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# Information Heterogeneity and Economic Voting: A Cross-National Analysis

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Information Heterogeneity and Economic Voting: A Cross-National Analysis

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## DEDICATION

Dedicated to my grandparents, parents, my brother, sister, sister-in-law, and nephews for love, wisdom, and strength.

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## ABSTRACT

My dissertation explores the effect of information sources (especially the media) on retrospective and prospective national economic evaluations and their subsequent voter choice in comparative perspective. I examine whether the level of democracy and level of economic development are associated with the effect of information sources on economic voting across nations. The results indicate that consolidated democracies and countries with middle income (GDP per capita: \$1,000~\$9,999) are most strongly associated with both retrospective and prospective national economic evaluations. However, the level of democracy and economic development are not associated with voter choice. The comparative case study of Mexico and Taiwan substantiates the claim that countries with consolidated democracy can have a stronger effect on national economic evaluations than those with a lower level of democracy. Given that Taiwan has a higher level of democracy (the polity score of Mexico and Taiwan are 8 and 10 in 2012 respectively), the media effect on economic voting is more influential in Taiwan than in Mexico.

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## CHAPTER 1

### INTRODUCTION

This research explores how information sources (the media and talking about politics with others) influence economic voting in comparative perspective and offers a comparative case study of Taiwan and Mexico. The pioneering study of economic voting can be traced back to national election studies in the United States, where it has been demonstrated to be significant (Gomez and Wilson, 2006; Nadeau and Lewis-Beck, 2001; Powell and Whitten, 1993; Chappell, 1990; Erikson, 1989; Fair, 1978; Hibbs, 1977).

Generally speaking, economic voting centers on the relationship between retrospective/prospective economic evaluations and voter choice. When the U.S. economy is good, voters reward the incumbent; when the economy is poor, voters are likely to punish the incumbent and cast votes for the challenger (Fiorina, 1981; Kramer, 1971). Economic voting has been demonstrated to be a significant determinant for voter choice in the United States.

Outside the United States, however, the significance of economic voting is controversial, and quite diverse across nations. Take Lewis-Beck's (1990) research, for example. He discovered that retrospective national economic evaluation (sociotropic voting) influences people's voting behaviors in established democracies such as the United States, Britain, France, and Italy. In contrast, personal economic evaluation (pocketbook voting) is not significant in those countries. In addition, some scholars find

that retrospective national economic evaluation is not salient in most new democracies. Especially in developing countries, voters do not punish the incumbent for poor economic performance. One possible explanation is that voters know they “must suffer hard times in the near future if they are to enjoy prosperity later” (Miller and Niemi, 2002; Weyland, 2002; Stokes, 1996, 2001). In other words, they may still look forward to the economic prosperity promised by the incumbent and believe he or she will do a good job with the economy in the future. It seems that economic voting is not necessarily a significant factor in voter choice in new democracies. Although voters do not blame the incumbent for the bad economy in new democracies, they are still looking forward to a prosperous economy in the future and believe the incumbent party will do a good job with the economy. Does this phenomenon imply that prospective economic evaluation is more important than retrospective voting in new democracies? What may cause the differences in the significance of economic voting across countries? Why would this be the case? I seek to answer these important questions in my dissertation.

Why do information sources (especially the media) possibly play an important role in economic voting? Dalton(2008) claims that the rise of the media has increased people’s level of political information and the rise of education has increased voters’ political skills for processing political information in advanced industrial societies. Hetherington (1996) demonstrates that media consumption has influence on voters’ retrospective national economic evaluation in the United States. In other words, media consumption may enhance people’s knowledge about the national economic condition, and in turn people may evaluate the national economic condition according to the political information provided by the media. Moreover, Mickiewicz (2008) and Moser

and Scheiner (2012) contend that new democracies have less well-developed media institutions than established democracies. In this sense, level of democracy may influence the media effect on economic voting, and it is essential to take the media's role into consideration since it is an important source of political information that can heighten voters' level of political information about the national economic condition.

The significance of economic voting is controversial and quite diverse across nations. Is economic voting really associated with level of democracy? This research tries to establish a general explanation about the relationship between media consumption and economic voting across countries and attempts to explore whether economic voting varies with macro-level factors. In other words, I would like to discover whether there is a nomothetic explanation of the relationship between media consumption and economic voting globally or if it still varies across countries.

This introduction chapter proceeds in four parts. First, I review the relevant literature on media effect and economic voting. The theory of media effect is the agenda-setting theory in political communication. It mainly explores how the media activates the salience of the issue among the public, the attributes of the issues, and political behaviors. The literature on economic voting is mainly individual-level in comparative perspective. Second, I consider the theory of the effect of information sources on economic voting. In addition to the media, talking about politics with family members, friends, and colleagues is also an important information source and is taken into consideration. Level of political sophistication is the ability of voters to attribute economic conditions to the government and is discussed in the model as well. The third part of this chapter deals with

methodology, including hypotheses derived from the theoretical arguments, data, statistical methods, and variables, etc. The fourth is the chapter outline of the dissertation.

## 1.1 RELEVANT RESEARCH

Literature researching the media effect and economic voting abounds. The seminal works are as follows. I review media effect and economic voting separately and respectively.

### 1.1.1 Media Effect

Studies of media effect substantiate that mass media can influence public opinion on current issues. In other words, the media agenda sets the public agenda (McCombs, 2004). Five issues are salient: foreign policy, law and order, economics, public welfare, and civil rights (Ibid.). Foreign policy and economics usually rank as the most important issues in terms of both the media agenda and the public agenda. In this sense, media consumption enhances public attention to economics. In other words, the media can prime the economic issues (Lenz, 2012; Krosnick and Kinder, 1990; Iyengar and Kinder, 1987; Iyengar et al., 1984). Moreover, the media can also enable us to recognize how we think about some objects (McCombs, 2004). In other words, the media's focus on particular aspects of an issue affects public opinion about the issue. Therefore, the media can affect how people evaluate the national economic condition. The stimulation of the debates and evaluation of the issues by the media is called issue framing (Gamson, 1992; Iyengar, 1991). This is also the second level of agenda-setting, also known as attribute agenda-setting (McCombs, 2004). J. B. Hester and R. Gibson (2003) demonstrate that the news media does have a certain amount of influence on people's national economic evaluations. More negative coverage of economic news can shape people's negative

evaluations of the national economy. Hetherington (1996) also contends that when there is more negative than positive coverage of economic news, it negatively shapes people's national economic evaluation. In this sense, the media not only prime the issue of economy but also frame opinions of the economy by the public.

In addition, studies of media effect also demonstrate that media can shape people's opinions and in turn their behaviors, such as electoral choice (McCombs, 2004). Baek (2009) contends that the institutional setting of the media, which reduces information cost, can boost turnout. Sheaffer and Weimann's (2005) study on Israeli elections and Lenz's (2012) study on the U.S. presidential election show that media effect can influence voter choice. Hetherington's (1996) research on the U.S. presidential election in 1992 proves that the mass media negatively influences voters' retrospective national economic evaluation and that the negative evaluation, in turn, affects their vote choice. The effect accounts for George H.W. Bush's defeat in 1992.

The media can also enhance people's levels of information. Dalton (2008) shows that the rise of the media can help people acquire more political information since media (especially television) is a main source of political information in established democracies. He also claims that the process of "cognitive mobilization" -- the ability to acquire political information and the ability to process political information -- heighten people's level of political sophistication. Compared with established democracies, new democracies usually have less well-developed media institutions (Moser and Scheiner, 2012; Mickiewicz, 2008). In this sense, there may be less reliable information from the media in new democracies. Voters usually have a low level of political information, and their political behaviors, such as voting behaviors, are less influenced by the media (Ibid.).

Because voters may have low level of political information, their level of political sophistication will be probably low as well.

It is evident that the media is an important source of information for voters, and the level of information may be associated with the degree to which the media institution is established along with the level of democracy. Moreover, voters' level of information can affect their level of political sophistication. I therefore surmise that media consumption and level of political sophistication affect how people evaluate the retrospective and prospective national economy and in turn influences people's voter choice.

#### 1.1.2 Economic Voting

U.S. elections have been a pioneering source for studies on economic voting. Many have emphasized economic conditions as main determinants of U.S. election outcomes, especially U.S. presidential elections (Gomez and Wilson, 2007; Nadeau and Lewis-Beck, 2001; Chappell, 1990; Erikson, 1989; Fair, 1978; Hibbs, 1977). That is, this body of work shows that the better the economy, the more votes cast for incumbents; the worse the economy, the fewer votes cast for incumbents (Fiorina, 1981; Kramer, 1971). Voter choice is based on the economic evaluation in the past, and this is known as the retrospective national economic evaluation or sociotropic voting.

Some scholars also contend that prospective economic evaluation is an important determinant for voter choice. If voters believe that a certain party or candidate will do a good job with the economy in the future, they will vote for that party or that candidate (Downs, 1957; Achen, 1992). Kuklinski and West (1981) and Lewis-Beck (1988) demonstrate that prospective national economic evaluation is an important determinant in

U.S. congressional and presidential elections. Moreover, Mackuen et al. (1992) and Lockerbie (2008) find that prospective national economic evaluation is more important than retrospective national economic evaluation in determining voter choice. Similarly, prospective voting is significant instead of retrospective voting in the 1996, 2000, and 2004 presidential elections in Taiwan (Wan, 2005; Hsieh, Lacy, and Niou, 1998). Lewis-Beck et al.(2008) claim that retrospective voting is more important than prospective voting when the incumbent runs for the election; prospective voting becomes more important than retrospective voting when no candidate runs for the election.

In addition, Fiorina's (1978) and Markus's (1988) micro-analyses demonstrate that pocketbook evaluation (personally better/worse off) can influence voter choice in a presidential election. Moreover, Markus claims that voters are more sensitive to sociotropic evaluation than pocketbook evaluation, as is evident in Kinder and Kiewiet's research (1979, 1981). However, according to Clarke and Stewart's (1994) analysis using an error correction model, both sociotropic evaluation and pocketbook evaluation are equally crucial.

From these aggregate and individual-level analyses, it is evident that both sociotropic and pocketbook evaluations are influential on people's electoral behaviors. Therefore, I assume such effects as plausible and will construct my model accordingly.

From the comparative perspective on economic voting, Miller and Niemi (2002) contend that voters in new democracies usually do not punish incumbents when the economy is in bad shape. In other words, voters vote for the incumbents despite the bad economy because they recognize they "must suffer hard times in the near future if they are to enjoy prosperity later" (p. 181). In her case study on Argentina, Stokes (2001) finds

that voters do not punish politicians when they enact unmandated policies because outcomes are good; in contrast, voters do not support unmandated policies when outcomes are bad, as in the Venezuela case. Weyland's (2002) research on neoliberal reform in Latin America also demonstrates that people tend to support leaders who enact drastic reforms in order to recover the status quo when they are suffering from economic recession such as hyperinflation. In this sense, in new democracies, voters seem not to blame politicians for a bad economy. They instead support incumbents who enact bold economic reforms because they are looking forward to future prosperity. It seems that prospective economic voting is more salient in Latin America than retrospective economic voting.

Moreover, some pundits contend that party identification and candidate evaluation are associated with national economic evaluation (Gerber and Huber, 2010; Achen and Bartel, 2006; Anderson, Mendes, and Tverdova, 2004; Bartels, 2002; Niemi and Weisberg, 2001). Fiorina (1981) claims party identification is a "running tally" of retrospective evaluation of political parties and candidates. In addition, Achen and Bartel (2006) contend that a high level of information can reinforce the influence of party identification on national economic evaluation. In this vein, it is evident that the level of political information is also an important determinant of national economic evaluation.

Much research on economic voting in Mexico and Taiwan has been undertaken. Studies having to do with Taiwan, include Huang's (1994) study of legislative elections in Taipei county; Hsieh, Dean, and Niou's (1998) analysis of the 1996 presidential election; Wang's (2002) research on Taiwan's economic voting from 1996-2001; Wan's (2005) research on presidential elections; and Lin's (2008) research on the 2004 legislative

elections. As mentioned above, prospective voting is more salient than retrospective voting in Taiwan's presidential elections. Despite this, economic voting has not been the dominant determinant of voter choice in Taiwan; rather, nearly all research on economic voting in Taiwan demonstrates that national identity is always the most important determinant of voter choice (Huang, 1994; Hsieh, Dean, and Niou, 1998; Wang, 2002; Wan, 2005; Lin, 2008; Hsieh and Jang, 2009; Niou and Lacy, 2012).

As to the study of economic voting under one-dominant-party regime, there is some literature exploring economic voting in Mexico and Taiwan, which both have experienced a one-dominant-party system.<sup>1</sup> Aldrich and Magaloni (2006) show that Mexican voters did not punish the incumbent for a short-term economic recession because they had experienced long-term economic growth under a one-dominant-party regime. Choi (2010) also finds that the better-educated in Taiwan, who experienced long-term economic prosperity under a one-party regime, did not punish the incumbent KMT (Nationalist Party or Kuomintang) in the 1996 presidential election for a short-term economic recession. In contrast, people who had experienced long-term economic prosperity under a one-dominant-party regime punished the incumbent DPP (the Democratic Progressive Party in Taiwan from 2000-8) in the 2004 presidential election for a short-term economic recession. Mongenstern and Zechmeister's (2001) research on the 1997 midterm election in Mexico finds that risk-acceptant individuals are more likely to cast a vote for the opposition party when the economy is bad. In contrast, risk-averse individuals still tended to vote for the ruling Institutional Revolutionary Party (PRI) despite the poor economy, because they were less likely to vote for the opposition party, which had less experience in office. It is evident that there were quite a few voters in the

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<sup>1</sup> Both Taiwan and Mexico ended one-party rule in 2000.

one-dominant-party regime who did not punish the incumbent even though the economy was bad.

Based on the research questions and relevant literature above, it is evident that the media can influence how people think about the national economic condition and its subsequent voter choice. In this sense, I try to connect the effect of information sources and the economic voting in my dissertation and explore the effect in comparative perspective. The theory of the effect of information sources on economic voting is establish as follows.

## 1.2 THEORY OF INFORMATION SOURCES ON ECONOMIC VOTING

I derived my theory of information sources on economic voting from my research questions and relevant literature (please see figure 1.1). My theory follows Hetherington's (1996) study; I surmise that voters' level of information can affect their national economic evaluation and subsequent voter choice. In addition to the main information source--the media--the other important information source is talking to others about politics. Hetherington (1996) claims that talking about politics with others provides important information to voters. In addition, level of education can enhances people's ability to process political information. This "cognitive mobilization" can heighten the level of political sophistication (Dalton, 2008). The level of political sophistication can affect how voters attribute economic conditions to government (Gomez and Wilson, 2003, 2006). In particular, Gomez and Wilson discover that highly sophisticated voters are more likely to engage in pocketbook voting. In other words, a high level of political sophistication may be a prerequisite for those who evaluate government performance according to their personal economic condition. Godbout and Belanger (2007) replicate

Gomez and Wilson's research and find that level of political sophistication is associated with sociotropic and pocketbook voting when incumbents run for reelection.

It is evident that the effect of economic voting varies across nations. Even within in a certain nation, it is not necessarily significant across all elections. In some countries, prospective voting is more important than retrospective voting, while in others, pocketbook or sociotropic voting is more important. The only possible nomothetic rule is that, in new democracies, voters do not punish incumbents for economic downturns and expect economic prosperity in the future (Weyland, 2002; Stoke, 2001; Miller and Niemi, 2002). In other words, in new democracies, voters probably emphasize prospective evaluation over retrospective evaluation. In addition, in the United States, the effect of economic voting can be different according to the changing historical context. Powell and Whitten (1993) contend that macroeconomic factors especially the GDP growth rate and unemployment rate can affect the vote share of the incumbent party in comparative perspective. In addition, Lin (1999) in his time-series analysis contends that economic growth is associated with variations of economic voting in United States. In this sense, I assume that level of democracy and level of economic development may be associated with variations of economic voting in comparative perspective.

Media effect may be concerned with level of democracy and level of economic development as well. Literature of political institution claims that it is essential for countries to meet a threshold of economic growth and level of democracy in order for political institutions, such as electoral systems, to produce their expected effects (such as the number of parties, women's representation, and minority representation) (Moser and Scheiner, 2012; Matland, 1998). Established democracies have better-established media

institutions than those in new democracies. Thus, voters have a higher level of political information and their voting behavior is affected more by the media (Mickiewicz, 2008; Moser and Scheiner, 2012). Level of democracy and level of economic development are therefore associated with voters' level of political information. People may have high level of political information in countries with high level of democracy and economic development.

Summing up, it is still difficult to derive a generalizable explanation of economic voting given that there are variations of the significant of economic voting both within nations and across nations. Nonetheless, it has been substantiated that media cannot only prime but also framing issues and there are some research discovering that information sources (especially media) can influence voters' national economic evaluation and its subsequent voter choice. Based on the arguments that countries should reach the threshold of level of democracy and level of economic development in order for their political institutions to have their expected effect and level of democracy and level of economic development may be associated with variations of economic voting, I articulate my theory of information sources on economic voting in both cross-national analysis and the comparative case study as follows.

I surmise that level of democracy and level of economic development are associated with variations of economic voting. Since it is still difficult to allege whether pocketbook voting or sociotropic voting is more important than the other, both pocketbook and sociotropic evaluation are controlled in the voter choice model accordingly to figure out which one exerts more effect than the other. In addition to variables of economic voting, media consumption, talking about politics, level of

education, and level of political sophistication are independent variables which may influence voter choice. Level of democracy and level of economic development are the two national level variables. This research expect to explore a nomothetic explanation of economic voting and make contribution to controversies and debates of economic voting -- to establish the relationship between level of democracy and level of economic development and economic voting in comparative perspective. The following section delineates the model specification.

### 1.3 METHODOLOGY

My methodology section encompasses data, variables, statistical methods and model specification, and hypotheses. The model specification of cross-national analysis and comparative case study are discussed separately.

#### 1.3.1 Data

Both cross-national analysis and comparative case study use individual-level survey datasets. For cross-national analysis, my data is composed of survey respondents from first-round national surveys (2003-7) across 58 nations from Global Barometer (Table 1.1) and 2010 Latino Barometro national surveys from 18 Latin American countries (Table 1.2).<sup>2</sup> The Global Barometer survey data is used to measure retrospective and prospective national economic evaluations.<sup>3</sup> The 2010 Latino Barometro data is used to estimate voter choice because voter choice is only available in Latino Barometro surveys. Please refer to appendix A for questions used for Global Barometer and appendix B for questions used for Latino Barometro.

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<sup>2</sup> Global Barometer: [www.jdsurvey.net/gbs/gbs.jsp](http://www.jdsurvey.net/gbs/gbs.jsp) ; Latino Barometro: [www.latinobarometro.org/lat.jsp](http://www.latinobarometro.org/lat.jsp)

<sup>3</sup> Global Barometer is composed of national surveys from Asia Barometer, Latio Barometro, Afro Barometer, and Arab Barometer. The wordings are different for each question, but the meanings are the same. Please refer to Appendix A to see the different ways of asking respondents for each question.

For comparative case study, I use Mexico Panel Studies, including the 1997, 2000, 2006, and 2012 panel studies (Lawson, Chappell et al. 2007).<sup>4</sup> Except for the 1997 panel study which is the Mexico City election, these are presidential election surveys (see questions in Appendix C, D, E, and F). The last wave of each survey conducted immediately after Election Day, is used for analysis in order to establish a comparison with the cross-section datasets for Taiwan. The datasets for Taiwan are from the Center for Survey Research in Academia Sinica and Taiwan's Election and Democratization Study (TEDS) at National Chengchi University (see questions in Appendix G, H, I, J, and K).<sup>5</sup> Post-election independence samples are used. Although TEDS has panel studies as well, they are quite different from the ones I used for Mexico. Instead of interviewing the same respondents before and immediately after a particular election, the TEDS studies interview the same respondents from one election to the next (Wu and Lin, 2012). Therefore, I chose to use the cross-section data only.

### 1.3.2 Variables

Because my dissertation contains cross-national study and comparative case study, there are national-level (level 2) variables and individual-level (level 1) variables. Answers such as “don't know”, “forget it”, “decline to answer”, and missing values are all recoded as missing values. All variables are described in detail as follows.

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<sup>4</sup> Senior project personnel for the Mexico panel study include (in alphabetical order): Andy Baker, Kathleen Bruhn, Roderic Camp, Wayne Cornelius, Jorge Domínguez, Kenneth Greene, Joseph Klesner, Chappell Lawson (principal investigator), Beatriz Magaloni, James McCann, Alejandro Moreno, Alejandro Poiré, and David Shirk. Funding for the study was provided by the National Science Foundation (SES-0517971) and *Reforma* newspaper; fieldwork was conducted by *Reforma* newspaper's polling and research team under the direction of Alejandro Moreno (<http://mexicopanelstudy.mit.edu/>).

<sup>5</sup> The Taiwan survey datasets were conducted in different institutions. The survey of the 1996 presidential election was obtained from the Center for Survey Research in Academia Sinica. With the exception of the 1996 survey dataset, all survey data was obtained by TEDS at National Chengchi University, Taipei, Taiwan.

### 1.3.2.1 National-Level Variables

Level of democracy (polity score) and level of economic development (GDP per capita) are national level variables which have been entered manually in the dataset.

*Level of democracy* is the macro-level variable referring to the polity score for each country according to the year in which the survey was conducted. The score is from 10 (most democratic) to -10 (least democratic).<sup>6</sup>

*Level of economic development* can be explained by the economic index. The natural log of Gross Domestic Product Per capita (GDP) of each country is used in this research.<sup>7</sup>

### 1.3.2.2 Individual-Level Variables

*Voter choice* asks respondents who they voted for in the last presidential election. This is the dichotomous variable in Latino Barometro and in some Mexico Panel Studies and the TEDS studies if there are only two presidential candidates in the elections. For Latino Barometro, the voter choice is recoded as a dummy variable (0= the opposition party; 1= the incumbent party). The voter choice in Latino Barometro is a hypothetical question which asks respondents which party would they vote for if elections were held this Sunday (please see Appendix B). For Mexico voter choice and the voter choice in 1996 and 2000 presidential elections in Taiwan, there are at least three presidential candidates and the voter choice is the nominal one which does not have a unique ordering.

*Retrospective economic evaluation* asks respondents about the national economic condition over the last year. This is the dependent variable in measuring the model of retrospective economic evaluation and it is the independent variable in voter choice.

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<sup>6</sup> Polity score website: <http://www.systemicpeace.org/polity/polity4.htm>

<sup>7</sup> GDP per capita is from the World Bank website: <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

*Prospective economic evaluation* asks respondents about future national economic evaluation compared with current economic evaluation. This is the dependent variable in measuring prospective economic evaluation and it is the independent variable in voter choice.

*Pocketbook evaluation* (personal or family economic evaluation) refers to whether the respondent is personally better or worse off in the last year or so and is usually used to measure pocketbook voting. This variable is based on the idea that whether people think the national economic condition is good or not depends on whether they are personally better or worse off (Weatherford, 1983; Pomper, 1993; Hetherington, 1996). In this sense, personal economic evaluation can influence national economic evaluation. Both retrospective and prospective pocketbook evaluations are included.

For both sociotropic evaluation and pocketbook evaluation, they are ordinal variables which may range from much worse (-2) to much better (2) or from worse (-1) to better (1).

*Media consumption* which is an ordinal variable refers to how much time respondents spend with television. Hetherington (1996) contends that more consumption can lead to negative national economic evaluation. His assumptions and findings are based on the idea that there is more negative news coverage about the national economic condition on television. In other words, more consumption of negative news coverage regarding the national economy can influence voters to evaluate national economic condition negatively. However, it is difficult to explain why more consumption of media can lead to either positive or negative national economic evaluation since whether there is

more positive or negative news coverage of the national economy on television is unknown unless content analysis is conducted.

In order to conquer that challenge, I use a different measurement (variable) in comparative case study. It asks respondents which television channels or programs they usually watch. In Mexico, there are two main media networks, Televisa and Televisión Azteca; they represent 90% of the viewership in Mexico. Televisa is more likely to lean toward the PRI, while the newer Televisión Azteca network tends to be more sympathetic toward the National Action Party (PAN). Neither of the two networks is in favor of the Democratic Revolutionary Party (PRD) (Lawson and McCann, 2005; Venezuela and McCombs, 2007). In Taiwan, television stations are categorized into two camps according to their partisan bias: the pan-blue camp (Taiwan Television, China Television, Chinese Television System, TVBS, Chung-tien Television, and ETTV) and the pan-green camp (Formosa Television and San-lih E-Television) (Lo, 2013). Studies of political communication in both countries claim that television news is usually the main sources of information and can affect political behaviors (Lawson and McCann, 2005; Venezuela and McCombs, 2007; Chen, 2013).

*Talk about politics* which is also an ordinal variable is interpersonal communication that serves as an additional important source of political information (Hetherington, 1996). It mainly asks respondents how often they discuss politics with family members, colleagues, and friends during election.

*Political interests* asks how interested are respondents in politics? Political interests and level of education together are used to be the interaction term in lieu of political sophistication since items of political sophistication are not available either in

Global Barometer or Latino Barometro. I assume that people who have a high level of political sophistication have high interest in politics and have better ability to process political knowledge they obtain.

*Education* is the respondent's highest level of education. It can range from "illiteracy" to "graduate school" (please refer to appendixes). Scholars contend that level of education can influence voter ability to attribute responsibility for economic condition to the government. Therefore, level of education has been demonstrated to be a significant determinant for national economic evaluations (Gomez and Wilson, 2006; Choi, 2010).

*Political sophistication* refers to "incorporating an individual's level of political awareness and cognitive integration" (Luskin, 1987). It is a bundle of concepts: to be concerned about politics, to have political knowledge, and to recognize major positions on issues and interrelationships between those positions (Gomez and Wilson, 2006; Sniderman, Brody, and Tetlock, 1991). Gomez and Wilson (2006) claim that individuals at different levels of political sophistication have different abilities to link problems and their sources. Voters who are highly politically sophisticated are better able to attribute responsibility for economic change to the government. Unfortunately, there are no items regarding political sophistication available in Global Barometer. For cross-national analysis, I use the interaction term of political interest and level of education (both are ordinal variables) as an alternative to measure political sophistication.

In comparative case study, there are specific survey questions designed to measure the political sophistication of respondents in order to allow researchers to explore political sophistication directly. Respondents may be asked whether they know

the name of the president and prime minister, the leaders of the main political parties, the congressional candidates in the respondents' districts, the number of years in a congressman's term, the ruling party of the government, the unemployment rate, and so on. In the comparative case study of Taiwan and Mexico, I use factor analysis for those items and take the first factor score in the model.

*Party identification* asks respondents which political party they feel closest to. In electoral behavior studies, party identification is always the most important determinant of voter choice. Party ID is available in Latino Barometro only. It is a dichotomous variable (1= the incumbent party and 0= the opposition party). In comparative case study, both weak and strong partisans are recoded as one category. In Mexico, I treat each party as one dummy variable according to most of studies in Mexico. In Taiwan, I recode party identification as an ordinal variable according to each party's position on cross-strait relationship.

The specific variable in the Mexico case is *ideology* (left vs. right). In Mexico, the PAN is the right-wing party and the PRD the left-wing party (Dominguez and McCann, 1996; Hart, 2013).

The specific variable in the Taiwan case is *national identity*. National identity refers to people's attitudes about the relationship between Taiwan and China. As mentioned before, national identity is an important determinant of voter choice in Taiwan. Typically the survey question asks respondents whether they prefer independence for Taiwan, unification with China, or the status quo. The DPP (or pan-green camp) supports independence while the KMT (or pan-blue camp) occupies the middle ground between

the status quo and unification. National identity is an ordinal variable from 0 (independence) to 10 (unification).

### 1.3.3 Statistical Methods and Models

For statistical analysis, my dissertation mainly uses survey data. Given the nested nature of the data and the violation of the independence assumption, traditional ordinary least square (OLS) and analyses of variance (ANOVA) data are not appropriate for cross-national analysis. Because the cross-national analysis dataset contains individual observations nested within nations, I use multilevel models (or hierarchical linear models and mixed effects models). The fundamental goal of a multilevel model is to examine the influences of independent variables from several contexts (individual and national levels). In other words, the goal of a multilevel model is to predict values of some dependent variables based on a function of a predictor variables at more than one level. Multilevel data include multiple units of analysis, one nested within the other (Steenbergen and Jones, 2002).

The multilevel models in my dissertation measure whether the effect of information sources on national economic evaluation and subsequent voter choice varies across countries with different levels of democracy and levels of economic development. In other words, I would like to explore if level of democracy and level of economic development can exert different effects of information sources on economic voting. Some research on electoral behavior and democratization argues that level of economic development and level of democracy are associated with the number of parties and the level of women's and minority representation (Kuenzi and Lambright, 2005; Coppedge, 1997; Przeworski and Limongi, 1997). It is necessary for countries to meet the threshold

of economic growth and level of democracy for their political institutions, such as electoral systems, to produce their expected effects, such as the number of parties, women's representation, and minority representation (Moser and Scheiner, 2012; Matland, 1998). In this sense, level of democracy and level of economic development are highly associated with electoral behaviors, and I assume these effects as plausible and specify my model accordingly at the national level. I am going to run multilevel ordered logit models to estimate both retrospective and prospective national economic evaluations and multilevel logit models for voter choice. The basic form of hierarchical linear model is as follows:

$$\text{Level 1 (individuals)} \quad Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + r_{ij}$$

$$\text{Level 2 (nations)} \quad \beta_{0j} = \gamma_{00} + \gamma_{01}Z_j + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}Z_j + u_{1j}$$

Where:  $i = 1, 2, \dots, n_j$  for the number of individual (level 1) within a given nation unit (level 2:  $j = 1, 2, \dots, J$ ). Individual  $i$  is nested within nation  $j$ .  $X_i$  = individual level variables and  $Z_j$  = national level variables

After substituting the Level 2 effects into the Level 1 equation, we obtain:

$$Y_{ij} = [\gamma_{00} + \gamma_{10}X_{ij} + \gamma_{01}Z_j + \gamma_{11}X_{ij}Z_j] + [u_{0j} + u_{1j}X_{ij} + r_{ij}]$$

Fixed Effects

Random Effects

For my comparative case study of Mexico and Taiwan, I use ordered logit models for retrospective and prospective national economic evaluation and logit models or multinomial logit models for voter choice. Multilevel ordered logit models, multilevel logit models, and models for comparative case study are described in the following sections.

### 1.3.3.1 Multilevel Ordered Logit Models

Multilevel ordered logit models are used to measure retrospective and prospective national economic evaluations, which are ordinal variables (from -2 much worse to 2 much better). The multilevel ordered logit model, which is an extension of the single-level ordered logit model, measures cumulative comparisons of the ordinal response (Hedeker, 2007). A random intercept cumulative logit model is specified as:

$$\log \left[ \frac{\Pr(Y_{ij} \leq c)}{\Pr(Y_{ij} > c)} \right] = \text{logit}(\gamma_{cij}) = \alpha_c + \beta x_{ij} + u_j \quad c=1, \dots, C-1$$

Where  $Y_{ij}$  is the ordinal outcome for individual  $i$  in group  $j$  and  $x_{ij}$  is an individual-level explanatory variable.  $u_j \sim N(0, \sigma_u^2)$  is the level 2 random effect or residual (Steele, 2011).

The multilevel ordered logit model for retrospective and prospective national economic evaluations (with intercept only) is specified as:

Level 1 Let  $P_{ijc} = P_r(Y_{ij} \leq c)$

$$\log \left[ \frac{P_{ijc}}{1-P_{ijc}} \right] = r_c - [\beta_{0j} + \beta_{1j}(\text{RetroPocketbook}_{ij}) + \beta_{2j}(\text{ProsPocketbook}_{ij}) + \beta_{3j}(\text{Media}_{ij}) + \beta_{4j}(\text{Talk}_{ij}) + \beta_{5j}(\text{Edu}_{ij}) + \beta_{6j}(\text{Political Interest}_{ij}) + \beta_{7j}(\text{Sophistication}_{ij})] \quad (c=1, \dots, C-1) \quad (1)$$

$$\text{Level 2} \quad \beta_{ij} = \gamma_{ij} + \mu_{ij} \quad (1a)$$

Where:  $i = 1, 2, \dots, 7_j$  level 1 units nested within  $j = 1, 2, \dots, J$  level 2.  $\gamma_{ij}$  is a fixed intercept and  $\mu_{ij}$  is a random intercept.  $u_j \sim N(0, \sigma_u^2)$  is the level 2 random effect or residual. The model with  $C-1$  strictly increasing model thresholds  $\gamma_c$  (i. e.,  $r_1 < r_2 \dots < r_{c-1}$ ).

Then the random coefficient model (e.g., group variable: polity score) in level 2 is as follows (equation 2 is the same as equation 1):

$$\text{Level 1 } \log \left[ \frac{P_{ijc}}{1-P_{ijc}} \right] = r_c - [\beta_{0j} + \beta_{1j}(\text{RetroPocketbook}_{ij}) + \beta_{2j}(\text{ProsPocketbook}_{ij}) + \beta_{3j}(\text{Media}_{ij}) + \beta_{4j}(\text{Talk}_{ij}) + \beta_{5j}(\text{Edu}_{ij}) + \beta_{6j}(\text{Political Interest}_{ij}) + \beta_{7j}(\text{Sophistication}_{ij})] \quad (c=1, \dots, C-1) \quad (2)$$

$$\text{Level 2 } \beta_{ij} = \gamma_{ij} + \gamma_{i1}(\text{Polity Score}_j) + \mu_{ij} \quad (2a)$$

The random coefficient model which allows the intercept and slope (polity score) to vary across nations assumes that the random intercept and slope are independent across nations and independent of the covariates  $x_{ij}$ . Also the random intercept and slope have a bivariate normal distribution with zero mean and covariance matrix shown as follows (Rabe-Hesketh and Skrondal, 2012):

$$\Psi = \begin{bmatrix} \psi_{11} & \psi_{12} \\ \psi_{21} & \psi_{22} \end{bmatrix} \quad \psi_{21} = \psi_{12} = 0$$

The likelihood ratio test which compares the random intercept model with the random coefficient model can demonstrate which model is more appropriate than the other. If the test is significant (the asymptotic p-value <.05), the random coefficient model is more appropriate. The likelihood ratio test can also compares the random coefficient model (with uncorrelated variance) with the random coefficient model (with correlated variance). If the test is significant, the random coefficient model with uncorrelated variance is rejected in favor of the random coefficient model with correlated variance.

### 1.3.3.2 Multilevel Logit Models

In models of voter choice, the retrospective and prospective economic evaluations are added in the models as independent variables. Voter choice is a dichotomous variable in which the incumbent party is coded 1 and the opposition party is coded 0. The multilevel logit model of voter choice is written in terms of the log odds of the probability of voting for the incumbent party (the answer is 1), which is denoted  $p_{ij} = \Pr(y_{ij} = 1)$ . In addition, the question of party identification is available in Latino Barometro and is added in the model. In the same way as voter choice, party identification is a dichotomous variable (incumbent party = 1, opposition party = 0). The two-level random slope model (with intercept and slope varying only) is as follows:

$$\begin{aligned} \text{Level 1 } \log\left\{\frac{p_{ij}}{1-p_{ij}}\right\} &= \beta_{0j} + \beta_{1j}(\text{RetroPocketbook}_{ij}) + \\ &\beta_{2j}(\text{ProsPocketbook}_{ij}) + \beta_{3j}(\text{Media}_{ij}) + \beta_{4j}(\text{Talk}_{ij}) + \beta_{5j}(\text{Edu}_{ij}) + \\ &\beta_{6j}(\text{RetroEvaluation}_{ij}) + \beta_{7j}(\text{ProsEvaluation}_{ij}) + \beta_{8j}(\text{PartyID}_{ij}) + \\ &\beta_{9j}(\text{Political Interest}_{ij}) + \beta_{10j}((\text{Political sophistication})_{ij}) + \gamma_{ij} \quad (3) \\ \text{Level 2 } \beta_{ij} &= \gamma_{ij} + \gamma_{i1}GDP_j + \mu_{ij} \quad (3a) \end{aligned}$$

Where:  $i = 1, 2, \dots, 10_j$  level 1 units nested within  $j = 1, 2, \dots, J$  level 2.  $\gamma_{ij}$  is a fixed intercept and  $\mu_{ij}$  is a random intercept.  $GDP_j$  is the level 2 variable.

The likelihood ratio tests are conducted for multilevel logit models to compare the random intercept model with random slope model and compare the random slope model with uncorrelated variance with the model with correlated variance to figure out which model is more appropriate than the others.

### 1.3.3.3 Models in the Comparative Case Study

The ordered logit models are used to estimate retrospective and prospective national economic evaluations. Ordinal responses in ordered logit model assumes that the intervals between adjacent categories are equal (Long, 1997). In addition, ordered logit model which specifies the cumulative probability of a response is in a higher category than  $s$ , given a covariate  $x_i$ , be structured as

$$\Pr(y_i > s|x_i) = F(\beta_2 x_i - k_s) \quad s=1, \dots, S-1$$

$F(\cdot)$  is a standard normal cumulative distribution function (CDF) for the ordered logit model. Then the probability for a specific category  $s$  can be specified as (Rabe-Hesketh and Skrondal, 2012):

$$\Pr(y_i = s|x_i) = \Pr(y_i > s - 1|x_i) - \Pr(y_i > s|x_i) = F(\beta_2 x_i - k_{s-1}) - F(\beta_2 x_i - k_s)$$

The multinomial logit models and logit models are used to estimate voter choice. The nominal variable is a categorical variable which is not ordered or does not have a unique ordering. In this sense, the multinomial logit models measure elections which have at least three candidates. In the case of  $s$  candidates which is usually coded 1, 2, ...,  $S$ ), the probability of category  $s$  is specified as (Ibid.):

$$\Pr(y_i = s|x_i) = \frac{\exp(\beta_1^{[s]} + \beta_2^{[s]} x_i)}{1 + \exp(\beta_1^{[c]} + \beta_2^{[c]} x_i)} \quad s=1, 2, \dots, S$$

Where the index  $c$  takes the values (1, 2, ...,  $S$ ) to produce the required  $s$  terms in the sum in the denominator. The coefficients display log odds-ratios for the odds of each category versus the baseline category (Ibid.). In other words, multinomial logit models can be regarded as simultaneously estimating binary logits (probits) for all possible combinations of responses. For example, multinomial logit models with three categories

(1, 2, 3) are similar to simultaneously measuring three logit models (e.g. estimating three combinations: 1 vs. 2, 1 vs. 3, and 2 vs. 3).

