

Making Sense of Issue Position, Party Image, Party Performance, and Voting Choice: A Case Study of Taiwan's 2004 Legislative Election*

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ABSTRACT

The purpose of this study is to investigate the determinants of voting behavior in the 2004 legislative election. Because of the recent development of two major political camps, this paper applies a nested logit model to highlight the hierarchical structure of choice. The main assumption is that voting behavior is determined by a voter's evaluations of parties in general and of the legislative body. Among a string of alternative-specific variables, party performance in the Legislative Yuan and party feeling are found to be crucial to voting choice. The relative distance on the independence/unification issue is also a significant variable, in addition to party support and the evaluation of the current administration. The findings not only confirm the discrete choice model, but also highlight the influence of parties in the mass public and government.

Key Words: Nested logit model, Party Image, Legislative election, Issue position

* Earlier versions of this paper were presented at the 'Empirical Research of Taiwan Politics' conference, Taipei, 2005, and at the annual meeting of the Midwest Political Science Association, Chicago, 2006. I would like to thank Eric Yu, Chin-en Wu, Tse-hsin Chen, Fang-yi Chiou, Yu-tzung Chang, Gang Go, Batto Nathan, and Kung-hui Chen for their helpful comments. I am also grateful to two anonymous reviewers for their insightful suggestions. I am solely responsible for any remaining errors.

I. Background of Taiwan's 2004 Legislative Election

Since Taiwan's watershed 1992 legislative election, in which the full legislature was popularly elected for the first time, legislative elections have been held every three years. Each has featured fierce partisan competition, and the campaigns have revolved around controversial issues such as national identity, political reform, and corruption. The 2004 legislative election was no exception, but it was also unique in that the elected legislators would have to carry out a mission of 'self-sacrifice.' The constitutional amendments passed by the 2001 Legislative Yuan in August 2004 mandated that the electoral system used to elect the legislature switches from the single non-transferable voting system (SNTV) to a mixed system of single-member districts and party list proportional representation, beginning with the 2007 Legislative Yuan, and that the size of the Legislative Yuan be reduced from 225 to 113. These constitutional changes had to be approved by the special National Assembly by June 2005; therefore the 2004 Legislative Yuan had to draft and pass the law governing the election of the special National Assembly right after the legislative election. Because the new 'small-district, two votes' system favored the major parties, the Kuomintang (KMT) and Democratic Progressive Party (DPP), they supported the constitutional amendments, but minor parties including the Taiwan Solidarity Union (TSU) and People First Party (PFP) opposed them. In this sense, the 2004 election was regarded as crucial in shaping the future of Taiwan's party system.

The Legislative Yuan had often been criticized for its inefficiency in reviewing bills. The Legislative Yuan was dominated by the KMT and PFP, or the so-called 'pan-blue camp.' Because the pan-blue camp held 114 seats prior to the 2004 election and frequently cooperated with independent legislators, it could easily block the DPP government's bills. Therefore, the 'pan-green camp,' consisting of the DPP and its smaller ally the TSU, hoped in 2004 to end the pan-blues' majority in the legislature. Working toward this goal, not only did the DPP nominate more candidates than before, it also asked its supporters to equalize their votes among the DPP candidates in many districts. In sum, the 2004 legislative election was another partisan battle, and a replay of the 2004 presidential election.

In the aftermath of the 2004 presidential election, the pan-blue camp filed a lawsuit to have the election voided. The pan-blue camp claimed that

the election was affected by the assassination attempt on President Chen and Vice President Lu. A referendum introduced by President Chen and held on the same day as the presidential election was also said to influence people's free will to vote. Outside the courts, whether President Chen had legitimately won reelection was debated in the Legislative Yuan, on television talk shows and in the street, which intensified the partisan confrontation between the pan-blue and green camps.

On the last weekend before the Election Day, the TSU and KMT on the same day held rallies in Taipei City. The TSU called for drafting a new constitution and rectifying the name of nation, and the KMT demanded unification of the pan-blue camp to win the majority. In the TSU's campaign parade, former president Lee Teng-hui said, "Although the TSU supports President Chen Shui-bian, it will also oversee the government and try its best to carry out the people's wishes."¹ (Huang and Chen, 2004) It was estimated that both parties drew thousands of people each to the events.²

A nested logit model (NL) offers a new way to investigate the determinants of voting behavior in the 2004 legislative election. The data set used in this study is from the Taiwan Election and Democratization Study (TEDS) 2004L(B), a national stratified sampling survey conducted after the 2004 legislative election.³ Table 1 shows the breakdown of party vote shares. It

1 Taipei Times, page 1, December 6, 2004.

<http://www.taipetimes.com/News/front/archives/2004/12/06/2003213955>

2 The DPP actually planned another parade and invited both Lee Teng-hui and President Chen to show the unification of the pan-green camp. However, it was cancelled due to typhoon Vanuatu.

