Inclusion and Public Policy: Evidence from Sweden’s Introduction of Noncitizen Suffrage∗

Kåre Vernby†

---

∗I wish to thank participants in seminars at the Department of Economics and the Institute for Housing and Urban Research at Uppsala University, and Ludvig Beckman, John R. Bowman, Matz Dahlberg, Carl Dahlström, Per-Anders Edin, Christer Gerdes, Olle Folke, Per-Pettersson Lidbom, Karl-Oskar Lindgren and Jan Teorell for comments. Per Pettersson-Lidbom and Björn Tyresors-Hinnerich graciously provided some of the data used. This research was financially supported by the Jan Wallander and Tom Hedelius Foundation and the Uppsala Center for Labor Studies.

†Researcher, Uppsala University. Address: Department of Government, Uppsala university, Box 514, 75120 Uppsala, Sweden. Phone: +46184713304. Fax: +46184713308. Email: kare.vernby@statsvet.uu.se
Abstract

The largest disenfranchised group in modern democracies is international immigrants who lack citizenship of their country of residence. Despite that noncitizen suffrage has been introduced in some countries, and has been the subject of vigorous public debate in many others, there have been no systematic attempts to investigate its policy consequences. I develop a simple formal model to illustrate the selection bias inherent in estimating the impact of noncitizen suffrage on public policy, and analyze data that are uniquely suitable to deal with this methodological problem, namely data on exogenous changes in the composition of the electorates of Swedish municipalities generated by the introduction of noncitizen suffrage. According to the results, the effect of enfranchising noncitizens on public policy was large, causing spending on education and social and family services to increase substantially in those municipalities where noncitizens made up a non-negligible share of the electorate.

Keywords: citizenship, voting rights, public spending, selection bias
Universal suffrage is a cornerstone of modern democracy. Yet, democratic states typically deny a large number of adults residing within their boundaries the right to vote. In most cases, the largest disenfranchised group is international migrants and refugees who lack citizenship of their country of residence. As globalization proceeds, moreover, the size of this group will continue to grow. At the same time, a number of countries are bucking this trend. While New Zealand is the only established democracy that allows noncitizens to vote in national elections, the right to vote in local elections has, in some countries, been extended, either by central or by sub-national governments (Earnest 2008). In several other countries, the fact that a large and growing share of the population has no say in the political decisions that affect them the most, has sparked a vigorous debate about noncitizen suffrage (Bauer 2007). Yet, we do not know what would be the policy consequences of the inclusion of this previously excluded group.

Democratic theorists have long argued that public policy will not reflect the interests of those who are excluded from the political process (see, e.g., Dahl 1971, Walzer 1983). It is therefore not surprising that many have suggested the extension of voting rights to noncitizens would have potentially important consequences for public policy, and that it would improve the relative situation of this group (see, e.g., Layton-Henry 1991, Brubaker 1998, Hayduk 2006). However, history is replete with examples of resistance to franchise extensions grounded in fear of the policy consequences of undertaking such reforms, and which was only overcome when and where this fear had been assuaged (see, e.g., Keyssar 2000, Boix 2003). Indeed, the rise and fall of noncitizen voting in the United States during ‘the long nineteenth century’ partly conforms to this narrative (Hayduk 2006). Writing about more recent struggles over noncitizen suffrage in Western Europe, Dancygier (2010, 277) observes that “members of the nonimmigrant electorate are suspicious of incorporating a new set of voters who will make claims that impinge on their welfare”. In general, then, such examples warn us that the impact on public policy of noncitizen voting rights, where such rights have actually been granted, may be small.
I begin by developing a simple formal model that illustrates this essentially methodological problem. Specifically, it shows that the franchise is more likely to be extended in settings where the policy priorities of the majority population differ the least from those of noncitizens. The model therefore predicts that there will be negative self-selection bias in estimating the policy consequences of noncitizen suffrage, in that the latter will only be observed where the policy consequences of such reform are small. More generally, attempts to estimate the enfranchisement effect will be subject to what can be termed ‘the political economy threat to internal validity’ (Meyer 1995), which comes about because political decisions about whether or not to implement a particular reform are determined by expectations about the reform’s impact on future policy outcomes. Most importantly, however, my model suggests a novel way out of this conundrum. In particular, franchise extensions that are imposed on sub-national units by the central government ameliorate the methodological problems that spring from negative self-selection.

To estimate the enfranchisement effect empirically, I turn to credibly exogenous changes in the composition of the electorates of Swedish municipalities generated by one of the earliest and most inclusive examples of noncitizen suffrage. The reform was passed by the national parliament in 1975, and granted foreign citizens with three or more years of permanent residence in Sweden the right to vote in elections to all of Sweden’s municipal assemblies. The first time noncitizens had the opportunity to exercise their new-won right was in the 1976 municipal elections. Due to the uneven dispersion of noncitizens across Sweden, some municipalities were hardly affected at all, whereas in others noncitizens made up as much as 13 percent of the 1976 electorate. The sudden change in municipal electorates that was generated by the reform enables me to estimate the impact of the enfranchisement of noncitizens on public policy.

Studying the Voting Rights Reform of 1975 is not only attractive because it presents an opportunity to deal effectively with the problem of negative self-selection in the study of the policy consequences of noncitizen suffrage. From a methodological point of view, the
greater homogeneity of sub-national units promises a solution to the problem of isolating the impact of franchise extensions on public policy. By studying variations in local, rather than national, government policies a large number of country-specific influences and developments are automatically held constant (Besley and Case 2003).

To measure changes in policy, I focus on municipal public spending in two policy areas over which municipalities exercised considerable control: education and social and family services. Municipalities were responsible for both primary and secondary education, as well as adult education oriented towards the formation of labor market skills. They also provided a number of social and family services, such as pre-school and after-school services and child and adolescent care. At the time of the reform, municipal educational and social services were considered to be crucial in equalizing the life chances of noncitizens and the majority population. The main reason for this was that noncitizens made up a disproportionate share of the demographic groups—families with children and young adults—that were most directly affected by public policy in these areas.

My results suggest that noncitizen suffrage had important consequences for local public policy. In the typical municipality, the reform raised spending on education services by over 10%. With regards to spending on social and family services, the results indicate an even stronger impact of noncitizen suffrage. Consistently with an account that emphasizes the demographic characteristics of the noncitizen population, I also find that the impact of the reform on education services was larger where the percentage of school-aged noncitizens was high and that spending on social and family services was increasing in the percentage of noncitizens below school age. The analysis then goes on to show that the results are not unduly influenced by a few particular observations. I also perform additional tests showing that investments in waste handling facilities—a type of public good that is likely to have been perceived as equally important by noncitizens and the majority population—was unaffected by the reform. This is consistent with the notion that suffrage should only lead to increased spending in areas that are relatively more important to the newly enfranchised
The paper is divided into five parts. In the first, I develop the formal model and discuss its implications for the estimation of the enfranchisement effect. In the second, I explain why the case of Swedish local government and the Voting Rights Reform of 1975 provides an ideal environment for the study of the policy consequences of noncitizen suffrage. In the third, I describe the statistical model, the data and variable measurement. My empirical results are presented in the fourth. In the fifth, finally, I set out my conclusions.

