aECONOMIC STUDIES

DEPARTMENT OF ECONOMICS
SCHOOL OF ECONOMICS AND COMMERCIAL LAW
GÖTEBORG UNIVERSITY
127

ON THE POLITICAL ECONOMY OF MUNICIPALITY BREAK-UPS

Anna Brink

ISBN 91-88514-86-2
ISSN 1651-4289 print
ISSN 1651-4297 online

To my parents,
Tiiu and Torsten

Abstract

This thesis deals with politico-economic aspects of municipality break-ups. It consists of an introduction and three self-contained papers.

Paper I:
The Break-up of Municipalities – Voting Behavior in Local Referenda

This paper examines the economic and political conditions that influence people's attitudes regarding a municipality break-up. The theoretical model predicts intra-municipal differences in tax bases, political preferences, and population size to affect the expected gain from secession. The predictions of the model are tested using data on local referenda about municipality partitioning in Sweden. The data support one of the three effects; a tax base effect shows to be present – voters in municipality parts that are wealthy compared to other parts of the same municipality are more positive to secession.

Paper II:
Unequal Provision of Local Public Services under the Threat of Secession

This paper studies to what extent it is possible to discriminate between two municipality parts by unequal public service provision when there is a threat of secession. The objective of the local politicians is to maximize utility for only one part of a municipality. The discriminated part is small and politically marginalized, but has the option to secede. The power of the small part's population is in this way entirely exercised through the threat of secession. It becomes their guarantee against being taxed too heavily or against obtaining too little of public services. The case of three recent secession attempts in Göteborg, Sweden, is discussed in light of the model.

Paper III:
Deciding Who's Decisive:
Municipality Break-Ups and the Behavior of Local Politicians

Swedish municipality parts aiming for secession are highly dependent on the municipal council's acceptance in order to succeed. Only four of the 25 municipality break-up verdicts passed by the central government have not been in line with the municipal council's recommendation. In nearly all cases, the recommendation seems

to be based on the stated opinion in local referenda or opinion polls. However, by deciding on whether the whole municipality, or the seceding part alone should be encompassed by the referendum or opinion poll, the municipal council can affect the probability of obtaining the desired result. This paper empirically studies this decision. Two factors show to be important. If a secession would result in a large reduction of the municipality's population and a decrease in its per capita tax base, the referendum or opinion poll is more likely to encompass the whole municipality. Such a referendum or opinion poll does, in turn, decrease the probability of a municipal council supporting the case, which reduces the central government's propensity to finally approve a secession.

Keywords
Municipalities, Secession, Municipality Break-Ups, Local Government, Municipal Council, Public Provision of Private Goods, Public Services, Exploitation.

Contents

Preface

I realized that Economics was the right discipline for me when a term paper I wrote as an undergraduate was discussed at a seminar. The paper dealt with the Swedish economic crisis in 1992, focusing on the cooperation between the government and the opposition (the so called *krispaketen*). The political efforts appeared to have little effect on the currency outflows, as did the central bank's increase of the interest rate to 500 percent. Eventually, the fixed exchange rate had to be abandoned. A fascinating topic, I thought. But the seminar chair seemed not to be as thrilled. He fell asleep. This happened at the Department of Political Science.

Although I never regretted choosing the Economics track, I must admit there were times when I questioned my aspiration for a doctorate degree. Writing this preface is a way to acknowledge the people who have facilitated my life during these last years, and helped me to finally reach my goal.

My deepest gratitude goes to Professor Henry Ohlsson, my supervisor. His enthusiasm for Swedish municipalities convinced me that they are every bit as exotic as foreign countries. I thank Henry for his continuous support and for believing in me. If it weren't for him, this thesis would not exist.

Two years ago, my stock of supervisors doubled when Katarina Nordblom assumed some of Henry's responsibilities. Katarina has been an invaluable asset to me during this period. I thank her for letting me take part of her sharp intellect, for all the hours she spent on thoroughly scrutinizing my work, and for being a considerate friend.

Matz Dahlberg was the discussant at my Licentiate thesis defense. His comments resulted in significant improvements of the first paper in this thesis. Magnus Wikström was the discussant at my final seminar. His remarks and suggestions have increased the overall quality of this thesis. My work has also benefited from comments by and discussions with the following persons: Daniela Andrén, Lars-Erik Borge, Mattias Erlandsson, Susanna Lundström, Åsa Löfgren, Tiiu Soidre, and seminar participants at Göteborg University and Uppsala University. Thank you all!

An important grant from *Ejnar Lindhs kommunalvetenskapliga stiftelse* made it possible for me to collect the data used in this thesis. Without the data, I doubt that I would have received the generous grant from the *Swedish Research Council*,

which has financed this project.

I also want to thank Eva Jonason, Eva-Lena Neth Johansson and Gunilla Leander for administrative support, and Debbie Axlid for proofreading parts of this thesis.

When I began my doctorate studies I quickly found a dear friend in Francisco Alpízar. I sincerely thank Francisco for always being there for me. Mattias Erlandsson has also been an enormous support for me during this period. He is not only a first-class friend; he is also the man with the answers. I have another good friend in the lovely Susanna Lundström. I thank Sanna for her genuine generosity, and for being a role model for the rest of us chicks from Mölndal. Every day around 11.30, Johan Adler has insistently knocked on my door, asking me to come along for lunch. I was always pleased to see Johan's face in my doorway, and I hope to see it there in the future as well.

I also want to thank Henrik Hammar, Ola Olsson, Åsa Löfgren, Panchali Guha, Anders Isaksson and Marcus Asplund for great company during these years.

Special thanks go to Wlodek Bursztyn, who encouraged me to apply for the doctorate program. I am truly grateful.

I've spent most of my Tuesdays during the last three years attending interesting seminars at Södra Allégatan. My lasting Tuesday memories do not, however, concern the presented papers, but rather the post-seminars at the Rover and at Sjöbaren. I thank Henry, Donald Storrie and Dominique Anxo for establishing such a fine tradition and for being so much fun.

Lately, my doctorate studies have caused me to be increasingly screened off from the world outside. I am lucky to have my dear friends Malin, Mia, Sandra, and Birgitta, who have repeatedly reminded me of its existence. I hope and believe that their brave efforts have saved me from becoming a chronic introvert. I also want to thank my three illiterate friends Svonko, the Eel, and Walker Texas Ranger. Our annual Canasta workshops have helped me stay happy.

As a child, my idea of fun was to tease my older brother Andreas. Fortunately, he quickly realized that it was not much of a challenge to beat me physically. Our relationship has instead been characterized by vivid discussions, in which our parents have never hesitated to participate. My family has always been curious, caring, and supportive, and what makes me most grateful is that they never stopped playing an active role in my life. Our Sunday afternoons at mom's place have provided me with a safe haven. That is a rare luxury for a doctorate student.

My last words in this preface go to my beloved fiancé. Andreas, thank you for energizing me when my batteries are low. The time devoted to this thesis is finally over. Let's spend tomorrow together.

Göteborg, April 2003

Salems nya kommun har nu fungerat sedan delningen. Det vallöfte om en konstfrusen isbana som utlovades före delningen har nu infriats. Dessutom har isbanan i politisk enighet ändrats till att bli en ishall.

ur Salemsboken, 1984

Introduction

On January 1st, 1974, the three municipalities Åsele, Fredrika, and Dorotea were amalgamated despite a massive opposition in Dorotea, including a hunger-strike! An action group was quickly formed and a list of names, signed by 90 percent of the Dorotea population, was delivered to the local politicians. In 1976, the municipal council finally submitted an application to the central government for breaking up the municipality. After an investigation and an opinion poll were conducted, the government decided to let Dorotea regain independence. The amalgamated municipality lasted for six years only (Holmgren, 1981).

Dorotea was the first, but not the last, case of local secession in Sweden. During the 1976–2000 period, some 40 municipality parts have formally applied for secession, resulting in 13 new municipalities.

This thesis consists of three self-contained papers. They are all about municipality break-ups. In this introduction, a general background to municipality break-ups in Sweden is presented, followed by discussion of the issues addressed in the thesis and a brief overview of the main results. The Appendix lists the outcomes of the break-up cases.

1 The Amalgamations

Sweden is one of many European countries where municipalities were considered to be too small when the public sector rapidly expanded during the post-war period. By municipal amalgamations, the decision-makers hoped to increase both administrative and economic efficiency at the local level, and thereby enhance public service provision (Gustafsson, 1980).

During the period 1952–1974, the number of Swedish municipalities was reduced to about a tenth. This drastic reduction was the result of two amalgamation reforms, advocated by the Social Democrats, who held office throughout this period. The objective of the first reform was to create municipalities large enough for obtaining an acceptable minimum standard of municipal public administration. Depending on the differing geographical and tax base conditions among municipalities, this called for municipal population bases not smaller than 2,000–3,500. The reform took effect in 1952, reducing the number of municipalities from 2,500 to 1,037. As the municipalities' responsibilities increased during the 1950s, it soon became apparent

that the amalgamations not had been radical enough. Experts claimed that further amalgamations were necessary in order to sustain schools, social services, and other local public sector activities, corresponding to a population of at least 8,000. The second reform was gradually implemented between 1962 and 1974, decreasing the number of municipalities to 278 (SOU 1978:32).

The municipalities were initially intended to implement this second wave of amalgamations voluntarily. The Social Democratic majority in the Riksdag, however, came to abandon the voluntary principle in 1969 (Gustafsson, 1980). Resistant municipalities that perceived amalgamation as annexation were finally forced to unite, despite opposition from the right-wing parties. When the right-wing government took office in 1976, it consequently declared to be willing to try out proposals about changes in the municipal division that are motivated from a municipal democracy point of view. The Social Democratic government from 1982 correspondingly declared that it would be restrictive with municipality partitions (Höglander and Wiklund, 1998).

2 The Legal Process of Municipality Break-Ups

The prevailing discontent with the second wave of amalgamations gave rise to the initiative of a thorough overhaul of the outdated legislation on municipality partitions. It resulted in the Local Government Boundary Reform Act of 1979 (*Lag om ändringar i Sveriges indelning i kommuner och landsting, SFS 1979:411*), which regulates the procedure for municipality break-ups. Since these matters are complex, the law does not include any detailed rules. The intention of the law is explained in a report by the Boundary Legislation Committee (*Indelningslagskommittén*). It suggests that a change in municipality division should be decided upon only if it can be assumed to bring about lasting benefits for the municipality or the seceding part of the municipality (SOU 1978:32).

In broad terms, the process is as follows: An application from a municipality or a member of a municipality is submitted to a public authority, the Legal, Financial and Administrative Services Agency (*Kammarkollegiet*). The case is then referred to the municipal council in the concerned municipality and to the County Administrative Board (*Länsstyrelsen*) for consideration. Based on their statements, the agency decides on whether the case should be investigated further or not. The agency may

reject the application at any stage during the process, but a rejection can always be appealed against to the central government.

The investigation is most often conducted by either the County Administrative Board or the Swedish Association of Local Authorities (*Svenska Kommunförbundet*) and should include all factors affecting the case and be made in consultation with the concerned municipality. If the investigator finds reason to investigate the opinion of the local population, it should be reported to the agency, which decides on the matter. If the County Administrative Board conducts the investigation, it can decide on such a matter as well.

However, if the municipal council wants to investigate the public opinion on a break-up case, it can decide to carry out a referendum or opinion poll. This possibility was opened up through the Municipality Act of 1977 (*Kommunallagen*) and has become the most common alternative; very few of the referenda and opinion polls were not initiated by the municipal councils.

The central government gives the final partition verdict. The opinion of the concerned municipality is of great importance and the municipal council is assumed to speak in the interest of the local population. Special considerations should also be taken to the seceding municipality part on the assumption that the wish of its population is manifested in an unambiguous way. How to balance opposite opinions between the population in the seceding part and the municipal council is not regulated by the Act, but left for practice (SOU 1978:32).

3 Motivation of the Thesis

The opening for local secession in the mid 1970s has resulted in a goodly number of initiatives by local action groups fighting for independence. However, only a fraction of the partition proposals has resulted in actual break-ups. In some cases, the proposals have been turned down due to weak public support in the concerned municipality parts. Other initiatives have met resistance in the non-seceding part of the municipality, or by local politicians. Moreover, Social Democratic governments have shown to be more restrictive with approving break-up cases compared to right-wing governments. In the light of these facts, several questions arise. Why do people in some municipality parts want to secede? Which is the role of the local politicians? What factors are of importance for a case to become successful?

These highly interesting and important questions are addressed in this thesis, which relates the municipality break-up questions to the strand of the political economy literature focusing on integration and break-up of nations. The general conclusion in this literature is that large jurisdictions benefit from economies of scale in publicly provided goods. But the larger the jurisdiction gets, the more probable is the rise of political frictions. This concerns efficiency in the sense discussed by Oates (1972), that the match between provision of public goods and services and people's preferences is more accurate in smaller jurisdictions. A geographically connected part that is homogenous in preferences would benefit from secession if the efficiency loss from the smaller jurisdiction is small enough. Correspondingly, unification of jurisdictions may be looked for when preferences are more similar (see e.g. Bolton and Roland, 1996, 1997; Alesina and Spolaore, 1997; Persson and Tabellini, 2000).

The objective in the first paper of the thesis, *The Break-Up of Municipalities – Voting Behavior in Local Referenda*, is to examine the economic and political conditions that influence people's attitudes regarding a municipality break-up. The empirical analysis is based on a theoretical model developed by Persson and Tabellini (2000). Referendum data from 24 municipality parts support one of the predicted effects; voters in municipality parts that have a greater per capita tax base than their mother municipalities are more positive to secession. The other two effects tested for concern political differences within the municipalities, and the population loss associated with secession. They are not, however, supported by data.

The presence of a tax base effect was rather surprising to me, the reason being the tax equalization system that redistributes income among municipalities. Although the system may not result in perfect equalization, the result was still noteworthy. When reading the investigation on the anticipated effects of a break-up of Göteborg, I realized that the theoretical model on which I based my empirical study lacked a dimension that was crucial for the Göteborg case, and probably for other cases as well. The investigation concerned the possible secessions of the three wealthy municipality parts Askim, Torslanda and Älvsborg. It showed that all three parts would be better off financially as independent municipalities, despite the equalization system. The reason is the allocation of public funds within Göteborg that favors the poorer municipality parts to the degree that if the three wealthy parts would break out, the tax rate in Göteborg would have to be raised to keep the per capita public consumption unchanged (Svenska Kommunförbundet, 1997). This aspect, which

largely is ignored in the related literature, inspired me to write *Unequal Provision of Local Public Services under the Threat of Secession.*

In this paper I theoretically study to what extent unequal distribution of public services is possible when there is a secession threat. The municipality in the model consists of two parts of different population sizes. I assume that public services can be provided in different amounts to the two municipality parts; a possibility that is exploited by the big part, which dominates local politics. The small and discriminated municipality part is politically marginalized, but has the option to secede. One of the results from my model is that if the small municipality part is wealthy, then an income equalization system facilitates the provision of more public services to the poorer municipality part. The equalization system does not, however, have any impact on the likelihood of secession.

On January 1st, 2003, the most recent municipality break-up was realized when Knivsta broke out from Uppsala. Unlike many of the previous cases, the municipal council in Uppsala decided that the referendum should encompass the population in Knivsta alone. The rest of Uppsala was thus not entitled to vote. Based on the positive referendum result, the municipal council decided to recommend the central government to let Knivsta secede and become an independent municipality. A necessary condition for a break-up case to be successful is a strong public opinion in the seceding municipality part. If the referendum encompasses the non-seceding part as well, a further condition is imposed; the municipality as a whole has to be positive as well. Accordingly, by letting the majority in Knivsta be decisive, the municipal council maximized the probability of a referendum result supporting a break-up. The behavior of the municipal council in Uppsala indicates that losing Knivsta wasn't such a big loss. Why was that?

When my next door office-neighbor (i.e. my supervisor) informed me that people in Knivsta voted for the opposition to a greater extent than the rest of Uppsala, I became delighted. Could it be the case that the incumbent politicians used the break-up possibility as a tool for increasing their chances of staying in power? This question resulted in the third paper in this thesis, *Deciding Who's Decisive: Municipality Break-Ups and the Behavior of Local Politicians.*

The paper examines what factors determine whether the whole municipality or the seceding part alone is encompassed by referenda and opinion polls about municipality break-ups. Based on 19 decisions made by municipal councils, I can

conclude that two factors seem to be of importance (although not the political factor I hoped for). If secession would result in a large reduction of the municipality's population and a decrease in its per capita tax base, then the referendum is more likely to encompass the whole municipality. From such a design, it follows that the probability of a stated public opinion supporting secession decreases, which in turn decreases the probability of a positive recommendation by the municipal council. And since the central government seems to base its verdict on the municipal council's recommendation, it should also decrease the possibility for a final approval of the case. In other words, by including the whole municipality in a referendum or opinion poll, municipal councils obstruct secession of large and wealthy municipality parts.

