections before and after the reform. In light of the modifications to the number of parliamentary seats and corresponding constituencies, it is not feasible to attain precise outcomes by solely examining data at the constituency level. Consequently, an initial examination of the SF ratio will be conducted at the constituency level, followed by an investigation at the village level. The village represents the most detailed administrative unit that can be divided when a new constituency is delineated following the electoral reform. By comparing voters from the same village before and after the reform, it is possible to ascertain the impact of the electoral rule changes on strategic voting when controlling for other variables.

Subsequently, the difference-in-differences framework is employed to investigate the causal relationship between institutions and strategic voting. Despite the modification of Taiwan's parliamentary election regulations in 2008, the electoral procedure for local councils remained unaltered. In other words, prior to the 2008 reform, voters in Taiwan utilized the multiple-member system for both parliamentary and local council elections. Subsequent to the reform, a single seat is allocated per parliamentary constituency, whereas multiple seats are still apportioned per local council constituency. Consequently, the treatment group will be constituted by the results of the parliamentary election, given the alteration of the election rules. As a result of the identical application of the electoral rule, the control group will be the outcome of the local council election. The equation specifications for the two hypotheses are as follows:

$$SFRatio_{it} = \beta_0 + \beta_1 Parl_i + \beta_2 Postreform_t +$$

$$\beta_{DD} Parl_i \times Postreform_t + \epsilon_{it}$$

$$SFRatio_{it} = \beta_0 + \beta_1 Parl_i + \beta_2 Postreform_t +$$

$$\beta_{DD} Parl_i \times Postreform_t \times \# of reducedseats_i + \epsilon_{it}$$

$Parl_i$ is a dummy variable indicating the type of election. A value of 1 indicates that it is a parliamentary election, which serves as the treatment. $Postreform_t$ is a dummy variable representing the period. A value of 1 indicates that it is the election after the reform. $Parl_i \times Postreform_t$ is the difference in difference estimator, which is the main interest in this paper. In summary, voters' reactions under different electoral rules can be observed by conducting this regression analysis. Before the electoral rule changed, voters were supposed to act similarly at both levels due to the same rule. After the electoral rule changes in parliamentary elections, voters are anticipated to have a greater prevalence of strategic voting in parliamentary elections than in local council elections. Given that only one member can be elected in each parliamentary constituency, every voter should consider only the two most promising candidates to avoid wasting votes. Thus, voters should have more incentive to vote strategically under SMD.

Results

Main Results

Figure 1 depicts the distribution of the SF rate at the constituency level for the parliamentary elections held prior (2004) to and subsequent to the reform (2008). It is evident that there is a significant alteration in the distribution pattern before and after the reform. In the context of the multi-member system (prior to the reform), the SF ratio of the majority of districts is situated within the interval $(0.9, 1)$. This suggests that the majority of districts are in a non-Duvergerian equilibrium, whereby the initial and secondary losers receive votes that are nearly identical in value. As Cox (1997) observes, those who support the initial and secondary losers continue to believe that their preferred

candidates remain in contention and thus have no incentive to discard their initial choice. In conclusion, the majority of district voters do not engage in strategic voting. Upon examination of the cases under a single-member system (post-reform), the SF ratio of most districts falls within the interval $(0, 0.1)$, indicative of a Duvergerian equilibrium. In comparison to the candidates who have been eliminated in the initial voting round, those who have been eliminated in the subsequent round receive a negligible number of votes. In the majority of districts, voters are presented with a binary choice between the two leading candidates, with the third-placed candidate frequently being disregarded.

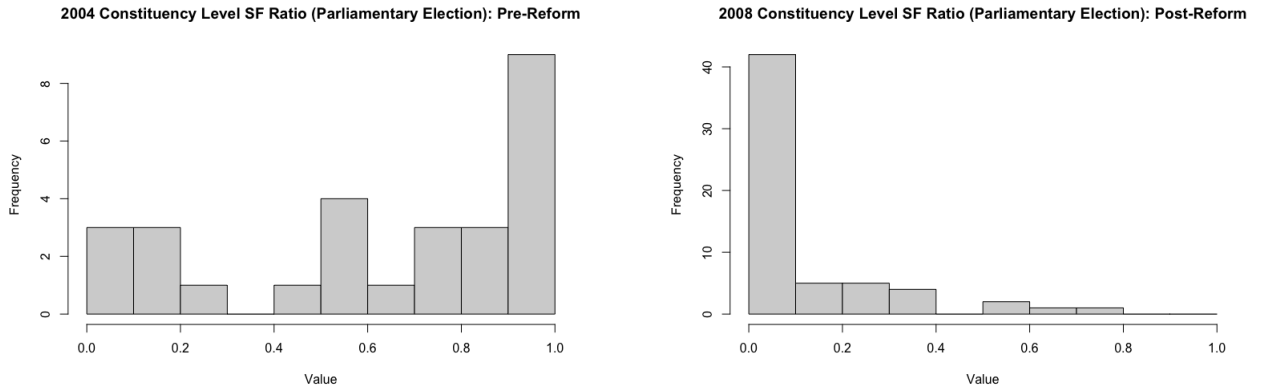


Figure 1: Constituency Level SF Ratio (Parliamentary Election)

