

Network Heterogeneity, Partisan Defection, and Voter Turnout: Examine Theory with Empirical Data from Taiwan

Frank C.S. Liu

Associate Professor
Institute of Political Science
National Sun Yat-Sen University
No. 70 Lian-Hai Rd., Kaohsiung City (804)
Taiwan

Albert S.Y. Chiu

Assistant Professor
Department of Political Science
Tunghai University
181 Taichung Harbor Road, Section 3
Taichung City (407), Taiwan

Abstract

Studies on communication networks suggest that network heterogeneity plays an important role in destabilizing voter preferences and demobilizing voters. Paul A. Beck (2002) proposes theory of partisan defection, suggesting that being embedded within a heterogeneous network increases the likelihood of voting for a candidate from the political party opposite one's usual affiliation. Diana C. Mutz (2006) then points out that individuals living in such networks are less active in participating in political activities than otherwise. We examine the two hypotheses using survey data collected in Taiwan's mayoral elections. The findings suggest that the theory of partisan defection is supported but the scope of generalizing Mutz's theory is limited. This paper discusses theoretical reasoning behind the difference between Taiwan and the United States. It further suggests a research agenda to explore the effects of communication networks on voting behaviors.

KEYWORDS: communication networks; partisan defection; network heterogeneity; voter turnout; Taiwan.

Introduction

In communication networks, individuals exchange information and discuss issues of interest. In other words, communication networks are social networks for political discussion, and the sent works are basic structures commonly found in most civil societies, particularly in democratic regimes that guarantee freedom of speech. One important issue related to communication network is that how communication network influences voting behavior. Columbia University scholars in the 1940s claimed that individuals' political contexts influence voters' choices (Lazarsfeld, Berelson, and Gaudet 1968; Carmines and Huckfeldt 1996; Agnew 1994). In the 1970s and 1980s, the Columbia notion of network effects gave way to a new notion, namely, Michigan model of voting behavior. In the Michigan model, psychological factors and party identification predict voting behavior. Yet, the influence of communication networks on voters remains relevant in studying voting behavior (see for example, Huckfeldt, Mendez, and Osborn 2004). Political scientists only recently narrow down the study of communication network to the notion that 'network heterogeneity' influence voters (Huckfeldt, Ikeda, and Pappi 2005; Ikeda and Huckfeldt 2001; Liu 2006). To be precise, scholars look into whether perceived disagreement in political discussion drives one away from voting and whether perceived disagreement changes one's voting decision.

This paper attempts to study the effect of network heterogeneity on voting behavior in an Asian context. Taiwan, as a newly developed democracy with high levels of freedom of speech, stands out to us as an appropriate case for test. There are two reasons for justifying choosing Taiwan as our case study. First, Taiwanese people have experienced the abolition of martial law since 1988 and general presidential elections since 1996. Research shows that citizens' suffrage is often accompanied by overheated political discussion in daily conversation and TV talk shows. Levels of voting turnout in Taiwan are often exceedingly high (for example, the voting turnout in 2000 presidential election is 82.69%), which is not consistent with Almond's notion that a 'healthy' proportion of voting participants in a democracy should not be more than 60%.

It is, therefore, meaningful to see if there is a contradiction in Taiwan that democracy requires both opinion diversity and voting participation on the one hand, and the former prevents the latter on the other.

Second, a sound positivist theory should not be culture-specific (for example, see Isaak 1985). Many scholars study the behavioral implication of network heterogeneity, for example, Paul A. Beck's theory of partisan defection and Diana C. Mutz's theory of network influence on political participation (Beck 2002; Mutz 2006). These theories are originally developed and empirically tested in the U.S. Several other scholars then reexamined those two frameworks in UK, Australia and Japan (Pattie and Johnston. It is then meaningful to investigate the effect of network heterogeneity on partisan defection and voting decision in Taiwan; it is not only because we examine the applicability of the two frameworks in a different cultural context but also because the two frameworks help to consider a possibility that network heterogeneity "cools down" the overheated political participation in Taiwan and makes Taiwan democracy less populist and more deliberative.

The following two sections are a brief discussion of how network heterogeneity is related to partisan defection and voter turnout. Based on this discussion, two hypotheses will be subsequently provided. The third section includes an explanation of our data selection and theoretical models for testing the hypotheses. The fourth section offers an interpretation of the statistical results, and the final section contains a conclusion, discussion about the limitations of this study, and an agenda for future research.

Network Heterogeneity and Partisan Defection

In this paper, network heterogeneity (NH) is defined as the perception of incongruity between one's party identification and his or her fellows' party identification in a communication network. The presence of NH hypothetically leads to unstable and fickle voting choices. The absence of NH, on the other hand, helps to create stable and consistent voting choices. After studying British elections (1964-66, 1966-70, and 1970-74) and U.S. elections (1956-60), Alan Zuckerman and his colleagues presented a structural theory of voting choice and suggested that, when voters interact with network members who share similar party identifications and similar social backgrounds—such as social class, ethnicity, and religion—they are likely to be consistent in their voting choices in successive elections (Zuckerman, Kotler-Berkowitz, and Swaine 1998; Zuckerman, Valentino, and Zuckerman 1994). The theory of stability in voter choice is supported in Charles Pattie and his colleagues' study of British elections and James Liu's study of elections in New Zealand and Japan (Pattie and Johnston. These findings are analogous to the old proverb "birds of a feather flock together".

