The Initiative Process and The Reform of Educational Policies

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Dedication

To Lucas Bali and Frederick Boehmke

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Abstract

This dissertation examines how educational policy reforms are carried out through the initiative process. First, I develop a model of consensus-making among members of a group when members may care about each other's policies. The immediate application of this model is to the initiative process when multiple districts implement the new policies. From the theoretical model, I find that discretion can play an important role in the initiative process: discretion will be incorporated into the proposal of the initiative group when voters have heterogeneous preferences across districts or when local agents of implementation are better informed. Next, I study how voters vote on educational measures and then how school districts implement them. I find that, when looking at educational measures in California in the last thirty years, voting on them is not particularly different from voting on other measures, or voting in general, in terms of turnout or voter behavior. Examining voter behavior on Proposition 227 on dismantling bilingual education in California, I find that local school conditions did not seem to have a strong impact on voter support for the measure. Examining school districts' compliance to Proposition 227 I find that voter support for the measure did not have a strong impact on districts' compliance. Finally, I end the dissertation with a careful examination of the impact of Proposition 227 on those directly affected by it: bilingual students in a California school district. I find that this educational reform had a positive impact on students previously enrolled in bilingual programs though the effect was small. Educational initiatives are shaped (and sometimes diluted) by local attributes both at the stages of proposal-making and implementation.

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Chapter 1 Introduction

Whether the initiative process benefits or hurts democracy has been a long-standing debate within political science. Those who consider the benefits of direct democracy often see the initiative process as invigorating the democratic system. Initiatives add a new venue for citizens to impact policy, they influence legislators to respond to citizens' concerns, and in general they heighten civic participation of citizens. On the other hand, those who stress the negative aspects of initiatives are often concerned with the undue influence of moneyed groups or the possibility that an ill-informed majority might make poor public policy decisions. In this dissertation, I examine, formally and empirically, the initiative process when a reform is attempted of locally implemented policies. State-wide initiatives are state laws voted by citizens. But in the policy realm, for example, in education, welfare or criminal justice, policies are often carried out at the local level, reflecting previous state-wide regulations or reflecting local preferences. In this environment, how do local preferences and attributes impact policy reforms adopted by the initiative process? To begin to address this question I develop a formal model of the initiative process with local implementation, and empirically analyze one policy area: educational initiatives in California.

To accomplish the task of assessing the initiative process and local policy reform, I organize the dissertation into four main chapters. Chapter 2 presents a formal model of consensus-making by members of a group who may care about the policies being implemented in other members' constituencies. The immediate application of this model is to the initiative process when multiple districts are present and a majority of votes are needed. The focus is on the impact of districts' preferences and attributes on the initiatives that are proposed and on the welfare of all districts. I find that if voters have heterogeneous preferences across districts, or if local bureaucracies are better informed, then proposals with discretion are more likely to be offered. That is, local districts will be given some leeway in terms of the proposals they can implement. The formal model also makes clear the importance of the types of proposals allowed. Universal proposals or the same proposal to all districts is

under many circumstances preferred by voters than having specific proposals tailored for each district. These results show how the initiative process, though hardly ever improving the welfare of *all* districts, must accommodate local preferences.

In chapter 3, I explore empirically how voters vote on educational measures. Education is an ideal policy realm to examine policy reforms through the initiative process when local preferences matter. American educational institutions tend to be quite decentralized and local preferences can have a strong impact on policies. Educational initiatives have become increasingly common across the states with direct democracy, partly as a response to an increased concern (and frustration) with educational outcomes. How do citizens vote on a policy area which they may experience closely from interacting with local schools, and on which they may display very different preferences across districts? Looking at California's educational measures in the last thirty years I find that there is no systematic difference in terms of how voters vote or turnout in educational initiatives versus other types of initiatives. There is some evidence that race plays a role when voting on educational matters, but local school conditions seem to have a small impact, after controlling for ideological and socioeconomic factors.

After examining how voters vote on educational matters, I explore how school districts implement these measures. In chapter 4, I focus on the implementation of Proposition 227, an educational initiative in 1998 that aimed to dismantle bilingual programs throughout California's public schools. Proposition 227 is an example of an educational initiative in which discretion was allowed: parents could request waivers for their children to remain in bilingual classes at the discretion of district authorities. Proposition 227 is a good case study since this initiative addressed local preferences by allowing for discretion, it required for local implementation, it applied to the whole state of California (over 1000 school districts), and finally it addressed a long-lasting debate on the efficacy of bilingual instruction. Looking at the enrollment of English learners in bilingual classes in 1998, before the reform, and in 1999, after the reform, I find that bureaucratic and institutional-related factors played a strong role in predicting the level of compliance by school districts to the initiative's mandate. Factors such as size, location and the race of the school principal had a strong impact on compliance. But local voter support for Proposition 227 and students' performance had a small impact

on compliance.

In the last chapter of the dissertation, I specifically evaluate the impact of Proposition 227. As previously discussed, this initiative aimed to dismantle bilingual programs in California's public schools. The efficacy of bilingual education has been controversial, both in the academic literature and public opinion. Proposition 227 was far from being interpreted as simply another school reform, but, rather political undertones, often detrimental to minorities, were ascribed to this initiative as well. I focus my study on one school district in southern California that essentially dismantled its bilingual program after Proposition 227. After one year of the reform, I find that English learners previously enrolled in bilingual classes caught up with other English learners who had not been in bilingual classes that year, and who in general were more proficient in English. The impact of the reform though is small.

Understanding how policy reforms are proposed and carried out through the initiative process is critical since initiatives have increasingly become a common tool for policy reform. The initiative process skips law-making via state legislatures and allows citizen or interest group to propose and make policy. This process of policy-making can become even more decentralized when local jurisdictions can play a role in the final implementation, as is often the case in education. Understanding what the proper locus is for policy-making, centralized or decentralized, is an important debate in political science. In this dissertation, I attempt to examine the impact of local preferences and attributes on the initiative process when reforming policies in the realm of education. I find that, on the one hand, proposers do have to take into consideration the degree of dispersion of local preferences and the level of information at the local level. In many cases, this will induce the proposers to offer policies with discretion. On the other hand, school districts that implement these reforms may not necessarily respond to local voter support to an educational measure while voters do not seem to respond to local school conditions when voting on that measure. Those who propose educational reforms through the initiative process may anticipate local preferences but those who implement them may also ignore those local preferences.

Chapter 2 Consensus-Making and Discretion: An Application to the Initiative Process

Summary

In this chapter I develop a model of proposal-making among members of a group who may care about the policies being implemented in each member's constituency. The immediate application is to the initiative process, when a citizen group makes a proposal that is voted on at the state level but implemented at the local level by bureaucratic agencies in each district. The key finding of this model is that the proposer will not always propose a unique policy. Discretion will be provided when members of the group (or voters) have heterogeneous preferences or when the agents responsible for the implementation are better informed.

2.1 Introduction

In many occasions initiatives proposed by citizen groups or legislators require local agencies to carry out the new proposed law. A recent example is Proposition 227 in California which passed in 1998 and aimed to dismantle bilingual programs throughout the state. Proposition 227 was passed at the state level but implemented mostly at the school district level or in some cases at the school level. Another example in California is Proposition 187, which passed in 1994 and barred illegal immigrants from accessing public services. These state-wide initiatives elicit the preferences of the majority of voting citizens. However, at the implementation stage local preferences play a substantial role. Local agencies carry out implementation, while taking into consideration their own preferences and those of their districts. Clearly, a conflict can arise between state-wide majoritarian preferences and local preferences. How the proposing group takes into account this potential tension when making proposals and the ulterior impact on the welfare of the districts is the subject of this study.

In this chapter I model the impact of local attributes and preferences on the proposal and implementation of initiatives when the implementation takes place at the local level. What

distinguishes this problem from that of initiatives implemented at the state-level by a central agency is that more than one district exists, and in each district a local agency will implement the new policy, replacing pre-existing local policy status quo. Moreover, externalities will be present: the initiative group cares about policies across districts (otherwise it would not invest in a costly state-wide proposal), and voters may care about policies in other districts as well. The presence of numerous districts, agents, and externalities add new elements to the one-district models analyzed in the initiative literature (Gerber 1996, 1999; Matsusaka and McCarty 1998). For example, with multiple districts proposing the same policy to all districts, as predicted in single-district models, may not be optimal. Offering instead an interval of policies may be the optimal proposal.

I focus the present study of initiatives with local implementation on three main questions. First, I look at the impact of local districts' preferences on the proposals made by initiative groups in multi-district environments, and how these proposals differ from those made in single-district models. Second, I analyze the impact of different rules on proposal-making on the welfare of the initiative group and the districts. And finally, I assess how local initiatives raise voter welfare compared to the status quo and providing full discretion. To answer these questions I develop a simple voting model with one initiative group and multiple districts. Voters in each district vote on the proposed policies by the initiative group while the local agent of implementation, also a voter, enacts a policy from the proposed set. In the present analysis I do not include the legislature (Boehmke 2000; Gerber 1996) nor the courts, but rather focus on the impact of externalities: at first only experienced by the proposing group, later on, experienced by voters as well.

In a multi-district model, the array of proposals is richer than in the single-strict case that has been previously analyzed in the literature. With multiple districts, if the initiative group can propose policies that vary by district it will "tailor" offers to each district. Only under restrictive conditions will the initiative group propose a single policy for all districts, as in single-district models. Furthermore, if the proposals must be the same for all districts, then intervals of policies or a certain level of discretion may be offered. In particular, when districts have ideal policies that are very far from those of the proposing group, the group may offer intervals of policies to obtain a majority of votes. But discretion can also be

offered at the opposite end, when districts have ideal policies that are very close to those of the group and local agents are better informed than the proposing group. The asymmetry of information between the proposer and the districts can induce the proposing group to offer discretion when their preferences are aligned.

In a multi-district setting the rules of proposal-making matter. Whether proposals vary by district or they are the same for all districts is relevant to the welfare of the proposing group and the voters. The initiative group will always prefer to propose district-specific proposals rather than making the same proposal to all districts. Voters, on the other hand, are better off when the same proposal is offered to them under not too strong conditions. The intuition is that the initiative group provides more opportunity for improvement in voter welfare when intervals of policies are offered rather than proposing a few selected policies to each district.

In terms of voter welfare, initiatives with local implementation maximize the welfare of districts under restrictive conditions. Although districts that belong to the winning coalition must be offered policies that they support as much as their local current policies, districts outside the winning coalition may be offered quite worse policies than those they are currently experiencing and voter welfare may decline. If the comparison is made to the case of full discretion, when districts can introduce any policy they wish, the initiative process, clearly, never does better than full discretion. However, once externalities across districts are introduced, the initiative process can improve social welfare compared to full discretion.

Finally, in a multi-district environment the initiative group has an incentive to claim externalities are present across districts, for example, when districts have policy preferences on each side of the initiative group and the group has a mediating position. Districts will have an incentive to obtain more information to develop an asymmetry of information between them and the proposing group, in particular when their preferences are aligned with those of the group. But, in general, districts will not have an incentive to claim there is asymmetry of information.

Overall, the present results are applicable to a broader class of problems in which a majority consensus is sought among constituents of a group (for example, members of Congress or an international body government). In these problems, a member of a group, who may

care about enacted policies in others constituencies, endogenously decides to make a proposal that will affect all members of the group.

In the next sections I situate the present work in the literature and describe the model's assumptions. Then I introduce the results for the basic model on proposal-making, institutional rules and welfare. The remaining sections extend the basic model to the cases with asymmetric information and externalities, while the last section discusses testable hypotheses and the application of the model to broader problems.