A Formal Model of Inclusion and Public Policy

In what follows, I draw on the probabilistic voting framework in order to develop a simple formal model. The purpose the model is to illustrate my core argument about the political economy of noncitizen suffrage, and to suggest what kind of research design is necessary in order to deal with the methodological problems inherent in studying the policy consequences of franchise extensions.

Basic Assumptions

Society consists two distinct groups indexed $G$. They are the citizens $C$ and the noncitizens $\sim C$. The total number (mass) of individuals is normalized to unity, and the noncitizens’ share in the population is $p \in [0, 1]$, whereas the citizens’ share in the population is $1 - p$. Both groups are assumed have the same average pre-tax and transfer market income. The model can easily be modified to allow for differences in average income across groups, but I will stick to the assumption that there are no such differences, given that it is true in the particular empirical setting of this paper (see below). Although my results are not contingent on this, I will also assume that there is no inequality within groups. Taken together, the assumptions of no between- and within-group inequality imply that all individuals have the same pre-tax and transfer market income, denoted $\varpi$. 
Groups do, however, differ in their valuation of a government provided public good, which is distributed in equal amounts to all, and which is denoted by \( g \). This valuation is measured by the group-specific parameter \( \theta_G \), which is assumed to be positive. My results are not contingent on the assumption of no intra group-differences with respect to the valuation of the government provided good. The most straightforward interpretation of \( g \), is that it stands for some bundle of basic public services or goods that are valued by all. Of course, this does not mean that all place the same value on it.\(^3\)

Individuals are assumed to have the following indirect utility function over economic policy

\[
V(g; \theta_G) = (1 - t)\varpi + \theta_G g^\alpha
\]  

(1)

where \( t \) is a proportional income tax that is constrained to lie in the unit interval and is used to finance the government-provided good. Expenditures on the government provided good must equal tax revenues. That is, \( g = t\varpi \). Finally, \( \alpha \in (0,1) \) is a parameter that captures decreasing marginal utility from the consumption of the public good.

Individuals do not only care about economic policy. First, individuals derive some negative or positive utility depending on the inclusiveness of the political regime, which is independent from the effect of that inclusiveness on economic policy. In particular, I introduce the parameter \( \delta_i \), where \( \delta_i \) is uniformly distributed on the interval \( [\delta - \frac{1}{2\psi}, \delta + \frac{1}{2\psi}] \). Positive (negative) values of \( \delta_i \) mean that citizen \( i \) derives positive (negative) utility from the disenfranchisement of noncitizens. The density of \( \delta_i \) is denoted \( f(\delta_i) \).

Second, there exist two political alternatives \( \{A, B\} \) which compete over getting into government (see more below). Individuals care about the outcome of this competition. I capture this by introducing the parameter \( \sigma_i \), where \( \sigma_i \) distributed uniformly on the interval \( (-\infty, \infty) \) in both groups. Positive (negative) values of \( \sigma_i \) mean that individual \( i \) is biased in favor of alternative \( B \) (\( A \)). The density of \( \sigma_i \) is denoted \( v(\sigma_i) \) and \( \sigma_i \) and \( \delta_i \) are independently distributed such that \( f(\sigma_i, \delta_i) = v(\sigma_i) f(\delta_i) \).
Adding these non-economic considerations to (1), the entire utility function of an individual in group $G$ is

$$U_G = V(g; \theta_G) - \frac{\sigma_i}{2} P - \frac{\delta_i}{2} I$$

where $P = 1$ if $A$ in government, $P = -1$ if $B$ in government, $I = 1$ if all individuals are enfranchised, and $I = -1$ if only citizens are enfranchised.

In the model, political and economic choices are made at two consecutive stages. At the first stage, which I will refer to as the constitutional stage, only citizens have the right to vote and political competition is about whether or not to extend the franchise to noncitizens. The election platforms of the political alternatives at this stage are denoted $I^A$ and $I^B$, respectively.

At the second stage, which I will refer to as the legislative stage, political competition is about the provision of the government provided good. At this stage, the election platforms of the alternatives are denoted $g_A$ and $g_B$, respectively. This time not only citizens have the right to vote, but also noncitizens, to the extent that the former have extended the franchise to the latter at the first stage. To denote noncitizens’ share in the electorate at this second stage, let $s = \frac{I + 1}{2} p$.

At both stages, each political alternative is fully informed of all individuals’ preferences and offers an election platform with the objective of maximizing its vote share. The alternatives present their platforms simultaneously and non-cooperatively. When the platforms have been offered, those individuals who are allowed to vote do so, and the political alternative that wins the highest vote share implements its election platform.\(^4\)

The Legislative Stage

At the legislative stage, my basic assumptions imply that both political alternatives will converge on proposing the level of the government-provided public good that maximizes the post-tax and transfer utility of the individual with an average valuation of said good.\(^5\) The
equilibrium at the legislative stage is formalized in the following proposition (the proof can be found in the appendix):

**Proposition 1.** *If the basic assumptions hold, a unique equilibrium at the legislative stage exists in which both political alternatives A and B propose the same level of per capita spending on the government provided good. Letting $g^*$ denote the actual equilibrium outcome*

\[
g^* = \begin{cases} 
    g_I = \left( \alpha \theta_C \left[ 1 + \frac{\theta_{\sim} - \theta_C}{\theta_C} p \right] \right)^{\frac{1}{1-\alpha}} & \text{if } I = 1 \\
    g_E = (\alpha \theta_C)^{\frac{1}{1-\alpha}} & \text{if } I = -1
\end{cases}
\]  

(3)

In words, if the franchise has been extended at the constitutional stage, actual spending will be equivalent to $g_I$. If, on the other hand, the franchise is not extended, actual spending will instead amount to $g_E$.

As can be seen from (3), the level of spending is increasing in the parameter that captures decreasing marginal utility from the consumption of the public good, $\alpha$, and the parameter that measures the citizens’ valuation of the government provided good, $\theta_C$. This holds for both equilibria. Our main interest does, however, lie with the difference between the two. Most importantly, one can see that if, and only if, noncitizens value the government-provided public good more than citizens, such that $\frac{\theta_{\sim} - \theta_C}{\theta_C} > 0$, an enfranchisement of noncitizens will lead to increased public spending. The magnitude of this effect does not only depend on noncitizens’ relative valuation of the public good, but also on the share of noncitizens in the electorate, $p$.

Intuitively, Proposition 1 captures the notion that the enfranchisement of noncitizens will increase public spending if the basic goods and services the government supplies are relatively more important to this group. And the higher the discrepancy between noncitizens’ and citizens’ valuation of the public good, the larger the impact of noncitizen suffrage on policy. Proposition 1 also captures the importance of group size in politics. In particular, the degree to which public policy reflects the interests of noncitizens depends on their
numbers.