Diametrically different from creating unified and consistent voting decision, the presence of NH often produces partisan defection. In other words, individuals who live in a heterogeneous network experience their close friends' preference as less harmonious and therefore, these individuals become ambivalent toward candidates from both sides. They are even likely to vote for candidates from opposition political parties (Beck 2002). This is especially so when compared with individuals living in a relatively homogenous environment. In fact, based on the 1992 American presidential election data, Beck (2002) found that when voters perceive that their own favorite candidates are different from their friends', those voters tend to defect in their voting decision. This is so called a theory of partisan defection.

Theoretically, though, partisan voters do not defect from their parties (see, for example, Campbell et al. 1960; Casey and Layman 2006; Converse 1964), but exogenous factors, such as people who have different political positions in an immediate environment, hypothetically drive partisan voters to defect.¹ For example, in Beck's analysis (2002), voters do perceive and receive support from network members who share similar party identifications, but communication networks affect both partisan and nonpartisan voters in terms of their voting decision more than their party loyalty does. "Among partisans, defections to the opposition party's candidate were more likely [to occur] in the absence of discussant network support for their own party's candidate and the presence of discussants favoring the opposition" (Beck 2002: 329). Since the structural theory of voter choice has been examined outside the U.S., we argue that Beck's theory of partisan defection should be similarly examined outside the U.S. as well.

¹ We do not mean that *either* a socio-psychological perspective (the Michigan model) *or* sociological perspective (the Columbia school) exclusively explain voting behavior. Instead, we tend to believe both perspectives have a stake in explaining voting behavior; it is just that these two perspectives prescribe diametrically different implications for partisan defection in the current study.

As stated in the beginning, partisans in Taiwan are suitable for this examination. Thus, based on Beck's theory of partisan defection, the first hypothesis is: *the higher the level of incongruence in electoral preference that a voter perceives in his or her communication network, the more likely it is that he or she will vote for candidate from the political camp opposite his or her usual affiliation.*

Network Heterogeneity and Voter Turnout

Another important issue relevant to NH is how the presence of NH influences political participation. Diana Mutz found that people whose networks involve greater political disagreement are less likely to participate in politics (Mutz 2002; Mutz 2006). Using a rationale similar to Beck's theory of partisan defection, Mutz asserts that voters who are embedded in heterogeneous communication networks are more likely to hold ambivalent political views, which in turn discourage those voters' involvement in political activities—particularly turning out to vote. The explanation for such political abstentions based on the idea that individuals living in heterogeneous networks experience opinion cacophony and interpersonal disagreement that potentially destroy the harmony of their social relationship.

Other findings, however, are greatly opposite to Mutz's finding. Scheufele et al., for example, found that network heterogeneity² inherent in work places, volunteer-based groups, and church-based networks are correlated with political participation, rather than political withdrawal (Scheufele et al. 2006). The current study, therefore, offers a good opportunity to solve the question whether a "perception of network heterogeneity" drives people to vote *or* drives them away from voting. If Mutz's argument is correct, the effect of network heterogeneity on voter turnout would be expected to be statistically significant and the sign of the regression coefficient, negative; if the argument by Scheufele et al. is correct, this effect should be statistically significant and the sign, positive. Hence, the second hypothesis is: *The higher the level of incongruence in electoral preference a voter perceives in his or her communication network, the less likely he or she will be to turn out to vote.*

The Background of the 2006 Taipei and Kaohsiung Mayoral Elections

In the 2006 Taipei election, the DPP nominee Frank Hsieh competed against the KMT nominee Hau Lung-pin. The burden was on Hau Lung-pin to continue KMT's control of Taipei because the current Taiwan president Ma Ying-jeou from KMT finished his two terms as Taipei mayor at that time and passed on the candidacy to Hau Lung-pin. The electorate in Taipei historically supported KMT candidates, in large part due to the majority of KMT officials and soldiers dwelling in Taipei after their retreat from the mainland China in 1949. Of the eight Taipei mayors after Taiwan's democratization in the 1980s, Chen Shui-bian was the only DPP mayor (1994-1998). When it comes to the city of Kaohsiung, Kaohsiung citizens historically felt sympathetic with advocates for freedom of speech back in the 1980s when Taiwan was still under KMT's authoritarian rule. These advocates or activists have a strong tie to the DPP camp. In fact, except assigned mayors before 1994, almost all electorally elected mayors in Kaohsiung were from DPP. Taipei and Kaohsiung are the two major urban areas in Taiwan.

Compared with other cities in Taiwan, both cities receive much more laborers aimless flowing from rural areas. Like most urban areas in the world, then, both Taipei and Kaohsiung have populations characterized by high levels of heterogeneity in political perspectives. Thus, we consider the effect of NH on turnout and defection in Taipei and that in Kaohsiung together for our analysis. According to our theoretical discussion before, we expect citizens' diverse political perspectives in the two cities are positively associated with partisan defection. Additionally, because the mayoral elections in the two cities are often nationally visible and whoever won the mayoral seats in the two citizens are considered to be ambitious for presidential candidacy in the future in Taiwan, voter turnout rate of the mayoral elections is normally high. It then remains to be seen that network heterogeneity still functions to drive away citizens' interest in voting.

Data

We chose Taiwan's Election and Democratization Study (TEDS2006C) for the 2006 mayoral elections of Taipei City (N = 1,235) and Kaohsiung City (N = 1,262) to test our two hypotheses.³

²Here, we mean actual 'network heterogeneity', rather than NH. NH in this paper is defined as the *perception* of network heterogeneity.