2.2 Initiatives and Consensus

The focus of the present study has links to three strands of literature. First, it is part of a formal modeling literature in political science on the initiative process, where the common assumption is to consider the electorate as one single district, with a single status quo, and analyze proposal-making with one or multiple initiative groups given costs of proposal, the presence of the legislature, and other agencies of constraint (Gerber 1996, 1999; Gerber and Lupia 1995). The results of this earlier work (mostly set forth by Gerber (1996)) concludes that the initiative process induces policies more in line with voters' preferences compared to policy-making through state legislatures. Subsequent work has qualified the benefits to the median voter when uncertainty is introduced, or costs of proposal are high (Boehmke 2000; Matsusuka and McCarty 1998). In recent work, Gerber, Lupia, McCubbins, and Kiewiet (2000) analyze the implementation of initiatives in a single district model. In their "vertical" model initiatives face obstacles from government actors such as the governor and the legislature who can impede full compliance if they are opposed to the measure. That is, intervening political players can boycott an initiative after its passage.

The present work differs from the previous literature in that, firstly, multiple districts are present already implementing their local policies. The multiplicity of districts implies that voters will assess proposals with respect to their local status-quo (which the proposer must take into consideration) and voter welfare assessments will depend upon the sizes of districts and not simply on the identity of the median voter. Compared to Gerber, Lupia, McCubbins, and Kiewiet's analysis my model emphasizes the "horizontal" obstacles of proposing and

implementing an initiative (multiple districts) rather than the "vertical" ones (governor and legislature). Moreover, I endogenously derive the offer of policy discretion which plays a central role in explaining why policies may be diluted already at the proposing stage, before the implementation. Gerber et al., do not address discretion while any observed ambiguities in the policies are exogenously posited.[1] If to the multiplicity of districts we add agencies of implementation combined with the presence of externalities across districts, the present problem becomes quite distinct from those previously studied in the initiative literature.

The chapter's focus is also related to questions of federalism and centralization of political jurisdictions which constitute a large literature both in political science and economics. Recent political science studies on federalism have addressed the benefits of devolving a variety of policy-making and regulatory powers from the federal government to the states (Ferejohn and Weingast 1997). The emphasis is on welfare and the decentralization of political power. In political economy, some of the issues addressed have been optimal sizes of jurisdictions in a federation (Gilbert and Picard 1995), and federal voting mechanisms (Piketty 1996; Cremer and Palfrey 1996, 1999). What distinguishes this line of research is that in general some optimal output (size, voting mechanism) is sought given multiple districts that may join in a bigger unit. In the present work, districts cannot secede and the voting mechanism is fixed. A large focus of this chapter is on the impact of local attributes and preferences on policies passed via the initiative process. The comparison is made to full discretion, when districts can choose their own policies. This makes the analysis closer to welfare studies that assess centralized versus decentralized policy-making.

The final strand of literature is concerned with decision-making and delegation in legislatures. Legislative studies have included models of proposal-making (Shepsle and Weingast 1981; Baron and Ferejohn 1989) where often the focus is distributive, analyzing the resulting division of the pie when a proposer attempts to enlist a majority of legislators. An important difference between those models and the present one is that the proposer and the districts may care about policies across districts. That is, externalities are present, stressing the public goods component of the analysis, rather than a distributive private goods one. Fur-

[1]Note that both approaches, "vertical" or "horizontal" are complimentary, focusing on different aspects of implementation.

thermore, local policies are being carried out by local agencies, which brings us to legislative bureaucratic models of delegation, another topic in legislative studies. Work in this area (Epstein and O'Halloran 1994, 1999; Gailmard 2000) suggests that legislators will delegate and provide discretion when agencies are more knowledgeable. Similar results apply in the initiative context. But, as shown in the next sections, discretion can also arise due to voters' heterogeneous preferences.

2.3 The Basic Model

There are N districts indexed by i. The relative size of a district is w_i such that $\sum_i w_i = 1$. Citizens care about policy on a single dimensional space represented by $\mathbb{R}$. The policy vector $x = (x_1, ..., x_n)$ represents the policies implemented in each district i by an agent of implementation, also a voter of the district. For example, consider Proposition 227 on bilingual education; different values of x may correspond to different levels of allowed Spanish-speaking in school districts. In the basic model, a voter in district i cares only about the policy, x_i, in his or her district. The voters' preferences are represented by the single-peaked utility function $U(x_i; v)$ where v is the voter's ideal policy. Single-peakedness is the only assumption needed to obtain the results in this chapter. An example of a single-peaked utility specification is $U(x_i; v) = -(x_i - v)^2$.

Before an initiative is proposed, the policy status quo in each district is S_i. The set of points that are weakly preferred to S_i by the voters of district i will be denoted $\mathbf{P}_i$. S_i^* will refer to the closest point to the group's ideal point from the set $\mathbf{P}_i$. The initiative group's ideal point is I, and in an abuse of notation, I will also refer to the initiative group itself. The group derives utility from the policies enacted in each district, with each term consisting of a single-peaked function $u(x_i; I)$ weighed by a district's size w_i.[2]

Figure 1 shows two districts with their respective ideal points and the ideal point, I, of the initiative group. Also included is the utility function of district 1 and the point S_i^*, the point in district 1's preferred set that is closest to I. District 2's preferred set $\mathbf{P}_2$ goes from

[2]The group could also experience a cost c for making a proposal such that $U(x, I) = \sum_i -w_i u(x_i; I) - c$. But, for most of the analysis, the cost term will be ignored, that is $c = 0$, so as to focus on the proposal-making activities of the group.

S_2 to S_2^*.

[Figure 1 about here].

The assumptions of the benchmark model are the following:

A1. Homogeneous Preferences: All voters in a district have the same ideal point V_i.

A2. Complete Information: The number of districts N, their relative sizes w_i, the ideal points V_i and I, and the status quos S_i are known by voters and the group.

A3. Number of initiative groups: There is one initiative group making proposals.

A4. Externalities: The initiative group cares about policies across districts. Voters do not care about policies in other districts.

A5. Asymmetric Information: The agents of implementation, who are voters, have no extra information compared to the initiative group or other voters.

A6. Voter Welfare: Voters' welfare will be defined as the weighted sum of the utilities of each district. The weights are given by the districts' relative size,

$$W(x, V) = \sum_i w_i U(x_i; V_i).$$

In the case of quadratic utility functions, $W(x, V) = \sum_i -w_i(x_i - V_i)^2$. Note that voter welfare does not include the utility of the initiative group.

Assumption **A1** is made to simplify the presentation. If voters preferences in a district vary, then the district's median policy will not suffice to analyze the model. The proposer may not need to get half of the votes in a district but fewer votes may do. In that event, other parameters describing the distribution of preferences in a district are needed to analyze the model. Relaxing **A1** should not change the general qualitative results presented here. Assumptions **A3** and **A4**, combined with the definition of the utility functions of the group and the voters, have several possible interpretations. On the one hand, the initiative group may be interpreted as representing the interests of like-minded minority voters in each district. The group then cares about policies across districts because its membership extends across them. An alternative interpretation is that the proposer belongs to one of the districts (though it may have different preferences from those in the district) and its preferences are lexicographic, caring first for the policies in its own district and then about policies in other

districts. In either interpretation, voters in the benchmark model do not care about policies in other districts.

After analyzing the benchmark model I relax some of its assumptions. In particular, I consider a model in which local agents of implementation are better informed than voters or the initiative group, relaxing assumption **A5**. Then, I consider a model in which voters care about policies in other districts, relaxing assumption **A4**.

The Game

The initiative group proposes a policy vector $p = (p_1, ..., p_N)$ and a level of discretion vector $d = (d_1, ..., d_N)$ such that, if implemented, policies must fall in $p \pm d$. When a majority of voters approves (p, d), in each district i the agent of implementation, who is a voter and by assumption A1 has the same preferences as all voters in the district, chooses the optimal policy x_i within the district's allowed interval. [3] The game will be solved by backwards induction and the solution concept used will be subgame perfect equilibria.

I further make the following behavioral voting assumptions. If a district has its status quo, S_i, equal to its ideal point V_i, then it will not vote for any initiative since it is already satisfied. If a voter is offered a policy within $\mathbf{P}_i$ he or she will vote for it (with the exception of V_i). Districts' status quo may not coincide with their ideal policy point, or $S_i \neq V_i$ if local preferences have changed, the agents of implementation have the discretion to implement different policies from local preferences, or there is uncertainty at the time of implementing new policies.

Terminology

When the policy vector p and d consist of the same policies offered to all districts, that is, $p_i = p_j$ and $d_i = d_j$ for all i and j, I will refer to such proposals as belonging to a universal regime. If the proposed policies can vary by district, that is $p_i \neq p_j$ for some i and j, I will refer to such proposals as belonging to a district-specific regime. If a the proposal has no discretion and is the same for all districts, or $p_i = p_j$ and $d_i = 0$ for all i, I will refer to it as a single proposal. Single proposals may occur both in universal or district-specific regimes. I

[3] Assuming the agent has the same preferences as those of the district is a first approximation to the problem, and future research should relax this assumption. The assumption represents districts where, for example, agents are elective officials with a high degree of accountability.

also define a majority coalition M as a set of districts with $\sum_{i \epsilon M} w_i > \frac{1}{2}$ in which no district can be removed without foregoing passage.

When proposals are universal I assume the group makes an interval offer of policies rather than offering multiple single policies. These two assumptions are mostly equivalent except for a few cases in which the group would have been better off by offering multiple policies. The analysis with intervals is more succinct in terms of presentation and may correspond better to real world applications.

2.4 Results for the Basic Model

In the basic model all voters in a district have the same preferences, the local agent in a district is a voter with no special information, and there are no externalities across districts. The group, whose preferences depend on the policies implemented by each district, will make a proposal that maximizes its utility subject to the constraint that a majority of voters passes it. But what proposals does the group make? Will it offer an interval from which all districts have to pick, or will it propose individual policies to each district? We might suspect that the group is better off when it offers individual policies to each district, and indeed that is the case. District-specific proposals may entail a proposal that varies predictably according to a characteristic of the districts, or it may be an arbitrary specification.[4] The latter proposal may be subject to legal constraints, and in general higher costs of passage.

Presently, I abstract from considerations of costs and legal issues that would give rise to endogenous choices by the group regarding the type of proposal (universal or district-specific) it would make. Instead, I assume district-specific and universal proposals are institutional rules, exogenously given. In the following sections I contrast the proposals made in each regime, as well as the consequences of each rule for the group and the districts' welfare. [5]

[4] A recent example of an initiative that varied by a district's characteristics is Michigan's Proposition 1 on education vouchers in the 2000 general elections. This initiative allowed vouchers only in school districts that had graduation rates of less than 2/3 of each class. In contrast California's voucher measure applied to all students. Both measures were defeated.

[5] Test

2.4.1 Policies Proposed by the Initiative Group

In the maximization problem faced by the initiative group the only relevant parameters are the districts' ideal policy, V_i, the district sizes, w_i, the status quo, S_i, and the initiative group's ideal point I. Given that the game being solved is one of complete information, the group can perfectly predict how voters will vote, how districts will respond and therefore backward induct the optimal proposal it should make. Regardless of the institutional rules on district-specific versus universal proposals, the initiative group cannot make any group with a share larger than $\frac{1}{2}$ worse-off since it needs a majority of votes. If $w_j > \frac{1}{2}$ then $p_j \pm d_j$, the proposal to district j, must intersect P_j, district j's preferred set of policies.