4 Concluding Remarks

The papers in this thesis do all address economic questions of municipality break-ups. Paper I examines what factors that affect the public opinion in the concerned municipality parts, Paper II studies how the option to secede constrains the behavior of local politicians, and Paper III studies how local politicians strategically can affect the likelihood of a break-up.

Hopefully, this thesis will contribute to the understanding of why we observe municipality break-ups, but also why they are so uncommon.

References

Alesina, Alberto and Enrico Spolaore, 1997, On the Number and Size of Nations, *Quarterly Journal of Economics* 112: 1027–1056.

Bolton, Patrick and Gérard Roland, 1996, Distributional Conflicts, Factor Mobility, and Political Integration, *American Economic Review* LXXXVI: 99-104.

Bolton, Patrick and Gérard Roland, 1997, The Breakup of Nations: A Political Economy Analysis, *Quarterly Journal of Economics* 112: 1058–1090.

Persson, Torsen and Guido Tabellini, 2000, *Political Economics. Explaining Economic Policy.* Cambridge: MIT Press.

Gustafsson, Gunnel, 1980, Modes and Effects of Local Government Mergers in Scandinavia, *West European Politics* 3: 339–357.

Holmgren, Holger (1981), *Åsele kommun delades*, in Utvärdering av kommundelningar. Erfarenheter av Motala och Åsele kommuners delning. Ds Kn 1981:21, Kommundepartementet.

Höglander, Bo and Wiklund, Claes, 1998, *Spelet om delningen – och vad som sen hände i Gnesta, Nyköping och Trosa*, Nyköping: Södermanlands Nyheter.

Oates, Wallace, 1972, *Fiscal Federalism*, New York: Harcourt Brace Jovanovich, Inc.

SOU 1978:32, *Ny indelningslag för kommuner, landstingskommuner och församlingar. Betänkande av Indelningslagskommittén.*

SOU 1993:90, *Lokal demokrati i utveckling. Slutbetänkande av Lokaldemokratikommittén.*

Svenska Kommunförbundet, 1997, *Kommundelningsutredning Askim–Göteborg.*

Appendix

Table A1. Government partition verdicts

Municipality	Municipality part	App. year	Applicant	Government	Dec. year	Part. year
Åsele	Dorotea	1976	Municipality	Right-wing	1979	1980
Motala	Vadstena	1977	Action group	Right-wing	1979	1980
Norsjö	Malå	1978	Municipality	Right-wing	1981	1983
Vara	Essunga	1978	Politicians	Right-wing	1981	1983
Vaxholm	Vaxholm	1978	Action group	Right-wing	1981	1983
Vännäs	Bjurholm	1977	Municipality	Right-wing	1981	1983
Botkyrka	Salem	1978	Centre party	Right-wing	1981	1983
Nyköping[a]	Trosa & Gnesta	1986	Municipality	Social Democrats	1990	1992
Örebro	Lekeberg	1990	Municipality	Right-wing	1992	1995
Borås	Bollebygd	1993	Pol. parties[b]	Right-wing	1993	1995
Södertälje	Nykvarn	1995	Municipality	Social Democrats	1997	1999
Uppsala	Knivsta	2000	Municipality	Social Democrats	2001	2003
Härjedalen	Tännäs/Hede	1977	Centre party	Right-wing	1979	
Gullspång	Hova	1979	Action group	Right-wing	1982	
Sigtuna	Sigtuna stad	1980	Action group	Social Democrats	1983	
Skellefteå	Burträsk	1981	Centre party	Social Democrats	1984	
Älvdalen	Särna/Idre	1981	Municipality	Social Democrats	1984	
Nacka	Saltsjöbaden	1992	Action group	Right-wing	1993	
Nacka[a]	Boo & Saltsjöbaden	1992	Individual	Right-wing	1993	
Södertälje	Nya Järna	1990	Action group	Right-wing	1994	
Huddinge	Trångsund/ Skogås	1993	Centre party	Social Democrats	1997	
Göteborg	Askim	1997	Action group	Social Democrats	2000	
Göteborg	Torslanda	1997	Action group	Social Democrats	2000	
Göteborg	Älvsborg	1997	Action group	Social Democrats	2000	
Huddinge	Trångsund/ Skogås	2000	Municipality	Social Democrats	2001	

Notes: [a] This application concerned secession of two municipality parts.
[b] The applicants were representatives from the five largest local political parties.
All cases but Vännäs, Skellefteå, and Älvdalen had a referendum or opinion poll.
In SOU 1993:90, one additional case is listed; Gotland was denied partition by the right-wing gov't in 1992. I have no data on this case.

Table A2. Investigated but withdrawn cases.

Municipality	Municipality part	Application year	Applicant
Alingsås	Bjärke	1978	Politicians
Torsby	Finnskoga-Dalby/ Norra Ny	1992	Municipality
Borås	Fristad	1993	Politicians
Norrtälje[a]	Rimbo & Hallstavik	1993	Municipality
Norrköping	Vikbolandet	1996	Action group
Sigtuna	Sigtuna stad	2000	Municipality

Notes: [a] This application concerned secession of two municipality parts. All cases but Torsby had a referendum or opinion poll.

Table A3. Not investigated cases.

Municipality	Municipality part	Application year	Applicant
Göteborg	Askim	1981	Action group
Uppvidinge	Lenhovda/Herråkra/Älghult	1981	Action group
Nacka	Boo	1982	Individual
Umeå	Holmsund	1982	Representatives for local parties
Västervik	Tjust	1982	Action group
Kramfors/ Örnsköldsvik	Höga kusten	1985	Individual
Härjedalen	Tännäs	1988	Individual
Torsby	Finnskoga-Dalby/ Norra Ny	1988	Individuals
Storuman	Tärna	1992	Action group
Haninge	Västerhaninge/ Tungelsta	1993	Action group
Kävlinge	Löddeköpinge	1993	Action Group
Haninge	Dalarö	1995	Individuals
Lindesberg	Fellingsbro	1995	Action group
Gullspång	Hova	1995	Action group
Eskilstuna	Torshälla	1996	Action group
Kristianstad	Åhus	1997	Political party
Uddevalla	Ljungskile	1997	Action group
Uddevalla	Ljungskile	2000	Action group

Notes: A case not included is Lund municipality, which was denied investigation by the government in 1992 (SOU 1993:90).

The Break-Up of Municipalities – Voting Behavior in Local Referenda

Anna Brink*

Abstract

This paper examines the economic and political conditions that influence people's attitudes regarding a municipality break-up. The theoretical model predicts intra-municipal differences in tax bases, political preferences, and population size to affect the expected gain from secession. The predictions of the model are tested using data on local referenda about municipality partitioning in Sweden. The data support one of the three effects; a tax base effect shows to be present – voters in municipality parts that are wealthy compared to other parts of the same municipality are more positive to secession.

Keywords: median voter, municipalities, referenda, break-up

JEL classification: H11, H73

*I thank Henry Ohlsson, Lars-Erik Borge, Matz Dahlberg, Katarina Nordblom, Magnus Wikström and seminar participants at Göteborg University and Uppsala University for useful comments. This research was financially supported by the Swedish Research Council and Ejnar Lindhs kommunalvetenskapliga stiftelse.

1 Introduction

This paper deals with the breaking-up of municipalities. Under which conditions do individuals favor municipality break-ups? The question relates to the growing research branch in the political economy field that concerns the break-up and unification of nations and regions – a burning issue in Europe since the German unification, the dissolution of the Soviet union, and the enlargement of the European Union.[1] Contrary to the Tiebout (1956) framework where individuals "vote with their feet," the action taken in this literature is to change the size of jurisdictions by secession or integration, and thereby changing the size of the public sector's budget.

Alesina and Spolaore (1997), Bolton and Roland (1997), and Persson and Tabellini (2000) examine the trade-off between the efficiency of large jurisdictions and the costs of diverse populations, discussing the economic and political terms under which countries and regions decide to unify or break up. The theoretical framework in these models is well suited for analyzing the break-up of municipalities, and the Swedish municipality break-up data used in this paper make it possible to perform empirical testing of the theory, which, to my knowledge, has not previously been done.

The number of Swedish municipalities was reduced from 2,500 to 278 between 1952 and 1974 through two major municipal boundary reforms. During this period, the municipal responsibilities increased, which called for municipalities that were large enough to sustain an acceptable level of public administration, as well as to keep up schools and social services. The first demands for dividing one of the newly amalgamated municipalities were made two years after the last reform was completed. The first two municipality break-ups took place in 1980. In all, after the amalgamation reforms, 13 new Swedish municipalities have formed by secessions, two municipalities have amalgamated, and one parish has broken out from one municipality to join another.

The outline of the paper is as follows: The procedure and conditions for municipality break-ups are described in the next section. In Section 3, a theoretical model following Persson and Tabellini (2000) is presented, where the median voter, who obtains utility from private and public consumption, sets the proportional income tax in the municipality. In the case of a split, there are two new median voters (one

[1] For a literature survey see Bolton et al. (1996). Alesina et al. (1995) discuss politico-economic issues on separatism.

in each of the municipalities), each deciding the new tax rates. The question posed is under which conditions individuals favor a municipality break-up.

The model shows three effects influencing the utility gain for individuals in the seceding municipality part in case of a break-up. First, partitioning is inevitably associated with a decrease in population size, which gives rise to an efficiency loss compared to parts staying united. The second effect derives from a tax base difference in the united municipality and the seceding part; people in a richer municipality part gain from a break-out as the wealth is no longer shared with poorer municipality parts. Finally, a difference in political preferences between the median voter in the united municipality and the median voter in the seceding part brings about a change in tax rates. This effect is surely positive for the seceding part's median voter, since his preferred tax rate is implemented in case of secession. For other individuals, however, the tax rate change may be either good or bad depending on the individual's income.

The implications from the theoretical model are tested empirically on Swedish data from local referenda about municipality partitioning in 24 municipality parts. The data cover all settled partition cases subsequent to the amalgamations in the 1970s, half of them involving a referendum. The data set and variables are described in Section 4. The empirical results are presented in Section 5, which suggest that there is support for one of the effects derived from the theoretical model; the tax base effect is supported by data both in terms of statistical significance and impact on voting behavior.

Finally, Section 6 summarizes the results and concludes the paper.

2 The Procedure of Municipality Partition

For a municipality part to break out and form a new local jurisdiction, a municipality or a local resident can put forward a partition proposal to the Legal, Financial and Administrative Services Agency (*Kammarkollegiet*). If the proposal is not turned down immediately, the Agency refers the case to the municipal council in the concerned municipality and to the County Administrative Board (*Länsstyrelsen*) for an expert opinion. Based on their statements, the Legal, Financial and Administrative Services Agency decides whether to initiate an investigation, which in most cases is

carried out by a special investigator.[2] The investigation, which shall consider all factors affecting the matter, is referred back to the municipal council, which may choose to carry out a referendum.[3] The municipal council gives its recommendation about the partition case to the agency, and based on the investigation, the recommendation of the municipal council, and the referendum results, the agency comments on the case and forwards it to the central government, which finally decides on whether a partition is to be realized or not.

A factor of great importance for the agency's recommendation is the opinion of the local population. The municipal council is often taken to represent the united municipality, but a referendum or an opinion poll is nevertheless frequently used to get a clear idea about the public opinion. The opinion in the seceding municipality part is of certain interest – the municipal council cannot be presumed to represent their interests – and about a third of the referenda only encompasses the population in this part.

Since 1977, more than 50 applications have been submitted to the Legal, Financial and Administrative Services Agency, of which 49 were completed by the end of 2001. In Figure 1, these cases are grouped according to where in the decision process the matters were settled.

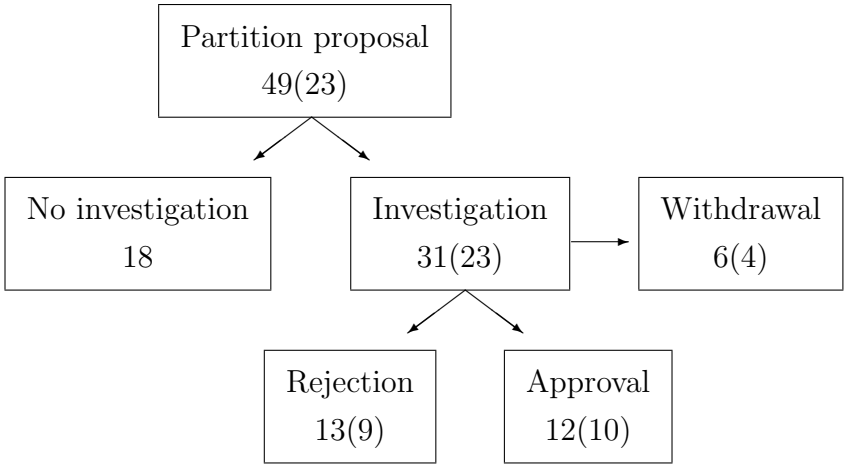
As shown, more than 60 percent of the cases were investigated. Out of the 31 investigated cases, 6 were withdrawn by the applicants (4 due to negative referendum results in the seceding parts). Finally, the 25 cases that were subject to governmental verdict are divided into 13 rejections and 12 approvals[4] – most following a referendum.

[2]The municipality can also initiate an investigation itself, and thereby evade the investigation decision. In such a case, the report is examined by an external investigator appointed by the Legal, Financial and Administrative Services Agency.

[3]A referendum can also be initiated by the agency or the central government, but this rarely occurs.

[4]The 12 approved proposals resulted in 13 new municipalities, since one of the cases concerned secession of two municipality parts.

Figure 1. Settled municipality partition matters, 1977-2001.
Number of referenda in parentheses.



3 The Model

We consider a simple model of majority voting following Persson and Tabellini (2000). Our focus is on the median voter in the seceding municipality part. The reason is that in Swedish municipalities, the local governments are – at least in the context of municipality partitioning – considered to speak for the united municipality. Furthermore, the empirical testing considers only the voters in the seceding parts. However, the median voter in the seceding municipality part is by no means decisive. It is the central government that passes the final verdict on partition matters, but since the opinion of the concerned population is supposed to be of great importance for the decision, the referenda are meant to provide the government with information on this matter. Individual i has preferences over private consumption, c^i, a publicly provided private good, g, and leisure, l^i:[5]

$$U^i = c^i + g + \Psi(l^i), \tag{1}$$

where $\Psi(.)$ is concave. Private consumption is constrained by disposable income, where t is a proportional tax rate and h^i is labor supply. The real wage rate is

[5]The services provided by the municipal sector are mostly of private good character, such as schooling, child care, elderly care, and social services.

normalized to unity.

$$c^i = (1-t)h^i \tag{2}$$

Time can be allocated between leisure and labor. The effective time available is $1 + e^i$, where e^i is individual i's productivity:

$$1 + e^i = l^i + h^i \tag{3}$$

The individual maximizes utility subject to the budget and effective time constraints. The optimal choice of leisure is

$$l^i(t) = \Psi_l^{-1}(1-t), \tag{4}$$

where the subscript denotes a partial derivative. $l_t^i(t) > 0$ due to the concavity of $\Psi(.)$. The quasi-linear utility function brings in the property that the tax rate is the only variable acting on the optimal choice of leisure. An implication that follows from this is that all individuals choose the same amount of leisure.

The optimal choice of labor supply is

$$h^i(t) = 1 + e^i - \Psi_l^{-1}(1-t), \tag{5}$$

where $h_t^i(t) < 0$ and $h_{e^i}^i(t) > 0$. All differences in labor supply among individuals are due to differences in productivity. We can express individual i's labor supply in terms of average labor supply as

$$h^i = h + e^i - e, \tag{6}$$

where h and e refer to municipality averages.