The logit model which estimates elections which have only two candidates; therefore, the outcome should be dichotomous. In contrast to linear regression which the expectation of the response is modeled as a linear function ( $E(y_i|x_i) = \beta_1 + \beta_2x_i$ ) of the covariates, the expectation of a dichotomous response (0 or 1) is just the probability that the answer is 1. The nonlinear function is specified as follows (Ibid.):

$$E(y_i|x_i) = \Pr(y_i = 1|x_i) = h(\beta_1 + \beta_2x_i)$$

Where  $h$  is the inverse logit function of the linear predictor.

The models for Mexico and Taiwan are as follows:

#### 1.3.3.3.1 Mexico Case

The ordered logit models for both retrospective and prospective national economic evaluation for Mexico are specified as follows:

$$\text{logit} [\Pr(y_{ij} > s|x_i)] = \beta_0 + \beta_1\text{Retropocketbook} + \beta_2\text{Prospeckbook} + \beta_3\text{Talk} + \beta_4\text{Media} + \beta_5\text{Ideology} + \beta_6\text{Education} + \beta_7\text{PRI} + \beta_8\text{PAN} + \beta_9\text{PRD} + \beta_{10}\text{Sophistication}$$

Since there have been three main parties (PRI, PAN, and PRD) in 1997 Mexico city election and presidential elections, I use multinomial logit models to measure voter choice in Mexico. The multinomial logit models for voter choice in Mexico are specified as:

$$\Pr(y_i = s|x_i) = \frac{\exp(\beta_1^{[s]} + \beta_2^{[s]}x_{2i} + \beta_3^{[s]}x_{3i} + \dots + \beta_{12}^{[s]}x_{12i} + \beta_{13}^{[s]}x_{13i})}{\sum_{c=1}^3 \exp(\beta_1^{[c]} + \beta_2^{[c]}x_{2i} + \beta_3^{[c]}x_{3i} + \dots + \beta_{12}^{[c]}x_{12i} + \beta_{13}^{[c]}x_{13i})}$$

S=1, 2, 3 Where  $x_{2i}$  is retrospective national economic evaluation,  $x_{3i}$  is prospective national economic evaluation,  $x_{4i}$  is talking about politics,  $x_{5i}$  is media consumption,  $x_{6i}$  is ideology,  $x_{7i}$  is retrospective pocketbook evaluation,  $x_{8i}$  is prospective pocketbook evaluation,  $x_{9i}$  is level of education,  $x_{10i}$  is political sophistication, and  $x_{11i}$ ,  $x_{12i}$ , and  $x_{13i}$  are the party identification (PRI, PAN, and PRD) dummies. The index  $c$  takes the values (1, 2, ..., S) to produce the required  $s$  terms in the sum in the denominator.

#### 1.3.3.3.2 Taiwan Case

The ordered logit models for both retrospective and prospective national economic evaluation for Taiwan are specified as follows:

$$\text{logit}[\Pr(y_{ij} > s | x_i)] = \beta_0 + \beta_1 \text{education} + \beta_2 \text{Retropocketbook} + \beta_3 \text{Prospectbook} + \beta_4 \text{Media} + \beta_5 \text{Sophistication} + \beta_6 \text{Talk} + \beta_7 \text{Party ID}$$

Since there were four presidential candidates in 1996 presidential election and three candidates in 2000 presidential election, the multinomial logit models are used to estimate voter choice in 1996 and 2000. The multinomial logit models are specified as follows (take the 1996 presidential election for example):

$$\Pr(y_i = s | x_i) = \frac{\exp(\beta_1^{[s]} + \beta_2^{[s]} x_{2i} + \beta_3^{[s]} x_{3i} + \dots + \beta_{10}^{[s]} x_{10i} + \beta_{11}^{[s]} x_{11i})}{\sum_{c=1}^4 \exp(\beta_1^{[c]} + \beta_2^{[c]} x_{2i} + \beta_3^{[c]} x_{3i} + \dots + \beta_{10}^{[c]} x_{10i} + \beta_{11}^{[c]} x_{11i})}$$

S=1, 2, 3, 4 Where  $x_{2i}$  is retrospective pocketbook evaluation,  $x_{3i}$  is prospective pocketbook evaluation,  $x_{4i}$  is retrospective national economic evaluation,  $x_{5i}$  is prospective national economic evaluation,  $x_{6i}$  is level of education,  $x_{7i}$  is political sophistication,  $x_{8i}$  is media consumption,  $x_{9i}$  is talking about politics,  $x_{10i}$  is party

identification, and  $x_{11i}$  is national identity. The index  $c$  takes the values (1, 2, ..., S) to produce the required  $s$  terms in the sum in the denominator.

The logit models for 2004, 2008, and 2012 presidential elections in Taiwan are specified as follows:

$$\begin{aligned} \text{logit} \{\text{Pr}(y_i = 1|x_i)\} &= \beta_1 + \beta_2 \text{Education}_{2i} + \beta_3 \text{RetroPocketbook}_{3i} + \beta_4 \text{ProsPocketbook}_{4i} \\ &+ \beta_5 \text{Media}_{5i} + \beta_6 \text{Political sophistication}_{6i} + \beta_7 \text{Talk}_{7i} \\ &+ \beta_8 \text{National identity}_{8i} + \beta_9 \text{PartyID}_{9i} \\ &+ \beta_{10} \text{Retrospective evaluation}_{10i} + \beta_{11} \text{Prospective evaluation}_{11i} \end{aligned}$$

#### 1.3.4 Hypotheses

My hypotheses are based on the theory of information sources on economic voting in 1.2. The media institution is more well-established in established democracies and it is necessary for level of democracy and level of economic development to meet the minimum threshold for political institutions to produce the expected results. In this sense, voters in established democracies are better informed and their voting behaviors are more affected by the media than those in countries with low level of democracy and economic development (Matland, 1998; Mickiewicz, 2008; Moser and Scheiner, 2012). Hypotheses for cross-national analysis and comparative case study are as follows.

##### 1.3.4.1 Cross-National Analyses

The hypothesis for multilevel ordered logit model:

*The level of democracy and level of economic development can impose strong influence on retrospective and prospective national economic evaluations across*

*countries. In particular, countries with higher level of democracy and higher level of economic development can have stronger effect on national economic evaluations.*

The hypothesis for multilevel logit model:

*The level of democracy and level of economic development can exert significant effects on voter choice across countries. In particular, countries with higher level of democracy and higher level of economic development can produce stronger effect on voter choice.*

#### 1.3.4.2 Comparative Case Study

I hypothesize that the media may not have any influence on economic voting before 2000, when the media and political systems were not entirely open and free in both countries. Even after 2000 the media institutions may still be less developed, and thus the media might not have influenced economic voting between 2000 and before the second change of party in government and in opposition. After the second change of party in government and in opposition, the media can better influence economic voting since the media and political institutions are totally free and open.

Here are hypotheses for Mexico case:

*Hypothesis I: The media did not have any influence on economic voting in the 1997 Mexico City election, in which the media and political systems were still not totally open and free.*

*Hypothesis II: The media effect on economic voting may not be significant in either 2000 or 2006 since the media institutions were still not entirely developed.*

*Hypothesis III: The media can influence economic voting in 2012 since the media system was well established.*

Here are hypotheses for Taiwan case:

*Hypothesis I: The media did not influence economic voting in 1996, in which the media and political systems had not been totally open and free yet.*<sup>8</sup>

*Hypothesis II: The media effect on economic voting may not be significant in 2000 and 2004 either since the media institutions were still developing.*

*Hypothesis III: The media influenced economic voting in 2008 and 2012 because the political and media systems were free and open and were well-established.*

#### 1.4 CHAPTER OUTLINE

Chapter 1 is the research design of this dissertation, including research questions, literature review, the theory of information sources on economic voting, methodology, hypotheses, and chapter outline. Chapters 2, 3, and 4 are cross-national analyses using multilevel models. Chapter 2 explores the effect of information sources on retrospective national economic evaluation. I run ordered logit models for each country before running multilevel ordered logit models to compare them with multilevel models and demonstrate that macro-level effect is significant and it is essential to measure the effect of information sources on retrospective national economic evaluation by multilevel ordered logit models. The random intercept and random coefficient models are measured first.

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<sup>8</sup> In Taiwan, most newspapers and TV news stations have partisan bias, and people's partisanship can affect their choices (Lo et al., 1998; Lo and Huang, 2000; Lo, 2013). The questions asked "which newspaper do you usually read or TV news channel do you usually watch?" It depends on which question is available in the survey. The media consumption in 1996 and 2004 asked respondents "which newspaper do you usually read?" In 1996, there was no pan-green news TV channel so I chose the question of newspaper for analysis. In 2004, the TEDS survey did not ask a question about news TV channels. For the elections in 2000, 2008, and 2012, I used the TV news channel which respondents usually watched. Generally speaking, there are two categories: pro-KMT (blue camp) and pro-DPP (green camp). I categorized TV stations and newspapers into two groups (pan-blue camp and pan-green camp). For TV stations, the pro-blue camp includes TVBS, Era Communication, TTV, China TV (CTV), Chinese Television System (CTS), ETTV, and Chungtien Television (CTT); the pro-green camp includes Formosa TV (FTV) and Sanlih E-television (SET). For newspapers, the pro-blue camp includes China Times, United Daily, Central Daily News (CD News), and Chinese Daily; the pro-green camp includes Liberal Times, the Commons Daily, Taiwan Times, and the Independent Daily News.

Then the subset of Polity score and GDP per capita dummies are estimated. Chapter 3 focuses on the effect of information sources on prospective economic evaluation. The procedure is the same as chapter 2. I run ordered logit models first and then multilevel models. Chapter 4 focuses on the effect of information sources on voter choice. Retrospective and prospective national economic evaluations are added as independent variables to estimate voter choice. Similar to chapter 2 and chapter 3, I run logit models for each country before running multilevel logit models to verify that it is necessary to use multilevel logit models to estimate the effect of information sources on voter choice. Then I proceed to examine the random intercept and random slope models and the subset of Polity score and GDP per capita dummies.<sup>9</sup> The subset of polity score and GDP per capita dummies in Chapter 2, 3, and 4 can help to discover which level of democracy and level of economic development explain the between-country variance on national economic evaluations and voter choice. Chapter 5 is the comparative case study of Mexico and Taiwan. I first explain why it is important to do a comparative case study. Then I analyze the Mexico and Taiwan cases, respectively. Chapter 6 is the conclusion of the dissertation. In addition to briefly summarizing the findings of the previous chapters, I also discuss the limitations of this research and the relevant promising issues that deserve further exploration in the future.

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<sup>9</sup> Please refer to Leckie (2010) for the subset of categorical dummies in multilevel models.

Table 1.1 Countries in Global Barometer with Level of Democracy and Level of Economic Development (2003-2007)

Country	Polity Score	Income	Country	Polity Score	Income	Country	Polity Score	Income
<b>Japan</b>	10	H	Guatemala	8	M	Nigeria	4	L
<b>Hong Kong</b>	-	H	Honduras	7	M	Senegal	8	L
<b>Korea</b>	8	H	Mexico	8	M	South Africa	9	M
<b>China</b>	-8	M	Nicaragua	8	M	Tanzania	-1	L
<b>Mongolia</b>	10	M	Panama	9	M	Uganda	-1	L
<b>Philippines</b>	8	M	Paraguay	8	M	Zambia	5	L
<b>Taiwan</b>	10	H	Peru	9	M	Zimbabwe	-4	L
<b>Thailand</b>	-5	M	Uruguay	10	M	Bangladesh	6	L
<b>Indonesia</b>	8	M	Venezuela	6	M	India	9	L
<b>Singapore</b>	-2	H	Benin	6	L	Nepal	-6	L
<b>Vietnam</b>	-7	L	Botswana	8	M	Pakistan	-5	L
<b>Cambodia</b>	2	L	Cape Verde	10	M	Sri Lanka	5	M
<b>Argentina</b>	8	M	Ghana	8	L	Jordan	-2	M
<b>Bolivia</b>	8	L	Kenya	8	L	Palestine	-	L
<b>Brazil</b>	8	M	Lesotho	8	L	Algeria	2	M
<b>Colombia</b>	7	M	Madagascar	7	L	Morocco	-6	M
<b>Costa Rica</b>	10	M	Malawi	6	L	Kuwait	-7	H
<b>Chile</b>	9	M	Mali	7	L	Lebanon	7	M
<b>Ecuador</b>	6	M	Mozambique	6	L			
<b>El Salvador</b>	7	M	Namibia	6	M			

1. H: high income (GDP per capita  $\geq$  10,000 USD); M: middle income (GDP per capita: 1,000~9,999 USD); L: Low income (GDP per capita < 1,000 USD)

Table 1.2 Countries in Latino Barometro with Level of Democracy and Level of Economic Development (2010)

Country	Polity Score	Income group
<b>Argentina</b>	8	MU
<b>Bolivia</b>	7	ML
<b>Brazil</b>	8	H
<b>Colombia</b>	7	MU
<b>Costa Rica</b>	10	MU
<b>Chile</b>	10	H
<b>Ecuador</b>	5	ML
<b>El Salvador</b>	8	ML
<b>Guatemala</b>	8	ML
<b>Honduras</b>	7	ML
<b>Mexico</b>	8	MU
<b>Nicaragua</b>	9	ML
<b>Panama</b>	9	MU
<b>Paraguay</b>	8	ML
<b>Peru</b>	9	MU
<b>Uruguay</b>	10	H
<b>Venezuela</b>	1	H
<b>Dominican Republic</b>	8	MU

1. H: high income (GDP per capita  $\geq$  10,000 USD); MU: upper middle income (GDP per capita: 5,000~9,999 USD); ML: lower middle income (GDP per capita: 1,000~4,999 USD)

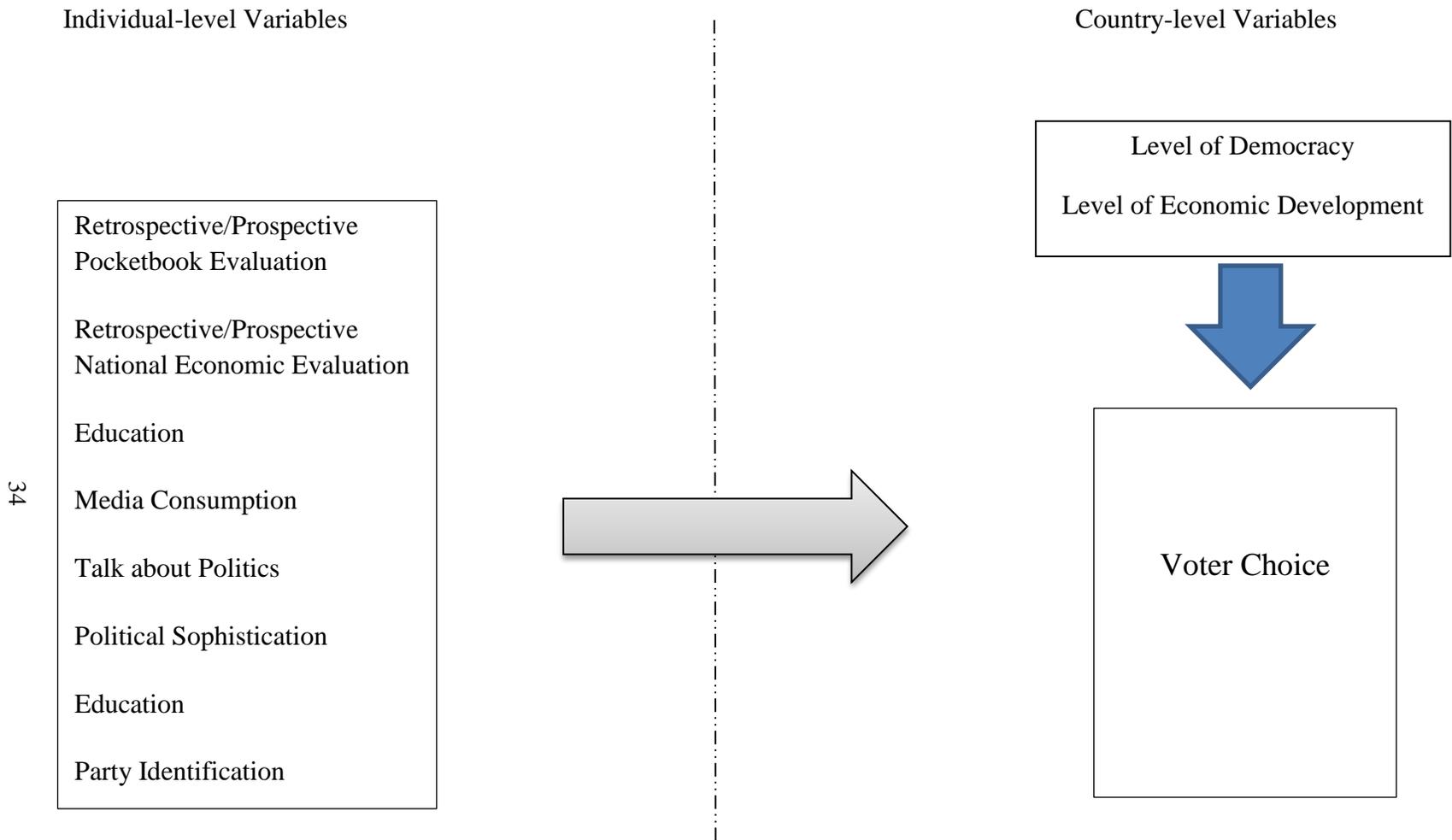


Figure 1.1: Framework of cross-national analysis of information sources on economic voting

## CHAPTER 2

### THE EFFECT OF INFORMATION SOURCES ON RETROSPECTIVE NATIONAL ECONOMIC EVALUATION

This chapter explores the effect of information sources on retrospective national economic evaluation in comparative perspective by using multilevel modeling. First, I run single-level ordered logit models for each country to discover differences among countries. I then run multilevel ordered logit models. Two-level random intercept and two-level random slope models are estimated and interpreted to see the country-level effect. The models analyze how much level of democracy and level of economic development can influence retrospective national economic evaluation. The third and the fourth parts of the chapter further analyze the two-level random coefficient models, and level of democracy and level of economic development are explored respectively. In particular, level of democracy and level of economic development are treated as categorical to estimate what levels explain the between-country variance more than others. In other words, random coefficients on a subset of polity score and GDP per capita dummies are estimated to discover which level of democracy and level of economic development can have the strongest effect on retrospective national economic evaluation. Finally, I conclude with an assessment of the effect of information sources on retrospective national economic evaluation. I contend that consolidated countries and countries with medium GDP per capita have the most substantive effect on retrospective national economic evaluation.

## 2.1 SINGLE-LEVEL ORDERED LOGIT MODELS IN EACH COUNTRY

Table 2.1 presents ordered logit models of the effect of information sources on retrospective national economic evaluation for each country.<sup>10</sup> The media effect on retrospective national economic evaluation is not necessarily statistically significant in all countries, although coefficients in most countries are negative. In other words, watching more television leads respondents to believe national economic condition has become worse over the past year. Talk about politics with others is not statistically significant except in Brazil, Guatemala, Panama, Lesotho, and South Africa. The effect is different across those five countries as well; the relationship can be positively or negatively correlated. Retrospective pocketbook evaluation is positively correlated with retrospective national economic evaluation in all countries. When people believe they have personally become better off over the past year, they are more likely to believe national economic condition has also become better over the last year. However, the influence of prospective pocketbook evaluation is quite different from that of retrospective pocketbook evaluation. Prospective pocketbook evaluation is less influential. It is not significant in every country. The other three variables -- education, political interest, and political sophistication (the interaction between education and political interest) -- are less influential.

With the exception of retrospective pocketbook evaluation, which has the most substantive effect on retrospective national economic evaluation, the effect of information sources is quite different across countries. It is difficult to derive a general rule about the

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<sup>10</sup> A total of 23 countries (districts) are not included in the single-level ordered logit models in table 2.1 because of missing values in some variables. They are Japan, Hong Kong, Korea, China, Mongolia, Philippines, Taiwan, Thailand, Indonesia, Singapore, Vietnam, Cambodia, Bangladesh, India, Nepal, Pakistan, Sri Lanka, Jordan, Palestine, Algeria, Morocco, Kuwait, and Lebanon.

effect of information sources on retrospective national economic evaluation when only ordered logit models for each country are estimated. I wonder whether level of democracy and level of economic development can account for these differences across countries. As I mentioned in the first chapter, traditional ordinary least square (OLS) and analyses of variance (ANOVA) data are not appropriate for cross-national analysis because individual observations are nested within each country and the independence assumption is violated. Because the cross-national analysis dataset contains individual observations nested within nations, multilevel models (also known as hierarchical linear models and mixed effects models) are more appropriate for estimating the effect of information sources on retrospective national economic evaluation on both the individual and the national level.

## 2.2 MULTILEVEL ORDERED LOGIT MODELS

Table 2.2 presents multilevel models of retrospective national economic evaluation. I run one random intercept model (model 1) and five random slope models (models 2 through 6). The interpretation of the six multilevel models is as follows.

### 2.2.1 Random Intercept Model

Model 1 is a random intercept model, which allows the model intercept to vary randomly across countries. For fixed effects coefficients, retrospective and prospective pocketbook evaluation, media consumption, and talking about politics with others are individually significant. When respondents positively evaluated their past and future personal economic evaluation, they were more likely to believe national economic condition had become better over the past year. The more time they spent watching

television, the more negatively they tended to view retrospective national economic condition.

Figure 1 presents the effects of media consumption on retrospective national economic evaluation by each country on fixed effect. The figure shows that more media consumption does not increase the probability of positive retrospective national economic condition. In contrast to media consumption, talking more about politics with others leads to positive retrospective national economic evaluation. The intercept variance is 0.291. The likelihood ratio statistic with a corresponding p-value of .000 indicates that there is between-country variance across countries. In other words, the variation of retrospective national economic evaluation can be attributed to between-country factors.

#### 2.2.2 Random Slope Models (Models 2 through 6)

The random intercept model in model 1 shows significant between-country variance in retrospective national economic evaluation. Models 2 through 6 are random slope models, which allow the effects of level of democracy (polity score) and level of economic development (GDP per capita) to vary across nations. Models 3 and 5 allow the random intercepts and slopes to co-vary (as opposed to the default, in which they are uncorrelated).

##### 2.2.2.1 Random Coefficients of Polity Score (Models 2 and 3)

Model 2 is a random slope model that allows polity score to vary across countries. There is no difference in the fixed effects coefficients and standard errors in models 1 and 2. In model 2, the intercept variance is the same as in model 1, and the random coefficient of polity score is close to zero. Apparently, polity score does not explain much of the

variance across countries. In other words, level of democracy in general may have little influence on retrospective national economic evaluation.

Model 3 is a random slope model with correlated variance. Most of the fixed effects coefficients are the same as those in model 2. The coefficients of prospective pocketbook evaluation and political sophistication change slightly, but only prospective pocketbook evaluation is individually significant. The between-country variance as a function of polity score is as follows:

$$\begin{aligned}\text{var}(u_{0j} + u_{8j}\text{polity}_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{8j})\text{polity}_{ij} + \text{var}(u_{8j})\text{polity}_{ij}^2 \\ &= 0.024 - 0.10 \text{polity}_{ij} + 0.09 \text{polity}_{ij}^2\end{aligned}$$

Figure 2.2 shows the graph of the between-country variance as a function of polity score. The between-country variance increases rapidly as a function of polity score. The likelihood ratio test can determine whether polity score can explain any of the between-country variance of the effect of information sources on retrospective national economic evaluation. The likelihood ratio test (assuming the uncorrelated equation model 2 is nested within the correlated equation model 3) is not significant ( $p = 1.000 > .05$ ). It implies that the correlated variance model (model 3) is not necessarily more appropriate than the uncorrelated variance model (model 2). Moreover, the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 3) is also not significant ( $p = 1.000 > .05$ ). The two likelihood ratio tests confirm that the random effect for polity score is not significant and does not account much for between-country variance of retrospective national economic evaluation.

### 2.2.2.2 Random Coefficients of GDP per Capita (Models 4 and 5)

Model 4 is a random slope model that allows GDP per capita to vary across countries. Compared with model 1, only fixed effects coefficients of prospective pocketbook evaluation and political sophistication change slightly. The intercept variance in model 4 is close to zero, and the random coefficient of GDP per capita is 0.313. That indicates that GDP per capita probably explains some of the variance across countries.

Model 5 is a random slope model with correlated variance. The fixed effects coefficients are the same as those in model 4. The intercept variance of model 5 (0.006) is greater than that in model 4, and the random coefficient of GDP per capita increases from 0.313 to 0.978. The between-country variance as a function of GDP per capita is as follows:

$$\begin{aligned}\text{var}(u_{0j} + u_{9j}GDP_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{9j})GDP_{ij} + \text{var}(u_{9j})GDP_{ij}^2 \\ &= 0.006 - 0.154 GDP_{ij} + 0.978 GDP_{ij}^2\end{aligned}$$

Figure 2.3 is the between-country variance as a function of GDP per capita. The between-country variance shows a linear increase as GDP per capita increases. Nevertheless, the likelihood ratio test (assuming the uncorrelated equation model 4 is nested within the correlated equation model 5) is not significant ( $p = 1.000 > .05$ ). It implies that the correlated variance model (model 5) is not necessarily more appropriate than the uncorrelated variance model (model 4). In addition, the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 5) is also not significant ( $p = 1.000 > .05$ ). The two likelihood ratio tests demonstrate that the random effect of GDP per capita is not significant, and GDP per capita does not explain much between-country variance.

### 2.2.2.3 Random Coefficients of Polity Score and GDP Per Capita (Model 6)

Model 6 allows both polity score and GDP per capita to vary across nations. The fixed effects coefficients remain the same as those in model 1. Neither of those is individually significant. The intercept variance is 0.053. The random coefficient of polity score is approximate to zero, and the random coefficient of GDP per capita is 0.004. Although the likelihood ratio tests of the previous models indicate that polity score and GDP per capita do not explain much between-country variance, the random coefficients of polity score and GDP per capita in model 6 indicate that GDP per capita probably explains more variance across countries than polity score.

### 2.3 RANDOM COEFFICIENTS ON A SUBSET OF POLITY SCORE DUMMIES

It seems that level of democracy does not explain much of between-country variance on retrospective national economic evaluation, given that the random coefficient of polity score is approximate to zero and the intercept variance is the same as that in the random intercept model in model 1. Because this research surmises level of democracy can impose strong influence on retrospective national economic evaluation, I wonder whether countries with higher levels of democracy exhibit more variance than those with lower levels. Although the likelihood ratio tests indicate that polity score does not explain much between-country variance, figure 2.2 shows that the between-country variance as a function of polity score increase steeply as polity score increases. It is highly possible that between-country variance may be different in countries with higher levels of democracy. In order to explore this effect, random coefficients on a subset of polity score dummies are estimated. The subset of polity score dummies includes polity 5 (score: 10), polity 4

(score: 6~9), polity 3 (score: 1~5), polity 2 (score: -5~0), and polity 1 (score: -10~6).<sup>11</sup>

Three models are interpreted. The first is a random intercept model with polity dummies in the fixed effects. The second adds the random coefficients of polity 5. The third adds the random coefficients of polity 5 along with correlated variance.

### 2.3.1 Random Intercept Model on a Subset of Polity Dummies

Model 1 in table 2.3 presents the random intercept model on a subset of polity dummies. The fixed effects coefficients are the same as in the random intercept model in table 2.2. Polity 2 (closed anocracy) is the only polity dummy that is individually significant. The intercept variance is 0.245, and the likelihood ratio statistic with a corresponding p-value of .000 indicates that there is between-country variance across countries.

### 2.3.2 Random Coefficients of Polity 5 Only

The random coefficient model for polity 5 estimates whether between-country variance is the same for polities 1 through 4 but different for polity 5. Although the fixed effects coefficients in model 2 are almost the same as those in model 1, with the exception of talk about politics and the three polity dummies, the intercept variance is 0.256, and the random coefficient of polity 5 is 0.257. The likelihood ratio test -- assuming the intercept-only equation is nested within the intercept-slope equation -- shows that the random coefficient for polity 5 is significant ( $p = 0.0001 < .05$ ).

### 2.3.3 Random Slope Model with Correlated Variance

Model 3 is a random slope model with correlated variance. The fixed effects coefficients are the same as those in model 2. The intercept variance and random

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<sup>11</sup> The regime types are categorized by Polity Score: Full democracy (10), Democracy (6-9), Open Anocracy (1 to 5), Closed Anocracy (-5~0), and Autocracy (-10 to -6).

coefficient for polity 5 are the same as for model 2. The covariance between the intercept and polity 5 random effects is 0.0001. Although the likelihood ratio test (assuming the uncorrelated model 2 is nested within the correlated model 3) is not significant ( $p = 1.000 > .05$ ), the likelihood ratio test (assuming the restricted model 1 is nested within the unrestricted model 3) is significant ( $p = .0004 < .05$ ). This reinforces the fact that the random effect for polity 5 is significant. In other words, there is country-variation in the difference between polity 5 and the other four polity dummies. The between-country variance is estimated as follows:

$$\begin{aligned} \text{var}(u_{0j} + u_{11j}\text{polity5}_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{11j})\text{polity5}_{ij} + \text{var}(u_{11j})\text{polity5}_{ij}^2 \\ &= 0.256 + 0.0002\text{polity5}_{ij} + 0.257\text{polity5}_{ij}^2 \end{aligned}$$

Because polity 5 is a dummy that takes the values of 0 and 1, the substitution of the estimates from the random coefficient model provides the following between-country variances:

$$0.256 \quad \text{for polity 1 to polity 4 (polity 5 = 0)}$$

$$0.256 + 0.0002 + 0.257 = 0.5132 \quad \text{for polity 5 (polity 5 = 1)}$$

The variance in polity 5 is more than twice as much as that in polities 1 through 4. This indicates that consolidated democracies can produce a more substantial effect on retrospective national economic evaluation than countries that are not fully democratic.

#### 2.4 RANDOM COEFFICIENTS ON A SUBSET OF GDP PER CAPITA DUMMIES

Although the likelihood ratio tests demonstrate that the random effect of GDP per capita in general is not significant, I still wonder which level of economic development can best explain between-country variance. Similar to the hypothesis of the influence of level of democracy, it surmises that level of economic development can impose a

stronger influence on retrospective national economic evaluation. The plot of the between-country variance as a function of GDP per capita in figure 2.3 shows a linear increase so I wonder whether countries with higher levels of economic development demonstrate more variance than those with lower levels. In order to explore this effect, the random coefficients on a subset of GDP per capita dummies (GDPH: high income, GDPM: middle income, and GDPL: low income) are estimated.<sup>12</sup> The random intercept model with GDP per capita dummies in the fixed effects is estimated first. The second model adds random coefficient of GDPH (high income), and the third presents random coefficient of GDPH along with correlated variance. Given that the covariance between the intercept and GDPH random effects is very small and close to zero (model 3 in table 2.4), the fourth model (random coefficient of GDPM) and the fifth model (random coefficient of GDPM along with correlated variance) are estimated in order to determine whether GDPH or GDPM explains more between-country variance.

#### 2.4.1 Random Intercept Model on a Subset of the GDP per Capita Dummies

Model 1 in table 2.4 is a random intercept model on a subset of GDP per capita dummies. The fixed effects coefficients are the same as those in the random intercept model in table 2.2. When compared with the random intercept model in table 2.2, adding GDP per capita dummies reduces the intercept variance from 0.291 to 0.284. The likelihood ratio statistic with a corresponding p-value of .000 indicates that there is between-country variance across countries.

#### 2.4.2 Random Coefficients of GDPH Only and Model with Correlated Variance

The random coefficient model for GDPH can estimate whether between-country variance is the same for GDPM and GDPL but different for GDPH. The fixed effects

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<sup>12</sup> Please refer to table 1.1 for income category.

coefficients and intercept variance in model 2 are the same as those in model 1. The random slope model with correlated variance in model 3 shows a result similar to that in models 1 and 2. The fixed effects coefficients and intercept variances in models 1 through 3 are nearly the same. The covariance between the intercept and GDPH random effects approximates zero. The likelihood ratio test (assuming the uncorrelated equation model 2 is nested within the correlated equation model 3) is not significant ( $p = 1.000 > .05$ ). Also, the likelihood ratio test -- assuming the random intercept equation (the restricted model in model 1) is nested within the intercept-coefficient equation with correlated variance (the unrestricted equation in model 3) -- shows that the random effect for GDPH is also not significant ( $p = 1.000 > .05$ ). In other words, GDPH may not explain much between-country variance.

#### 2.4.3 Random Coefficients of GDPM Only and Model with Correlated Variance

Because GDPH does not explain much between-country variance, I estimate whether GDPM accounts for more between-country variance than GDPH. Model 4 presents a random coefficient model for GDPM. The fixed effects coefficients are the same as those in the random intercept equation in model 1 with the exception of the coefficient of GDPM. The intercept variance decreases from 0.284 to 0.150; the random coefficient of GDPM is 0.409.

Model 5 allows the random intercept and slope to co-vary. The fixed effects coefficients remain the same as those in the previous models in table 2.4; only the fixed effect coefficient of GDPM changes. The intercept variance increase from 0.150 in model 4 to 0.193, and the random coefficient of GDPM reduces from 0.409 to 0.138. The covariance between the intercept and GDPM random effects is 0.082. The likelihood

ratio test (assuming the uncorrelated model 4 is nested within the correlated model 5) shows that the random coefficient for GDPM is significant ( $p = .0000 < .05$ ). In addition, the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 5) is also significant ( $p = .0000 < .05$ ). Therefore, the two likelihood ratio tests demonstrate that the random effect for GDPM is indeed significant, and there is country-variation in the difference between GDPM and other two GDP dummies (GDPH and GDPL). The between-country variance is estimated as follows:

$$\begin{aligned} \text{var}(u_{0j} + u_{10j}GDPM_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{10j})GDPM_{ij} + \text{var}(u_{10j})GDPM_{ij}^2 \\ &= 0.193 + 0.164GDPM_{ij} + 0.138GDPM_{ij}^2 \end{aligned}$$

Because GDPM is a dummy that takes the values of 0 and 1, the substitution of the estimates from the random coefficient model provides the following between-country variances:

$$0.193 \quad \text{for GDPL and GDPH (GDPM = 0)}$$

$$0.193 + 0.164 + 0.138 = 0.495 \quad \text{for GDPM (GDPM = 1)}$$

The variance in GDPM is more than two times as much as in GDPL and GDPH. This indicates that countries with middle GDP per capita can produce a more substantial effect on retrospective national economic evaluation than countries with high or low GDP per capita.

## 2.5 CONCLUSION

The ordered logit models of retrospective national economic evaluation in each country demonstrate that the effect of information sources on retrospective national economic evaluation varies strongly across countries. It is significant in some countries, but the relationship may be positive or negative. In other countries, the effect is not

significant. Retrospective pocketbook evaluation is the only mutually significant variable in all countries. It is therefore challenging to formulate a general explanation of the effect of information sources on retrospective national economic evaluation. Multilevel models can explore whether level of democracy and level of economic development account for the between-country variance.

The random intercept model in table 2.2 indicates that there is between-country variance in national retrospective evaluation. For the fixed effects, all models show that retrospective and prospective pocketbook evaluations, the media consumption, and talking about politics with others are individually significant. The random slope models for polity score and GDP per capita demonstrate that neither can explain much of the between-country variance. However, the random coefficient models on a subset of polity score and GDP per capita dummies can explore whether countries with higher levels of democracy or economic development produce more substantial effects on retrospective national economic evaluation than countries with lower levels of democracy or economic development. For level of democracy, consolidated countries have the most substantive effect on retrospective national economic evaluation. This corroborates the assumption that countries with higher level of democracy can impose a stronger influence on national economic evaluation. For level of economic development, countries with high GDP per capita does not have stronger effect on retrospective national economic evaluation than countries with lower GDP per capita. Particularly, countries with medium GDP per capita produce on retrospective national economic evaluation. Are these finding the same as those in prospective national economic evaluation? The next chapter is going to explore

and substantiate the effect of information sources on prospective national economic evaluation in comparative perspective.