District-Specific Proposals

In a district-specific regime the initiative group can choose policies for each district in such a way as to maximize its utility subject to the constraint that the proposals obtain a majority of votes. If the districts are already at their ideal points, or $S_i = V_i$, the initiative group cannot benefit from proposing an initiative since all offers will be rejected, given the assumptions made on voters' behavior. Clearly, the more interesting situations arise when districts do not have status quos equal to their ideal points, due to changes in local preferences or agents implementing policies under some uncertainty.

For the subsequent analysis I assume there exists at least one majority coalition of districts that are not already at their ideal points. Furthermore, I make the following definitions: **"dominant district"** corresponds to when $w_i > \frac{1}{2}$ for some i; **"equal-power-among-districts"** corresponds to when a fixed number d of districts is necessary and sufficient to form a majority coalition M; **"mixed districts"** when districts are neither dominant nor have equal power; and **"aligned districts"** when all districts have ideal points to one side of I. With these definitions and assumptions, Proposition 1 describes the optimal proposal in a district-specific regime.

Proposition 1 *Given a district-specific regime, the group's optimal offer is: Dominant district case) The group offers S_i^* to the dominant district i and I to $j \neq i$; Equal-power-among-districts case) The group ranks the districts by their weighted value $w_i u(S_i^*; I)$ and offers to the first smallest d districts their S_i^*s while to the remaining districts it offers I;*

Mixed districts case) The group ranks the utility provided by each majority coalition M implementing their S_i^*s while the remaining districts implement I. The group picks the proposal that provides the maximum utility.[6] *Proof: See Appendix.*

In a district-specific regime the initiative group offers to a majority coalition their policies S_i^* while to all remaining districts it offers I. For example, if there are two districts, one liberal and the other conservative, where the conservative district is dominant then the group offers to the conservative district the policy S_C^* while to the liberal district it offers I. If a centrist district now is added such that $N = 3$, and there is equal-power-among-districts, then any two districts can form a majority coalition. The group ranks the three districts by their weighted utility to the group and offers to the first two districts their S_i^* and to the remaining district it offers I.

Districts offered policies in their preferred sets may not necessarily be those with S_i^*s closest to I. For example, consider Figure 2, with district weights $w_1 = 0.4, w_2 = 0.4, w_3 = 0.2$ and policy points $S_1^* = -1, S_2^* = 0.25$ and $S_3^* = 1.25$. The group offers policies in the preferred sets of districts 2 and 3, even though 3's preferred set is farther out than 1's. The group values policies close to its ideal point but it also cares about the size of the district implementing that policy. If all districts are of equal size, clearly, closeness is the deciding criteria.

[Figure 2 about here].

The ability to offer its own ideal policy to districts not included in the majority coalition suggests that offering a single policy will occur under restrictive conditions. In fact, single policies are offered only when a majority of districts have preferences aligned with those of the initiative group.

Proposition 2 *Assume $N > 1$. Given a district-specific regime, a single policy is offered, if and only if, I belongs to the preferred set of a majority coalition M. Proof: See Appendix.*

Universal Proposals

Consider the case now when the initiative group proposes the same policy to all districts,

[6] The mixed case is a "brute force" check of all proposals so as to pick the optimal one. A more efficient algorithm was not immediate.

or $p_i = p_j$, $d_i = d_j$ for all i and j. The initiative group may choose to offer a single policy to all districts or the same interval for all districts. As mentioned earlier, I will analyze intervals rather than offers consisting of multiple points.[7]

The intuition for introducing discretion is to obtain the necessary votes from districts that have relatively different preferences from the initiative group. In general, the proposals under a universal regime will consist either of single policies, or intervals of policies of the following form: $[I, S_i^*\ ]$, $[V_i, S_i^*\ ]$, or $[S_i^*\ , S_j^*\ ]$.[8]

Proposition 3 *Given a universal regime, the group's optimal offer is: Dominant district case) The group offers* $[S_i^*, I]$ *or* S_i^**; Aligned districts case) The group offers an interval covering the* S_i^*s *(or* V_is*) of the* M *districts with closest preferred sets to form a majority coalition; All other cases 3) The group ranks the utility provided by each majority coalition* M *that are offered intervals covering their* S_i^*s *(or* V_is*). The group picks the proposal that provides the maximum utility. Proof: See Appendix.*

For example, if there are two districts and the conservative district is dominant, then the group offers S_C^* if its preferences are even more conservative than those of the conservative group. The group may offer the interval $[I, S_C^*]$ if it prefers a mediating policy between the liberal and the conservative group. If $N = 3$ and districts have equal-power-among them then more opportunities arise for discretion to be provided. In a universal regime, as seen next in Proposition 4, single policies are offered under strong conditions and discretion prevails.

Proposition 4 *In a universal regime, with N>1, discretion is always offered except when: 1)* I *belongs to the preferred set of a majority coalition* M *of districts and* I *is proposed; or 2) Districts are aligned and there is an* S_i^* *belonging to a majority coalition* M *with no ideal point* V *between it and* I*.* S_i^* *is then offered. Proof: See Appendix.*

[7] A universal policy $p \pm d$ is equivalent to the offer of each one of the points the districts will eventually choose, under most circumstances, though not all. For example, when the group offers an interval $[V_i, S_j^*]$, it might have been better off offering S_i^* and S_j^*.

[8] Intervals of the form $[I, V_i]$ will not be optimal since, either I belongs to $\mathbf{P}_i$ in which case I alone can be offered, or I does not belong $\mathbf{P}_i$, in which case proposing S_i^* is more beneficial.

In general, discretion is always offered except for the degenerate cases when a majority of districts prefers the group's ideal policy or the districts' preferences are all to one side of the group and a single mediating policy results. If preferences are disperse, or $N > 2$, no district is dominant, and the intersection of any P_i sets is empty, then discretion must be offered since at least two districts are needed to obtain a majority and no two districts have any preferred policies in common. Figure 3 shows two examples: in the top, a single policy S_1^* is offered. In the bottom, as preferences become more heterogeneous the interval $[S_1^*, S_2^*]$ is offered (or taking into consideration 1's actions $[V_1, S_2^*]$).

[Figure 3 about here].

When there is only one status quo the group still has an incentive to offer intervals of policies, in particular when districts outside the winning majority coalition have ideal points close to the group's. However, if the number of districts is reduced the need to spread out the proposals decreases. In fact, when there is only one district the proposals are always a single policy. The single-policy proposal is the common result in previous initiative models that have restricted the analysis to single districts.

In the previous section I pointed out to the fact that under a district-specific regime the districts with policies in their preferred sets which are closest to I are not necessarily proposed. Under a universal regime similar examples can be constructed.

Comparisons between District Specific and Universal Proposals

When comparing the proposals made under district-specific and universal regimes, one may expect very little overlap of proposals between them given that universal proposals may consist of intervals of policies while district-specific proposals never include interval proposals, and tend to consist of different policies for each district. Indeed, the predicted proposals and policies implemented are the same only under narrow conditions.

Remark 1 *Given $N > 1$.* ***Same proposals:*** *If the proposals in a district-specific and a universal regime coincide then the proposal is I.* ***Same implemented policies:*** *If the implemented policies coincide then the universal proposal is I, $[I, S_i^*]$ or $[S_i^*, S_j^*]$.*

In a district-specific environment the initiative group always makes a proposal as long as $N > 1$ and there exists at least one majority coalition that is not already satisfied. But, with a universal proposal rule, the group may not always make a proposal since the status

quo may provide it more utility.

2.4.2 Voter Welfare

In most instances, the group will make different proposals under each proposal-making regime. An immediate question is how these proposals impact the utility of the districts and the initiative group. As defined in Section 3, voter welfare can only be maximized when each district implements policies at their ideal points. As previously assumed, there exists at least one majority coalition that is not satisfied, and if a district is satisfied it votes against any measure. Under these assumptions, voter welfare is maximized under strong conditions.

Proposition 5 *Voter welfare is maximized in a district-specific or universal regime, if and only if, all districts ideal points equal I. Proof: See Appendix.*

This result simply states that the preferences of the districts and the group must be completely aligned for voter welfare to be maximized. If there are districts that are not satisfied, such that a proposal can be made to them, the optimal proposal will not in general include all districts' ideal points and welfare cannot be maximized in this situation. Similarly, voter welfare will increase when some districts have preferences aligned with those of the group. Below conditions are given (sufficient and necessary separately) for voter welfare to increase. Whether I belongs to the preferred sets of districts plays a key role on voter welfare, as would be expected.

Remark 2 ***Sufficient conditions.*** *If I belongs to the preferred set of all districts, or all non-dominant districts, then voter welfare increases (or is the same) in a district-specific or universal regime.* ***Necessary Conditions.*** *In a district-specific regime, if social welfare increases then I belongs to the preferred set of at least one district. In a universal regime, if social welfare increases then I belongs to the preferred set of a district, or V_i belongs to the interval of proposals offered, for some district i.*

For example, consider two districts and the conservative district is dominant. If I belongs to the preferred set of the liberal district then voter welfare weakly increases in district-specific or universal regimes. If $N = 3$ and there is equal-power-among-districts then any

two districts can form a majority coalition. If I belongs to the preferred set of the liberal district voter welfare does not necessarily increase since one of the districts may become much worse-off with the new proposal.

Do initiative groups always prefer district-specific proposals? Yes. Under this regime their utility maximization does not have the extra constraint of proposing a universal policy and the maximization takes place over a larger set of policies. It is clear that if single policies were the institutional rule, then the group would prefer these rules the least, or $U(x_{district-specific}, I) \geq U(x_{universal}, I) \geq U(x_{single}, I)$. Single policies are an option within the universal regime. Interestingly, districts under not too strong assumptions prefer universal proposals.

Proposition 6 *The utility to the initiative group is larger or the same when making proposals under a district-specific regime than under a universal regime. If the same districts are part of the winning majority coalition in a district-specific and a universal regime then voter welfare under a universal regime is larger or the same than voter welfare under a district-specific regime. Proof: See Appendix.*

The intuition for the result on districts' preferences is simply that an interval over a set of districts gives more opportunity for voter welfare to increase than offering select policies within the interval. This result holds when the group seeks the vote share of the same districts both in a district-specific and a universal regime: the majority districts get the same or more utility in a universal regime and minority districts cannot do worse. For example, if there are two districts and the conservative district is dominant, then the conservative district will be the majority coalition, both in a district-specific and a universal regime. The liberal district will do no worse in a universal regime since if an interval is offered it will include I.

The composition of the interest group, or the membership of the districts in the group's utility function, will have an impact on the type of proposals made. For example, in a district-specific regime, if the group only cares about one district which also has majority vote it may offer S_i or I, depending on which gets the votes from this majority district and to the remaining districts it can offer them their ideal points. The more "geographically" representative the group is, or the more diverse, the better off districts are.

Central agencies and Other Proposing Groups

A natural question is whether groups would choose another form of implementation, such as centralized via a single agency, if given a choice. In a district-specific regime it makes no difference to the group who implements them since there is no leeway. But with universal proposals, the central agency can be the last player and his choices within the interval may not coincide with those of local agencies. In particular, assume the agency has its own ideal policy and it can choose policies from the interval subject to the constraint that a majority of votes is still obtained. The agency would choose policies that maximize its utility. Then, the group will choose centralized implementation when the central agency's preferences are aligned with those of the group. Otherwise, it chooses local implementation.

The assumptions in the basic model imply the initiative group makes proposals with no legislature present, and no other initiative groups threatening to participate. These assumptions give the initiative group a quite advantageous position. In this environment, why aren't minority districts forming coalitions to defeat the proposals that disadvantage them? In the basic model, without externalities across districts, one of the equilibrium proposals for minority districts is to propose full discretion. If minority districts have the resources to participate, their optimal strategy is to offer full discretion. If this is a credible (or realized) threat, the initiative group will not propose. The fact that counter-proposals are not seen very often in real politics is probably due to high costs.