The Constitutional Stage

At the constitutional stage, both political alternatives will, given my basic assumptions, converge on proposing the enfranchisement policy that maximizes the post-tax and transfer utility of the individual with an average valuation of noncitizen suffrage. The equilibrium at the constitutional stage is formalized in the following proposition (the proof can be found in the appendix):

**Proposition 2.** If the basic assumptions hold, a unique equilibrium at the constitutional stage exists in which both political alternatives $A$ and $B$ propose the same enfranchisement policy. Letting $I^*$ denote the actual equilibrium outcome

$$I^* = \begin{cases} 1 & \text{if } V(g_I; \theta_C) - V(g_E; \theta_C) > \bar{\delta} \\ -1 & \text{if } V(g_I; \theta_C) - V(g_E; \theta_C) \leq \bar{\delta} \end{cases}$$

In words, if the economic loss of noncitizen suffrage to citizens in society $j$ is sufficiently small, the franchise will be extended and $I^* = 1$. If, on the other hand, the economic loss is larger than citizens’ average valuation of the disenfranchisement of noncitizens, $\bar{\delta}$, the franchise will not be extended and $I^* = -1$.

Intuitively, Proposition 2 captures the notion that the larger the expected consequences of enfranchisement for the policy outcome at the legislative stage, the less ‘likely’ noncitizen suffrage will be. Put differently, by substituting (3) into (1) it can be seen that, for a given valuation of noncitizen suffrage $\bar{\delta}$, it is the difference between the governments’ supply of public goods when noncitizens are enfranchised, $g_I$, and the supply when they are not, $g_E$, that determines whether the franchise is extended or not.
Methodological Implications

Given the intuitively plausible notion formalized in the preceding sections—that noncitizen suffrage will only be endogenously extended in societies where the expected policy consequences of such a reform are sufficiently small—the impact of inclusion on public policy can not, under most circumstances, be consistently and unbiasedly estimated. This methodological problem can only be overcome if it can be plausibly argued that a voting rights reform is decided on independently of those factors that determine its expected impact on future policy.

In order to illustrate this point more formally, I will adopt the potential outcomes framework developed by Rubin (1974). To begin with, note that equation (3) in Proposition 1 lends itself to a direct interpretation within this framework. In particular, $g^*$ is the actual outcome, while $g_I$ and $g_E$ are the potential outcomes. Then, in order to obtain an empirical counterpart to (3) that is linear in the parameters, I take the natural logarithm of both of its sides\(^6\)

$$
\ln(g^*) = \ln(\alpha) + \ln(\theta_C) + \frac{\theta_{\sim C} - \theta_C}{(1 - \alpha)\theta_C} s
$$

where the definition $s = \frac{I + 1}{2} p$ has been utilized in order to write the expression more compactly. In words, (5) says that if the franchise is extended at the constitutional stage, then $s = p$ and the logarithm of actual spending $\ln(g^*)$ will be equivalent to $\ln(g_I)$. If, on the other hand, the franchise is not extended, then $s = 0$ and the logarithm of actual spending will instead amount to $\ln(g_E)$.

Clearly, (5) has the appearance of a regression function. If our substantive interest lies in estimating the causal effect of noncitizen suffrage, and we have information about actual spending $g$ and the share of noncitizens in the electorate $s$ for a collection of societies, applying OLS to (5) would indeed produce estimates of the reduced form parameters $\frac{\ln(\alpha)}{1 - \alpha} + \frac{\ln(\theta_C)}{1 - \alpha}$ and $\frac{\theta_{\sim C} - \theta_C}{(1 - \alpha)\theta_C}$. The latter of these parameters could then be used to calculate what experimentalists would call the ‘average treatment effect’.
\[ E(\ln(g_I) - \ln(g_E)) = \frac{\theta_{C} - \theta_{C}}{(1 - \alpha)\theta_{C}} E(p). \]

The methodological problem arises when we believe that the impact of noncitizen suffrage on public policy varies across the societies in our population of interest because of unmeasured factors. This will be the case, for instance, when the citizens’ and noncitizens’ relative valuation of the government-provided good differs across contexts. To illustrate the consequences of such heterogeneity, I assume that the noncitizens’ valuation of the government provided good varies across societies. Specifically, let the noncitizens’ valuation of the government provided good \( \theta_{C} \) be a linear combination of a fixed component \( \theta_{C} \) and an unmeasured random component \( e \) that varies across the societies of interest such that \( \theta_{C} = \theta_{C} + e \). Moreover, let the random component \( e \) have an expected value of \( E(e) = 0 \) and be distributed independently of \( p \) such that \( E(ep) = E(e)E(p) = 0 \). Then, rewrite (5) using the new definition of \( \theta_{C} \)

\[ \ln(g^*) = \frac{\ln(\alpha)}{1 - \alpha} + \frac{\ln(\theta_{C})}{1 - \alpha} + \frac{\theta_{C} - \theta_{C}}{(1 - \alpha)\theta_{C}} s + \frac{e}{(1 - \alpha)\theta_{C}} s \]  

(6)

Because \( e \) is unmeasured and varies across the societies of interest, the regression function in (6) is most easily thought of as a version of (5) with the addition of a composite error term \( \frac{e}{(1 - \alpha)\theta_{C}} s \). In light of my formal model, this error term does, however, have a substantive interpretation. In particular, it is the difference between the impact of noncitizen suffrage in a particular society—what experimentalists would call the ‘unit treatment effect’—and the average treatment effect.

The application of OLS to (6) would, once again, produce estimates of the reduced form parameters. However, under the assumption that noncitizens’ valuation of the government provided good \( \theta_{C} \) varies across the societies of interest, and given that the franchise is extended endogenously, as in my formal model of inclusion and public policy, the estimate of \( \frac{\theta_{C} - \theta_{C}}{(1 - \alpha)\theta_{C}} \) and, consequently, the estimate of the average treatment effect, would, in all likelihood, be inconsistent and biased. This is because the composite error term \( \frac{e}{(1 - \alpha)\theta_{C}} s \)
varies across the groups of societies that have chosen to extend the franchise and those who have not. Specifically, the error term will be zero in those societies that have not extended the franchise. And because the franchise will only be extended where the expected policy consequences are sufficiently low, the expected value of $e$ will be below zero in those societies that do so.

If, on the other hand, the franchise is extended independently of the factors that determine its expected policy consequences the prospects of obtaining consistent and unbiased estimates of the reduced form parameters improve dramatically. One obvious example satisfying this requirement would be when franchise extensions are imposed on sub-national units by the central government. In this case, my assumptions imply that the expected value of $e$ will be zero, irrespective of the value of $s$, and the estimate of \( \frac{\hat{\theta}_{-C} - \theta_C}{(1 - \alpha)\theta_C} \) will be consistent and unbiased. And, as a consequence, the average treatment effect can also be consistently and unbiasedly calculated.$^7$

**The Swedish Case**

What makes for an ideal environment in which to study the impact of noncitizen suffrage on public policy? First, as shown in the previous section, in order to avoid the problem of negative self-selection it is preferable to study franchise extension that are imposed on, rather than endogenously chosen by, the political units under study. Second, we should also focus our attention on cases where noncitizen suffrage is ‘universal’, rather than selective. Third, my estimation strategy relies on there being a considerable degree of variation across political units with regard to noncitizens’ share in the electorate. Fourth, noncitizens must exhibit some degree of political involvement. Fifth, the political units under study must have considerable control over outcomes in policy areas of particular interest to noncitizens.