Some noticeable differences can be found when comparing results here to cases in Cox (1997). In his study, data from British lower house elections is used to illustrate the single-member system, and data from Japanese lower house elections is employed to present the multi-member system. In both cases, the null hypothesis that the distribution is unimodal is rejected. In a pure strategic model, the distribution of SF ratios should theoretically be bimodal, given that each district is either in Duvergerian equilibrium or non-Duvergerian equilibrium. In other words, the distribution may exhibit two modes: one near zero (Duvergerian equilibrium, where supporters of the third candidate engage in strategic voting) and another near one (non-Duvergerian equilibrium, where the third

candidate is not discarded and supporters of the third candidate still vote sincerely). However, the distribution of all districts in Taiwan did not reject the null hypothesis that the distribution is unimodal, both before and after the reform. A singular mode is observed both before and after the reform. Prior to the reform, the majority of districts were situated within a non-Duvergerian equilibrium. Following the implementation of the reform, the majority of districts have transitioned to a Duvergerian equilibrium. In conclusion, the distribution of votes exhibits a considerable range of variation. This is an entirely distinct phenomenon from that observed in Japan and the United Kingdom. Despite the disparate electoral rules employed by the two countries, both Duvergerian and non-Duvergerian equilibria can coexist. In Taiwan, however, the majority of districts were in a non-Duvergerian equilibrium prior to the reform, whereas they are now in a Duvergerian equilibrium following the reform.⁸

A comparison of Taiwan's district-level SF ratios with those of other countries with a mixed-member system, as discussed in reference to Moser and Scheiner (2009), reveals that the average SF ratio in Taiwan after the reform (0.12) is significantly lower than the average SF ratio in established democracies (0.36) and new democracies (0.61) in the aforementioned dataset. Moser and Scheiner (2009)'s argument is that new democracies tend to have poorly institutionalized party systems, which results in voters lacking sufficient information to make strategic decisions. As a result, voters in nascent democracies are less inclined to engage in strategic voting, as evidenced by elevated SF ratios. Nonetheless, the case of Taiwan represents an exception to this general rule. Despite the country's relatively brief experience with democracy, most voters are able to identify the likely winners and vote tactically, even after just ten years.

⁸ The Hartigans' dip test is employed to examine both cases. The p-values are 0.6261 (before) and 0.9778 (after), indicating that the two distributions cannot reject the null hypothesis that the distribution is unimodal.

As previously stated, the size of the constituencies has undergone a transformation as a consequence of the reform. In order to ascertain the impact of electoral reform on voting behavior, it is essential to undertake a comparative analysis of the behavior of the same groups of individuals both before and after the reform. By conducting the comparison at the village level, it is possible to reduce the impact of other variables because the remaining conditions should be largely similar. As the village represents the smallest unit of analysis in the context of constituency redrawing, examining the SF ratio at the village level can assist in elucidating the behavioral shifts occurring within a homogeneous population. Figure 2 presents the SF ratios at the village level.

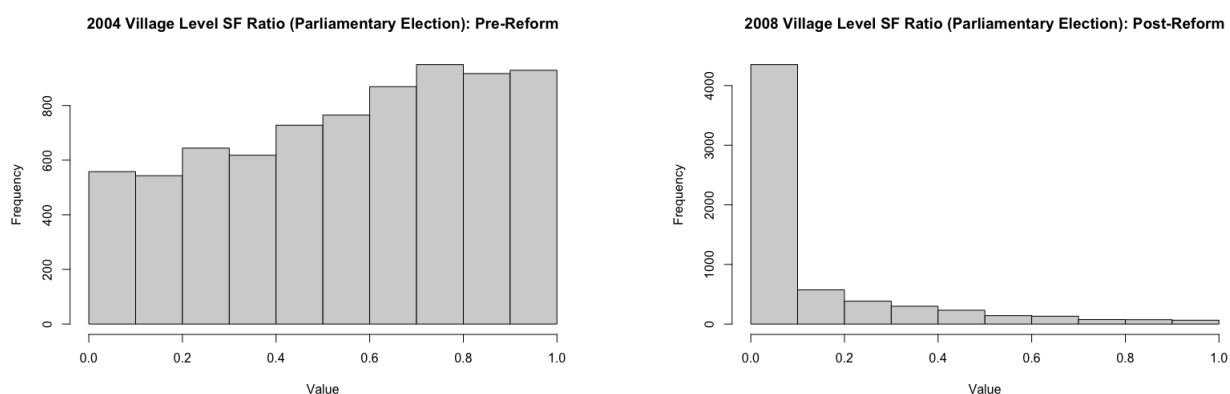


Figure 2: Village Level SF Ratio (Parliamentary Election)