2.5 Asymmetric Information

The basic model has shown that proposals in multi-district models are not necessarily single proposals. Intervals of policies are also offered. Moreover the rules of proposal-making matter to the resulting policies that are implemented and the welfare of the group and districts. In this section I consider natural extensions to the basic model that will qualify or alter some of the previous results.

Consider first the presence of asymmetric information between the proposing group and the agents responsible of implementing the proposal. Initiatives, whether they are local or not, often address complex issues about which there is some uncertainty, at least to the

proposer, regarding the impact of the reform. On the other hand, an agency responsible to implement the reform may be more familiar and knowledgeable about the interaction between the new policy and their particular institutions. An initiative group will then have to take into consideration the potential superior knowledge from the part of the implementors when making a proposal. The literature on principal-agents and bureaucracy suggests that in the presence of asymmetric information between the principal and the agent discretion will be offered to allow the bureaucrat to make the best choice for both parties.[9] As to be expected, I obtain similar findings in the context of asymmetric information between the initiative group and the agents of implementation.

To introduce asymmetric information, I assume that local agents are better informed about a random shock introducing a reform may produce. In particular, I denote $\varepsilon_i = \{0, 1\}$ the uncertain shock that additively and independently affects each district's new policy after a proposal is passed. The shock takes on the value 1 with probability α, the same probability for each district. Local agents know α and ε_i while the proposing group just knows α. The general qualitative result of introducing this new assumption is that the proposing group is more willing to propose intervals since, when its preferences are in line with those of a majority district, it benefits from the local agents making better choices. This implies discretion can be now also be offered when preferences are similar between the group and the districts.[10]

With asymmetric information a group may now offer an interval of policies whereas before it offered a single policy. For example, consider the simplest scenario displayed in Figure 4 in which there is only one district V_1 and the preferences of the district are quadratic, with $U(x_i; v) = -(x_i - v)^2$.

[Figure 4 about here].

Without asymmetric information, the optimal proposal is the single proposal S_1^* both in district-specific and universal regimes. With asymmetric information the group offers either a single policy or an interval of policies, depending on V_1's position. At the top of Figure

[9] To look at other applications of asymmetry of information in bureaucracies, see Gailmard (2000) Epstein and O'Hallaran (1994) and Banks and Weingast (1992).

[10] If the proposing group is better informed than the districts it can predict the shock term and take this into account at proposal time. New incentives for discretion do not arise.

4, V_1 is farther away so the group offers it the policy c_1 which is the policy that, given the random shock, gives district 1 the same expected utility as S_1.[11] At the bottom of Figure 4, V_1 is close to the group's ideal policy, therefore, the group has an incentive to offer discretion, specifically of the form $[I-1, I]$ so that the agent in the district chooses a policy that benefits both the group and the district. Below all types of proposals are stated depending on the positions of S_1 and V_1 relative to I.

Example 1 *Assume* $N = 1$, $I = 0$, $V_1 > 0$ *and the district's preferences are quadratic* $U(x_i; v) = -(x_i - v)^2$. *Then the proposals made by the group, in a district-specific or universal regime, will be: 1) policy* c_1 *which provides the same expected utility as* S_1 *when* $V_1 > \sqrt{1-\alpha}$ *and* $c_1 > -\alpha$, *2) policy* $-\alpha$ *when* $V_1 > \sqrt{1-\alpha}$ *and* $c_1 < -\alpha$, *3) interval* $[-1, 0]$ *when* $V_1 < \sqrt{1-\alpha}$ *and* $-(1-\alpha){V_1}^2 > -(V - S_1)^2$, *4) interval* c_1 *when* $V_1 < \sqrt{1-\alpha}$ *and* $-(1-\alpha){V_1}^2 < -(V - S_1)^2$, *and 5) no proposal.*[12]

With multiple districts the same general intuitions apply. In a district-specific regime, when seeking the votes of a majority coalition the group will offer discretion of the form $[I-1, I]$ (case 3) if there are districts very close to I. If the districts' preferred sets are far from I, then the group has to offer certainty equivalents, c_is, or those offers that provide the same expected utility as the status quo (case 1). If the ideal points of the districts are very far from I but their preferred sets include I then the group offers them policy $I - \alpha$ (case 2), the optimal policy obtained from maximizing the group's utility under no discretion. The universal proposals are similar, with universal intervals covering the previous proposals, taking into consideration the possible choices of districts within the interval.

The example shows that even in the simplest scenario the introduction of asymmetric information can induce the proposal of intervals of policies. Discretion can now arise from two sources: districts' disperse location of ideal points and status quo ($N > 1$) and the

[11] The cutoff c_1, determined by equating district 1's utility from the status quo to its utility from a lottery on $\{c_1, c_1 + 1\}$, is equal to

$$c_1 = V_1 - \alpha - \sqrt{\alpha^2 - \alpha + (V_1 - S_1)^2}.$$

If V_1 is too close to S_1, then c_1 cannot be defined. Therefore, the group will have to offer discretion or make no proposal.

[12] *The group chooses discretion, no discretion or no proposal by comparing the utilities obtained in each scenario. In a universal regime, with* $I = 0$, *the group would get from offering no discretion, an expected utility equal to* $EU(-\alpha, d = 0) = \alpha^2 - \alpha$ *while if it offered discretion its utility would be* $EU(-\frac{1}{2}, \frac{1}{2}) = -\alpha(V_1)^2$.

presence of asymmetric information ($N \geq 1$). An interesting question is whether discretion due to the two different sources can be distinctly differentiated in terms of the parameters. As it turns out, this may not be so simple since the motivation for discretion due to the position of districts remains even with asymmetric information. The following proposition presents conditions under which we can conclude that asymmetric information was the cause of discretion being offered.

Proposition 7 *1) If $N = 1$ then discretion is due to asymmetric information. 2) If $N > 1$ and I belongs to the preferred set of a majority coalition then discretion is due to asymmetric information. 3) In a district-specific regime discretion is due to asymmetric information. 4) All else equal, as the preferred sets of the districts become farther away from I, discretion is due to heterogeneity of preferences and not to asymmetric information. Proof: See Appendix.*

The fact that another reason has arisen for discretion may suggest that single policies are offered under stricter conditions than those without asymmetric information. However, examples can be constructed in which a single policy is offered under asymmetric information when without it an interval was offered.

Voter Welfare

With asymmetric information voter welfare will still be maximized under strong conditions as without asymmetric information.

Proposition 8 *If voter welfare is maximized without asymmetric information then it is maximized with asymmetric information. Conjecture: the converse is true. Proof: See Appendix.*

Similarly, voter welfare will go up in general in many of the cases it went up without asymmetric information. However, new circumstances arise for voter welfare to increase when discretion is given because a district and the group have similar preferences.

With regards to the preferences for each proposing rule the group still prefers district-specific proposals. Unlike the case without asymmetric information social welfare may go down when going from the district-specific regime to the universal regime and the same districts belong to a majority coalition in district-specific and universal regimes (Proposition

6). The intuition for this is that in a district-specific regime some districts (whose votes are not needed) may benefit from discretion given to them. But, in a universal regime it may not be to the advantage of the group to offer discretion to them again due to the choices made by other districts with more weight if discretion were provided.

Incentives to Acquire or Claim Asymmetry of Information

An interesting question is whether districts have an incentive to claim there is asymmetry of information, or whether they have an incentive to develop asymmetric information between them and the group. With regards to claiming there is asymmetry of information I conjecture districts are not better off. With asymmetry of information districts get either an interval that starts from I (if the district is close to I) or the interval starts from S_i^* (if district i's votes are needed and its ideal point is far) or a single policy c_i which is the policy that with the shock ε gives the same expected utility as S_i. All of these are policies that if there were no asymmetry of information would give the district the same or less utility. The district then has no incentive to claim there is asymmetry.

However, districts have an incentive to "develop" asymmetry of information. Consider the simple one district example in which the district's ideal point is close to I but I does not belong to the district's preferred set. With asymmetry of information the group may offer the interval $[I-1, I]$ if the district is close enough. The district then gets utility from a lottery over I and V_i. Without asymmetry of information the district just gets S_i. Being close to I can be an incentive for a district to develop asymmetric information.

2.6 Externalities Across Districts

So far the assumption has been that voters in each district care only about the policies implemented in their district. This assumption is relaxed by assuming that each voter now has a utility function that may depend on the policies implemented by other districts. For example, for quadratic utilities a voter's utility function may now be

$$U(x; V_k) = \sum_j -\alpha_{jk}(x_j - V_k)^2.$$

The weights α_{jk} may correspond to the size of the districts, or to the proximity of other districts to the voter's district. The voter's utility function will be maximized when all districts which the voter cares about are enacting policies at the voter's ideal point. Since voters now care about other districts' policies, the initiative group will have to take into consideration how the policies implemented in districts outside the winning coalition impacts majority districts whose votes it is trying to obtain.

Proposals

The basic motivation to offer an interval of policies under the universal regime will still remain when majority districts' ideal points and status quos are quite separate from the group and from each other. In general, discretion will be offered due to heterogeneity of preferences, as in the benchmark model, but also due to compensation. That is, the group may have to offer an interval of policies when without externalities it offered a single policy if the status quo of minority districts are very close to the majority districts' ideal policies or majority districts disproportionally care more about other districts' policies than their own.

With regards to single policies one may suppose, given the extra restrictions introduced by the presence of externalities, that they occur under conditions that are a subset of those that give single policies without externalities. This is not necessarily the case. Consider, for example, $N = 2$, $w_1 > \frac{1}{2}$ and I belonging to $\mathbf{P}_1$ in a district-specific regime. Then without externalities the group offers I. With externalities, if I does not belong to the preferred set of district 2, then depending on the sizes of the districts, and externality preferences, it can be optimal for the group to offer I to district 1 but some other policy p_2 to district 2 (for example if $\alpha_{12} = 0$ or district 1 does not care about its own policy). The following proposition gives sufficient conditions for a single policy that go beyond simple alignment with the group's preferences, as was the case without externalities.

Proposition 9 *Under district-specific or universal regimes, if I belongs to the preferred sets $\mathbf{P}_i$ of a majority coalition and the S_i's of the districts outside the majority coalition do not belong to $\bigcup_M \mathbf{P}_i$ of the majority districts, then I is offered as a single policy. Proof: See Appendix.*

The condition presented in Proposition 9 is quite strong. The added condition, compared

to the case without externalities, is that districts outside the majority coalition have status quo that are worse than their own status quo, so the group, to a certain extent, is less constrained by the externalities.

Another simple example can further clarify some of the features of the model with externalities. Assume again $N = 2$, district one is a majority district or $w_1 > \frac{1}{2}$, and $\alpha_{12} = w_1$ and $\alpha_{21} = w_2$ or the districts care about each other's policies proportionally to size. Figure 5 shows the policy line with the ideal points of the two districts and the group. The group must take into consideration the points c_1 and c_I that give district 1 and the group the same utility as the status quo.[13] In a district-specific regime the group offers the points $\{S_2, S_1\}$ if $c_I < c_1$. This will happen when S_1 is closer to I than S_2 is closer to V_1, as is the case in Figure 5. On the other hand, it offers c_1 to both if $c_1 > c_I$ or S_2 is closer to V_1 than S_1 to I.

In general there is a tendency to shift (though not necessarily shrink) towards the ideal points of the winning majority coalition when the status quos of the districts that they care about are within their preferred sets $\mathbf{P}_i$. On the other hand, if the status quo of the minority districts are outside of the preferred sets of the majority districts, then proposals will be similar to those without externalities. For N=2 we have the following sufficient conditions for single policies.