The publicly provided good is constrained by tax revenue and a fixed cost, k, which is independent of population size, N,

$$g = th(t) - \frac{k}{N}. \tag{7}$$

The derived utility function for individual i becomes

$$V^i(t) = (1-t)h^i(t) + th(t) - \frac{k}{N} + \Psi(1 + e^i - h^i(t)), \tag{8}$$

where $h^i(t)$ is the optimal labor supply for individual i given the tax rate t, as expressed in Equation (5). Using the envelope theorem gives the following condition for individual i's preferred tax rate:

$$V_t^i(t) = -h^i(t) + h(t) + th_t(t) = 0. \tag{9}$$

Substitute Expression (6) for h^i in Condition (9) to get

$$V_t^i(t) = -(e^i - e) + th_t(t) = 0, \tag{10}$$

which yields individual i's preferred tax rate,

$$t^{i*} = \frac{e^i - e}{h_t(t)}. \tag{11}$$

If individual i has greater than average productivity, the preferred tax rate is negative, since $h_t(t) < 0$. In such a case, t may be regarded as an income subsidy and the publicly provided private good, g, as a lump sum tax. We, however, assume that the tax rate implemented is preferred by the median voter and that median voter income (productivity), e^m, is smaller than the average, which assures a positive tax rate.

In the united municipality, the preferred tax rate is

$$t^u = \frac{e^m - e^u}{h_t(t^u)}, \tag{12}$$

where superscript u refers to united. We focus on the median voter in the seceding municipal part and assume that he votes for partition if his expected utility gain from secession is positive. If the municipality breaks up, the preferred and implemented tax rate in the new municipality is

$$t^s = \frac{e^{ms} - e^s}{h_t(t^s)}, \tag{13}$$

where superscript s denotes the seceding municipality part and ms the median voter in the seceding part. In case of a break-up, he gets the indirect utility

$$V^{ms}(t^s) = (1 - t^s)h^{ms}(t^s) + t^s h^s(t^s) - \frac{k}{N^s} + \Psi(1 + e^{ms} - h^{ms}(t^s)). \tag{14}$$

Expression (6) can, for the seceding part, be restated as

$$h^{ms} = h^s + e^{ms} - e^s. \tag{15}$$

Substituting Expression (15) for h^{ms} in (14) gives

$$V^{ms}(t^s) = (1 - t^s)(h^s(t^s) + e^{ms} - e^s) + t^s h^s(t^s) - \frac{k}{N^s} + \Psi(1 + e^s - h^s(t^s)). \tag{16}$$

To compare median voter ms's utility in the case of secession with staying united, it is useful to express average labor supply in the seceding part in terms of labor supply in the united municipality. The difference in average labor supply between the united municipality and the seceding part derives from differences in tax rates and average productivity,

$$h^s(t^s) = h^u(t^s) + e^s - e^u. \tag{17}$$

Substitute (17) into (16) and rearrange to get the indirect utility of the median voter in the seceding part if the municipality breaks up:

$$V^{ms}(t^s) = W^{ms}(t^s) - \frac{k}{N^s}, \tag{18}$$

where

$$\begin{aligned} W^{ms}(t^s) = (1 - t^s)\left(h^u(t^s) + e^{ms} - e^u\right) + t^s\left(h^u(t^s) + e^s - e^u\right) \\ + \Psi\left(1 + e^u - h^u(t^s)\right) \end{aligned} \tag{19}$$

.

The indirect utility of the median voter in the seceding municipality part if the municipality stays united is

$$V^{ms}(t^u) = W^{ms}(t^u) - t^u\left(e^s - e^u\right) - \frac{k}{N^s}, \tag{20}$$

where $W^{ms}(t^u)$ is analogous to (19) but instead of t^s includes the tax rate in the united municipality, t^u, determined in Equation (12). The expected utility gain from

secession is

$$\begin{aligned}\Delta^{ms} &= V^{ms}(t^s) - V^{ms}(t^u) \\ &= [W^{ms}(t^s) - W^{ms}(t^u)] + t^u\,(e^s - e^u) - k\left[\frac{1}{N^s} - \frac{1}{N^u}\right]. \end{aligned} \tag{21}$$

The term in the first bracket is the utility gain deriving from differences in private consumption, the publicly provided private good, and leisure. If $t^s \neq t^u$, the term is positive, since the median voter in the seceding municipality part gets his preferred tax rate if the municipality breaks up. We denominate this as a political effect, since it captures the clear gain of autonomy for the median voter.

The second term can be regarded as a direct tax base effect. It is positive if average income – reflected in average productivity – in the seceding municipality part is greater than in the united municipality.

The third term captures the efficiency loss from secession due to the fixed costs associated with running a municipality. A smaller population faces a greater per capita cost than a united municipality, and the loss becomes greater the larger the population difference is. The more funds per capita needed to cover the fixed costs, the smaller the funds that will be available for the publicly provided good.

The model thus implies two plain effects on the median voter in the seceding part of the municipality: a utility gain from being the median voter and thus deciding on the tax rate, and a utility loss associated with a smaller population. For the tax base effect to yield a positive utility gain, average income must be higher in the seceding part than in the united municipality.

Out of the three effects acting on voting behavior, the efficiency effect and the tax base effect do not depend on the tax rate. Therefore, all individuals in the seceding part face the same gain or loss due to these two effects. The political effect, however, can for individuals other than the seceding part's median voter take either sign depending on how well the tax preferred by the median voter corresponds to their preferences. Since the political effect for the median voter is positive, it follows that the majority in the seceding part also faces a positive political effect from secession.

However, a new tax rate, and the corresponding size of public expenditures, will not benefit all individuals in the seceding municipality part. Even though a majority

gains from the political change, the average effect may be negative. The difference in utility gain or loss from secession between an individual with average income in the seceding part and its median voter derives entirely from the political effect,

$$\Delta^s - \Delta^{ms} = (t^u - t^s)\,(e^s - e^{ms})\,, \tag{22}$$

where Δ^s is obtained in the same way as Δ^{ms}, but replacing ms by s. If $t^u > t^s$, then Expression (22) is positive, as average income is higher than median income. But if $t^u < t^s$, and Δ^{ms} is small enough, then the average gain from the new tax rate is negative; the utility gains of the majority are smaller than the losses of the minority.

4 Data and Variables

We test the predictions from the theoretical model by using a unique data set that includes Swedish data from 20 local referenda in 24 municipality parts, collected as a part of this research project.[6] The data cover all local referenda held after the municipality amalgamation reforms for those municipalities where partition applications were submitted and the cases completed by the end of year 2001. The cases are listed in the Appendix.

In the empirical analysis, only the seceding municipality parts are included, and not the remaining parts. The main reason for this is that the referenda encompass the seceding part only in 8 of the cases. The sample for the remaining parts is thus small with only 15 observations. In addition, the population shares belonging to the remaining parts are generally large, resulting in small changes in both tax rates and average tax bases if separation were to occur. The variation in these variables is therefore small for the remaining municipality parts.[7]

The referendum data are not available from one single source, but were constructed from filed documents at the archives of the Legal, Financial and Administrative Services Agency (*Kammarkollegiet*) and the Government Offices (*Regeringskansli-*

[6]In two of the referenda (Nacka and Norrtälje municipalities), the question was whether the municipality should split into three parts, i.e. there were two possible secessions in these municipalities. In the referendum in the Göteborg municipality, there were three possibly seceding parts, but also three separate questions.

[7]In an earlier version of this paper the remaining parts were included as well, but gave no significant results.

et).

From the referendum data we construct $YESSHARE$, a continuous dependent variable defined as the share of all votes positive to partition in the seceding part (in percent), not including the blank votes. In addition, we construct a binary dependent variable for the median voter model. If a majority of the voters in the seceding municipality part votes for secession, so does its median voter. The variable $VOTE$ thus takes the value of one if $YESSHARE > 50$.

We also consider the turnout in the referenda, where the share of the electorate voting in a referendum is captured by the variable $TURNOUT$.

For the population difference, we define the variable ΔPOP as the share of the municipality's total population that belongs to the municipality part. The population figures date from the year when the application was submitted and are available at parish level from various issues of Statistics Sweden's Yearbook for Swedish Municipalities.

The variable $\Delta TAXBASE$ is defined as the share of the tax base per capita in the municipality part in relation to the tax base per capita in the united municipality. The tax base is the municipality's taxable income, comprising labor income only. A tax equalization scheme is designed to give municipalities more equal conditions for providing services to citizens. The rules of the scheme are extremely complex and have changed over the years. Since there are no data available to examine the effects of the equalization scheme, only the actual tax bases are considered. As for the population figures, the tax base figures date from the year of application and are available at parish level from the same source.

The political effect is theoretically defined as the utility gain for the median voter in a municipality part, deriving from getting the preferred tax rate in case of secession. Unfortunately, median income data are not available at parish or municipality part levels. To capture possible political differences we instead make use of voting behavior in local elections.

We construct two variables to represent political differences. If the median voter in the seceding part and the median voter in the municipality vote for different political blocs in local elections, the binary variable $BLOCDIFF$ takes the value of one, and zero otherwise.[8] The continuous variable $|\Delta LEFT|$ is defined as the

[8]The political blocs are the socialist bloc: Sweden's Communist Party (skp), the Left Party (v), the Social Democratic Party (s), and the Green Party (mp), and the non-socialist bloc: the Centre

absolute difference between the shares of valid votes given to socialist parties in the municipality part and the municipality divided by the socialist parties' share in the municipality. The local elections considered are the ones closest preceding the application. The election data are available at the electoral district level from the Swedish Social Science Data Service and Statistics Sweden.

The data used for the independent variables are available at different levels. The economic data are available at the parish level, while the political data are available at the electoral district level. Parishes and electoral districts do rarely coincide, but the matching between parishes, electoral districts and municipality parts is straightforward in nearly all cases. Each municipality part contains at least one parish and at least one electoral district. By identifying which parishes and electoral districts correspond geographically to the concerned municipality parts, the data have been constructed to match at a common level.

Summary statistics for the 24 seceding municipality parts are presented in Table 1. Correlations are found in the Appendix.

Table 1. Summary statistics for seceding municipality parts.

Variable	Mean	Std. Dev.	Min.	Max.
$VOTE$	0.71		0	1
$YESSHARE$	56.52	20.42	5.38	89.50
$TURNOUT$	70.53	11.37	46.10	89.40
$BLOCDIFF$	0.25		0	1
$\|\Delta LEFT\|$	0.20	0.17	0.00	0.60
$\Delta TAXBASE$	1.03	0.15	0.77	1.34
ΔPOP	0.17	0.12	0.04	0.44

In 71 percent of the cases, a majority voted in favor of secession. The results varied considerably among municipalities, with the positive share of the valid votes ranging from about 5 to 90 percent. The turnout in the referenda averaged more than 70 percent, but differed substantially over observations. In one fourth of the cases, the median voters in the seceding part and in the municipality voted for different political blocs in local elections. On average, there was a 20 percent absolute difference

Party (c), the Liberal Party (fp), the Christian Democrats (kd), the Conservative Party (m), and New Democracy (nyd). Non-specified parties are categorized as non-socialists.

in the socialist party vote share between the seceding municipality part and the municipality. The seceding part had on average a slightly greater tax base than the united municipality, but with a large variation over observations. The population share in the seceding parts was on average 17 percent of the municipal total, and all of the seceding parts contained less than half of the municipality population.

5 Empirical Results

To analyze median voter behavior, we need to employ a method suitable for binary outcomes. This is done by applying a probit model. After that, we leave the median voter framework and look at all the positive vote shares in the seceding municipality parts by least squares estimation. We conclude the empirical section by discussing and testing for possible selection problems.

5.1 Median Voters

Since Δ^{ms} is not observable, we treat it as a latent variable. The observable variable $VOTE^s$ takes the value zero or one depending on the value of Δ^{ms}, where one indicates that the median voter in the seceding part votes for a partition and zero indicates that the median voter votes for the municipality to stay united:

$$VOTE^s = \begin{cases} 1 & \text{if} \quad \Delta^{ms} > 0 \\ 0 & \text{if} \quad \Delta^{ms} \leq 0. \end{cases} \tag{23}$$

The probit model to estimate is

$$\begin{aligned} Pr(VOTE^s = 1) = \Phi \left[\beta_0 + \beta_1 \left(BLOCDIFF^s \right) + \beta_2 \left(\Delta TAXBASE^s \right) \right. \\ \left. + \beta_3 \left(\Delta POP^s \right) + \epsilon^s \right], \end{aligned} \tag{24}$$

where Φ is the cumulative normal distribution, and ϵ^s is the error term for the median voter in seceding municipality part s. The expected parameter signs are $\beta_1 > 0$, $\beta_2 > 0$, and $\beta_3 > 0$.

The expected sign of the estimate of β_1 is positive, since a difference in political preferences should increase the utility gain from secession for the median voter in

the seceding municipality part.

The expected sign of the estimate of β_2 is positive – a greater tax base results in a higher provision of the public good at any given tax rate. Since the population in a part of the municipality is always smaller than the population in the municipality as a whole, we expect the estimate of β_3 to be positive.

The parameter estimates of Equation (24) are shown in Table 2.

Table 2. Effects on median voter behavior in seceding municipality parts. Probit estimates.

Variable	Coefficient	Marginal effect[a]
$BLOCDIFF$	–0.57	–0.16
	(0.77)	
$\Delta TAXBASE$	9.28*	2.24
	(3.89)	
ΔPOP	0.74	0.18
	(2.36)	
$CONSTANT$	–8.54*	
	(3.98)	
Number of obs.	24	
Wald $\chi^2(4)$	7.05	
Prob $> \chi^2$	0.07	
Pseudo R^2	0.32	

Notes: [a] The marginal effect for $BLOCDIFF$ is for a discrete change from 0 to 1, and for the other variables evaluated at the variable means.
Huber/White robust standard errors in parentheses.
* indicates significance at the 5 percent level.

The estimates show the expected sign, with the exception of the coefficient for $BLOCDIFF$; if the median voter in the seceding part votes for a different political bloc in local elections than the median voter in the municipality, then the support for secession is smaller, although not on a statistically significant level.

The estimate for the population share in the seceding part is positive as predicted, but is not statistically significant.

The estimate for the tax base effect is signed as predicted and is highly statistically significant; median voters in the seceding municipality parts with greater tax base than the rest of the municipality, are more positive to secession. For a municipality with the average tax base share, the results imply that an increase in the tax base share by one standard deviation increases the probability for a positive vote by 0.34.

5.2 All Voters

Next we deviate from the median voter framework and include all voters in the analysis by using the dependent variable $YESSHARE$, defined as the share of all valid votes positive to a partition.

We estimate the following model:

$$YESSHARE^s = \beta_0 + \beta_1 \left(|\Delta LEFT|^s\right) + \beta_2 \left(\Delta TAXBASE^s\right) + \beta_3 \left(\Delta POP^s\right) + \epsilon^s. \tag{25}$$

Equation (25) is estimated by least squares regression, and the results are reported in the first column in Table 3. Due to the low number of observations, the assumption of normally distributed error terms is rather strong. We, therefore, follow Efron and Tibshirani (1993) and bootstrap the estimates by drawing 24 observations with replacement from the data set. By replicating the drawing 2,000 times we obtain a bootstrap distribution, from which we calculate standard errors and, based on the bias-corrected percentiles, confidence intervals for the point estimates. The reported standard errors and significance levels come from this procedure.

As shown in Table A2 in the Appendix, the turnout in the referenda is significantly and positively correlated with $|\Delta LEFT|$. Therefore, we also estimate an alternative model to (25), which considers the turnout in the referenda. We use the same explanatory variables as in (25), but modify the dependent variable

as $(YESSHARE * TURNOUT)/100$, which is the share of positive votes in the electorate (in percent). The results are shown in the last column in Table 3.

Table 3. Effects on voting behavior in seceding municipality parts. Least squares estimates.

Coefficient of	Model 1	Model 2
$\|\Delta LEFT\|$	–23.77	0.27
	(24.61)	(20.82)
$\Delta TAXBASE$	41.74**	33.82*
	(26.32)	(22.78)
ΔPOP	32.79	43.00
	(41.98)	(43.47)
$CONSTANT$	12.66	–1.85
	(32.23)	(26.55)

Notes: Dependent variable in (1) is percentage of positive votes out of all valid votes; in (2) the percentage of positive votes in the electorate. Bootstrapped standard errors in parentheses. ** indicates significance at the 5 percent level, * at the 10 percent level, based on bias-corrected percentiles of the bootstrap distribution from 2,000 replications.

When comparing the median voter results with the results for the same municipality parts but including all voters in the seceding parts, we see that the signs and the significance levels of the parameter estimates are the same in the first specification; neither the population effect nor the political effect is supported by the data. In the second specification, which also considers the turnout in the referenda, the parameter estimate for $|\Delta LEFT|$ changes sign; it turns positive.