The SF ratio at the village level in 2004 exhibits a distribution that is nearly uniform, but the distribution in 2008 exhibited a distribution that is nearly unimodal. The village-level SF ratio distribution observed in the 2004 election appears to diverge from the constituency SF ratio distribution. One potential explanation for this discrepancy is that the majority of constituencies in 2004 encompassed a considerable number of villages, with an average of 200 to 300 villages per constituency. The aggregated results at the village level display a distinctive pattern. Nevertheless, both figures convey the same message: that few voters engaged in strategic voting in 2004, as evidenced by the limited

number of villages or districts with an SF ratio close to 0. A comparison of the same village before and after the reform indicates that the SF ratio of the majority of villages (87%) decreased. Moreover, a t-test is performed on the SF ratio of 2004 and 2008 in the same village to determine the statistical significance of the observed difference between the two elections. The t-value is -92.81, indicating a statistically significant decrease (with a 95% confidence interval) in the SF ratio at the same village following the reform.

In contrast, the SF ratio distributions in local council elections prior to and subsequent to the reform (which entailed no alteration to the electoral rules) demonstrate a notable degree of similarity. Figure 3 illustrates the distributions in the pre- and post-reform periods. Furthermore, a t-test is employed to determine whether the observed discrepancy between the two elections are statistically significant. The t-value is -0.7, indicating that the SF ratio of the local council election is statistically indistinguishable before and after the reform.

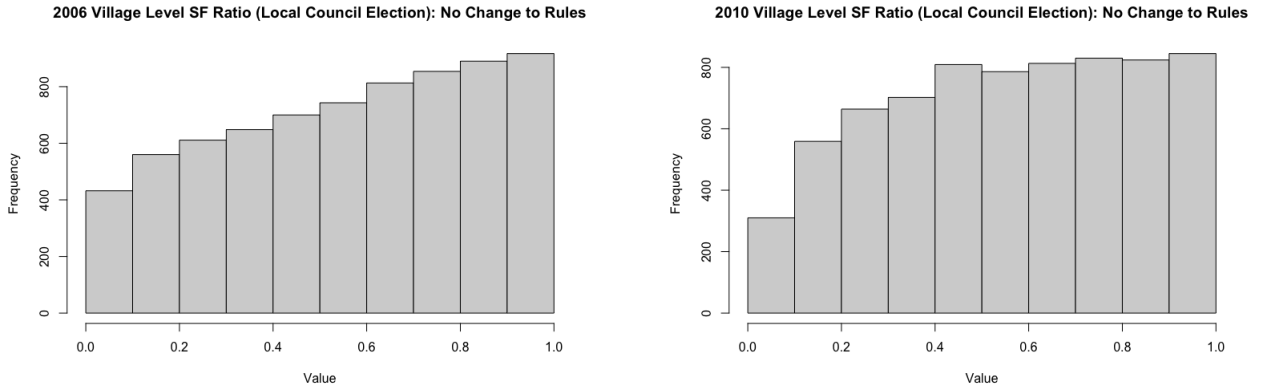


Figure 3: Village Level SF Ratio (Local Council Election)

Table 3 presents the results of the difference-in-difference estimate, which includes data from two parliamentary elections and local elections held prior to and subsequent to the implementation of the reform.⁹ In Model 1, the difference-in-difference estimators

⁹ Table A1 in the appendix shows the similar results of one parliamentary election and one local election before and after the reform.

are negative and statistically significant. These findings indicate that the reform, which encompasses the transition from a multi-member to a single-member electoral system, has resulted in a reduction in the SF ratio. This suggests that voters are more likely to reject candidates who are less likely to be elected under the single-member system. The phenomenon of strategic voting becomes more prevalent following the implementation of the reform.

Model 2 tests Hypothesis 2 and yields results that align with my expectation. The DID estimator maintains a negative and statistically significant outcome. In general, one reduced seat in the district is associated with a decrease in the SF ratio of 0.04. Consequently, when the number of seats decreases, voters are more likely to identify the candidate who is likely to win. As previously observed by Cox (1997), strategic voting occurs when the informational prerequisites are met. A reduction in the number of seats may facilitate the acquisition of information by the voter, thereby enhancing their ability to make informed decisions. Prior to the reform, a substantial proportion of local council and parliamentary constituencies had more than five seats, representing 60% of the total observations.¹⁰ It would be difficult for voters to determine the likely victors in such districts. In the absence of sufficient information, it is more probable that voters will cast their ballots in a sincere manner. The results of Model 2 serve to corroborate this argument.