Remark 3 *If N=2, $w_1 > w_2$ and $\alpha_{12} = w_1$ and $\alpha_{21} = w_2$. Then if status quos are on the other side than V_1 a single policy is offered in a district-specific regime. If districts are both on one side then in a universal regime a single policy is offered.*

Voter Welfare

With externalities the voter welfare function is still the sum of the weighted utilities of each district. In the case of quadratic utilities,

[13] These equivalency points are for the two district example equal to

$$c_1 = V_1 - \sqrt{\alpha_1(S_1 - V_1)^2 + \alpha_2(S_2 - V_1)^2}$$

$$c_I = G + \sqrt{w_1(S_1 - I)^2 + w_2(S_2 - I)^2}$$

$$W(x,I) = \sum_{i \in N} w_i U(x; V_i) = \sum_{i \in N} w_i \sum_{j \in N} -\alpha_{ji}(x_j - V_i)^2.$$

Without externalities the social welfare is maximized when each district implements policies at their ideal points or $x_i = V_i$. With externalities social welfare is maximized taking into consideration the preferences of all districts. In particular, the policy in each district must satisfy the following for quadratic utilities:

$$x_k = \frac{\sum w_i \alpha_{ik} V_i}{\sum w_i \alpha_{ik}} \; s.t. \; x_k \in [V_{\min}, V_{\max}] \tag{2.1}$$

In general, only under very restrictive conditions will the policies offered coincide with those that maximize social welfare, for an arbitrary set of initial status quos and ideal points. Proposals by the group may improve or decrease social welfare, as was the case in the basic model or with asymmetric information, in comparison to the status quo.

The most striking difference in terms of social welfare with externalities though is that having a group propose an initiative may actually raise social welfare compared to the full discretion case, where districts can choose their local ideal points. The intuition is simply that in an attempt to get votes from majority districts the group is choosing policies that without coordination districts on their own would not choose. Although the group may not quite pick a policy as determined in (1) it may do a better job than simply choosing V_i's.

Incentive to Claim Externalities are present

The group has an incentive to claim externalities are present, in general, when its ideal point is in between those of districts that have opposite preferences.

Proposition 10 *1) N=2, $w_1 > \frac{1}{2}$ and V_is are on each side of I, and I does not belong to their preferred sets. Then the group is better off with externalities. 2) N=2, $w_1 > \frac{1}{2}$ and V_is are on same side of I, and S_2 belongs to P_1. Then the group is worse off with externalities. Proof: See Appendix.*

Similarly, simple examples with $N = 2$ districts can be constructed in which a majority

district has an incentive to claim externalities are present.

2.7 Conclusion

Initiatives that require local implementation are common in particular in areas of social welfare, environment and criminal justice. They constitute a distinct problem from that often studied in the initiative literature due to the presence of three factors: multiple districts, multiple agents, and externalities. This chapter focused on the impact of local preferences and characteristics on the types of proposals made and on welfare.

Most importantly, I found that the array of policies in a multi-district setup is larger than in previously studied single-district models. In particular, initiative groups can make offers that involve intervals of policies. Discretion, that is offering an interval of policies, can occur when voters have heterogeneous preferences or due to asymmetry of information, when local agents have better information than the proposing group. I also found that different types of proposal-making rules matter differentially to the group and the districts. As would be expected, the initiative group is better-off under a regime that allows district-specific proposals while, under weak restrictions, districts are better-off if the group is constrained to universal proposals. In terms of welfare, proposal-making hardly ever maximizes the voters' welfare. It can improve it, but under strong conditions. Finally, with asymmetric information districts that have preferences aligned to those of the group may have an incentive to develop asymmetric information, while the group may have an incentive to claim externalities are present when it is placed in a mediating position between districts.

The structure of this problem is applicable to many other scenarios in which a majority vote is sought from among a group of constituents who may care about what each other does. Legislators in Congress, or members of international trade organizations, are some relevant examples. There are several aspects of the present model that deserve further examination, and these extensions may vary depending on which application we have in mind. If we continue with the initiative process as the application, we might consider, for example, further constraints on the proposer, and other voting rules.

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2.8 Appendix A

Proof of Proposition 1: Case 1) The winning coalition must include i. Offering S_i^* to i ensures passage and gives the group the most utility from i by definition of S_i^*. Offering I to the remaining districts maximizes overall utility. Case 2) The group ranks all districts by their weighted values $w_i u(S_i^*; I)$. Any majority coalition needs d districts in it by assumption. Choosing the first d with the smallest weighted values achieves majority. Offering to the d districts their S_i^*s provides the maximum utility to the group from these districts and offering to the remaining districts I maximizes the group's overall utility. All other cases 3) The group compares and ranks all possible majority coalitions in which the members of the winning coalition are offered their S_i^*s (maximum utility to be extracted from coalition that ensures passage) and the remaining districts, if there are, are offered I (maximum utility to be extracted from remaining districts). The group picks the proposal that offers it the maximum utility. By construction, this is the optimal proposal.

Proof of Proposition 2: (Sufficiency). If I is weakly preferred by a majority coalition, then the initiative group proposes I, which passes, and the group's utility is maximized. (Necessity). Assume I does not belong to the preferred set of any majority coalition. If there are districts outside the majority coalition, then by Proposition 1, they are offered I. By assumption those in the majority coalition cannot all be offered I. Then a single policy is not offered. If there are no districts outside the majority coalition then N=1 or N=2 and $w_1 = w_2 = \frac{1}{2}$. N>1 by assumption. With two districts of equal weights, one of them is offered $S_i^* \pm \varepsilon$ to their advantage and the other is offered I such that a single policy is not offered.

Proof of Proposition 3: Case 1) The winning coalition must include i. If I belongs to P_i then $S_i^*=I$ and the optimal offer is I. If I does not belong to P_i, then the optimal offer is S_i^*, if there are no districts with ideal points in $[S_i^*, I]$ or on the opposite side of I. Otherwise, the group offers $[I, S_i^*]$. Case 2) Consider an interval covering the S_i^* (or V_i) points of the closest M districts to I that form a majority coalition. The interval will be of the form $[S_i^*, S_j^*]$ or $[V_i, S_j^*]$. By construction these districts will approve the measure. It is not optimal for the group to expand the interval towards I since by assumption there are no districts on the other side of I. It is not optimal for the group to move the interval "one-district-down" since the S_i^* of the closest district is lost, and the S_j^* of the new added district is further out than the previous policy endpoint. All

other cases 3) The group compares and ranks all possible majority coalitions in which the members of the winning coalition are offered intervals of policies that cover their S_i^*s (or V_is). The group picks the proposal that offers it the maximum utility.

Proof of Proposition 4: (Sufficiency). If 1) holds then I, a single policy, is offered. If 2) holds then offering S_i^* achieves majority vote. Since districts are aligned and there is no ideal point between S_i^* and I all districts will pick policies at S_i^* or farther out. The single policy S_i^* is then optimal. (Necessity). Assume 1) and 2) do not hold. Then I does not belong to the preferred set of any majority coalition and it cannot be offered. Moreover, districts are not aligned, no single S_i^* achieves majority vote, or if an S_i^* achieves majority vote then there is an ideal policy V between it and I. If districts are not aligned then the group does not offer a single policy on one side of the group, offering policies on both sides or I is preferred. I cannot be offered since it does not belong to the preferred set of any majority coalition. If no S_i^* achieves majority vote then none is offered as a single policy. If a V exists between any S_i^* that achieves majority vote and I then it is not optimal since $[V, S_i^*]$ is preferred. No single policy is then offered.

Proof of Proposition 5: (Sufficiency). If all districts have ideal points at I, and by assumption at least one majority coalition is not satisfied, then the group offers I, in a district-specific or universal regime, and voter welfare is maximized. (Necessity). Assume there exists one district whose ideal point is not I. In a district-specific regime the district is offered either S_i^* or I by Proposition 1. If I is offered then social welfare is not maximized. If S_i^* is offered then, for social welfare to be maximized, $V_i = S_i^*$. If so, the district votes no on the proposal, implying the group should have offered it I. Social welfare is then not maximized. In a universal regime the proposal is a single policy or an interval. If the proposal is a single policy and social welfare is maximized, then all districts must have the same ideal point. By assumption there exists at least one majority coalition which is not satisfied. Therefore, there exists a policy S^* that is closer to I than the ideal point and has majority vote. Offering the ideal point is not optimal and social welfare is not maximized with a single policy. If the proposal is an interval and social welfare is maximized, then all ideal points must be included in the interval. Therefore, offering the interval is not optimal and social welfare is not maximized with an interval.

Proof of Proposition 6: In a universal regime the group maximizes over a smaller set of policies than in a district-specific regime. Then the group's utility is the same or less. For the second part of

proposition, assume districts which vote yes and constitute a majority coalition in a district-specific regime are the same districts in a winning coalition in a universal regime. Then, in a universal regime these districts are the same or better off than in a district-specific regime. Districts which are not in the winning coalition are offered the same as in a district-specific regime (I) or better. Assume they are offered worse than before, that is a policy worse to them than I. Then, it is optimal for the group to extend the interval or single point being offered up to I. The expansion includes points closer to I. If any district changes its choice it will be to policies closer to I. Since all districts are better off or the same, social welfare never decreases.

Proof of Proposition 7: 1) If $N = 1$, and there is no asymmetric information, in a district-specific or universal regime, then the optimal policy is the single policy S_i^* and no discretion is offered. 2) If $N > 1$, there is no asymmetric information and a majority of districts prefers I to their status quos, then, in a district-specific or universal regime, the group offers the single policy I and no discretion is offered. 3) In a district-specific regime, without asymmetric information, the optimal solution is given by Proposition 1, which does not involve discretion. 4) Fix N , and I. If all P_i are outside $[-1, 1]$ then the group does not profit from offering discretion of the form $[I - 1, I]$ since all districts will pick the endpoints for any given random shock.

Proof of Proposition 8: If social welfare is maximized in a district-specific or universal regime without asymmetric information, then by Proposition 5 all districts have I as their ideal point. Then in a regime with asymmetric information the optimal offer for the group is the interval $[I - 1, I]$ such that agents in each district choose optimally I. Social welfare is maximized. Conjecture: The converse is true.

Proof of Proposition 9: If I belongs to the preferred set of a majority coalition, then offering I increases the term in the utility function of the majority districts that depends on policies in their own districts. If the status quos of the districts outside the coalition are not in the preferred sets of any majority district, then forcing these districts to implement I is a utility improvement for the majority districts.