Once again, our data show clear support for the tax base effect. For a one standard deviation change in the tax base difference, the predicted impact on the positive vote share is an increase by 6.3 and 5.1 percentage points in the two specifications, respectively.[9]

[9]Log-linear specifications give results similar to the ones reported in Table 2 regarding signs and significance levels with one exception. The estimate for the political effect becomes negative in Model 2, but is not statistically significant.

5.3 Selection problems

The results obtained so far are conditioned on that a referendum was held in the seceding municipality part. To be able to generalize our results to all cases where a partition proposal is made, we have to investigate whether there are any selection problems in the process described in Section 2. The selection could be such that only municipality parts with strong preferences for secession had the possibility to participate in a referendum.

Since a referendum follows an investigation, referendum results for a municipality part are only observed if there is an investigation. As described in Section 2, the Legal, Financial and Administrative Agency decides whether the case should be investigated. The agency refers the case to the municipality, and the opinion of the municipal council is of great importance for the outcome of the investigation decision. In addition, a municipality can initiate an investigation on its own. The probability of a referendum is, thus, highly dependent on the municipal council.

The selection mechanism is

$$\begin{aligned} REFERENDUM^{*s} &= \gamma_0 + \gamma_1 MUNOPINION^s + u^s, \qquad (26) \\ REFERENDUM^s &= 1 \text{ if } REFERENDUM^{*s} > 0 \\ &= 0 \text{ otherwise} \end{aligned}$$

where $REFERENDUM^*$ is an unobserved latent variable, which depends on the opinion of the municipal council. $MUNOPINION$ is a binary variable, taking the value of one if the municipality initiates an investigation or recommends the board to investigate the case, and u is the error term. We observe a referendum in municipality part s only if $REFERENDUM^{*s} > 0$.

We examine the selection problems by applying the Heckman selection model for the continuous voting models. We test whether the voting results are subject to the selection mechanism in (26) by checking the correlation $\rho_{u\epsilon}$ between the error term ϵ of the voting equation (25) for both specifications, and the error term in the selection model, u (Greene, 1997).

The results are presented in Table 4.

Table 4. Estimates of sample selection.

	Model 1	Model 2
$\lvert\Delta LEFT\rvert$	–23.91	0.08
	(18.17)	(16.36)
$\Delta TAXBASE$	41.51**	33.29*
	(19.42)	(18.10)
ΔPOP	31.43	39.35
	(36.72)	(34.38)
$CONSTANT$	11.93	–4.34
	(24.92)	(22.67)
$MUNOPINION$	1.41***	1.41***
	(0.35)	(0.35)
$CONSTANT$	–1.00***	–1.01***
	(0.33)	(0.33)
$\rho_{u\epsilon}$	0.09	0.35
	(0.49)	(0.34)
Wald test of independent equations		
$\chi^2(1)$	0.04	0.86
Prob $> \chi^2$	0.84	0.35
Number of observations[a]	51	51
Censored	27	27
Uncensored	24	24
Wald $\chi^2(3)$	6.39	3.89
Prob $> \chi^2$	0.09	0.27

Notes: Estimated by maximum likelihood.
Huber/White robust standard errors in parentheses.
*** indicates significance at the 1 percent level,
** at the 5 percent level, * at the 10 percent level.
[a] The number of observations adds up to 51, since two of the applications concerned secession of two municipality parts.

The results indicate that the probability of observing a referendum increases if the municipal council recommends or initiates an investigation. This decision is not significantly correlated with the popular opinion in the municipality parts – $\rho_{u\epsilon}$ is not significantly different from zero in any of the specifications. Comparing the results in Table 4 to the results in Table 3 shows that the estimated coefficients in the first specification of the voting model are nearly identical irrespective of whether we consider the selection into the referendum or not. In the second specification, the results are somewhat biased upwards when not considering the selection mechanism. However, the main results remain and we can conclude that the voting results supported by data are not subject to any major selection problems for cases where a partition proposal is made.

6 Summary and Conclusions

The theoretical model presented and tested in this paper predicts three effects to affect people's utility from breaking up the municipality they live in into parts, and hence their voting behavior in local referenda. Firstly, the population decrease associated with partitioning gives rise to an efficiency loss compared to staying united. Secondly, differences in tax bases among the different municipality parts make individuals in wealthier municipality parts gain from a break-out as the wealth then does not have to be shared with poorer municipality parts. The third effect is politically determined; if median income differs between the united municipality and the seceding part, the tax rate will change in case of a break-up. A majority of the voters in the seceding municipality part will therefore get a more preferred tax rate if they gain autonomy.

When the predictions from the theoretical model are tested on Swedish referendum data from 24 municipality parts, we find support for one of the effects – the tax base effect is present; voters in municipality parts that are wealthy compared to other parts of the same municipality are more positive to secession.

These referenda are not decisive – the final partition decisions are made by the central government – but are supposed to give an indication of the popular opinion in the seceding parts, a factor intended to be of great importance for the governmental verdict. On the other hand, municipality partitions are not supposed to be carried through unless all municipality parts benefit from the change. Satisfying both of

these conditions seems to be a difficult task, especially if the political differences between the parts are of minor importance for the concerned population. It seems impossible for the government to pay much attention to the opinion of the local population in all municipality parts if their desire for a break-up depends on the own municipality part's tax base. The results from this study thus indicate that factors other than the popular opinion ought to play a major role for a municipality partition to come true.

References

Alesina, Alberto, Roberto Perotti and Enrico Spolaore, 1995, Together or Separately? Issues on the Costs and Benefits of Political and Fiscal Unions, *European Economic Review* 39: 751–758.

Alesina, Alberto and Enrico Spolaore, 1997, On the Number and Size of Nations, *Quarterly Journal of Economics* 112: 1027–1056.

Bolton, Patrick and Gérard Roland, 1997, The Breakup of Nations: A Political Economy Analysis, *Quarterly Journal of Economics* 112: 1058–1090.

Bolton, Patrick, Gérard Roland and Enrico Spolaore, 1996, Economic Theories of the Breakup and Integration of Nations, *European Economic Review* 40: 697–705.

Efron, Bradley and Robert J. Tibshirani, 1993, *An Introduction to the Bootstrap*, Chapman & Hall, New York.

Greene, William H., 1997, *Econometric Analysis*, 3rd ed., Prentice-Hall, New Jersey.

Persson, Torsten and Guido Tabellini, 2000, *Political Economics. Explaining Economic Policy*. Cambridge: MIT Press.

Tiebout, Charles, 1956, A Pure Theory of Local Expenditure, *Journal of Political Economy* 64: 416–424.

Appendix

Table A1. Referenda

Municipality	Municipality part	Year
Alingsås	Bjärke	1978
Borås	Bollebygd	1993
Borås	Fristad	1995
Botkyrka	Salem	1981
Gullspång	Hova	1980
Göteborg[a]	Askim	1998
Göteborg[a]	Torslanda	1998
Göteborg[a]	Älvsborg	1998
Huddinge	Trångsund	1999
Härjedalen	Tännäs/Hede	1978
Motala	Vadstena	1977
Nacka[b]	Boo	1992
Nacka[b]	Saltsjöbaden	1992
Norrköping	Vikbolandet	1997
Norsjö	Malå	1981
Norrtälje[c]	Hallstavik	1994
Norrtälje[c]	Rimbo	1994
Sigtuna	Sigtuna stad	1982
Södertälje	Järna	1993
Södertälje	Nykvarn	1997
Uppsala	Knivsta	1999
Vara	Essunga	1980
Vaxholm	Vaxholm	1978
Örebro	Lekeberg	1990

Notes: [a] There were three separate questions in the referendum. [bc] The referendum question was whether the municipality should be split into three.

Table A2. Correlations

	$YESSHARE$	$BLOCDIFF$	$\|\Delta LEFT\|$	$\Delta TAXBASE$	ΔPOP	$TURNOUT$
$YESSHARE$	1.00					
$BLOCDIFF$	–0.05	1.00				
$\|\Delta LEFT\|$	–0.18	0.40*	1.00			
$\Delta TAXBASE$	0.22	0.23	0.19	1.00		
ΔPOP	0.17	–0.33	–0.24	–0.24	1.00	
$TURNOUT$	0.24	0.00	0.43*	0.15	0.10	1.00

* indicates statistical significance at the 10 percent level.

Unequal Provision of Local Public Services under the Threat of Secession

Anna Brink*

Abstract

This paper studies to what extent it is possible to discriminate between two municipality parts by unequal public service provision when there is a threat of secession. The objective of the local politicians is to maximize utility for only one part of a municipality. The discriminated part is small and politically marginalized, but has the option to secede. The power of the small part's population is in this way entirely exercised through the threat of secession. It becomes their guarantee against being taxed too heavily or against obtaining too little of public services. The case of three recent secession attempts in Göteborg, Sweden, is discussed in light of the model.

Keywords: secession, exploitation, local public services

JEL classification: H29, H79

*I thank Katarina Nordblom, Henry Ohlsson and Magnus Wikström for useful comments. Financial support from the Swedish Research Council is gratefully acknowledged.

1 Introduction

People who are not satisfied with the levels of municipal taxation and local public spending are likely to "vote with their feet" and move to another municipality that offers a better mix, according to the classic paper of Tiebout (1956). However, if municipalities are stratified enough, dissentient residents could likewise prefer to break out of the municipality and form a new local jurisdiction.

Secession attempts of discontent municipality parts is a fact in Swedish municipalities. After two major amalgamation reforms that were completed in the 1970s and that reduced the number of municipalities from 2,500 to 278, applications from more than 40 municipality parts have been submitted, almost exclusively from formerly autonomous municipalities that were incorporated into larger ones. Thirteen "new" municipalities have so far regained local autonomy. The option of local secession thus exists, but an absolute majority of former municipalities has, nevertheless, not initiated any attempts to secede.

One possible reason for the infrequent incidence of secession attempts is discussed by Bolton and Roland (1997) and Persson and Tabellini (2000). They argue that a jurisdiction faced with a secession threat may gain from adjusting taxes and public spending to better correspond to the preferences of the people in the potentially seceding part. If the majority in a municipality part threatening to secede prefers a lower tax rate, the tax rate and size of the municipal sector should be lowered to prevent secession. The opposite strategy should be used if the secession threat comes from a municipality part that prefers a higher tax rate.

But an additional view of the problem emerges from some of the applications for municipality partitioning. A common complaint is that people in the concerned municipality part are unfairly treated compared to the rest of the municipality regarding deteriorating service levels, small resources given to schools, and poor infrastructure. These people do not necessarily want a different tax rate, but rather a more equal provision of local public goods and services.

Discrimination between municipality parts may be due to various reasons. Districts with social problems may receive more resources for schools and social services, but it is also possible that resources are allocated according to less noble objectives. In this paper, I study to what extent unequal distribution of public services is possible when there is a threat of secession.

It is reasonable to believe that municipal conflicts in Sweden often are due to differences in preferences regarding the size and composition of the local public sector, since the primary responsibility of the local public sector is to provide services. In the year 2000, 72 percent of all municipal expenses went to daycare, schools, and care for the elderly and the disabled, financed mainly by a linear income tax (Svenska Kommunförbundet, 2002; Statistics Sweden, 2001).[1]

The economic literature on secession and integration has, however, mainly focused on jurisdictions larger than municipalities, and, hence, partly on other sources of conflict. The common denominator for the contributions is the presence of a trade-off between the political benefits and economic costs associated with separation (see Bolton et al., 1996, for a literature overview and Alesina et al., 1995, for a general discussion on the costs and benefits of jurisdictional separation and unification). The cost side of secession is often assumed to be connected to population size. Smaller jurisdictions face higher per capita costs in pure public good production or, as in the work by Bolton and Roland (1997) and Alesina et al. (1995), increase trade barriers. A general feature when explaining the benefit side is that some intra-jurisdictional heterogeneity is present, which makes one or both parts better off if there is separation. Alesina and Spolaore (1997) assume distance to the government, both in preferences and spatially, to be the reason for secession, while Olofsgård (2001) assumes ethnic grouping to be the source. Bolton and Roland (1996) model different preferences in the composition of public goods to further secession, and Ellingsen (1998) discusses the conditions for integration when there are public goods with possibilities for neighboring regions to free ride.

The outline of the paper is as follows: The next section presents a simple model where individuals have preferences in private consumption and publicly provided local services and there is a fixed cost associated with running a municipality. Two municipalities of different sizes are amalgamated and constitute two distinct parts in the new municipality. Public services can be provided in different amounts to the two municipality parts; a possibility that is exploited by the big part, which dominates local politics. The discriminated municipality part is small and politically marginalized, but has the option to secede. The power of the small part's population is in this way entirely exercised through the threat of secession. It becomes their

[1]Local taxes constitute 65 percent of the municipalities' incomes. The rates ranged from 17.3 to 23.6 percent for the year 2000, not including county taxes, which finance the health care sector.

guarantee against being taxed too heavily or against obtaining too little of public services. The set-up is largely based on the model by Bolton and Roland (1997). The main difference is that I allow public spending to be unevenly distributed between the municipality parts, a problem relating to the work by Buchanan and Faith (1987). They show that since the per capita cost for a pure public good decreases with population size, parts of tax revenues can be used for cash transfers to a politically dominating group as long as the exploited group does not make a credible secession threat.

The scope for favoring people in the politically dominating municipality part is discussed in Section 3. Three factors appear to be important: The big part obtains relatively more pubic services if (i) there are similar income distributions in the two municipality parts, (ii) the fixed cost of running a municipality is large, and (iii) the small part has a lower average income.

Section 4 analyzes when secession will occur. It shows that the first two factors that increase the possibility of discriminating against the small part also decrease the likelihood of secession.

Section 5 shows that a centrally implemented income equalization system of the type that exists in Sweden removes the role that average income has in the difference in provision of public services. While such a system has no effect on the likelihood of secession, it reduces the difference in public service provision between the two municipalities in case of secession.

Section 6 discusses the case of Göteborg, the second largest municipality in Sweden, where three municipality parts applied for secession in 1997.

Finally, Section 7 summarizes and concludes the paper.

2 The Model

We begin by considering two separate municipalities of different sizes. The big municipality, b, has a population of n_b, and n_s people live in the small municipality, s. People derive utility from private consumption, c, and from public services, g^s, where superscript s indicates that the municipalities are separate as opposed to united. Public services are of private good character and distributed equally among everybody in the municipality. To keep the model tractable we assume perfect substitutability between consumption and public services and that median utility in

municipality j is

$$U_j = c_j + g_j, \tag{1}$$

where $j = s, b$. Private consumption is constrained by disposable income, where the tax, t_j, is proportional, and w is pre-tax median income:

$$c_j = (1 - t_j)w_j. \tag{2}$$

The local government's provision of public services is constrained by tax revenues; y_j is average income in municipality j. Taxation is assumed to give rise to a dead-weight loss, denoted by $\frac{t_j^2}{2}$. In addition, there is a fixed cost, k, associated with e.g. administration costs, which is independent of population size. The publicly provided service is produced with linear technology. The municipality's budget constraint is

$$g_j = \left(t_j - \frac{t_j^2}{2}\right) y_j - \frac{k}{n_j}. \tag{3}$$

Since this is a one-dimensional problem, the equilibrium tax rate is preferred by the individual with median income. Substituting the constraints (2) and (3) into the utility function and optimizing with respect to t_j yields

$$t_j = 1 - \frac{w_j}{y_j}. \tag{4}$$

The tax rate is purely a function of the median voter's tax price. We assume that the income distribution is skewed to the left (which it almost always is) and thus that median income is lower than average income. This yields a positive tax rate, which is greater for more skewed – less equal – income distributions. We further assume that $g_j \geq 0$.[2]

Inserting Expression (4) to (3) gives the per capita provision of public services, g_j^{sep}, where the superscript emphasizes that the municipalities are run separately:

$$g_j^{sep} = \frac{1}{2}\left(1 - \frac{w_j^2}{y_j^2}\right) y_j - \frac{k}{n_j}, \tag{5}$$

[2]A negative value could be interpreted as a head tax, which would be due to tax revenues being too small to cover the per capita cost of running a municipality, $\frac{k}{n_j}$. In this model, $g_j < 0$ is likely to occur if the population is very small or median income is very close to average income.

where $\frac{\partial g_j^{sep}}{\partial w_j} < 0$, $\frac{\partial g_j^{sep}}{\partial y_j} > 0$, $\frac{\partial g_j^{sep}}{\partial n_j} > 0$ and $\frac{\partial g_j^{sep}}{\partial k} < 0$. If economic conditions are identical in the two municipalities, the big provides more public services per capita than the small, since the per capita cost of the fixed cost k is smaller in the big municipality. If the two municipalities are equally sized and have the same average income, but differ in income distributions, the municipality with the greater difference between median and average income provides more public services. And if the ratios between median and average income (the tax price) are the same, but average incomes differ, the municipality with the higher average income provides more public services.