Table 2.1. Ordered Logit Models of Retrospective National Economic Evaluation, by Country

Country	Argentina	Bolivia	Brazil	Colombia	Costa Rica	Chile	Ecuador	El Salvador	Guatemala	Honduras
<b>Variable</b>										
<b>Retrospective Pocketbook</b>	.99(.09)***	.67(.07)***	.42(.06)***	.78(.08)***	.51(.07)***	1.03(.08)***	1.04(.08)***	.66(.08)***	.56(.10)***	.74(.08)***
<b>Prospective Pocketbook</b>	.32(.10)**	.01(.06)	.31(.07)***	.12(.06)#	.39(.07)***	.51(.08)***	.08(.07)	.23(.07)**	.03(.08)	.20(.07)**
<b>Media</b>	-.02(.06)	-.02(.05)	-.02(.05)	.04(.05)	-.005(.07)	.16(.07)*	.11(.06)#	.12(.07)#	-.17(.07)*	-.11(.06)#
<b>Talk</b>	-.10(.11)	-.21(.11)#	.28(.11)**	-.22(.13)	.15(.13)	-.19(.14)	-.09(.12)	.08(.12)	-.34(.17)*	-.19(.14)
<b>Education</b>	.03(.10)	-.10(.08)	-.01(.07)	.26(.10)**	.07(.11)	.07(.10)	.08(.10)	.002(.08)	-.12(.14)	-.34(.12)**
<b>Political Interest</b>	-.25(.17)	-.14(.14)	-.07(.11)	-.06(.13)	-.22(.15)	-.33(.18)#	.31(.16)#	-.11(.13)	.05(.15)	-.33(.14)*
<b>Edu*Interest</b>	-.02(.05)	.01(.03)	-.001(.04)	-.04(.04)	.001(.05)	.01(.04)	-.07(.04)	.01(.04)	-.03(.06)	.08(.05)
<b>N of Obs</b>	1,040	1,103	1,072	1,072	839	1,080	1,115	765	663	792
<b>Log Likelihood</b>	-1081.62	-1470.28	-1426.19	-1367.65	-1034.46	-1189.10	-1319.35	-1022.08	-806.65	-989.69
<b>LR chi2</b>	207.77	111.14	108.16	183.42	150.67	319.02	212.60	128.69	66.52	194.44
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.0876	.0364	.0365	.0628	.0679	.1183	.0746	.0592	.0396	.0894

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 2.1. (continued) Ordered Logit Models of Retrospective National Economic Evaluation, by Country

Country	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela	Benin	Botswana	Cape Verde
<b>Variable</b>										
<b>Retro Pocketbook</b>	.57(.07)***	.73(.08)***	.59(.08)***	.84(.11)***	.66(.07)***	1.14(.08)***	.87(.07)***	3.37(.14)***	1.45(.09)***	2.19(.10)***
<b>Pros Pocketbook</b>	.36(.07)***	.18(.07)**	.18(.07)*	.24(.11)*	.33(.07)***	.29(.07)***	.34(.06)***	-.09(.07)	.12(.06)*	.15(.09)#
<b>Media</b>	-.06(.07)	.01(.06)	-.01(.07)	-.06(.09)	-.09(.06)	.18(.06)**	-.03(.06)	-.05(.08)	.002(.05)	-.07(.05)
<b>Talk</b>	.01(.10)	-.19(.12)	-.26(.11)*	.07(.16)	.03(.11)	-.07(.10)	-.01(.08)	-.22(.14)	.06(.09)	-.01(.09)
<b>Education</b>	.05(.06)	-.05(.09)	-.15(.11)	-.04(.10)	.04(.10)	.15(.08)*	-.14(.07)*	-.26(.11)*	-.09(.09)	.04(.08)
<b>Political Interest</b>	.15(.12)	-.13(.13)	-.25(.18)	-.25(.20)	-.06(.18)	.11(.14)	-.19(.12)	-.14(.10)	-.03(.12)	.05(.09)
<b>Edu*Interest</b>	-.03(.04)	.04(.04)	.05(.05)	.05(.05)	-.0002(.04)	-.06(.04)	.02(.03)	.11(.05)*	.02(.04)	.01(.04)
<b>N of Obs</b>	1,133	722	821	547	1,064	1,074	996	846	980	1,067
<b>Log Likelihood</b>	-1397.63	-930.93	-989.72	-704.21	-1323.02	-1290.38	-1270.65	-613.13	-1104.01	-1088.17
<b>LR chi2</b>	121.45	148.52	88.7	87.84	171.94	339.58	310.97	1217.40	388.46	660.71
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.0416	.0739	.0429	.0587	.0610	.1163	.1090	.4982	.1496	.2329

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 2.1. (continued) Ordered Logit Models of Retrospective National Economic Evaluation, by Country

Country	Ghana	Kenya	Lesotho	Madagascar	Malawi	Mali	Mozambique	Namibia	Nigeria	Senegal
<b>Variable</b>										
<b>Retro Pocketbook</b>	2.89(.12)***	2.15(.09)***	1.29(.08)***	1.80(.09)***	1.53(.07)***	1.88(.08)***	1.15(.09)***	1.22(.08)***	1.31(.05)***	2.28(.11)***
<b>Pros Pocketbook</b>	.21(.07)**	.06(.06)	.12(.06)*	.34(.07)***	-.03(.05)	-.03(.06)	.20(.08)*	.21(.08)**	-.05(.04)	.33(.10)**
<b>Media</b>	-.03(.06)	-.03(.05)	-.03(.08)	.17(.06)**	-.14(.08)#	-.03(.05)	-.17(.06)**	-.27(.05)***	-.02(.04)	-.07(.06)
<b>Talk</b>	.06(.12)	.15(.11)	.23(.10)*	-.17(.11)	.10(.09)	-.07(.09)	-.04(.11)	-.14(.09)	.03(.07)	.06(.10)
<b>Education</b>	.06(.12)	-.14(.08)#	-.34(.15)*	-.08(.08)	.09(.13)	.06(.13)	.03(.12)	.08(.11)	-.10(.05)*	-.28(.10)**
<b>Political Interest</b>	-.05(.13)	-.16(.11)	-.26(.13)#	.08(.11)	-.05(.10)	.18(.07)*	.04(.11)	.58(.17)**	.04(.08)	.02(.09)
<b>Edu*Interest</b>	-.03(.05)	.06(.04)#	.11(.06)*	.002(.04)	-.02(.05)	-.01(.05)	.06(.05)	-.08(.05)#	.01(.02)	.08(.04)#
<b>N of Obs</b>	963	1,074	853	1,173	894	1,097	777	1,063	2,182	952
<b>Log Likelihood</b>	-733.33	-1094.04	-985.45	-1209.99	-1008.85	-1102.87	-877.41	-1241.86	-2692.70	-871.83
<b>LR chi2</b>	1143.70	826.97	318.74	676.62	657.71	767.21	236.09	437.44	955.61	679.59
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.4381	.2743	.1392	.2185	.2458	.2581	.1186	.1497	.1507	.2804

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 2.1. (continued) Ordered Logit Models of National Economic Evaluation, by Country

Country	South Africa	Tanzania	Uganda	Zambia	Zimbabwe
<b>Variable</b>					
<b>Retrospective Pocketbook</b>	1.90(.07)***	1.54(.10)***	1.55(.06)***	1.46(.08)***	3.69(.16)***
<b>Prospective Pocketbook</b>	.21(.05)***	.17(.07)*	.09(.04)*	.04(.06)	-.25(.09)**
<b>Media</b>	.001(.04)	-.15(.07)*	-.07(.05)	-.12(.05)*	-.16(.08)*
<b>Talk</b>	.27(.70)***	-.10(.10)	.14(.08)#	.01(.11)	.17(.16)
<b>Education</b>	-.10(.06)#	-.28(.17)	-.06(.07)	-.01(.08)	.02(.12)
<b>Political Interest</b>	-.04(.10)	-.14(.16)	-.05(.09)	.17(.13)	.09(.21)
<b>Edu*Interest</b>	.03(.03)	.15(.07)*	.02(.03)	-.05(.04)	-.11(.06)#
<b>N of Obs</b>	2,132	771	2,042	1,054	1,007
<b>Log Likelihood</b>	-2228.04	-834.34	-2236.62	-1275.31	-468.25
<b>LR chi2</b>	1347.09	363.78	993.88	440.30	1329.14
<b>Prob</b>	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.2321	.179	.1818	.1472	.5867

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 2.2. Multilevel Models of Retrospective National Economic Evaluation

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Individual-Level</b>						
Retro Pocketbook	1.34(.01)***	1.34(.01)***	1.34(.01)***	1.34(.01)***	1.34(.01)***	1.34(.01)***
Pros Pocketbook	.13(.01)***	.13(.01)***	.12(.01)***	.12(.01)***	.12(.01)***	.13(.01)***
Media	-.03(.01)***	-.03(.01)***	-.03(.01)***	-.03(.01)***	-.03(.01)***	-.03(.01)***
Talk	.06(.02)***	.06(.02)***	.06(.02)***	.06(.02)***	.06(.02)***	.06(.02)***
Education	-.02(.01)	-.02(.01)	-.02(.01)	-.02(.01)	-.02(.01)	-.02(.01)
Political Interest	.01(.02)	.01(.02)	.01(.02)	.01(.02)	.01(.02)	.01(.02)
Political Sophistication	-.002(.01)	-.002(.01)	-.003(.01)	-.003(.01)	-.003(.01)	-.002(.01)
<b>Country-Level</b>						
Polity Score	-	2.46e-28	.09	-	-	2.63e-33
GDP per capita	-	-	-	.313	.978	.004
<b>Random Effect (N=36,825)</b>						
Variance Component	.291	.291	.024	1.43e-28	.006	.053
Covariance	-	-	-.05	-	-.077	-
Log Likelihood	-43970.02	-43970.02	-43997.53	-44022.54	-44041.85	-43969.48
Prob	.000	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

## The Media Consumption on Retrospective National Economic Evaluation



Figure 2.1. The Effect of Media on Retrospective National Economic Evaluation, by Country

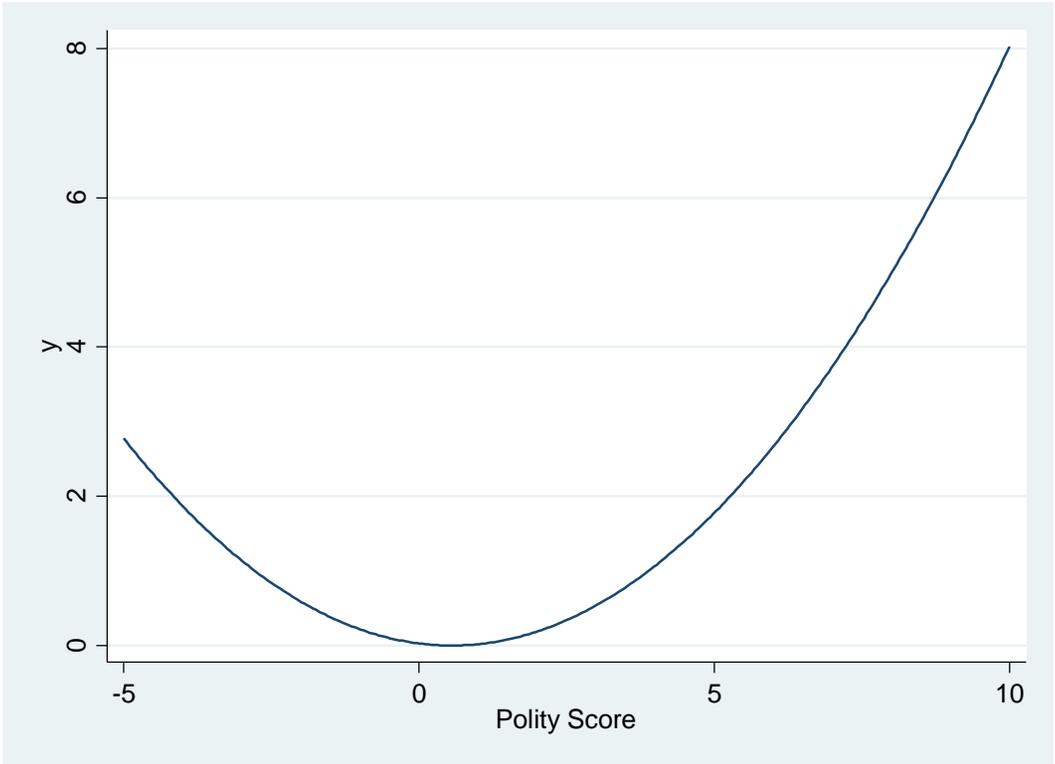


Figure 2.2. Between-Country Variance As A Function of Polity Score

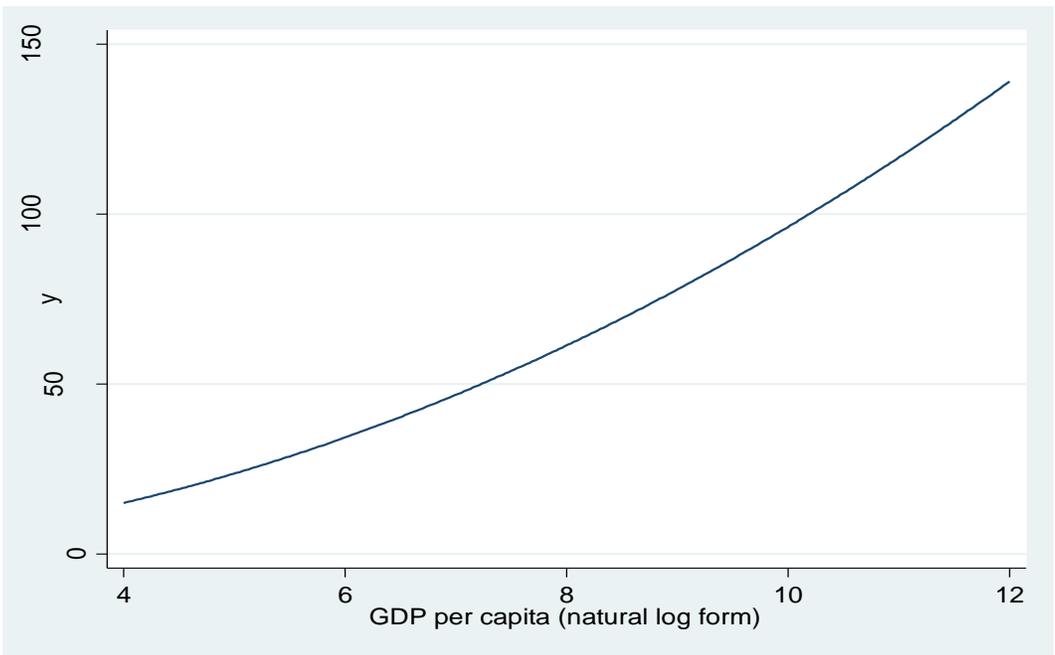


Figure 2.3. Between-Country Variance As A Function of GDP per capita

Table 2.3. Random Coefficients On A Subset of Polity Score Dummies

	Model 1	Model 2	Model 3
<b>Individual-Level</b>			
Retro Pocketbook	1.34(.01)***	1.34(.01)***	1.34(.01)***
Pros Pocketbook	.13(.01)***	.13(.01)***	.13(.01)***
Media	-.03(.01)***	-.03(.01)***	-.03(.01)***
Talk	.06(.02)***	.07(.02)***	.06(.02)***
Education	-.02(.01)	-.02(.01)	-.02(.01)
Political Interest	.01(.02)	.01(.02)	.01(.02)
Political Sophistication	-.002(.01)	-.002(.01)	-.002(.01)
Polity 2	-1.27(.61)*	-1.26(.62)*	-1.26(.62)*
Polity 3	-.94(.50)#	-.94(.51)#	-.94(.51)#
Polity 4	-.46(.37)	-.45(.37)	-.45(.37)
Polity 5	-.66(.46)	-.36(.36)	-.36(.36)
<b>Country-Level</b>			
Polity 5	-	.257	.257
<b>Random Effect (N=36,825)</b>			
Variance Component	.245	.256	.256
Covariance	-	-	.0001
Log Likelihood	-43967.06	-43959.24	-43959.24
Prob	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001
2. Polity 1 was dropped automatically because of collinearity.

Table 2.4. Random Coefficient On A Subset of GDP Per Capita Dummies

	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Individual-Level</b>					
Retro Pocketbook	1.34(.01)***	1.34(.01)***	1.34(.01)***	1.34(.01)***	1.34(.01)***
Pros Pocketbook	.13(.01)***	.13(.01)***	.13(.01)***	.13(.01)***	.13(.01)***
Media	-.03(.01)***	-.03(.01)***	-.03(.01)***	-.03(.01)***	-.03(.01)***
Talk	.06(.02)***	.06(.02)***	.06(.02)***	.06(.02)***	.06(.02)***
Education	-.02(.01)	-.02(.01)	-.02(.01)	-.02(.01)	-.02(.01)
Political Interest	.01(.02)	.01(.02)	.01(.02)	.01(.02)	.01(.02)
Political Sophistication	-.002(.01)	-.002(.01)	-.002(.01)	-.002(.01)	-.002(.01)
GDP Medium	-.18(.18)	-.18(.18)	-.22(.21)	-.02(.19)	-.09(.14)
<b>Country-Level</b>					
GDP High	-	1	.180	-	-
GDP Medium	-	-	-	.409	.138
<b>Random Effect (N=36,825)</b>					
Variance Component	.284	.284	.284	.150	.193
Covariance	-	-	-2.18e-06	-	.082
Log Likelihood	-43969.56	-43969.56	-43969.56	-43968.64	-43953.52
Prob	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001
2. GDPH and GDPL are dropped automatically because of collinearity.

## CHAPTER 3

### THE EFFECT OF INFORMATION SOURCES ON PROSPECTIVE NATIONAL ECONOMIC EVALUATION

The multilevel models in chapter 2 demonstrate that consolidated democracies and countries with middle income level produce the most substantial effect on retrospective national economic evaluation. This chapter explores the effect of information sources on prospective national economic evaluation in comparative perspective, also by using multilevel modeling. I wonder whether consolidated democracies and countries with middle income have the strongest effect on prospective national economic evaluation. First, I run single-level ordered logit models of prospective national economic evaluation for each country in order to discover differences among countries. I then run multilevel ordered logit models. Two-level random intercept and two-level random slope models are estimated and interpreted to see the country-level effect. The models analyze the effect of information sources on prospective national economic evaluation depending on level of democracy and level of economic development. The third and the fourth parts of the chapter further analyze two-level random slope models, and level of democracy and level of economic development will be explored respectively. As in the analysis of retrospective national economic evaluation, a subset of polity score and GDP per capita dummies are used to estimate what levels explain the between-country variance. Finally, I conclude with an assessment of the effect of information sources on prospective national economic evaluation.

### 3.1 SINGLE-LEVEL ORDERED LOGIT MODELS IN EACH COUNTRY

Table 3.1 presents ordered logit models of the effect of information sources on prospective national economic evaluation for each country.<sup>13</sup> The media effect on prospective national economic evaluation is statistically significant in only seven countries (Chile, Lesotho, Mozambique, Namibia, Uganda, Zambia, and Zimbabwe). The coefficients are negative except in Chile. In other words, watching more television can lead respondents to believe national economic condition will be worse in the future. In other countries, the media effect on prospective national economic evaluation is not significant. Coefficients are positive in some countries and negative in others. Talk about politics with others is not statistically significant except in Paraguay, Uruguay, and South Africa. The relationship is positively correlated in South Africa and negatively correlated in Paraguay and Uruguay. In around two-thirds of the countries, retrospective pocketbook evaluation is positively correlated with prospective national economic evaluation.

When people believe they have personally become better off over the past one year, they are more likely to evaluate prospective national economic condition positively. Compared with retrospective pocketbook evaluation, prospective pocketbook evaluation has a more substantial effect on prospective national economic evaluation; it is significant in all countries. When people believe they will personally become better off in the future, they are more likely to believe national economic condition will also be better in the future. The other three variables -- education, political interest, and political sophistication -- are less influential.

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<sup>13</sup> The same as retrospective national economic evaluation, there are 23 countries (districts) that are not included in the single-level ordered logit models in table 3.1 because of missing values in some variables. Please refer to footnote 1 in chapter 2 for names of the countries that are not included in the single-level ordered logit models.

With the exception of prospective pocketbook evaluation, which has the most substantive effect on prospective national economic evaluation, the effect of information sources is quite different across countries. As with the effect of information sources on retrospective national economic evaluation, it is difficult to develop a nomothetic rule about the effect of information sources on prospective national economic evaluation when only the ordered logit models for each country are estimated. I wonder whether level of democracy and level of economic development can account for these differences across countries, as is evident in multilevel models of retrospective national economic evaluation. Multilevel models of prospective national economic evaluation are estimated as follows.

### 3.2 MULTILEVEL ORDERED LOGIT MODELS

Table 3.2 presents multilevel models of prospective national economic evaluation. I run one random intercept model (model 1) and five random slope models (models 2 through 6). The interpretation of the six multilevel models is as follows.

#### 3.2.1 Random Intercept Model

Model 1 is a random intercept model that allows the model intercept to vary randomly across countries. For fixed effects coefficients, both retrospective and prospective pocketbook evaluation, media consumption, talking about politics with others, and education are individually significant. When respondents positively evaluate their personal economic evaluation in the past and in the future, they are more likely to believe national economic condition will be better in the future. The coefficient of prospective pocketbook evaluation indicates that prospective pocketbook evaluation produces a stronger effect on prospective national economic evaluation than retrospective

pocketbook evaluation. The more time respondents spend watching television, the more negatively they tend to view prospective national economic condition.

Figure 3.1 presents the effects of media consumption on prospective national economic evaluation by each country on fixed effect. More media consumption does not increase the probability of positive prospective national economic evaluation. In contrast to media consumption, talking more about politics with others can lead to positive prospective national economic evaluation. The intercept variance is 0.385. The likelihood ratio statistic with a corresponding p-value of .000 indicates that between-country variance is significant.

### 3.2.2 Random Slope Models (Models 2 through 6)

The random intercept model in model 1 shows significant between-country variance in prospective national economic evaluation. Models 2 through 6 are random slope models that allow the effects of level of democracy (polity score) and level of economic development (GDP per capita) to vary across nations. Models 3 and 5 allow the random intercepts and slopes to co-vary (as opposed to the default, in which they are uncorrelated).

#### 3.2.2.1 Random Coefficients of Polity Score (Models 2 and 3)

Model 2 is a random slope model that allows polity score to vary across countries. There is no difference between the fixed effects coefficients and standard errors in models 1 and 2. The intercept variance in model 2 decreases from 0.385 to 0.372, and the random coefficient of polity score is 0.0002. However, the likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 2) is not significant ( $p = 0.9386 > .05$ ). The random slope model is not necessarily more

appropriate than the random intercept model. In this sense, the random coefficient of polity score is not significant and that the polity score explains little between-country variance.

Model 3 is a random slope model with correlated variance. Most of the fixed effects coefficients are the same as those in model 2. The coefficients of media consumption and political interest change slightly, but only media consumption is individually significant. Although the coefficient of education remains the same as in models 1 and 2, it only becomes significant at the .10 level ( $p = .055 < .10$ ). The intercept variance decreases significantly, from 0.372 to 0.028. The random coefficient of polity score is 0.061, and the covariance between intercept and polity score random effect is -0.041. The between-country variance as a function of polity score is as follows:

$$\begin{aligned} \text{var}(u_{0j} + u_{8j} \textit{polity}_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{8j})\textit{polity}_{ij} + \text{var}(u_{8j})\textit{polity}_{ij}^2 \\ &= 0.028 - 0.082 \textit{polity}_{ij} + 0.061 \textit{polity}_{ij}^2 \end{aligned}$$

Figure 3.2 shows the graph of the between-country variance as a function of polity score. The plot is quite similar to that in retrospective national economic evaluation. The between-country variance increases rapidly as a function of polity score. However, the likelihood ratio test (assuming the uncorrelated equation model 2 is nested within the correlated equation model 3) is not significant ( $p = 1.000 > .05$ ). That implies that the correlated variance model (model 3) is not necessarily more appropriate than the uncorrelated variance model (model 2). Moreover, the likelihood ratio test (assuming the restricted model 1 is nested within the unrestricted model 3) is also not significant ( $p = 1.000 > .05$ ). The three likelihood ratio tests demonstrate that the random effect for polity

score is not significant. Therefore, polity score in general does not account much for between-country variance.

### 3.2.2.2 Random Coefficients of GDP per Capita (Models 4 and 5)

Model 4 is a random slope model that allows GDP per capita to vary across countries. Compared with model 1, only fixed effects coefficients of media consumption and political interest change. The intercept variance in model 4 decreases from 0.385 to nearly zero, and the random coefficient of GDP per capita is 0.044.

Model 5 is a random slope model with correlated variance. The fixed effects coefficients are the same as those in model 4. The intercept variance (0.099) in model 5 is greater than that in model 4, and the random coefficient of GDP per capita increases from 0.044 to 0.891. The between-country variance as a function of GDP per capita is as follows:

$$\begin{aligned} \text{var}(u_{0j} + u_{9j}GDP_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{9j})GDP_{ij} + \text{var}(u_{9j})GDP_{ij}^2 \\ &= 0.099 - 0.596 GDP_{ij} + 0.891 GDP_{ij}^2 \end{aligned}$$

Figure 3.3 is the between-country variance as a function of GDP per capita. The same as that in retrospective national economic evaluation, the between-country variance shows a linear increase as GDP per capita increases. The likelihood ratio test (assuming the uncorrelated equation model 4 is nested within the correlated equation model 5) is not significant at .05 ( $p = 1.000 > .05$ ). Moreover, the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 5) is also not significant ( $p = 1.000 > .05$ ). It is evident that the random effect for GDP per capita is not significant, and GDP per capita does not explain much between-country variance.

### 3.2.2.3 Random Coefficients of Polity Score and GDP per Capita (Model 6)

Model 6 allows both polity score and GDP per capita to vary across nations. The fixed effects coefficients remain the same as those in model 1. The intercept variance decreases from 0.385 to 0.140. The random coefficient of polity score is 0.116 and the random coefficient of GDP per capita is 0.115. However, the likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 6) is not significant ( $p = 1.000 > .05$ ). In order to explore which levels of democracy and economic development explain more between-country variance, I now estimate the random coefficients on a subset of the polity score and GDP per capita dummies.

### 3.3 RANDOM COEFFICIENTS ON A SUBSET OF POLITY SCORE DUMMIES

As with retrospective national economic evaluation, level of democracy does not explain much between-country variance on prospective national economic evaluation, given that none of the three likelihood ratio tests are significant. Despite this, this section explores whether countries with higher levels of democracy exhibit more variance than those with lower levels. In order to explore this effect, the random coefficients on a subset of polity score dummies are estimated. The subset of the polity score dummies is the same as in the retrospective national economic evaluation.<sup>14</sup> Three models are interpreted. The first is a random intercept model with polity dummies in the fixed effects. The second adds the random coefficients of polity 5, and the third adds the random coefficients of polity 5 along with correlated variance.

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<sup>14</sup> Please refer to footnote 2 in chapter 2 for the subset of polity score dummies.

### 3.3.1 Random Intercept Model on a Subset of Polity Dummies

Model 1 in table 3.3 is a random intercept model on a subset of polity dummies. The fixed effects coefficients are the same as in the random intercept model in table 3.2 with the exception of political interest. Polity 2 (closed anocracy) is the only polity dummy that is individually significant. The intercept variance is 0.324, and the likelihood ratio statistic with a corresponding p-value of .000 indicates that the between-country variance is significant.

### 3.3.2 Random Coefficients of Polity 5 Only

The random coefficient model for polity 5 estimates whether between-country variance is the same for polities 1 through 4 but different for polity 5. Although the fixed effects coefficients in model 2 are the same as in model 1, with the exception of political interest. The random coefficient of intercept is 0.299, and the random coefficient of polity 5 is 0.305. The likelihood ratio test -- assuming the intercept-only equation (model 1) is nested within the intercept-slope equation (model 2) -- shows that the random coefficient for polity 5 is significant ( $p = 0.0010 < .05$ ).

### 3.3.3 Random Slope Model with Correlated Variance

Model 3 is a random slope model with correlated variance. The fixed effects coefficients are the same as in model 2. The intercept variance and random coefficient of polity 5 are the same as in model 2. The covariance between the intercept and polity 5 random effects is 0.00007. Although the likelihood ratio test (assuming the uncorrelated model 2 is nested within the correlated model 3) is not significant ( $p = 1.000 > .05$ ), the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 3) is significant ( $p = .0044 < .05$ ). This substantiates the idea

that the random effect for polity 5 is significant. In other words, there is country-variation in the difference between polity 5 and other four polity dummies. The between-country variance is estimated as follows:

$$\begin{aligned} \text{var}(u_{0j} + u_{11j}\text{polity5}_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{11j})\text{polity5}_{ij} + \text{var}(u_{11j})\text{polity5}_{ij}^2 \\ &= 0.299 + 0.00014\text{polity5}_{ij} + 0.305\text{polity5}_{ij}^2 \end{aligned}$$

Because polity 5 is a dummy that takes the values of 0 and 1, the substitution of the estimates from the random coefficient model provides the following between-country variances:

$$\begin{aligned} 0.299 & \quad \text{for polity 1 to polity 4 (polity 5 = 0)} \\ 0.299 + 0.00014 + 0.305 = 0.604 & \quad \text{for polity 5 (polity 5 = 1)} \end{aligned}$$

The variance in polity 5 is almost twice as much as that in polities 1 through 4. This indicates that consolidated democracies can produce a more substantial effect on prospective national economic evaluation than countries that are not fully democratic.

### 3.4 RANDOM COEFFICIENTS ON A SUBSET OF GDP PER CAPITA DUMMIES

The random coefficients of GDP per capita in models 4 and 5 in table 3.2 show that GDP per capita cannot explain the between-country variance according to the likelihood ratio test. Similar to the hypothesis of the influence of level of democracy, it surmises that level of economic development imposes a stronger influence on national economic evaluation. I wonder whether countries with higher levels of economic development can demonstrate more variance than those with lower levels. In order to explore this effect, the random coefficients on a subset of GDP per capita dummies are estimated.<sup>15</sup> The random intercept model with GDP per capita dummies in the fixed

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<sup>15</sup> Please refer to table 1.1 for income category.

effects is estimated first. The second model adds random coefficient of GDPH (high income), and the third presents random coefficient of GDPH along with correlated variance. Given that the covariance between the intercept and GDPH random effects is very small and close to zero (model 3 in table 3.4), the fourth model (random coefficient of GDPM) and the fifth model (random coefficient of GDPM with correlated variance) are estimated in order to determine whether GDPH or GDPM explains more between-country variance.

#### 3.4.1 Random Intercept Model on a Subset of the GDP per capita Dummies

Model 1 in table 3.4 is a random intercept model on a subset of GDP per capita dummies. The fixed effects coefficients are the same as those in the random intercept model (model 1) in table 3.2 with the exception of a slight change in the media consumption coefficient. The intercept variance is 0.376. The likelihood ratio statistic with a p-value of .000 indicates that between-country variance is significant.

#### 3.4.2 Random Coefficients of GDPH Only and Model with Correlated Variance

The random coefficient model for GDPH estimates whether between-country variance is the same for GDPM and GDPL but different for GDPH. The fixed effects coefficients and intercept variance in model 2 are the same as those in model 1. The random slope model with correlated variance in model 3 shows results similar to those in model 1 and 2. The fixed effects coefficients and intercept variances are the same. The covariance between the intercept and GDPH random effects approximates zero. The likelihood ratio test (assuming the uncorrelated equation model 2 is nested within the correlated equation model 3) is not significant ( $p = 1.000 > .05$ ). Moreover, the likelihood ratio test -- assuming the intercept-only equation (the restricted equation in model 1) is

nested within the intercept-slope equation with correlated variance (the unrestricted equation in model 3) -- shows that the random coefficient for GDPH is also not significant ( $p = 1.000 > .05$ ). The two likelihood ratio tests demonstrate that the random effect for GDPH is not significant. In other words, countries with a high level of economic development (GDPH) may not exhibit much between-country variance.

### 3.4.3 Random Coefficients of GDPM Only and Model with Correlated Variance

Because GDPH does not explain much between-country variance, I estimate whether GDPM accounts more between-country variance than GDPH. Model 4 is a random coefficient model for GDPM. The fixed effects coefficients are the same as those in the random intercept model in model 1 with the exception of the coefficients of media and GDPM. The intercept variance decreases from 0.376 to 0.267; the random coefficient of GDPM is 0.552. The likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 4) is significant ( $p = .000 < .05$ ).

Model 5 allows the random intercept and slope to co-vary. The fixed effects coefficients remain the same as those in model 4 in table 3.4. The intercept variance increases from 0.267 to 0.273, and the random coefficient of GDPM also rises from 0.552 to 0.757. The covariance between the intercept and GDPM random effects is -0.121. Although the likelihood ratio test (assuming the uncorrelated equation model 4 is nested within the correlated equation model 5) shows that the random coefficient for GDPM is not significant ( $p = 0.9132 > .05$ ), the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 5) is significant ( $p = .0000 < .05$ ). Therefore, likelihood ratio tests demonstrate that there is country-

variation in the difference between GDPM and other two GDP dummies (GDPH and GDPL). The between-country variance is estimated as follows:

$$\begin{aligned}\text{var}(u_{0j} + u_{9j}GDPM_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{9j})GDPM_{ij} + \text{var}(u_{9j})GDPM_{ij}^2 \\ &= 0.273 - 0.242GDPM_{ij} + 0.757GDPM_{ij}^2\end{aligned}$$

Because GDPM is a dummy that takes the values of 0 and 1, the substitution of the estimates from the random coefficient model provides the following between-country variances:

$$\begin{aligned}0.273 &\quad \text{for GDPL and GDPH (GDPM = 0)} \\ 0.273 - 0.242 + 0.757 &= 0.788 \quad \text{for GDPM (GDPM = 1)}\end{aligned}$$

The variance in GDPM is nearly three times as much as that in GDPL and GDPH. This indicates that countries with middle GDP per capita can produce a more substantial effect prospective national economic evaluation than countries with high or low GDP per capita.

### 3.5 CONCLUSION

The ordered logit models of prospective national economic evaluation in each country demonstrate that the effect of information sources on prospective national economic evaluation is quite different across countries. The media effect is significant in only seven countries. With the exception of the positive relationship in Chile, increased media consumption leads respondents to believe that national economic condition will be worse in the future. Talking about politics with others does not influence prospective national economic evaluation in most of the countries. Prospective pocketbook evaluation is the only mutually significant variable in all countries. When people believe they will be personally better off in the future, they are more likely to believe national economic

condition will be better in the future. It is therefore challenging to formulate a general explanation of the effect of information sources on prospective national economic evaluation. Multilevel models can explore whether level of democracy and level of economic development account for the between-country variances.

The random intercept model in table 3.2 indicates that there is between-country variance in the effect of information sources on prospective national economic evaluation. For the fixed effects, all models demonstrate that retrospective and prospective pocketbook evaluations, the media consumption, talking about politics, and education are individually significant. The random coefficient models for polity score and GDP per capita show that neither can explain much of the between-country variance.

However, the random coefficient models on a subset of polity score and GDP per capita dummies can explore whether countries with higher levels of democracy and economic development can produce more substantial effects on prospective national economic evaluation than those with lower level of democracy or lower level of economic development. For level of democracy, consolidated democracies have the most substantive effect on prospective national economic evaluation. For level of economic development, countries with medium GDP per capita produce the strongest effect on prospective national economic evaluation. These results are the same as those in the retrospective national economic evaluation. Therefore, it is evident that consolidated democracy and countries with middle income level have the most substantial effect on both retrospective and prospective national economic evaluations. Do consolidated democracy and countries with middle income level have the same impact on voter choice? The next chapter proceeds to confirm these effects.