3 Data analyzed in this article were from 'Taiwan's Election and Democratization Studies, 2004L: Election Survey (TEDS 2004L). The coordinator of the TEDS multi-year project is Professor Chi Huang (National Chengchi University). TEDS2004L is a yearly project on the election of in year 2004. The principal investigator is Professor I-chou Liu and the co-investigators are Professors Yun-han Chu, Chun-li Wu, Fu Hu, Hao-yan Shyu, Shing-yuan Sheng, Chin-hsin Yu, Chi Huang, and Shio-uan Huang; and the associate investigators are Professors Lu-huei Chen, Chia-hung Tsai, and Tsung-wei Liu. The Election Study Center of National Chengchi University is responsible for the data distribution. The author appreciates the assistance in providing data by the institute and individuals aforementioned. The author is alone responsible for views expressed herein. TEDS 2004L has two datasets; each one has a sample of around 1,200 respondents but different questions. TEDS 2004L(B) is chosen because it contains information about respondents' voting decision, issue positions, evaluations of the Legislative Yuan, and so forth.

is apparent that there is a gap between the actual poll and survey results, but the reason for this disparity is left for future research.

Table 1. Vote Shares of Four Parties, 2004 Legislative Election

| KMT | DPP | FPF | TSU | Others | No Response | Abstain | Total |
|----------------|----------------|---------------|--------------|--------------|----------------|----------------|-------|
| 257 (20.43) | 350 (27.82) | 104 (8.27) | 32 (2.54) | 36 (2.86) | 175 (13.92) | 304 (24.16) | 1258 |

Note: Others include the New Party and Independents. Data is unweighted. Weighted data analysis returns very similar breakdown of vote shares.

Data: Liu (2005)

Unlike previous studies of voting behavior, the idea of rational choice is here emphasized: people choose the party with the strongest issue position, best image, and best performance in the legislative body. Moreover, this study examines the possibility of simultaneous voting—people decide whether they support the pan-blue or pan-green camp first, and then decide which party they vote for. Instead of throwing many variables into a discrete choice model, this paper attempts to model an individual's decision-making process as a two-level hierarchical structure.

II. Taiwanese Voting Behavior

The first major determinant of voting behavior is party attachment. According to Belknap and Campbell (1952: 605-608) and Campbell et al. (1960: 128-136), long-standing party attachment anchors people's political attitudes. The stable partisanship largely decides election outcomes at the aggregate level (Converse, 1966: 23). Scholars of Taiwanese politics have also found that party attachment, among other variables, consistently explains people's party choices (Shyu, 1991: 31-33, 1996: 113-122; Liu, 1996: 226-228; You, 1996a: 76; Chen, 1998: 172-178; Tsai, 2003: 149; Chen, 2006: 54). Self-labeled partisanship is a significant predictor, partly because the party system remains aligned around the most salient issues in the election. One's party image also corresponds with party choice (Shyu, 1991: 30-32; You, 1996b: 76-77).

Issue voting has also been found to affect election outcomes in Taiwan. In the 1990s, an individual voter's democratic values had a positive effect on the likelihood of voting for the DPP (Hu and Chang, 1998: 254). In more recent years, with political reform ongoing, the independence/unification issue has taken center stage. Wang (2001: 102-107, 2003: 181-189) and Sheng

(2002: 55-62) analyses explicitly link individuals' issue positions, among other factors, to voting behavior. Chen (2004: 33) analyzed impacts of alternative-specific variables in the 2004 presidential election, and found that positions on 'Independence versus Unification' and 'Government Reform versus Political Stability' were key predictors of vote choice. Among these four issues, the independence issue has consistently been identified as the most salient one (Lin et al., 1996: 474-475; Hsieh and Niou, 1996: 231; Wang, 2001: 102-107, 2003: 181-189; Sheng and Chen, 2003: 25-29). Because the DPP has long called for self-determination and promoted Taiwanese identity, people who embrace the independence position tend to vote for the DPP.

In addition to the voters' issue positions, spatial variable and party image, the performance of the current administration weighs in the decision-making of voters. It is rational to vote for the administration that raises people's well-being or meets their demands (Downs, 1957: 38-45). A positive rating of the DPP's government performance positively affects the probability of choosing the DPP (Chen, 2006: 53).

Regarding the legislative election, however, the administration's performance may be a less direct predictor of voting behavior than the legislators' performance. It is not easy to grade each legislator, but the performance of each party in the Legislative Yuan can be used as a proxy factor. It is necessary to put more emphasis on political parties in the government (Beck, 1996: 11). Thanks to the TEDS survey data, this study can therefore add a new variable measured by the ranking of each party in the Legislative Yuan to the existing literature of voting behavior. Highlighting the rational-choice variables, the results will demonstrate the importance of party affiliations in the 2004 legislative election.