These five conditions are met in the case of Swedish local government and the Voting Rights Reform of 1975, providing an ideal environment for the study of the policy
consequences of noncitizen suffrage. First, noncitizen suffrage was imposed on Swedish municipalities by the Swedish national parliament, which, in October 1975, voted to grant foreign citizens the right to vote and to stand for office in elections to municipal assemblies. The reform was supported by all parties, but it was preceded by a debate that had started following the bill of a Social Democratic member of parliament in 1968. According to the most comprehensive account of the events that led up to the Voting Rights Reform, Swedish municipalities were not active participants in this process. Rather, the issue was pushed by a coalition of top-level bureaucrats at central government agencies and high-ranking politicians within the Social Democratic party. The latter also appear to have been strongly influenced by discussions within the diplomatic context of the Nordic Council, where Finland had argued that the large group of Finns permanently residing in Sweden should be allowed the vote (Hammar 1979).

As a recent survey by Earnest (2008) shows, sub-national political authorities in countries such as Austria, Switzerland, Germany, Canada and the United States have chosen to enfranchise noncitizens. At first blush, these examples may seem to provide the researcher with within-country variation that can be used to estimate the policy impact of noncitizen suffrage. However, as I show with my formal model in the preceding section, the political and economic considerations inherent in studying the policy consequences of franchise extensions lead us to suspect that such estimates would suffer from self-selection bias, and would thus have little to say about the causal effect of noncitizen suffrage on public policy.

Second, the scope of the Swedish reform was, and still is, exceptionally inclusive. All that is required to be able to vote and stand for office in municipal elections is a total of three or more years of permanent residence in Sweden. Earnest (2008) shows that only about a dozen advanced industrial countries have taken the step of enfranchising all resident noncitizens in local elections, irrespective of their country of origin. In addition, most of these countries have longer residency requirements than Sweden’s. Estimating the enfranchisement effect in countries with limited noncitizen suffrage, such as is the case in all
European Union members states, which must allow EU citizens to vote in local elections, must also, almost by definition, result in bias, given my stated goal of estimating the impact of enfranchising noncitizens as a group.

Also, the third condition described above is met. The first municipal elections following the reform were held in 1976. That year, as a result of the reform, well over two hundred thousand noncitizens were entitled to vote; the newly enfranchised made up about 3.5% of the total electorate. Due to the spatial dispersion of immigrants, the impact of the reform differed markedly across municipalities. To give the two most extreme examples: Åsele, a relatively small municipality in the northern administrative county of Västerbotten, saw 12 noncitizens eligible to vote in the 1976 municipal elections, accounting for less than 0.2% of the electorate. The same year, 1523 noncitizens (making up about 13% of the electorate) had the right to vote in the municipal elections of Olofström, another relatively small municipality located in the southern administrative country of Blekinge.

Fourth, noncitizens did exhibit political involvement. Even before the reform, some noncitizens were active in parties, and many were union members. In the municipal elections of 1976, one estimated that around 60 percent of the noncitizens exercised their newly won right. While the noncitizen turnout rate was higher than contemporary experts had predicted, there were few noncitizen candidates, and of those who did stand for office, only a few managed to get in (Hammar 1979).

Finally, Swedish municipalities had considerable control over outcomes in policy areas that were perceived to be of particular interest to noncitizens, thus meeting the fifth condition described above. The motivation of the Voting Rights Reform of 1975 to a large extent goes back to a previous government commission—the ‘immigrant commission’—which presented its final report in 1974. The immigrant commission had been appointed in 1968 with the instruction to chart the situation of immigrants in Sweden, and to suggest measures that could improve their situation. In its final report, the commission argued that municipalities had to make considerable efforts in several areas—most notably in education and social and
family services—if the broader goal of equality of life chances between immigrants and the majority population was to be achieved (SOU 1974:69). The ‘voting rights commission’ that followed the immigrant commission argued that noncitizen suffrage in local elections would stimulate local efforts in these areas, as it would prompt local policy-makers to be more responsive towards the interests of immigrants (SOU 1975:15).

As Figure 1 shows, the demographic structure of the mid-70s noncitizen population differed markedly from that of the general population. Most notably, noncitizens were overrepresented in the age groups towards which primary and secondary education, as well as adult education oriented towards the formation of labor market skills, was directed. Moreover, studies also show that noncitizens clearly overrepresented among those who were actually enrolled in these various forms of municipally organized education (Opper 1983). As the immigrant commission pointed out, education policy, including home language instruction and bilingual education, was one of the most important political issues for organizations representing various immigrant groups (SOU 1974:69). With regards to municipally provided social and family services, their primary targets were also groups in which noncitizens made up a disproportionate share. In particular, many of these services, such as pre-school and after-school services and child and adolescent care, were aimed at families with children. According to the immigrant commission, immigrant organizations argued for increased municipal efforts in these areas too.

[Figure 1 about here.]

**Statistical Model, Data and Variable Measurement**

I consider a two-period statistical model where the term of office that lasted from 1973 to 1976 is the first, and the term that lasted between 1976 and 1979 is the second. In the 1973 elections, noncitizens were not allowed to vote, so during the first term we would expect the exclusionary equilibrium to hold. The Voting Rights Reform allowed noncitizens to vote in
the 1976 elections, so we would expect the inclusive equilibrium to hold during this, the 
second, term of office. Letting $\beta = \frac{\bar{\theta}_C - \theta_C}{(1 - \alpha)\theta_C}$, and recognizing that during the first period 
$s = 0$ for all municipalities, the pre- and post-reform empirical counterparts to the equation 
in (6) can be written

$$
\ln(g_{j1973}) = \lambda_{1973} + \gamma_{1973}X_{j1973} + v_j
$$

$$
\ln(g_{j1976}) = \lambda_{1976} + \beta s_{j1976} + \gamma_{1976}X_{j1976} + v_j + \mu_{j1976}
$$

where the terms of office are indexed $t = 1973, 1976$, specific municipalities are subscripted 
by $j$, $\lambda_t$ is a term-specific intercept, $v_j$ is a municipality-specific effect and $\mu_{j1976}$ is equal to 
the composite error term in equation (6).

Although the equations in (7) are more or less direct extensions of (6), I do make a few 
additions. First, for each time-period I have included a limited number of control variables 
(see more below), which are captured by the vectors $X_{1976}$ and $X_{1973}$. Attentive to concerns 
about assuming that variables have essentially the same impacts over time (Ray 2003), I 
have allowed the parameters ($\gamma_{1976}$ and $\gamma_{1973}$) associated with the control variables to vary 
across time. Second, I have also allowed the intercept to vary both across terms of office, 
as captured by $\lambda_t$, and municipalities, as captured by $v_j$. This is because there may be 
common time trends as well as factors that are more or less constant within municipalities, 
that have an impact on spending.