The results reveal a sharp decline in the SF ratio immediately following the reform. Given that Taiwan's legislative elections had historically employed a multi-member district (MMD) system, under which smaller parties were often able to secure seats, one might have expected these parties to continue winning seats even after the transition to a single-member district (SMD) system. However, the evidence suggests otherwise.

¹⁰ See Figure A1 in the appendix.

A plausible explanation lies in the influence of presidential elections, which are widely viewed as the most important elections in Taiwan and may exert a “contaminating” effect on concurrent parliamentary races. In both 2004 and 2008, the presidential contests featured only two major-party candidates. Even in 2000 and 2012, when there were five and three candidate groupings, respectively, the winner still came from one of the two major parties. This pattern reinforces the perception that only major-party candidates are viable contenders. Because most presidential and parliamentary elections are held in the same year, the outcomes and dynamics of the presidential race may serve as informational cues to voters in legislative elections, signaling that major-party candidates are the only likely winners. This perception likely contributes to voters’ strategic behavior, reinforcing the dominance of the two-party system in the post-reform era.

Table 3: Main Difference in Difference Results

	<i>Dependent Variable: SF Ratio</i>	
	(1)	(2)
Treatment (Parliamentary)	0.016*** (0.003)	−0.055*** (0.003)
Post Reform Period	−0.030*** (0.003)	−0.108*** (0.003)
Difference in Difference	−0.398*** (0.004)	
# of decreasing seats		−0.040*** (0.0005)
Village FE	YES	YES
Observations	54,781	54,781
R ²	0.451	0.421
Adjusted R ²	0.314	0.276

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by village. The observation includes two parliamentary elections and two local council elections before and after the reform (2001-2014).

As demonstrated in Table 4, the SF ratio exhibits a decline in villages that possess

specific characteristics. To elaborate, if there were clear likely winners in the past, voters would be less likely to engage in strategic voting. This suggests that there should be limited change in the SF ratio after the reform in those villages. Two measurements are employed to ascertain whether there were likely winners. One indicator is whether a single party has attained an average vote share exceeding 60% in previous elections (1998, 2001, 2004). The second indicator is the mean vote share differential between the two major parties, namely the KMT and the DPP. Although only one coefficient is statistically significant, both are negative, indicating that villages where a single party dominates are less likely to engage in strategic voting following the reform. It is also noteworthy that the decline in strategic voting is more pronounced in villages where there had been a greater number of small-party victories in the past. It should be noted, however, that this phenomenon is exclusive to villages that are not dominated by a single political party. The negative coefficients in two interaction terms indicate that supporters of minor parties remained loyal to their preferred candidates and voted sincerely when a single party dominated the village. The strategic voting of supporters of minor parties would not result in a change to the election outcome. Once voters ascertain that the outcome remains undecided, they are more likely to engage in tactical voting. These findings are consistent with the theoretical implication that strategic voting is more likely to occur when the two leading candidates are tied. The following section will utilize survey data to substantiate the assertion that the majority of strategic voting subsequent to the reform is undertaken by supporters of minor political parties.

In conclusion, a reduction in the number of seats and a candidate's previous voting record allows voters to gain a more comprehensive understanding of the election. It is more straightforward for individuals to determine the likely victor and viable candidates

in a district with only one seat. Moreover, they can utilize insights gleaned from previous elections to anticipate the outcome, thereby fostering an environment conducive to strategic voting.

Table 4: What Districts Are More Likely to Have Strategic Voting

	<i>Dependent variable: 2004 SF Ratio – 2008 SF Ratio</i>	
	(1)	(2)
One-Party Dominated (Single Party Voteshare $\geq 60\%$)	–0.037 (0.066)	
Vote Share Gap between Major Parties (Abs KMT-DPP Voteshare)		–0.003*** (0.001)
Marginal Effect of One Reduced Seat	0.027*** (0.002)	0.028*** (0.002)
Average # of seats held by small parties	0.065*** (0.008)	0.077*** (0.010)
One-Party Dominated \times Average # of seats held by small parties	–0.114* (0.049)	
Vote Share Gap between Major Parties \times Average # of seats held by small parties		–0.002*** (0.001)
Constant	0.164*** (0.011)	0.218*** (0.016)
Observations	5,905	5,905
R ²	0.128	0.154
Adjusted R ²	0.127	0.154

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by village.