III. Discrete Choice Model

Downs (1957: 42) and other scholars propose that political behavior is determined by utility incomes. Downs referred to the policies of political parties as electoral utilities; individuals presumably calculate the utilities as if they were deciding where to go shopping according to the locations of shops. Riker and Ordeshook (1968: 30) formalized the voting behavior based on the probability that one's vote will break a tie between the two leading candidates. Cain (1978: 640-643) and Black (1978: 612-614) moved further to develop a multi-party calculus of voting that could explain strategic voting.

With the sampling survey data available, the nominal-level dependent variable—vote choice—is central to research on political behavior. The decision of whether to vote and the decision of whom to vote for are viewed as discrete choices and can be predicted by the utility that each person perceives for each candidate, if elected, and for abstention (Lacy and Burden, 1999: 235–243). Although utility is not observable, the difference between two alternatives can be estimated after normalizing the utility of one choice to zero. The attributes of voters and choices (parties or candidates) are observable, so their effects can be estimated.

According to McFadden (1974: 110), a consumer utility function can be written

$$P(m|s, B) = e^{v(s, m)} / \sum e^{v(s, n)} \quad (1)$$

where m, n are members of choice set B , s is the measured attributes of individuals, and v is the ‘representative’ preference. Equation 1 means that the probability of alternative m being chosen given an individual’s attributes equals the odds of a multiple choice of m over the possible alternative set. This formula represents the selection probabilities for all alternatives in set B , and it must meet the assumption of Independence of Irrelevant Alternatives (IIA). This assumption means that the selection probabilities will not change when adding or deleting alternatives. If this assumption is implausible, it is difficult to ascertain the effect of introducing a new alternative (McFadden, 1974: 112). In plain language, the IIA assumption requires that there be no close substitute for any alternative in the choice set. Hausmann and McFadden (1984: 1221–1226) proposed a likelihood-ratio test, which compares the coefficients generated by models containing all alternatives and part of them.

In the case of multiple choices, multinomial logit (MNL) models are appropriate link functions. The MNL model assumes that errors are distributed with extreme value distribution. Given that the individual i ’s utility from choice j is not observable, the utility derived from choice j for individual i is a combination of individual characteristics. Therefore, the general form of the multinomial logit model is (Long, 1997: 155; Lacy and Burden, 1999: 239; van der Eijk et al., 2006: 429):

$$U_{ij} = \beta_j \mathbf{x}_i + \varepsilon_{ij} \quad (2)$$

where \mathbf{x}_i is a vector of values of the independent variables for the i th individual and ε_{ij} is the error term associated with i ’s utility for alternative j . In

other words,

$$f(\varepsilon) = \exp[-\varepsilon - \exp(-\varepsilon)] \quad (3)$$

Notice that the coefficients β_j represent the effects of individual characteristics on the probability that alternative j is chosen, compared to the reference option. Moreover, the set of individual characteristics \mathbf{x}_i is constant for each of the choices; only the coefficients β_j vary with the choices. When $U_{ij} > U_{ik}$ for every $j \neq k$, we expect that one would choose alternative j . Therefore, the statistical procedure estimates the probability that we observe $U_{ij} > U_{ik}$.

The MNL model is widely used by researchers in many disciplines, though it is not easy to interpret the estimators, especially when there are many categories of the dependent variable (Kohler and Kreuter, 2005: 284–287). When the attributes of individual’s choice mode are available, moreover, the conditional logit (CL) model is more appropriate than MNL. Following Alvarez and Nagler (1998: 56–58), van der Eijk et al. (2006: 440) argue that in CL analyses the choice-specific variables represent relationships between voters and parties, which even the respondents may not be aware of. Although the CL and MNL models are mathematically identical, some scholars, for instance, Greene (2003: 723–724), reserve the name ‘CL’ for the one that only uses choice-specific variables. Like the MNL model, the CL model also assumes IIA, although their estimators are certainly different.⁴

The CL model posits that choice-specific attributes affect the probabilities; therefore it can be written

$$U_{ij} = \beta \mathbf{x}_{ij} + \varepsilon_{ij} \quad (4)$$

The predicted probability of observing outcome j is then (Greene, 2003: 723; van der Eijk et al., 2006: 429)

$$P(j) = \exp(\mathbf{x}_{ij}\beta) / \sum_{j=1} \exp(\mathbf{x}_{ij}\beta) \quad (5)$$

where $j=1$ to J .

As Equation 4 shows, single parameters are estimated for each variable, regardless of the number of choices; only the attributes of alternatives affect the selection probabilities.

⁴ Long and Freese (2003: 243–244) show that mixed logit model of individual—and choice-specific variables generates similar estimators for individual-specific variables as MNL model does.

In the nested logit model, alternative choices with shared unobserved attributes are assumed to share the IIA property and are grouped together, or 'nested.' A 'nest' simply represents the unobserved shared attributes, and decision makers simultaneously choose one alternative among others (Börsch-Supan, 1987: 46). In other words, the IIA property holds within the nest, but not across the nest.