Next, we turn to the case where the two municipalities are amalgamated – the small municipality is incorporated into the big municipality. Public services can now be provided in different amounts to the two municipality parts b and s. Since we no longer have a one-dimensional policy problem the median voter approach becomes problematic. We assume that the majority in the big municipality part is homogenous in income, and also constitutes a majority in the municipality as a whole.[3] This assumption makes the individual with a median income in the big part have a median income in the municipality. Since the majority in the municipality has identical preferences, the decisive voter regarding the tax rate and public spending has income w_b.

The preferred policy for individual w_b is given by maximizing utility (1) for $j = b$ subject to the private and public budget constraints. The private budget is now

$$c_j = (1 - t)\, w_j, \tag{6}$$

where t is the tax rate. The new municipality's budget is

$$\frac{n_b}{n} g_b + \frac{n_s}{n} g_s = \left(t - \frac{t^2}{2} \right) y - \frac{k}{n}, \tag{7}$$

where n is the population in the municipality, $n = n_b + n_s$, and y is average income, $ny = n_b y_b + n_s y_s$, and $g_b, g_s \geq 0$.

Since the decisive voter lives in the big municipality part, he does not obtain any utility from public services in the small part. The only reason g_s would be positive

[3]This assumption is assured when $\frac{n_s}{n} < 1 - \frac{1}{2\alpha}$, where $\frac{n_s}{n}$ is the population share in the municipality living in the small part, and α is the share of the population in the big part with income w_b.

is if the small part had the option to secede and the decisive voter in the big part were better off if the municipality stayed united. We assume that the small part has the right to secede if its majority is in favor of secession, i.e. if the individual with median income in the small municipality part, w_s, is better off if with separated municipalities. Therefore, the decisive voter in the big municipality part will also consider the following utility constraint:

$$U_s^u = U_s^{sep} \text{ if } U_b^u \geq U_b^{sep}, \tag{8}$$

where superscripts *sep* and u indicate that the municipality parts are separated or united. If the median voter in the big part is equally or better off with a united municipality, the median voter in the small part has to be provided enough public services to fulfill Condition (8). We rewrite the condition by substituting Equations (1) and (6) for $j = s$ into (8) and rearranging. We obtain

$$g_s = U_s^{sep} - (1-t)w_s \text{ if } U_b^u \geq U_b^{sep}. \tag{9}$$

On the other hand, if the median voter in the big part is better off if with separate municipalities, then no public services are provided to the small part:

$$g_s = 0 \text{ if } U_b^u < U_b^{sep} \text{ or if secession is not possible.} \tag{10}$$

As a benchmark, we start by considering the tax setting problem when there is no possibility of secession, and g_s correspondingly is set to zero as indicated by Condition (10). Thereafter, we study the case when secession is possible and prevented, and Condition (9) applies.

If the secession option does not exist, then the utility of the decisive voter is obtained by inserting the private and public budget constraints into (1) for $j = b$, yielding

$$U_b = (1-t)w_b - \frac{n_s}{n_b}g_s - \frac{k}{n_b} + \frac{n}{n_b}\left(t - \frac{t^2}{2}\right)y. \tag{11}$$

Maximizing (11) with respect to t gives the equilibrium tax rate

$$\hat{t} = 1 - \frac{n_b}{n}\frac{w_b}{y}. \tag{12}$$

If there is a secession option and the decisive voter is equally or better off when the parts stay united, Equation (9) is substituted for g_s into (11), yielding

$$U_b = (1-t)w_b - \frac{n_s}{n_b}\left[U_s^{sep} - (1-t)w_s\right] - \frac{k}{n_b} + \frac{n}{n_b}\left(t - \frac{t^2}{2}\right)y. \tag{13}$$

In this case, the equilibrium tax rate is

$$t = 1 - \frac{n_b}{n}\frac{w_b}{y} - \frac{n_s}{n}\frac{w_s}{y}. \tag{14}$$

Proposition 1. *If the small part has the right to secede and the majority in the municipality is equally or better off united, then the tax rate is lower than if there is no right to secede.*

Proof.

$$\begin{aligned} t - \hat{t} &= 1 - \frac{n_b}{n}\frac{w_b}{y} - \frac{n_s}{n}\frac{w_s}{y} - \left(1 - \frac{n_b}{n}\frac{w_b}{y}\right) \\ &= -\frac{n_s}{n}\frac{w_s}{y} < 0. \end{aligned}$$

□

The result is due to the two regimes bringing about differing marginal benefits of taxation for the decisive voter w_b. While the marginal cost is the same in both situations, the marginal benefit is lower when the secession threat is prevented, since parts of the tax revenues are used for providing public services to the small municipality part.[4]

From (4) and (14) it follows that

$$t_s \lesseqgtr t \lesseqgtr t_b \text{ iff } \frac{w_b}{y_b} \lesseqgtr \frac{w_s}{y_s}. \tag{15}$$

[4]Proposition 1 is in line with the findings of Buchanan and Faith (1987), who conclude that a secession threat sets an upper limit on taxation.

If secession is possible and prevented, the equilibrium tax rate t lies between the two independence tax rates, t_b and t_s. For example, if we assume that there is a completely equal income distribution in the big part, $w_b = y_b$, but median income is smaller than average income in the small part, $w_s < y_s$, then $t_s > t > t_b = 0$.[5]

Condition (15) will be useful when interpreting the coming results.

3 Difference in Public Service Provision

In this section we study the scope of providing more public services to the big rather than to the small municipality part. Only the case when secession is possible but prevented is considered throughout the analysis.

From (1)–(3) and (9) we find the public service provision in the small part to be:

$$g_s = (t - t_s)\, w_s + \left(t_s - \frac{t_s^2}{2}\right) y_s - \frac{k}{n_s}. \tag{16}$$

By rearranging the municipality's budget constraint (7) and inserting (16) we see that the provision of public services in the big municipality part becomes

$$g_b = \frac{n}{n_b}\left(t - \frac{t^2}{2}\right) y - \frac{n_s}{n_b}\left(t_s - \frac{t_s^2}{2}\right) y_s - \frac{n_s}{n_b}\,(t - t_s)\, w_s. \tag{17}$$

The difference in provision of public services is given by subtracting Equation (16) from Equation (17), and using the expressions for t and t_s from Equations (14) and (4), yielding

$$\begin{aligned} g_b - g_s &= \frac{n}{n_b}\left[\left(t - \frac{t^2}{2}\right) y - \left(t_s - \frac{t_s^2}{2}\right) y_s + (t_s - t)\, w_s + k\left(\frac{1}{n_s} - \frac{1}{n}\right)\right] \\ &= \left(t - \frac{t^2}{2}\right)(y_b - y_s) - \frac{n_b y_b^2 y_s}{2ny^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right)^2 + \frac{k}{n_s}. \end{aligned} \tag{18}$$

Equation (18) highlights three terms affecting the difference in public service provision. The first term is the difference in per capita tax revenues between the municipality parts. The scope of providing more public services to the big part decreases (increases) if average income in the small municipality part is higher (lower)

[5] To assure non-negative amounts of the publicly provided service, we here disregard the fixed cost, k.

than in the big municipality part.

If average income is the same in the two parts, but median income differs, the two parts contribute equally to public sector in per capita terms. However, the degree of redistribution is not the same in the united municipality as it would be in the small municipality if there were separation. The small part is compensated for this difference through the second term. From Condition (15) it follows that this term is zero if $t = t_s$, and the small part will obtain more of public services as the absolute tax difference increases (e.g. the more the income distributions differ between the municipality parts).

The third term shows that even if both average income and median income are the same in the two parts, the big part obtains more public services than the small part. The fixed cost, k, is entirely imposed on the people in the small municipality part.

A population increase in the small municipality part affects three of the variables; the population size will necessarily increase, while the effect on the tax rate and average income depends on the differences in median and average income between the municipality parts; $\frac{\partial t}{\partial n_s} > 0$ if $w_b > w_s$ and $\frac{\partial y}{\partial n_s} > 0$ if $y_s > y_b$. The partial effect of a population increase in the small municipality part is

$$\begin{aligned}\frac{\partial\left(g_b - g_s\right)}{\partial n_s} =& \frac{n_b y_b\left(n_b w_b + n_s w_s\right)}{n^3 y_s y^3}\left(y_b - y_s\right)\left(\frac{w_b}{y_b} - \frac{w_s}{y_s}\right) \\ &+ \frac{n_b^2 y_b^2 y_s}{2n^3 y^3}\left(\frac{n}{n_b} y_s + y_s - y_b\right)\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right)^2 - \frac{k}{n_s^2}.\end{aligned} \tag{19}$$

The effect of an increase in n_s on the difference in tax revenues – the first term in Equation (18) – is positive if the municipality part with the higher average income also has the smaller tax rate if there is separation, i.e. the greater ratio between median and average income. The effect on the compensation term – the second term in Equation (18) – is positive if $\frac{y_b}{y_s} < 2 + \frac{n_s}{n_b}$. For this term to be negative, the big part needs to have more than twice the average income of the small part.

Consider the special case where the small municipality part is relatively wealthy, $y_s > y > y_b$, and prefers a lower tax rate, $t_s < t < t_b$ ($\frac{w_s}{y_s} > \frac{w_b}{y_b}$). From Equation (18) we see that the first term is negative; the small part obtains more public services since it contributes more to tax revenues per capita. A population increase in the

small municipality part results in a decreasing that the tax rate, and the difference in per capita tax revenues also decreases. Since the tax rate t becomes more similar to t_s, the small part gets smaller compensation through the second term. The first two terms in Equation (19) are for this case positive. The last term is negative since the per capita cost of k decreases when the population size in the small part increases.

The partial effect of a population increase in the big municipality part is

$$\begin{aligned}\frac{\partial\left(g_b-g_s\right)}{\partial n_b} = &-\frac{n_s y_s\left(n_b w_b+n_s w_s\right)}{n^3 y_b y^3}\left(y_b-y_s\right)\left(\frac{w_b}{y_b}-\frac{w_s}{y_s}\right) \\ &-\frac{n_s n_b y_b^2 y_s}{2n^3 y^3}\left(\frac{n}{n_b}y_s+y_s-y_b\right)\left(\frac{w_s}{y_s}-\frac{w_b}{y_b}\right)^2.\end{aligned} \tag{20}$$

The two terms are reversely signed compared to Equation (19), and there is no effect on the last term in (18).[6]

The following proposition summarizes the main results from this section:

Proposition 2. *If secession is possible but obviated, the difference in public service provision between the big and the small municipality parts is decreasing in* $|\frac{w_s}{y_s}-\frac{w_b}{y_b}|$, *increasing in* k, *and for any given level of* $|\frac{w_s}{y_s}-\frac{w_b}{y_b}|$ *increasing in* y_b-y_s.

4 Secession

If the small municipality part demands too much public services in relation to the extra tax revenues it generates, it is beneficial for the majority in the big part to split the municipality so that no public services are provided to the small part. In this section we examine the conditions for such an outcome. We start by looking into the problem of the median voter in the small part. Thereafter, we study the problem of the median voter in the big part.

If the median voter in the big part is better off if the municipality separates, then Condition (10) applies; there will not be any public service provision to the small part. The net utility of separation for the median voter in the small part is then

[6]More comparative statics are presented in the Appendix.

$$U_s^{sep} - U_s^u = (1 - t_s)\, w_s + g_s^{sep} - \left(1 - \hat{t}\right) w_s$$
$$= \left(\hat{t} - t_s\right) w_s + g_s^{sep}, \tag{21}$$

where $\hat{t}$ and t_s are defined in (12) and (4). For Expression (21) to take a negative value, t_s must be greater than $\hat{t}$, and g_s^{sep} has to be very small. However, in the following analysis we will only consider the case when the small part's majority gains from secession if they do not obtain any public services. Setting $g_s = 0$ is thus treated as a means for the big municipality part to trigger secession.

If the municipality separates, the median voter in b will obtain utility U_b^{sep} and if the municipality stays united, he will obtain utility U_b^u.
The net benefit of separation is

$$U_b^{sep} - U_b^u = (1 - t_b)\, w_b + g_b^{sep} - (1 - t)\, w_b - g_b, \tag{22}$$

where t_b is defined in Equation (4), g_b^{sep} in (5), t in (14) and g_b in (17). If $U_b^{sep} - U_b^u > 0$, no public services will be provided to the small part and the municipality will break up. By substitution we obtain

$$U_b^{sep} - U_b^u = \frac{n_s y_s y_b}{2ny} \left(\frac{w_s}{y_s} - \frac{w_b}{y_b} \right)^2 - \frac{k}{n_b}. \tag{23}$$

Comparing Equations (23) and (18) shows that the direct effect related to differences in average income is totally regulated through the difference in public service provision and does not affect the likelihood of secession.

The first term in (23) is similar to the second term in (18) and can be interpreted in the same way; if there is a positive tax rate difference, $t \neq t_s$, then the small part has to be compensated for the difference in redistribution level. This compensation is costly since it decreases the amount of public services to the big municipality part.

The second term shows that the fixed cost has a negative impact on the net utility of separation. This is because as long as the municipality stays united, the small part contributes to the fixed cost. If there is no fixed cost to run a municipality, the majority in b is never better off keeping the municipality united.

From Equation (23) it follows that

$$\frac{\partial\left(U_b^{sep}-U_b^u\right)}{\partial n_s}=\frac{n_b y_b^2 y_s}{2n^2y^2}\left(\frac{w_s}{y_s}-\frac{w_b}{y_b}\right)^2\geq 0. \tag{24}$$

As the population in the small part grows larger in absolute terms, the secession outcome becomes more likely. This is because a growing population in the small part decreases the difference between t and t_s and, hence, increases the difference between t and t_b. Since any differences in average income are directly regulated though different levels of public service provision, an increase in $|t-t_b|$ moves the median voter in the big part further away from her preferred level of redistribution.

The effect of a change in n_b is

$$\frac{\partial\left(U_b^{sep}-U_b^u\right)}{\partial n_b}=-\frac{n_s y_b^2 y_s}{2n^2y^2}\left(\frac{w_s}{y_s}-\frac{w_b}{y_b}\right)^2+\frac{k}{n_b^2}. \tag{25}$$

The sign of the effect is ambiguous. The first term is negative and indicates the gain of staying united when the population in the big part increases. A growing population in the big part decreases the difference between t and t_b, and thus moves the level of redistribution closer to the preferred level for the median voter in the big part. The second term is positive, showing that the per capita cost of k decreases as the population increases.[7]

The main results from this section give the following proposition:

Proposition 3. *The likelihood of secession is increasing in* $|\frac{w_b}{y_b}-\frac{w_s}{y_s}|$*, decreasing in* k*, and increasing in* n_s*.*

5 An Income Equalization System

Equity in local service provision is an explicit objective for the Swedish government. Funds are redistributed from municipalities with higher average income than the national average to municipalities with lower income through an income equalization system.[8] Such a system does not only have an effect on differences in public service provision among municipalities, but also on the differences within a municipality, since it changes the reservation utility (Equation [9]) for the small municipality part.

[7] More comparative statics are presented in the Appendix.

[8] Further equalization is achieved by a cost equalization system, which redistributes funds from municipalities with lower structural costs to those with higher costs, based on 15 components.

Consider an income equalization system, such as the Swedish one, that is budgetary neutral for the central government and yields the same amount of public services for municipalities that choose the same tax rate and have equal population sizes.[9]

For simplicity we assume that average income in the united municipality equals the national average.[10] Municipality part j's budget constraint if there is separation (3) changes to

$$g_j^{sep} = \left(t_j - \frac{t_j^2}{2}\right) y_j - \frac{k}{n_j} + (y - y_j)\left(t - \frac{t^2}{2}\right), \tag{26}$$

where the last term shows the redistribution of income between municipalities; g_j^{sep} increases for poor municipalities and decreases for rich municipalities. Since average income in the united municipality equals the national average, its budget is not affected. The new difference in service provision between the big and the small municipality parts is obtained by the difference between Equations (17) and (10), where we insert the Expressions (1), (2), (4), (14) and the new budget constraint (26):

$$g_b - g_s = -\frac{n_b y_b^2 y_s}{2ny^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right)^2 + \frac{k}{n_s}. \tag{27}$$

Comparing Equation (27) to Equation (18) shows that the income equalization system removes the direct effect of more public service provision to the municipality part with the higher average income. The other two effects remain; the small municipality part still pays the whole fixed cost k but is compensated for any differences between t and t_s.