Table 3.1. Ordered Logit Models of Prospective National Economic Evaluation, by Country

Country	Argentina	Bolivia	Brazil	Colombia	Costa Rica	Chile	Ecuador	El Salvador	Guatemala	Honduras
<b>Variable</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
<b>Retro Pocketbook</b>	-16(.10)	.11(.07)	.11(.06)#	.32(.08)***	.22(.07)**	.34(.08)***	.25(.07)**	.37(.08)***	-.04(.10)	.56(.08)***
<b>Prospective Pocketbook</b>	2.33(.13)***	1.15(.07)***	1.09(.08)***	.85(.07)***	.67(.07)***	1.16(.09)***	.87(.08)***	.72(.08)***	.55(.09)***	.60(.08)***
<b>Media</b>	.04(.08)	-.02(.05)	.04(.05)	.08(.05)	.07(.07)	.15(.07)*	.002(.06)	.07(.07)	-.08(.07)	-.005(.06)
<b>Talk</b>	-.09(.13)	.04(.11)	.13(.11)	-.22(.14)	-.03(.13)	.13(.14)	.18(.12)	-.05(.13)	.03(.19)	-.25(.14)#
<b>Education</b>	-.04(.12)	-.14(.09)	.02(.07)	.02(.10)	-.16(.10)	.19(.11)#	.05(.10)	-.05(.09)	-.05(.14)	-.14(.12)
<b>Political Interest</b>	-.24(.20)	-.23(.15)	-.10(.11)	-.49(.14)***	-.55(.16)***	-.05(.18)	.05(.17)	-.24(.14)#	-.23(.15)	-.37(.14)**
<b>Edu*Interest</b>	.04(.06)	.04(.04)	-.04(.04)	.05(.04)	.07(.05)	-.04(.04)	-.04(.04)	.01(.04)	-.01(.06)	.05(.05)
<b>N of Obs</b>	993	1,072	1,025	1,023	803	1,036	1,073	683	589	723
<b>Log Likelihood</b>	-716.36	-1305.33	-1236.57	-1304.20	-1070.88	-1136.23	-1273.41	-920.87	-766.28	-920.22
<b>LR chi2</b>	387.58	306.83	264.13	289.07	163.96	315.84	166.38	157.72	47.65	219.91
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.21	.11	.10	.10	.07	.12	.06	.08	.03	.11

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1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 3.1. (continued) Ordered Logit Models of Prospective National Economic Evaluation, by Country

Country	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela	Benin	Botswana	Cape Verde
<b>Variable</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
<b>Retro Pocketbook</b>	.25(.08)**	.21(.08)**	.14(.08)	.05(.12)	.31(.07)***	.25(.07)***	.33(.07)***	.15(.09)	.06(.08)	.30(.10)**
<b>Pros Pocketbook</b>	.76(.07)***	.94(.08)***	.85(.08)***	2.14(.16)***	1.00(.07)***	1.36(.09)***	1.06(.07)***	4.54(.20)***	1.80(.09)***	3.48(.15)***
<b>Media</b>	.003(.07)	.005(.06)	-.08(.07)	.06(.10)	-.02(.06)	.05(.06)	.04(.06)	.02(.10)	-.05(.05)	-.13(.07)#
<b>Talk</b>	-.08(.10)	-.12(.13)	-.03(.12)	-.49(.20)*	.15(.11)	-.33(.10)**	.03(.08)	-.03(.19)	-.10(.09)	.005(.12)
<b>Education</b>	.03(.07)	-.14(.10)	-.39(.11)***	-.10(.13)	-.08(.10)	.05(.08)	-.02(.07)	.09(.14)	-.07(.09)	-.09(.10)
<b>Political Interest</b>	-.06(.12)	-.29(.14)*	-.61(.19)**	-.51(.24)*	-.26(.19)	-.23(.14)	-.07(.12)	.03(.13)	.07(.12)	.11(.12)
<b>Edu*Interest</b>	.01(.04)	.07(.04)	.15(.05)**	.02(.06)	.03(.05)	.02(.04)	-.03(.03)	-.09(.06)	.01(.04)	.03(.05)
<b>N of Obs</b>	1,103	668	783	528	1,021	1,038	938	818	939	1,085
<b>Log Likelihood</b>	-1409.66	-876.01	-1016.14	-423.21	-1260.88	-1155.30	-1232.27	-376.00	-1027.38	-578.34
<b>LR chi2</b>	162.88	227.08	153.76	244.31	302.14	357.97	413.28	1518.08	669.80	853.38
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.05	.11	.07	.22	.11	.13	.14	.67	.25	.42

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1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 3.1. (continued) Ordered Logit Models of Prospective National Economic Evaluation, by Country

Country	Ghana	Kenya	Lesotho	Madagascar	Malawi	Mali	Mozambique	Namibia	Nigeria	Senegal
<b>Variable</b>	Coef.(SE)									
<b>Retro Pocketbook</b>	.18(.09)*	.27(.07)***	.07(.07)	.19(.09)*	-.03(.06)	.15(.07)*	.18(.09)*	.21(.08)**	.06(.04)	.28(.10)**
<b>Prospective Pocketbook</b>	3.96(.16)***	2.53(.10)***	1.46(.08)***	2.91(.12)***	2.02(.09)***	2.69(.12)***	1.81(.11)***	1.26(.08)***	1.71(.06)***	2.99(.15)***
<b>Media</b>	.08(.07)	-.07(.06)	-.16(.08)*	.09(.07)	.03(.09)	-.04(.06)	-.17(.07)*	-.28(.05)***	-.05(.04)	-.14(.07)#
<b>Talk</b>	-.07(.15)	-.01(.12)	.04(.11)	.15(.13)	.08(.10)	.004(.11)	-.01(.13)	-.10(.10)	.08(.07)	.10(.12)
<b>Education</b>	-.001(.14)	-.06(.09)	-.08(.14)	-.09(.10)	-.19(.15)	-.16(.16)	.06(.13)	.09(.11)	-.06(.05)	-.51(.13)***
<b>Political Interest</b>	-.25(.15)	.02(.12)	.23(.14)	-.03(.14)	-.13(.10)	.23(.09)**	.02(.12)	.41(.17)*	.04(.09)	-.06(.12)
<b>Edu*Interest</b>	.04(.06)	.02(.04)	.01(.06)	.01(.05)	.07(.06)	.04(.06)	.03(.06)	-.07(.05)	.004(.02)	.08(.05)#
<b>N of Obs</b>	926	1,036	759	1,133	858	1,084	755	1,071	2,131	938
<b>Log Likelihood</b>	-517.76	-906.61	-899.25	-787.45	-783.29	-704.12	-715.73	-1180.99	-2340.91	-584.18
<b>LR chi2</b>	1550.23	1125.94	441.72	919.44	964.08	905.25	384.98	418.19	1523.49	652.26
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.60	.38	.20	.37	.38	.39	.21	.15	.25	.36

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1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 3.1. (continued) Ordered Logit Models of Prospective National Economic Evaluation, by Country

Country	South Africa	Tanzania	Uganda	Zambia	Zimbabwe
<b>Variable</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
<b>Retro Pocketbook</b>	.16(.06)**	.05(.08)	.12(.05)*	.10(.07)	-.01(.09)
<b>Prospective Pocketbook</b>	2.60(.08)***	2.48(.12)***	2.07(.07)***	1.35(.07)***	2.88(.14)***
<b>Media</b>	-.05(.04)	-.03(.08)	-.18(.05)**	-.13(.05)*	-.17(.08)*
<b>Talk</b>	.22(.08)**	-.02(.11)	.12(.09)	.01(.12)	.18(.16)
<b>Education</b>	-.04(.06)	-.07(.19)	-.15(.08)*	.05(.08)	-.14(.13)
<b>Political Interest</b>	.11(.11)	.10(.18)	-.02(.10)	.20(.14)	-.22(.22)
<b>Edu*Interest</b>	.01(.03)	.04(.08)	.02(.03)	-.07(.04)#	.05(.06)
<b>N of Obs</b>	2,095	708	1,957	1,013	1,005
<b>Log Likelihood</b>	-1773.75	-646.36	-1889.45	-1275.22	-459.61
<b>LR chi2</b>	1954.37	659.63	1452.65	488.92	818.66
<b>Prob</b>	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.36	.34	.28	.16	.47

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

## The Media Consumption on Prospective National Economic Evaluation



X: Media Consumption Y: Change in Probability of "Much Better"

Figure 3.1 The Effect of Media on Prospective National Economic Evaluation, by Country

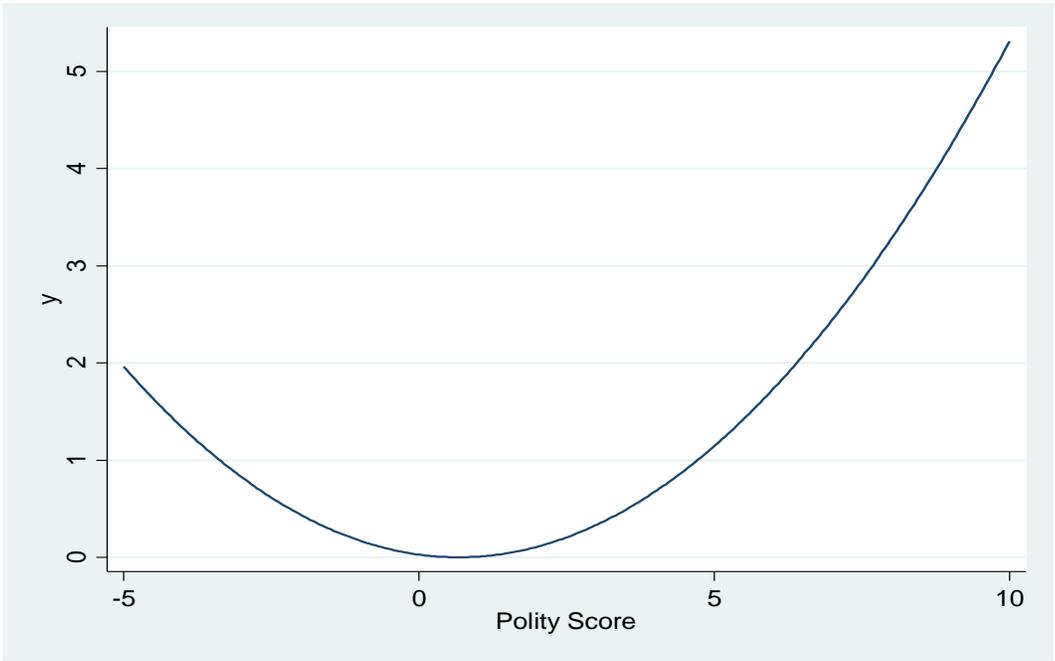


Figure 3.2. Between-Country Variance as A Function of Polity Score

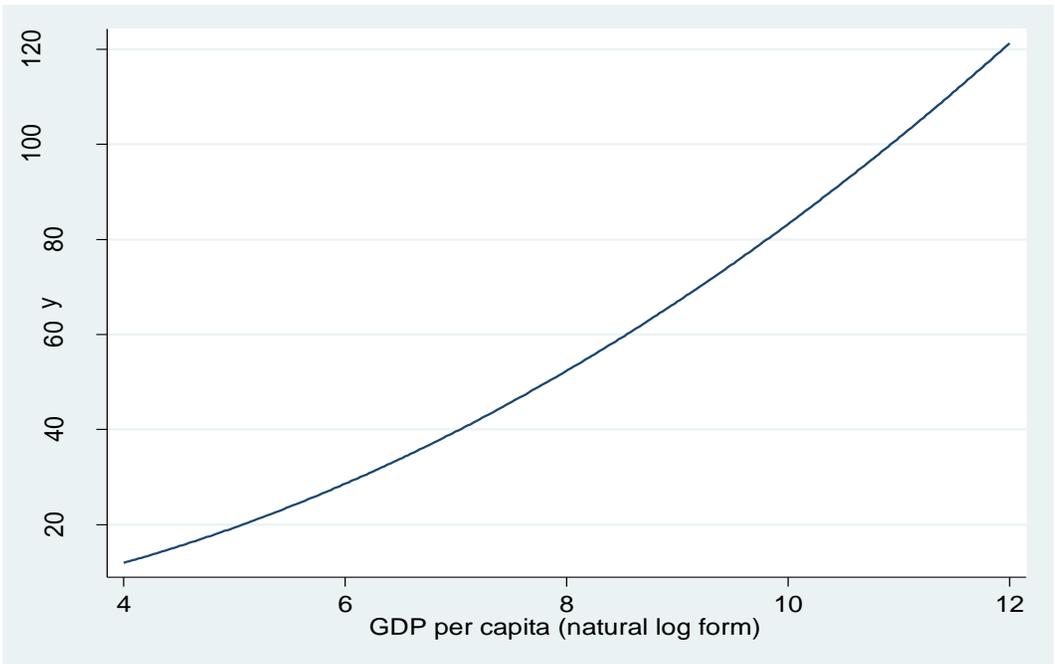


Figure 3.3. Between-Country Variance as A Function of GDP per capita

Table 3.2. Multilevel Models of Prospective National Economic Evaluation

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
<b>Individual-Level</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
Retro	.15(.01)***	.15(.01)***	.15(.01)***	.15(.01)***	.15(.01)***	.15(.01)***
Pocketbook						
Pros Pocketbook	1.67(.01)***	1.67(.01)***	1.67(.01)***	1.67(.01)***	1.67(.01)***	1.67(.01)***
Media	-.03(.01)*	-.03(.01)*	-.02(.01)*	-.02(.01)**	-.02(.01)*	-.03(.01)**
Talk	.09(.02)***	.09(.02)***	.09(.02)***	.09(.02)***	.09(.02)***	.09(.02)***
Education	-.03(.01)*	-.03(.01)*	-.03(.01)#	-.03(.01)#	-.03(.01)#	-.03(.01)*
Political Interest	.001(.02)	.001(.02)	.002(.02)	.002(.02)	.002(.02)	.001(.02)
Political Sophistication	-.003(.01)	-.003(.01)	-.003(.01)	-.003(.01)	-.003(.01)	-.003(.01)
<b>Country-Level</b>						
Polity Score	-	.0002	.061	-	-	.116
GDP per capita	-	-	-	.044	.891	.115
<b>Random Effect</b> (N=35,410)						
Variance Component	.385	.372	.028	8.21e-29	.099	.140
Covariance	-	-	-.041	-	-.298	
Log Likelihood	-38662.10	-38662.10	-38679.47	-38678.15	-38726.19	-38702.40
Prob	.000	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 3.3. Random Coefficients on A Subset of Polity Score Dummies

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
<b>Individual-Level</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)
Retro Pocketbook	.15(.01)***	.15(.01)***	.15(.01)***
Pros Pocketbook	1.67(.01)***	1.67(.01)***	1.67(.01)***
Media	-.03(.01)*	-.03(.01)*	-.03(.01)*
Talk	.09(.02)***	.09(.02)***	.09(.02)***
Education	-.03(.01)*	-.03(.01)*	-.03(.01)*
Political Interest	-.0001(.02)	.0001(.02)	.0001(.02)
Political Sophistication	-.003(.01)	-.003(.01)	-.003(.01)
Polity 2	-1.69(.70)*	-1.69(.68)*	-1.69(.68)*
Polity 3	-.75(.57)	-.75(.55)	-.75(.55)
Polity 4	-.43(.42)	-.43(.40)	-.43(.40)
Polity 5	-.49(.52)	-.45(.39)	-.45(.39)
<b>Country-Level</b>			
Polity 5	-	.305	.305
<b>Random Effect</b> <b>(N=35,410)</b>			
Variance Component	.324	.299	.299
Covariance	-	-	.00007
Log Likelihood	-38659.14	-38653.71	-38653.71
Prob	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 3.4. Random Coefficients on A Subset of GDP Per Capita Dummies

	Model 1	Model 2	Model 3	Model 4	Model 5
<b>Individual-Level</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
Retro Pocketbook	.15(.01)***	.15(.01)***	.15(.01)***	.15(.01)***	.15(.01)***
Pros Pocketbook	1.67(.01)***	1.67(.01)***	1.67(.01)***	1.67(.01)***	1.67(.01)***
Media	-.02(.01)*	-.02(.01)*	-.02(.01)*	-.03(.01)*	-.03(.01)*
Talk	.09(.02)***	.09(.02)***	.09(.02)***	.09(.02)***	.09(.02)***
Education	-.03(.01)*	-.03(.01)*	-.03(.01)*	-.03(.01)*	-.03(.01)*
Political Interest	.001(.02)	.001(.02)	.001(.02)	.001(.02)	.001(.02)
Political Sophistication	-.003(.01)	-.003(.01)	-.003(.01)	-.003(.01)	-.003(.01)
GDPM	-.19(.21)	-.19(.21)	-.19(.21)	-.24(.15)	-.24(.16)
<b>Country-Level</b>					
GDPH	-	1	.013	-	-
GDPM	-	-	-	.552	.757
<b>Random Effect (N=35,410)</b>					
Variance Component	.376	.376	.376	.267	.273
Covariance	-	-	3.03e-08	-	-.121
Log Likelihood	-38661.71	-38661.71	-38661.71	-38637.22	-38637.21
Prob	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

## CHAPTER 4

### THE EFFECT OF INFORMATION SOURCES ON VOTER CHOICE

The previous two chapters explore the effect of information sources on retrospective and prospective national economic evaluations in comparative perspective using multilevel models. They demonstrate that consolidated democracies (polity score 10) and countries with middle income (GDP per capita between USD 1,000~9,999) have the strongest effect on both retrospective and prospective national economic evaluations. This chapter continues to explore the effect of information sources on voter choice, and seeks to substantiate whether countries with consolidated democracy and countries with middle income produce the strongest effect on voter choice.

This chapter proceeds as follows. First, I run single-level logit models of voter choice for each country by using 2010 Latino Barometro national surveys to discover the differences among countries. I then run multilevel logit models. Two-level random intercept and two-level random slope models are estimated and interpreted to see the country-level effect. The models analyze the effect of information sources on voter choice depending on level of democracy and level of economic development.

Since I use Latino Barometro national surveys to estimate the effect of information sources on voter choice, polity score and GDP per capita for some countries may be different from those in Latino Barometro.<sup>16</sup> The third and the fourth parts of the chapter further analyze the two-level random slope models further, and level of democracy and level of economic development are explored respectively. As with retrospective and prospective national economic evaluation, a subset of polity score and GDP per capita dummies are used to estimate what levels explain between-country variance more than others. Finally, I conclude with an assessment of the effect of information sources on voter choice.

#### 4.1 SINGLE-LEVEL LOGIT MODELS IN EACH COUNTRY

Table 4.1 presents ordered logit models of the effect of information sources on voter choice for each country. The media effect on voter choice is statistically significant in only three countries: Bolivia, Costa Rica, and Honduras. The coefficients are negative in Bolivia and Costa Rica but positive in Honduras. In other words, in Bolivia and Costa Rica, watching more television leads respondents to vote for the opposition party; in Honduras respondents who spend more time watching television are more likely to vote for the incumbent party. In other countries, the media effect on voter choice is not significant. The coefficients are positive in some countries and negative in others. Talk about politics with others is not statistically significant except in Nicaragua. In Nicaragua, talking about politics with others frequently leads voters to cast votes for the incumbent.

For variables of economic evaluation, retrospective pocketbook evaluation is significant only in Panama, but the relationship is negative. When people in Panama

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<sup>16</sup> The polity score for some countries are different in Global Barometer and Latino Barometro because surveys were conducted in different years, such as the polity scores of Ecuador, El Salvador, and Venezuela and the GDP per capita in Chile, Uruguay, and Venezuela. Please refer to table 1.1 and 1.2.

believe they have become personally better off over the past year, they are more likely to support the opposition party. Prospective pocketbook evaluation is influential only in Peru. When people in Peru believe they will become personally better off in the future, they are more likely to vote for the incumbent party. Retrospective national economic evaluation is significant only in Bolivia and Venezuela. Therefore, the better the national economic condition was in the past, the more likely voters will cast votes for the incumbent. Prospective national economic evaluation is influential only in Uruguay and Dominican Republic, and the relationship is positive. Party identification is the only significant variable in all countries. Voters are more likely to vote for the parties to which they think they are the closest. The other three variables -- education, political interest, and political sophistication (the interaction between education and political interest) -- are less influential.

With the exception of party identification, which has the most substantive effect on voter choice, the effect of information sources on voter choice is quite different and not so influential across countries. As with the effect of information sources on both retrospective and prospective national economic evaluation, it is difficult to develop a nomothetic rule about the effect of information sources on voter choice when only the logit models for each country are estimated. I wonder whether level of democracy and level of economic development can account for these differences across countries, as is evident in multilevel ordered logit models for retrospective and prospective national economic evaluation. The multilevel logit models for voter choice are estimated as follows.

## 4.2 MULTILEVEL LOGIT MODELS

Table 4.2 presents multilevel models of voter choice. I run one random intercept model (model 1) and five random slope models (models 2 through 6). The interpretation of the six multilevel models is as follows.

### 4.2.1 Random Intercept Model

Model 1 is a random intercept model, which allows the model intercept to vary randomly across countries. For fixed effects coefficients, both retrospective and prospective national economic evaluation and party identification are individually significant. When respondents positively evaluate national economic condition in the past and in the future, they are more likely to vote for the incumbent party. However, media does not influence voter choice. Figure 4.1 indicates that more media consumption does not increase the probability of voting for the incumbent party. The intercept variance is 0.687. The likelihood ratio statistic with a corresponding p-value of .000 indicates that there is between-country variance on voter choice, and it is essential to run multilevel logit models to estimate this effect.

### 4.2.2 Random Slope Models (Models 2 through 6)

The random intercept model in model 1 shows significant between-country variance in voter choice. Models 2 through 6 are random slope models, which allow the effects of level of democracy (polity score) and level of economic development (GDP per capita) to vary across nations. Models 3 and 5 allow the random intercepts and slopes to co-vary (as opposed to the default, in which they are uncorrelated).

#### 4.2.2.1 Random Coefficients of Polity Score (Models 2 and 3)

Model 2 is a random slope model that allows polity score to vary across countries. There is no difference in the fixed effects coefficients except for talk about politics. The intercept variance in model 2 decreases significantly and approximates zero, and the random coefficient of polity score is 0.012. However, the likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 2) is not significant ( $p = 0.5074 > .05$ ). It indicates that polity score explains little between-country variance.

Model 3 is a random slope model with correlated variance. Most of the fixed effects coefficients are the same as those in model 2, with the exception of education. The intercept variance is 0.035. The random coefficient of polity score is 0.07, and the covariance between intercept and polity score random effect is 0.016. The between-country variance as a function of polity score is as follows:

$$\begin{aligned}\text{var}(u_{0j} + u_{11j}\textit{polity}_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{11j})\textit{polity}_{ij} + \text{var}(u_{11j})\textit{polity}_{ij}^2 \\ &= 0.035 + 0.032 \textit{polity}_{ij} + 0.007 \textit{polity}_{ij}^2\end{aligned}$$

Figure 4.2 shows the graph of the between-country variance as a function of polity score. The between-country variance shows a linear increase as polity score increases. However, the likelihood ratio test (assuming that the uncorrelated equation model 2 is nested within the correlated equation model 3) is not significant ( $p = 0.6599 > .05$ ). It implies that the correlated variance model (model 3) is not necessarily more appropriate than the uncorrelated variance model (model 2). Moreover, the likelihood ratio test (assuming the restricted model 1 is nested within the unrestricted model 3) is also not significant ( $p = 0.7287 > .05$ ). The three likelihood ratio tests demonstrate that

the random effect for polity score is not significant. Therefore, polity score in general does not account much for between-country variance.

#### 4.2.2.2 Random Coefficients of GDP per Capita (Models 4 and 5)

Model 4 is a random slope model that allows GDP per capita to vary across countries. The fixed effects coefficients and intercept variance are the same as those in model 1. The likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 4) is not significant ( $p = 1.000 > .05$ ). It implies that the random slope model, which allows GDP per capita to vary across countries, is not necessarily more appropriate than the random intercept model.

Model 5 is a random slope model with correlated variance. The fixed effects coefficients remain the same as those in model 4. The intercept variance in model 5 (173.73) is much greater than that in model 4, and the random coefficient of GDP per capita is 2.16. The between-country variance as a function of GDP per capita is as follows:

$$\begin{aligned} \text{var}(u_{0j} + u_{12j}GDP_{ij}) &= \text{var}(u_{0j}) + 2\text{cov}(u_{0j}u_{12j})GDP_{ij} + \text{var}(u_{12j})GDP_{ij}^2 \\ &= 173.73 - 38.76 GDP_{ij} + 2.16 GDP_{ij}^2 \end{aligned}$$

Figure 4.3 is the between-country variance as a function of GDP per capita. The between-country variance shows a little like U-shape as the GDP per capita increases. However, the likelihood ratio test (assuming the uncorrelated equation model 4 is nested within the correlated equation model 5) is not significant ( $p = 0.1770 > .05$ ). Moreover, the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 5) is also not significant ( $p = 0.402 > .05$ ). This demonstrates

that the random effect for GDP per capita is not significant, and GDP per capita does not explain much between-country variance.

#### 4.2.2.3 Random Coefficients of Polity Score and GDP per Capita (Model 6)

Model 6 allows both polity score and GDP per capita to vary across nations. As in models 2 through model 5, the fixed effects coefficients remain the same as in model 1, with the exception of talk about politics. The intercept variance approximates to zero. The random coefficient of polity score is .012, and the random coefficient of GDP per capita approximates zero. In addition, the likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 6) is not significant ( $p = 0.8028 > .05$ ). Therefore, the random slope model is not more appropriate than the random intercept model. Although table 4.2 indicates that polity score and GDP per capita do not explain much between-country variance, I still would like to explore which levels of democracy and economic development explain more between-country variance. The random coefficients on a subset of polity score and GDP per capita dummies are estimated in the next two sections.

#### 4.3 RANDOM COEFFICIENTS ON A SUBSET OF POLITY SCORE DUMMIES

As with retrospective and prospective national economic evaluation, level of democracy in general does not explain much between-country variance on voter choice given that none of the three likelihood ratio tests are significant. Despite this, this section seeks to discover whether countries with higher levels of democracy exhibit more between-country variance than those with lower levels. I wonder whether countries with higher levels produce the strongest effect on voter choice, as is evident in estimations of retrospective and prospective national economic evaluation. In order to explore this effect,

random coefficients on a subset of the polity score dummies are estimated.<sup>17</sup> Five models are interpreted. The first is the random intercept model with polity dummies in the fixed effects. The second adds the random coefficients of polity 3, and the third adds the random coefficients of polity 3 along with correlated variance. The fourth and the fifth models estimate the random coefficient models of polity2 and polity1.

#### 4.3.1 Random Intercept Model on a Subset of the Polity Dummies

Model 1 in table 4.3 is a random intercept model on a subset of the polity dummies. The fixed effects coefficients are the same as in the random intercept model in table 4.2. The intercept variance is 0.542, and the likelihood ratio statistic with a corresponding p-value of .000 indicates that there is between-country variance.

#### 4.3.2 Random Coefficients of Polity 3 Only

The random coefficient model for polity 3 estimates whether between-country variance is the same for polities 1 and 2 but different for polity 3. Although the fixed effects coefficients in model 2 are the same as those in model 1, with the exception of polity1 dummy, the intercept variance is 0.470, and the random coefficient of polity 3 is 0.222. The likelihood ratio test -- assuming the intercept-only equation (model 1) is nested within the intercept-slope equation (model 2) -- is not significant ( $p = 0.6004 > .05$ ). That indicates that the random coefficient model for polity 3 is not more appropriate than the random intercept model.

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<sup>17</sup> Polity scores in Latin America range from 1 in Venezuela to 10 in Costa Rica, Chile, and Uruguay; therefore, the subset of polity score dummies is different than that for voter choice: polity3 (score: 9-10), polity2 (score: 7-8), and polity1 (score: 1-5). Please refer to table 1.2 for the polity score in Latin American countries.

#### 4.3.3 Random Slope Model with Correlated Variance

Model 3 is a random slope model with correlated variance. The fixed effects coefficients are the same as in model 1 and 2. The intercept variance of polity 3 is the same as that of model 2, and the random coefficient of polity 3 increases from 0.222 to 0.613. The covariance between the intercept and polity 3 random effects is -0.195. However, the likelihood ratio test (assuming the uncorrelated model 2 is nested within the correlated model 3) is not significant ( $p = 1.0000 > .05$ ), and the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted equation model 3) is also not significant ( $p = 0.8718 > .05$ ). This substantiates the idea that the random effect for polity 3 is not significant. In other words, there is no country-variation in the difference between polity 3 and other two dummies.

#### 4.3.4 Random Coefficient of Polity 2 and Polity 1 Only

Because there is no between-country variance in the difference between polity 3 and other two polity dummies, I seek to substantiate whether polity 2 or polity 1 explains more between-country variance. Models 4 and 5 are random coefficient models of polity 2 and polity 1. The fixed effects coefficients of the two models are the same as those in the random intercept model (model 1) with the exception of constant term. The intercept variance in the two models is the same as that in model 1. In other words, the intercept variance does not change. In addition, both of the random coefficients of polity 2 and polity 1 approximate zero. The likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 4) is not significant ( $p = 0.9999 > .05$ ). Moreover, the likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 5) has the same result

( $p = 0.9999 > .05$ ). It is evident that neither polity 2 nor polity 1 explains more between-country variance than polity 3.

#### 4.4 RANDOM COEFFICIENTS ON A SUBSET OF GDP PER CAPITA DUMMIES

The random coefficients of GDP per capita in models 4 and 5 in table 4.2 show that GDP per capita does not explain the between-country variance according to the likelihood ratio tests. As with the hypothesis on the influence of level of democracy, it surmises that level of economic development can impose a stronger influence on voter choice. I wonder whether countries with higher levels of economic development exhibit more variance than those with lower levels. In order to explore this effect, the random coefficients on a subset of the GDP per capita dummies are estimated.<sup>18</sup> The random intercept model with GDP per capita dummies in the fixed effects is estimated first. The second model adds random coefficient of GDPH (high income), and the third adds random coefficient of GDPH along with correlated variance. In order to substantiate whether countries with middle level of economic development can have a greater effect on voter choice, a fourth model (random coefficient of GDPMU), a fifth model (random coefficient of GDPMU with correlated variance), a sixth model (random coefficient of GDPML), and a seventh model (random coefficient of GDPML with correlated variance) are estimated to determine whether GDPH, GDPMU, or GDPML explains more between-country variance.

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<sup>18</sup> The subset of GDP per capita here is different from those in the national economic evaluations. Because there is no country whose GDP per capita is below \$1000 (low income category) in Latin America, the subset of GDP per capita dummies in this chapter is high income (H: GDP per capita  $\geq$  \$10,000), upper middle income (UM: GDP per capita \$5,000~9,999), and lower middle income (LM: GDP per capita: \$1000~4,999). Please refer to table 1.2 for the income categories of Latin American countries.

#### 4.4.1 Random Intercept Model on a Subset of the GDP per capita Dummies

Model 1 in table 4.4 is a random intercept model on a subset of the GDP per capita dummies. The fixed effects coefficients are the same as those in the random intercept model (model 1) in table 4.2, with the exception of a slight change in coefficients of talk about politics and education. Compared with the intercept variance of model 1 in table 4.2, the intercept variance of model 1 here decreases from 0.687 to 0.646. In other words, the addition of the subset of GDP per capita dummies decrease a little bit between-country variance.

#### 4.4.2 Random Coefficients of GDPH Only and Model with Correlated Variance

Model 2 in table 4.4 is a random coefficient model for GDPH, which estimates whether between-country variance is the same for GDPMU and GDPML but different for GDPH. The fixed effects coefficients are the same as those in model 1. The intercept variance is 0.637, and the random effect coefficient of GDPH is 0.040. However, the likelihood ratio test (assuming the intercept-only equation model 1 is nested within the intercept-slope equation model 2) is not significant ( $p = 0.943 > .05$ ). That demonstrates that the random slope equation model 2 is not necessarily better than random intercept equation model 1.

The random coefficient model for GDPH with correlated variance in model 3 shows a similar result as that for model 2. The fixed effects coefficients and intercept variances are the same, and the random effect coefficient of GDPH is 1.7. The covariance between the intercept and GDPH random effects is -0.832. The likelihood ratio test (assuming the uncorrelated equation model 2 is nested within the correlated equation model 3) is not significant ( $p = 0.999 > .05$ ). Moreover, the likelihood ratio test --

assuming the intercept-only equation (the restricted equation in model 1) is nested within the intercept-slope equation with correlated variance (the unrestricted equation in model 3) -- shows that the random coefficient for GDPH is also not significant ( $p = 0.9974 > .05$ ). The three likelihood ratio tests demonstrate that the random effect for GDPH is not significant. In other words, countries with high levels of economic development (GDPH) do not exhibit much between-country variance.

#### 4.4.3 Random Coefficients of GDPMU Only and Model with Correlated Variance

Because GDPH does not explain much between-country variance, I estimate whether GDPMU accounts for more between-country variance than GDPH. Model 4 in table 4.4 is a random coefficient model for GDPMU. The fixed effects coefficients and intercept variance are the same as those in the random intercept equation model 1; the random coefficient of GDPMU approximates zero. The likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 4) is not significant ( $p = 1.000 > .05$ ). That indicates that the random coefficient model for GDPMU is not necessarily more appropriate than the random intercept model.

Model 5 allows the random intercept and slope to co-vary. The fixed effects coefficients remain the same as those in model 4, with the exception of a slight change in retrospective pocketbook evaluation. The intercept variance is 0.794, and the random coefficient of GDPMU is 0.137. The covariance between the intercept and GDPMU random effects is -0.263. The likelihood ratio test (assuming the uncorrelated equation model 4 is nested within the correlated equation model 5) shows that the random coefficient for GDPMU is not significant ( $p = 0.3749 > .05$ ). Moreover, the likelihood ratio test (assuming the restricted equation model 1 is nested within the unrestricted

equation model 5) is also not significant ( $p = 0.6745 > .05$ ). The three likelihood ratio tests demonstrate that GDPMU is not significant, and the between-country variance of GDPMU is not different from those of GDPH and GDPML.

#### 4.4.4 Random Coefficients of GDPML Only and Model with Correlated Variance

Although the random coefficient models for GDPH and GDPMU described above indicate that the between-country variance is not different for GDPH and GDPMU, I seek to verify whether GDPML can explain more between-country variance than GDPH and GDPMU. In other words, I surmise that between-country variance is the same for GDPH and GDPMU but different for GDPML.

Model 6 is a random coefficient model for GDPML. The fixed effect coefficients are almost the same as those in the random intercept equation in model 1, with the exception of a slight change in talk about politics. The intercept variance decreases from 0.646 to 0.506, and the random effect coefficient of GDPML is 0.354. The likelihood ratio test (assuming the random intercept equation model 1 is nested within the random slope equation model 6) is not significant ( $p = 0.4569 > .05$ ). That implies that the random coefficient model for GDPML is not necessarily better than the random intercept model, as is evident in the random coefficient models for GDPH and GDPMU.

Model 7 is a random coefficient model for GDPML with correlated variance. The fixed effects coefficients and intercept variance are the same as those in model 6. The random coefficient of GDPML increases from 0.354 to 0.873. The covariance between the intercept and GDPML random effects is -0.259. The likelihood ratio test (assuming the uncorrelated equation model 6 is nested within the correlated equation model 7) is not significant ( $p = 1.0000 > .05$ ); moreover, the likelihood ratio test (assuming the restricted

equation model 1 is nested within the unrestricted equation model 7) is also not significant ( $p = 0.7583 > .05$ ). The three likelihood ratio tests demonstrate that GDPML is not significant and the between-country variance of GDPML is not different from those of GDPH and GDPMU.

The subset of GDP per capita dummies further demonstrates that GDP per capita does not explain much between-country variance. In other words, the between-country variance is the same for all GDP per capita dummies.

#### 4.5 CONCLUSION

The logit models of voter choice in each country demonstrate that the effect of information sources on voter choice is quite different across countries. However, the effect of information sources is not as influential as it is in national economic evaluation. The media effect only works in three countries, and talking about politics with others is significant in only one. For pocketbook and sociotropic voting, they are only effective in one or two countries. Although the effect of information sources on voter choice is not significant in most of countries, it is still somewhat difficult to formulate a general explanation of the effect of information sources on voter choice. Multilevel logit models explore whether level of democracy and level of economic development accounts for the between-country variance.

The random intercept model in table 4.2 indicates that there is between-country variance on voter choice. However, the random slope models and those with correlated variance demonstrate that neither polity score nor GDP per capita can explain between-country variance. In other words, level of democracy and level of economic development have little effect on voter choice.

The random coefficient models on a subset of polity score and GDP per capita dummies explore whether countries with higher levels of democracy and economic development produce more substantial effects on voter choice than those with lower levels. In contrast to the previous two chapters, in which consolidated democracies and countries with middle income have the strongest effect on national economic evaluations, here, none of the polity dummies and GDP per capita dummies can have more between-country variance than the others. In other words, level of democracy and level of economic development have little effect on voter choice. It is evident that level of democracy and level of economic development influence the two national economic evaluations but have no influence on voter choice. How do those effects manifest themselves in a case study of two countries? The comparative case study of Mexico and Taiwan given in the next chapter further explore the effect of information sources on economic voting.