When we have $j=1, \dots, J$ elemental alternatives and $k=1, \dots, K$ branch composite alternatives, the individual utility function is specified as follows:

$$U_i(j, k) = V_i(j, k) + \varepsilon_{jk_i} \quad (6)$$

$V_i(j, k)$ summarizes the attributes of the k branch and of the j alternative. The random components, ε_{jk_i} , take on the independent extreme value distributions. The two-level nested logit probabilities can be decomposed into the product of the probability of containing a given nest and the probability of a given alternative in the nest as follows (Hensher and Greene, 2002: 4):⁵

$$P(j, k) = P(k) \times P(j|k) \quad (7)$$

According to Hensher and Greene, a branch specific scale parameter $\mu(j|k)$ will be associated with the elemental alternatives. The branch parameter $\lambda(j|k)$ is associated with the branch level. When $\mu(j|k)$ is set to unity, the model is referred to as Random Utility Model 1 (RUM 1). When we normalize $\lambda(j|k)$ to one, the model is referred to as Random Utility Model 2 (RUM 2). Here RUM 2 is adopted, and the choice probability of the elemental alternatives is given by:

$$P(j|k) = \frac{\exp\left(\frac{\beta}{\mu_k} V_{ijk}\right)}{\sum_m \exp\left(\frac{\beta}{\mu_k} V_{ijm}\right)} \quad (8)$$

$$P(k) = \frac{\exp(\mu_k IV_{ik})}{\sum_m \exp(\mu_k IV_{im})}$$

where V_{ijk} represents the vectors of explanatory variables, and IV_{im} denotes

5 The setting of three-level NMNL model has one more conditional probability. See Gil-Moltó and Hole (2003: 3-5).

‘inclusive value of nest m .’ μ is the ‘dissimilarity parameter’ between the alternatives within one nest. If all μ equal unity, the NL model reduces to the MNL model. The specification test developed by Hausmann and McFadden (1984: 1221-1226), which can be implemented in STATA 8.0, allows users to examine if the nesting structure is appropriate (Börsch-Supan, 1987: 69-74). If the differences between subsets and within subsets of the correlations among the residuals is not great enough to reject the null hypothesis $\lambda = 1$, then the IIA property holds for MNL or CL model; the NL model is not favorable. If the inclusive value is zero, the nested model will collapse to two unrelated logit models (Zhang and Hoffman, 1993: 200).

In brief, the NL model is useful for analyzing multiple categorical choices in that the IIA property is relaxed. This study takes into account partisan alliances, and finds that the NL model captures the dual party structure well.

IV. Explanatory Variables

Downsian theory states that a voter chooses the party or candidate with the closest issue position to his own. This spatial theory has been quite influential. For instance, Davis et al. (1970: 430-431) suggested that under different preference distributions, candidates can appeal to voters on different locations of issues. Enelow and Hinich (1982: 494-499) proposed a two-issue model and stressed the importance of expected policy difference. Following the logic of spatial theory, scholars have stressed the direction of issue positions, as opposed to the distance between the voter’s position and that of the candidates. The directional model sets up voter utility as the product of the voter and party positions. A number of scholars have found that the direction model can explain more of the variance in candidate evaluation than can the proximity model (Rabinowitz and Macdonald, 1989: 105-106; Macdonald et al., 1991: 1108-1113; Macdonald et al., 1995: 457-459). Directional theory also suggests that candidates do not have to pursue the district mean as long as they take distinct issue stands.

As for Taiwanese voting behavior, Wang (2001: 102-107, 2003: 181-189) has suggested using Rabinowitz and Macdonald’s (1989: 96-101) directional model that takes the direction and strength of people’s issue positions into account (see next section). He also follows Merrill and Grofman (1999: 84-89), arguing that it is more appropriate to use the CL model than the MNL model when applying the directional model to voting behavior (Wang, 2003:

182). His CL analysis (Wang, 2003: 181-189) of the 2001 legislative and magistrate elections contains both individual—and alternative-specific variables, concluding that partisanship is important for voting decisions. Based on this previous research, it is necessary to incorporate both direction scalars and proximity variables into the voting model.

Based on Rabinowitz and Macdonald's (1989: 96-101) directional model, four indicators of issue positions are constructed. These four issues are social welfare, political reform, independence, and economic development.⁶ Regarding the operationalization of those four variables, the individual's issue position and her perceived party positions, respectively, are subtracted from the mid-point, which is 5 in this case. Then the product of the two numbers comprises the scalar for each party. In order not to lose any observations, all of the non-response on the issue positions is treated as the mid-point. The NL coefficients for these four variables should be positive because they represent how strongly decision makers agree with each party's issue position.