As a standard precaution to get rid of the abovementioned municipality-specific fac-
tors, I estimate the model in (7) in differences. This is important to the extent that the 
municipality-specific effects have an impact on the share of noncitizens in 1976 electorate.\textsuperscript{11} 
Specifically, I opt for a differences-in-differences approach

$$
\Delta \ln(g_{j1976}) = \Delta \lambda_{1976} + \beta s_{j1976} + \gamma_{1976}X_{j1976} + \gamma_{1973}X_{j1973} + \mu_{j}
$$

where $\Delta \ln(g_{j1976}) = \ln(g_{j1976}) - \ln(g_{j1973})$ and $\Delta \lambda_{1976} = \lambda_{1976} - \lambda_{1973}$.
I estimate (8) by applying OLS to data compiled from publications issued by *Statistics Sweden*. All variables are expressed as averages for the relevant term of office. The main reason for this averaging is that studies show that collapsing the pre- and post-reform periods lessens the risk of Type I error that might otherwise result from applying differences-in-differences methods to serially correlated outcomes (Bertrand et al. 2004). The Voting Rights Reform took place in the wake of a large-scale municipal boundary reform that was implemented in 1969, and which gradually reduced the number of municipalities by almost 70%—from 848 to 278—by 1974. Therefore, I have only included those municipalities that did not change after 1972, leaving me with a sample of 183 municipalities.12

The following variables are used in the analysis:

*Dependent Variables.* To measure changes in policy, I focus on changes in municipal spending decisions. I have been able to construct comparable time-series on aggregate per capita spending by the municipal offices of education and culture (*Education Services*) and the municipal offices of social and family issues (*Social and Family Services*).13 Spending on primary and secondary schooling typically made up the vast majority of spending on education services, whereas day care and pre-school accounted for the lion’s share of spending on social and family services. Together, education and social and family services typically account for almost 40% of the municipal budget during the period of study.14 As a robustness check, I also consider local spending that can be expected to have been equally valued by citizens and noncitizens, and which therefore should not have been affected by the reform (*Investment in Waste Handling Facilities*).

*Independent Variable.* The crucial independent variable according to my formal model is the fraction of noncitizens in the municipal electorate. The variable *Noncitizens in Electorate* is created on the basis of data from the electoral register.

*Control Variables.* Even though I am studying a sample of comparatively homogenous political units for a limited period of time, there may be concerns that the main independent variable, *Noncitizens in Electorate*, is correlated with a number of variables that are, in their
turn, correlated with trends in public spending. However, and as is well known, including controls that might be affected by my main variable of interest might lead to over- or underestimation of it’s total effect. Therefore, I have aimed to include a limited number of controls that are correlated with, but not causally affected by, the share of noncitizens in the post-reform electorate.

First, and perhaps most obviously, it is crucial to control for the fraction of noncitizens in the population (Noncitizens in Population). Because only adult noncitizens with three or more years of permanent residence were covered by the reform, a large share (typically somewhere around 25%) of the adult noncitizen population was excluded. There are also strong reasons to suspect that the share of noncitizens in the population may have an independent effect on public spending. During this period, the largest group of immigrants residing in Sweden came as labor migrants during the post-war economic boom. Like present-day immigrants, which come from a more geographically diverse set of countries, they were also subject to discrimination and xenophobia.\(^\text{15}\) And, it is often argued that when immigration sparks xenophobic sentiments among the majority population, this will also undermine their support for public spending (see, e.g., Alesina and Glaeser 2004).

Second, I control for the number of inhabitants in the municipality measured in 100 000s (Population). The reason for the inclusion of this variable is that urban areas and the bigger cities did, to some extent, attract noncitizens. Most of the municipalities whose electorates were very little affected by the reform, on the other hand, were small and located in the countryside. Examples of large municipalities where noncitizens made up a considerable share of the electorate are the municipality of Stockholm (5%) and surrounding municipalities, such as Järfälla (8%), Huddinge (8%), Haninge (8%) and Södertälje (10%).

Third, I include the per capita municipal taxbase (Taxbase/capita). Although many of the labor force immigrants that came after World War II, and especially during the 1960s, came to do low-wage jobs, their market incomes were not markedly lower than those of citizens at the time of the reform. The enfranchisement of noncitizens therefore did not
cause the decisive voter to shift down the distribution of income and this remained true throughout the 1970s.\textsuperscript{16} Given the geographical dispersion of noncitizens, the share of noncitizens in the electorate may, however, still be correlated with the municipal taxbase.

Fourth, and finally, I include per capita government grants to the spending areas under study (\textit{Education Grants} and \textit{Social Grants}). Specifically, grants accounted for about 45\% of municipal spending on education and culture, and about 28\% of spending on social and family assistance, in the typical municipality.\textsuperscript{17}

\section*{Main Results}

Recognizing the risk of including intervening variables, while at the same time realizing the need to control for confounding variables, I estimate one sparse model and one full model for each of the dependent variables. Table 1 presents the results from these estimations.

\begin{table}[h]
\centering
\caption{Table 1 about here.}
\end{table}

The first two columns show the results from estimating the model in equation (8) with education spending as the dependent variable. As can be seen, the coefficient estimates for the proportion of noncitizens in the 1976 electorate are positive and statistically significant in both models. Moreover, they are fairly similar across models, suggesting that the share of noncitizens in the electorate can be considered as being ‘as good as randomly’ assigned to municipalities, conditional on the share of noncitizens in the population. To gauge whether the impact of the reform on spending on education services is substantively important, consider a ‘typical’ municipality, which I define as one where noncitizens made up 3\% (the empirical mean) of the 1976 electorate. All else being equal, the estimates suggests that average annual per capita education spending in such a municipality rose by between 11.2\% and 14.5\% as a consequence of the reform.\textsuperscript{18} To get an idea of how large such an increase would be, consider a municipality that, during the term that lasted between 1973 and 1976,
annually spent, on average, 8500 in 2009 SEK (the empirical mean), or 1100 in 2009 US$. If noncitizens made up 2% of the 1976 electorate, the models thus predict that the reform caused per capita education spending to rise by between 950 and 1250 in SEK, or between 125 and 160 in US$.

In columns (3) and (4) of Table 1, I have substituted spending on social and family services for education spending. As is clear, the coefficient estimates for the proportion of noncitizens in the electorate are positive and statistically significant here too. Using these estimates, we see that in our typical municipality, where noncitizens made up 3% of the electorate, expected annual per capita spending on social and family services rose by between 19% and 21% as a consequence of the reform. This figure is, of course, quite large. To understand the magnitude of this effect one has to recall that social spending was low compared to spending on education. Consider a municipality with average annual per capita social spending during the 1973–1976 term, which was about 2500 SEK and US$325. In such a municipality, and assuming that noncitizens made up 3% of the 1976 electorate, my estimates suggest that the reform caused per capita spending on social and family assistance to rise by between 450 and 500 SEK, or around US$65.

Turning to the control variables, it can be seen that, although their inclusion does not change the coefficient estimates for my main variable of interest by much, almost all of them are significant across model specifications, and that they do increase the explanatory power of the models considerably. The results for the share of noncitizens in the population is probably the most interesting. While the coefficient estimates for the current share of noncitizens in the population are negative and, in three models out of four, statistically significant, the lagged share of noncitizens in the population is not statistically significant in any of the specifications. To the extent that the latter half of 1970s can be characterized as a period when municipalities were reforming and increasing their efforts in the policy areas studied here, this is consistent with an argument that argues that diversity is primarily important during periods of policy innovation (see, e.g., Banting 2005). For the remaining
control variables, the results are straightforward. In particular, when a municipality becomes richer and more populous, and when it receives more grants, spending on education and social and family services goes up.

Summing up so far, the empirical results show that the Voting Rights Reform of 1975 had a positive impact on municipal education and social spending. The estimated effect of enfranchising noncitizens on education services is substantively large and statistically significant and the impact on social and family services appears to have been even larger.

Does the Impact Vary With Demographics?