³Data analyzed in this article were collected by the research project TEDS2006C, directed by Chi Huang. The Public Opinion Survey Center in National Chengchi University is responsible for the data distribution. We thank the institute for providing data. The data is available for request through the project's website at <http://www.tedsnet.org>.

The purpose of this paper is to reexamine the theoretical association of the perception of NH and turnout and another association between the perception of NH and partisan defection in Taiwan. We are not interested in looking into the difference between Taipei and Kaohsiung with regard to their individual dynamic of perception of NH. We, therefore, combine the two datasets into one. Compared to all other datasets available in Taiwan, TEDS2006C includes most of the variables of interest and the variables relevant to communication networks correspond to—or at least can be rescaled to match—previous studies about partisan defection (Beck 2002; Zuckerman, Kotler-Berkowitz, and Swaine 1998). Moreover, as our goal is testing theories, we chose to use these local election datasets to test against theories that have been tested in previous studies using national election data.

The 2006 Mayoral Election Day was December 9, 2006, and the survey was conducted starting one month later, lasting from January 18 to April 19, 2007. Respondents were registered voters above the age of 20 (the legal voting age). The test-retest of reliability was conducted within two weeks of April 19, 2007; 20 percent of the respondents from the first wave who completed the surveys were drawn for the second run of interviews. In order to ensure that the samples represented the population, they were weighted according to ranking by gender, age, education, and geographical distribution, with all information being drawn from the 2006 national census. Except for ethnicity, there is no distinct difference between the two datasets regarding the distribution of sex, age, education level, and income level. The proportion of respondents affiliated with Taiwanese Minnan in the Kaohsiung sample (80 percent) is higher than that in the Taipei sample (69 percent) (see Appendix for details). The variables and questionnaire are consistent across the two datasets, except for opinions about policies specific to Taipei City or Kaohsiung City.

Models, Variables, and Measurement

In attempt to test the two hypotheses related to the effect of NH, we provide two models: a defection model and a turnout model. For the defection model, *partisan defection* serves as the dependent variable. In countries with a two-party system, such as the U.S., *partisan defection* refers to voting for the political party opposite one's preferred party. However, in a multiple party system like Taiwan, it is difficult to specify which party a respondent takes as an alternative choice. Thus, we broadly measure the concept of partisan defection. Voter choices are categorized into five options: voting for KMT, voting for DPP, voting for PFP, voting for TSU, voting for "Others" (independent candidates), and casting a waste ballot. Voters whose votes were consistent with their party identification were coded as 0. Voters were coded as +1 for casting votes inconsistent with their own partisanship, including casting votes for other parties, "others," or casting waste votes. Voters who did not vote, who did not report their party identification, who refused to answer, and who replied "don't know" or "forgot" were coded as missing or not available (N/A).⁴

⁴ Respondents' party identification is probed with a set of questions—L2, L2a, and L2b.

- L2: Among the main political parties in our country, including the Kuomintang (KMT, 中國國民黨), the Democratic Progressive Party (DPP), the People First Party (PFP), the New Party (NP), and the Taiwan Solidarity Union (TSU), do you think of yourself as leaning toward any particular party? 01: Yes [skip to L2b]; 02: No [continue to L2a]; 95: Refuse to answer [continue to L2a]; 98L: Don't know [continue to L2a].
- L2a: Do you feel yourself leaning a little more to one of the political parties than the others? 01: Yes [continue to L2b]; 02: No; 95: Refuse to answer; 98: Don't know.
- L2b: Which party is that? 01: KMT; 02: DPP; 03: NP; 04: PFP; 06: TSU; 90: Other; 95: Refuse to answer; 98: Don't know. Respondents' voting choices are captured with three questions—H1, H1b, and H1c:
- H1: In last year's Taipei/Kaohsiung mayoral election many people went to vote, while others, for various reasons, did not go to vote. Did you vote? 01: Yes [skip to H1b]; 02: No; 91: Forgot; 95: Refuse to answer.
- (For Taipei City) H1b: Which candidate did you vote for in Taipei mayoral election? 01: Lee Ao (independent candidate, coded as "others"); 02: Chou Yu-kou (TSU nominee but later self-claiming as an independent candidate, was coded as "TSU candidate" and "others"); 03: Frank Hsieh (coded as DPP candidate); 04: James Soong (He self-claimed as an independent candidate during the campaign, but due to its chairmanship of PFP before the campaign, he was coded as PFP candidate); 05: Hau Lung-Bin (coded as KMT candidate); 06: Ko Szu-Hai (independent candidate, coded as "others"); 91: Forgot [continue to H1c]; 92: Cast an invalid vote; 95: Refuse to answer [continue to H1c]; 98: Don't know [continue to H1c].
- (For Kaohsiung City) Which candidate did you vote for in Kaohsiung mayoral election? 01: Huang Chun-Ying (coded as KMT candidate); 02: Lin Chih-Sheng (independent candidate, coded as "others"); 03: Lo Chih-Ming (coded as TSU candidate); 04: Lin Ching-Yuan (independent candidate, coded as "others"); 05: Chen Ju (coded as DPP candidate); 91: Forgot; 92: Cast an invalid vote; 95: Refuse to answer [continue to H1c]; 98: Don't know [continue to H1c].
- H1c: Which party did you vote for? 01: KMT; 02: DPP; 06: TSU; 07: Independents; 91: Forgot; 95: Refuse to answer; 98:

For example, a PFP identifier in Taipei will be coded as 0 if he voted for James Soong or 1 if he voted for Hau Lung-Bin of KMT, even though PFP and KMT share a similar political ideology in terms of their position on unifying with China. On the other hand, a PFP voter in Kaohsiung will be coded as 1 if he voted for Huang Chun-Ying of KMT. The measurement of party defection is, therefore, dichotomous and requires a logistic regression to test it. *The perception of NH* is the focal explanatory variable for both the defection model and the turnout model. It is defined as the extent to which the respondent perceives political disagreement in his or her communication networks. This variable is operationalized with regard to whether the respondent's party identification was congruent with the partisan orientation of his or her network members. Specifically, this dichotomous variable was coded +1 if a respondent reports that most of his or her network members do not support the same party as he or she does; otherwise, it was coded as 0⁵; the perception of NH is a dichotomous variable. For the purpose of capturing more variance, one might encourage us to use a continuous variable, and that can be measured by the proportion of network members who share the same party as the respondent. This should have been a better choice. Yet, the limitation of the questionnaire is such that a respondent only knows if the preferences of their network members are congruent with his or hers (refers to B1b in footnote5).

In other words, we are able to capture only the presence of a homogeneous network if a respondent reports that *most* of his or her network members have the same party preference. However, we are unable to know the extent to which those network members' party preferences are different from the given respondent's party preference. In other words, we are not able to know the varying extent of that heterogeneous network; we can only assume there is one when it is reported so. It is, therefore, impossible to capture the continuous content of the perception of NH. In addition, six possible factors that hypothetically lead to partisan defection are controlled for: *partisan strength*, *residential stability*, *income stability*, *age*, *education*, and *gender*. *Partisan strength* refers to the degree to which a partisan voter supports his or her party. In this ordinal variable, 3 denotes strong partisanship, 2 denotes somewhat strong, 1 suggests some indication of partisanship, and 0 indicates no leaning toward any political party.⁶ People who have strong partisan strength are likely to remain faithful to their party nominee and choose to cast a ballot for this nominee even when they perceive a great amount of network heterogeneity (Converse 1966). In Beck's article (2002), both party identification and partisan intensity are control variables when examining the effect of the personal discussion network on political defection.

The inclusion of residential stability in the defection model reflects an expectation that constantly moving exposes people to different communities with different ideologies and partisan ship and transforms them into defectors in an election. In this scenario, residential mobility (the opposition of residential stability) predicts partisan defection, as much as that NH predicts partisan defection. Conversely, residential stability prevents exposure to different political opinions and therefore produces partisan loyalty in an election. Although a study of American voters does not support this hypothesis (McClurg 2006), we think it is worth an additional test using a different dataset. Income stability refers to monthly household income, and it is measured on a 10-point scale, varying from under NT\$25,000 (approximately \$770 USD) to above NT\$132,001 (\$4,060 USD) (see Appendix 1). Income stability is an interesting control variable because income "instability" implies that people who are financially worse off than before blame the party in power for not performing well economically (Feldman 1982). If the party in power happens to be the one that these people originally supported, these people might choose to defect and support an opposing party's nominee in an election. When it comes to demographic variables, *age*, *education*, and *gender* are controlled for in the defection model. Political loyalty is found to be a function of age (Beck 2002); therefore, in the defection model, older people are expected to be less likely to defect than younger people in an election. In addition, educated people are likely to vote "consistently".

Don't know.

⁵Network members' partisan orientation is obtained from two questions—B1b and B1c. They are then contrasted against respondent's party identification (L2, L2a, and L2b).

• B1b: Do these people who you commonly discuss politics or elections with support the same party? 01: All support the same party [continue to B1c]; 02: Most support the same party [continue to B1c]; 03: About half and half; 04: Most of them support different parties; 05: None support the same party; 95: Refuse to answer; 98: Don't know.

• B1c: Which party is that? 01: KMT; 02: DPP; 03: NP; 04: PFP; 05: TAIP; 06: TSU; 90: Other; 95: Refuse to answer; 96: It depends; 97: No opinion; 98: Don't know.

⁶This variable is operationalized with three questions—L2, L2b, and L2c. (Refer L2 and L2b to 3).

• L2c: Do you lean very strongly, somewhat, or just a little to this party? 01: Very strongly; 02: Somewhat; 03: Just a little; 95: Refuse to answer; 96: It depends; 97: No opinion; 98: Don't know.

For example, among Republicans in America, those with a high level of education are consistently conservative and are likely to support conservative candidates in an election; those Democrats who are educated, on the other hand, are likely to support liberal candidates (Verba, Sidney, Schlozman, and Brady 1995). *Education* is measured using a 14-point scale of formal education, with illiterate coded as 0. As far as gender and party defection, a longitudinal study (Wiris 1986) shows that a general movement in the 1980s by the electorate toward Reagan is more salient among men than among women. In the U.S., male voters are in general more likely to become independent voters than female voters (Brnham 1970; Bendyna and Lake 1993; Norrander 1997). Yet, the situation is quite the opposite in Taiwan and other Asian countries such as Japan. Several studies show that there are more female independent voters who are indifferent to politics than their male counterparts who are indifferent to politics in Taiwan and Japan (Patterson and Nishikawa 2002; Ye 1994; Wong and Sen 1995; Huang and Jau 1996; Wu and Shiu 2003). Given that female voters in Taiwan by nature are independents, we speculate that female voters are likely to be defectors.

