

**Poverty and Voting Behavior:  
A Case of Taiwan**

Ching-Yuan Lin\*  
Tamkang University

John A. Bishop  
East Carolina University

Jong-Rong Chiou  
Tamkang University

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*Contact* : Ching-Yuan Lin  
Department of Economics  
Tamkang University  
151 Ying-Chuan Road  
Tamsui, Taipei County  
Taiwan, R.O.C. (zipcode 25137)  
E-mail: [cylin@mail.tku.edu.tw](mailto:cylin@mail.tku.edu.tw)

## **Abstract**

Three events have taken place nearly simultaneously in Taiwan. First, Taiwan has recently enjoyed free, multi-party elections. Secondly, Taiwan has experienced decelerating growth rates. And perhaps due to the first two events, Taiwan has also experienced a new interest in poverty and policies that may alleviate it. The recent elections and slowing growth rates provide us an opportunity to investigate the relationships among political party, ethnic identity, economic status, and poverty.

The empirical models presented in this paper show that the Presidential election results for 2000 and 2004 can largely be explained by three factors: geographical area (a proxy for ethnic status), education level, and the local poverty rate. After controlling for education and geographic area (ethnicity), voters in poor areas did not tend to support the “liberal” party (DPP). Decomposition results indicate that while the poor tend not to support DPP, the DPP has successfully improved its appeal to poor voters in 2004 election. A possible explanation for the improvement is the transfer of income from the government. In short, the DPP’s success with native Taiwanese voters outweighs their inability to sway either high status or poor households.

Keywords: poverty, elections

## I. Introduction

A great deal of attention has been focused on Taiwan's experience of growth with equity. Relative to income inequality and economic growth, the issue of poverty has received less attention. Two recent events may explain the emerging interest in poverty in Taiwan, free, multi-party elections and decelerating growth rates.

To see the connection between elections and poverty, it is necessary to give a brief introduction to Taiwan's recent elections. Direct voting for Taiwan's president began in 1996. The Kuomintang (KMT), the ruling party since 1949, won the first Presidential election. In 2000 and 2004, the major opposition party, the Democratic Progressive Party (DPP) won the Presidential election. The KMT is the status quo party, content to remain for the meantime the Republic of China on Taiwan. The DPP is strongly pro-independence.

Curiously, the beginning of elections corresponds directly with the slow down of economic growth (Figure 1 provides per capita GDP).<sup>1</sup> While Taiwan has experienced slower growth in recent years it is also of interest to ask how the poor have fared under democratic rule. Figure 2 provides our estimates of headcount poverty. The headcount ratio stayed rather stable in the early 1980's, rises sharply in the late 1980's, and returns to early 1980's levels by the middle of the 1990's. However, beginning in 2000 (a recession year) the headcount ratio rises rapidly again. It appears that poverty was improving during KMT rule but began to rise after the DPP won in the 2000 election. This is somewhat surprising as the poorer South is the DPP stronghold.

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<sup>1</sup> Slow economic performance since 2000 is not all DPP's responsibility as they took over power in the midst of a world wide economic contraction (the Asian Crisis). However, South Korea did perform well at that period. The GNP per capita of South Korea increased by 32.07% from 2000 to 2003 while, at the same time, Taiwan dropped by 3.07%. In fact, South Korea's GNP per capita surpassed Taiwan in 2005.(see Taiwan Statistical Data Book) It is believed that internal politics can explain largely the recent slower growth rates. We describe our poverty measure in Section 3.

Lin and Chu (2005) simulate the ability of government policy to eliminate poverty. They find that by manipulating the transfer income and some socio-economic status variables, government can alleviate poverty issue significantly. Lin and Chu's work raises an interesting question: given that: (1) the government has room to ease the poverty, and (2) the poor are able to control the election's outcome (the winning margins for the 2000 and 2004 elections were 2.46 percent and 0.22 percent, respectively); then, to what extent might economic development influence the voting behavior of the poor?

Elections, of course, are not determined solely by economic conditions. Voting behavior can be attributed to several well-known factors such as socio-economic status, gender, ethnic group, religion, and psychological factors. In Taiwan, socio-economic status and ethnic status appear to influence political orientation much more than other factors.