Another set of four indicators of the issues mentioned above is set up based on the conventional proximity model. The absolute difference between each respondent's position and the four main political parties' positions, respectively, is calculated. It is expected that the greater the difference between a voter and a party, the less likely it is that a voter would choose that party.

Party image literally refers to the impression about parties in people's minds when asked. The notion of party image can be defined as ephemeral, general perceptions about political parties. For instance, Matthews and Prothro (1964: 91-94) measured it by asking the respondents whether they like or dislike the two parties and their reasons. Respondents' answers were recoded as positive, neutral, and negative evaluations of each party. Based on the idea of party image, Nie et al. (1976: 57-58) designed an 11-point feeling thermometer, measuring 'how warm' the electorate feels toward political parties. Wattenberg (1982: 29-31) applied Matthews and Prothro's (1964: 91-94) measures to compare party images in several countries, and he (Wattenberg, 1984: 50-72) later used both open-ended questions and a feeling thermometer to summarize the extent to which the electorate favors political parties. Therefore, the validity of the 11-point feeling thermometer as to party image is confirmed. It is expected that the warmer an individual

6 See appendix for the wordings of the four issues.

feels towards a party, the more likely it is that one voted for it.

Since this 2004 legislative election was influenced by the reform of the Legislative Yuan and the battle for partisan control, party performance in the Legislative Yuan is a noteworthy predictor of voting choice. Respondents were asked to rank the best three parties in the Legislative Yuan. Since the NL model requires stacking the observations, it is easy to develop a variable based on the ranking of each party. The party that respondents did not rank is coded as '1,' and the party ranked number one is coded as '4.' The hypothesis is that the better the party performance, the more support the party can draw.

The variables mentioned above link the characteristics of alternatives perceived by individuals to political parties, or the alternatives themselves. In other words, every voter evaluates the alternatives based on their traits and votes for the alternative with the highest evaluation. Nevertheless, an individual's preference could result from her social background or general attitudes. First of all, partisanship is expected to affect how people perceive political parties and their voting behavior.

According to Fiorina's (1977: 620-621) rational choice model that incorporates past incumbent performance related to party identification, the evaluation of Chen's administration may affect in the first place which party respondents prefer. Despite the absence of a formal alliance between the KMT and PFP, and between the DPP and TSU, the competition between the pan-green camp and pan-blue camp may result in distinct assessments of the DPP administration. In other words, voting choice is conditional on which camp voters prefer. Table 2 displays the descriptive

Table 2. Characteristics of Independent Variables

| Independent Variables | Mean | Standard Deviation | Skewness |
|--------------------------------|-------|--------------------|----------|
| Independence Issue Scalar | -0.23 | 9.42 | -0.05 |
| Social Welfare Issue Scalar | 1.69 | 9.73 | 0.20 |
| Economic Issue Scalar | 1.36 | 8.49 | 0.52 |
| Reform Issue Scalar | 1.16 | 10.93 | 0.15 |
| Independence Issue Proximity | 2.69 | 2.84 | 1.025 |
| Social Welfare Issue Proximity | 1.635 | 2.384 | 1.748 |
| Economic Issue Proximity | 1.831 | 2.628 | 1.645 |
| Reform Issue Proximity | 2.423 | 2.946 | 1.114 |
| Party Feeling Thermometer | 4.62 | 2.54 | -0.09 |
| Chen Administration Evaluation | 4.87 | 2.222 | -0.144 |

Data: Liu (2005)

statistics of issue scalars, party performance, and evaluation of the Chen administration.

With six alternative-specific variables and one individual-specific variable, the first NL model is written

$$P(j|k) = \frac{\exp\left(\frac{\beta_{1k}I_{ijk}^1 + \beta_{2k}I_{ijk}^2 + \beta_{3k}I_{ijk}^3 + \beta_{4k}I_{ijk}^4 + \beta_{5k}T_{ijk} + \beta_{6k}L_{ijk} + \beta_{7k}P_{ik} + \beta_{8k}P_{ik}}{\mu_k}\right)}{\sum_{p=1} \exp\left(\frac{-\beta_{1k}I_{ipk}^1 - \beta_{2k}I_{ipk}^2 - \beta_{3k}I_{ipk}^3 - \beta_{4k}I_{ipk}^4 + \beta_{5k}T_{ipk} + \beta_{6k}L_{ipk}}{\mu_k}\right)}$$

$$P(k) = \frac{\exp(\beta_{7k}P_{ik} + \beta_{8k}P_{ik} + \mu_k IV_{ik})}{\sum_{p=1} \exp(\beta_{7k}P_{ip} + \beta_{8k}P_{ip} + \mu_k IV_{ip})} \quad (8)$$

In Equation 8, the conditional probability of alternatives at the bottom will be predicted by six alternative-specific variables, and the type of voter (pan-green or pan-blue) will be explained by partisanship, the evaluation of the Chen administration, and an inclusive parameter. According to the literature, all of the estimates for the six choice-based variables and two individual-specific variables should be positive.