Figure 1: Two districts and the initiative group

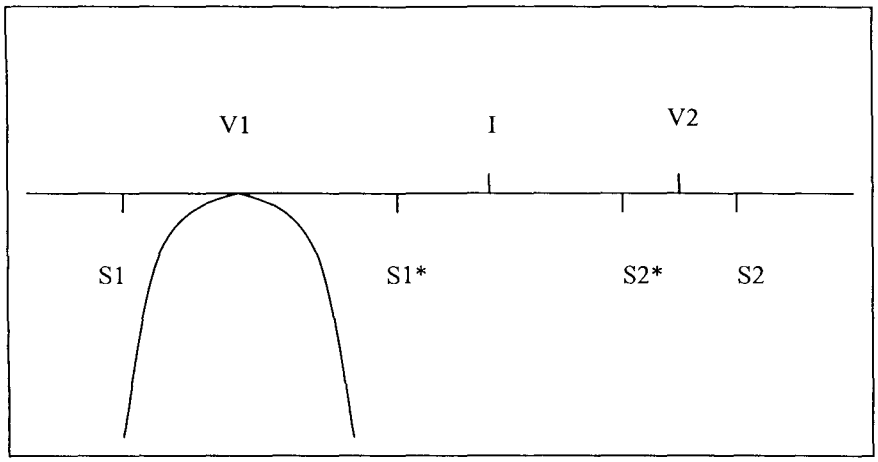


Figure 2: District-specific proposals

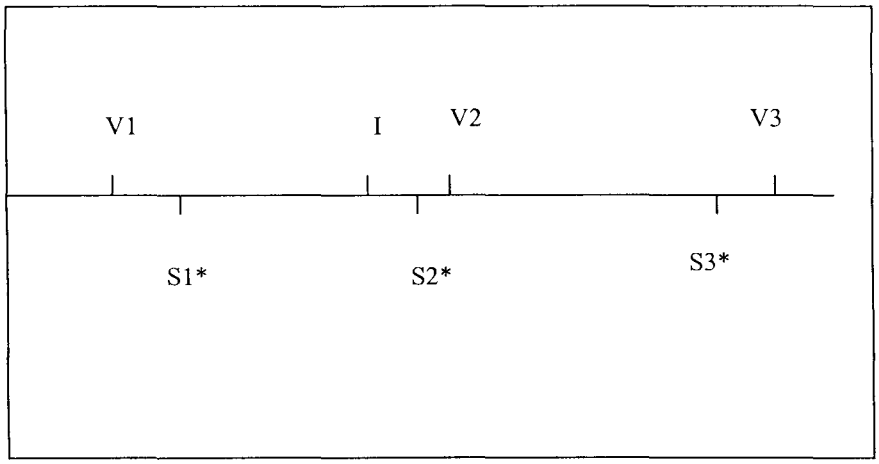


Figure 3: Heterogeneous preferences and discretion

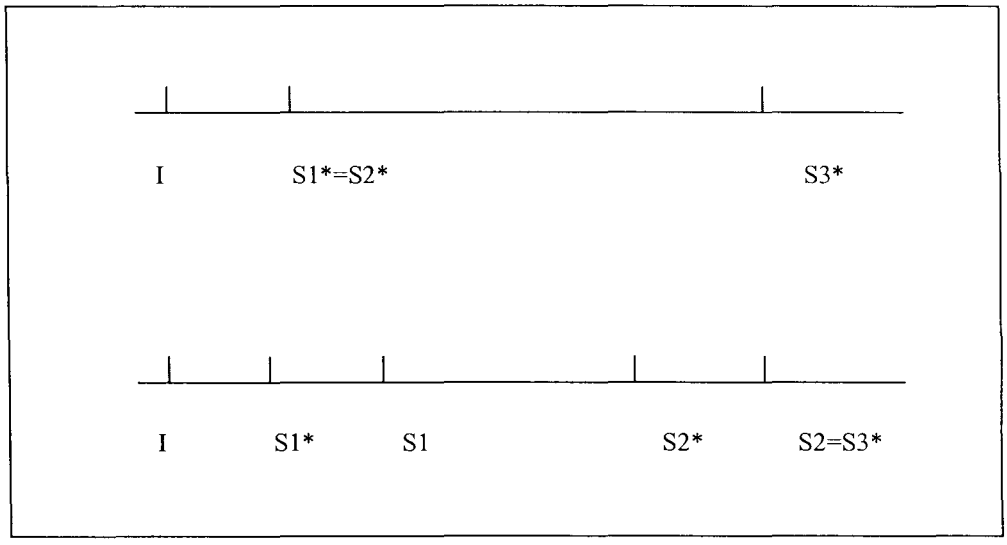


Figure 4: Asymmetric Information

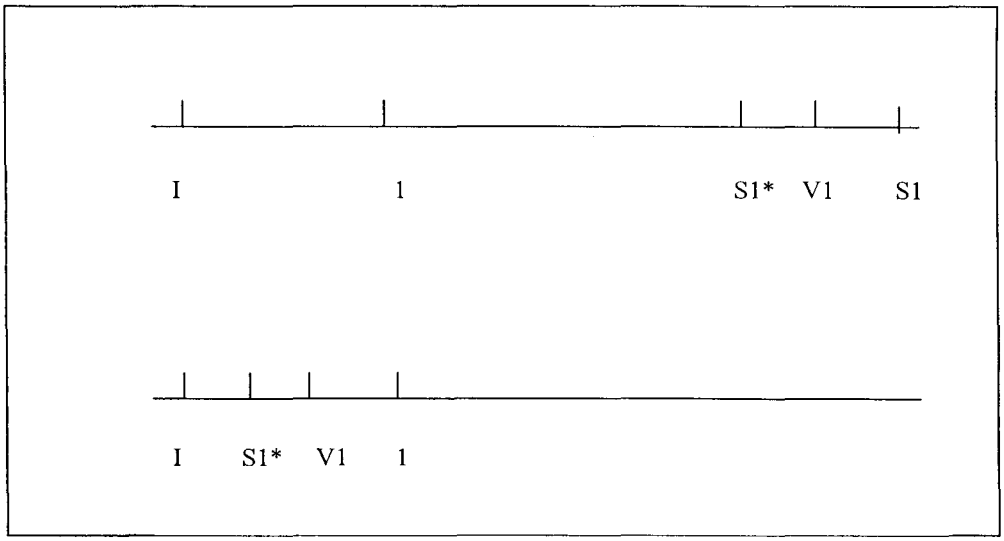
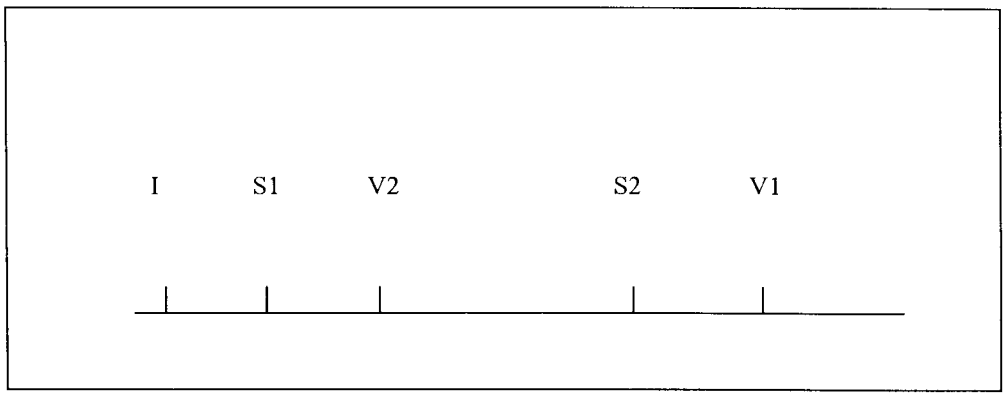


Figure 5: Two districts and externalities



Chapter 3 Education Ballot Measures: Participation and Voting

Summary

In this chapter I investigate how voters participate and vote on educational measures. The analysis is conducted on three levels of California data on initiatives: state-wide, county level, and individual level survey data. Examining initiatives in California at the state-level in the last three decades, I find that educational measures are no different than non-educational measures, in terms of turnout and support. Examining initiatives in California at the county-level in 1998, I find that support for educational measures display some biases from the general voting population along racial lines. Finally, looking at exit-poll data from California's Proposition 227 on bilingual education, I find evidence consistent with local school conditions playing a small role in voters' decisions.

3.1 Introduction

Reforms in education are routinely promoted by various government bodies, such as Congress, state legislatures, state departments of education or local offices of the superintendent. In California and across the nation, statewide ballot measures have increasingly become another tool of reform to address concerns with education.[1] In fact, in California between 1970 and 2000, 54 educational measures have been placed in the ballot constituting close to 13% of all propositions. Many of the educational measures are educational bonds placed by the legislature and related to financial issues. However, in the last decade California has also seen a rise in propositions that specifically target school reforms, such as initiatives on bilingual education, class size reduction, and vouchers. Since voters are the decisive factor in policy-making with educational measures, to make any assessment of such measures as a representative and responsible means of policy reform, it is important to understand first

[1] Initiatives are measures proposed by citizens while referendums are measures proposed by the legislatures. In this chapter I consider both and refer to them as ballot measures or propositions. Twenty-four states allow direct legislation, many of them western states.

how voters participate and vote on them.

The purpose of this chapter is to assess how citizens participate and vote on educational measures in comparison to other measures, and in comparison to what we know about voting in candidate elections. In particular, do educational initiatives elicit the participation and vote of different subsets of the general voting population? Do voters vote informedly on educational initiatives?[2]

Research has been done from different perspectives that addresses issues of effectiveness and representation with regards to initiatives in general. This literature includes analysis of the consequences of direct democracy on minority groups (Gerber, Hajnal, and Louch 2000; Tolbert and Hero 1996; Wenzel, Donovan and Bowler 1998), studies on the effect of initiatives on participation and civic life (Boehmke 2000; Tolbert, Grummel, and Smith 2000), and broad assessments of the initiative process and its common criticisms (Donovan and Bowler 1998; Gerber 1996).[3] With regards to educational initiatives the research is more limited, with case studies of the impact of educational measures (Lopez 2000; Rosell 2000), and studies of the impact of politics on educational ballots (Ji 1999; Locker 1993).

The present chapter extends the inquiries from the general literature on initiatives to the realm of educational initiatives. In terms of representation, I look at how various racial and economic groups participate and vote on educational measures. More generally, I compare educational and non-educational initiatives by turnout and support levels. In terms of efficacy, I look at how voters use local information, and how they respond to the historical context. California, with its rich initiative history and diverse population, is an excellent arena in which to conduct such a study.

I begin the analysis by testing for differences between educational and non-educational initiatives in terms of overall participation and support. The differences in participation can stem from biases in terms of the type of voters who turnout to vote for educational measures, while the differences in support can stem from differences in the level of uncertainty regarding different initiatives and the level of information available on them. Examining 430 initiatives

[2]See Donovan and Bowler (1998) for a discussion on responsiveness and responsibility in the initiative process.

[3]See Bowler, Donovan, and Tolbert (1998), Magleby (1984), and Cronin (1989) for detailed accounts on direct legislation.

at the state-level in California during 1970-2000, I find very little evidence of any systematic differences in turnout and support when comparing educational initiatives to other types of propositions. The effects of the saliency of education (which may increase the level of information on the issue and decrease uncertainty) can be seen when educational bond and non-bond measures are studied separately. Educational bonds were more likely to pass after 1984, after tax and education finance reforms in California that restricted local school funding.

Next, I examine how educational measures fare in terms of turnout and support from different groups of voters. Racial/ethnic interpretations of public policy predict that policies targeting minority groups are more likely to be adopted in states with large minority populations (Giles and Evans 1986; Key 1949; Tolbert and Hero 1996). Studying county level data from initiatives in 1998's primary and general elections, I find no evidence supporting any further biases in turnout from the pre-existing, well-documented biases in the general voting population (Campbell et al. 1960; Verba, Schlozman, and Brady 1995; Wolfinger and Rosenstone 1980). In terms of support, however, I find some evidence that counties with higher proportions of whites were more likely to support measures disadvantageous to minorities or not supported by minorities. With regards to how voters decide on educational issues, 1998 exit poll analysis from California's Proposition 227 on bilingual education suggests voters voted mostly based on race, ideology and opinions: local school conditions as measured by standardized scores had a negligible impact on votes.