Table 4.1. Logit Models of Voter Choice, by Country

Country	Argentina	Bolivia	Brazil	Colombia	Costa Rica	Chile	Ecuador	El Salvador	Guatemala	Honduras
<b>Variable</b>	Coef.(SE)									
<b>Retrospective Pocketbook</b>	.29(.24)	.85(.52)#	.04(.20)	.21(.19)	.03(.21)	-.66(.48)	.13(.35)	-.17(.41)	-.17(.32)	.16(.17)
<b>Prospective Pocketbook</b>	-.21(.26)	1.01(.55)#	.17(.21)	-.17(.19)	.04(.19)	.52(.41)	.27(.29)	.40(.34)	.21(.31)	-.003(.16)
<b>Retrospective Evaluation</b>	.24(.23)	1.57(.67)*	.40(.24)#	-.26(.16)	-.19(.19)	.45(.47)	.44(.27)	.05(.31)	.29(.32)	-.08(.14)
<b>Prospective Evaluation</b>	.34(.26)	.69(.64)	.09(.22)	.33(.17)#	.11(.18)	-.26(.50)	.08(.29)	.41(.37)	.01(.28)	.01(.14)
<b>Media</b>	-.06(.06)	-.76(.33)*	-.09(.05)	.01(.06)	-.16(.06)**	.10(.13)	.11(.09)	-.07(.11)	-.04(.12)	.12(.05)*
<b>Talk</b>	.01(.15)	-.57(.49)	.01(.13)	.01(.16)	-.08(.17)	.27(.27)	-.13(.18)	.15(.21)	-.50(.27)#	-.06(.11)
<b>Education</b>	-.22(.16)	-1.36(.50)**	-.21(.14)	.19(.15)	.0004(.13)	-.26(.29)	-.02(.17)	-.03(.22)	.27(.21)	.02(.13)
<b>Political Interest</b>	-.31(.44)	-.59(.97)	.27(.29)	.58(.36)	.57(.36)	-.91(.82)	-.33(.45)	-.43(.46)	-.03(.51)	-.47(.24)#
<b>Edu*Interest</b>	.08(.11)	.54(.29)#	-.002(.09)	-.14(.10)	.01(.11)	.19(.21)	-.03(.13)	.10(.17)	-.07(.16)	.10(.08)
<b>Party ID</b>	2.88(.29)***	8.68(2.53)**	3.32(.34)***	3.27(.24)***	3.48(.33)***	4.83(.56)***	4.59(.59)***	5.24(.59)***	4.15(.52)***	2.87(.25)***
<b>Constant</b>	.67(.63)	7.90(2.81)**	.60(.55)	-.69(.54)	.28(.48)	-2.32(1.16)*	.84(.71)	-.55(.82)	-.56(.72)	.97(.41)*
<b>N of Obs</b>	400	268	469	632	443	514	452	455	306	481
<b>Log Likelihood</b>	-136.81	-23.41	-161.04	-172.84	-132.15	-56.11	-101.10	-62.27	-50.39	-177.18
<b>LR chi2</b>	237.87	243.11	289.86	523.96	316.35	418.93	336.53	499.56	276.73	298.74
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.465	.839	.474	.603	.545	.789	.625	.801	.733	.457

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 4.1. (continued) Logit Models of Voter Choice, by Country

Country	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela	Dominican Republic
<b>Variable</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
<b>Retro Pocketbook</b>	-.20(.20)	.65(.50)	-.53(.26)*	.02(.25)	.02(.49)	.17(.26)	-.07(.49)	-.27(.27)
<b>Pros Pocketbook</b>	-.08(.22)	-.53(.39)	.24(.24)	.33(.29)	1.47(.49)**	-.22(.29)	.30(.41)	.15(.24)
<b>Retrospective Evaluation</b>	.19(.19)	.54(.43)	.28(.21)	.42(.24)#	.93(.57)	.14(.26)	.94(.35)**	.18(.26)
<b>Prospective Evaluation</b>	.10(.20)	-.67(.42)	.37(.23)	-.17(.26)	-.49(.42)	.96(.28)**	.42(.40)	.55(.25)*
<b>Media</b>	-.002(.07)	-.32(.17)#	-.01(.08)	.0002(.07)	.02(.14)	-.05(.07)	-.11(.13)	.15(.10)
<b>Talk</b>	.42(.22)#	.94(.42)*	.15(.17)	-.06(.20)	-.33(.38)	.14(.14)	.003(.29)	-.40(.23)#
<b>Education</b>	.21(.15)	-.40(.31)	-.12(.18)	-.21(.16)	-.41(.28)	.14(.22)	.20(.27)	-.02(.17)
<b>Political Interest</b>	.26(.37)	-.21(.79)	.08(.36)	.09(.33)	-1.64(1.13)	.65(.46)	.84(1.02)	.28(.40)
<b>Edu*Interest</b>	-.15(.11)	.26(.24)	-.02(.11)	.03(.10)	.31(.26)	-.16(.14)	-.12(.24)	-.02(.12)
<b>Party ID</b>	4.40(.44)***	8.11(1.22)***	2.78(.25)***	2.71(.21)***	6.07(1.06)***	3.21(.25)***	5.99(.84)***	3.79(.30)***
<b>Constant</b>	-1.47(.54)**	-1.71(.89)#	-.01(.70)	-.39(.56)	-1.33(1.20)	-.46(.82)	-1.63(1.39)	.05(.82)
<b>N of Obs</b>	581	401	379	477	222	644	604	649
<b>Log Likelihood</b>	-117.66	-34.21	-109.39	-123.52	-34.54	-138.31	-42.77	-95.19
<b>LR chi2</b>	479.02	476.24	306.60	360.20	170.21	527.62	719.98	708.03
<b>Prob</b>	.000	.000	.000	.000	.000	.000	.000	.000
<b>Pseudo R2</b>	.671	.874	.584	.593	.711	.656	.894	.788

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

## The Media Consumption on Voter Choice

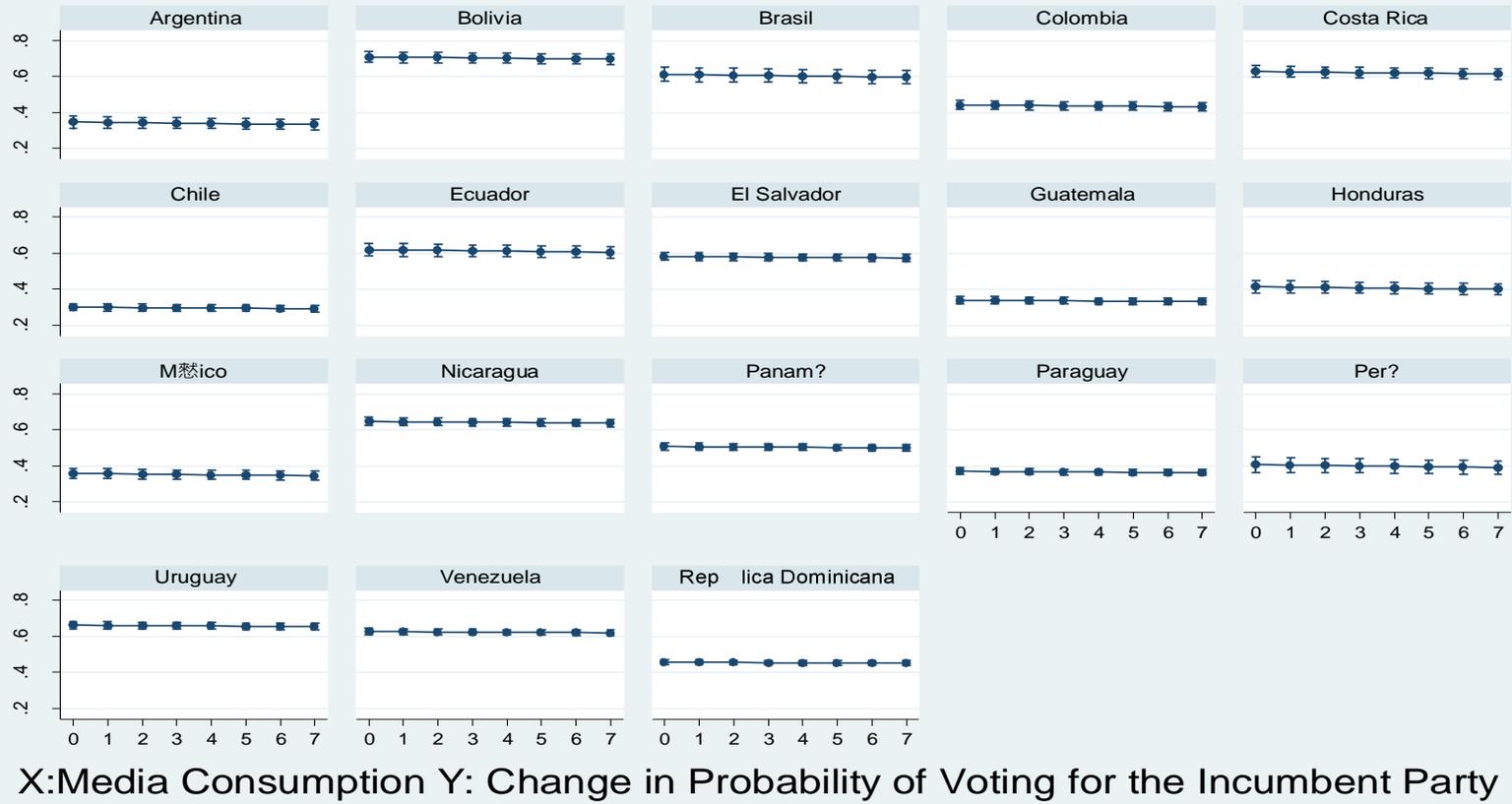


Figure 4.1. The Effect of Media on Voter Choice, by Country

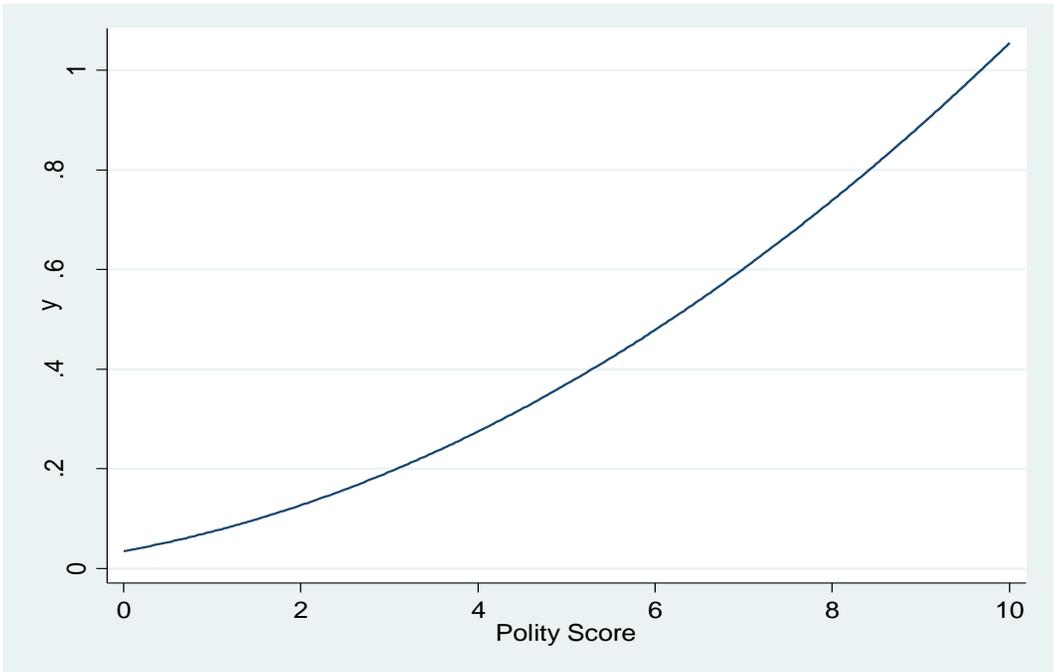


Figure 4.2 Between-Country Variance As A Function of Polity Score

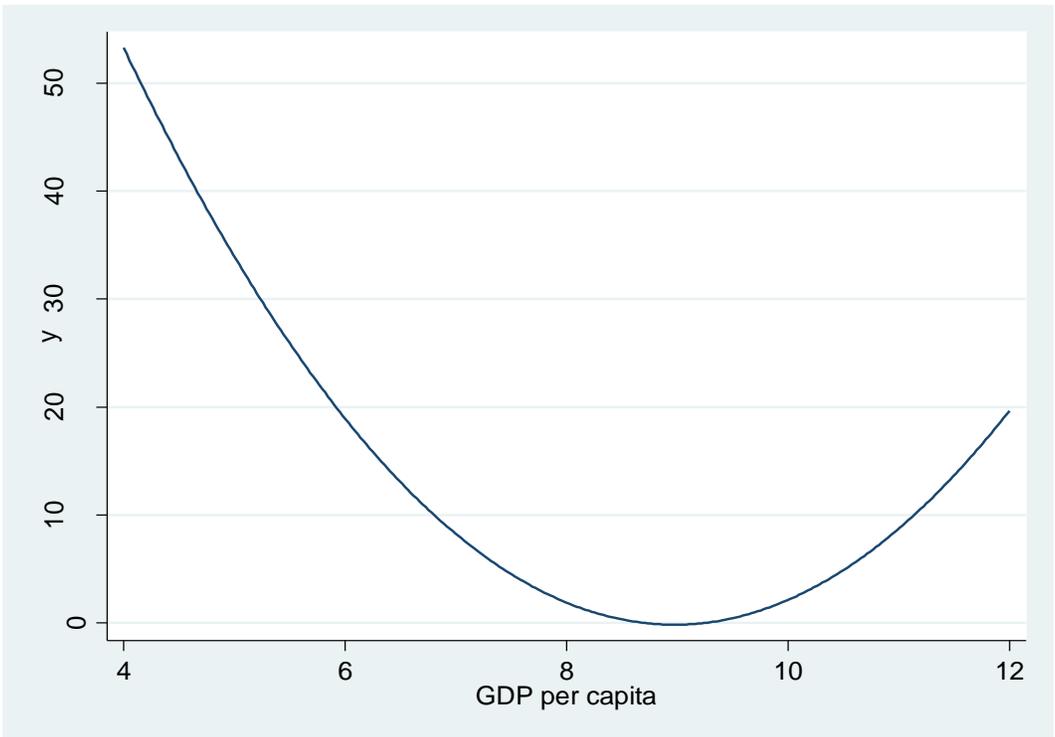


Figure 4.3 Between-Country Variance As A Function of GDP per capita

Table 4.2. Multilevel Models of Voter Choice

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	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
<b>Individual-Level</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
Retro Pocketbook	.02(.06)	.02(.06)	.02(.06)	.02(.06)	.02(.06)	.02(.06)
Pros Pocketbook	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#
Retro Evaluation	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***
Pros Evaluation	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***
Media	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)
Talk	-.01(.04)	-.01(.04)	-.01(.04)	-.005(.04)	-.005(.04)	-.01(.04)
Education	-.07(.04)#	-.07(.04)#	-.06(.04)#	-.07(.04)#	-.07(.04)#	-.07(.04)#
Political Interest	.04(.09)	.04(.09)	.04(.09)	.04(.09)	.04(.09)	.04(.09)
Political Sophistication	.002(.03)	.002(.03)	.002(.03)	.002(.03)	.002(.03)	.002(.03)
Party ID	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***
Constant	-.04(.24)	.01(.21)	.03(.23)	-.04(.24)	-.07(.20)	.01(.21)
<b>Country-Level</b>						
Polity Score	-	.012	.007	-	-	.012
GDP per capita	-	-	-	6.33e-12	2.16	2.87e-15
<b>Random Effect</b> (N=8,377)						
Variance Component	.687	4.71e-11	.035	.687	173.73	1.65e-08
Covariance	-	-	.016	-	-19.38	-
Log Likelihood	-1993.44	-1993.22	-1993.12	-1993.44	-1992.53	-1993.22
Prob	.000	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 4.3 Random Coefficients On A Subset of Polity Score Dummies

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	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>
<b>Individual-Level</b>	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)	Coef.(SE)
Retro Pocketbook	.02(.06)	.02(.06)	.02(.06)	.02(.06)	.02(.06)
Pros Pocketbook	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#
Retro Evaluation	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***
Pros Evaluation	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***
Media	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)
Talk	-.01(.04)	-.01(.04)	-.01(.04)	-.01(.04)	-.01(.04)
Education	-.07(.04)#	-.07(.04)#	-.07(.04)#	-.07(.04)#	-.07(.04)#
Political Interest	.04(.09)	.04(.09)	.04(.09)	.04(.09)	.04(.09)
Political Sophistication	.002(.03)	.002(.03)	.002(.03)	.002(.03)	.002(.03)
Party ID	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***
Polity 1	1.04(.62)#	1.05(.61)#	1.05(.61)#	1.04(.62)#	1.04(.62)#
Polity 2	.74(.39)#	.74(.42)#	.74(.42)#	.74(.39)#	.74(.39)#
Constant	-.57(.34)#	-.57(.38)	-.57(.38)	-.56(.34)#	-.56(.34)#
<b>Country-Level</b>					
Polity 1	-	-	-	-	1.56e-10
Polity 2	-	-	-	7.91e-14	-
Polity 3	-	.222	.613	-	-
<b>Random Effect</b> (N=8,377)					
Variance Component	.542	.470	.470	.542	.542
Covariance	-	-	-.195	-	-
Log Likelihood	-1991.39	-1991.26	-1991.26	-1991.39	-1991.39
Prob	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

Table 4.4. Random Coefficient On A Subset of GDP Per Capita Dummies

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>Individual-Level</b>	Coef.(SE)						
Retro Pocketbook	.02(.06)	.02(.06)	.02(.06)	.02(.06)	.01(.06)	.02(.06)	.02(.06)
Pros Pocketbook	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#	.11(.06)#
Retro Evaluation	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***	.21(.05)***
Pros Evaluation	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***	.20(.05)***
Media	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)	-.02(.02)
Talk	-.004(.04)	-.004(.04)	-.004(.04)	-.004(.04)	-.004(.04)	-.005(.04)	-.005(.04)
Education	-.06(.04)#	-.06(.04)#	-.06(.04)#	-.06(.04)#	-.06(.04)#	-.06(.04)#	-.06(.04)#
Political Interest	.04(.09)	.04(.09)	.04(.09)	.04(.09)	.04(.09)	.04(.09)	.04(.09)
Political Sophistication	.002(.03)	.002(.03)	.002(.03)	.002(.03)	.002(.03)	.002(.03)	.002(.03)
Party ID	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***	3.55(.08)***
GDPH	-.45(.52)	-.45(.52)	-.45(.52)	-.45(.52)	-.45(.57)	-.45(.51)	-.45(.51)
GDPMU	-.38(.44)	-.38(.44)	-.38(.44)	-.38(.44)	-.38(.43)	-.38(.45)	-.38(.45)
Constant	.21(.34)	.21(.34)	.21(.34)	.21(.34)	.21(.37)	.21(.38)	.21(.38)
<b>Country-Level</b>							
GDPH	-	.040	1.70	-	-	-	-
GDPMU	-	-	-	1.49e-14	.137	-	-
GDPML	-	-	-	-	-	.354	.873
<b>Random Effect</b>							
(N=8,377)							
Variance Component	.646	.637	.637	.646	.794	.506	.506
Covariance	-	-	-.832	-	-.263	-	-.259
Log Likelihood	-1992.92	-1992.92	-1992.92	-1992.92	-1992.53	-1992.65	-1992.65
Prob	.000	.000	.000	.000	.000	.000	.000

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

## CHAPTER 5

### A COMPARATIVE CASE STUDY OF MEXICO AND TAIWAN

The previous chapters explore the effect of information sources (especially the media) on retrospective and prospective national economic evaluation and their subsequent voter choice in comparative perspectives. It is evident that level of democracy and level of economy can impact retrospective and prospective national economic evaluations differently across nations. Consolidated democracies and countries with middle income have the strongest effect on retrospective and prospective national economic evaluations. However, level of democracy and level of economic development does not influence voter choice. In this sense, the cross-national analyses have reached some generalizable explanations of the effect of information sources on economic voting. However, the cross-national analyses may have overlooked country-specific knowledge about the effect of information sources on national economic evaluation and its subsequent voter choice, which is possibly different from those of cross-national analyses. In order to explore the depth of the effect of information sources on economic voting and substantiate findings in cross-national analysis, a comparative case study is essential in this study.

Although the effect of information sources is demonstrated to influence national economic evaluation in cross-national analyses, it is still difficult to explain why more media consumption can lead to either positive or negative national economic evaluation.

In order to explore the relationship between media effect, economic evaluations, and voter choice in detail and more precisely, a comparative case study is essential; the measure of media consumption in a comparative case study is different from that in a cross-national analysis. In addition to hours or days of media consumption, the choice of television channels or programs is available in both Mexico Panel Studies and Taiwan TEDS surveys. The choice of television channels or programs is used in lieu of the amount of media consumption to measure the media effect in comparative case study.

This chapter proceeds as follows. First, I will analyze the importance of comparative case studies. The comparative case study, which aims at a middle ground between generality and accuracy, cannot only contribute to theory building but also to the discovery of context-specific knowledge with depth (Sartori, 1970; Ragin, 2000). The Mexico and Taiwan cases are the two comparative case studies I offer. I will also explain why I choose those two cases for analysis. The Mexico and Taiwan cases are in the second and the third sections, respectively. The fourth section is the conclusion of this chapter.

## 5.1 THE IMPORTANCE OF COMPARATIVE CASE STUDIES

Some scholars contend that political science should seek to establish universally applicable general laws to avoid small-n problems (Lijphart, 1975). Through comparing wide ranges of cases, generality can be reached (Przeworski and Teune, 1982). In this sense, chapters 2 to 4 in my dissertation aims at exploring whether there is a general explanation of the media effect on economic voting across countries. Cross-national analyses can provide nomothetic explanations about it globally.

The advantages of cross-national analysis are that it can produce a generalized theory across nations and achieve parsimony and breadth of the theory; however, the disadvantages are that it overlooks the complexity of context-specific knowledge and it is difficult to achieve the depth desired of the study. In this vein, there is a trade-off between generality and accuracy. Take my dissertation, for example: I can derive the general explanations of the media effect on economic voting from cross-national analyses, but I may ignore the country-specific knowledge about it which can possibly be different from the general explanations. To compensate for this weakness, I use the case study approach and compare the findings with those in cross-national analyses. I conduct a comparative case study to explore how the media effect influences economic voting in my two comparative cases, Taiwan and Mexico.

The case studies center on a particular region in order to reference the deep and country-specific knowledge about the region. Although it has been criticized that too many emphases on cases studies may be deleterious to general theory building, I argue that case studies have the following two strengths. The first is that, while case studies may suffer from the loss of some parsimony, scholars can attain more specific understanding of what is going on in a particular country or region and can develop ideas on why the development of this country is different from other countries in the world. Take Taiwan, for example: national identity is always the most important determinant for voter choice (Hsieh and Jang, 2009). Economic evaluation seems to play a minor role on voter choice even if it is often not statistically significant. In this sense, case-oriented study focuses on the complexity of social phenomena (Ragin, 2000). The second strength of case study is that it can contribute to general theory building as well. Many important

theories come from case studies, such as Putnam's (1993) theory on civil culture/social capital (from Italy), Juan Linz and Stephan's (1996) theories on democratic transitions (from Spain), and Skocpol's (1979) theory on revolutions (from France, Russia, and China), etc. Case studies that center on country-specific phenomena may also contribute to general theory building as well, as is evident in large-n studies (Lijphart, 1971).

As mentioned above, there is a trade-off between a general theory and case study. While pursuing generality, the general theory is developed but accuracy may be lost. While centering on case study, researchers can gain country-specific knowledge but it is probably difficult to develop generalizable conclusions if the context-specific knowledge is too specific to be generalizable. Therefore, scholars such as Sartori (1970) and Ragin (2000) propose a middle-ground path between generality and accuracy. They claim that the similar causal factors may generate outcomes differently in different contexts (Ibid.). The comparative case study (small-n study) used in my research (Mexico and Taiwan) aims at a middle-ground path (Coppedge, 1999).

I am going to compare the media effect on economic voting in Mexico and Taiwan. There are several reasons to choose these two nations. First, both had one dominant party systems before 2000 and have experienced at least two changes of party in government and in opposition. I would like to explore whether one dominant party systems in the two countries before and after 2000 (similar causal factors) may influence economic voting differently under different political cleavages (Mexico's right vs. left; Taiwan's national identity: unification, independence, and status quo). The comparative case study of Taiwan and Mexico allows me to center on a middle-ground path between generality and accuracy.

The second reason to choose Mexico and Taiwan for comparative case study is that one dominant party regimes may have restricted press freedoms. In Taiwan, three main TV stations were dominated by the ruling party -- KMT -- before 2000, and the majority of voters recognized that. The attribute agenda-setting effect was not significant in the TV news channels (McCombs, 2004). McCombs (2004) argues that the attribute agenda-setting effect can only take place wherever the political system and media institution are open and free. In other words, mass media may not have any influence on people's national economic evaluations when political and media systems are not well-established. In Mexico, the opposition parties had limited access to mass media before 2000 as well; the expenditure of advertising for campaign was too expensive for opposition parties to afford. In addition, the law for free public media time in 1990 regulated that free media time for each party was proportional to its electoral strength. Therefore, the ruling Institutional Revolutionary Party (PRI) had more free media time than other opposition parties (Greene, 2002). It is evident that the media system is not open and free in one-dominant party regimes and the opposition parties' access to the media are not as equal as the dominant parties'. By comparing Mexico with Taiwan, the general rule of media effects on economic voting may be established.

The third reason for comparative case study of Taiwan and Mexico are that the two cases may be able to test the theories produced in cross-national analyses. Testing the theory is one of the important strengths of case study (Eckstein, 1975). Both countries have had one-party dominance before and at least two changes of party in government and in opposition; in other words, they have experienced different levels of democracy. Moreover, the two countries have different levels of economic prosperity. The low level

of democracy in the one dominant party regimes, high level of democracy after regime transition, and different level of economic prosperity in the two countries can help verify whether level of democracy and level of economic prosperity can impact the effect of information sources on economic voting.

Since it is difficult to provide detailed and substantial explanations of the media effects on economic voting in cross-national analyses, the comparative case study may be helpful to explore the media effect on economic voting. The comparative case study, which centers on the middle-ground path, can not only resolve trade-offs between generality and accuracy but also substantiate cross-national large-N studies. From the experiences of Taiwan and Mexico before 2000, I surmise that the effect of information sources may not have influenced economic voting since the political system and media institution were not open and free. In contrast, media consumption may have influenced economic voting especially when the high level of democracy is reached.

## 5.2 MEXICO CASE

Mexico is a third-wave democracy which has experienced one-party dominance and two changes of party in government and in opposition. The specific experiences of Mexico allows political scientists to research elections in different stages and types of democratization (Gomez and Wilson, 2006). The Mexico case proceeds as follows. The first section is the overview of political development in Mexico before 2000. In the authoritarian regime, not only the ruling party PRI remaining in power for several decades but also the evolution of opposition parties – the PAN (National Action Party) and the PRD (Party of the Democratic Revolution) -- are essential for the subsequent regime transition. The second, third, fourth, and fifth sections are the 1997 Mexico City

election and three Mexican presidential elections from 2000 to 2012. The sixth section is the conclusion of the Mexico case study. I will compare the effect of information sources on economic voting before and after 2000.

### 5.2.1 The Dominance of Institutional Revolutionary Party (PRI) Before 2000

The PRI had been the dominant party which won every national and presidential elections with large margins since 1929 (Gomez and Wilson, 2006; Greene, 2007). It is said that the PRI retained its one-party dominance by electoral fraud and abuse of power. Greene (2007) developed a theory of resource asymmetries between the dominant party and opposition parties which explained the durability of the one dominant party system and its breakdown. He claimed that the PRI used patronage from public resources to retain its electoral competitiveness, and thus the resources disadvantages of opposition parties made them uncompetitive (Greene, 2007).

Not until 1988 did the situation change. Although the PRI still won the presidency, the opposition parties won 48% of seats in the Chamber of Deputies, which was the highest in history (Dominguez and McCann, 1996). The change can be attributed to the increased demand for democracy by the mass public in the late 1980s (Mainwaring, 1992). This substantiates the causes of democratization from the cultural perspective, which claims that civic culture facilitates democracy (Almond and Verba, 1963, 1980; Putnam, 1993; Inglehart, 1998; Diamond, 1999; Norris, 1999). In addition to the oldest right-wing opposition party PAN, the left-wing party PRD was established right after the 1988 election. The PRI's party strength mainly focused on rural areas and the less educated. The PAN's electoral strength was based on urban areas with the better-educated, manufacturing-sector employees, and Catholics, especially in the north and

center-west. The PAN-PRI competition centers on the north and the center-west, and the PRD-PRI competition focuses on the south (Klesner, 2004). The PRI, PAN, and PRD have been the three main parties in the Mexican political system since then.

The 1991 national election rejuvenated PRI's one-party dominance. Although the consumer price index dropped from 159.2% in 1987 to 18.9% in 1991, voters were satisfied with economic policies and free-trade treaties by the Salinas administration. In addition, neither retrospective nor prospective economic evaluations were associated with voter choice. Partisanship was an important factor influencing the 1991 election (Dominguez and McCann, 1996). Although the economic condition remained in bad shape during the 1994 presidential election, candidate evaluation and party loyalty were more important factors than economic evaluation and demographic factors. In particular, the high turnout rate (75%) and the greater legitimacy of the 1994 election than in 1988 had led pundits to predict that Mexico would democratize in the near future (Ibid.)

The PRI lost their majority in the Chamber of Deputies for the first time in the 1997 congressional election as well as the mayoralty of Mexico City. Although the economy was still in bad shape, national economic evaluation did not affect voter choice (Gomez and Wilson, 2006). In particular, Gomez and Wilson (2006) find that people with a high level of political sophistication were more likely to engage in pocketbook voting than the least sophisticated people. Mongenster and Zechmeister (2001) also discovered that risk-acceptant individuals were more likely to cast a vote for PAN or PRD when they thought national economic condition was not good. In contrast, risk-averse individuals still voted for the ruling PRI even though they thought the national economic condition was worse in the last year because they were less likely to vote for opposition parties,

which had less experiences in office. Despite the fact that scholars can find what kind of people were likely to engage in economic voting, it seems that economic issues were not the dominant factor in the 1997 national elections. Rather, democratization issues dominated the 1997 national elections. Vote share of the PAN and PRD increased. In particular, the election was handled for the first time by the independent institute Federal Electoral Institute (IFE). In this vein, the election was regarded as an open, free, and fair one and facilitated the democratization of Mexico (Klesner, 1997).

It is evident that economic voting was not salient in Mexico before 2000. As mentioned above, the opposition parties' access to the media is quite limited due to the regulation of free media time and the high expenditure of campaign advertising. Can this imply that the media has no effect on economic voting before 2000? The 1997 Mexico City election survey data may substantiate the media effect on economic voting.

### 5.2.2 The 1997 Mexico City Election

Mexico City is the government of the Federal District in Mexico. The 1997 election was the first direct election in Mexico City. The PRD candidate Cuauhtemoc Cardenas won the mayoral election, and this was the first time that the mayor was not a member of the ruling PRI. The strongest parties in Mexico City were PRD and PRI; the PRD-PRI competition became significant in 1997 (Klesner, 2004). There were three major candidates (the PRI's Alfredo del Mazo Gonzalez, the PAN's Carlos Castillo Peraza, and the PRD's Cuauhtemoc Cardenas) and five minor candidates.<sup>19</sup> Only three main candidates are included in the analysis.

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<sup>19</sup> The five minor candidates were Pedro Ferriz Santacruz in Party of the Cardenist Front of National Reconstruction (*Partido Frente Cardenista de Reconstruccion Nacional*, PFCRN), Francisco Gonzalez Gomez in Workers' Party (*Partido del Trabajo*, PT), Jorge Gonzalez Torres in Green Party of Mexico (*Partido Verde Ecologista de Mexico*, PVEM), Manuel Hernandez Flores in Popular Socialist Party

Table 5.1 shows that there were about two-thirds of the respondents (66.76%) thought the national economic condition was worse in the last one or two years, and 45.51% of the voters evaluated the prospective national economy negatively. For voter choice, neither retrospective nor prospective national economic evaluations were associated with voter choice (Table 5.4). The media did not affect either people's retrospective or prospective national economic evaluations (Table 5.2 and Table 5.3), and the media did not influence voter choice (Table 5.4). Party identification was the only important determinant on voter choice. Those who felt close to PRD were more likely to vote for Cardenas. The analysis of the 1997 Mexico City election demonstrated that the media might not influence economic voting given that the media and political systems had not been open and free entirely.

### 5.2.3 The 2000 Presidential Election

The 2000 presidential election is a milestone in the democratization of Mexico. It not only ended the PRI's one-party dominance that had lasted for seven decades but also invigorated multiparty competition. The economic condition had improved since 1997, and President Zedillo had a high approval rating because of his performance in regard to the economy. Table 5.1 shows that 23.81% of the respondents thought the economy had gotten somewhat or much better in Zedillo's administration. Despite the economic prosperity in Zedillo's administration, the economy was not associated with voter choice. Although the PRI candidate Francisco Labastida's campaign strategies focused on economy, his campaign messages seemed quite paradoxical to the public-to praise Zedillo's economic performance on the one hand and to keep himself from neoliberal

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(*Partido Popular Socialista*, PPS), and Baltazar Ignacio Valadez Montoya in Mexican Democratic Party (*Partido Democrata Mexicano*, PDM)(Grayson, 1997).

policy on the other hand. The ambiguity of Labastida's position on the economic policy had benefited the PAN candidate Vicente Fox (Bruhn, 2004). In contrast to Labastida, Fox's main campaign strategy was to center on Mexico's democracy. Therefore, the demand for regime change was the dominant issue in the campaign. (Beatriz Magaloni and Alejandro Poire, 2004; Bruhn, 2004; Hart, 2013). Because of these factors, I surmise that there might not have been economic voting in 2000 presidential election.

Generally speaking, voters who were exposed to Television Azteca were more likely to vote for the PAN and those who watched Televisa tend to support the PRI. However, table 5.4 demonstrates that exposure to Televisa showed no significant distinction between Fox and Labastida in 2000. This result conforms to Lawson's finding (Lawson, 2004). In particular, Lawson and McCann(2005) discover that there was more negative coverage of news about the PRD candidate Cuauhtemoc Cardenas in the first half of the campaign (Feb. — Apr.) on Televisa, but there was more positive coverage in the second half (May — Jun.). This had influenced voter choice (Ibid.).

Since the presidential campaign did not center on economic issues, there were fewer economic messages than regime change messages. Economic issues only consisted of 12% of the TV advertisements in the campaign (Hart, 2013). Table 5.2 shows that the media did not influence people's retrospective national economic evaluation in 2000. Also none of the economic evaluations (pocketbook and sociotropic) affected voter choice (Table 5.4). Exposure to Televisa enhanced the probability to cast votes for Cardenas and other candidates (except Fox) although it is barely significant at .10 level. This result also substantiates Lawson and McCann's (2005) finding that there was more positive coverage of Cardenas on Televisa in the second half of the campaign. Party

identification was the strong determinant on voter choice. In this vein, the media did not have influence on economic voting in the 2000 presidential election.

#### 5.2.4 The 2006 Presidential Election

The 2006 presidential election was the closest and most competitive election in Mexican history. Felipe Calderon (PAN) defeated Andres Manuel Lopez Obrador (AMLO) by only 0.58% of the margin in the presidential election. Despite the controversy after the election, more than four-fifths of Mexican voters thought democracy was important to them, and three-fourths agreed that democracy was the best form of governance. In this sense, the presidential election enhanced the legitimacy of democracy and can be regarded as part of an extended and continuous process of democratization since 2000 (Lawson, 2009; Camp, 2009).

In contrast to the 2000 presidential election in which democracy was the main issue, the dominant issue in 2006 was the economy (Bruhn, 2009; Moreno, 2009; Hart, 2013). Both Calderon and Obrador thought priming the economy was essential and could be an advantage to their own campaigns (Bruhn, 2009). In the last three years of Fox's administration, the economy had grown more rapidly than the first half of his term. Compared with 2000 in which only 23.81% of the respondents retrospectively evaluated national economic condition positively, two-fifths of voters thought the national economy had improved in Fox's administration. However, Obrador condemned Fox's neoliberal economic policies and appealed to policy changes. Calderon contended that policy changes were risky (Ibid.). Thanks to the rapid economic growth during Fox's administration in the last couple of years, Calderon benefited from Fox's performance. Calderon centered his campaign on the economy. He emphasized the importance of

economic stability and the extension of Fox's economic policies if he won the presidency. His campaign strategies successfully activated those who positively evaluated national economic condition in the last years to cast votes for him (Moreno, 2009).

Table 5.2, Table 5.3, and Table 5.4 show that the media did not have significant influence on either economic condition or voter choice. The results produced from third-wave panel data were different from that of Hart's findings, which claimed that the candidate can activate the economic vote via economic campaign advertisements (Hart 2013). Hart mainly focused on the influence of exposure to economic campaign advertising on economic voting. In addition, he discovered that there was rarely economic news on both TV Azteca and Televisa and thus economic news had no effect on economic voting (Ibid.). In my analysis, media consumption is the dummy variable (TV Azteca=1 and Televisa=0 in 2006). According to Hart's findings, it may be difficult for the media in general to prime economic voting. In this vein, it is the economic campaign advertising and not economic TV news that activated economic voting in the 2006 presidential campaign.

In addition, retrospective pocketbook evaluation was highly associated with retrospective economic evaluations, prospective economic evaluations, and voter choice. Those who thought their personal economic condition was better in the last few years were likely to vote for Calderon. Prospective pocketbook voting is not significant here. However, Diaz-Cayeros, Estevez, and Magaloni's (2009) discovered that the two social policy programs (Oportunidades and Seguro Popular) proposed by the PAN successfully attracted the poor who had originally planned to vote for the left. Although prospective pocketbook voting as a whole was not associated with voter choice, it matters to those

who were poor and attracted by the PAN's two social policy programs. Party identification was also an important predictor of voter choice, as is evident in Moreno's (2009) work.

#### 5.2.5 The 2012 Presidential Election

The PRI returned to the presidency in 2012 after they were defeated in 2000, and this was the second change of party in government and in opposition in Mexico's history. The PRI candidate Pena Nieto won by 38.2% of the votes and defeated AMLO (31.6% of the votes) and the PAN female candidate Josefina Vazquez Mota (25.4% of the votes) (Lawson, 2015). Different from the 2000 and 2006 presidential campaigns, which centered on regime change and the economy respectively, the 2012 presidential campaign mainly focused on the personal competence of the candidates, although quite a few Mexican voters thought economic growth, jobs, crime, and public securities were the most important problems facing the country (Bruhn, 2015).

Compared with 2006 in which 11.56% of people thought national economic condition was worse in the last year, the percentage of people who evaluated the national economy negatively in the last year doubled in 2012 (Table 5.1). Moreover, 46.44% of the respondents pessimistically evaluated national economy in the next year. Because the economy in the U.S. was not in good shape, Mexico's exports were heavily affected, which resulted in economic recession (Lawson, 2015). Moreover, around 40% of the people thought that only PRI could handle the economy well. The legacy of the PRI's one-party dominance benefited Nieto's campaign and PRI legislative candidates (McCann, 2015; Dominguez, 2015).

Table 5.2 and Table 5.3 demonstrate that the media did not influence either retrospective or prospective national economic evaluations in 2012. Table 5.4 shows that the media can have significant influences on voter choice. Those who watched TV Azteca (the same coding as that of 2006) were more likely to cast their votes for the PAN candidate Mota; in contrast, those who watched Televisa tended to vote for Nieto or AMLO. Actually, at least half of television viewers supported Nieto (Lawson, 2015; Diaz-Dominguez and Moreno, 2015). Television contributed to Nieto's victory because the media portrayed him as a young and reformed PRI candidate. His campaign centered on both his achievement as a governor and a competent candidate (Bruhn, 2015; Lawson, 2015). In addition to the role of the media, the electoral reform benefited Nieto as well. Mexico reformed the electoral laws in 2007 in order to shorten campaigns to 90 days and reduce media effects, as were evident in 2000 and 2006 (Dominguez and Lawson, 2004; Dominguez et al., 2009; Bruhn, 2015; Magar, 2015). The reforms succeeded in the 2012 presidential election. In contrast to 2000 and 2006 in which the leading candidates in the beginning of the campaign were different from those on Election Day, Nieto was the lead in the beginning of the campaign and won the presidency in the long run.

In addition to the traditional media, the role of social media (i.e., Facebook, Twitter, etc.) played a significant role in the 2012 presidential election (Camp, 2013; Bruhn, 2015; Diaz-Dominguez and Moreno, 2015). The politicized student movement known as #YoSoy132 demonstrated its importance because the movement mainly used social media to mobilize voters.<sup>20</sup> About 64% of voters regarded television as their main

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<sup>20</sup> On May 11th, 2012, a group of students showed up and protested against biased media coverage when Nieto visited Ibero-American University in western Mexico City. This is the so-called #YoSoy132 movement, which was mainly anti-PRI protests and later became supporters for AMLO. Although some street protests and public meetings were organized, the movement mainly relied on internet and social

source of political information, while 10% of them chose the internet (Camp, 2013). Generally speaking, young, highly educated, and leftist voters tended to use the internet and social media to obtain political information. In addition, those who positively evaluated the movement were more likely to vote for AMLO (Diaz-Dominguez and Moreno, 2015).

The PRI returned to the presidency in 2012. Power was handed over peacefully in 2000 and 2012, and the constitutional democracy was more successful than ever in 2012 (Dominguez, 2015). It is evident that democracy in Mexico has strengthened after it experienced two changes of party in government and in opposition.

### 5.3.7 Conclusion of the Mexico Case

The Mexico case demonstrates that neither retrospective economic evaluation nor prospective economic evaluation were influenced by the media. Figure 5.1 and 5.2 interpret the media effect on retrospective and prospective national economic evaluation more clearly. The y-axis represents the change in the probability of “much better” of the evaluation due to a change in in the media, which appears on the x-axis. The solid line is the estimated change in the probability of “much better” in the evaluation. The gray zones represent the 95% confidence interval for the effect. Neither the upward nor downward sloping lines indicate the media had significant effect on retrospective and prospective national economic evaluations. However, the media did exert some influence on voter choice in 2000 and especially in 2012. Respondents who watched Televisa in 2000 were more likely to vote for Cardenas given that there was more positive coverage of Cardenas in the last half of the campaign season. The upward sloping line in Figure 5.3 can demonstrate this. In 2012, Azteca viewers tended to vote for Mota, whether the choice

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media to mobilize young voters (Diaz-Dominguez and Moreno, 2015).

was between Mota and Nieto or between Mota and Obrador. Figure 5.3 shows that the media has substantive effect on voter choice in 2012, especially the upward sloping line represents that watching Azteca was more likely to vote for Mota. The media in general did not have an effect in 2006. It is evident that the media affected voter choice in 2000 and 2012, but it might not activate economic voting.

In addition to the media effect, talk about politics with family and friends and political sophistication did not significantly influence economic evaluations and voter choice. The retrospective personal economic evaluation was highly associated with retrospective national economic evaluation; similarly, prospective personal economic evaluation strongly influence prospective national economic evaluation. However, pocketbook voting was only salient in the 2006 election; voters who thought they were personally better off in the last year and those who thought they would be personally better off in the future one year tended to support Calderon.

For all other variables, ideology can occasionally affect economic evaluations, and it only influenced voter choice in 2006. Those who were ideologically right were more likely to vote for the right-wing party PAN. Education was not influential in economic evaluations, but it affected voter choice in 2006 and 2012. In 2006, those who were better-educated were more likely to support Calderon in the PAN. This conforms to the finding that supporters of the PAN are better-educated (Klesner, 2004). However, those who were better-educated tended to vote for PRI or PRD in 2012. The reason needs to be explored further. Finally, party identification is the strongest determinant of voter choice.