All of the control variables in the defection model mentioned above are the same as those control variables included in Beck's model (2002), except for residential stability and gender. In Beck's model, strong partisanship, high levels of residential stability and income stability, increased age, higher level of education, and being male are negatively associated with the likelihood of partisan defection. In other words, we expect, in the current model, that voters who are weak in partisanship, financially worse off, unstable in their residency, younger, of lower education level, and being female are more likely to defect in their partisan votes.

When it comes to the turnout model, the dependent variable is *voter turnout*, while the key independent variable remains to be the *perception of NH*. *Voter turnout* refers to whether or not voters went out to vote. Voters who reported that they voted were coded as 1, while others were coded as 0.⁷ The control variables are *partisan strength*, *residential stability*, *income stability*, *time on TV*, *time on Newspaper*, and demographic variables. Demographic variables include *age*, *education*, and *gender*. Partisan strength has been a conventional predictor of voter turnout (see the very first study by Angus Campbell, Gerald Gurin, and Warren Miller 1954). In Mutz's article (2002: 844), loyal Republicans and loyal Democrats are expected to show their support for their own parties' nominees in elections. Thus, respondents with strong partisan beliefs in the turnout model are expected to be more likely than weak partisans to turn out to vote.

Residential mobility, in addition, has been shown to be a significant predictor of political abstention especially within the US (Wolfinger and Hoffman 2001). In the US, many states require citizens to register before they are allowed to cast their ballots in the voting booth. Residential mobility, therefore, might work the same way to discourage voters in Taiwan to go out to vote, even though there is no such voting registration regulation in Taiwan. Voters who do not live in their registered residential areas might feel it too costly to travel back to vote in the Election Day. *Income stability* simply measures socioeconomic status and it is likely to predict civic participation, as previous studies suggest (see, for example, Zukerman, Kotler-Berkowitz and Swaine 1998).

Time on TV is an important indicator of political interest and has been found to be a significant factor in political participation (see, for example, Aarts and Semetko 2003). We define this variable by using a 5-point scale, in which 5 indicates the participant spends about two or more hours per day watching TV, while 0 denotes the participant watches no TV. The same measurement applies to Time on *newspaper*.⁸ Finally, studies in the American political context suggest that women are less likely than men to participate in political activities that are formal, conventional and nationally centered (Verba, Sidney, Schlozman, and Brady 1995); therefore, we include this variable to see if females in Taiwan are less likely to participate in voting. Similarly, older people, at least in the US, are often shown to be more likely to vote. Education is one of the most robust predictors of voting (Verba, Sidney, Schlozman, and Brady 1995).

⁷The question wording: H1: In last year's Taipei/Kaohsiung mayoral election many people went to vote, while others, for various reasons, did not go to vote. Did you vote? 01: Yes; 02: No; 91: Forgot; 95: Refuse to answer.

⁸A1. During last year's campaign, some people spent a lot of time paying attention to all kinds of media news stories about the election, while others didn't have time to pay attention. On average, how much time did you spend each day during the campaign paying attention to news about the election on TV? 01: Less than 30 minutes; 02: 31-60 minutes; 03: One hour to one hour and half; 04: One hour and half to 2 hours; 05: More than 2 hours; 06: Only paid attention every once in a while; 07: Paid no attention at all; 95: Refuse to answer; 96: It depends; 98: Don't know.

Overall, it is expected in this model that, besides the perception of a low level of NH, voters who are strong in partisanship, have high levels of salary, constantly resides in a place, frequently access the news media (Kang and Kwak 2003), older, higher in education, male, and higher in income level are more likely to turn out to vote. Before we move on to examine our models, there are three more notions regarding the differences between Beck's study (2003) and the current study. First, Beck took into account the effects of time in his research design. When examining the impact of social support within one's discussion network regarding support for the independent presidential candidate Ross Perot in 1992, Beck investigated whether a decreasing number of pro-Perot discussions *over time* led to *fewer* one-time Perot supporters to ultimately cast a ballot for Perot. Due to our data limitations, the current study is only a cross-sectional analysis. Yet, based on Beck's findings, we theorize that network heterogeneity will subsequently lead to partisan defection in Taiwan.

Second, Beck (2002) relies on a snowball survey⁹ to mitigate significantly the potential problem that "political discussants may be selected initially to support a survey respondent's presidential preference" in 1992. In other words, these survey respondents might have intentionally named political discussants who shared similar political preferences with themselves. A snowball survey was not an available option for the current study. Instead, we rely on survey questions asked about respondents' "perception" of the different partisan orientations of people around them. The perception is actually perceived network heterogeneity and a possible shortcoming of using it is selection bias. Yet, we justify the use of perceived network heterogeneity by arguing that a partisan ultimately *bases* his or her decision of becoming a defector *on* his or her "perceived" difference, rather than a real difference, between himself or herself and others. Put differently, however similar two persons are regarding their political positions, as long as one resists believing this similarity, a subjectively phenomenal difference of political position remains.