As I have argued above, spending on primary and secondary schooling typically made up the vast majority of spending on education services at the time of the reform. And since noncitizens made up a disproportionate share of the school-aged population, it was hypothesized that noncitizen suffrage would have a positive impact on education spending. Similarly, day care and pre-school accounted for the major part of the spending on social and family services, and since noncitizens were highly overrepresented among children below school age, the reform should have an impact on this too. The degree to which noncitizens were overrepresented among children of school age and below does, however, varies considerably across municipalities. This suggests that the impact of the voting rights reform on education services should have been larger in municipalities where a large share of noncitizens were school aged, and that its impact on social and family services share should have been increasing in the share of noncitizens below school age.

For each of the two spending outcomes, I therefore estimate a multiple interaction version of the full model. In the case of education services, I let the impact of the share of noncitizens in the electorate depend on a measure of the fraction of noncitizens that are between the ages of 5 and 14 (School-Aged Noncitizens). In the case of social and family services, the impact of the share of noncitizens in the electorate is allowed to vary with the fraction
of noncitizens that are below the age of 5 (*Preschool-Aged Noncitizens*). Following the advice of Barmbor et al. (2006), I include both interaction terms and constitutive terms in the analyses. The results are shown in Table 2.

[Table 2 about here.]

As can be seen, the coefficient estimates for the interaction terms have the expected signs. In particular, it can be seen from the first column that the impact of the reform on education services was larger where many noncitizens were school-aged. From the second column, it can be seen that the reform’s impact on social and family services was larger where a large share of noncitizens were preschool-aged. In order to facilitate the interpretation of the estimates, I have, for each model, calculated the marginal impact of the reform in a typical municipality—which, like in the previous section, is defined as one where noncitizens made up 3% of the 1976 electorate—for the entire empirical range of the conditioning variable. The results from these calculations are shown in Figure 2, together with 95% confidence intervals. In the case of education services, the estimated impact of the reform increases by almost 10 percentage points as we go from a situation where 8% (the empirical minimum) of noncitizens are school-aged, to a situation where 38% (the empirical maximum) are school-aged. Moreover, the marginal effect is only statistically significant when more than 12% of noncitizens are school-aged. Turning to spending on social and family services, a move from a situation where 4% of noncitizens are school-aged, to a situation where 20% are, causes the impact of the reform to increase by about 15 percentage points. As can be seen, the marginal effect is only statistically significant where the preschool-aged make up 7% or more of the municipal noncitizen population.

[Figure 2 about here.]

The results in this section thus show that the impact of the voting rights reform varied with local demographics. In particular, the estimated effect of the voting rights reform
on education and social and family services was considerably larger in those municipalities where noncitizen population, because of its demographic characteristics, is likely to have demanded increased efforts in these policy areas.

**Robustness Checks**

Despite the clear results of the preceding sections, I perform a number of robustness checks. I begin by regressing an outcome that, given my proposed theoretical mechanism, is unlikely to have been affected by the Voting Rights Reform, on the share of noncitizens in the 1976 electorate. Specifically, I consider municipal investments in waste handling facilities, on the assumption that there will be no systematic tendency for noncitizens to place a higher value than citizens on such investments. As can be seen from Table 3, the impact of the share of noncitizens in the 1976 electorate on this outcome is substantively small, and never statistically significant.

[Table 3 about here.]

When drawing conclusions from small, or medium sized, samples, there is always the risk that one’s parameter estimates are strongly influenced by a minority of one’s cases. In order to detect any municipalities that exert a strong influence on my estimates, I turn to the method of detecting influential cases suggested by Bollen and Jackman (1990, 267): For all models in Table 1 I look for cases that alter one or more regression coefficient by at least one standard error. Applying this criterion, I find that the municipalities of Mellerud and Hallsberg both exert an influence that is above the threshold for the model in column (2) of Table 1. In addition, the municipality of Arjeplog exerts an influence that is above the threshold in the regression in column (4) of Table 1. To gauge the impact of these municipalities on the regression coefficients, I re-estimate these models including dummy variables for the influential observations. The results from these analyses show that the
coefficient estimates for the share of noncitizens in the electorate hardly change at all, and remain statistically significant, upon the inclusion of these variables.\textsuperscript{22}

\textbf{Conclusion}

The largest disenfranchised group in modern democracies is international migrants who lack citizenship of their country of residence. While noncitizen suffrage in local elections has been introduced in some countries, and has been the subject of vigorous public debate in others, there have been no systematic scholarly attempts to investigate its policy consequences. I develop a formal model that addresses the political and economic considerations inherent in studying the policy consequences of franchise extensions, and which illustrates that noncitizen suffrage is only likely to be adopted in contexts where the policy consequences of such reform are small. My model also suggests that this negative self-selection problem can be dealt with by studying franchise extensions that are imposed on, rather than endogenously chosen by, sub-national units. This condition is met in the case of the Voting Rights Reform of 1975, which generated exogenous changes in the composition of the electorate of Swedish municipalities. According to my analysis, giving noncitizens the right to vote significantly changed local politics. The reform substantially raised local spending on education and social and family services. Consistently with an argument that emphasizes demographics, the impact of the reform on education spending was larger where more noncitizens were school-aged, and the impact on social and family services was larger where many noncitizens were pre-school aged.

These results have important implications for current debates. In particular, the demographic structure of the Swedish noncitizen population during the 1970s bears many similarities to immigrant populations in many OECD countries today. Immigrants in general, and noncitizens in particular, often make up a disproportionate share of men and women of child-rearing age (OECD 2006). It is therefore likely that removing legal and ad-
ministrative hurdles to naturalization and/or the introduction of noncitizen suffrage would lead to increased voter demand for the types of educational, social and family services studied in this paper. More broadly, my study suggests that the extension of voting rights to noncitizens or, for that matter, liberalizations of citizenship laws, is a viable strategy for making public policy more responsive to the interests of this group. This, in turn, implies that such reforms have at least some potential to improve the situation of international migrants, whose life chances are often described as being considerably worse compared to those of majority populations (OHCHR 2006).

The methodological point that emerges from my model of inclusion and public policy is novel, and can also be applied to franchise extensions to other groups. In general, researchers studying the policy consequences of various suffrage laws should accord higher credibility to results obtained from studies that investigate reforms that are imposed on, rather than voluntarily chosen by, the political unit in question. Consider, for example, the study of Husted and Kenny (1997), in which they estimate the impact of the removal of various suffrage restrictions primarily intended to disenfranchise African Americans, on state and local policy in the United States. Since some of these removals were imposed from above, as a consequence of the Voting Rights Reform of 1965, their approach, like mine, has the advantage of ameliorating the selection bias that is inherent in the study of the policy consequences of franchise extensions.

Finally, my findings carry implications for the broader discussion about the consequences of immigration for public policy. A perusal of this large and growing literature shows that the evidence for such a correlation is variable and controversial (see, e.g., Alesina and Glaeser 2004, Banting and Kymlicka 2006, Hopkins 2009, Gerdes 2011). By empirically demonstrating the impact of noncitizen suffrage on public policy, this paper joins recent theoretical work by Ortega (2010) in suggesting one reason for this inconclusiveness; namely, that the ease with which immigrants can acquire political rights is a potentially important mediating variable in the relationship between immigration and public policy.
Appendix

Proof of Proposition 1

In order to prove Proposition 1, we need to find the equilibrium policy $g^*$ at the legislative stage. To do this, it is convenient to define the individual in each group $G$ whose bias $\sigma_i$ is such that she is indifferent between $A$ and $B$

$$\tilde{\sigma}(\theta_G) = \theta_G(g_A^\alpha - g_B^\alpha) - g_A + g_B$$

(9)

As is clear, individuals prefer alternative $A$ if, and only if, $\tilde{\sigma}(\theta_G) \geq \sigma_i$.