The second NL model uses proximity distance variables instead of direction scalars.

$$P(j|k) = \frac{\exp\left(\frac{-\beta_{1k}D_{ijk}^1 - \beta_{2k}D_{ijk}^2 - \beta_{3k}D_{ijk}^3 - \beta_{4k}D_{ijk}^4 - \beta_{5k}T_{ijk} - \beta_{6k}L_{ijk} - \beta_{7k}P_{ik} - \beta_{8k}P_{ik}}{\mu_k}\right)}{\sum_{p=1} \exp\left(\frac{-\beta_{1k}D_{ipk}^1 - \beta_{2k}D_{ipk}^2 - \beta_{3k}D_{ipk}^3 - \beta_{4k}D_{ipk}^4 + \beta_{5k}T_{ipk} + \beta_{6k}L_{ipk}}{\mu_k}\right)}$$

$$P(k) = \frac{\exp(\beta_{7k}P_{ik} + \beta_{8k}P_{ik} + \mu_k IV_{ik})}{\sum_{p=1} \exp(\beta_{7k}P_{ip} + \beta_{8k}P_{ip} + \mu_k IV_{ip})} \quad (9)$$

Figure 1 illustrates the idea expressed in Equations 8 and 9.

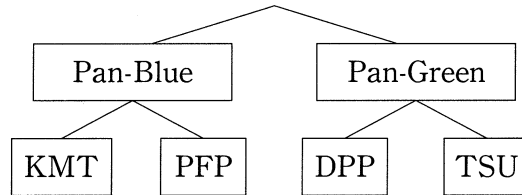


Figure 1. Four-Alternative Nesting Structure of Parties

V. Test of IIA Assumption

Before using the NL analysis, it is necessary to examine whether the CL

model is more appropriate than the NL model. If the CL model fails the test of IIA assumption, the NL model will be used to fit the data. If the CL model passes the IIA test, a non-nesting structure should be utilized. Hausmann and McFadden's (1984: 1221-1226) IIA test is utilized here. Omitting an alternative each time and comparing the estimation between the full model and sub-models can confirm whether a more complex model is necessary. The CL model with the four scalars is checked first.

Table 3. IIA Test from Conditional Logit Model with Direction Scalars

| | KMT omitted | DPP omitted | PFP omitted | TSU omitted |
|--------------|-------------|-------------|-------------|-------------|
| χ^2 | 17.96 | 50.29 | 51.20 | 103.49 |
| $p > \chi^2$ | 0.0215 | 0.000 | 0.0000 | 0.0000 |

Data: Liu (2005)

The results shown in Table 3 support a nesting structure; the null hypothesis that there is no difference in estimation by deleting any alternative is rejected. Therefore, a two-level NL model will be estimated in the next section.

Furthermore, the CL model with the four distance variables is checked against IIA test. Like the previous test, Table 4 confirms that the two-level nesting structure may conform with this set of variables better than CL or logistic models do.

Table 4. IIA Test from Conditional Logit Model with Proximity Variables

| | KMT omitted | DPP omitted | PFP omitted | TSU omitted |
|--------------|-------------|-------------|-------------|-------------|
| χ^2 | 12.98 | 41.29 | 34.98 | 273.04 |
| $p > \chi^2$ | 0.0114 | 0.000 | 0.0000 | 0.0000 |

Data: Liu (2005)

VI. Explaining Voting Choice with NL Models

Stata 8.0 is used to estimate the two NL models. In Table 5, the log-likelihood test against the constant-only model indicates that the NL coefficients are not equal to zero. The inclusive value parameters for pan-blue and pan-green are smaller than 1, which means the nesting structure is appropriate. The LR test of homoscedasticity reported at the bottom of the table indicates that the NL model is better than the CL model under the current setting of variables.

Table 5. Estimation Results for the NL Models of Voting Behavior with Direction Scalars, 2004 Legislative Election

| Independent Variables | Estimate |
|--|---------------------------|
| Independence Issue Scalar | .0202219 [.0120848] |
| Economic Issue Scalar | -.0030131 [.0132404] |
| Reform Issue Scalar | .0070862 [.0097826] |
| Social Welfare Issue Scalar | .0062637 [.0120198] |
| Party Feeling Thermometer | .6778494 [.0707185]*** |
| Party Performance in LY | .5663151 [.0792709]*** |
| DPP or TSU partisanship (choice set=pan-green) | .1761323 [.2523205] |
| Administration Evaluation (choice set=pan-green) | .3044252 [.0788924]*** |
| Inclusive Parameter I (pan-blue) | .9399761 [.1137992]*** |
| Inclusive Parameter II (pan-green) | .6565587 [.1173131]*** |
| Number of Observations | 2,876 |
| Number of Cases | 719 |
| Log likelihood | -552.80609 |
| LR test of homoscedasticity | |
| χ^2 | 12.63 |
| <i>p</i> -value | .0018 |

Note: ***signifies statistical significance at the .001 level.