The income equalization system does not alter the secession problem of the median voter in the big part. Using the big part's new budget constraint in case of separation (26), and the new utility constraint that has to be considered by the median voter in the big part ([9] and [26]), gives the same expression for $U_b^s - U_b^u$ as in Equation (23). This result is due to the fact that in case of separation, both municipalities' budget constraints change. If the small municipality part has a higher

[9]To equalize average income across municipalities is not an objective for a social planner since the utility function is linear. This exercise is merely done for illustrating some of the effects that an income equalization system has on the problem at hand.

[10]The result does not depend on this assumption.

average income than the big part, the income equalization system results in an increase in g_b^{sep} and a decrease in g_s^{sep}, where the latter effect affects g_b positively via the utility constraint (9). The opposite applies if the big municipality part has a higher average income than the small part. In this way, the effects of the income equalization system on U_b^u and U_b^{sep} are exactly the same.

Proposition 4. *An income equalization system does not affect the likelihood of secession, but results in an increase (decrease) in public service provision to the municipality part with the lowest (highest) average income.*

6 An Illustrative Example

In 1997, representatives from three municipality parts in Göteborg – the second largest municipality in Sweden – applied to the Legal, Financial and Administrative Services Agency (*Kammarkollegiet*) for investigations about local secessions. The applicants were concerned about the declining level of public services and pointed out that the resources allocated to their municipality parts were the lowest in the municipality.

The three parts – Askim, Torslanda and Älvsborg – are the wealthiest of the 21 municipality parts in Göteborg. Average income is high, and the shares of unemployed and social benefit recipients are low. The representatives from the three rich parts claimed to accept that resources should be allocated based on needs and not on tax revenue contribution, but not to such a great extent.

The investigations, carried out by the Swedish Association of Local Authorities (*Svenska Kommunförbundet*), pointed out that in the current equalization system among municipalities, tax bases and structural costs are of nearly no importance; all municipalities face the same economic conditions. Hence, if the municipality parts were to break out, they would become net contributors to the equalization system, since incomes were higher and structural costs lower than the national averages. However, all three parts would be better off financially as independent municipalities anyway, especially the two with the highest average incomes, Askim and Älvsborg. The investigations showed that the allocation of public funds within Göteborg favored the poorer municipality parts to the degree that if the three rich parts seceded, the tax rate would have to be raised by about 0.6 percentage points to keep the per

capita public consumption unchanged. In all, after considering non-economic factors as well, the investigator assessed that a partition of the municipality could be considered if supported by public opinion (Svenska Kommunförbundet, 1997).

Referenda were held in September 1998, at the same time as the elections for the Riksdag and the municipal council. The majorities in the three applying parts were pro-secession, but only about 12 percent of the voters in the rest of the municipality said yes. The municipal council of Göteborg decided not to recommend a partition and based on this, the secessions were denied, first by the Legal, Financial and Administrative Services Agency (*Kammarkollegiet*), and second, after appeals against the verdicts, by the central Social Democratic government.

The Göteborg case shows that when the local government provides more public services to some municipality parts, the neglected parts may prefer separation. Although independence involves new costs, it does provide the benefit of better preference correspondence between local politicians and the people.

7 Summary and Conclusions

In this paper I have looked into how local public services are allocated within a municipality when politicians care only about the well-being of the population in one part of the municipality, while the other part has the right to secede.

The model presented is simple and assumes perfect substitutability between private and public consumption, thus ignoring possible interaction and income effects. The strength of such a simplifying assumption is, however, that the mechanisms at work are straightforward to identify and interpret, and comparisons with earlier work are easily made.

The results show that the right to secede sets serious limits on politicians behavior. The marginalized part obtains more public services the higher its average income, and the greater the differences in income distributions between the municipality parts.

These effects are the same that Bolton and Roland (1997) and Persson and Tabellini (2000) find when studying the likelihood of both secession and accommodating policy when there is no discrimination between the two parts. The same effects are thus at work, whether allocation of public services are allocated in a discriminatory manner or not.

However, the difference in average income does not matter for the likelihood of secession in the model presented in this paper. Despite the political dominance of one of the municipality parts, all differences in average income is entirely regulated through the allocation of public services.

An income equalization system that redistributes income from rich to poor municipalities has no impact on the likelihood of secession, but removes the importance of average income in the intra-municipal allocation of public services. The scope of providing less services to a marginalized poor part is in this way decreased, while it becomes easier to give less services if the municipality part is rich.

I would assume that differing service levels are often used to redistribute resources from richer to poorer municipality parts, as in the Göteborg case discussed in this paper. Since the inter-municipal income and cost equalization system makes economic conditions the same in rich and poor municipalities, secession would not result in the three parts benefiting from increased tax bases. Nevertheless, secession became desirable as public service resources were too scarcely allocated to the rich parts compared to the rest of the municipality.

References

Alesina, Alberto and Enrico Spolaore, 1997, On the Number and Size of Nations, *Quarterly Journal of Economics* 112: 1027–1056.

Alesina, Alberto and Enrico Spolaore, 1995, Together or Separately? Issues on the Costs and Benefits of Political and Fiscal Unions, *European Economic Review* 39: 751–758.

Bolton, Patrick and Gérard Roland, 1996, Distributional Conflicts, Factor Mobility, and Political Integration, *American Economic Review* LXXXVI: 99-104.

Bolton, Patrick and Gérard Roland, 1997, The Breakup of Nations: A Political Economy Analysis, *Quarterly Journal of Economics* 112: 1058–1090.

Bolton, Patrick, Gérard Roland and Enrico Spolaore, 1996, Economic Theories of the Breakup and Integration of Nations, *European Economic Review* 40: 697–705.

Buchanan, James M. and Roger L. Faith, 1987, Secession and the Limits of Taxation: Toward a Theory of Internal Exit, *American Economic Review* 77: 1023–1031.

Ellingsen, Tore, 1998, Externalities vs. Internalities: A Model of Political Integration, *Journal of Public Economics* 68: 251–268.

Olofsgård, Anders, 2001, Incentives for Secession in the Presence of Mobile Ethnic Groups, in *Essays on Interregional Political Economics*, IIES, Stockholm University, Monograph Series No. 42.

Persson, Torsen and Guido Tabellini, 2000, *Political Economics. Explaining Economic Policy*. Cambridge: MIT Press.

Statistics Sweden, 2000, *Statistiska Meddelanden* OE 18 SM 0001.

Svenska Kommunförbundet, 1997, *Kommundelningsutredning Askim–Göteborg.*

Svenska Kommunförbundet, 2002, www.svekom.se/adr/statis/ekonomi.htm.

Tiebout, Charles, 1956, A Pure Theory of Local Expenditure, *Journal of Political Economy* 64: 416–424.

Appendix

Comparative Statics for $g_b - g_s$ (Section 3)

$$\frac{\partial (g_b - g_s)}{\partial w_s} = \frac{n_s}{ny}(1-t)(y_s - y_b) - \frac{n_b n y_b^2}{n^2 y^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right) \tag{28}$$

$$\frac{\partial (g_b - g_s)}{\partial w_b} = \frac{n_b}{ny}(1-t)(y_s - y_b) + \frac{n_b n y_b y_s}{n^2 y^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right) \tag{29}$$

$$\begin{aligned}\frac{\partial (g_b - g_s)}{\partial y_s} =& -\left(t - \frac{t^2}{2}\right) + \frac{n_b w_b y_b}{n y^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right) \\ &+ \frac{n_b y_b^2}{n^2 y^2}\left(\frac{n_s y_s}{y} + \frac{1}{2}\right)\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right)^2 - \frac{n_s}{ny}(y_s - y_b)(1-t)^2\end{aligned} \tag{30}$$

$$\begin{aligned}\frac{\partial (g_b - g_s)}{\partial y_b} =& \left(t - \frac{t^2}{2}\right) - \frac{n_b w_s y_b}{n y^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right) \\ &+ \frac{n_b^2 y_s y_b^2}{n^2 y^3}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right)^2 - \frac{n_b}{ny}(y_s - y_b)(1-t)^2\end{aligned} \tag{31}$$

Comparative Statics for $U_b^{sec} - U_b^u$ (Section 4)

$$\frac{\partial (U_b^s - U_b^u)}{\partial w_s} = \frac{n_s y_b}{ny}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right) \tag{32}$$

$$\frac{\partial (U_b^s - U_b^u)}{\partial w_b} = \frac{n_s y_s}{ny}\left(\frac{w_b}{y_b} - \frac{w_s}{y_s}\right) \tag{33}$$

$$\frac{\partial (U_b^s - U_b^u)}{\partial y_s} = \frac{n_s y_s y_b \left(2 n_s w_s y_s + n_b (w_s y_b + w_b y_s)\right)}{2 n^2 y_s^2 y^2}\left(\frac{w_b}{y_b} - \frac{w_s}{y_s}\right) \tag{34}$$

$$\frac{\partial (U_b^s - U_b^u)}{\partial y_b} = \frac{n_s y_s y_b \left(2 n_b w_b y_b + n_s (w_s y_b + w_b y_s)\right)}{2 n^2 y_b^2 y^2}\left(\frac{w_s}{y_s} - \frac{w_b}{y_b}\right) \tag{35}$$

Deciding Who's Decisive: Municipality Break-Ups and the Behavior of Local Politicians

Anna Brink*

Abstract

Swedish municipality parts aiming for secession are highly dependent on the municipal council's acceptance in order to succeed. Only four of the 25 municipality break-up verdicts passed by the central government have not been in line with the municipal council's recommendation. In nearly all cases, the recommendation seems to be based on the stated opinion in local referenda or opinion polls. However, by deciding on whether the whole municipality, or the seceding part alone should be encompassed by the referendum or opinion poll, the municipal council can affect the probability of obtaining the desired result. This paper empirically studies this decision. Two factors show to be important. If a secession would result in a large reduction of the municipality's population and a decrease in its per capita tax base, the referendum or opinion poll is more likely to encompass the whole municipality. Such a referendum or opinion poll does, in turn, decrease the probability of a municipal council supporting the case, which reduces the central government's propensity to finally approve a secession.

Keywords: municipality break-ups, secession, referenda, municipal council

JEL classification: D72

*I thank Katarina Nordblom, Mattias Erlandsson and Henry Ohlsson for helpful comments. Financial support from the Swedish Research Council is gratefully acknowledged.

1 Introduction

The responsibilities of local governments increased significantly with the expansion of the Swedish welfare state from the 1950s. Many of the municipalities were considered to be too small to be run efficiently, which motivated the government to carry through two municipality amalgamation reforms. The number of municipalities was reduced to about a tenth. But during the last 25 years the development has gone in the opposite direction; more than 40 municipality parts have tried to secede. The majority of all secession attempts has, however, been turned down somewhere in the legal process, along the path of investigation decisions, referenda, and governmental verdicts. So far, the central government has approved 13 municipality parts to break out and form new municipalities.

A central feature of the legal process is that the local politicians play a key role for a break-up case to be successful. Only four of the 25 partition verdicts passed by the central government have not been in line with the recommendation of the municipal councils. A natural question to pose is: Which factors are of importance for the recommendation? This paper shows that most of the municipal councils' recommendations directly correspond to the stated public opinion in referenda or opinion polls. The answer does therefore at first seem trivial. However, in about a third of all cases, the entire population has not been entitled to participate, but the seceding municipality part alone. The stated public opinion does, therefore, largely depend on the scope of the referenda and opinion polls.

A necessary condition for the municipal council to recommend a municipality break-up is a strong public opinion supporting the idea in the seceding municipality part. A referendum or opinion poll that also encompasses the non-seceding part imposes a further condition for a positive recommendation; the municipality as a whole must be positive as well. Accordingly, by letting the whole municipality participate, the likelihood of secession decreases. The vast majority of all referenda and opinion polls is, moreover, initiated and arranged by the municipal councils, which gives rise to the main question in this paper: Which factors affect the municipal council's decision whether people in the seceding part alone should be entitled to vote?

Municipality parts aiming for secession are relatively small; they do always constitute a minority of the municipality. The municipal council is, therefore, not

considered to necessarily represent the seceding part's wish in the process of municipality break-ups. The legal process of break-up cases does instead presume that the municipal council acts in accordance with the preferences of the non-seceding part of the local population. This is a hypothesis that will be tested. But we will also look into the possibility that the municipal council is motivated by self-interests. If the municipality part aiming for secession votes for the political opposition to a large extent, the incumbent majority may view secession as a means of securing future incumbency.

Based on 19 decisions made by municipal councils, the empirical analysis identifies two factors to clearly affect the choice of whether the whole municipality or the seceding part alone is encompassed by the referendum or opinion poll. The greater the population share belonging to the seceding part, and the more the municipality's per capita tax base would decrease in case of secession, the more likely is a referendum or opinion poll encompassing the whole municipality. Such an arrangement does, in turn, decrease the probabilities of a positive recommendation by the municipal council, and of a positive partition verdict by the central government.

The paper is outlined as follows. The background to municipality division and partitions is presented in section 2, which also describes the legal procedure of partition matters. Section 3 relates the municipal council's recommendation and the stated public opinion to the final partition verdict made by the central government. In section 4, the municipal council's strategy and its possible objectives are discussed. The data are described in section 5. Section 6 presents the results. Section 7 summarizes the main findings and concludes the paper.

2 Division and Partition – the Background

The size and number of Swedish municipalities have changed considerably during the last 50 years. In 1952, the "the large municipal district reform" took effect, halving the number of municipalities from 2,500 to 1,037. The "municipality bloc reform" of the 1960s further decreased their number to 277 when completed in 1974.

The two amalgamation reforms were a Social Democratic project based on efficiency arguments. The first reform aimed at creating municipalities with resources enough to sustain an acceptable level of public administration, which required a population of 2,000–3,500 at the minimum. The increase of municipal responsibili-

ties during the 1950s called for further amalgamations; municipalities ought to have populations large enough to keep up schools and social services, corresponding to a population of at least 8,000 inhabitants (SOU 1978:32).

The second reform met resistance in many municipalities, as well as among the right-wing political parties. Although both the advocates of the reform and its critics had similar anticipations of the amalgamations, they had conflicting priorities regarding the consequences of the reform. On the one hand, efficiency was anticipated to increase and local self-government to improve, making municipalities less dependent on the central government financially as well as administratively. On the other hand, local democracy was anticipated to worsen, both in terms of participation and representation (Gustafsson, 1980; Strömberg and Westerståhl, 1984).

The initial intention of voluntary implementation of the second reform was finally abandoned. Some municipalities were not willing to unite, but were finally forced to, despite opposition from the right-wing parties. When the right-wing government took office in 1976, it consequently declared to be willing to try out proposals about changes in the municipal division that are motivated with respect to the municipal democracy. The Social Democratic government from 1982 correspondingly declared that it would be restrictive with municipality partitions (Höglander and Wiklund, 1998).

2.1 The Legal Process

The prevailing discontent with the amalgamations gave rise to the initiative of a thorough overhaul of the outdated legislation on municipality partitions. It resulted in the Local Government Boundary Reform Act of 1979 (*Lag om ändringar i Sveriges indelning i kommuner och landsting, SFS 1979:411*), among other things regulating the procedure for municipality break-ups. Since these matters are complex, the law does not include any detailed rules. The intention of the law is explained in a report by the Boundary Legislation Committee (*Indelningslagskommittén*). It suggests that a change in municipality division should only be decided upon if it can be assumed to bring about lasting benefits for the municipality or the seceding part of the municipality (SOU 1978:32).

In broad terms, the process is as follows: An application from a municipality or a member of a municipality is submitted to a public authority, the Legal, Financial and

Administrative Services Agency (*Kammarkollegiet*). The case is then referred to the municipal council in the concerned municipality and to the County Administrative Board (*Länsstyrelsen*) for consideration. Based on their statements the Agency decides on whether the case should be investigated further or not. The agency may reject the application at any stage during the process, but a rejection can always be appealed against to the central government.

The investigation is most often conducted by either the county administrative board or the Swedish Association of Local Authorities (*Svenska Kommunförbundet*) and should include all factors affecting the case and be made in consultation with the concerned municipalities. If the investigator finds reason to investigate the opinion of the local population, it should be reported to the Agency, which decides on the matter. If the County Administrative Board conducts the investigation, it can decide on such a matter as well.