Last but not least, one might wonder that the turnout model and the defection model are associated, and therefore the results of the two models tend to confound each other. Respondents decided whether to vote or not in the 2006 mayor election, and only for those who have decided to vote, they had a chance to decide whether to defect or not. In other words, we seem to consider the defection tendency of those voters rather than nonvoters. In overcoming the selection bias problem, therefore, one might think we should adopt the choice of 'absentee voting' and make threefold our party defection variable, including voters cast ballots according to their party id, voters defect their party id when casting ballots, voters did not even go out to vote. Yet, this criticism is not as severe as it claims to be. It is hard to believe that leaving out nonvoters in our defection model is subject to a problem that we bias the defection pattern of the entire voting population. After all, party defection behavior, *by definition*, happened only among voters in the 2006 mayoral election. It is a wholly new issue regarding whether nonvoters are likely to defect in the next election and therefore deserves a discussion in the future. At any rate, we stay with using the dichotomous voting defection variable.

Results and Analysis

Insert Table (1) about here

Table 1 provides a glimpse of the relationship between perceived network heterogeneity and partisan defection in Taipei and Kaohsiung, and it shows that there is a positive correlation between higher levels of perceived NH and defection. In Taipei, 73.3 percent of partisans who lived in a heterogeneous communication network reported that they defected in the 2006 mayoral election, as opposed to 26.7% who lived in a homogeneous communication network reported that they did the same thing. There is a similar pattern in Kaohsiung: 75 percent of partisans who live in a heterogeneous communication network reported they defected in that election, while only 25 percent of partisans who live in a homogeneous communication network reported they defected in the same election. It should be noted that, because a few partisan voters would defect because in Table 1, (which was also the case in previous studies of partisan defection, see Beck 2002; Mayer 2007), we expect the number of observable cases to be examined in later regression analysis becomes much less.

Insert Table (2) about here

Table 2 further shows *no* greater tendency in KMT partisans to defect when compared to DPP partisans, or vice versa. It implies that there is no immediate need to include party identification as a control variable in our multivariate analysis.

⁹In the snowball survey used by Beck, interviewers actually called 40 percent of discussants who are named by survey respondents so as to see if these discussants' presidential preferences are in consistent with what those survey respondents reported.

In Taipei, 34.7 percent of all defectors are KMT identifiers and 36 percent are DPP identifiers, suggesting little difference between KMT supporter's and DPP supporters in the likelihood of defection. There is a similar pattern in Kaohsiung where 41.5 percent of defectors are KMT supporters while 48.8 percent of the defectors are DPP supporters.

Insert Table (3) about here

Importantly, we expected to see whether, as the theory suggests, the perception of NH drives more partisans to defect than does the perception of homogeneous network. A multivariate logit regression analysis in Table 3 lump together the response of Kaohsiung and that of Taipei; it shows that there is a significant relationship between the perception of NH and partisan defection. In other words, the higher the level of disagreement in partisan preference that individuals perceive within their communication networks, the more likely these partisan individuals are to defect from their original partisan preferences and vote for a candidate from another party. The relationship remains robust even after controlling for partisan strength, income stability, residential stability and other demographic variables. Yet, we are aware that a significant number of observations were deleted in this regression analysis—for instance, observations with missing values in any variable were excluded from analysis. We are, therefore, cautious about the revealed correlation between partisan defection and the perception of NH. We then employed techniques of multiple imputation for a double-check purpose.¹⁰ Due to limitation of space, we did not create another table for this imputation model, but the result of the imputation model closely resembles that of the model in table 3. The perception of NH remains to be a strong predictor of partisan defection.

As far as other variables, it should not be surprising that partisan strength is strongly correlated with partisan defection at the .001 level. As predicted, older respondents¹¹ and more educated respondents are not likely to defect their own party and cast a ballot for a candidate from a different party in an election. What is diametrically different from our expectation is that male respondents are likely to defect. This is, however, a finding that is consistent with the situation in the U.S where female voters are more likely to be stable party supporters than male voters. This finding also overthrows the argument of several studies (Patterson and Nishikawa 2002; Ye 1994; Wong and Sen 1995; Huang and Jau 1996; Wu and Shiu 2003) that there are more female independent voters in Taiwan who tend to defect from their own party than do their male counterparts. This requires more thorough explanation in the future research. Finally, income stability and residential stability do not turn out to be successful predictors, and the Cox & Snell R square is about 4%.

Insert Table (4) about here

When it comes to the model of turnout in table 4, the correlation between the perception of NH and voting disappears though the sign of the perception of NH is negative, as expected. In fact, in a vicariate regression analysis ($r = -.124$, $p < .0001$), voter turnout is significantly correlated with the perception of NH. This correlation becomes insignificant when we control for other variables in table 4; at any rate, the finding is greatly inconsistent with Mutz's prediction (2006). Because the turnout model does not have as much the problem of losing samples ($n = 942$) as the defection model does, we do not rely on an imputation technique to increase the sample size of the turnout model for a double check purpose. In addition, partisan strength drives respondents to vote, and this is a rather unsurprising finding. Residential stability increases the likelihood of voting. This is hypothetically because these voters are those adults who are free of being away from home for school. They, therefore, do not have as much cost as student voters when it comes to casting a ballot in a voting booth. Both time on TV and time on newspaper are indicators of political interest, but only time on TV is shown to be correlated with voter turnout.

¹⁰ List-wise deletion of observations in the regression process is a commonly seen and still useful way to deal with missing values. However, because a significant number of observations are excluded from analysis, this method may yield biased parameter estimates. While the default procedure of most statistical packages exclude the observations with missing values, list-wise deletion has been identified as a problem for most of electoral studies (Gelman, King, and Liu, 1998). This concern about biased estimates can be minimized if the lost of cases due to missing data is less than about 5% and if pretest variables can reasonably be included in the models as covariates (see, Graham, 2009). For details of explaining and practicing MI, see Stuart, Azur, Farmakis and Leaf (2009) and King, Honaker, Joseph, and Scheme (2001).