Although the media exerted influence on voter choice in 2000 and 2012, it did not prime economic voting even after the political and media systems became open, free, and well-established.

### 5.3 TAIWAN CASE

Like Mexico, Taiwan is not only a third-wave democracy but it also has experienced one-party dominance and three changes of parties in government and in opposition (including 2016). The Taiwan case proceeds as follows. The first part is the overview of political development in Taiwan before 2000. The Kuomintang (KMT) retained one-party dominance until the Democratic Progressive Party (DPP) won the presidency in 2000. The second to the sixth parts are the five presidential elections from 1996 to 2012. The seventh part is the conclusion of the Taiwan case.

#### 5.3.1 Introduction of Taiwan Politics and the Dominance of KMT Before 2000

Between the end of World War II and 2000, Taiwan was governed by the Nationalist Party (or KMT). Although there were two opposition parties, they were not politically viable. A group called *Tangwai* (means “outside the party”) appeared in the middle of the 1970s and became a powerful opposition. The *Tangwai* transformed into the DPP in September 1986 shortly before the lift of martial law. Although the KMT faced competition since martial law was lifted, the KMT could still retained one-party dominance (Chu, 2010). From the late 1980s and through the early 1990s, there was a two-party system and the strength of the KMT was greater than that of the DPP.

Nonetheless, the social base of the KMT had weakened gradually since the young Turks within the KMT withdrew from the party and formed the New Party (NP) in 1993. The formation of the NP led to party fragmentation in Taiwan. Later on, a number of new

parties such as the Taiwan Independence Party (TAIP), the People First Party (PFP), and the Taiwan Solidarity Union (TSU) appeared in the political arena consecutively. The effective number of legislative parties in Taiwan gradually rose from two in 1992 to three and half in the early 2000s. However, the KMT and the DPP, especially the KMT, became the two major parties in Taiwan again after the legislative election in January 2008. KMT won around three-fourths of the legislative seats, and the effective number of legislative parties decreased to less than two (Hsieh and Jang, 2009).

Despite the party fragmentation, there are two main political camps in Taiwan's political scene. The first is the pan-blue camp which consists of the KMT, the New Party (NP), and the People First Party (PFP, which split from KMT in 2000). The second is the pan-green camp which is composed of the DPP, the Taiwan Independence Party (TAIP), the Taiwan Solidarity Union (TSU, split from KMT in 2001), and New Power Party (established in 2015). Parties within each camp often cooperate with each other in Legislative Yuan or elections against parties in the other camp.

The freedom of the media was restricted in authoritarian regimes such as Taiwan and Mexico before 2000 (McCombs, 2004; Greene, 2007). Three main TV stations (TTV, CTV, CTS) were dominated by the KMT before regime change. After 2000, more television stations showed up. Some are pro-KMT (blue camp) or pro-DPP (green) camp (Lo et al., 1998; Lo and Huang, 2000; Lo, 2013). In addition, the economy had grown rapidly and prosperously under the dominant KMT-led economic policies (Choi, 2010). Are there any differences in the media effect on economic voting between a one dominant party regime and a competitive democratic regime? I would like to compare the

media's effect on economic voting in different presidential elections, from the one dominant party regime in 1996 to the democratic regime after 2000.

### 5.3.2 The 1996 Presidential Election

The 1996 presidential election was a milestone in the democratization of Taiwan because it was the first popular presidential election in the country's history. There were four presidential candidates in the election: the KMT's incumbent, Teng-hui Lee; the DPP's Ming-min Peng; independent Yang-kang Lin (who withdrew from the KMT); and independent Li-an Chen (who also withdrew from the KMT). The incumbent president Teng-hui Lee won the election with 54% of the popular vote. Research demonstrated that two-thirds of DPP identifiers showed support for Teng-hui Lee and that the so-called "Teng-hui Lee complex" was influential in the presidential campaign (Yu, 1996). Table 5.5 shows that about two-thirds of respondents thought that the national economic condition was much worse or somewhat worse over the past year. Although the economy was still quite prosperous before the presidential election in general, the economic growth became slower than previous years in which the economy grew rapidly (Choi, 2010). Despite the economic downturn before the election, there were no significant effects in economic voting. In particular, national identity was the dominant determinant on voter choice (Wu, 2001; Choi, 2010). Those were evident in the voter choice in the 1996 presidential election in table 5.8. In the voter choice between Peng and Lee, those who thought Taiwan should be unified with China were more likely to vote for Lee, and those who thought Taiwan should declare independence from China tended to vote for Peng. In voter choice between Lin and Lee, national identity is not statistically significant; those who supported unification were more likely to vote for Lin than Lee given that Lin was a

firm supporter of unification and Lee's position on unification or independence was ambiguous (Tsai, 2005; Choi, 2010; Chang and Huang, 2011).

As table 5.6 and 5.7 show, the media (newspaper) (pan-blue = 1, pan-green = 0) influenced retrospective national economic evaluation; but it did not influence prospective national economic evaluation. When people read more pro-blue newspapers, they were more likely to think national economic condition was worse in the last one year. Table 5.8 indicates that the media barely influenced voter choice between Lee and Peng at 0.10 level. People who read pan-blue newspaper were more likely to vote for Lee.

### 5.3.3 The 2000 Presidential Election

The 2000 presidential election was another important milestone in Taiwan's history. It ended the one-party dominance of the KMT over the past five decades. Although the DPP's candidate Shui-bian Chen won the presidency, he received only 39.3% of the popular vote, and the KMT remained in the majority in the Legislative Yuan until the 2001 legislative election. The other two main candidates -- the KMT's Chan Lien and the independent James Soong (who withdrew from the KMT) received 23.1% and 36.8% of the vote respectively. The split of the KMT and the Chung Hsing Bills Finance scandal involving James Soong during the campaign led to the victory of Chen (Chu, 2001; Hsu, 2001; Yu, 2001; Chang and Huang, 2011; Chang, 2012). Economic growth was even lower in 2000 than in 1996. In other words, the economic condition was even worse in 2000 than that in 1996.

As table 5.5 shows, 62% of the respondents negatively evaluated the national economic condition over the past year. However, the economic downtown could not account for the KMT's defeat. In table 5.8, retrospective national economic evaluation

was significant in voter choice between Lien and Soong, and prospective national economic evaluation was significant between Lien and Chen. Those who positively evaluated the national economic condition in the last one year were more likely to reward the KMT's Lien; those who were optimistic the future prospects of the national economy were more likely to vote for Chen.

As in 1996, the economy was not the dominant determinant of voter choice. Rather, national identity was the most significant factor (Wu, 2001; Zhang, 2010). Although all three main candidates' positions on national identity emphasized the status quo, there were still some differences on the meaning of status quo, on policies regarding the cross-strait relationship, and regarding definitions of the state. Those nuances made national identity the main issue in the 2000 presidential campaign (Chang and Huang, 2011). Both Soong and Lien asserted that Chen would announce Taiwan independence after he won the presidency, although Chen promised he would not (Lee, 2000; Chen, 2000; Chang and Huang, 2011). Moreover, Lien also criticized Soong's policies regarding the cross-strait relationship, which seemed to surrender Taiwan to Mainland China (Pu, 2000; Chang and Huang, 2011). As table 5.8 shows, those who were pro-unification were more likely to cast votes for Soong over Lien given that Song was a firm supporter of unification. However, national identity was not significant between Chen and Lien. Those who voted for Chen were probably engaged in strategic voting to prevent Soong from being elected by deserting the hopeless candidate Lien (Chang and Huang, 2011).<sup>21</sup>

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<sup>21</sup> After the 1996 presidential election, Teng-hui Lee's position on national identity changed from pro-unification toward pro-independence. He proposed "Two State Theory" which defined cross-strait relationship was the special relationship between two nations (Taiwan vs. China). His KMT membership was suspended by the KMT after the 2000 presidential election because he was suspected to assist Chen

As tables 5.6 and 5.7 show, the media (pan-blue = 1, pan-green = 0) did not affect either retrospective or prospective national economic evaluation in 2000. Nevertheless, the media influenced voter choice both between Lien and Soong and between Lien and Chen. Those who watched pan-blue TV stations were more likely to vote for Lien both between Lien and Soong and between Lien and Chen.

#### 5.3.4 The 2004 Presidential Election

There were only two presidential candidates that represented pan-blue and pan-green camps in the 2004 presidential election. The KMT candidate Chan Lien led the pan-blue ticket again. The leader of the PFP, James Soong, cooperated with the KMT and was the vice-presidential candidate of the KMT.<sup>22</sup> The incumbent President Shui-bian Chen, seeking reelection, represented the pan-green camp. Despite extraordinary economic recession and political chaos during Chen's first administration, he won the presidency by a bare margin of 0.22% (Choi, 2010).

Similar to the situation in the 2000 election, national identity, not the economy, dominated the campaign (Choi, 2010; Chang, 2010; Chang and Huang, 2011). In both the pan-blue and pan-green camps, issues of national identity were not too much different from in 2000. The pan-blue camp emphasized the importance of the status quo and argued for reconciliation between Taiwan and China. It also attacked Chen's intention to declare Taiwan independent again. Although pan-green camp claimed the status quo as well, they asserted that the cross-relationship was a special relationship between two nations. In other words, both camps had different definitions of the status quo (Chang and Huang, 2011). As table 5.8 shows, retrospective national economic evaluation did not

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and abandon Lien secretly (Chang and Huang, 2011).

<sup>22</sup> James Soong established the PFP shortly after the 2000 presidential election and was the leader of the PFP.

influence voter choice; rather, national identity was influential. Although table 5.5 shows that there was 34.89% of the respondents thought national economy was worse in the last one year, a majority of voters seemed to attribute the economic downturn to a global economic recession, as claimed by the DPP, rather than mismanagement in Chen's administration (Chuang, 2008). Those who were pro-unification or who preferred the status quo tended to vote for Lien; those who were pro-independence were more likely to vote for Chen. In particular, prospective national economic evaluation affected voter choice. Those who thought national economic conditions would be better in the future were more likely to cast votes for Chen.

In table 5.6 and 5.7, neither retrospective nor prospective national economic evaluation was influenced by the media (newspaper) (pan-blue = 0, pan-green = 1) in 2004. The media (newspaper) did not influence voter choice either (see table 5.8). In this sense, the media effect on economic voting was not significant in 2004.

### 5.3.5 The 2008 Presidential Election

The 2008 presidential election is another significant milestone in Taiwan's history. There were only two presidential candidates; one was the KMT's Ying-jeou Ma and the other the DPP's Frank Hsieh. Ying-jeou Ma won the presidency with 58.45% of the vote. Taiwan experienced a second change of party in government and in opposition in 2008 and nearly approached the stage of democratic consolidation (Liu, Cheng, and Chen, 2009).

A total of 66.67% of voters thought national economic conditions were worse, and only 3.07% thought they were better over the past year (see table 5.5). Actually the global financial tsunami (or global credit crunch) that happened in 2007-2008 had caused

an economic depression in Taiwan. GDP growth was 4.4% in 2007, but decreasing exports reduced GDP growth to 0.12% in 2008. The unemployment rate was below 4% in 2007, but it had risen to 5.75% in 2008 (Niou and Lacy, 2012). Although two-thirds of the voters (66.67%) evaluated the national economy over the past year negatively and both retrospective and prospective national economic evaluations were individually significant, national identity had the larger substantive effect on voter choice according to the predicted probability.<sup>23</sup> Similar to the previous presidential elections, national identity was the dominant determinant of voter choice (Ibid.). Those who were pro-independence were more likely to vote for Hsieh, and those who were pro-unification or who favored the status quo tended to vote for Ma.

Media consumption (pan-blue = 0, pan-green = 1) affected both national retrospective and prospective national economic evaluations (table 5.6 and 5.7). Those who watched pan-green television channels were more likely to evaluate both retrospective and prospective national economic conditions positively. In contrast, pan-blue TV station viewers tended to evaluate negatively. In addition, the media influenced voter choice as well (see table 5.8). Those who watched pan-blue TV stations were more likely to vote for Ma; the pan-green TV station viewers tended to cast votes for Hsieh.

### 5.3.6 The 2012 Presidential Election

There were three presidential candidates in 2012 presidential election. The incumbent Ying-jeou Ma ran for reelection. The DPP candidate was the chairman, Miss

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<sup>23</sup> There is a problem of endogeneity between retrospective national economic evaluation and voter choice. The survey was conducted after President Ying-jeou Ma assumed the presidency and the respondents had known who the new president was. Voters might think national economic condition was better in the last year if their ideal candidate was elected; they might evaluate national economic condition in the last year negatively if their favorite candidate was defeated. Therefore, the statistical result seemed to contradict the theory: those who thought national economic condition was better in the last year were more likely to vote for Ying-jeou Ma (Wu and Lin, 2012).

Ing-wen Tsai, and James Soong led the PFP ticket. Although the global credit crunch had affected national economic conditions in Ying-jeou Ma's first term and people were not satisfied with his overall performance, he won reelection with 51.6% of the vote while Ing-wen Tsai received 45.63% and James Soong only 2.77% (Cheng, 2014).<sup>24</sup> The candidate factor, including candidate image and past performance, was the important factor on voter choice. The empirical data demonstrated that Ma's candidate image was more favored by voters than Tsai's, and his cross-strait policies were evaluated positively. In contrast, voters thought Tsai did not have many political experience and she was heavily influenced by the DPP's image of corruption (Ibid.).

A total of 43.82% of respondents evaluated national economic conditions over the past year negatively (table 5.5). However, table 5.8 shows that retrospective national economic evaluation was not influential on voter choice; only prospective national economic evaluation was significant. Neither retrospective nor prospective pocketbook voting was significant. Again, national identity was the important determinant on voter choice in addition to party identification. People who preferred the status quo or unification were more likely to cast votes for Ma.

The media (pan-blue = 1, pan-green = 0) could influence both retrospective and prospective national economic evaluations (table 5.6 and 5.7). Watching pan-blue television stations was more likely to the positive evaluation of retrospective and prospective national economic conditions; in contrast, pan-green channel viewers tended to evaluate both retrospective and prospective national economic conditions negatively. Moreover, the media could also influence voter choice (see table 5.8). Voters who

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<sup>24</sup> James Soong's votes were few and was dropped in the statistical analysis.

watched pan-blue television stations were more likely to vote for Ma, and those who watched pan-green television stations tended to vote for Tsai.

### 5.3.7 Conclusion of the Taiwan Case

The media effect did not exert significant influence on retrospective national economic evaluation in 2000 and 2004 presidential election. The effect turned out to be influential in 1996, 2008, and 2012. While watching the TV stations that were favorable to the ruling party (the DPP in 2008 and the KMT in 2012), respondents were more likely to think national economic conditions were better over the past year. The downward sloping line in 2008 and upward sloping line in 2012 in figure 5.4 can indicate this. In prospective economic evaluation, the media effect exerted influence in 2008 and 2012. While viewing the TV stations favorable to the ruling party, voters were more likely to think national economic condition would be better one year from the present. The same as retrospective national economic evaluation, the downward sloping line in 2008 and upward sloping line in 2012 in figure 5.5 can demonstrate the effects. For voter choice, the media effect exerted influence in 2000, 2008, and 2012. While watching pro-ruling party TV stations (the KMT in 2000 and 2012, and the DPP in 2008), respondents tended to vote for the ruling party's candidate and vice versa. The downward sloping line in 2000 and the upward sloping line in 2008 and 2012 in figure 5.6 substantiate that those who viewed pro-ruling party TV channels were more likely to cast their votes for the ruling party. The results confirm that the choice of media (especially TV news channels) is highly associated with voter choice (Lo, 2013). Although the media system and political system were nearly competitive in 1996 and 2000 and the media effect might matter occasionally, the media effect on economic voting was most significant in 2008

and 2012, in which Taiwan had experienced two changes of party in government and in opposition. The media effect on economic voting in Taiwan substantiates that the attribute agenda-setting effect and its consequence could have substantial effect in entirely open and free political and media systems.

In addition to the media effect, both the retrospective and prospective pocketbook evaluations can strongly affect both retrospective and prospective national economic evaluations and it has produced the strongest influence while holding other variables constant. However, none of presidential elections showed that pocketbook voting was significant. Moreover, retrospective national economic evaluation was not significant in presidential elections in 2004 and 2012. Prospective national economic evaluation was significant from 1996 to 2012. Party identification is the second influential determinant on both economic evaluations. Voters were more likely to evaluate national economic evaluation positively if the party they felt closest to was the ruling party; they tended to evaluate national economy negatively if they were supporters of the opposition party. Party identification is the most significant factor on voter choice. In particular, national identity is the second significant determinant on voter choice. Except in 2004, the predicted probability showed that national identity was more influential than either retrospective or prospective national economic evaluation. This conforms to the study of economic voting in Taiwan that national identity has been the most important determinant on voter choice.

For all other variables, education is not always significant in both national economic evaluations and voter choice. Political sophistication did not influence either economic evaluations or voter choice. One of the reasons may be that the items of

political sophistication in Taiwan were very easy for respondents to answer correctly and it is difficult to explore the importance of it (Gomez and Wilson, 2006). Talk about politics only showed influences on retrospective national economic evaluation in 2000 and 2004 elections. It was not influential either on prospective national economic evaluation or voter choice. It implies that discussion about politics with others may sometimes impact retrospective national economic evaluation.

In conclusion, the media effect on economic voting was most influential in 2008 and 2012, when the political and media systems were well established. What one needs to pay attention to is that the question of the media in 1996 and 2004 were newspapers and the others were TV stations. Wang (2013) examined Taiwan Social Change Survey (TSCS) data from 1993 to 2003 and found that people's patterns of media use were changing. The use of traditional media (newspapers, radio, and magazines) was declining and the use of TV and internet were increasing. As there were fewer and fewer people reading hard copies of newspapers and more people reading online newspapers and watching TV, does this trend really have impact on economic voting? Or do different types of media have different influence on economic voting? This question deserves further exploration in the future.

#### 5.4 CONCLUSION OF COMPARATIVE CASE STUDY

Both Mexico and Taiwan have had similar trajectories of democratization: the dominant ruling party in power for decades and experiencing at least two changes of party in government and in opposition. Nevertheless, the media effects on economic voting are different. In Mexico, the media affected voter choice in 2000 and 2012, but it influenced neither retrospective nor prospective national economic evaluations even

during the time when the media and political systems were open and free. Therefore, the media effect on economic voting is not that significant in Mexico. In Taiwan, the media influenced voter choice in 2000, 2008, and 2012. The media also affected both retrospective and prospective national economic evaluations in 2008 and 2012. In this sense, the media activated economic voting especially in 2008 and 2012 when the media and the political systems were well-established. The media effect on national economic evaluation is more influential in Taiwan than in Mexico, given that Taiwan has a higher level of democracy (the polity score of Mexico and Taiwan are 8 and 10 in 2012 respectively). The comparative case study of Mexico and Taiwan substantiates that consolidated democracies can have stronger effect on national economic evaluation than those with lower level of democracy. However, the comparative case study does not conform to the finding that countries with middle income have the strongest effect on national economic evaluation given that Mexico belongs to the middle income group. Although level of democracy and level of economic development do not have effect on voter choice, the 2012 presidential elections in both countries show that media can affect voter choice, especially in the situation when the political system and media system had become more open and free.

Table 5.1. The Breakdown of the Retrospective and Prospective National Economic Evaluation in Mexico (1997-2012)

Year	1997		2000		2006		2012	
	Retrospective	Prospective	Retrospective	Prospective	Retrospective	Prospective	Retrospective	Prospective
Much worse	144(39.56%)	-	128(11.08%)	-	103(5.34%)	74(4.15%)	16(1.49%)	56(5.62%)
Somewhat worse	99(27.2%)	157(45.51%)	230(19.91%)	-	120(6.22%)	135(7.57%)	233(21.76%)	407(40.82%)
The same	64(17.58%)	126(36.52%)	522(45.19%)	-	911(47.2%)	916(51.37%)	431(40.24%)	309(30.99%)
Somewhat better	42(11.54%)	62(17.97%)	259(22.42%)	-	640(33.16%)	535(30.01%)	223(20.82%)	170(17.05%)
Much better	15(4.12%)	-	16(1.39%)	-	156(8.08%)	123(6.90%)	168(15.69%)	55(5.52%)
<b>Total</b>	<b>364(100%)</b>	<b>345(100%)</b>	<b>1,155(100%)</b>	<b>-</b>	<b>1930(100%)</b>	<b>1,783(100%)</b>	<b>1,071(100%)</b>	<b>997(100%)</b>

Table 5.2. The Ordered Logit Models of Retrospective Economic Evaluation in Mexico Elections (1997-2012)

Year	1997		2000		2006		2012	
Variable	Coef.(SE)	Δ	Coef. (SE)	Δ	Coef. (SE)	Δ	Coef. (SE)	Δ
<b>Retro Pocketbook</b>	.57(.14)***	.11(.05)	1.04(.09)***	.08(.02)	1.87(.12)***	.36(.05)	1.45(.09)***	.56(.04)
<b>Pros Pocketbook</b>	.08(.20)		-		.19(.10)*	.01(.01)	-.03(.08)	
<b>Talk</b>	.02(.13)		.05(.06)		.0001(.07)		-.09(.06)	
<b>Media</b>	.21(.32)		.03(.14)		-.17(.15)		.03(.08)	
<b>Ideology</b>	.18(.08)*	.04(.02)	.002(.02)		.13(.04)**	.02(.01)	-.05(.05)	
<b>Education</b>	.03(.15)		.06(.07)		-.10(.08)		.05(.06)	
<b>PRI</b>	-1.10(.57)#	-.02(.01)	.84(.25)**	.01(.01)	-.42(.23)#	-.01(.003)	.02(.19)	
<b>PAN</b>	-.35(.51)		.47(.23)*	.01(.003)	.77(.21)***	.02(.01)	-.73(.21)**	-.05(.01)
<b>PRD</b>	-.49(.40)		.14(.29)		-.91(.21)***	-.01(.004)	.09(.21)	
<b>Sophistication</b>	-		-.07(.08)		.06(.10)	-	-	
<b>N of Obs</b>	170		768		806		831	
<b>Log Likelihood</b>	-226.79		-919.01		-734.65		-964.50	
<b>LR chi2</b>	30.90		188.29		558.65		367.5	
<b>Prob</b>	.0003		.000		.000		.000	
<b>Pseudo R2</b>	.064		.093		.2755		.16	

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001; Predicted probability and standard error (SE)
2. The choice of the congressional candidate of the party was used for party identification in 1997.
3. Questions of prospective personal economic evaluation was not asked in 2000 election.
4. Questions of political sophistication were not asked in the 1997 and 2012 elections.

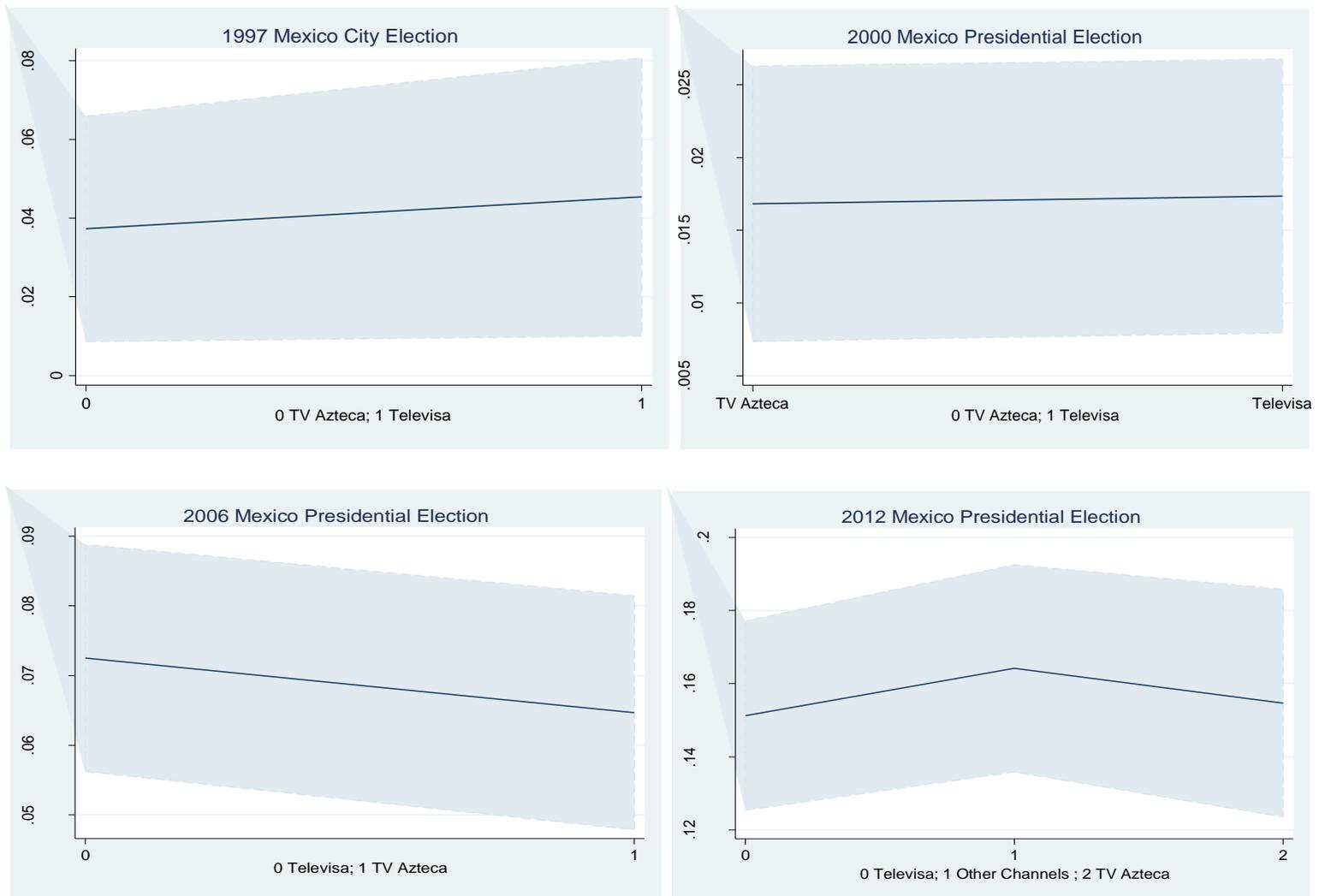


Figure 5.1. The Effect of the Media on Retrospective National Economic Evaluation in Mexico's Elections (1997-2012)

Table 5.3 The Ordered Logit Models of Prospective Economic Evaluation in Mexico Elections (1997-2012)

Year	1997		2006		2012	
Variable	Coef.(SE)	Δ	Coef. (SE)	Δ	Coef. (SE)	Δ
Retro Pocketbook	.14(.14)		.37(.10)***	.03(.01)	-.06(.08)	
Pros Pocketbook	1.52(.25)***	.32(.05)	1.86(.11)***	.33(.04)	-2.79(.13)***	-.70(.05)
Talk	-.03(.14)		-.10(.07)		-.04(.07)	
Media	-.45(.35)		-.18(.16)		-.005(.09)	
Ideology	-.03(.09)		.11(.05)*	.01(.01)	-.07(.05)	
Education	-.31(.16)#	-.18(.10)	-.16(.08)#	-.01(.01)	.13(.07)#	.002(.001)
PRI	-.19(.63)		.003(.23)		-.73(.22)**	-.003(.001)
PAN	-.25(.58)		.30(.21)		.06(.23)	
PRD	-.20(.45)		-.20(.21)		.10(.23)	
Sophistication	-		.10(.10)		-	
N of Obs		166		783		805
Log Likelihood		-148.40		-747.51		-681.56
LR chi2		49.83		465.73		841.42
Prob		.000		.000		.000
Pseudo R2		.1437		.238		.38

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

2. Δ Predicted probability and standard error (SE)

3. Questions of political sophistication were not asked in the 1997 and 2012 elections.

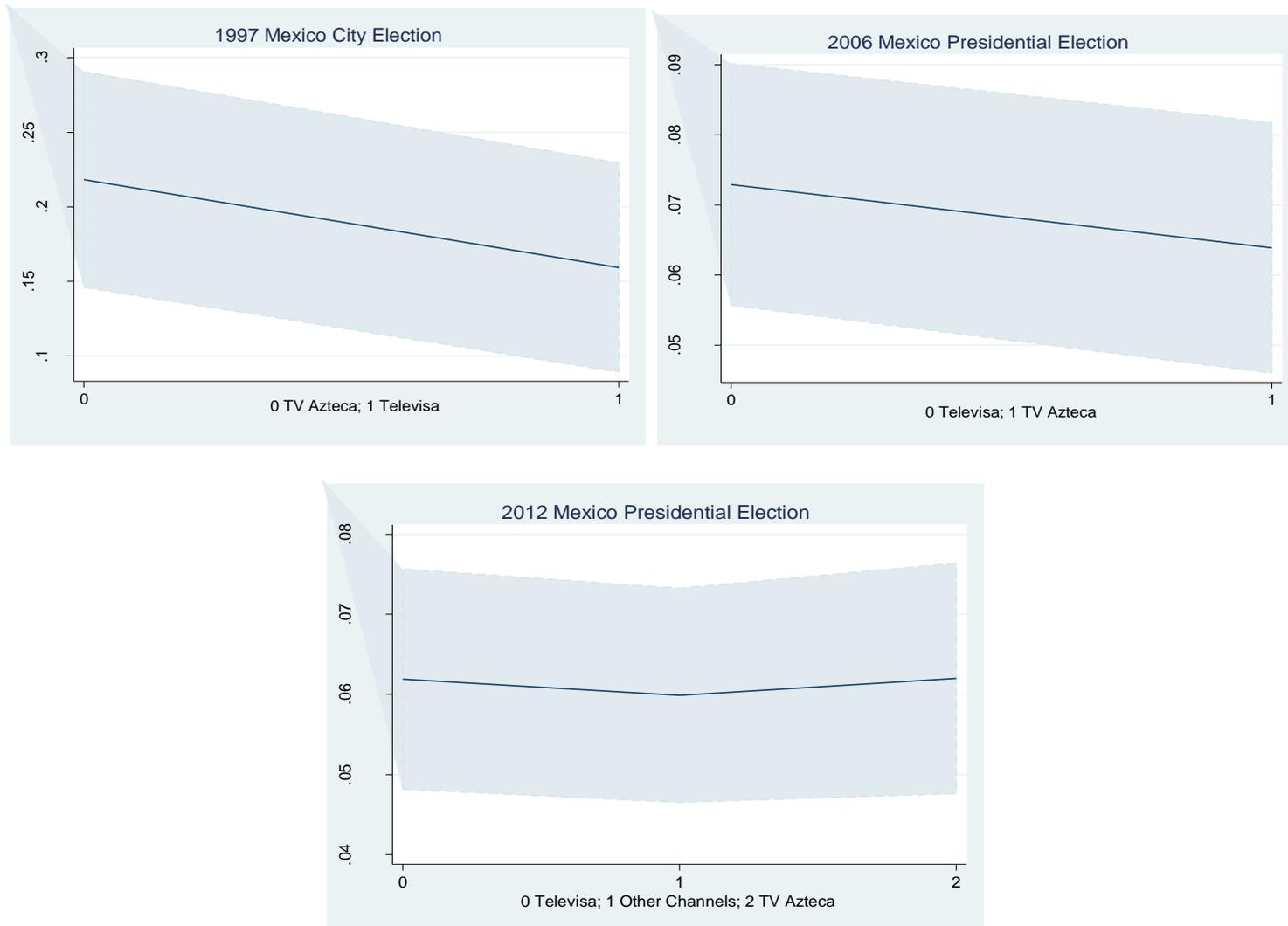


Figure 5.2. The Effect of the Media on Prospective National Economic Evaluation in Mexico's Elections (1997-2012)

Table 5.4 The Voter Choice of Mexico Elections (1997-2012)

<b>Year</b>	<b>1997(Baseline: Peraza of PAN)</b>				<b>2000 (Baseline: Labstida of PRI)</b>			
<b>Candidates</b>	Cardenas (PRD)		Gonzalez (PRI)		Fox (PAN)		Cardenas (PRD) & others	
<b>Variables</b>	Coef. (SE)	△	Coef. (SE)	△	Coef. (SE)	△	Coef. (SE)	△
<b>Sociotropic</b>	-.32(.32)		.07(.53)		.17(.17)		.18(.24)	
<b>Prospective</b>	.27(.51)		-.002(.67)		-		-	
<b>Talk</b>	.39(.33)		.10(.51)		-.17(.12)		-.29(.17)#	-.04(.05)
<b>Media</b>	-.74(.78)		-.04(1.21)		.48(.32)		.75(.43)#	.02(.03)
<b>Ideology</b>	-.27(.22)		.60(.39)		.01(.05)		-.06(.06)	
<b>Retro Pocketbook</b>	.53(.37)		.88(.68)		-.21(.17)		-.18(.24)	
<b>Pros Pocketbook</b>	-.15(.55)		-.96(.79)		-		-	
<b>Education</b>	-.14(.37)		-.27(.61)		.24(.14)#	.13(.10)	.11(.20)	
<b>Sophistication</b>	-		-		-.13(.17)		-.06(.24)	
<b>PRI</b>	20.69(20148)		23.91(20148)		-3.56(.53)***	-.06(.09)	-3.94(.69)***	-.03(.04)
<b>PAN</b>	-1.73(1.12)		-.99(1.57)		1.71(.51)**	.48(.05)	-.87(.66)	
<b>PRD</b>	2.59(1.12)*	.27(.16)	-15.56(1261)		14.08(585.39)		16.69(585.39)	
<b>Constant</b>	1.58(1.83)		-1.45(2.91)		.80(.63)		.68(.79)	
<b>N of obs</b>		163					747	
<b>Log Likelihood</b>		-67.97					-542.95	
<b>LR chi2</b>		226.00					776.76	
<b>Prob</b>		.000					.000	
<b>Pseudo R2</b>		.6244					.42	

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

2. △ Predicted probability and standard error (SE)

Table 5.4. (continued) The Voter Choice of Mexico Elections (1997-2012)

<b>Year</b>	<b>2006 (Baseline: Calderon of PAN)</b>				<b>2012 (Baseline: Mota of PAN)</b>			
<b>Candidates</b>	Madrazo (PRI)		Obrador (PRD)		Nieto (PRI)		Obrador (PRD)	
<b>Variables</b>	Coef. (SE)	△	Coef. (SE)	△	Coef. (SE)	△	Coef. (SE)	△
<b>Sociotropic</b>	-.28(.31)		-.15(.26)		.04(.23)		.58(.23)*	.42(.13)
<b>Prospective</b>	-.54(.30)#	-.08(.11)	-.48(.27)#	-.30(.21)	-.27(.32)		.83(.33)*	.74(.12)
<b>Talk</b>	-.19(.19)		.21(.16)		.14(.17)		.14(.18)	
<b>Media</b>	-.07(.40)		.001(.35)		-.53(.23)*	-.001(.09)	-.73(.24)**	-.14(.08)
<b>Ideology</b>	-.26(.12)*	-.0004(.05)	-.43(.11)***	-.48(.12)	.11(.13)		-.16(.13)	
<b>Retro Pocketbook</b>	-.71(.33)*	-.05(.10)	-.90(.28)**	-.58(.17)	.44(.24)#	.45(.15)	-.09(.25)	
<b>Pros Pocketbook</b>	.17(.28)		.30(.27)		.10(.35)		.59(.35)#	.40(.18)
<b>Education</b>	.13(.22)		-.39(.19)*	-.36(.15)	.39(.16)*	.09(.14)	.42(.17)*	.09(.13)
<b>Sophistication</b>	-.41(.26)		.23(.23)		-		-	
<b>PRI</b>	3.24(.49)***	.62(.10)	-1.08(.53)*	-.49(.08)	3.71(.55)***	.58(.05)	1.17(.63)#	-.34(.07)
<b>PAN</b>	-2.02(.64)**	-.04(.04)	-2.65(.40)***	-.50(.07)	-3.28(.49)***	-.39(.08)	-2.66(.46)***	-.12(.08)
<b>PRD</b>	.63(1.31)		4.3(.80)***	-.11(.04)	2.10(1.10)#	-.46(.07)	5.15(1.06)***	.67(.06)
<b>Constant</b>	-.24(.72)		2.13(.63)**	.68(.05)	-1.43(.65)*		-.98(.65)	
<b>N of obs</b>		624				679		
<b>Log Likelihood</b>		-235.13				-268.03		
<b>LR chi2</b>		807.15				914.19		
<b>Prob</b>		.000				.000		
<b>Pseudo R2</b>		.63				.63		

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001
2. △ Predicted probability and standard error (SE)