Robustness Check

Given the multiple changes in rules encompassed by the reform, it is crucial to identify the primary factor driving the alteration of the SF ratio. The impact of transitioning from multiple-member to single-member districts and the reduction in the overall number of seats has already been evaluated in Table 3. Nevertheless, the impact of an additional ballot for PR list seats has yet to be addressed. The additional ballot may provide an

opportunity for minor parties to engage in coordination with major parties. It is typical for minor parties to form an alliance under a mixed-member system, as they often lack the electoral success required to win any SMD-tier seats on their own. Consequently, they frequently seek to collaborate with major parties to enhance their chances of representation. To illustrate, minor parties in an alliance may forgo nomination for SMD-tier seats, prompting major parties to encourage their supporters to vote for those minor parties or offer them other incentives (Catalinac & Motolinia, 2021; Ferrara & Herron, 2005).

In Taiwan, the political landscape can be divided into two main camps, the Pan-Blue and Pan-Green, based on their differing approaches to national identity and cross-strait policies (Hsu & Lin, 2009; Niou, 2004; Wang & Liu, 2004; Wu, 2004). In the 2008 election, the largest minor parties (People First Party, PFP) in the pan-blue camp formed an alliance with the KMT, but the pan-green alliance failed to reach an agreement. Hence, the largest minor parties (Taiwan Solidarity Union, TSU) in the pan-green camp did not coordinate with the DPP, they nominate separately in both tiers in the 2008 elections. In the 2012 election, the situation reversed, indicating that the pan-green parties had formed an alliance, whereas the pan-blue parties did not.¹¹ In order to take the aforementioned coordination into account, a new variable, TSU/PFP Nominate, has been introduced. This variable is used to indicate whether TSU or PFP has nominated at least one candidate in the SMD. Theoretically, an increase in the SF ratio should be observed when TSU or PFP have their own candidates competing with DPP and KMT, as their candidates are expected to divide votes from the major parties in the same camp. Table 5 presents the results. After accounting for coordination, the DID estimator retains its negative and statistically significant effect. However, the coefficient on small party

¹¹ Despite the absence of a formal agreement between TSU and DPP, the TSU did not nominate candidates for SMD seats. Additionally, the DPP chairwoman also repeatedly expressed a desire to see TSU secure some PR seats, see Wang et al. (2016).

nomination does not reach statistical significance. This implies that the existence or absence of coordination has a limited effect on the outcome.¹²

Table 5: Alliance Effects

	<i>Dependent Variable: SF Ratio</i>	
	(1)	(2)
Treatment (Parliamentary)	0.016*** (0.003)	−0.055*** (0.003)
Post Reform Period	−0.030*** (0.003)	−0.108*** (0.003)
Difference in Difference	−0.398*** (0.004)	
# of decreasing seats		−0.040*** (0.0005)
TSU/PFP Nominate	−0.003 (0.006)	0.005 (0.006)
Village FE	YES	YES
Observations	54,781	54,781
R ²	0.451	0.421
Adjusted R ²	0.314	0.276

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by village. Observations include two parliamentary and local elections before and after the reform (2001-2014).

An additional potential consequence of the reform is that it may act as a deterrent to the formation of new political parties. In other words, other smaller parties may be inclined to nominate a smaller number of candidates in accordance with the new electoral rules. Accordingly, an examination of the number of candidates is warranted to assess the validity of this alternative hypothesis. Table 6 presents a summary of the number of candidates nominated and elected by the two major parties (KMT and DPP) and other minor parties in the 2008 elections. Both major and minor parties have continued to nominate candidates in accordance with the reform. It is notable that the probability

¹² Table A3 in the appendix shows the results of one parliamentary election and one local election before and after the reform.

of small parties winning elections has been significantly reduced. In the 2004 election, approximately 26% of constituency candidates were from several small parties, which still manage to secure approximately 23% of the constituency seats. Nevertheless, following the reform, 36% of candidates from small parties were still on the ballot, yet they were only able to secure 3% of the constituency seats. This suggests that voters are aware of the changes to the electoral procedures and, as a result, are engaging in strategic behavior in line with the revised rules.

Moreover, the same difference-in-difference estimation is utilized to determine whether nomination patterns undergo a change following the electoral rules reform (Table 7). Given that the total number of seats has been reduced by half, the relative number of candidates provides a more accurate reflection of the change in nomination patterns. Accordingly, the ratio of candidates to seats is employed as the dependent variable. The results presented in Table 7 indicate that political parties continue to participate in electoral processes and have nominated a greater number of candidates in the subsequent period following the reform. Nevertheless, a synthesis of the aforementioned information suggests that, despite the increased number of options on the ballot, voters continue to demonstrate a preference for the two major parties. In other words, it isn't because of strategic party behavior. The phenomenon of strategic voting is more likely to be driven by the actions of individual voters than by the actions of parties.