These results imply that voting on educational measures displays some of the features, positive and negative, we may expect based on our general knowledge of voting and participation in elections. When salient, educational measures are associated with higher passage rates. When the historical context prompted readjustments, voters have been more supportive of educational measures that provided those balances. The evidence suggests educational measures do not induce further biases in turnout from the general voting population. These are positive aspects of educational measures that we may anticipate and want in any measure type. On the other hand, educational measures are subject to some less immediate qualifications: voters do not seem to be using local information when voting, and race can play a significant role in predicting support for measures that can impact minorities.

3.2 Hypotheses and Related Literature

The goal in this chapter is to assess the use of initiatives in education in terms of who votes and how they vote. I pursue the following lines of inquiry: 1) Are there any systematic differences between educational and non-educational measures in terms of turnout and support? 2) How does the saliency of education, as measured by the relative number of educational initiatives, impact turnout and votes? 3) How did the historical context (tax reforms, decline in student performance) impact turnout and support? Next, focusing on educational ballots I ask: 1) How do racial and economic divides impact voting on educational measures? 2) Do local school conditions matter when voting on educational measures?

Educational initiatives will differ in terms of turnout or support from non-educational initiatives if, there are biases in terms of the type of voters who turnout to vote for educational measures, or there are differences in terms of the level of information and uncertainty by initiative type. Saliency of an issue, as measured by newspaper coverage, has been shown to increase turnout for initiatives (Smith 1999). If education is a more salient issue (at least to some voters) there may be a bias in terms of turnout, though possibly not too large considering that many different types of initiatives are placed on the same ballot. In terms of support, the model in chapter 1 predicts that proposing groups anticipate voters preferences and propose successful measures. An inspection of initiatives in California in 1970-2000 shows that passage of a measure is surely not guaranteed (close to 60% passed). In an empirical analysis, Magleby (1984) found that 53% of initiatives in California between 1960 and 1982 experienced a reversal in support between the time of announcement and voting time. That is, there is some uncertainty surrounding the fate of an initiative and this uncertainty may vary by the type of initiative. Given these factors, I expect that if there are any differences between educational and non-educational initiatives with regards to turnout and support, these will be small.

The second inquiry addresses the impact of saliency as measured by the relative frequency of an issue on the ballot. At the national level, Smith (1999) finds that salient issues, as measured by the percentage of front-page coverage after the election, increased turnout for initiatives between 1972 and 1996. Tolbert, Grummell and Smith (2000) argue

that a better measure of saliency is the number of initiatives in an election which they find correlates with turnout. However, they look at the total number of initiatives in a ballot rather than the total number of initiatives of a particular salient issue. Given these results, I conjecture that the total number of educational measures, after controlling for the total number of initiatives, corresponds to higher turnout rates. In terms of support, the theoretical model of chapter 1 would predict the same passage rate for salient and non-salient issues. Empirical evidence (Magleby (1984)), on the other hand, suggests that initiatives are less successful after being first announced. If more salient issues experience less uncertainty, then we might expect that larger (relative) numbers of educational measures positively impact the probability of passage of such measures.

California experienced a reform of its property tax and school finance system in the late seventies and early eighties due to a series of propositions and court decisions.[4] Research suggests that these events by themselves (Fernandez and Rogerson 1997; Fischel 1989; Silva and Sonstelie 1995) or the continuance of pre-existing trends in the state's public policies (Kiewiet 1999) resulted in California having an expenditure per pupil in the 1980's that ranked 41st among US states. These low expenditures corresponded to large class sizes and low level of resources. Furthermore, Hispanic immigration into California escalated in the eighties and nineties, aggravating class size problems while possibly contributing to the "white flight" to private schools. If the tax and financial reforms, and the educational decline contributed to the saliency of education, this could have corresponded with higher turnout and passage rates.

Racial/ethnic interpretations have been given to explain the passage of initiatives that target minorities. Tolbert and Hero (1998) suggest that states with "bifurcated" racial populations, that is states with large minority populations, are more likely to pass initiatives that target minorities since these large minority populations pose a threat to the white population who are in turn more likely to vote. Studying California's Proposition 187, or the

[4]Proposition 13 (1978), and Proposition 4 (1979) put a limit on the rates that could be assessed on property taxes, and in the view of some had dire consequences on local finances, in particular on funding for schools (Shrag 1998). Proposition 37 (1984) created California's state lottery with a percentage of winnings for education. Another event that shaped education's finances were the court decisions of 1971 and 1976 which forced equalization of expenditures by pupil in the state and, by the mid-eighties, close to 95% of all school districts were within the permitted limits (Kiewiet 1999).

"illegal immigration" proposition, and Proposition 227, which aimed to dismantle bilingual programs, researchers have found evidence that race and ethnic polarization mattered (Alvarez and Butterfield 1999a; Alvarez 1999b). Since increasingly public schools are populated by minority students, while their representation in the voting population continues to be small, I conjecture that racial and ethnic divides will play a role as well when looking at the support for California's educational measures. That is, I conjecture that non-minority voters will be reluctant to support reforms that may take funds from other programs or that are viewed as pro-minority.

I end the assessment of educational initiatives by addressing voter competence. Looking at a single issue type (insurance) Lupia (1994) finds that voters' use of informational shortcuts in the form of the identity of the endorsers was sufficient to allow voters to make the "correct" choice. Preliminary research by Ji (1999) finds that counties with high levels of students enrolled in college tracks are more supportive of educational measures in general. Compared to some complex measures, information about the conditions of schools may be acquired with less difficulty, in particular if a voter has children. Normatively we may want voters to, all else constant, seek reforms when their districts are under more duress. I hypothesize that lower student performance in schools will have a positive impact on turnout and support for educational measures.

3.3 Comparisons of Educational and Non-Educational Initiatives in California, 1970-2000

General Trends

I want to test for any systematic differences between educational and non-educational measures in terms of turnout and support. If educational measures systematically differ from other types of measures, this would suggest voters who turnout for educational measures are a biased set from the voting population, or educational measures experience different level of uncertainty than other types of measures. Table 1 below presents the mean turnout of eligible voters and mean passage rate for California's propositions between 1970 and 2000,

as a preliminary overview of the data. Note that passage is a binary discrete variable, coded as a one or zero, which indicates whether the proposition obtained more than 50% of the votes.[5]

[Table 1 about here].

The well-known decline in turnout of eligible voters is displayed in the figures: from an average turnout of close to 44% and 43% for educational and all other propositions respectively before 1984 down to an average turnout of 34% and 36% after 1984. The declines in turnout are statistically significant at the 95% level in a two-tailed t-test of equality of means. However, when educational measures are compared to all other measures, t-test reveal no statistical difference at the 95% level in turnout overall nor by sub-periods.

The passage rate for the whole period of educational measures, 62.9, cannot be statistically distinguished in a differences of means test (95% level) from the passage rate of all other measures, 62.2. But if we consider the periods before and after 1984, or sub-divide measures further by whether they are bonds or not, then statistical differences appear.[6] If the type of proposition is held constant, educational measures increased their average passage rates from 59% before 1984 to 68% after 1984, while non-educational measures' decreased, from 65% to 59%. These changes are all statistically significant at the 95% level. The increase in education's passage rates may be partly due to the increase in the proportion of bonds among educational measures, from 31% to 56%. Non-educational measures actually also experience an increase in the proportion of bonds, though smaller, from 15% to 19%, which suggests the proportion of bonds cannot entirely explain the patterns observed.

Finally, education measures can also be considered by the different types of issues they address, as seen in Table 2. In particular, I consider 5 types of propositions in education: finance, bonds, facilities, program reforms, and regulations. Overall educational bonds are most likely to pass, at 82.6% and have, with regulations, the highest turnout at 40%. The differences in turnout rates are not significant across types but the passage rates of educa-

[5]Since their inception, all of California's statewide initiatives require strict majority of votes for passage, or above 50% of the votes.

[6]The cutpoint at 1984 is convenient in that it divides the period into two equal sets but meaningful as well since in 1984 Proposition 37 passed, establishing funding for schools via California's state lottery. This initiative was the first measure to begin redressing the financial changes implied by Proposition 4 (the Gann initiative) in 1979. In 1988 it was followed by Proposition 98, guaranteeing minimum funding for schools.

tional bonds are significantly higher than those of other types. Bonds, facilities and financial measures have all increased in their passage rates.

[Table 2 about here].

State-Level Multivariate Analysis, 1970-2000

The previous tabular analysis suggests that with respect to passage rates factors such as the proportion of bonds and the time period matter. These factors are better controlled for in a multivariate analysis. I estimate next rolloff and probability of passage as a function of electoral factors, economic conditions, types of propositions, and a time trend.[7]

Table 3 presents the results from estimating a group logit model where the dependent variable, rolloff, is California's number of voters on an initiative divided by the number of voters who turned out in an election, measured between 0 and 1, for each of the 430 measures between 1970 and 2000. Structural tests (Chow tests) indicate that the coefficients in general elections are different from those in primary elections. Therefore, separate analyses were done for general and primary elections. To account for a possible time trend indicator variables were included for four year intervals. For a better interpretation of the results, the last column in each table includes changes in the resulting proportion of rolloff [0-1] as a result of increasing discrete variables from 0 to 1, holding all other variables at their means. Continuous variables were increased from one standard deviation below their mean to one above. The general fit of the model is good, with R^2s above 0.5 for both general and primary elections.

[Table 3 about here].

Voter rolloff rates are higher for educational propositions after 1984, both for general and primary elections. The increases from before to after 1984 are small, though, about 1% and are not statistically different from zero at the 95% level. This suggests voters were not inclined to turnout more after California's school finance reforms, as initially conjectured. The number of measures and the number of measures in education also did not seem to have a strong impact on turnout. The number of propositions (or educational initiatives), in a

[7]Each of these controls have been found to be significant in previous literature (Bowler, Donovan, and Tolbert 1998; Banducci 1998a; Ji 1999). The author is in the process of adding spending which was also found to be significant in the literature.

state with high levels of proposition activity, has a minimal effect on rolloff.[8]

When considering different types of propositions, those that deal on issues of public morality (such as gambling or gay marriage) elicited the highest turnout: 6% more than government related measures, the category excluded. And those differences are statistically significant at the 95% level when compared to any other type, including educational measures. The effect on rolloff of educational measures cannot be distinguished from that of health, transportation and environment and crime. That is, in terms of rolloff, educational measures are not particularly distinctive from other social welfare propositions.[9]

I present next in Table 4 the results of logistic models predicting the probability of passage of propositions in general and primary elections. The general fit of the models is low (pseudo-R^2 near 0.2). Passage of an initiative depends more on the proposal capturing voters' preferences at a given time and, at least in theory, less so on the type of initiative or type of election. With regards to timing effects there is evidence of lower passage probability before 1984, close to 0.17 less in general elections and 0.04 less in primary elections, though the effects are not statistically significant at the 95% level (p-values of 0.25 and 0.34).

When the analysis is repeated considering whether an initiative is on education or not, and a bond or not, statistically significant differences appear (see Appendix A for details). In particular, educational bonds were 0.52 more likely to pass than educational non-bonds in general elections. The fact that educational bonds are much more likely to pass than educational non-bonds would be consistent with these initiatives experiencing less uncertainty than educational non-bonds. Educational bonds have the clear objective to raise funds. However, non-educational initiatives, did not display a similar relation when comparing bonds and non-bonds. Clearly, this puzzling result deserves further study.

The number of measures has a negative impact on the probability of passage, while the number of educational initiatives has a positive impact on the probability of passage. These effects are statistically significant at the 95% level for general elections, though not for primary elections. That is, in general elections the increase in the number of initiatives from

[8]Tolbert, Grummel and Smith (2000) find that the number of initiatives does have an impact on turnout but their analysis is across all states.