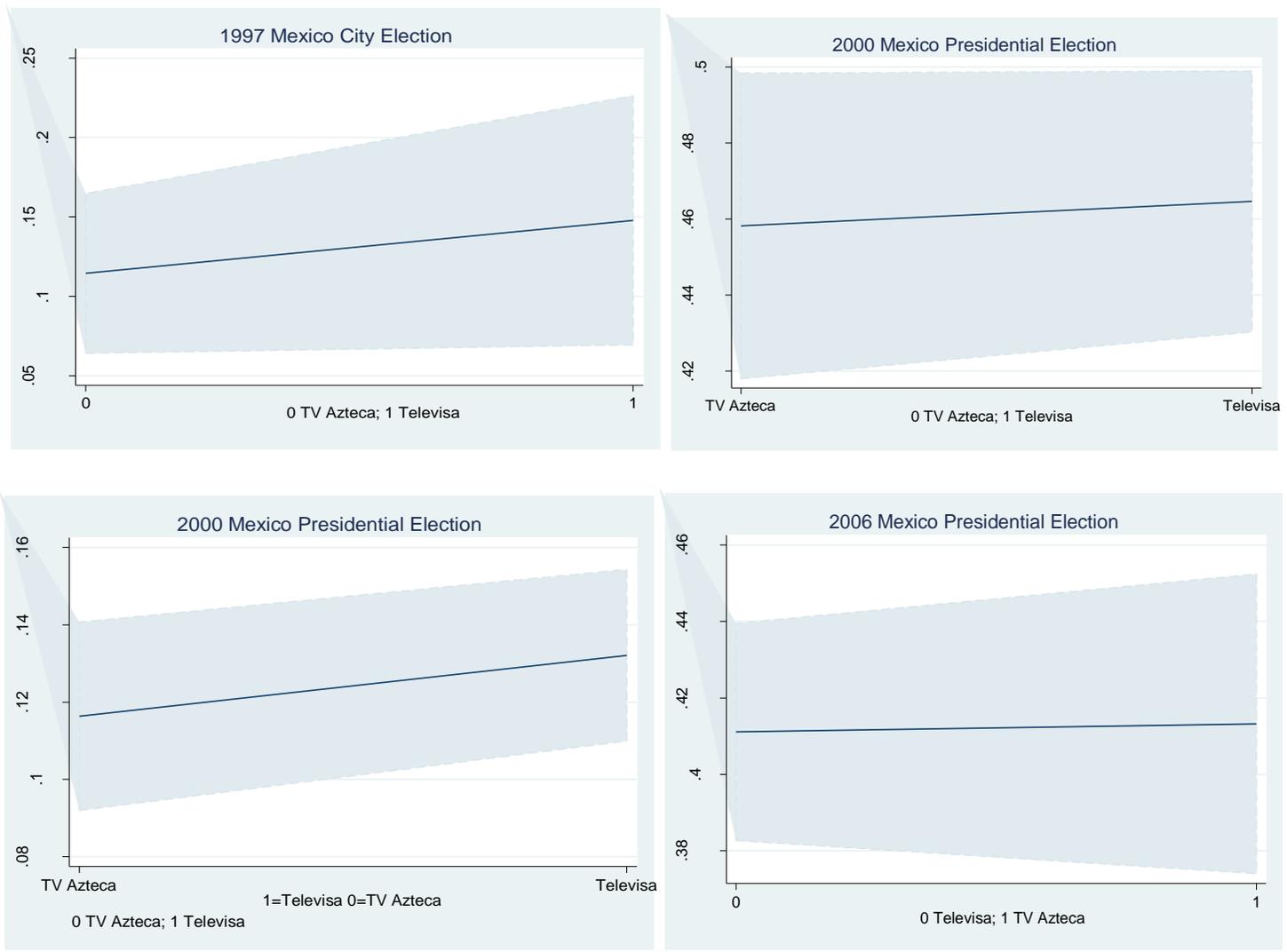


Figure 5.3. The Effect of the Media on Voter Choice in Mexico's Elections (1997-2012)

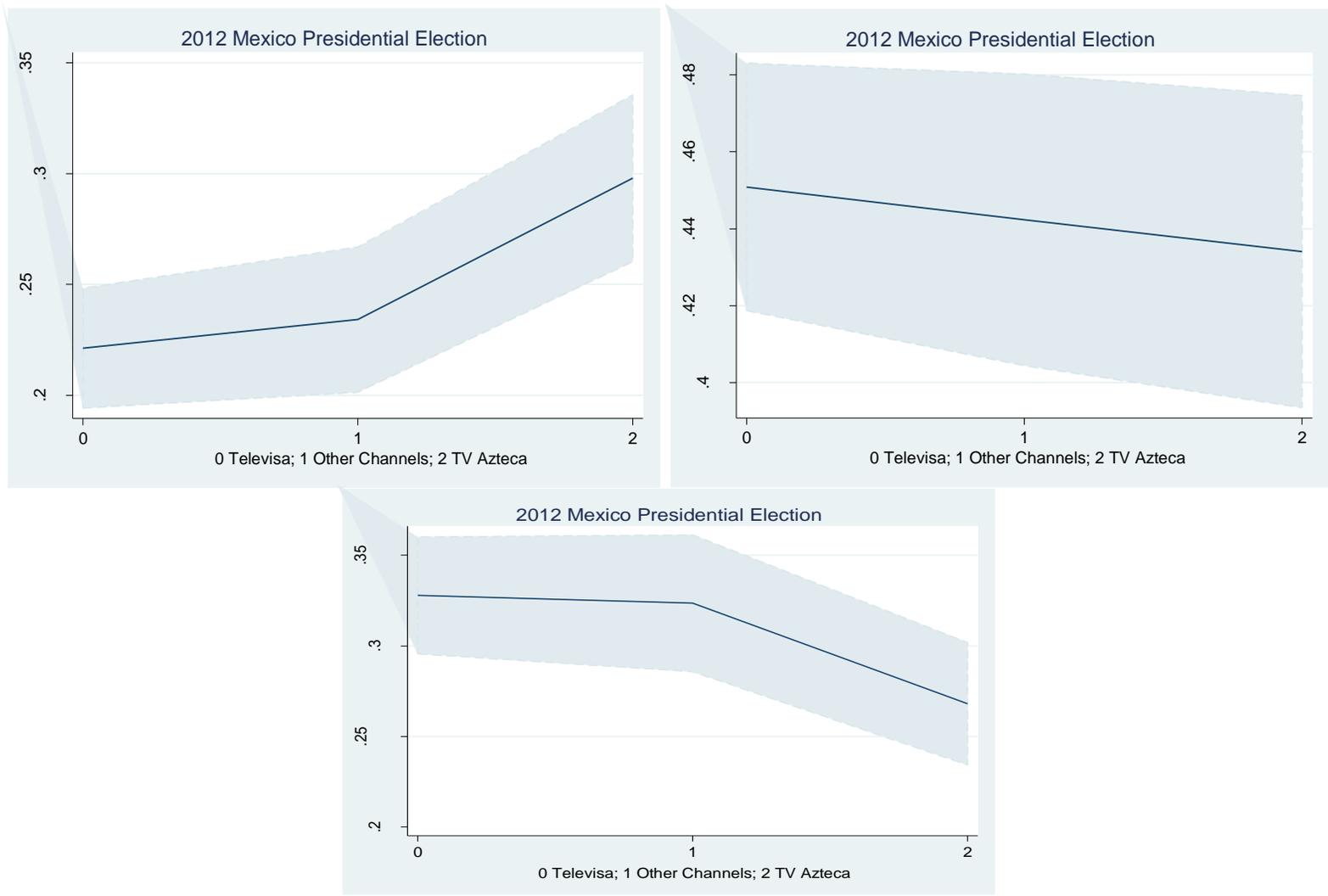


Figure 5.3. (continued) The Effect of the Media on Voter Choice in Mexico's Elections (1997-2012)

Table 5.5. The Breakdown of the Retrospective and Prospective National Economic Evaluation in Taiwan (1996-2012)

<b>Year</b>	<b>1996</b>		<b>2000</b>		<b>2004</b>		<b>2008</b>		<b>2012</b>	
	<b>Retrospective</b>	<b>Prospective</b>								
<b>Much Worse</b>	401(30.97%)	34(3.95%)	180(13.3%)	50(4.49%)	-	-	-	-	-	-
<b>Somewhat Worse</b>	465(35.91%)	122(14.19%)	668(48.72%)	338(30.37%)	607(34.89%)	362(25.07%)	1,218(66.67%)	585(38.29%)	777(43.82%)	459(30%)
<b>The Same</b>	294(22.7%)	289(33.6%)	327(23.85%)	411(36.93%)	670(38.51%)	687(47.58%)	553(30.27%)	563(36.85%)	684(38.58%)	738(48.24%)
<b>Somewhat better</b>	114(8.8%)	385(44.77%)	168(12.25%)	301(27.04%)	463(26.61%)	395(27.35%)	56(3.07%)	380(24.87%)	312(17.6%)	333(21.76%)
<b>Much Better</b>	21(1.62%)	30(3.49%)	28(2.04%)	13(1.17%)	-	-	-	-	-	-
<b>Total</b>	1,295(100%)	860(100%)	1,371(100%)	1,113(100%)	1,740(100%)	1,444(100%)	1,827(100%)	1,528(100%)	1,773(100%)	1,530(100%)

Note: In 2004 and 2008 survey data, there are only three choices in the economic evaluation: worse, the same, and better.

Table 5.6. The Ordered Logit Models of Retrospective Economic Evaluation in Taiwan Presidential Elections (1996-2012)

Year	1996		2000		2004		2008		2012	
Variables	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△
<b>Education</b>	-.12(.12)		.22(.06)***	.013(.004)	.21(.102)*	.104(.047)	.08(.09)		.11(.08)	
<b>Retro Pocketbook</b>	.17(.12)		-	-	1.46(.134)***	.552(.044)	1.11(.13)***	.08(.02)	1.21(.11)***	.34(.04)
<b>Pros Pocketbook</b>	1.42(.14)***	.20(.05)	-	-	-	-	.25(.08)**	.01(.003)	-.13(.08)	
<b>Media</b>	-.42(.19)*	-.01(.01)	-.02(.06)		.166(.147)		-.36(.16)*	-.01(.003)	.65(.15)***	.07(.02)
<b>Sophistication</b>	-.10(.14)		-	-	.044(.066)		.12(.07)#	.01(.004)	.01(.07)	
<b>Talk</b>	.08(.10)		-.23(.11)*	-.01(.003)	.169(.076)*	.095(.043)	-.14(.08)#	-.01(.005)	-.01(.07)	
<b>Party ID</b>	.05(.09)		-.10(.05)#	-.01(.003)	.520(.087)***	.195(.033)	-.48(.09)***	-.02(.005)	.64(.08)***	.15(.02)
<b>N of obs</b>	545		1,319		895		1,327		1,300	
<b>Log likelihood</b>	-607.45		-1706.31		-856.78		-873.59		-1168.612	
<b>LR chi2</b>	132.27		17.02		245.13		253.88		388.20	
<b>Prob</b>	.000		.0019		.000		.000		.000	
<b>Pseudo R2</b>	.0982		.005		.1251		.1269		.1424	

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001
2. △ Predicted probability and standard error (SE)
3. Questions about the retrospective/prospective pocketbook evaluations and political sophistication in 2000 were not asked.
4. Newspapers are used in lieu of TV station in 1996 and 2004.

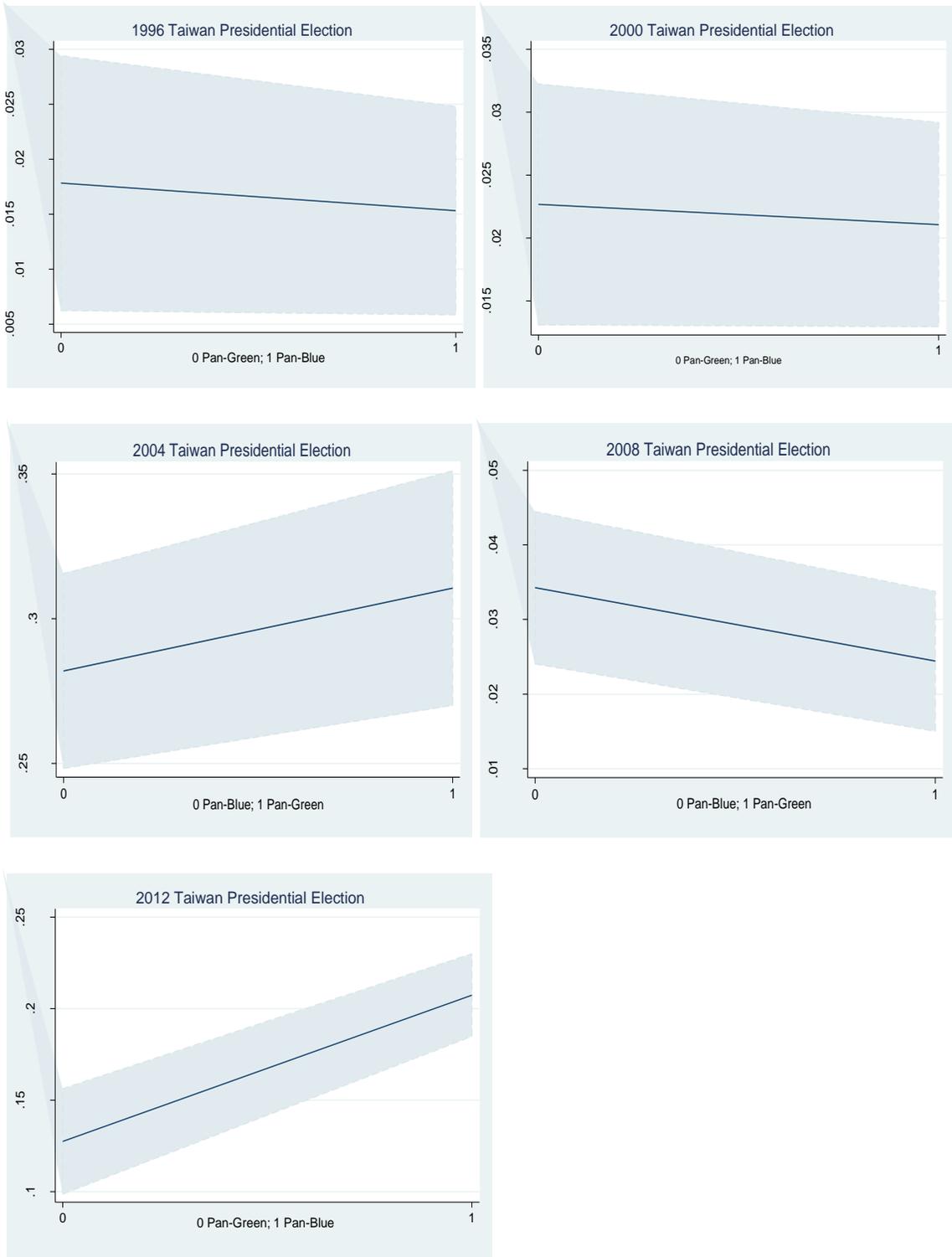


Figure 5.4. The Effect of the Media on Retrospective National Economic Evaluation in Taiwan Elections (1996-2012)

Table 5.7. The Ordered Logit Models of Prospective Economic Evaluation in Taiwan Presidential Elections (1996-2012)

Year	1996		2000		2004		2008		2012	
Variables	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△
<b>Education</b>	-.19(.10)#	-.01(.01)	.20(.07)**	.01(.003)	.123(.112)		.28(.09)**	.10(.03)	.05(.08)	
<b>Retro Pocketbook</b>	.90(.12)***	.08(.03)	-		1.126(.134)***	.419(.048)	.60(.11)***	.20(.04)	.88(.11)***	.29(.04)
<b>Pros Pocketbook</b>	.17(.12)		-		-		.57(.07)***	.15(.02)	-.26(.08)**	-.08(.02)
<b>Media</b>	-.16(.17)		-.02(.07)		.225(.158)		-.36(.15)*	-.05(.02)	.33(.15)*	.05(.02)
<b>Sophistication</b>	-.11(.12)		-		-.069(.071)		.06(.07)		-.09(.07)	
<b>Talk</b>	-.17(.09)#	-.01(.005)	-.08(.12)		.0413(.082)		-.001(.07)		-.10(.07)	
<b>Party ID</b>	.07(.08)		-.33(.06)***	-.01(.003)	.927(.097)***	.332(.033)	-1.06(.08)***	-.29(.02)	.63(.08)***	.18(.02)
<b>N of obs</b>	643		1,069		782		1,215		1,197	
<b>Log likelihood</b>	-797.58		-1339.13		-712.33		-1052.63		-1124.94	
<b>LR chi2</b>	86.88		43.88		245.89		524.68		265.06	
<b>Prob</b>	.000		.000		.000		.000		.000	
<b>Pseudo R2</b>	.0517		.016		.1472		.1995		.1054	

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1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001
2. △ Predicted probability and standard error (SE)
3. Questions about the pocketbook evaluation and political sophistication in 2000 were not asked

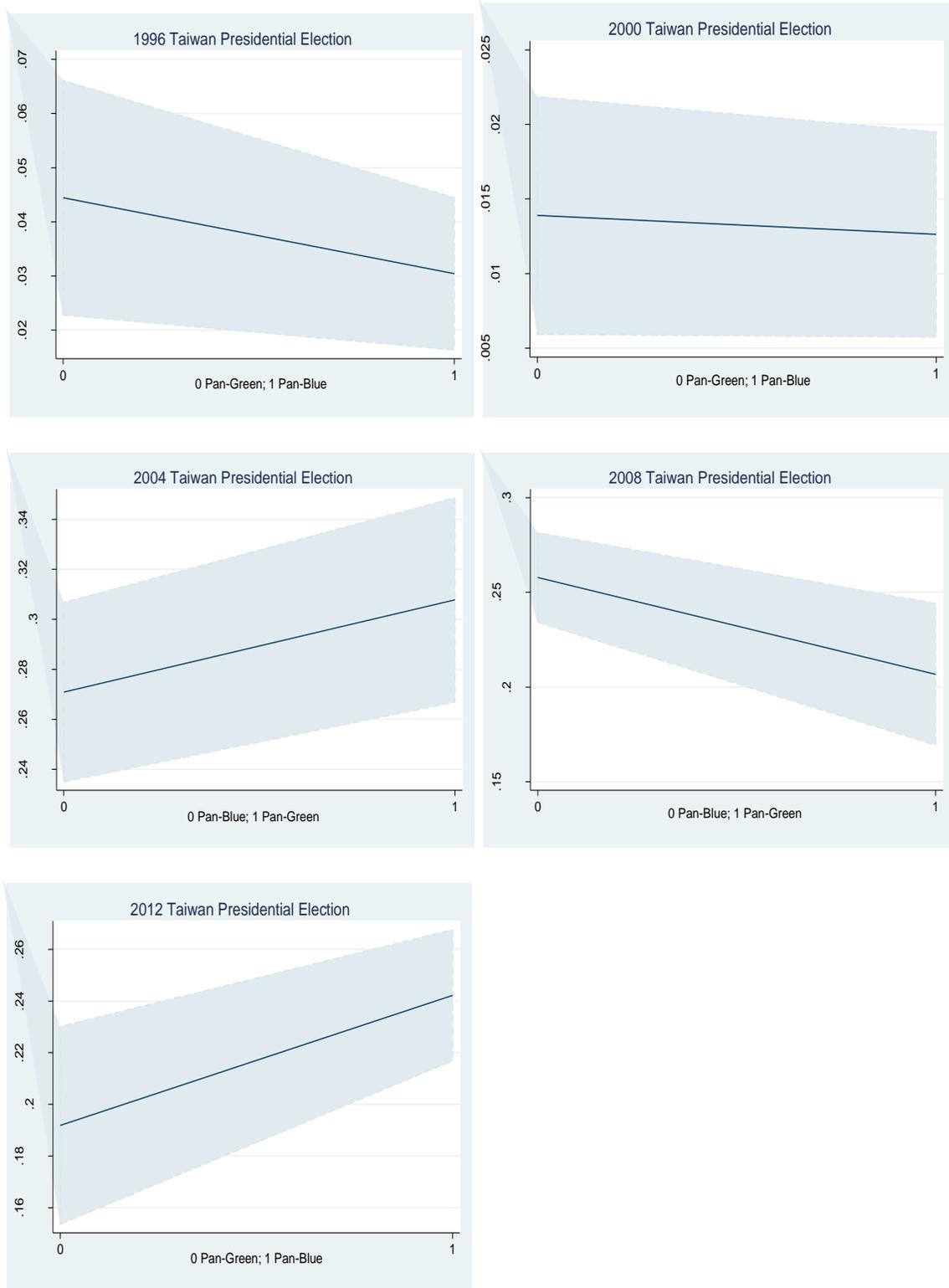


Figure 5.5. The Effect of the Media on Prospective National Economic Evaluation in Taiwan Elections (1996-2012)

Table 5.8. The Voter Choice in Taiwan Elections (1996-2012)

Year	1996 (Baseline: Lee)				2000 (Baseline: Lien)			
Variables	Lee/Peng	▲	Lee/Lin	▲	Lien/Soong	▲	Lien/Chen	▲
<b>Retro Pocketbook</b>	-.28(.29)		-.14(.28)		-		-	
<b>Pros Pocketbook</b>	.08(.30)		.37(.31)		-		-	
<b>Retrospective</b>	-.13(.26)		-.53(.22)*	-.08(.04)	-.24(.12)*	-.23(.10)	.03(.15)	
<b>Prospective</b>	-.31(.26)		-.45(.21)*	-.11(.07)	.22(.13)#	.01(.11)	.42(.15)**	.23(.10)
<b>Education</b>	.70(.29)*	.04(.02)	.76(.29)**	.07(.04)	.11(.14)		-.33(.16)*	-.25(.10)
<b>Sophistication</b>	.16(.36)		.14(.35)		-		-	
<b>Media</b>	-.70(.42)#	-.03(.02)	.25(.51)		-.87(.34)*	-.06(.06)	-1.09(.35)**	-.11(.06)
<b>Talk</b>	.05(.26)		-.04(.23)		-.22(.22)		.18(.27)	
<b>Party ID</b>	-2.07(.33)***	-.49(.08)	1.65(.31)***	.36(.07)	.55(.12)***	.74(.04)	-2.33(.22)***	-.90(.02)
<b>National Identity</b>	-.20(.10)*	-.07(.05)	.14(.09)		.33(.13)**	.34(.10)	-.08(.15)	
<b>Constant</b>	-2.31(.91)*		-6.68(1.15)***		.02(.51)		2.12(.54)***	
<b>N of obs</b>	395				788			
<b>Log Likelihood</b>	-288.71				-521.58			
<b>LR chi2</b>	284.83				615.11			
<b>Prob</b>	.000				.000			
<b>Pseudo R2</b>	.3303				.3709			

Table 5.8. (continued) The Voter Choice in the 2004, 2008, and 2012 Presidential Election

Year	2004 (Baseline: Lien)		2008 (Baseline: Ma)		2012 (Baseline: Tsai)	
	Coef.(SE)	△	Coef.(SE)	△	Coef.(SE)	△
<b>Retro Pocketbook</b>	-.16(.35)		-.38(.34)		.28(.33)	
<b>Pros Pocketbook</b>	-		.29(.19)		-.09(.21)	
<b>Retrospective</b>	.15(.27)		-.72(.34)*	-.16(.07)	.09(.26)	
<b>Prospective</b>	1.01(.31)**	.45(.12)	-.56(.25)*	-.17(.07)	.71(.26)**	.28(.10)
<b>Education</b>	-.56(.26)*	-.37(.15)	.25(.22)		-.09(.24)	
<b>Sophistication</b>	-.26(.18)		.007(.16)		-.27(.18)	
<b>Media</b>	.45(.36)		1.58(.31)***	.28(.06)	1.22(.34)***	.27(.08)
<b>Talk</b>	.04(.21)		.16(.20)		-.24(.20)	
<b>Party ID</b>	3.36(.31)***	.93(.02)	2.9(.23)***	.84(.03)	3.26(.24)***	.92(.02)
<b>National Identity</b>	-.19(.08)*	-.41(.17)	-.37(.07)***	-.52(.09)	.17(.08)*	.34(.14)
<b>Constant</b>	.83(.79)		-.10(.64)		-1.74(.73)*	
<b>N of obs</b>	609		944		932	
<b>Log Likelihood</b>	-113.79		-162.13		-155.92	
<b>LR chi2</b>	616.63		934.53		943.61	
<b>Prob</b>	.000		.000		.000	

1. #p ≤ .10 \* ≤ .05 \*\* ≤ .01 \*\*\* ≤ .001

2. △ Predicted probability and standard error (SE)

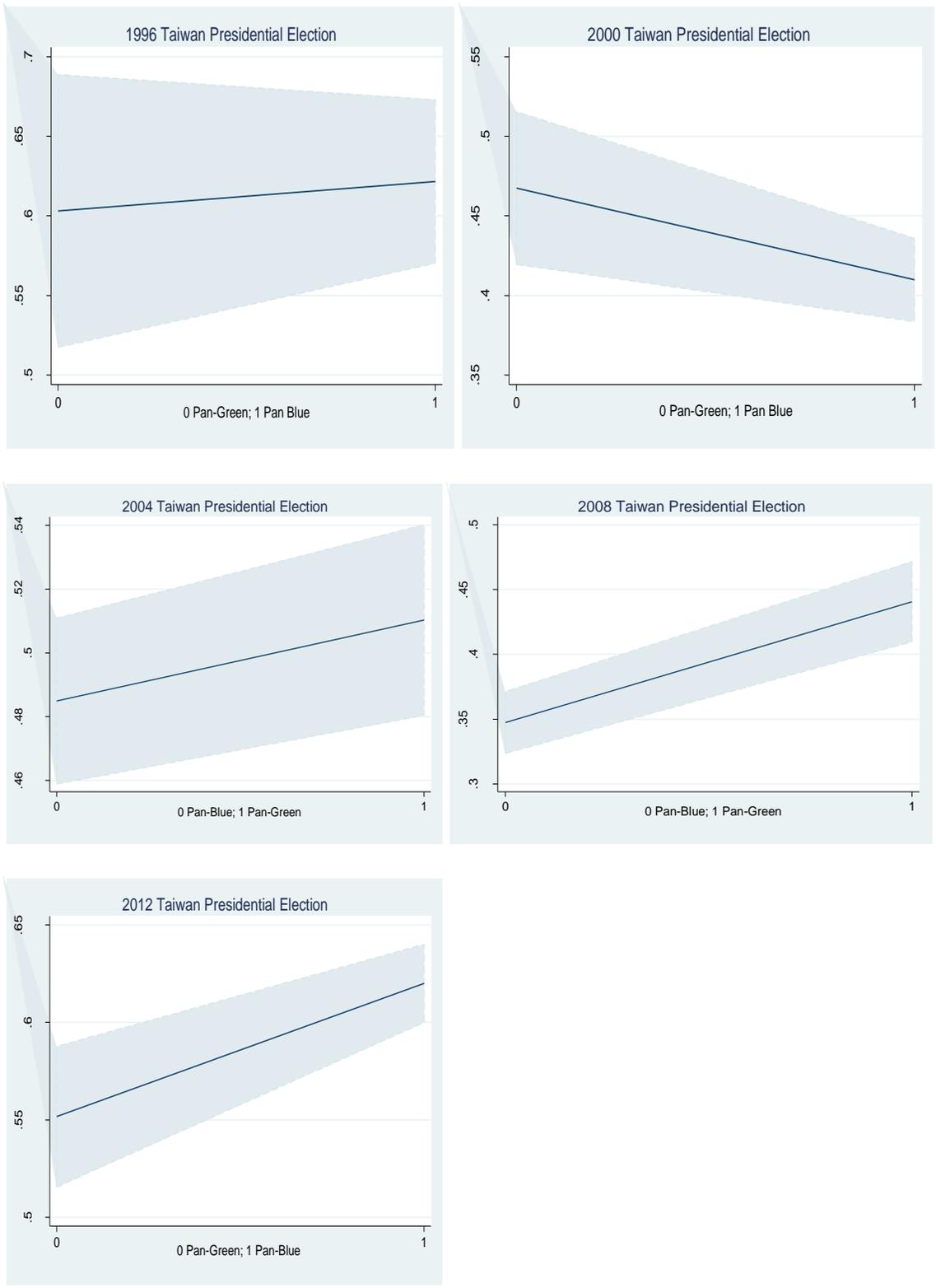


Figure 5.6. The Effect of the Media on Voter Choice in Taiwan Elections (1996-2012)

## CHAPTER 6

### CONCLUSION

This research explores the effect of information sources (media consumption and talking about politics with others) on people's retrospective and prospective national economic evaluations and their subsequent voter choice in comparative perspective by using multilevel models. It substantiates whether level of democracy and level of economic development can influence economic voting. The purpose of this research is to establish a general rule on economic voting in comparative perspective. In this chapter I summarize the findings of the previous chapters and offers a substantive interpretation of the major contribution of this research. The chapter also analyzes the limitations of the research and provides suggestions for further work. First, I outline the major findings of the research from both cross-national analyses using multilevel models and the comparative case study of Mexico and Taiwan. Second, I analyze the limitations of the research, such as the measurement of media consumption in both cross-national analysis and comparative case study, the problem of endogeneity, missing data, and survey data of state level. Finally, I present a research plan future work in this area, including suggestions for improving models.

#### 6.1 MAJOR FINDINGS OF THIS RESEARCH

Fundamentally, this research explores whether there is a nomothetic explanation on economic voting. The effect of information

sources (especially the media) and the significance of economic voting is controversial and varied across countries. By using multilevel modeling, a general explanation of economic voting in comparative perspective can be established. The multilevel modeling accounts for the differences across countries. The goal is to verify whether level of democracy and level of economic development can explain the variation across countries. In other words, I wonder whether level of democracy and level of economic development can account for economic voting in comparative perspective. The comparative case study of Mexico and Taiwan substantiates the findings in cross-national analyses. The major findings are as follows.

#### 6.1.1 Effect of Information Sources on Economic Voting in Comparative Perspective

Chapter 2 analyzes the effect of information sources on retrospective national economic evaluation by using multilevel ordered logit models. The single-level ordered logit models for each country show that media effect and talking about politics do not necessarily affect retrospective national economic evaluation. It is difficult to derive a general explanation of the effect of information sources on retrospective national economic evaluation if only ordered logit model are estimated. Although the multilevel models indicate that level of democracy and level of economic development do not explain much between-country variance on retrospective national economic evaluation, the subset of polity score and GDP per capita dummies show that consolidated democracies (polity score: 10) and countries with middle income (GDP per capita: \$1,000~9,999 USD) have the strongest impact on retrospective national economic evaluation.

Chapter 3 explores the effect of information sources on prospective national economic evaluation. The findings are basically the same as those for the retrospective national economic evaluation: the single-level ordered logit models for each country show that media effect and talking about politics with others do not necessarily influence prospective national economic evaluation. Level of democracy and level of economic development do not explain much between-country variance on prospective national economic evaluation. The subset of polity score and GDP per capita dummies indicates that consolidated democracies and countries with middle income have the strongest impact on prospective national economic evaluation.

Chapter 4 analyzes the effect of information sources on voter choice. The logit models for each country indicate that media effect and talking about politics with others do not affect voter choice in most Latin American countries. In contrast to the findings on retrospective and prospective national economic evaluations, level of democracy and level of economic development do not influence voter choice. The subset of polity score and GDP per capita dummies shows the same results. Therefore, level of the democracy and level of economic development do not exert influence on voter choice.

#### 6.1.2 Findings in the Comparative Case Study

Chapter 5 presents a comparative case study of Mexico and Taiwan, which is used to substantiate the findings in the cross-national analyses. Both countries experienced one dominant party system before 2000 and at least two changes of party in government and in opposition. In Taiwan, the media influenced both retrospective and prospective national economic evaluations in 2008 and 2012, when the media and political systems were much more open and free than before; however, the media affected neither

retrospective nor prospective national economic evaluation in Mexico. For voter choice, the media influenced voter choice in 2000, 2008, and 2012 in Taiwan; in Mexico, the media affected voter choice in 2000 and 2012. Compared with Mexico, whose polity score since 2000 is 8, Taiwan has a higher level of democracy (with a polity score of 10 after 2005), and the media has a stronger effect on national economic evaluations. The Taiwan case substantiates the idea that countries with full democracy (or consolidated democracy) have a stronger effect on national economic evaluations than those with lower levels of democracy; however, the case of Mexico does not conform to the finding in cross-national analysis that countries with middle income have the strongest effect on national economic evaluation.

#### 6.1.3 Major Contributions to the information sources on Economic Voting

From the cross-national analysis, it is evident that more media consumption can lead people to negatively evaluate national economic condition in the past and in the future. Also, pocketbook evaluation is highly correlated with sociotropic evaluation. Talking about politics with others leads to positive national economic evaluations. For voter choice, sociotropic evaluation is highly associated with voter choice. However, neither does media consumption nor talking about politics with others affect voter choice. In other words, the media consumption can influence national economic evaluations but not voter choice in comparative perspective. In my in-depth interviews in Taiwan in 2015, I interviewed a scholar whose expertise is political communication. The scholar mentioned that the media can affect people's national economic evaluation, but it does not necessarily affect voter choice (Interviewee A in Appendix L). My finding corroborates to what the scholar alleges in my in-depth interview.

The multilevel models help to derive that level of democracy and level of economic development can account for the variation on both retrospective and prospective national economic evaluations. Consolidated democracies (polity score: 10) and countries with middle level income (GDP per capita: \$1,000~\$9,999) have the strongest impact on both retrospective and prospective national economic evaluations. In contrast, level of democracy and level of economic development do not affect on voter choice. The Taiwan case substantiates that media consumption has a stronger influence on national economic evaluations in countries with consolidated democracy. Given that a general explanation about the effect of information sources on national economic evaluations does not exist, this research offers a nomothetic rule of the effect of information sources on national economic evaluations in comparative perspective.

## 6.2 LIMITATIONS OF THIS RESEARCH

There are limitations in this research, including the measurement of media consumption in both cross-national analyses and comparative case study, the problem of endogeneity in the models, missing values, and survey data of state level. They are delineated as follows, and suggestions for solutions are provided.

### 6.2.1 Measurement of Media Consumption

The measurement of media consumption in cross-national analyses uses the frequency of respondents' television consumption. Although Hetherington (1996) claims that more television consumption can lead to a more negative national economic evaluation, his assumption was based on negative coverage of economic news in George H. W. Bush's U.S. presidential administration. Because more media consumption is more likely to result in negative national economic evaluation in most countries according to

cross-national analyses, it is not appropriate to directly claim that there is more negative coverage of economic news unless the content analysis can be done to confirm it. In addition, in two or three countries, more media consumption leads to positive national economic evaluation. Therefore, it is somewhat difficult to explain why more media consumption can contribute to either positive or negative national economic evaluation since the amount of positive or negative of economic news coverage is unknown in each country.

In order to overcome this problem, I use a different measurement in the comparative case study. The variable asked respondents which television news channels or programs they usually watched, and the television news channels are categorized into two categories: pro-ruling-party channels and pro-opposition-party channels. The result shows that the choice of TV news channels is highly associated with voter choice (Lo, 2013). However, Lawson et al. (2000), in the 2000 Panel Study project, mentioned that this kind of media measurement in the cross-sectional data is suspicious because viewers may self-select according to their preexisting partisan bias. For example, people who feel close to the KMT may choose to watch pro-blue camp channels in Taiwan. The panel data measures not only people's choice of media and their vote choice when they have preexisting partisan bias but also people's change of voter choice throughout the campaign depending on choice of media. Although panel data is available in the Mexico case, panel data that interviews the same respondents before and immediately after a particular election is not available in the Taiwan case. I hope this kind of panel data will be available in Taiwan's Election and Democratization Study (TEDS), at which time the media effect can be more appropriately measured.

### 6.2.2 Problem of Endogeneity

As mentioned in the comparative case study of Taiwan case, there is a problem of endogeneity between retrospective national economic evaluation and voter choice. Except 1996 and 2012, in which the surveys were conducted before the new president assumed the presidency on May 20, all other surveys were executed after the new president's inauguration. There is more of an endogeneity problem if the survey is not conducted immediately after the election, especially after the newly elected president assumes the presidency, because voters have different answers depending on whether their favorite candidate was elected (Wu and Lin, 2012). Fortunately, the presidential election survey in TEDS have been conducted right after the election since 2012.

### 6.2.3 Missing Data

There are lots of missing values in Global Barometer and Latino Barometro. Missing values not only exist in national surveys in developing countries but also in developed countries. That is the main reason why some East Asian countries are dropped automatically in multilevel models. To handle the missing data in the future, multiple imputation can be done to result in a valid statistical inference and heighten statistical significance (Rubin, 1987, 1996; Lawson and MacCann, 2000).

### 6.2.4 Survey Data of State Level

Given that the survey data of 1997 Congressional election in Mexico is difficult to obtain, this research uses 1997 Mexico City Panel data in lieu of national election. Although the result shows that the information sources do not affect economic voting in 1997, the election may not be comparable with national elections in 2000, 2006, and 2012 for two reasons. First, the party strength in Mexico City is different from those in other

areas. The strongest parties in Mexico City were PRD and PRI, and the PRD-PRI competition was significant in 1997 (Klesner, 2004). Also, Cardenas won the mayoral election and it was the first time that the mayor was not from the ruling PRI. Given that PAN-PRI competition centers on the north and the center-west, and the PRD-PRI competition focuses on the south, using the state level analysis to derive the general explanation of economic in Mexico may not be appropriate. Second, national economic evaluation may not be associated with voter choice in Mexico City election. Voters may not attribute the national economic condition to incumbent PRI in state level elections such as Mexico City mayoral election since they are more likely to attribute national economic condition to the incumbent in national elections. In other words, they may still vote for the PRI candidate in mayor election even though they think national economy is in bad shape. In order to produce a more convincing result, the national election survey data is preferred if it is available.

### 6.3 RESEARCH PLAN FOR THE EXTENSION OF THIS RESEARCH

Suggestions for the extension of this research include measurement of the national level variables, in-depth interviews, and measurement of the media.

In cross-national analyses, most random coefficient models only allow one variable to vary across nations. Although there are random coefficient models that allow both polity score and GDP per capita vary, random coefficient models with correlated variance should be done in the future to determine which model is more appropriate. In addition, this research contends that consolidated democracies and countries with middle income can impact national economic evaluations. Is this effect still significant in countries with both full democracy and middle income (e.g., Mongolia, Costa Rica,

Uruguay, and Cape Verde)? What is the effect in countries with high economic development but low democracy (e.g., Singapore, Kuwait) or countries with high democracy but low level of economic development, such as India? According to the random intercept models in Chapter 2, 3, and 4, there is between-country variance in the national economic evaluations and voter choice. However, polity score and GDP per capita cannot account for much between-country variance. Probably there are some other national variables which can better explain between-country variance on national economic evaluation and voter choice. How about the effect of other national level variables on economic voting such as political contexts and unemployment rate which can impact economic voting (Chang and Chang, 2006)? Although this research discovers that consolidated democracy can impose stronger influence on national economic evaluations, this research does not examine further whether the effect is the same in new democracies and old democracies. Are there any differences of the effect in new democracies and in old democracies? These questions deserve further exploration.

Second, the comparative case study is important for exploring the casual relationship between the effects of information sources on economic voting. Although this research discovers that consolidated democracies and countries with middle income have the strongest effect on the effect of information sources on economic voting, the casual mechanism between information sources and economic voting is still vague. In-depth interviews can help explore the reasons why this is so. In-depth interviews in Taiwan have been done, and in the future in-depth interviews in Mexico should also be done in order to obtain a more significant comparative case study (Please refer to

Appendix L and M for designation of interviewees in Taiwan and questions for in-depth interviews).