Table 6: Number of Nominated and Elected Candidates in SMD Tiers

Party	2004 Parliamentary		2008 Parliamentary	
	# of Nominated (Elected)	% of total	# of Nominated (Elected)	% of total
KMT	70 (57)	19% (34%)	70 (57)	25% (78%)
DPP	90 (69)	24% (41%)	69 (13)	25% (18%)
Other Small Parties	95 (38)	26% (23%)	102 (2)	36% (3%)
Independent	113 (4)	31% (2%)	40 (1)	14% (1%)
Total	368 (168)	100% (100%)	281 (73)	100%(100%)

Table 7: Party Nomination Strategy

	<i>Dependent Variable: # of Candidates / Seats</i>	
	(1)	(2)
Treatment (Parliamentary)	0.334*** (0.006)	0.710*** (0.007)
Post Reform Period	-0.191*** (0.006)	0.217*** (0.008)
Difference in Difference	1.866*** (0.012)	
# of decreasing seats		0.172*** (0.002)
Village FE	YES	YES
Observations	54,781	54,781
R ²	0.677	0.606
Adjusted R ²	0.596	0.507

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by village. Observations include two parliamentary and local elections before and after the reform (2001-2014).

Several Placebo tests are also conducted to confirm the validity of the main results in Table 3. To conduct the placebo tests, I use elections held just before the reform, including the 2004 parliamentary election, the 2006 local council elections, and the 1998 elections. I assume the reform occurred in 2000 and apply the same regression model as in

Table 3.¹³ The results presented in Table 8 show that the coefficient of the DID estimator is statistically insignificant, indicating no significant change in the SF ratio before the reform. This supports the robustness of the main findings, implying the decline in SF ratios only appears after the reform's implementation.

Table 8: Placebo Test

	<i>Dependent Variable: SF Ratio</i>	
	Constituency Level	Township Level
Treatment (Parliamentary)	−0.232*** (0.061)	−0.058** (0.021)
Post Reform Period	0.009 (0.024)	−0.030 (0.021)
Difference in Difference	−0.045 (0.062)	−0.001 (0.029)
Region FE	YES	YES
Observations	336	1378
R ²	0.573	0.345
Adjusted R ²	0.206	0.097

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by Constituency and Township.

Evidence from the Survey Data

Although previous results suggest a shift in strategic voting following the reform, the underlying mechanisms driving this change remain unclear. Individual-level survey data offer valuable insights into this question. The Taiwan Election and Democratization Study (TEDS) has surveyed voters in every local and national election since 2000, collecting extensive information on voting behavior and political attitudes. This section draws on data from the 2004 and 2008 legislative elections (TEDS2004L and TEDS2008L).¹⁴

The surveys include questions on respondents' party identification and their actual

¹³ In the absence of village-level pre-reform data, I rely on constituency- and township-level data instead.

¹⁴ For 2004, I use the samples from TEDS2004L(A) Independence and TEDS2004L(B) Independence. For 2008, I use the sample from TEDS2008L Independence.

voting choices.¹⁵ Respondents are also asked whether they support any particular political party.¹⁶ By combining these questions, it is possible to identify strategic voters, defined as individuals who report supporting one party but vote for a candidate from another party in the SMD tier.

Table 9 presents the results from the 2004 and 2008 surveys. A comparison of the proportion of respondents engaging in strategic voting reveals a modest decline following the electoral reform: 23% of respondents reported voting strategically in 2004, compared to 20% in 2008. However, a closer examination of party identification suggests that this decline is primarily driven by changes in partisan alignment. Prior to the reform, 82% of respondents identified with one of the two major parties, and 18% supported minor parties. After the reform, support for the major parties rose to 95%, with only 5% of respondents continuing to identify as minor parties' supporters.

Importantly, the survey results point out that supporters of minor parties are significantly more likely to engage in strategic voting. In 2004, 17% of major party supporters reported voting strategically, compared to 48% of minor party supporters. This pattern is even more pronounced in 2008, when 15% of major party supporters voted strategically, whereas all minor party supporters (100%) did so.

In sum, the survey evidence supports the earlier findings: the electoral reform appears to have incentivized more strategic voting behavior. A substantial share of minor party supporters shift their identification to major parties, whereas those who retain their original identification overwhelmingly cast votes for major party candidates.

¹⁵ Specifically, VN18B in TEDS2004L(A), VL2B in TEDS2004L(B), and S01B in TEDS2008L.

¹⁶ VL8A in TEDS2004L(A), VQ1B in TEDS2004L(B), and M01B in TEDS2008L.