¹¹ It should be noted that we controlled for age and age squared in both defection model and turnout model so as to see if the possibility of partisan defection and possibility of voter turnout are u-shaped in age. We found that both age and age-squared are not significant at all, and tables 3 and 4 are shown to have the multi co linearity problem. Removal of age squared produces a statistically significant age variable in tables 3 and 4; this suggests that age is correlated with both defection and turnout in a linear way.

According to some anecdotal analyses in Taiwan's media, this is hypothetically because TV news talk shows in Taiwan more successfully motivate the audience to vote via their emotional propaganda than newspaper. Finally, older respondents in Taiwan are more likely to vote, but more educated respondents and male respondents are not revealed to have the tendency to vote. All in all, the hypothesis that the perception of NH should be correlated with nonvoting is not supported in table 4.

Insert Table (5) about here

In summary, Table 5 helps to graphically communicate our theoretical expectations and the major findings. The column of the expected directions of signs flows from our theoretical discussion while the column of the revealed directions of signs comes from the findings in tables 3 and 4. When it comes to the defection model, the revealed signs of the perception of NH, partisan strength, age and education are as what we expected. Gender is the only variable that functions in an opposite way from our expectation. Again, male voters are more likely to defect than female voters in Taiwan. As for the turnout model, our focal variable 'the perception of NH' fails to predict the likelihood of voting. Mutz's theory does not seem to hold in Taiwan. Finally, partisan strength, residential stability, time on TV and age are revealed as significant predictors, as expected.

Discussion and Conclusion

Students of social networks, particularly communication networks, come to realize that network heterogeneity is an important factor associated with one's democratic life, especially when it comes to the stability of voter preferences and political participation. By saying that the presence of network heterogeneity is crucial to developing voters' democratic sense, we do not assume that voters who are passively embedded, or actively become involved in heterogeneous networks are superior to those surrounded by like-minded, self-selected individuals. It is not a goal of this paper to argue that good or sophisticated voters must be "fickle" in their preferences. This paper takes a smaller step toward an understanding of the extent to which the theory of network heterogeneity explains Taiwan voters' partisan defection and voter turnout. By examining the two hypotheses regarding partisan defection and willingness to vote in Taiwan, we found that partisan voters who perceive a high level of network heterogeneity around them are likely to defect, as the partisan defection theory predicts. This is so even though the two elections we rely on for examination are mayoral elections, rather than national elections. In the relatively collectivist society Taiwan, one's perception that he or she and his or her communication network members differ in party identifications likely to guide him or her to deviate from party voting in elections. In short, Beck's theory of partisan defection remains telling in Taiwan.

When it comes to the model of voter turnout, the empirical evidence provides only limited support for the hypothesis that perception of network heterogeneity discourages political participation. Although the sign of the NH variable remains negative, as the theory predicts, it becomes statistically insignificant after including controls. In lights of our earlier discussion of Taiwan's overheated political participation, as a result of recent citizens' political enfranchisement, we speculate that the effect of the perception of NH is not great enough to drive citizens away from their enthusiasm in regaining political participation. This is greatly different from the situation in the U.S. where the perception of NH easily dampens Americans' interest in voting (an already low turnout rate country).

We are aware of some limitations in this analysis. The first is the measurement of "the perception of network heterogeneity." As stated, there might be a selection bias in requesting a respondent to perceive different opinions around him or her. As stated earlier, a solution to this problem is to use a snowball survey or run an experiment to create a heterogeneous network environment where research subjects barely know each other but their real political position are recorded. Second, both theories were developed and examined in the context of a national election and future studies should continue employing data from other types of elections in order to examine these theories. Last but not least, a study on network heterogeneity should take into account the time factor, since a network is a political environment evolving over time. We think theta time series analysis will help to explore the effect of the temporal dimension of network heterogeneity on how voters change their voting preferences over time and indicate whether ultimately voters cast a ballot for their own parties' candidates.

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Appendix

Appendix 1: Descriptive Statistics of Taipei and Kaohsiung Voters

Categories		Taipei		Kaohsiung	
		N	%	N	%
Sex	Male	590	47.8	640	50.7
	Female	645	52.2	622	49.3
Age	20 ~ 29	275	22.3	248	19.7
	30 ~ 39	207	16.7	210	16.6
	40 ~ 49	242	19.6	291	23.1
	50 ~ 59	256	20.7	284	22.5
	60 ~ 69	129	10.4	115	9.1
	70 and above	126	10.2	114	9.0
Education level	1. illiterate	28	2.3	65	5.24
	2. literate but no formal schooling	11	0.9	4	0.3
	3. some primary school	24	1.9	35	2.8
	4. primary school graduate	121	9.8	146	11.6
	5. some junior high school	13	1.1	11	0.9
	6. junior high school graduate	104	8.4	134	10.6
	7. some high school or vocational school	20	1.6	34	2.7
	8. high school or vocational school graduate	238	19.3	339	26.9
	9. some technical college	9	0.7	9	0.7
	10. technical college graduate	181	14.7	169	13.4
	11. some university	79	6.4	51	4
	12. university graduate	278	22.5	206	16.3
	13. some graduate education	22	1.8	12	1
	14. post-graduate education	97	7.9	44	3.5
	15. Ph.D.	3	0.2	1	0.1
	Refuse to answer	7	0.6	2	0.2
Income level	NT\$25,000 or lower	124	10.0	242	19.2
	NT\$25,001 ~ 36,000	112	9.1	152	12
	NT\$36,001 ~ 45,000	93	7.5	137	10.9
	NT\$45,001 ~ 54,000	103	8.3	138	10.9
	NT\$54,001 ~ 62,000	108	8.7	137	10.9
	NT\$62,001 ~ 72,000	91	7.4	79	6.3
	NT\$72,001 ~ 84,000	97	7.9	82	6.5
	NT\$84,001 ~ 101,000	170	13.8	112	8.9
	NT\$101,001 ~ 132,000	149	12.1	102	8.1
	NT\$132,001 and above	188	15.2	81	6.4
Father's ethnic background	1. Taiwanese Hakka (客家)	92	7.6	56	4.5
	2. Taiwanese Minnan (閩南)	838	69.0	990	80.0
	3. Mainlander	276	22.7	185	15.0
	4. Aboriginal	6	0.5	5	0.4
	5. Foreigner	2	0.2	1	0.1

