



Sample of Level 3 Editing

Electorate Redistricting for a Single-Member District Plurality, Two-Ballot Voting

System: Taiwan's Electoral Reform

Abstract

In light of Taiwan's electoral reform, tThis study formulates a mathematical model for electorate demarcation in line with that is attuned to Taiwan's electoral reforms, minimizing . Of particular concern is the need to minimize the legislative seats for the main opponent opposition party in Taipei City. The working model is thus compared with historical voting election -data in order to establish which characteristics are most contested and germane to reform. It then solves the model, based on historical voting data. The study result is compared with the actual-An examination of the constituency demarcation for the sSeventh Legislator eElection ascertains and shows whether electorate demarcation can be manipulated to create electoral advantage. must depend on voter structure and shares, and then Demonstrable evidence of demonstrates an example of a bias toward disproportionate representation in disproportionality of the single-member district plurality, two-ballot voting system ultimately attests to. This study highlights the importance of scenario analyses before adopting new electorate systems.

Keyword: Opimization, Electorate Redistricting, Breadth-First Search

1. Introduction

It is only two decades since fundamental democratic rights, such as freedom of the press and political association, were curtailed in Taiwan by the institution of martial law in Taiwan, martial law had been imposed and the formation of new political parties and newspapers was banned. Taiwan has since undergone a peaceful transition to democratic representation. Since that time, Taiwan has been transformed to a country where the president is directly elected, and political power is transferred peacefully. Moreover, indeed, the holding of the first national referendum serves as a benchmark of a much broader sweep of has been held. The progress and speed of such liberalization and democratization have been noteworthy. However, despite its achievements in democratization. Notwithstanding these remarkable gains in democratic legitimacy, it is clear that further progress is has been impeded somewhat by Taiwan was seen to suffer from legislative inactivity and inefficiency, deterioration in most especially in regard to the corrosive effects of money politics on the accountability of function of political parties, and money polities. Such factors were obstructing progress in the country and having long-lasting economic as well as political impacts. Public antipathy towards this general climate of cronyism and nepotism has led to calls for Because of such inefficiency and its negative influences, the general public began to request congressional reforms, including reform of the electoral reform systems.

2. Literature Review

This section defines the domain knowledge for parameters of this research;¹⁷ reviews the related literature;¹⁸ and subsequently lists the 7th Municipality, County and City Legislator Electoral District Demarcation Rules in detail.

2.2.2.1. Redistricting and Gerrymandering

In order to halve the number of existing legislator seats and introduce an SMDP system, the electorates need redistricting. Administrative districts, population distribution, geographical environment, the available transportation situation, historical source, and the number of public officials to be elected, are all variable empirical factors that need to be taken into account. The principle “one person one vote; all votes are equal” must be upheld so that if legislators are to be elected on the basis of based on proper representation, legitimacy and fairness. However In direct contravention of this widely held ideal, political science scholars maintain that constituency demarcation for the SMDP voting system actually makes Gerrymandering easier than for other electoral systems. Political gerrymandering is may be defined as the drawing of electoral district lines in a manner that discriminates against a political party.

From where does tThe term “Gerrymandering” originated in 1812 in a the context of anywhere, the opponent opposition party’s state representative’s iron-clad voting electorates were being fractured into small fragmented s when Massachusetts’ Governor Elbridge Gerry carried out an irregular electorate demarcation which looked like a salamander. This process enabled incident helped the ruling party to increase its Sstate representative seats, but the process was criticized for as being a selfish electorate demarcation that only

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serving one party's interest. This unfair demarcation came to be called G. Hence the term gerrymandering—, is a combination portmanteau of the name "Gerry" and the word "salamander".

4.3. Model Validation and Results

This section solves tests the formulated mathematical model on the basis of the data derived from historical Public Official Election information published by the CEC and Election Information Databank, and information in conjunction with data on voter structure in Taipei City from previous elections. It was deemed appropriate here to draw on the including 2004 Presidential election, the 2006 election for Taipei City Mayor, as well as the Seventh Legislator election (see Table 2), because these elections in Taiwan were couched in terms of KMT and DPP voters. Incorporating the constraints of Equation Error! Reference source not found., Error! Reference source not found., and Error! Reference source not found. into the BFS algorithm, we summarized 21,535 legitimate ways for dividing 449 boroughs in Taipei City into eight election districts. According to Based on the voter structure and share for each historical election, we were able to calculate the seats that would have been received by the opposition KMT and the ruling DPP. From this it is possible to extrapolate and demonstrate possible redistricting for the ruling party (DPP) seeking to gain an favorable electoral demarcation that is relatively in its favor.

5.4. Conclusions

This study formulated a mathematical model for electorate demarcation to minimize the legislative seats for the main opponent party (KMT) in Taipei City subject to the constraints of electoral demarcation. A BFS algorithm was adopted to examine all legitimate ways of redistricting for Taipei City. Although there are 21,535 legitimate ways for dividing 449 boroughs in Taipei City into eight constituencies, the 21,535 demarcations all allot eight seats for the opposition KMT and zero seats for the DPP by inputting the vote shares of the Seventh Legislative Election. The DPP had 36 percent of votes across Taipei City but received no seat at all, which demonstrated a huge disparity between votes and seats. Having dutifully reported the findings of this study, it is now an opportune moment to consider the extent of its contribution to Contributions of this study to the literature. are: (1) Firstly, our research adduces empirical support for the thesis that voter structure and vote shares play a constitutive role in determining the feasibility of any manipulation of electorate demarcation. to show that whether electorate demarcation can be manipulated to create electoral advantage must depend on voter structure and vote shares; Secondly(2), to demonstrate an example of disproportionality arose in the Seventh Legislative Election for Taipei City, and therefore scenario analyses are certainly needed before new electoral systems being can be approved or and implemented.