Table 9: Strategic Voting among Different Party Supporters

Election	2004 Parliamentary		2008 Parliamentary	
Group	# of Respondents (% of total)	% of Strategic Voters	# of Respondents (% of total)	% of Strategic Voters
Major Party Supporters	985 (82%)	17%	511 (95%)	15%
Small Party Supporters	218 (18%)	48%	29 (5%)	100%
Total	1203 (100%)	23%	540 (100%)	20%

The results of a logistic regression analysis further confirm the robustness of this finding. Table 10 presents models estimating the likelihood that individuals engage in strategic voting. The dependent variable is a binary indicator coded as 1 if a respondent engages in strategic voting and 0 otherwise. The key independent variables are KMT and DPP, which are dummy variables identifying supporters of the two major parties respectively.¹⁷

Across all model specifications, party identification remains a statistically significant predictor of strategic voting, indicating its central role in shaping voter behavior. The negative coefficients for KMT and DPP suggest that major party supporters are significantly less likely to vote strategically. This result is consistent with expectations because candidates from major parties are more likely to be perceived as viable contenders. In contrast, supporters of less competitive candidates—often from minor parties—may have stronger incentives to vote tactically.

¹⁷ Gender is coded as a binary variable, where male = 1 and female = 0. Age is a categorical variable with five groups: 20–29 = 1, 30–39 = 2, 40–49 = 3, 50–59 = 4, and 60 and above = 5. Education is also categorical: primary school = 1, junior high = 2, senior high = 3, junior college = 4, and college or above = 5.

Table 10: Who are more likely to be strategic voters?

	<i>Whether the respondent votes strategically or not</i>		
	All	2004	2008
KMT	−2.186*** (0.156)	−1.788*** (0.180)	−20.359*** (0.206)
DPP	−2.798*** (0.179)	−2.502*** (0.198)	−20.850*** (0.312)
Gender	−0.244 (0.134)	−0.224 (0.157)	−0.421 (0.282)
Age	−0.103 (0.061)	−0.026 (0.069)	−0.336* (0.143)
Education	−0.071 (0.058)	−0.010 (0.065)	−0.264 (0.141)
Constant	1.180*** (0.369)	0.458 (0.410)	20.604*** (0.852)
Observations	1,743	1,203	540
Log Likelihood	−744.113	−538.704	−177.591

*p<0.05; **p<0.01; ***p<0.001. Coefficients are logs odd ratio.

Conclusion

This study provides evidence of a causal relationship between institutional design and strategic voting. Exploiting that only the rules of parliamentary elections changed, and the rules for local council elections remained constant, a difference-in-differences framework is employed to estimate the impact of electoral reform on strategic behavior. The findings suggest that voters recognized and responded to the transition from a multi-member district (MMD) to a single-member district (SMD) system. Following the reform, the SF ratios declined, and this decline is more pronounced in constituencies that experienced a greater reduction in seats. This pattern implies that strategic voting is less common in the MMD system, likely because voters find it harder to predict outcomes in districts with many seats. Similarly, voters are less inclined to vote tactically in safe

districts, where their vote is unlikely to influence the outcome. As a result, supporters of minor parties tend to vote sincerely under such conditions.

Despite certain inferential challenges, the core findings remain robust. One concern is that the reform introduced several changes simultaneously, including the adoption of a second ballot for proportional representation (PR), which in some cases encouraged coordination between major and minor parties. Moreover, the revised electoral rules may have influenced party nomination strategies, potentially limiting the emergence of new or independent candidates. To address these concerns, a series of robustness checks are conducted. The results indicate that new and independent candidates continue to contest SMD races, but voters overwhelmingly favored candidates from the two major parties. Although minor parties occasionally formed alliances with major parties, these coalitions did not materially affect the main results when the alliance effect is accounted for. Overall, the observed decline in the SF ratio appears to be primarily driven by shifts in voter behavior, rather than changes in the party system or candidate supply.

The survey results are consistent with the patterns observed in the electoral data. Most strategic voters are individuals who initially supported minor parties. Following the electoral reform, a significant portion of these voters shift their party identification, now expressing support for major parties and voting accordingly. Among those who continue to identify with minor parties, most still cast their votes for candidates from major parties. This helps explain why candidates from outside the two dominant parties receive relatively few votes and why SF ratios declined substantially after the reform.

This shift in party identification may be partly attributed to the relatively short period since Taiwan's democratization. In 2004 and 2008, Taiwan was still in the early stages of democratic consolidation, with a proliferation of new parties entering the political arena.

Given this fluid environment, voters were hesitant to develop stable partisan attachments. Although previous studies suggest that voters in newer democracies may require time to assess the viability of candidates and parties (Moser & Scheiner, 2009), the Taiwanese case appears to be an exception. The newly implemented electoral rules encouraged voters to support the most viable candidates, making it difficult for emerging parties to achieve lasting electoral success despite their frequent formation.