However, if the municipal council wants to investigate the public opinion on a break-up case, it can decide to carry out a referendum or opinion poll. This possibility was opened up through the Municipality Act of 1977 (*Kommunallagen*) and has become the most common alternative; very few of the referenda and opinion polls were not initiated by the municipal councils. Related to this decision is the scope of the referendum or opinion poll. Two possibilities exist; the whole municipality can be encompassed or the seceding part alone. If the municipal council decides to carry out the referendum or opinion poll, it also decides on the scope.

The central government gives the final partition verdict. The opinion of the concerned municipality is of great importance and the municipal council is assumed to speak in the interest of the local population. Special considerations should also be taken to the seceding municipality part on the assumption that the wish of its population is manifested in an unambiguous way. How to balance opposite opinions between the population in the seceding part and the municipal council not regulated by the Act, but left for practice.

Although no right of veto exists for the municipal council, it has *de facto* become more or less decisive on these matters. The central government has passed 25 partition verdicts and only four were not in line with the municipal council's recommendation.

3 Recommendations, Public Opinions, and the Partition Verdicts[1]

On January 1st, 1974, the three municipalities Åsele, Fredrika and Dorotea were amalgamated despite a massive opposition in Dorotea, including a hunger-strike! An action group was quickly formed and a list of names, signed by 90 percent of the Dorotea population, was delivered to the local politicians. In 1976, after a time of political disagreement, the municipal council finally submitted an application for breaking up the municipality to the central government. After the investigation and an opinion poll were conducted, the government decided to let Dorotea regain independence. The amalgamated municipality lasted for six years only (Holmgren, 1981).

The Dorotea case was shortly followed by others. During the period 1976–2000, some 40 municipality parts have formally applied for secession. 25 applications have reached as far as to a governmental partition verdict. Table 1 shows the outcome of these cases and the preceding recommendations made by the municipal councils.[2]

Table 1. The partition verdict
and the municipal council's recommendation, 1976–2001

	Municipal council negative	Municipal council positive	Total
No partition	13	0	13
Partition	4	8	12
Total	17	8	25

Note: The 12 positive verdicts correspond to 13 new municipalities, since one application concerned secessions of two municipality parts.

The tabulation indicates the importance for an applying municipality part to have support by the local politicians for a secession case to be successful. The government has almost always followed the opinion of the municipal council; when positive, the government has always approved. The four verdicts that not corresponded to the recommendation of the municipal councils were all passed by right-wing governments, which compared to Social Democratic governments have had a more positive

[1]The sources of the data referred to in this section are described in Section 4.
[2]There are possibly cases missing in Tables 1 and 2.

attitude towards breaking up municipalities. All four cases involved referenda where the majorities were in favor of secession in the concerned municipality parts.

The first of these approvals was the decision in 1979 of letting Vadstena to secede from Motala municipality. The referendum was arranged by a local action group and only people in the concerned municipality part were entitled to vote. Although two thirds of the voters in Vadstena voted for secession, the Social Democratic majority in the municipal council decided not to recommend a break-up. Two arguments used were that costs would increase if the municipality separated, resulting in increased tax rates, especially in the remaining part of the municipality, and that the referendum result not was convincing due to the low turnout. However, the recommendation of the municipal council counted for little to the liberal central government, which found a positive partition verdict to be motivated since both municipalities would have populations large enough and there were good conditions for providing the needs of municipal services (Hagård, 1989).

In the other three municipalities – Botkyrka, Vaxholm, and Vara – the referenda encompassed the whole population. Despite a positive majority vote in the whole municipality in Vaxholm, the political majority in the municipal council decided not to recommend a partition. In Botkyrka and Vara, on the other hand, the central government approved secession despite negative majorities in the municipalities. In the two government decisions dated 1981, the same phrasing recurred: "The advantages, especially from a municipal democracy point of view, have according to the government such a strength that particular reasons for a partition exists."

With Vadstena and Vaxholm as the only exceptions, the stated public opinion seems to be of great importance for the municipal council's recommendation to the government. In all the other cases, the council's recommendation was in line with the municipal majority vote.

If looking at the referendum results in the seceding municipality parts, the picture that emerges is that neither the municipal council nor the central government support the view of a "right to secede." Table 2 shows that 35 percent of the partition verdicts passed by the central government were negative despite a positive majority in the seceding part. As we can see, there are few parts with negative majorities, partly explained by the applications that were withdrawn before the government verdict due to bad referendum results, and that are not included in these data.

Table 2. Majority opinion in the seceding parts and the partition decision, 1976–2001

	Negative	Positive	Total
No partition	3	8	11
Partition	0	11	11
Total	3	19	22

There were 8 cases where the government turned down the partition proposal despite a positive majority in the concerned municipality parts; three were decided by right-wing governments and five by Social Democrats. All eight cases had referenda or opinion polls with municipal majorities not favoring secession, and the municipal councils were all negative as well.

The three cases the right-wing governments turned down that had positive majorities in the concerned municipality parts were applications from Gullspång, Härjedalen and Nacka municipalities. These three differed from the cases that were approved in spite of negative municipal majorities. The applying parts in Gullspång and Härjedalen had populations below 4,000 and constituted more than 30 percent of the municipal population. The positive right-wing verdicts where the municipal council was negative to partition concerned larger parts – the smallest with a population of 4,900 and none of the municipality parts had a population share larger than 25 percent. In the Nacka case, the referendum concerned a trisection of the municipality, to which the majority in the municipality as well as in one of the possibly seceding parts was negative. In the municipality part Saltsjöbaden, however, there was a small but positive majority and an action group applied for secession subsequent to the referendum. Aside of the problem of interpreting the public opinion, the case also differs from the approved ones regarding the income structure in the municipality. While the per capita tax bases in the three municipality parts that were granted secession were more or less as large as in the rest of the municipality, Saltsjöbaden stands out as one of the richest municipality parts in Sweden. When applying for secession, the per capita tax base was more than 25 percent greater than the municipality's.

The five cases of positive municipality parts that were turned down by Social Democratic governments do all concern the municipalities of Huddinge and Göteborg. In Huddinge, an action group in the municipality part Trångsund-Skogås has applied twice and been turned down twice by the Social Democratic government.

The Göteborg cases show some resemblance with Saltsjöbaden; all three parts have significantly greater tax bases than the rest of the municipality. However, the referendum contained separate questions for each of the municipality parts, and there were large majorities in favor of secession in two of the parts. The public opinion in at least two of the concerned municipality parts can, therefore, not have been difficult to interpret.

Three of the cases that were subject to a governmental partition verdict did not have any referendum or opinion poll. In the case of Vännäs, the application came from the municipality and the public opinion was stated through a petition (SOU 1993:90), resulting in a positive partition verdict. The other two cases, Idre/Särna in Älvdalen and Burträsk in Skellefteå, were less successful. In both municipalities local members of the Centre party turned to the government in 1984 and demanded referendum. The Social Democratic government, however, stated that "... a partition would not bring about lasting benefits for both municipality parts... There are no reasons to carry through a referendum about the matter." In both cases, the municipal councils were against the partition proposals.

4 The Municipal Council's Strategy

This section discusses the factors that may be of importance for the municipal council's attitude towards a break-up. We begin by discussing the factors that should matter for a municipal council acting as a representative for the non-seceding part of the municipality. We proceed with a discussion of how these and other factors should influence a municipal council motivated by self-interests, and also the role of ideological differences. Depending on the council's objectives, different factors ought to influence the decision of whether the whole municipality or the seceding part alone should be encompassed by the referendum or opinion poll. A discussion of this decision concludes the section.

4.1 Factors of Importance

Theoretical models by Bolton and Roland (1997) and Persson and Tabellini (2000) predict three factors to be of importance for people's preferences of a jurisdictional break-up. Firstly, economies of scale in public good production imply that a break-

up always is associated with efficiency losses that affect not only the seceding part, but also the non-seceding part of the municipality. A municipal council that represents the people in the remaining part should, therefore, be less positive towards a break-up the more the population size in the municipality is affected by a break-up.

Secondly, municipalities that have a greater per capita tax base can provide more public goods and services at a given tax rate.[3] In addition, secession of a wealthy municipality part removes the scope for redistribution from the rich to poorer municipality parts.[4] The municipal council should thus be more positive towards a break-up if the per capita tax base in the municipality increases in case of secession, i.e. if the municipality would get rid of a relatively poor municipality part.

Thirdly, if political preferences differ between municipality parts, a break-up will result in a better match between the voters and the politicians. This is not only the case for the seceding part, but also for the remaining part of the municipality. From a "distance to the government" point of view, a municipality break-up is always desirable.[5] If the municipal council acts in the interest of the non-seceding part of the municipality, it should thus be more positive to a break-up if there are large political differences between the non-seceding part and the united municipality.

A municipal council that opposes secession from a large and wealthy municipality part is intuitively appealing. A relatively large and rich municipality part that wants to secede would probably meet resistance from the municipal council, since both the remaining population and the politicians would lose parts of tax revenues as well as of the population base. However, such behavior does not necessarily derive from the objective of representing people in the non-seceding municipality part. Rent-seeking motives, for example, could also result in similar behavior. Nelson (1992) has empirically studied the effect of the amalgamations in the 1950s to the 1970s on the growth of the municipal sector. The data support the theory that larger municipalities make it easier for politicians and bureaucrats to increase the

[3]Sweden has an income equalization system that redistributes funds from wealthier to poorer municipalities. The system has, however, changed over the years and has not always resulted in perfect equalization.

[4]This issue is discussed in Brink (2003).

[5]This concerns efficiency in the sense discussed by Oates (1972), that the match between provision of public goods and services and people's preferences is more accurate in smaller jurisdictions. The point of political frictions in large jurisdictions is heavily stressed by Alesina and Spolaore (1997).

municipal budget. While the amalgamations of small non-rural communities led to a slow-down of public sector growth – probably due to economies of scale – the amalgamations of already rather large communities significantly contributed to the local public sector's expansion.

Thinking of politicians not primarily as representatives but also as motivated by vested interests makes the third factor interesting. It says that the municipal council should be more positive to a break-up the more it would result in a change of the political landscape. Consider a municipality consisting of two municipality parts, where the small part wants to secede and the votes coming from the small part are necessary for the incumbent to obtain a majority of the seats in the municipal council. A break-up would then result in that the current incumbent would be in majority in the small municipality, and the current opposition would take office in the big municipality (if voting patterns stay the same). Such an outcome is probably not desirable for an office-motivated incumbent. On the other hand, if the seceding municipality part has many voters supporting the opposition, the incumbent's chances of staying in power in the large municipality improve if the municipality breaks up. It is reasonable to assume that such a situation is more preferable than the one previously discussed. We can, therefore, expect that an incumbent majority in the municipal council with the objective of staying in office will be more positive towards secession if it can expect an increased vote share in case of secession.

However, even though a municipality break-up may increase the incumbent's chance of winning future elections, it will also result in a decreased population base and, if the seceding part is relatively wealthy, a decreased per capita tax base. Ideally, such interactions should be considered as well, but the data set used for testing the predictions is very small, which limits the possibility of studying this sort of trade-offs.

The final factor we consider is ideology. The Social Democrats were behind the amalgamation reforms, and most of the approved partition verdicts have been made by non-socialist governments. If local politicians share the same ideological ideas as their national counterparts, we should expect that municipal councils dominated by socialist parties are more negative towards a break-up than those dominated by non-socialists.

4.2 The Scope Decision

Next, we look into the two interconnected decisions made by the municipal council; whether to recommend a municipality break-up and whether the whole municipality should be encompassed in a referenda or opinion poll. A necessary condition for a positive recommendation is that there is strong support for secession in the seceding part. The municipal council can thus not recommend the government to approve a break-up if the majority in the concerned municipality part prefers staying united.

A municipal council positive towards a break-up has no reason to include the non-seceding part of the municipality in the referendum or opinion poll. If the whole population is encompassed, and there is a majority voting in favor of a break-up, it becomes difficult for the politicians not to make a positive recommendation. Moreover, there is always a risk that the central government follows the stated public opinion and not the municipal council's recommendation in such a case.

On the other hand, if the municipal council does not want a break-up, it should arrange a referendum or opinion poll that encompasses the non-seceding part as well. To impose a further restriction, that there has to be a majority favoring a break-up in the municipality as a whole does always decrease the probability for a positive recommendation. Consequently, the more negative the municipal council is towards a break-up, the more probable is the choice of arranging a referendum, or opinion poll, that encompasses the whole municipality.

5 Data and Variables

The application data are constructed from filed documents at the archives of the Legal, Financial and Administrative Services Agency (*Kammarkollegiet*) and the Government Offices (*Regeringskansliet*). The data were collected in November 2000–January 2001, and the cases studied in this paper includes nearly all cases submitted 1976–2000 that were investigated. Most of the investigated cases involved a referendum or opinion poll. A few of the cases were withdrawn, but most were subject to a partition verdict given by the central government. Three cases were settled during 2001 and the data were completed afterwards by information from web sites for the concerned municipalities.[6]

[6]www.sigtuna.se, www.uppsala.se, www.huddinge.se.

Data at a lower level than for municipalities are scarce. Tax base data and population data are, however, available at the parish level. Municipality parts include one or more parishes and the borders do most often coincide. We can, therefore, construct data for the municipality parts by identifying which parishes that are included in a municipality part. This information is available in the application documents or in related material in the files. The tax base data and population data come from various issues of Statistics Sweden's Yearbook for Swedish Municipalities.

Voting data is available at electoral district level and include the number of votes given to the established parties in local elections, 1976–1998. Fortunately, the data provided by the Swedish Social Science Data Service and Statistics Sweden do also include information of which parishes that belongs to a certain electoral district. The matching between municipality parts, parishes and electoral districts have in this way been possible. Data on the distribution of seats in the municipal councils is provided by Statistics Sweden (General Elections. Vol. 3. Elections to the municipal councils, various issues).

5.1 The Cases

The cases studied are for the municipalities where referenda and opinion polls that concern municipality break-ups have been initiated and arranged by the municipal councils. In total, 26 referenda and opinion polls have been held. Five of those were not initiated by the municipal council and are not included in the analysis.[7] Decisions about 21 referenda and opinion polls are thus included in the analysis. Two of the referenda, in Nacka and Norrtälje, concerned possible secession of two municipality parts. In Göteborg, there were three separate referenda taking place, but at the same day. The municipal council's decision about the scope was most likely based the decision on the joint effect of secession. We, therefore treat the Göteborg cases as one, and the number of decisions made by the municipal councils is then reduced to 19. The cases are listed in Table 3.

[7]Wallin (1993) reports that the referenda in Gullspång 1982 and in Sigtuna 1982 were initiated by the central government and arranged by the County Administrative Board, and that the opinion poll in Nyköping 1989 was initiated by the Legal, Financial and Administrative Services Agency and arranged by the County Administrative Board. The opinion poll conducted in Åsele 1977 was a part of the investigation carried out by a special investigator by order of the County Administrative Board (Holmgren, 1981). In Motala municipality, the applying action group in Vadstena initiated and arranged the referendum in 1977 (Hagård, 1989). Based in the application documents, I have been able to conclude that all other cases were initiated and arranged by the municipal councils.

Two municipality parts, Trångsund-Skogås in Huddinge municipality and Sigtuna stad in Sigtuna, have applied for secession twice, resulting in one referendum and one opinion poll for both cases. Sigtuna, however, only appears once in Table 3, since only the opinion poll was initiated and arranged by the municipal council (see footnote 7). Besides Huddinge, two municipalities appear twice in Table 3, Borås and Södertälje, but concerning referenda about two different municipality parts.

Table 3. Referendum and opinion poll decisions made by the municipal councils

Municipality	Municipality parts	Application year	Scope	Mandate period
Härjedalen	Tännäs/Hede	1977	1	1976–79
Norsjö	Malå	1978	1	1979–82
Vara	Essunga	1978	1	1979–82
Vaxholm	Vaxholm	1978	1	1976-79
Botkyrka	Salem	1978	1	1979–82
Alingsås	Bjärke	1978	0	1976–79
Örebro	Lekeberg	1990	0	1988–91
Södertälje	Nya Järna	1990	0	1991–94
Nacka	Saltsjöbaden & Boo	1992	1	1991–94
Borås	Bollebygd	1993	0	1991–94
Borås	Fristad	1993	1	1994–98
Huddinge	Trångsund/Skogås	1993	1	1994–98
Norrtälje	Rimbo & Hallstavik	1993	1	1991–94
Södertälje	Nykvarn	1995	0	1994–98
Norrköping	Vikbolandet	1996	0	1994–98
Göteborg	Askim & Torslanda & Älvsborg	1997	1	1994–98
Uppsala	Knivsta	2000	0	1998–02
Huddinge	Trångsund/Skogås	2000	1	1998–02
Sigtuna	Sigtuna stad	2000	1	1998–02

Notes: 0 and 1 in the Scope column indicate whether the referendum/opinion poll encompassed the seceding part only or the whole municipality. The municipal council decided on the scope during the last column's mandate period.