That person's with high socio-economic status tend to support conservative parties, while low socio-economic status persons tend to support leftist parties has been observed in many countries and over a long period of time. However, Ethridge and Handelman (1998) point out that this relationship is valid only in the aggregate. In addition, the impact of social and economic status has been steadily declining in the United States and Europe over the past four decades. On the other hand, Inglehart (1990) suggests that as societies move beyond struggles over industrial and economic policy, political issues become immersed in other matters, and the impact of social and economic status on party and ideology is less straightforward.

Ethnicity is a critical, often overriding factor, in the choice of a political party. The correlation of ethnicity and party is strong in many countries and usually the impact of ethnic status on voting is much more straightforward than that of socio-economic status.

Taiwan is with no exemption. Voters in Taiwan of different ethnic backgrounds approach politics in distinctive ways, revealing modern echoes of conflicts beginning even before Chiang Kai-shek's retreat to the island in 1949.

Ethnic conflicts in Taiwan trace their roots from the dictatorial policies of the mainlander-dominated KMT party in the early years of the Republic of China. More specifically, the conflict began on Feb. 27, 1947. What began as a routine seizure of illegal cigarettes resulted in the wounding of an old woman vendor and the next day escalated into an island-wide uprising. Thousands of people were killed in the resulting military crackdown<sup>2</sup>. This tragic event has come to be known as 2/28 and it symbolizes the tension between the native Taiwanese (ethnic Chinese arriving on Taiwan before 1947) and the mainlanders (arriving after 1947). In addition to the 2/28 incident, some argue that land reform of early 1950's and Japanese colonial rule were other factors that lead to conflict between mainlanders (represented by KMT) and Taiwanese (represented by DPP). In fact, the victims of land reform were a minority compared to vast numbers of farmers who were beneficiaries of this policy. Instead of arguing that land reform lead to the anti-KMT phenomenon, we argue that the KMT's imbalanced north-south development policy might explain more. Like many governments in less developed countries, the KMT extracted the agriculture surplus to support industrial development in the 1950's and 1960's (northern Taiwan is more commercial and industrial, southern Taiwan is more agricultural). As to Japanese colonial rule, it is related to anti-Chinese ideology. For the older indigenous population the KMT was seen as another invader, like the Japanese. Thus, driving out the KMT and seeking Taiwanese independence offers an outlet to their

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<sup>2</sup> Kerr (1965) estimated that there are 15,000 to 30,000 people were killed across the island over several months. However, some researchers believe that this figure is overestimated.

frustrations. The rise of DPP reflects, to some degree, these factors, as well as reacting to **the call for reunion** from China.

In sum, there are strong ethnic connections to each of the two major parties in Taiwan. While the government no longer provides information on ethnic status, most people identified as “mainlander” live in the northern part of the island. As a result, we use a North or South location as a proxy for ethnic status.

In this paper, we investigate the relationship between voting behavior (the dependent variable), ethnicity, socio-economic status, and poverty. Changes in the regression coefficients and independent variables are decomposed to explore the source of the variation. The next section gives a brief discussion of data and methodologies. Section 3 presents the empirical results. The final section provides some concluding remarks.

## **II. Data and Methodology**

The official household survey data used in this study is provided by the Directorate General of Budget, Accounting and Statistics (DGBAS), Executive Yuan. Initially, the survey was biannual, but the survey became annual in 1970 and microdata are available beginning in 1976. Like many national income surveys, Taiwan uses a stratified random sampling method.

The official voting records are provided by the Central Election Commission (CEC), Executive Yuan<sup>3</sup>. CEC divides whole eligible voters into 12,602, 13,312, and 13,791 polling booths for the 1996, 2000, and 2004 election respectively. To match with the income survey data, we aggregate votes for each area according to the DGBAS area

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<sup>3</sup> <http://www.cec.gov.tw>

definitions. Kinmen and Matsu are excluded from this study for as DGBAS does not provide their income data<sup>4</sup>. As a result, there are 44 areas (observations) for each election. Finally, we use 1999 and 2003 demographic data as the 2000 and 2004 elections were both held in March<sup>5</sup>.

We postulate the following relationship between voting outcomes, poverty, socio-economic status and ethnicity:

$$Y_i = \alpha_i + \beta_{1i} \text{area}_i + \beta_{2i} \text{education}_i + \beta_{3i} \text{poor}_i + \varepsilon_i$$

where  $Y_i$  is percentage of votes DPP candidate got at each area,  $i$  ;

area is a dummy variable where south is 1, otherwise 0;

education is defined by the percentage of highly educated household heads in each area; and

poor is defined by the percentage of poor families in each area.