With this definition in hand, and using my assumptions, the total vote share of alternative $A$ can then be obtained as follows

$$\pi^A = (1 - s) \int_{-\infty}^{\tilde{\sigma}(\theta_C)} v(\sigma_i) d\sigma_i + s \int_{-\infty}^{\tilde{\sigma}(\theta_{\sim C})} v(\sigma_i) d\sigma_i$$

$$= \frac{1}{2} + v(\sigma_i) [(g_A^\alpha - g_B^\alpha) [(1 - s)\theta_C + s\theta_{\sim C}] - g_A + g_B]$$

(10)

Consequently, the vote share of the other political alternative $B$ is $\pi^B = 1 - \pi^A$.

The political alternatives strive to maximize their total vote share, and the first and second order conditions for $A$ are

$$\alpha g_A^{\alpha - 1} [(1 - s)\theta_C + s\theta_{\sim C}] - 1 = 0$$

$$\alpha (\alpha - 1) g_A^{\alpha - 2} < 0$$

(11)

Since $B$ wishes to maximize $\pi^B = 1 - \pi^A$, both alternatives face an identical maximization problem and, consequently, the same first and second order conditions.

As $g_A \to 0$, $g_A^{\alpha - 1} \to \infty$, which means that any value that satisfies the first order condition in (11) must be strictly positive. Further, any strictly positive value of $g_A$ satisfies the second order condition in (11). Since $B$ faces first and second order conditions that are identical to
those of \( A \), the same applies to her. To complete the proof of Proposition 1 it then suffices to solve the first order condition (11) for \( g_A \), which gives \( g^* \). Finally, notice that setting \( s = p \) leads to the inclusive equilibrium \( g_I \) of equation (3), while setting \( s = 0 \) gives the exclusive equilibrium \( g_E \).

**Proof of Proposition 2**

In order to prove Proposition 2, we need to find the equilibrium policy \( I^* \) at the constitutional stage. First, define the citizen whose bias, \( \sigma_i \), for a given value of \( \delta_i \), is such that she is indifferent between \( A \) and \( B \)

\[
\tilde{\sigma}(\delta_i) = V(g^{I_A}; \theta_C) - V(g^{I_B}; \theta_C) - \frac{\delta_i}{2}(I^A - I^B)
\]  

(12)

where \( g^{I_A} (g^{I_B}) \) is the equilibrium level of the government provided good at the legislative stage implied by \( A \)'s (\( B \)'s) choice of \( I \) at the constitutional stage. As is clear, individuals prefer alternative \( A \) if, and only if, \( \tilde{\sigma}(\delta_i) \geq \sigma_i \).

The total vote share of of alternative \( A \) is then

\[
\pi^A = \int_{-\infty}^{\frac{1}{2\sigma}} \int f(\delta_i)g(\sigma_i)d\sigma_i d\delta_i
\]

\[
= \frac{1}{2} + g(\sigma_i) \left[ V(g^{I_A}; \theta_C) - V(g^{I_B}; \theta_C) - \frac{\delta}{2}(I^A - I^B) \right]
\]  

(13)

Consequently, the vote share of the other political alternative, \( B \), is \( \pi^B = 1 - \pi^A \).

The political alternatives \( A \) and \( B \) pick \( I^A \) and \( I^B \), respectively, with the objective of maximizing their total vote share. By inspecting each of the four possible combination of electoral platforms \( I^A \) and \( I^B \), one finds that both \( A \) and \( B \) have identical dominant strategies. Specifically, \( A \)'s vote share when choosing the platform \( I^A = 1 \) will be strictly
higher than when choosing \( I^A = -1 \) if, and only if,

\[
V(g_I; \theta_C) - V(g_E; \theta_C) > \delta
\]  \hspace{1cm} (14)

To complete the proof of Proposition 2, note that it can easily shown that exactly the same condition applies to \( B \)'s choice of platform. I have, for simplicity, assumed that neither political alternative chooses the platform \( I = 1 \) when they are indifferent between this and \( I = -1 \).
Notes

1For an overview of the literature on the probabilistic voting model, see Persson and Tabellini (2000).

2If we loosen this restriction, the impact of noncitizen suffrage will then also depend on the relative market income of the two groups. In particular, the impact of noncitizen suffrage will increase, as the income of noncitizens becomes lower in relation to that of citizens. This would be akin to the effect described in Meltzer and Richard’s (1981, 924) famous paper where they argue that, during the first wave of democratization, ‘the position of the decisive voter shifted down the distribution of income, so taxes rose.” As shown below, citizens and noncitizens did not differ with respect to average taxable income in the empirical setting of this paper.

3A public good does not have to be consumed directly by all in order to be (however asymmetrically) valued by all. It suffices that it has some positive externality. For a seminal discussion of the case of public education, see Buchanan (1968, Ch. 4).

4In case both political alternatives receive the same vote share, a fair lottery is used to decide which alternative gets to implement its platform.

5In contrast to median voter models, it is a general feature of equilibria in probabilistic voting models, if such exist, to maximize some weighted or, as is the case here, unweighted average social welfare function (see Persson and Tabellini 2000, Ch. 3).

6I have used Taylor polynomials of degree one to approximate the function $ln(1 + \frac{\theta_{C} - \theta_{c}}{\theta_{c}})$.

7It is important to note that the composite error term $\frac{e}{(1 - \alpha)\theta_{c}}s$ would still be heteroskedastic, because its variance depends on $s$. This problem can, however, be ameliorated by using White’s (1980) heteroskedasticity-consistent standard errors (also known as ‘robust’ standard errors)

8The three-year residency rule was said to ensure that they had acquired the necessary
linguistic skills to participate, but can also be seen as a concession to the idea that only those who feel a certain loyalty and solidarity towards Sweden, should have the right to vote and stand for office (Beckman 2004).

9The turnout of noncitizens was, however, lower than corresponding figure for the entire eligible population, which was 90 percent.

10During the 1970s, noncitizen women had employment rates that were on par with, or higher than, those of native women (Ekberg and Hammarstedt 2002).

11To the extent that municipality-specific factors have an impact on both spending, and our main independent variable of interest, estimating a cross-sectional version model using data only on the post-reform electoral term would result in biased estimates of $\beta$.

12Furthermore, as Tyrefors-Hinnerich (2009) has shown, in the process of merging, some municipalities accumulated a higher debt, which suggests that it is wise to include only those that did not change within the period of my study.

13The difficulty in piecing together comparable time-series for different municipal spending areas is a result of changes in the municipal accounting systems.

14During the 1970s, education accounted for close to 30% of spending in the typical municipality. The corresponding figure for social spending was close to 10%.