5.2 Variables

We construct the dependent binary variable $SCOPE$ to take the value one if the whole municipality is encompassed by the referendum or opinion poll and zero if only the seceding part (or parts) are entitled to vote.

We construct five independent variables. ΔPOP is the share of the municipality's total population that belongs to the municipality part (or parts) that possibly will secede. This is thus the share of the municipality's population that will be lost in case of a secession. The population figures date from the year when the application was submitted.[8]

The tax base change that the municipality would experience in case of secession is captured by the variable $\Delta TAXBASE$. It is the ratio of the tax base per capita in the non-seceding part of the municipality, and the tax base per capita in the municipality as a whole. The tax base is the municipality's taxable income, comprising labor income only. As for the population figures, the tax base figures date from the year of application.[9]

To capture political difference between the non-seceding municipality part and the whole municipality we define the variable $|\Delta POL|$ as the absolute difference between the shares of valid votes given to the the established left-wing parties in the non-seceding part of the municipality and the municipality. The parties considered as left-wing are the Left Party (v), the Social Democratic Party (s), and the Green Party (mp). The local elections considered are the ones closest preceding the decisions of the municipal council. That is the elections for the mandate periods shown in Table 3.

The change of support to the incumbent in case of secession is captured by the variable $\Delta INCUMBENT$. It is defined as the ratio between the incumbent bloc's vote share in the non-seceding part of the municipality, and the incumbent bloc's vote share in the municipality as a whole. The political blocs are defined as the left-wing bloc, including the Left Party (v), the Social Democratic Party (s), and the Green Party (mp), and the right-wing bloc, incuding the Centre Party (c), the Liberal Party (fp), the Christian Democrats (kd), the Conservative Party (m), and New Democracy (nyd).

To examine if there are any ideological differences between right-wing and left-wing municipalities, we construct the dummy variable $LEFT$, which equals one if the left-wing political parties have a majority of the seats in the municipal council,

[8]These figures were readily available, and since population figures do not change very much over a few years, I found no reason to update the data.

[9]For the choice of year, see the previous footnote. Since it is the relation between the tax bases that is of importance for the analysis, and not the absolute figures, the exact year chosen is of minor importance.

and zero otherwise. The parties considered as left-wing are the Left Party (v), the Social Democratic Party (s), and the Green Party (mp).

Descriptive statistics are presented in Table 4. Correlations can be found in the Appendix.

Table 4. Descriptive statistics

	Obs.	Mean	Median	Std. Dev.	Min.	Max.
$SCOPE$	19	0.63	1		0	1
ΔPOP	19	0.20	0.17	0.13	0.06	0.43
$\Delta TAXBASE$	19	1.00	1.01	0.03	0.94	1.05
$\lvert\Delta POL\rvert$	19	1.78	1.59	1.67	0.01	6.67
$LEFT$	19	0.58	1		0	1
$\Delta INCUMBENT$	19	0.99	1.00	0.04	0.88	1.06

The population in the whole municipality were encompassed by the referenda and opinion polls in 12 of the 19 cases. The relative size of the seceding part (or parts) differs substantially among municipalities; secession would result in a population loss of 6–43 percent in the municipalities. The per capita tax bases would, however, not be affected to any greater extent; the municipalities would keep between 94 and 105 percent of their per capita tax bases.[10] On average, the absolute difference in the vote share to the left bloc was less than two percentage points, but there is a rather large spread among the municipalities; while some of the non-seceding parts show a similar voting pattern as the municipality as a whole, others vote rather differently. A majority of the municipal councils was dominated by left-wing parties, and the support for the incumbent bloc was, on average, not different between the non-seceding municipality part and the municipality as a whole. There are, however, large differences among the municipalities, just as for the absolute difference in support for the left-wing bloc.

[10]The main reason why the per capita tax bases are relatively unaffected is not that the possibly seceding part is equally wealthy as the rest of the municipality. In many cases it is rather due to that the seceding part only constitutes a small share of the municipality's population. The extreme example of losing 6 percent of the per capita tax base implies that the seceding part is a lot wealthier than the rest of the municipality. This figure concerns Sigtuna, where the seceding part had a per capita tax base more than 20 percent greater than the municipality. At the other extreme, the seceding part from Alingsås had a 25 percent smaller per capita tax base than the municipality.

6 Results

To analyze a data set including only 19 observations by using econometric methods is problematic, especially when the dependent variable is binary. Small-sample behavior of Maximum Likelihood estimators for binary models is largely unknown, making the results unreliable (Long, 1997). We, therefore, begin the analysis by studying the means of the independent variables by applying Hotelling's T-squared generalized means test. This test shows whether the means of the variables are statistically different between the two groups of municipalities: the ones where the referendum or opinion poll encompassed the whole municipality and the ones were the seceding part alone was included. The test takes the variables' covariance pattern into account when estimating the joint significance levels, but since the mean differences are not affected by the presence of other variables, we proceed the analysis by probit estimations to see whether the results change.

6.1 Testing for Equal Means

Hotelling's T-squared generalized means test can be used to examine whether a set of means is equal between two groups (see e.g. Tacq, 1997). We can thus test if there is joint significance of the means of the independent variables between the two groups of municipalities where $SCOPE$=0 and $SCOPE$=1.

Hotelling's T^2 is given by

$$T^2 = (X_1 - X_2)\, S^{-1}\, (X_1 - X_2)', \tag{1}$$

where X_1 and X_2 are the mean vectors in the two groups and S is the estimated covariance matrix. This gives us the following test statistic:

$$\frac{(n-p-1)}{p\,(n-2)} T^2 \sim F\,(p, n-p-1)\,, \tag{2}$$

where n is the number of observations and p is the number of variables. In our case, $n = 19$, and $1 \leq p \leq 4$.

When $p = 1$, the test reduces to a standard t test. We start with this univariate test to examine whether the means of the dependent variables are individually different between the two groups. The results are presented in Table 5.

Table 5. Unpaired two-sample t test of equal means

	$SCOPE$=0	$SCOPE$=1	$DIFF$	t	$P > \|t\|$
ΔPOP	0.093	0.26	0.17	–4.41	0.00
	(0.045)	(0.12)			
$\Delta TAXBASE$	1.01	0.99	–0.02	1.77	0.09
	(0.018)	(0.026)			
$\|\Delta POL\|$	1.24	2.10	0.86	–1.22	0.24
	(1.23)	(1.85)			
$\Delta INCUMBENT$	1.00	0.99	–0.01	0.57	0.58
	(0.03)	(0.05)			
$LEFT$	0.71	0.50	–0.21	0.88	0.39
	(0.49)	(0.52)			
Number of obs.	7	12			

Notes: Standard deviations in parentheses. $DIFF$ is the mean of the variable when $SCOPE = 1$ minus the mean of the variable when $SCOPE = 0$.

The most striking result from the t tests is the large difference in the seceding parts' population shares between the two groups. The average share is almost three times as large in municipalities where the whole population was encompassed by the referenda or opinion polls, and the difference is highly statistically significant. A municipality that would lose a large share of its population in case of secession is thus more likely to have a referendum or opinion poll that includes the whole municipal population.

The average difference in $\Delta TAXBASE$ does also correspond to the expected result; when only the seceding part was allowed to vote, the non-seceding municipality part would increase its per capita tax base in case of secession. The p-value is higher for this variable, but the difference is still significant at the ten percent level.

$|\Delta POL|$ does not support the theory of a municipal council acting as a representative for the non-seceding part of the municipality. When the seceding part alone was entitled to vote, and the probability of secession accordingly is greater, a secession would lead to a smaller political change in the municipality. This result is, however, not statistically significant.

The mean difference in $\Delta INCUMBENT$ shows the expected sign. Incumbents in municipalities where the seceding part alone was entitled to vote had greater

support in the non-seceding part of the municipality than in the municipality as a whole. But the difference is not statistically significant.

The mean difference in $LEFT$ shows an unexpected sign, but is not statistically significant. Municipalities where the referenda and opinion polls encompassed the whole population were to a lesser extent dominated by left-wing parties.

A joint test of the mean differences for all five variables gives $F(5, 13) = 3.69$, and $P > F(5, 13) = 0.03$. The mean difference of the variables are thus together statistically different between the two groups at the three percent significance level.

Excluding one or more of the variables that have individual p-values greater than 0.10 decreases the joint p-value. When including ΔPOP and $\Delta TAXBASE$ only, we obtain $F(2, 16) = 9.24$, and $P > F(2, 16) = 0.002$.

We can thus conclude that the means are jointly different between the two groups at the three percent significance level, but that the statistical significance is due to the differences in the group means of ΔPOP and $\Delta TAXBASE$.

6.2 Probit Results

Next, we estimate the following probit model:

$$Pr(SCOPE_j = 1) = \Phi\left[\beta_0 + \beta_1\left(\Delta POP_j\right) + \beta_2\left(\Delta TAXBASE_j\right) + \beta_3\left(|\Delta POL_j|\right) + \beta_4\left(INCUMBENT\right) + \beta_5\left(LEFT\right) + \epsilon_j\right], \quad (3)$$

where Φ is the cumulative normal distribution, and ϵ_j is the error term for municipality j. The expected parameter signs are $\beta_1 > 0$, $\beta_2 < 0$, $\beta_3 < 0$, $\beta_4 < 0$, and $\beta_5 > 0$.

The results are shown in the first column of Table 6.[11]

The parameter estimates for ΔPOP and $\Delta TAXBASE$ show the predicted signs, and are both statistically significant at the two percent level. The results show that the greater effect a break-up would have on the municipality's population, and the more the per capita tax base would decrease, the larger the probability that the

[11] All models have been estimated with the continuous independent variables in logarithmic form as well. The results are largely the same. This also holds when including a variable for population density. Estimations excluding the second observation for Huddinge have also been made, since its inclusion violates the assumption of independent observations. The main results are unchanged.

referendum or opinion poll encompasses the whole population. The marginal effects indicate that a one standard deviation increase in ΔPOP increases the probability for a referendum or opinion poll that encompasses the whole population by 0.19, evaluated at the variable mean. The corresponding marginal effect for $\Delta TAXBASE$ is –0.07.

Table 6. Effects on the scope of referenda and opinion polls. Probit estimates.

Variable	Coefficient	Marginal effect[a]
ΔPOP	26.29**	1.48
	(5.10)	
$\Delta TAXBASE$	–53.05*	–2.97
	(20.95)	
$\lvert\Delta POL\rvert$	0.08	0.00
	(0.18)	
$\Delta INCUMBENT$	8.33	0.47
	(14.16)	
$LEFT$	0.64	0.04
	(0.73)	
$CONSTANT$	40.85	
	(31.57)	
Number of obs.	19	
Wald $\chi^2(5)$	34.67	
Prob $> \chi^2$	0.00	
Pseudo R^2	0.75	

Notes: [a] The marginal effect for $LEFT$ is for a discrete change from 0 to 1, and for the other variables evaluated at the variable means.
Huber/White robust standard errors in parentheses.
** indicates significance at the 1 percent level,
* at the 2 percent level.

The estimate for $|\Delta POL|$ is positive, indicating that the probability of a referendum or opinion poll encompassing the whole municipality increases if the municipality can expect large differences in the municipal council's constitution. This result does not correspond to the prediction if we regard the municipal council as a representative for the non-seceding part of the municipality. The estimate is, however, not statistically significant.

The effects of both $\Delta INCUMBENT$ and $LEFT$ have changed sign compared to the means test, but neither of the estimates are statistically significant. The sign of the probit estimate for $\Delta INCUMBENT$ is thus not in line with the theory of a municipal council being more prone to let a municipality part secede if it increases the vote share to the incumbent bloc in the municipality. The estimate sign for $LEFT$ is positive as predicted, indicating that municipal councils with left-wing majorities have an increased propensity to arrange referenda where the whole municipal population is encompassed.

7 Summary and Conclusions

In the cases examined in paper, the municipal council decided on the scope of the referenda and opinion polls about municipality break-ups. Based on the majority vote, the council makes a recommendation to the central government about whether a break-up is desirable or not. The recommendation plays an important role for the central government's partition verdict; only four of 25 partition verdicts have not been in line with the municipal council's recommendation. A necessary condition for a successful secession case is that a majority in the seceding part is pro-secession. By imposing a further condition, that there must be a majority favoring secession in the whole municipality as well, the probability of a positive recommendation necessarily decreases.

The main idea in this paper is that the municipal council uses the scope of the referenda and opinion polls as a tool for obtaining the desirable outcome.

The empirical analysis shows two factors affect whether the whole municipal population was encompassed or the seceding part only. The greater share of the municipal population belonging to the seceding part (or parts), and the more the municipality would decrease its per capita tax base in case of a break-up, the more likely is a referenda or opinion poll that includes the whole municipal population.

Accordingly, the empirical findings support the idea that by encompassing the whole municipal population, the municipal council obstructs secession the more the municipality's population and per capita tax base would decrease in case of a break-up.

The municipal council's underlying motive for this behavior is not evident. The factors supported by data correspond to the picture of a municipal council acting as a representative for the non-seceding part of the municipal population, but also to a municipal council having rent-seeking motives. The results of this paper does, therefore, not say anything about the implications for the local population, which ought to be quite different depending on how the local politicians utilize the resources available in a larger and more wealthy municipality.

References

Alesina, Alberto and Enrico Spolaore, 1997, On the Number and Size of Nations, *Quarterly Journal of Economics* 112: 1027–1056.

Bolton, Patrick, Gérard Roland and Enrico Spolaore, 1996, Economic Theories of the Break-Up and Integration of Nation, *European Economic Review* 40: 697–705.

Bolton, Patrick and Gérard Roland, 1997, The Breakup of Nations: A Political Economy Analysis, *Quarterly Journal of Economics* 112: 1058–1090.

Brink, Anna, 2003, Unequal Provision of Local Public Services under the Threat of Secession, *mimeo*.

Gustafsson, Gunnel, 1980, *Local Government Reform in Sweden*, Lund: CWK Gleerup.

Hagård, Birger, 1989, *Vadstena egen kommun. Kampen för självständighet 1977-79*, Föreningen Gamla Vadstena – Småskrift nr 34.

Holmgren, Holger (1981), *Åsele kommun delades*, in Utvärdering av kommundelningar. Erfarenheter av Motala och Åsele kommuners delning. Ds Kn 1981:21, Kommundepartementet.

Höglander, Bo and Wiklund, Claes, 1998, *Spelet om delningen – och vad som sen hände i Gnesta, Nyköping och Trosa*, Nyköping: Södermanlands Nyheter.

Long, J. Scott, 1997, *Regression Models for Categorical and Limited Dependent Variables*, Thousands Oaks, California: Sage.

Nelson, Michael A., 1992, Municipal Amalgamation and the Growth of the Local Public Sector in Sweden, *Journal of Regional Science* 32: 39–53.

Oates, Wallace, 1972, *Fiscal Federalism*, New York: Harcourt Brace Jovanovich, Inc.

Persson, Torsten and Guido Tabellini, 2000, *Political Economics. Explaining Economic Policy*. Cambridge: MIT Press.

SOU 1978:32, *Ny indelningslag för kommuner, landstingskommuner och församlingar. Betänkande av Indelningslagskommittén.*

Strömberg, Lars and Jörgen Westerståhl, 1984, *The New Swedish Communes*, Stockholm: Liber.

Tacq, Jacques, 1997, *Multivariate Analysis Techniques in Social Science Research*, London: Sage Publications.

Wallin, Gunnar, 1993, *Att inhämta synpunkter från medborgarna. Det kommunala omröstningsinstitutet i tillämpning.* Rapport till Lokaldemokratikommittén, SOU 1993:72.

Appendix

Table A1. Correlations

	$SCOPE$	ΔPOP	$\Delta TAXBASE$	$\lvert\Delta POL\rvert$	$\Delta INCUMBENT$	$LEFT$
$SCOPE$	1.00					
ΔPOP	0.66***	1.00				
$\Delta TAXBASE$	–0.40*	–0.11	1.00			
$\lvert\Delta POL\rvert$	0.26	0.17	–0.41*	1.00		
$\Delta INCUMBENT$	–0.14	–0.28	0.35	–0.54**	1.00	
$LEFT$	–0.21	–0.28	0.18	–0.05	0.53**	1.00

Notes: *** indicates statistical significance at the 1 percent level,
** at the 5 percent level, * at the 10 percent level.