Standard errors are in brackets.

Data: Liu (2005)

The first model to be estimated includes partisanship, assessment of the administration, scalars for four issues, ranking of parties in the Legislative Yuan, and party feeling. As shown in Table 5, an individual's evaluation of Chen's administration affects the choice between the pan-blue and pan-green camps. People who like the current government tend to choose the pan-green camp. Nevertheless, supporting the DPP/TSU or not does not exert any effect on the choice of pan-green camp. This finding suggests that the nominal-level psychological variable is less influential than the interval-level rating or ranking variables.

Moving on to the bottom level, it is found that the four issue scalars

have less significant impacts on the selection probabilities. Even the independence-unification issue position has less significant effect on the choice of alternatives. However, the party feeling thermometer and party performance in the Legislative Yuan are statistically significant predictors for the conditional probability of voting choice. This finding implies that this legislative election was loaded with partisan sentiment among both the mass public and especially organizations in the Legislative Yuan. When the electorate chooses parties, they may evaluate the DPP government and weigh in on the extent to which political parties perform in general and in the legislative body. The product of individuals' and parties' positions compounds both whether individuals and parties stand on the same side and the distance between individuals and parties, which may reduce the role of parties in voting choice.

This result highlights the roles of party performance and party images, but Wang's (2003: 181-189) CL model and Sheng and Chen's (2003: 25-29) MNL equation emphasize partisanship as well as issue position. Therefore, it is necessary to consider the second setup of issue positions. The results shown in Table 6 make it clear that the proximity of the independence issue matters. The further one's independence issue position is away from the party, the smaller the likelihood one chooses the party. This finding conforms to those of Wang (2001: 102-107, 2003: 181-189) and Sheng (2002: 55-62). In this regard, the 2004 legislative election results reiterate the continuing controversial nature of the independence issue.

The coefficients in Table 6 indicate that party attachment does not influence the likelihood of one of the two camps being chosen. However, the administration's performance contributes to people's decision between the two camps. The ranking of parties in the Legislative Yuan positively affects the probability of choosing the party. So too does the increasing level of warm feelings toward parties increase the probability of a given outcome being chosen.

According to Rabinowitz (1978: 816), the directional model implies that a candidate takes an extreme position to mobilize their support. When most people take centrist positions, the salience of an issue is reduced. As a result, the classic distance model is more appropriate for non-extreme positions than is the directional model. This finding is not consistent with Wang's (2003: 181-189) conditional logit analysis, which might be caused by the differing models. It should be noted that more research on directional models

Table 6. Estimation Results for the NL Models of Voting Behavior with Proximity Variables, 2004 Legislative Election

| Independent Variables | Estimate |
|--|---------------------------|
| Independence Issue Distance | -.1362605 [.0448066]** |
| Economic Issue Distance | .0749984 [.0473418] |
| Reform Issue Distance | .0025738 [.0413193] |
| Social Welfare Issue Distance | .0435318 [.0479444] |
| Party Feeling Thermometer | .6911316 [.0705203]*** |
| Party Performance in LY | .5574939 [.0795608]*** |
| DPP or TSU partisanship (choice set=pan-green) | .1973128 [.2536128] |
| Administration Evaluation (choice set=pan-green) | .2925356 [.0789905]*** |
| Inclusive Parameter I (pan-blue) | .9308435 [.1097159]*** |
| Inclusive Parameter II (pan-green) | .6561822 [.1141146]*** |
| Number of Observations | 2,876 |
| Number of Cases | 719 |
| Log likelihood | -548.64993 |
| LR test of homoscedasticity | |
| χ^2 | 11.80 |
| <i>p</i> -value | 0.0027 |

Note: ***signifies statistical significance at the .001 level; **signifies statistical significance at the .01 level. Standard errors are in brackets.

Data: Liu (2005)

should be conducted.

By adding party performance in the Legislative Yuan to the model, this research makes more sense of parties in government, not just in the electorate. In this regard, the 2004 legislative election to some degree reflected the fierce struggle among political parties, which is related to the workings of the administration. After partisanship and administration performance are controlled for party images in general and party performance in the Legislative Yuan are significant predictors, and so is support for independence.

VII. Conclusion

This study confirms the feasibility of using an NL model for research on voting behavior in Taiwan. As the multi-party system exists in the legislative election and a two-party system emerges in the presidential election, the dual party-alliance system may prevail in the multi-member districts used for Taiwan's legislative elections. The NL model avoids the problem of violating the IIA assumption, and neatly fits Taiwan's party politics.

This study also emphasizes the importance of alternative-specific variables. They marize the relationship between the individuals and each of the alternatives respectively. In this study, this setting means that the characteristics of parties influence people's choices. In other words, one's preference over the alternatives before her is decided by the alternatives themselves, instead of her characteristics. That is compatible with rational choice theory in which the decision maker's position is fixed and parties can alter their positions to attract decision makers.