As a result, Taiwan's party system has gradually converged toward a stable two-party configuration in the aftermath of the reform. This raises broader questions about the institutional foundations of party system development. Although it is commonly assumed that newer democracies feature less institutionalized party systems than more established ones, Taiwan's experience suggests that institutional design can play a critical role in accelerating party system consolidation. Future research may benefit from exploring which combinations of institutional arrangements most effectively foster party system institutionalization in emerging democracies.

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Do Institutions Cause Strategic Voting?

Evidence from Taiwan

Appendix

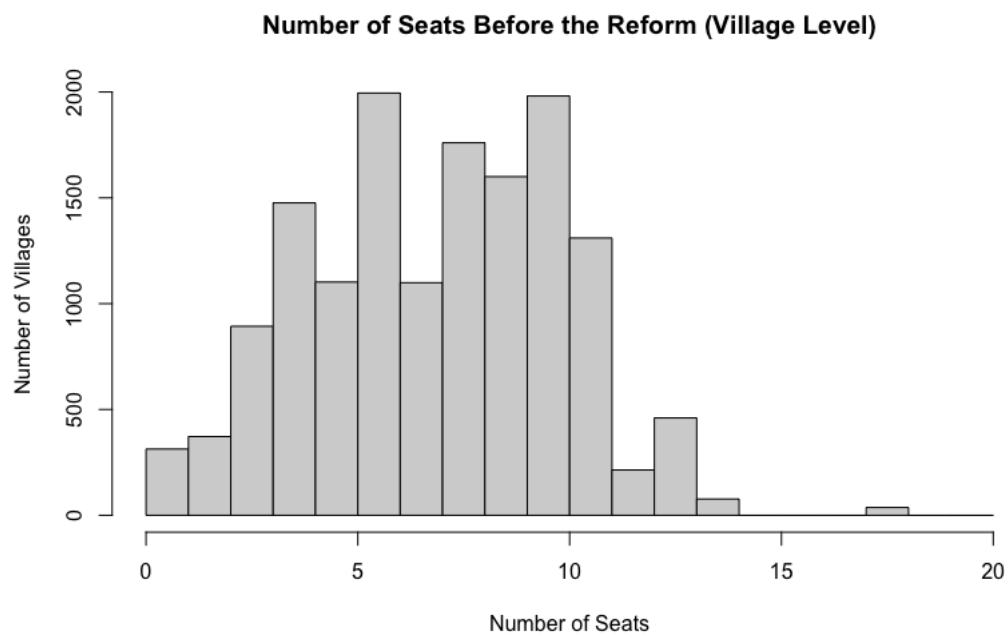


Figure A1: Number of Seats in Parliamentary and Local Elections Before the Reform

Table A1: Main Difference in Difference Results (2004-2010)

	<i>Dependent Variable: SF Ratio</i>	
	(1)	(2)
Treatment (Parliamentary)	0.00004 (0.004)	−0.074*** (0.003)
Post Reform Period	−0.006 (0.004)	−0.081*** (0.003)
Difference in Difference	−0.413*** (0.005)	
# of decreasing seats		−0.041*** (0.001)
Village FE	YES	YES
Observations	28,159	28,159
R ²	0.523	0.492
Adjusted R ²	0.330	0.287

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by village. The observation includes one parliamentary and one local council election before and after the reform.

Table A2: 1998 - 2016 Taiwanese Parliamentary Seat Distribution

Party / Election Year	1998	2001	2004	2008	2012	2016
KMT	123	68	79	82	65	35
DPP	70	87	89	27	40	68
NOP	0	0	6	3	2	1
PFP	0	46	34	1	3	3
NP	11	1	1	0	0	0
TSU	0	13	12	0	3	0
NPP	0	0	0	0	0	5
Other Small Parties	9	1	0	0	0	5
Independent Candidates	12	9	4	0	0	1

Table A3: Alliance Effects (2004-2010)

	<i>Dependent Variable: SF Ratio</i>	
	(1)	(2)
Treatment (Parliamentary)	0.0003 (0.004)	−0.073*** (0.003)
Post Reform Period	−0.006 (0.004)	−0.080*** (0.003)
Difference in Difference	−0.395*** (0.006)	
# of decreasing seats		−0.039*** (0.001)
TSU/PFP Nominate	−0.102*** (0.008)	−0.094*** (0.008)
Village FE	YES	YES
Observations	28,159	28,159
R ²	0.525	0.494
Adjusted R ²	0.334	0.290

*p<0.05; **p<0.01; ***p<0.001. Robust standard errors are in parentheses and clustered by village. Observations include one parliamentary and one local council election before and after the reform.