Area is used as a proxy for ethnicity whereas education is used as a proxy for socio-economic status.<sup>6</sup> As to the independent variable, poor, the poverty line is defined as income of half of median family income. In addition, incomes are adjusted to adult equivalents and for economies of scale in a household.<sup>7</sup>

To further investigate the voting behavior, we disaggregate the observed change into structural effects, which measure the contribution of changing parameter estimates; value

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<sup>4</sup> For 2004 the eligible voters of Kinmen and Matsu are 28,134 and 4,308 respectively. Nationwide, the number of eligible voters is 12,914,422.

<sup>5</sup> The 1996 election is not our focus in this study. The attitude of KMT candidate in 1996 toward the issue of Taiwan independence was ambiguous. In public, he rejected independence but was friendly toward independence in private. As a result, the voting behavior was surely influenced.

<sup>6</sup> In literature, social and economic status is determined by education, income, and job status. We tried other variables such as white collar. We find education is the variable with highest explanatory power in the case of Taiwan.

<sup>7</sup> Our method to adjust family income follows Easterlin *et. al.* (1990) The weight of the first adult (child) at each family is 1 (0.4). Each additional adult (child) is 0.8 (0.3).

effects, which isolate the impact of the changing values of the explanatory variables; and interaction effect, which are the compound effects of changing parameters and explanatory variables (Cloutier, 1984). The change in the dependent variable can be expressed as:

$$Y_t - Y_{t-1} = \beta_t X_t - \beta_{t-1} X_{t-1}$$

where  $\beta_t$  are the estimated OLS coefficients at time  $t$ , and  $X_t$  are the values for the independent variables at time  $t$ .

Define  $\Delta\beta = \beta_t - \beta_{t-1}$  and  $\Delta X = X_t - X_{t-1}$ . The change in voting rate between two elections can be further decomposed into effects mentioned above as follows:

$$\Delta Y = \Delta\beta X_{t-1} + \beta_{t-1} \Delta X + \Delta X \Delta\beta$$

Where the left hand side is the total effect and the right hand side effects are structural, value, and interaction effects, respectively.

### III. Empirical Results

Table 1 provides summary statistics on the variables used in our study of poverty and voting in Taiwan. The geographical area variable defined as “South” is time invariant so its’ mean and standard deviation are the same for all three different years. As to poverty, it increased through time as illustrated in the introduction.

We measure education as the percentage of household heads with more than 12 years of schooling, which is increasing over time. Taiwan has undergone four stages of educational reforms. The major focus of the first stage, 1948 to 1968, was the eradication of illiteracy. Implementing obligatory education for junior high school students was the objective of the second stage, 1968 to 1980s. The third stage, strengthening its vocational high school education, began around the mid of 1970s and ended in 1990. Finally, starting from 1990s, the fourth stage, the emphasis placed upon higher education reform.



San (2001) reports that there were 16 universities and 23 independent colleges in 1988; by 1997, the number of universities had increased to 38, and the independent colleges to 40. In addition, by 1997, the number of registered students of the Open University, an education channel that enable people of Taiwan to pursue advanced study in off-duty hours, has increased to 40,138.

Percentage of the vote received by the DPP candidate is the dependent variable in our study. However, there are several points that require clarification before beginning our analysis. The winner of the President election is determined by plurality, not absolute majority. In 2000, the DPP's candidate received 39 percent of the vote, which was enough to win the election. Although the KMT received 60 percent of the vote, they lost the election due to an internal squabble among the two candidates. In 2004, the KMT campaigned with one candidate and was expected to win. However, the DPP's candidate (and current President) was injured by a suspicious assassination attempt one day before the election. The outpouring of sympathy for the sitting president is widely credited for DPP's victory.

Table 2 gives the OLS regression results for each election. The R-squared and F values indicate a better fit for the 2000 and 2004 elections; an R-squared over 50 percent suggests that our simple model has relatively high explanatory power. As mentioned above, 1996 election was unique and we concentrate our analysis on 2000 and 2004 elections. Nevertheless, we list the 1996 results in Table 2.