15The majority came from the other Nordic countries—mostly Finland—but there had also been significant inflows from Southern European countries such as Greece and Italy, as well as Eastern European countries such as Poland and Yugoslavia (Lundh och Ohlsson 1999; Lundh 2005)

16This information was obtained using the registry-database Longitudinal Individual Data for Sweden 1960-1997 (LINDA) and was based on an annual sample of between 6175–9047 noncitizens and 189 926–203 147 citizens. For information on LINDA, see Edin and Fredriksson (2000).

17No government grants were paid out for the purpose of waste handling facilities.

18These figures are arrived at by calculating $e^{4.511+0.03} \approx 1.145$ for the sparse model, and
$e^{3.548+0.03} \approx 1.112$ for the full model.

$e^{3.548+0.03} \approx 1.112$ for the full model.

19To calculate the US$ amount, I have used the average exchange rate for 2009, according to which a dollar cost approximately 7.65 SEK.

20I have calculated $e^{5.708+0.03} \approx 1.187$ and $e^{6.262+0.03} \approx 1.207$.

21Existing data from Statistics Sweden does not allow further disaggregation of these age groups.

22The results from these analyses are available form the author upon request.
References


Kristianstad: SNS Förslag.


Figure 1: The Age Distribution of Non-Citizens Compared to the Total Population in 1976
Figure 2: Estimated Impact of Voting Rights Reform in Municipalities Where Noncitizens Made Up 3% (the Empirical Mean) of the 1976 Electorate Conditional on Demographics
Table 1: Differences-in-Differences Estimates of the Effect of the Voting Rights Reform on Municipal Education and Social Spending

<table>
<thead>
<tr>
<th></th>
<th>ΔEducation Services</th>
<th>ΔSocial and Family Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Noncitizens in Electorate</td>
<td>4.511***</td>
<td>3.548**</td>
</tr>
<tr>
<td></td>
<td>(1.331)</td>
<td>(1.610)</td>
</tr>
<tr>
<td></td>
<td>(0.921)</td>
<td>(0.780)</td>
</tr>
<tr>
<td>Noncitizens in Population_{1973}</td>
<td>-1.630</td>
<td>-0.965</td>
</tr>
<tr>
<td>Taxbase/capita</td>
<td>0.515**</td>
<td>0.555*</td>
</tr>
<tr>
<td>Taxbase/capita_{1973}</td>
<td>-0.664***</td>
<td>-0.556*</td>
</tr>
<tr>
<td>Population</td>
<td>0.0899</td>
<td>2.074**</td>
</tr>
<tr>
<td>Population_{1973}</td>
<td>-0.0813</td>
<td>-2.037**</td>
</tr>
<tr>
<td>Education Grants</td>
<td>0.202***</td>
<td>(0.0269)</td>
</tr>
<tr>
<td>Social Grants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Grants_{1973}</td>
<td>-0.496***</td>
<td>(0.110)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.171***</td>
<td>0.180***</td>
</tr>
<tr>
<td></td>
<td>(0.0121)</td>
<td>(0.0647)</td>
</tr>
<tr>
<td>Observations</td>
<td>183</td>
<td>183</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.047</td>
<td>0.557</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1
Table 2: Differences-in-Differences Estimates of the Effect of the Voting Rights Reform on Municipal Education and Social Spending Conditional on Demographics

<table>
<thead>
<tr>
<th></th>
<th>∆Education Services</th>
<th>∆Social and Family Services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Noncitizens in Electorate</td>
<td>2.159</td>
<td>4.497</td>
</tr>
<tr>
<td></td>
<td>(2.209)</td>
<td>(3.996)</td>
</tr>
<tr>
<td>School-Aged Noncitizens</td>
<td>-0.111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.228)</td>
<td></td>
</tr>
<tr>
<td>Preschool-Aged Noncitizens</td>
<td></td>
<td>0.160</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.735)</td>
</tr>
<tr>
<td>Noncitizens in Electorate × School-Aged Noncitizens</td>
<td>10.72</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(7.886)</td>
<td></td>
</tr>
<tr>
<td>Noncitizens in Electorate × Preschool-Aged Noncitizens</td>
<td>25.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(29.41)</td>
<td></td>
</tr>
<tr>
<td>Noncitizens in Population</td>
<td>-0.870</td>
<td>-3.903**</td>
</tr>
<tr>
<td></td>
<td>(0.811)</td>
<td>(1.517)</td>
</tr>
<tr>
<td>Noncitizens in Population\textsubscript{1973}</td>
<td>-2.522*</td>
<td>-0.468</td>
</tr>
<tr>
<td></td>
<td>(1.308)</td>
<td>(2.165)</td>
</tr>
<tr>
<td>Taxbase/capita</td>
<td>0.544**</td>
<td>0.605**</td>
</tr>
<tr>
<td></td>
<td>(0.211)</td>
<td>(0.300)</td>
</tr>
<tr>
<td>Taxbase/capita\textsubscript{1973}</td>
<td>-0.663***</td>
<td>-0.576**</td>
</tr>
<tr>
<td></td>
<td>(0.214)</td>
<td>(0.280)</td>
</tr>
<tr>
<td>Population</td>
<td>0.0405</td>
<td>1.696</td>
</tr>
<tr>
<td></td>
<td>(0.500)</td>
<td>(1.074)</td>
</tr>
<tr>
<td>Population\textsubscript{1973}</td>
<td>-0.0299</td>
<td>-1.663</td>
</tr>
<tr>
<td></td>
<td>(0.490)</td>
<td>(1.046)</td>
</tr>
<tr>
<td>Education Grants</td>
<td>0.197***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0271)</td>
<td></td>
</tr>
<tr>
<td>Education Grants\textsubscript{1973}</td>
<td>-0.218***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0303)</td>
<td></td>
</tr>
<tr>
<td>Social Grants</td>
<td></td>
<td>0.227***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0771)</td>
</tr>
<tr>
<td>Social Grants\textsubscript{1973}</td>
<td></td>
<td>-0.498***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.105)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.189**</td>
<td>0.259*</td>
</tr>
<tr>
<td></td>
<td>(0.0920)</td>
<td>(0.152)</td>
</tr>
<tr>
<td>Observations</td>
<td>183</td>
<td>183</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.562</td>
<td>0.284</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1
Table 3: Differences-in-Differences Estimates of the Effect of the Voting Rights Reform on Municipal Public Spending Unlikely to Have Been Affected

<table>
<thead>
<tr>
<th></th>
<th>∆Investment in Waste Handling Facilities</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Noncitizens in Electorate</td>
<td>-0.715</td>
<td>-1.553</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.804)</td>
<td>(1.105)</td>
<td></td>
</tr>
<tr>
<td>Noncitizens in Population</td>
<td>0.585</td>
<td>0.564</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.654)</td>
<td>(0.663)</td>
<td></td>
</tr>
<tr>
<td>Noncitizens in Population\textsuperscript{1973}</td>
<td>0.657</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.731)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxbase/capita</td>
<td>-0.0262</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0749)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxbase/capita\textsuperscript{1973}</td>
<td>0.0135</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0799)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>0.275</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.456)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population\textsuperscript{1973}</td>
<td>-0.275</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.450)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.00596</td>
<td>0.0177</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00673)</td>
<td>(0.0330)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>183</td>
<td>183</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.005</td>
<td>0.015</td>
<td></td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1