The policy implication of this study is that how parties perform in the Legislative Yuan has an independent and significant impact on voter choice. When individual party members disregard their party's call for discipline in the Legislative Yuan, they may jeopardize their parties to some degree. Party image also plays a role in the decision making process, which implies that making parties more appealing during the campaign at a minimum is crucial to their fates.

The evidence presented in this study should not be taken as an argument against other discrete choice models for cross-section data, such as mixed logit (MXL) and multi-nomial probit (MNP) models.⁷ While collecting data based on real politics, we should be aware of alternative model specifications in addition to MNL, CL, and NL models and related methods.

Moreover, abstention in the spatial model should be considered in the context of multi-party competition (Thurner and Eymann, 2000: 52-55). Non-voting could result from an individual's indifference among political parties or alienation from politics. Each effect should therefore be tested with degenerate nesting structures and more indicators. That would contribute to research on political behavior that is grounded in rational choice theory.

⁷ MNP permits correlated error terms, but its inference could be misleading due to a difficult maximum likelihood optimization (Dow and Endersby, 2004: 109).

Appendix

Independence issue

In our society people often talk about the question of Taiwan independence from or unification with China. Some people say that Taiwan should declare independence right away. Other people say that Taiwan and China should unify right away. Yet other people have opinions between these two positions. On this card, the position that Taiwan should immediately declare independence is at 0 on a scale from 0 to 10, and the position that Taiwan should immediately unify with the mainland is at 10. About where on this scale does your own view lie?

As you understand it, about where on this scale does the position of the KMT lie?

About where on this scale does the position of the DPP lie?

About where on this scale does the position of the PFP lie?

About where on this scale does the position of the TSU lie?

Social welfare issue

Regarding the question of social welfare, some people believe that the government should merely maintain the current system in order not to increase people' tax. Other people believe that the government should promote social welfare, even though it will lead to tax increase. On this card, the position that maintaining the current system is the most important thing is at 0 on a scale from 0 to 10, and the position that promoting social welfare is most important is at 10. About where on this scale does your own view lie?

As you understand it, about where on this scale does the position of the KMT lie?

About where on this scale does the position of the DPP lie?

About where on this scale does the position of the PFP lie?

About where on this scale does the position of the TSU lie?

Economic issue

Regarding the question of economic development versus environmental protection, some people in society emphasize environmental protection while others emphasize economic development. On this card, the position that emphasizes environmental protection is at 0 on a scale from 0 to 10, and the position that emphasizes economic development is at 10. About where

on this scale does your own view lie?

As you understand it, about where on this scale does the position of the KMT lie?

About where on this scale does the position of the DPP lie?

About where on this scale does the position of the PFP lie?

About where on this scale does the position of the TSU lie?

Reform issue

Looking at Taiwan's overall development, some people believe that large scale reform is the most important thing, even if it means sacrificing some social stability. Other people believe that stability is the most important and that reform should not be allowed to affect social stability. On this card, the position that large-scale reform is the most important thing is at 0 on a scale from 0 to 10, and the position that social stability is most important is at 10. About where on this scale does your own view lie?

As you understand it, about where on this scale does the position of the KMT lie?

About where on this scale does the position of the DPP lie?

About where on this scale does the position of the PFP lie?

About where on this scale does the position of the TSU lie?

Party feeling thermometer

Now we'd like to understand your opinions about each of the political parties. If zero means you dislike a party very much, and ten means you like that party very much, what number would you give the KMT?

And the DPP?

And the PFP?

And the TSU?

Party performance

During the past year, which party in the Legislative Yuan has performed the best? (KMT, DPP, PFP, TSU)

Administration performance

On a scale from 0 to 10, where 0 represents very dissatisfied and 10 represents very satisfied. Concerning the overall performance of the administration led by President Chen Shui-bian over the past four years, are you satisfied or dissatisfied?

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議題位置、政黨形象、政黨表現 與投票選擇的理論化： 以台灣 2004 年立法委員選舉為例

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摘 要

本研究的目的為探究2004年立法委員選舉行爲的決定因素。由於近來兩大政黨陣營發展成形，本文運用巢狀對數勝算模型（nested logit model）在階層狀的投票選擇。主要的假設為投票選擇決定於選民對政黨的廣泛評價以及在立法院的評價。在一連串的選項特定的變數（alternative-specific variable）之中，政黨的立法院表現被證實對於投票選擇具有關鍵性影響。同時，在獨立／統立議題上的相對立場是一個顯著的變數。此外，政黨支持與對於目前政府的評價亦有作用。本文的發現不僅確認不連續選項的模型，也凸顯政黨在一般民眾心目中的評價與立法院表現的重要性。

關鍵字：巢狀對數勝算模型、政黨印象、立法委員選舉、議題立場