Examining the coefficients in the regressions separately we find that *Area* is a positive and significant at 1% level for all elections. This suggests that DPP candidates benefit steadily from southern voters and the ethnic issue indeed exists in Taiwan. Education is significant at 1% level in the 2004 election and its sign is negative. This

implies that socio-economic status influences the voting behavior in a manner similar to other countries' experience (see for example, Ethridge and Handelman, 1998). Voting by the poor is our primary interest and the poverty rate is negative in all regressions and is significant for the 2000 and 2004 elections. The negative signs indicate that, on average, the poor do not support the “liberal”<sup>8</sup> DPP party. For the 2004 election the negative sign is not surprising as the economy was performing poorly at that time. However, the negative sign of 2000 occurs during relatively good economic times, combined with the fact that the DPP was not yet the ruling party is somewhat puzzling. A possible explanation is that the poor do not have confidence in the DPP due to a lack of ruling experience. In short, for the DPP, ethnicity is the most important factor for the winning of 2000 and 2004 elections. The positive impact of ethnicity outweighs the negative impacts of social and economic status and poverty.

At first glance, there appears to be little difference between the 2000 and 2004 elections. However, a decomposition analysis gives further insights and Table 3 reports these decomposition results<sup>9</sup>. The total effect of education is negative indicating that DPP has not improved their image among highly educated voters. Most of the changes came from structural effect (86% = -0.0552/-0.0639); the value effect is small indicating the changes from householder's school years can be neglected. The interaction effect is also small. In sum, it's not the increase in education, but the stronger negative preference among the educated that the DPP must overcome.

Examining the variable poverty we find that the structural and interaction effects are

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<sup>8</sup> Strictly speaking, it is inappropriate to describe the difference between two major parties in Taiwan as conservative vs. liberal. DDP was relatively “liberal” in the sense that KMT was the status quo party and had been the ruling party for over half century since 1945.

<sup>9</sup> According to Table 3, the most important factor explaining the change in voting rate between two elections is the “intercept”. This reflects a structural change of our model since DPP faced two KMT candidates in 2000 and only one in 2004.

positive while the value effect is negative. A negative value effect tells that the percentage of poor families has increased in this period. A positive structural effect indicates that DPP has successfully improved their popularity with the poor. Overall, the positive total effect shows the structural effect has outweighed the value effect. A possible explanation for this phenomenon is the increasing transfer income from government. Using the same poverty line as we defined in this work, Lin and Chu (2005) reports the poverty rate is 7.48 percent in 2003. However, if we exclude transfer income from government, poverty rate increases to 10.59 percent. There might be, of course, other explanations. However, we believe the 3.11% difference is sufficient for us to argue that transfer income is an important factor to explain the structural change of the poor.

#### **IV. Conclusions**

The empirical model presented in this paper indicates that the Presidential elections in 2000 and 2004 can largely be explained by three factors: area, education, and poverty. We argue that the North-South divide in Taiwan politics reflects the historic conflict between the “mainlanders” and the pre-1947 ethnic Chinese known here as the “native Taiwanese.” The empirical evidence show that, in aggregate, households with high social and economic status tends to support the status quo KMT Party while those with lower social and economic status support the pro-Independence DPP Party. After controlling for socioeconomic status and ethnicity, the poor also support the KMT.

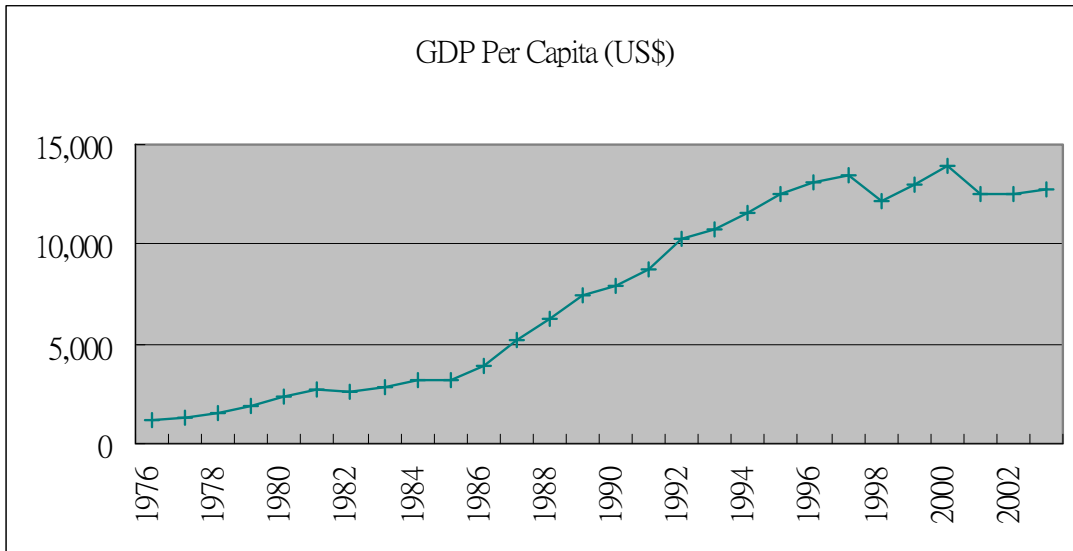
A decomposition of the 2000 and 2004 cross-sectional models explored explanations for the changes of education and poverty. The results of the decomposition show that the DPP is not improving its image with high status households. Decomposing the variable poverty we find that the structural effect outweighs value effect indicating, in aggregate,