Source: TEDS2006C.

Table 1 Cross-Tabulate Analysis of Partisan Defection by the Level of Heterogeneity

Perceived network	Taipei		Kaohsiung	
	Non-defection	Defection	Non-defection	Defection
Homogeneous	265 (57.2)	12 (26.7)	239 (51.2)	7 (25.0)
Heterogeneous	198 (42.8)	33 (73.3)	228 (48.8)	21 (75.0)
Sum	463	45	467	28
Total	508		670	

Source: TEDS2006.

Note: (1) in parentheses are column percentages. (2) A voter is coded as defector when he/she voted for a candidate of any other parties, cast a waste ballot, or did not turn out to vote. (3) Pair-wise deletion is used in this analysis; that is, the number of observations coded as “not available” or N/A, e.g., “don’t know,” “forget,” or “refuse to answer,” etc. are not reported here. (4) The chi-square tests of the Taipei samples is significant at the 0.001 level; the chi-square tests of the Kaohsiung samples are significant at the 0.01 level.

Table 2 Cross-Tabulate Analysis of Partisan Defection by Party Identification

Party ID	Taipei		Kaohsiung	
	No defection	Defection	No defection	Defection
KMT	352 (58.5)	26 (34.7)	297 (47.2)	17 (41.5)
DPP	213 (35.4)	27 (36.0)	297 (47.2)	20 (48.8)
NP	0 (0)	22 (29.3)	0 (0)	4 (9.8)
PFP	23 (3.8)	0 (0)	21 (3.3)	0 (0)
TSU	14 (2.3)	0 (0)	14 (2.2)	0 (0)
Sum	602	75	629	41
Total	677		670	

Source: TEDS2006.

Note: (1) in parentheses are column percentages; (2) a voter is coded as defector when he/she voted for a candidate of any other parties, cast a waste ballot, or did not turn out to vote; (3) the number of observations coded as “not available” or N/A, e.g., “don’t know,” “forget,” or “refuse to answer,” etc. are not reported here; and (4) the chi-square tests of the two samples are significant at the 0.001 level.

Table 3: Models of Partisan defection

explanatory variables				
Intercept	0.922			
	(1.908)			
Perception of NH	0.763	*		
	(0.366)			
Partisan strength	-0.850	***		
	(0.261)			
Income stability	0.011			
	(0.214)			
Residential stability	-0.026			
	(0.398)			
Age	-0.030	*		
	(0.014)			
Education	-0.169	*		
	(0.072)			
Male	0.668	*		
	(0.334)			
N	773			
Cox&Snell R Square	0.043			
Source: TEDS 2006C.				
Note: In the parentheses are standard errors: *** p<0.001:				
** p<0.01; * p<0.05; +p<0.1; there were 44 defectors and 729 who				
did not defect.				

Table 4: Models of turnout				
explanatory variables				
Intercept		-3.110	*	
		(.917)		
Perception of NH		-.197		
		(.219)		
Partisan strength		.360	**	
		(.118)		
Income stability		-.150		
		(.125)		
Residential stability		.438	**	
		(.163)		
Time on Newspaper		.274	**	
		(.092)		
Time on TV		.129		
		(.116)		
Age		.045	***	
		(.009)		
Education		.029		
		(.044)		
Male		-.004		
		(.198)		
N		942		
Cox & Snell R Square		.104		
Source: TEDS 2006C.				
Note: In the parentheses are standard errors: *** p<0.001;				
** p<0.01; * p<0.05; +p<0.1; there were 881 who turned out to				
vote and 155 who did not vote.				

Table 5:		theoretical expectations and major findings	
		expected directions of signs	revealed directions of signs
Defection model	Perception of NH	positive	positive; p<.05
	Partisan strength	negative	negative; p<.001
	Income stability	negative	positive; not significant
	Residential stability	negative	negative; not significant
	Age	negative	negative; p<.05
	Education	negative	negative; p<.05
	Male	negative	positive; p<.05
	Turnout model	Perception of NH	negative
Partisan strength		positive	positive; p<.01
Income stability		positive	negative; not significant
Residential stability		positive	positive; p<.01
time on TV		positive	positive; p<.01
time on Newspaper		positive	positive; not significant
Age		positive	positive; p<.001
Education		positive	positive; not significant
Male	positive	negative; not significant	