In terms of the measurement of media consumption, content analysis should be done to explore the media effect in width and in depth. In addition to traditional media, social media now plays an important role in modern campaigns. How does social media influence economic voting? Which kind of media (traditional or social) is more important? It is essential to take both traditional media and social media into consideration in an extension of this project.

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LEMMA (Learning Environment for Multilevel Methodology and Applications)  
multilevel modeling on line course, Centre for Multilevel Modelling, University  
of Bristol: <<http://www.bristol.ac.uk/cmm/>>

## APPENDIX A: QUESTIONS OF GLOBAL BAROMETER

### 1. Retrospective National Economic Evaluation

(1) Latino Barometro (LB): Do you consider the current economic situation of the country to be much better, a little better, about the same, a little worse or much worse than 12 months ago?

(2) Afro Barometer (AFRO): How do economic conditions in (country) now compare to one year ago? Are they much worse, worse, about the same, better, much better?

(3) Asian Barometer (Asia): How would you describe the change in the economic condition of our country over the past five years? Much better, a little better, about the same, a little worse, much worse?

(4) Arab Barometer (Arab): As compared to a few years ago, would you say the economic condition of [county name] has become much better, better, stayed the same, become worse, or much worse?

Answer: 1 Very bad; 2 Bad; 3 So so (not good nor bad); 4 Good; 5 Very good

### 2. Prospective National Economic Evaluation

(1) LB: And in the next 12 months do you think that, in general, the economic situation of your country will be much better, a little better, about the same, a little worse or much worse compared to the way it is now?

(2) AFRO: What about in twelve month time? Do you expect economic conditions in (country) to be worse, the same, or better than they are now?

(3) Asia: What do you think will be the state of our country's economic condition five years from now? Much better, a little better, about the same, a little worse, much worse.

(4) Arab: Thinking about the next few years, do you think the economic condition of the country will become much better, better, remain the same, become worse, or much worse?

Answer: 1 Much worse; 2 A little worse; 3 About the same; 4 A little better; 5 Much better

### 3. Retrospective Pocketbook Evaluation

(1) LB: Do you consider your economic situation and that of your family to be much better, a little better, about the same, a little worse or much worse than 12 months ago?

(2) AFRO: When you look at your life today, how satisfied do you feel compared with five years ago? Much less satisfied, slightly less satisfied, about the same, slightly more satisfied, much more satisfied?

(3) Asia: How would you compare the current economic condition of your family with what it was five years ago? Much better, a little better, about the same, a little worse, much worse?

(4) Arab: As compared to a few years ago, how is the economic condition of your household today? Would you say it has become much better, better, remained the same, become worse, or much worse?

Answer: 1 Much worse now; 2 A little worse now; 3 About the same; 4 A little better now; 5 Much better now

#### 4. Prospective Pocketbook Evaluation

- (1) LB: And in the next 12 months, do you think that your economic situation and that of your family will be much better, a little better, about the same, a little worse or much worse compared to the way it is now?
- (2) AFRO: When you look forward at your life's prospects, how satisfied do you expect to be in one year's time? Much less satisfied, slightly less satisfied, about the same, slightly more satisfied, much more satisfied?
- (3) Asia: What do you think the economic situation of your family will be five years from now? Much better, a little better, about the same, a little worse, much worse?
- (4) Arab: What do you think will be the economic condition of your household in the coming few years? Would you say it will become much better, better, remain the same, become worse, or much worse?

Answer: 1 Much worse now; 2 A little worse now; 3 About the same; 4 A little better now; 5 Much better now

#### 5. Media Consumption

- (1) LB: How many days during the last week did you watch the news on television?
- (2) AFRO: How often do you get news from television? Every day, a few times a week, a few times a month, less than once a month, never.
- (3) Asia: How often do you watch news about politics on television? Many times a day, once a day, several times a week, once or twice a week, not even once a week, practically never.

(4) Arab: How often do you watch news on TV? More than once a day, once a day, on most days, once in a while, never.

Answer: 1 Daily; 2 Frequently; 3 Occasionally; 4 Rarely/Never

## 6. Talk about Politics

(1) LB: How frequently do you talk politics with friends? Very frequently, fairly frequently, occasionally or never.

(2) AFRO: When you get together with your friends, would you say you discuss political matters? Frequently, occasionally, never.

(3) Asia: How often do you discuss politics in [organization or group]? Is it very often, often, sometimes, rarely, never?

(4) Arab: How often do you discuss politics with your friends and colleagues? Very often, often, not so often, never.

Answer: 1 Frequently; 2 Occasionally; 3 Never

## 7. Political Interests

(1) LB: How interested are you in politics? Very interested, fairly interested, a little interested, not at all interested.

(2) AFRO: How interested are you in politics and government? Not interested, somewhat interested, very interested.

(3) Asia: How interested would you say are in politics? Very interested, somewhat interested, not very interested, not at all interested.

Answer: 1 Not at all interested; 2 Not very interested; 3 Somewhat interested; 4 Very interested

8. Level of Education

What is your highest level of education?

Answer: 1 Illiterate; 2 Incomplete primary; 3 Complete primary; 4 Incomplete secondary; 5 Complete secondary; 6 Incomplete high school; 7 Complete high school; 8 Other

## APPENDIX B: QUESTIONS OF LATINO BAROMETRO

### 1. Retrospective National Economic Evaluation

Do you consider the country's present economic condition to be better, a little better, the same, a little worse or much worse than 12 months ago?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 2. Prospective National Economic Evaluation

And in the next 12 months do you think that, in general, the economic situation of your country will be much better, a little better, the same, a little worse or much worse than now?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 3. Retrospective Pocketbook Evaluation

Do you consider your economic situation and that of your family to be much better, a little better, about the same, a little worse or much worse than 12 months ago?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 4. Prospective Pocketbook Evaluation

In the next 12 months, do you think your economic situation and that of your family will be much better, a little better, about the same, a little worse or much worse than now?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

5. Political Interests

How interested are you in politics?

Answer: 1 Very interested; 2 Some interested; 3 Few interested; 4 Not at all interested

6. Level of Education

What is your highest level of education?

Answer: 1 Illiterate; 2 Incomplete primary; 3 Complete primary; 4 Incomplete secondary; 5 Complete secondary; 6 Incomplete high school; 7 Complete high school

7. Voter Choice

If elections were held this Sunday, which party would you vote for?

Answer: 1 the incumbent party; 2 the opposition party

8. Party Identification

Which political party do you feel closest to?

Answer: 1 the incumbent party; 2 the opposition party

(Note: This question was asked only if the answer of the preceding question is yes.

The preceding question is “Is there any political party to which you feel closer to than the rest of the parties? Answer: 1 Yes; 2 No”)

9. How do you inform yourself about politics?

A With the family 1 Mention; 2 Not mention

B Friends 1 Mention 2 Not mention

C People I work with 1 Mention 2 Not mention

D People I study with 1 Mention 2 Not mention

(Note: The four alternatives are recoded as dummy variables and then added together to produce an ordinal variable of talking about politics. 0 = never; 1=occasionally; 2=fairly frequently; 3 Very frequently)

#### 10. Media Consumption

How many days in the last week you look political news on TV?

Answer: \_\_\_\_\_ (number of days)

## APPENDIX C: QUESTIONS OF 1997 MEXICO PANEL STUDY

### 1. Retrospective Pocketbook Evaluation

In the last two years, would you say that your personal financial situation has gotten better, gotten worse, or stayed the same?

Answer: 1 Much better; 2 Somewhat better; 3 Somewhat worse; 4 Much worse; 5 The same

### 2. Prospective Pocketbook Evaluation

Thinking about the next 12 months, do you think your personal economic situation will get better, get worse, or stay the same?

Answer: 1 Better; 2 Worse; 3 The same

### 3. Retrospective National Economic Evaluation

In the last two years, would you say that the economic situation in the country has improved, worsened, or remained the same?

Answer: 1 Much better; 2 Somewhat better; 3 Somewhat worse; 4 Much worse; 5 The same

### 4. Prospective National Economic Evaluation

Thinking about the next 12 months, do you think the country's economy will get better, get worse, or stay the same?

Answer: 1 Better; 2 Worse; 3 The same

### 5. Media Consumption

Which TV program do you usually watch on television?

Answer: 1 Televisa (Noticiario, Guillermo Ortega, Primero Noticias, L. Doriga, Abraham Zabudovsky, Hoy, Lolita Ayala, and Notivisa); 2 Azteca (HechosAM, HechoTarde, HechosNoche, Javier Alatorre, Las siete del 7)

(Note: I categorized the variable into two categories only)

#### 6. Talk about Politics

A. How often do you talk about politics with family?

B. How often do you talk about politics with friends?

Answer: 1 Daily; 2 A few times a week; 3 Once a week; 4 Once a month; 5 Less than once a month

(Note: I added the two variables – talking with family and talking with friends together to produce a new variable of talking about politics)

#### 7. Ideology

In politics, people talk about “Left” and “Right. On a scale of 0 to 6, where 0 is “left” and 6 is “right”, where would you place yourself?

Answer: \_\_\_\_\_ (0:the leftest~6: the rightest)

#### 8. Level of Education

Until what grade in school did you study?

Answer: 1 None; 2 Primary; 3 Secondary/Tertiary; 4 High school; 5 University or more

#### 9. Party Identification

A. Did you vote for PRI for Congress?

B. Did you vote for PAN for Congress?

C. Did you vote for PRD for Congress?

Answer: 1 Yes; 2 No

(Note: There is no question of party identification in the study therefore I choose vote choice for Congress in lieu of party identification.)

#### 10. Voter Choice

Who did you for the mayor of Mexico City in July?

Answer: 1 Carlos Castillo Peraza (PAN); 2 Cuauhtemoc Cardenas (PRD); 3 Alfredo del Mazo Gonzalez (PRI); 4 Other/non-voter

## APPENDIX D: QUESTIONS OF 2000 MEXICO PANEL STUDY

### 1. Retrospective Pocketbook Evaluation

In the last 12 months, would you say that your personal financial situation has gotten better, gotten worse, or stayed the same?

Answer: 1 Much better; 2 Somewhat better; 3 The same; 4 Somewhat worse; 5 Much worse

### 2. Retrospective National Economic Evaluation

In the last 12 years, would you say that the national economy has gotten better, gotten worse, or stayed the same?

Answer: 1 Much better; 2 Somewhat better; 3 Somewhat worse; 4 Much worse; 5 The same

### 3. Media Consumption

Do you watch any news program on television?

Answer: 1 Televisa (Noticiario, Guillermo Ortega, Primero Noticias, L. Doriga, Abraham Zabudovsky, Hoy, Lolita Ayala, and Notivisa); 2 Azteca (HechosAM, HechoTarde, HechosNoche, Javier Alatorre, Las siete del 7)

(Note: I categorized the variable into two categories only)

### 4. Talk about Politics

How often do you talk about politics with other people: every day, a few times a week, a few times a month, rarely, or never?

Answer: 1 Every day; 2 A few times per week; 3 A few times per month; 4 Rarely;  
5 Never

5. Ideology

In politics, people talk about “Left” and “Right. On a scale of 0 to 10, where 0 is “left” and 10 is “right”, where would you place yourself?

Answer: \_\_\_\_\_ (0:the leftest~10: the rightest)

6. Level of Education

Until what grade in school did you study?

Answer: 1 No formal education; 2 Primary; 3 Secondary/vocation/equivalent; 4 High school/equivalent; 5 College or more

7. Political Sophistication

A. Could you tell me the names of the three branches of government, or do you not recall right now? (Do not read)

a. Executive Answer: 1 Mentioned; 2 Not mentioned

b. Legislative Answer: 1 Mentioned; 2 Not mentioned

c. Judicial Answer: 1 Mentioned; 2 Not mentioned

B. Could you tell me how many members there are in the Chamber of Deputies, or do you not recall right now?

Answer: \_\_\_\_\_ (500 is the correct answer and all other answers are wrong; 1 correct 0 wrong)

(Note: Factor analysis of the four questions were done and the first factor score was taken for analysis)

8. Party Identification

With which party do you most identify? (Do not read)

Answer: 1 PRI; 2 PAN; 3 PRD; 4 Other; 5 None; 9 DK/DA

(Note: I generate three dummy variables for each party accordingly)

9. Voter Choice

Did you vote in the elections on the 2<sup>nd</sup> of July? (If “No”, go to question 17.) If yes, could you mark on this piece of paper who you voted for in the elections for President? (Hand Ballot and Box)

Answer: 1 Francisco Labastida; 2 Vicente Fox; 3 Cuauhtemoc Cardenas; 4 Manuel Camacho; 5 Porfirio Munoz Ledo; 6 Gilberto Rincon Gallardo; 7 Annulled; 8 Did not vote; 9 DK/DA

(Note: Choices of 4 to 6 are included together with Cardenas)

## APPENDIX E: QUESTIONS OF 2006 MEXICO PANEL STUDY

### 1. Retrospective Pocketbook Evaluation

Since Fox became president, would you say your personal economic situation has gotten better, has gotten worse, or stayed the same?

Answer: 1 A lot better; 2 A little better; 3 Stayed the same; 4 A little worse; 5 A lot worse

### 2. Prospective Pocketbook Evaluation

Thinking of the next 12 months, do you think your personal economic situation will get better, get worse, or stay the same?

Answer: 1 A lot better; 2 A little better; 3 Stayed the same; 4 A little worse; 5 A lot worse

### 3. Retrospective National Economic Evaluation

Since Fox became president, would you say the national economy has gotten better, has gotten worse, or stayed the same?

Answer: 1 A lot better; 2 A little better; 3 Stayed the same; 4 A little worse; 5 A lot worse

### 4. Prospective National Economic Evaluation

Thinking of the next 12 months, do you think the national economy will get better, get worse, or stay the same?

Answer: 1 A lot better; 2 A little better; 3 Stayed the same; 4 A little worse; 5 A lot worse

## 5. Media Consumption

Do you normally watch any news program on TV? (Yes) Which one?

Answer: 1 Televisa (Noticiero, Guillermo Ortega, Primero Noticias, L. Doriga, Abraham Zabłudovsky, Hoy, Lolita Ayala, and Notivisa); 2 Azteca (HechosAM, HechoTarde, HechosNoche, Javier Alatorre, Las siete del 7)

(Note: This is an open-ended question. I categorized all answers into two categories only)

## 6. Talk about Politics

How often do you talk about politics with other people?

Answer: 1 Daily; 2 A few days a week; 3 A few days a month; 4 Rarely; 5 Never

## 7. Ideology

In politics, would you consider yourself on the left, on the right, or in the center?

Answer: 1 Very on the left; 2 Somewhat on the left; 3 Center-left; 4 Center-center; 5 Center-right; 6 Somewhat on the right; 7 Very on the right; 8 None; 9 DK/NA

## 8. Level of Education

Level of education achieved.

Answer: 1 Has no schooling; 2 Incomplete elementary; 3 Complete elementary; 4 Incomplete middle/technical; 5 Complete middle/technical; 6 Incomplete high; 7 Complete high; 8 Incomplete college; 9 Complete college or more

## 9. Political Sophistication

Could you tell me the names of the three branches of government, or you do not remember right now?

A. Executive Branch/president Answer: 1 Mentioned; 2 Not mentioned

B. Legislative Branch/ Congress Answer: 1 Mentioned; 2 Not mentioned

C. Judicial Branch/Courts Answer: 1 Mentioned; 2 Not mentioned

(Note: Factor analysis of the four questions were done and the first factor score was taken for analysis)

#### 10. Party Identification

In general, would you say you identify with the PAN, the PRI or the PRD? Would you say you identify strongly with the (...) or only somewhat with the (...)?

Answer: 1 Strong PAN; 2 Weak PAN; 3 Strong PRI; 4 Weak PRI; 5 Strong PRD; 6 Weak PRD; 7 Other; 8 None; 9 DK/NA

(Note: Strong and weak partisan for each party are recoded as the same category to produce three dummy variables for each party accordingly)

#### 11. Voter Choice

There were presidential elections this past July 2<sup>nd</sup>. As you know, some people do not have time to vote, or are not interested. Did you or did you not vote in the elections this past July 2<sup>nd</sup>?

Answer: 1 Did vote; 2 Did not vote; 3 DK/NA/Does not remember (If 1 is chosen, continue to ask voter choice; skip to other questions if 2 and 3 are chosen)

11a. For the purposes of this survey, I will give you a sheet where you can mark how you voted on the last presidential elections, without my seeing you, and then deposit in in this bag. For whom did you vote for president?

Answer: 1 Felipe Calderon/PAN; 2 Roberto Madrazo/PRI; 3 Andres Manuel Lopez Obrador/PRD; 4 Roberto Campa/NA; 5 Patricia Mercado/ASDC; 6 Other; 7 DK/NA

## APPENDIX F: QUESTIONS OF 2012 MEXICO PANEL STUDY

### 1. Retrospective Pocketbook Evaluation

In the last year, would you say that your personal economic situation has improved, worsened, or remained the same?

Answer: 1 Improved a lot; 2 Improved somewhat; 3 Same; 4 Worsened somewhat; 5 Worsened a lot

### 2. Prospective Pocketbook Evaluation

Thinking about the next 12 months, do you think your personal economic situation will get better, get worse, or stay the same?

Answer: 1 A lot better; 2 Somewhat better; 3 Stay the same; 4 Somewhat worse; 5 A lot worse

### 3. Retrospective National Economic Evaluation

In the last year, would you say that the economic situation in the country has improved, worsened, or remained the same?

Answer: 1 Improved a lot; 2 Improved somewhat; 3 Same; 4 Worsened somewhat; 5 Worsened a lot

### 4. Prospective National Economic Evaluation

Thinking about the next 12 months, do you think the country's economy will get better, get worse, or stay the same?

Answer: 1 A lot better; 2 Somewhat better; 3 Stay the same; 4 Somewhat worse; 5 A lot worse

## 5. Media Consumption

Do you typically watch a television news program? (YES) Which ones?

Answer: Answer: 1 Televisa (Noticiero, Guillermo Ortega, Primero Noticias, L. Doriga, Abraham Zabudovsky, Hoy, Lolita Ayala, and Notivisa); 2 Azteca (HechosAM, HechoTarde, HechosNoche, Javier Alatorre, Las siete del 7)

(Note: This is an open-ended question. I categorized all answers into two categories only)

## 6. Talk about Politics

How often do you talk about politics with other people?

Answer: 1 Daily; 2 Several times a week; 3 Several times a month; 4 Rarely; 5 Never

## 7. Ideology

In politics, do you consider yourself to be on the left, the right, or in the center?

Answer: 1 Very left; 2 Somewhat left; 3 Center-left; 4 Center-center; 5 Center-right; 6 Somewhat right; 7 Very right; 8 None; 9 DK/NA

## 8. Level of Education

What is the highest level of education you have completed?

Answer: 1 No formal education; 2 Incomplete primary school; 3 Complete primary school; 4 Incomplete secondary/technical school; 5 Complete secondary/technical school; 6 Incomplete preparatory equivalent; 7 Complete preparatory equivalent; 8 Incomplete university; 9 Complete university or more; 10 DK/NA

## 9. Party Identification

Generally, do you identify with the PAN, PRI or PRD? Do you identify strongly or weakly?

Answer: 1 Strong PAN; 2 Weak PAN; 3 Strong PRI; 4 Weak PRI; 5 Strong PRD;  
6 Weak PRD; 7 Other; 8 None; 9 DK/NA

(Note: Strong and weak partisan for each party are recoded as the same category  
to produce three dummy variables for each party accordingly)

#### 10. Voter Choice

Who [did you vote for/would you have voted for] as President of the country? Use  
this ballot to mark your response and then deposit here without showing me your  
selection.

Answer: 1 Josefina Vazquez Mota/PAN; 2 Enrique Pena Nieto/PRI option; 3  
Andres Manuel Lopez Obrador/PRD option; 4 Enrique Pena Nieto/PVEM option; 5  
Andres Manuel Lopez Obrador/PT option; 6 Andres Manuel Lopez Obrador/Mov.  
Ciudadano option; 7 Gabriel Quadri/Nueva Alianza; 8 Marked more than one option for  
different parties; 9 Marked more than one option for Pena Nieto; 10 Marked more than  
one option for AMLO; 11 Marked or crossed out entire ballot; 12 Left ballot blank; 13  
Said don't plan to vote and left ballot blank; 99 Said don't know and left ballot blank

(Note: Only Mota, Nieto, and AMLO are included in the analysis.)

## APPENDIX G: 1996 ELECTION SURVEY IN TAIWAN

### 1. Retrospective Pocketbook Evaluation

Do you consider your family economic situation to be much better, a little better, about the same, a little worse or much worse than 12 months ago?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 2. Prospective Pocketbook Evaluation

In the next 12 months, do you think that your family economic situation will be much better, a little better, about the same, a little worse or much worse compared to the way it is now?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 3. Retrospective National Economic Evaluation

Do you consider the current economic situation of our country to be much better, a little better, about the same, a little worse or much worse than 12 months ago?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 4. Prospective National Economic Evaluation

In the next 12 months, do you think that, in general, the economic situation of our country will be much better, a little better, about the same, a little worse or much worse compared to the way it is now?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

#### 5. Media Consumption

Do you typically read newspapers? (YES) Which one?

Answer: 1 Pro-blue newspapers (China Times, China Times Express, United Daily News, United Evening News, Central Daily News, Commercial Times, The People's Livelihood Newspaper, Economic Daily News, Youth Daily News, Great News, and China Daily News); 2 Pro-green newspapers (Independent Daily News, Independent Evening News, The Commons Daily, Taiwan Times, and Liberty Times)

(Note: There were not many pro-green TV stations before 2000 so I use the choice of newspaper for analysis. I categorize newspapers into two categories according to their partisan bias.)

#### 6. Talk about politics

How often do you talk about 1996 presidential election with family or friends? Very frequently, fairly frequently, occasionally or never?

Answer: 1 Very frequently; 2 Fairly frequently; 3 Occasionally; 4 Never

#### 7. Level of Education

What is the highest level of education you have completed?

Answer: 1 No formal education; 2 Primary school; 3 Secondary/technical school; 4 High/technical school; 5 College; 6 University; 7 Graduate School; 8 Other.

#### 8. Political Sophistication

Could you answer the following question?

a. Who is the governor of Taiwan Province?

- b. Who is the president of the United States?
- c. Who is the leader of the Democratic Progressive Party?
- d. How many years of a legislative term?
- e. Which branch of government can interpret the Constitution?

(Note: These four items are open-ended questions. If answers are correct, it is coded as 1. If they are wrong, it is coded as 0. The factor analysis for the four items is done to take the first factor score.)

#### 9. Party Identification

- a. Which party do you feel closet to? (If 4, 5, 98, and 95 are selected, go to b.)

Answer: 1 KMT; 2 DPP; 3 NP; 4 All of them; 5 None of them; 98 Do Not Know;

95 Decline to answer

- b. Do you feel yourself closer to KMT, DPP, NP, or none of them?

Answer: 1 KMT; 2 DPP; 3 NP; 4 None of them

(Note: The answer of item b. is combined with item a. and the party identification is recoded as an ordinal variable according to their position of national identity. E.g. DPP=0, KMT=1, NP=2)

#### 10. National Identity

About the cross-strait relationship, which one do you personally prefer?

Answer: 1 Unification ASAP; 2 Independence ASAP; 3 Status quo now and unification later; 4 Status quo now and independence later; 5 Status quo now and unification or independence later; 6 Status forever; 7 Other.

(Note: National identity is recoded as an ordinal variable from 0 independence ASAP to 5 Unification ASAP.)

## 11. Voter Choice

Did you vote in the presidential election on Mar. this year? (If Yes) Which candidate did you vote for?

Answer: 1 Li-an Chen (independent); 2 Teng-hui Lee (KMT); 3 Ming-min Peng (DPP); 4 Yang-kang Lin (independent).

## APPENDIX H: 2000 ELECTION SURVEY IN TAIWAN

### 1. Retrospective National Economic Evaluation

Do you consider the current economic situation of our country to be much better, a little better, about the same, a little worse or much worse than 12 months ago?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 2. Prospective National Economic Evaluation

In the next 12 months, do you think that, in general, the economic situation of our country will be much better, a little better, about the same, a little worse or much worse compared to the way it is now?

Answer: 1 Much better; 2 A little better; 3 The same; 4 A little worse; 5 Much worse

### 3. Media Consumption

Which TV news station did you usually watch during presidential campaign?

Answer: 1 Taiwan Television; 2 China Television; 3 Chinese Television System; 4 Formosa Television; 5 TVBS; 6 San-lih E-Television; 7 ETTV; 8 Chung-tien Television; 9 STV news; 10 Global TV; 11 Public Television Service; 12 Truth News Network (TNN); 13 Other; 14 Did not watch TV

### 4. Talk about Politics

Did you talk about election with others during presidential campaign?

Answer: 1 Yes; 2 No

## 5. Level of Education

What is the highest level of education you have completed?

Answer: 1 Illiterate; 2. Literate without formal education; 3 Primary school; 4 Secondary/technical school; 5 Army/police secondary school; 6 High/technical school; 7 Normal College; 8 College; 9 Army/police college; 10 Army/police University; 11 University 12 Graduate School; 13 Other.

## 6. Party Identification

Which party do you identify with?

Answer: 1 Strong KMT; 2 Strong DPP; 3 Strong NP; 4 Strong PFP; 5 strong (other party); 6 Weak KMT; 7 Weak DPP; 8 Weak NP; 9 Weak PFP; 10 Weak (other party); 11 None; 12 Do not know; 13 Decline to answer

(Note: Strong partisan and weak partisan of a certain party are combined together and is then recoded to produce a new ordinal variable. e.g. DPP=0, KMT=1, NP/PFP=2)

## 7. National Identity

About the cross-strait relationship, some people prefer Taiwan independence and some people favor unification. Which one do you personally prefer?

Answer: 1 Strongly favor independence; 2 Fairly favor independence; 3 Favor independence; 4 Strongly favor unification; 5 Fairly favor unification; 6 Favor unification; 7 Independence once status quo fails; 8 Unification once status quo fails; 9 Status quo; 10 Neutral; 11 Do not know

(Note: National identity is recoded as an ordinal variable from 0 strongly favor independence to 8 strongly favor unification.)

## 8. Voter Choice

Did you vote in the presidential election on Mar. this year? (If Yes) Which candidate did you vote for?

Answer: 1 James Soong; 2 Chan Lien; 3 Ao Li; 4 Hsin-liang Hsu; 5 Shui-bian Chen

## APPENDIX I: 2004 ELECTION SURVEY IN TAIWAN

### 1. Retrospective Pocketbook Evaluation

Do you consider your family economic situation to be better, about the same, or worse than 12 months ago?

Answer: 1 better; 2 The same; 3 Worse

### 2. Retrospective National Economic Evaluation

Do you consider the current economic situation of our country to be better, about the same, or worse than 12 months ago?

Answer: 1 better; 2 The same; 3 Worse

### 3. Prospective National Economic Evaluation

In the next 12 months, do you think that, in general, the economic situation of our country will be better, about the same, or worse compared to the way it is now?

Answer: 1 better; 2 The same; 3 Worse

### 4. Media Consumption

Which newspaper did you usually read during presidential election?

Answer: 1 Pro-blue newspapers (China Times, China Times Express, United Daily News, United Evening News, Central Daily News, Commercial Times, The People's Livelihood Newspaper, Economic Daily News, Youth Daily News, Great News, and China Daily News); 2 Pro-green newspapers (Independent Daily News, Independent Evening News, The Commons Daily, Taiwan Times, Taiwan Daily, and Liberty Times)

(Note: There was no question asking respondents which TV news station they usually watch during campaign. I use newspaper in lieu of TV station. I categorize newspapers into two categories according to their partisan bias.)

#### 5. Talk about Politics

How often do you talk about politics with other people?

Answer: 1 Very frequently; 2 Fairly frequently; 3 Seldom; 4 Never

#### 6. Level of Education

What is the highest level of education you have completed?

Answer: 1 Illiterate; 2. Literate without formal education; 3 Incomplete primary school; 4 Primary school; 5 Incomplete secondary/technical school; 6 Secondary/technical school; 7 Incomplete High/technical school; 8 High school; 9 Incomplete College; 10 College; 11 Incomplete University 12 University; 13 Graduate school; 14 Japanese high school.

#### 7. Political Sophistication

Could you answer the following question?

a. Who is the President of the People's Republic of China?

b. Who is the president of the United States?

c. How many years of a legislative term?

d. Which branch of government can interpret the Constitution?

e. Who is the vice President of our country?

(Note: These five items are open-ended questions. If answers are correct, it is coded as 1. If they are wrong, it is coded as 0. The factor analysis for the five items is done to take the first factor score.)

## 8. Party Identification

There are several political parties in the political arena. Do you feel yourself closer to one party than the others? (YES, answer the following) Which one? (NO) Since you do not feel closer to any party, do you still feel a little bit closer to any party than else?(YES, answer the following)

Answer: 1 KMT; 2 DPP; 3 NP; 4 PFP; 5 Taiwan Independence Party; 6 TSU; 7 Pan-blue; 8 Pan-green

(Note: The party identification is recoded as pan-blue-1, independent 0, pan-green 1)

## 9. National Identity

About the cross-strait relationship, some people prefer Taiwan independence and some people favor unification. Which one do you personally prefer (from 0 independence ASAP to 10 unification ASAP)?

Answer: \_\_\_\_\_ (possible answer from 0 to 10)

10. Did you vote in the presidential election on Mar. this year? (If Yes) Which candidate did you vote for?

Answer: 1 Shui-bian Chen; 2 Chan Lien; 3 Annulled; 91 Forgot; 95 Decline to answer; 98 Do not know

## APPENDIX J: 2008 ELECTION SURVEY IN TAIWAN

### 1. Retrospective Pocketbook Evaluation

Do you consider your family economic situation to be better, about the same, or worse than 12 months ago?

Answer: 1 Better; 2 The same; 3 Worse

### 2. Prospective Pocketbook Evaluation

In the next 12 months, do you think that your family economic situation will be better, about the same, or worse compared to the way it is now?

Answer: 1 Better; 2 The same; 3 Worse

### 3. Retrospective National Economic Evaluation

Do you consider the current economic situation of our country to be better, about the same, or worse than 12 months ago?

Answer: 1 better; 2 The same; 3 Worse

### 4. Prospective National Economic Evaluation

In the next 12 months, do you think that, in general, the economic situation of our country will be better, about the same, or worse compared to the way it is now?

Answer: 1 better; 2 The same; 3 Worse

### 5. Media Consumption

Which TV news station did you usually watch during presidential campaign?

Answer: 1 Taiwan Television; 2 China Television; 3 Chinese Television System;  
4 Formosa Television; 5 TVBS; 6 San-lih E-Television; 7 ETTV;

8 Chung-tien Television; 9 Era news; 10 Gala Television; 11 USTV; 12 DaAi TV; 13 Public Television Service; 14 Hakka TV; 15 Taiwan Indigenous Television (TITV); 16 No Television; 17 Local TV channels; 18 NHK

#### 6. Talk about Politics

How often do you talk about politics with other people?

Answer: 1 Very frequently; 2 Fairly frequently; 3 Seldom; 4 Never

#### 7. Level of Education

What is the highest level of education you have completed?

Answer: 1 Illiterate; 2. Literate without formal education; 3 Incomplete primary school; 4 Primary school; 5 Incomplete secondary/technical school; 6 Secondary/technical school; 7 Incomplete High/technical school; 8 High school; 9 Incomplete College; 10 College; 11 Incomplete University 12 University; 13 Graduate school.

#### 8. Political Sophistication

Could you answer the following question?

- a. Who is the president of the United States?
- b. Who is the prime minister of our country?
- c. Which branch of government can interpret the Constitution?

(Note: These three items are open-ended questions. If answers are correct, it is coded as 1. If they are wrong, it is coded as 0. The factor analysis for the three items is done to take the first factor score.)

## 9. Party Identification

There are several political parties in the political arena. Do you feel yourself closer to one party than the others? (YES, answer the following) Which one? (NO) Since you do not feel closer to any party, do you still feel a little bit closer to any party than else?(YES, answer the following)

Answer: 1 KMT; 2 DPP; 3 NP; 4 PFP; 5 TSU; 6 Green Party; 7 Red Party

(Note: The party identification is recoded as pan-blue-1, independent 0, pan-green 1)

## 10. National Identity

About the cross-strait relationship, some people prefer Taiwan independence and some people favor unification. Which one do you personally prefer (from 0 independence ASAP to 10 unification ASAP)?

Answer: \_\_\_\_\_ (possible answer from 0 to 10)

11. Did you vote in the presidential election on Mar. this year? (If Yes) Which candidate did you vote for?

Answer: 1 Frank Hsieh; 2 Ying-jeou Ma; 91 Forgot; 94 Annulled 95 Decline to answer; 98 Do not know

## APPENDIX K: 2012 ELECTION SURVEY IN TAIWAN

### 1. Retrospective Pocketbook Evaluation

Do you consider your family economic situation to be better, about the same, or worse than 12 months ago?

Answer: 1 Better; 2 The same; 3 Worse

### 2. Prospective Pocketbook Evaluation

In the next 12 months, do you think that your family economic situation will be better, about the same, or worse compared to the way it is now?

Answer: 1 Better; 2 The same; 3 Worse

### 3. Retrospective National Economic Evaluation

Do you consider the current economic situation of our country to be better, about the same, or worse than 12 months ago?

Answer: 1 better; 2 The same; 3 Worse

### 4. Prospective National Economic Evaluation

In the next 12 months, do you think that, in general, the economic situation of our country will be better, about the same, or worse compared to the way it is now?

Answer: 1 better; 2 The same; 3 Worse

### 5. Media Consumption

Which TV news station did you usually watch during presidential campaign?

Answer: 1 Taiwan Television; 2 China Television; 3 Chinese Television System;  
4 Formosa Television; 5 TVBS; 6 San-lih E-Television; 7 ETTV;

8 Chung-tien Television; 9 Era news; 10 Gala Television; 11 USTV; 12 DaAi TV; 13 Public Television Service; 15 Hakka TV; 17 Local TV channels; 18 Next TV; 19 NHK; 22 EBC Financial News Channel; 23 VL Sports; 24 CSTV; 25 All of them except Formosa Television and San-lih E-Television.

#### 6. Talk about Politics

How often do you talk about politics with other people?

Answer: 1 Very frequently; 2 Fairly frequently; 3 Seldom; 4 Never

#### 7. Level of Education

What is the highest level of education you have completed?

Answer: 1 Illiterate; 2. Literate without formal education; 3 Incomplete primary school; 4 Primary school; 5 Incomplete secondary/technical school; 6 Secondary/technical school; 7 Incomplete High/technical school; 8 High school; 9 Incomplete College; 10 College; 11 Incomplete University 12 University; 13 Graduate school.

#### 8. Political Sophistication

Could you answer the following question?

- a. Who is the president of the United States?
- b. Who is the prime minister of our country?
- c. Which branch of government can interpret the Constitution?
- d. Who is the minister of Ministry of Finance in our country?

Answer: 1 Yi-huah Jiang; 2 Sean Chen; 3 Chi-kuo Mao; 4 Sush-der Lee

- e. What is the unemployment rate of Taiwan by the end of 2011?

Answer: 1 2.3%; 2 4.3%; 3 6.3%; 4 8.3%

f. Which party is the second largest party in the Legislature after the legislative election?

Answer: 1 KMT; 2 DPP; 3 PFP; 4 Non-Partisan Solidarity Union

g. Who is the Secretary-General of the United Nations?

Answer: 1 Kofi Annan; 2 Kurt Waldheim; 3 Ban Ki-moon; 4 Boutros Boutros-Ghali

(Note: The first three items are open-ended questions and the remaining items are multiple choice questions. If answers are correct, it is coded as 1. If they are wrong, it is coded as 0. The factor analysis for the seven items is done to take the first factor score.)

#### 9. Party Identification

There are several political parties in the political arena. Do you feel yourself closer to one party than the others? (YES, answer the following) Which one? (NO) Since you do not feel closer to any party, do you still feel a little bit closer to any party than else?(YES, answer the following)

Answer: 1 KMT; 2 DPP; 3 NP; 4 PFP; 5 TSU; 6 Green Party; 8 Communist Party

(Note: The party identification is recoded as pan-blue-1, independent 0, pan-green 1)

#### 10. National Identity

About the cross-strait relationship, some people prefer Taiwan independence and some people favor unification. Which one do you personally prefer (from 0 independence ASAP to 10 unification ASAP)?

Answer: \_\_\_\_\_ (possible answer from 0 to 10)

11. Did you vote in the presidential election on Jan. this year? (If Yes) Which candidate did you vote for?

Answer: 1 Ing-wen Tsai; 2 Ying-jeou Ma; 3 James Soong; 91 Forgot; 94 Annulled; 95 Decline to answer; 98 Do not know

## APPENDIX L: DESIGNATION OF INTERVIEWEES IN TAIWAN

Interviewee	Position
A	Scholar in political communication
B	Former deputy minister in charge of mainland China affairs in Shui-bian Chen's administration
C	Former Prime Minister in Ying-jeou Ma's administration
D	Senior minister in Presidential office in Ying-jeou Ma's administration
E	Scholar in political communication
F	Scholar in cross-strait relationship, economic voting, and national identity
G	Former deputy minister in charge of economic affairs in Ying-jeou Ma's administration
H	Former research fellow in National Security Council in Shui-bian Chen's administration
I	Former deputy minister in charge of mainland China affairs in Shui-bian Chen's administration

## APPENDIX M: QUESTIONS OF IN-DEPTH INTERVIEWS

1. According to the median voter theorem, the issue position of a party is close to the center in which most voters are located. Take cross-strait relationship for example, President Ying-jeou Ma's asserted status quo and Ing-wen Tsai also claim the same position in 2015. However, President Shui-bian Chen (2000-2008) alleged Taiwan independence instead of the status quo in which the majority of voters favor. What is the incentives for him to allege this? How to explain the paradox?
2. President Ying-jeou Ma centers on economic issues during the campaign in 2008 presidential elections. Can the emphasis of economic issues be attributed to the economic recession? Or is it just an incentive to pacify the identity problem? How does the emphasis of the economy influence the presidential election?
3. National identity has been usually the most important determinant on voter choice in Taiwan. It seems that economic evaluation is getting more and more important. Do you think economic voting will turn out to be significant eventually? Moreover, will its significance surpass national identity in the future?
4. How do you think about the media effect on economic voting? Are there any differences before and after regime transition in 2000? Does the legacy of one party dominance influence economic voting?