that the poor tend not to support DPP. However, we also find that the DPP successfully improved its ability to capture poor voters in 2004 election. A possible explanation is an increase in transfer income from the government. In short, the DPP's success with native Taiwanese voters outweighs their inability to sway either high status or poor households.

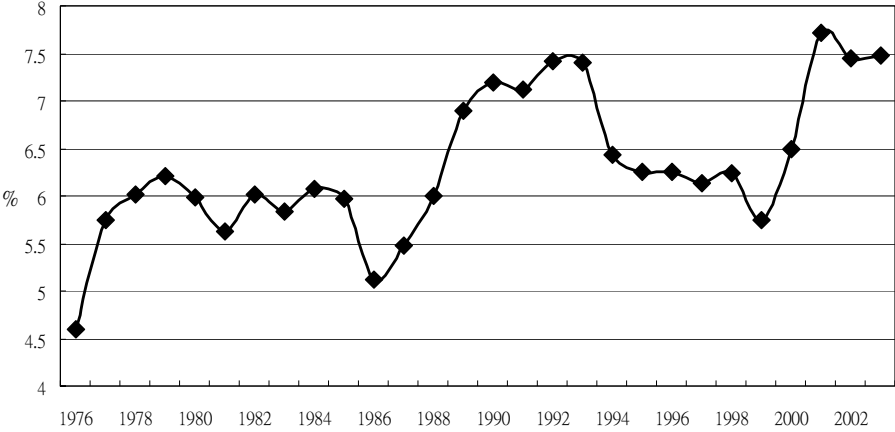
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**Figure 1: GDP per capita of Taiwan, 1980-2003**



**Figure 2: Headcount ratio of poverty in Taiwan, 1976-2003**



**Table 1: Mean and standard deviation of variables in the model**

	2004	2000	1996
area	0.4091 (0.4974) <sup>a</sup>	0.4091 (0.4974)	0.4091 (0.4974)
education	0.3085 (0.1330)	0.2864 (0.1504)	0.2582 (0.1457)
poverty	0.0649 (0.0599)	0.0547 (0.0553)	0.0518 (0.0539)
% of vote	0.4980 (0.0910)	0.3996 (0.0800)	0.2274 (0.0588)

a: standard deviation is in parenthesis



**Table 2: Regression results of the model**

	2004	2000	1996
intercept	0.5707** (11.54) <sup>b</sup>	0.4175** (12.90)	0.1852** (7.13)
area	0.1118** (5.74)	0.1114** (6.57)	0.0657** (4.18)
education	-0.3027** (-2.83)	-0.1172 (-1.59)	0.0977 (1.50)
poverty	-0.3855* (-1.70)	-0.5459** (-2.79)	-0.1903 (-1.11)
r-square	0.6181	0.5826	0.3441
adjust r-square	0.5894	0.5513	0.2949
F value	21.58	18.61	6.99

\*\* significant at the level of 1 percent

\* significant at the level of 10 percent

b: t-value is in parenthesis

**Table 3: Decomposition on the change in vote rate between two elections**

Variable	Total effects	Structural effects	Value effects	Interaction effects
Intercept	0.1532 ( 155.69% )	0.1532	0	0
Area	0.0004 ( 0.41% )	0.0004	0	0
Education	-0.0639 ( -64.94% )	-0.0552	-0.0046	-0.0041
Poverty	0.0107 ( 10.87% )	0.0096	-0.0005	0.0016
Error	-0.002 ( -2.03% )			
Sum	0.0984 ( 100% )			