[9]The different types of initiatives within education (bond, finance, facilities, regulation and techniques) did not have a differentiated effect on turnout (this analysis is not included in Table 3).

one standard deviation below the mean to one standard deviation above the mean (roughly 10 initiatives), holding all other variables at their mean, corresponds to a decrease in the probability of passage of 0.33. On the other hand, going from 1 educational measure to close to 4 measures (one standard deviation below and above the mean), increases the probability of passage in general elections by close to 0.45, or close to 0.15 for each added educational measure. Interestingly, this result holds, even in magnitude, when only non-educational measures are considered (the change in probability is 0.48). This result suggests when an issue is salient unrelated issues may benefit indirectly.

[Table 4 about here].

With regards to measure types, as with turnout, there are no systematic patterns. In general elections, except for initiatives related to civil rights, no other initiative type has a statistically significant effect at the 95% level on passage compared to governmental initiatives, the category excluded. In primary elections, initiatives related to crime issues have a positive, statistically significant effect on the probability of passage: close to 0.08 more compared to governmental initiatives. As mentioned earlier, educational initiatives were less likely to pass before 1984, in both general and primary elections. However, these effects are not statistically significant at the 95% level.

In this section I found that educational and non-educational measures are not systematically different in terms of rolloff and passage. Within educational initiatives, bonds are more likely to pass than non-bonds. Non-educational initiatives do not display similar differences. The overall review did not find any evidence that educational propositions are any worse than other propositions to implement reforms. However, this review was at the state level, without providing any information about linkages between race, income and ideology on voting. In the next section I specifically address participation and voting by groups within the population.

3.4 County Level Participation and Voting By Groups of Voters, 1998 Elections

The objective in this section is to assess whether there are any tendencies by groups in the population to turnout or support educational measures. Racial/ethnic theories of how public policy is shaped predict that dominant groups, in this case whites or high income groups, would vote against measures that favor large minority groups. To test this, I look at turnout and support in California's 58 counties during its primary and general elections in 1998.[10] In that year, 21 measures were voted on, four of which were on educational issues, one of which was an educational bond. The demographic and economic variables that are included are indicator variables for: high percent of pro-Davis (Democratic governor) voters, high percent of eligible voters within parenting years (18-50), high income, high percent white and Hispanic, high percent above 65 years old, unemployment rate (1999), and mean years of schooling (1998). In general, high percentages imply the underlying continuous variable is above the mean of the variable. The electoral control is simply whether the election was a general or primary election, in this case for governor.

[Table 5 about here].

Table 5 presents the results for a group logit estimation of turnout and a logit estimation of passage, at the county level, for initiatives in 1998. The general fit of the turnout model is good with an R^2 of 0.88. A structural Chow test indicates that educational and non-educational measures do not need to be considered separately. None of the interacted terms are statistically significant at the 95% level. Counties with larger proportions of whites, or high income voters, are not more likely to turn out on educational measures than non-educational ones. That is, the county level analysis is consistent with the assertion that the increase in the proportion of various groups in the population across counties does not impact turnout on educational measures. This holds for all groups considered.

Similarly, for the model predicting the probability of passage, no systematic biases are

[10]The motivation to choose 1998 as a year for the analysis is due to the high number (four) of initiatives in education in that year. In fact, only 1998, 1988, and 1978 are years that four initiatives, the maximum number in a year in the 1970-2000 period.

observed for any particular group with regards to support for ballot measures in education. However, the four measures in education covered different areas: bilingual education, class size, school budgets and a facilities bond. Bilingual education quite explicitly targets minority students, in particular Hispanics. We would expect, according to the racial/ethnic conflict theories, that whites would be more likely to vote *for* anti-bilingual measures. While regarding the other measures that favor general educational reforms, we might expect whites or high economic groups to vote against them if they believed the measure had no direct benefits for them. The pooled analysis may hide these differences so I consider the probability of passage of each educational measure separately. Table 6 below shows that the coefficients on High White Percentage are all in the predicted directions: counties with more whites were more likely to pass Proposition 227 (p-value = 0.83), less likely to pass Proposition 8 (significant), less likely to pass Proposition 223 (p-value = 0.23) and less likely to pass Proposition 1A (p-value = 0.52). Only the coefficient for Proposition 8, the measure proposing a class size reduction program, is significant at the 95% level, but the direction of all the coefficients is suggestive of a tendency in counties with higher percentages of whites to vote against measures that would be favored by minorities.

[Table 6 about here].

Similarly, a slight tendency is displayed by counties with high percentages of citizens with high income to vote against educational measures, though only for Proposition 223 is the coefficient statistically significant at the 90% level. Most of the coefficients on the Hispanic variable are not statistically significant at the 95% level except for Proposition 227. Interestingly the counties with higher levels of Hispanics voted in favor of Proposition 227. Given the low turnout of Hispanics, these values suggest non-Hispanics in counties with larger number of Hispanics may have voted in favor Proposition 227. With regards to the demographic variables related to age, High Percent Above 65 and High Percent 18-50, no systematic tendencies emerge regarding voting against educational measures.

Counties with high levels of Democratic voters were less likely to vote for Proposition 227 (-0.4) while these counties were more likely to support the school bond (0.25). These effects are all statistically significant at the 95% level. Importantly, the educational standing of counties, as measured by the percent of students scoring above the national median in

the Stanford 9 tests does not have a consistent or large impact across these educational measures.

The results from the county level analysis suggest that while turnout for educational initiatives may not be further biased in terms of the general voting population, the impact of race and political ideology can be observed when looking at support for various educational measures. In particular, there exists a tendency for counties with higher proportions of whites to vote for measures that disfavor minorities and against measures that may benefit them. Similarly, counties with high percentages of Democrats seem to favor educational measures that favored minorities or traditionally minority-held views. Counties with higher income voters seemed to disfavor educational measures in general while age did not seem to play a role at the county level in terms of passage. Neither did student performance. The county level analysis may clearly suffer from aggregation and ecological inference problems. In the next section, I analyze individual survey level data that gets around those problems while also allowing for better controls.

3.5 School Conditions and Voting on Proposition 227

In this section individual level data from an exit poll after 1998 primary elections is used to analyze the impact of school conditions on turnout, and support for the bilingual education reform.[11] Table 7 below shows the results from a multinomial logit model in which the dependent variable can take on seven categories depending on the respondent's stated reason for turnout (i.e., governor's election, Proposition 227, Proposition 227, etc.) The independent variable of interest, Percent Above 50th NPR Reading, measures the percent of students in the respondent's county who are scoring above the national median. The impact of this variable is small and negative, not statistically significant at the 90% level. Going from 27% to 40% of students scoring above the national median (one standard deviation above and below the mean) implies a 0.01 decrease in the probability of stating educational measures

[11] I thank Prof. Michael Alvarez for providing me with this data set which he used on his work explaining the passage of Proposition 227 (Alvarez 1999). The original sample comprised 4521 while this study only included 3260 voters, those from counties: Orange, San Diego, Los Angeles, Kern, and the bay area. For the remaining respondents their county place could not be specified.

as a reason for turning out to vote in the 1998 election, compared to turning out for the governor's election, holding all other variables at their means. That is, voters in districts that were doing better seemed to be less concerned with educational issues, or local conditions may matter in determining turnout.

[Table 7 about here].

Interestingly the model has a quite poor fit, suggesting that predicting who turns out to vote due to educational concerns is not quite distinct from predicting who turns out to vote. This would be in accordance with the findings in the previous section which found no differential effect by groups with regards to turnout for educational measures.

If instead we look at support for Proposition 227 in Table 8, the anti-bilingual measure, then being Hispanic, conservative or a member of a teachers' union has a large impact on support for the measure (see also Alvarez 1999b). Quite importantly the measure of local academic performance has very little impact on support and in the opposite direction from that expected. A change from one standard deviation above and below the mean (from 27% to 40% scoring above the national mean in reading) corresponds to an *increase* of 0.02 in the probability of voting for Proposition 227. Voters from counties with higher scores were more likely to vote for Proposition 227 though the effect is not statistically significant at the 90% level (p-value 0.38). Similarly, when a logit analysis is performed with the dependent variable being whether a respondent considered bilingual education to be effective or not (not included in Table 7) the local measure of academic performance is not significant. Ideology, race and occupation play a much stronger role in predicting the respondents' support.

[Table 8 about here].

Individual level results suggest then that local school conditions can motivate voters, but not greatly, to participate. However, local conditions did not impact voters towards supporting an educational reform in those counties doing poorly.

3.6 Discussion

The beneficial or detrimental use of the initiative process has received ample attention from scholars (Donovan and Bowler 1998; Gerber 1996, Magleby 1984). Critics have often pointed

to the potential abuse of the process by selected groups with financial resources who may advocate policies quite deleterious to minorities in the population, while also emphasizing potential problems from the side of voters, haphazardly making long-lasting policies under less than ideal circumstances (Magleby 1984). Advocates can point to research that shows that the initiative process has positive democratic effects, by increasing political attention and participation (Boehmke 2000; Tolbert, Grummel and Smith 2000).

In this chapter I have examined educational initiatives in California with the goal of assessing their use, especially in terms of their responsiveness to voter's preferences. I opted to examine educational initiatives along an array of dimensions that reflect different aspects we may ascribe to a responsive policy institution. First of all, I compared educational initiatives and non-educational initiatives in California, in general, over a 30 year span, in terms of turnout and support. I found no systematic differences. Next, I examined educational initiatives in terms of issue salience and time period context. I found educational initiatives were more likely to pass when the issue was salient, and when historical factors prompted some form of remediation. Looking at county level data from 1998 elections, I explored biases in turnout and support from various socioeconomic and political factors. I found some evidence that race can play a role, while political attitudes were a strong predictor of support. Turnout for educational initiatives did not seem to be further biased from the general population. Finally, looking at individual level data, I find that poor local school conditions correspond to a small increase in turnout, but also to a small decrease in the probability of supporting an educational reform.

The results have the immediate caveat that they are based upon an analysis of one state and for some of the results, particular elections. Necessary extensions would address the generalizability of these findings to other states and to broader periods.

The present findings suggest that voting on educational initiatives displays many of the features (good and bad) that can be seen in voting in general. One aspect where we may have expected a "better" response is in terms of the use of local information, since many voters may have some first-hand experience of the educational difficulties of their districts. However, this was not the case. Some of the evidence presented then may qualify the use of educational initiatives; however, the fact that overall there were no systematic differences

between educational initiatives and other initiatives where the benefits and costs are more spread out throughout the population is encouraging.

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Probit Model for Passage of Ballot Measures in California's 1970-2000 Elections, by Bond and Education

	General Elections				Primary Elections			
Passage	Coefficient	SE	P-value	dProbability	Coefficent	SE	P-value	dProbability
Measure Types								
Education Non-bond	-1.49	0.16	0.03	-0.52	-0.47	0.24	0.44	-0.18
Non Education Bond	-0.98	0.22	0.13	-0.38	0.22	0.17	0.69	0.07
Non Education Non-bond	-1.01	0.17	0.10	-0.34	-0.23	0.15	0.62	-0.08
Electoral and Economic								
Legislature	0.87	0.08	0.00	0.33	0.72	0.09	0.00	0.27
Presidential Election	0.54	0.07	0.01	0.20	0.00	0.08	0.99	0.00
Number Initiatives *	-0.08	0.01	0.01	-0.39	0.05	0.01	0.17	0.15
Number Education Init.*	0.41	0.05	0.00	0.48	-0.25	0.08	0.31	-0.18
Unemployment *	-0.09	0.04	0.35	-0.10	-0.10	0.03	0.29	-1.20
Constant	2.01	1.14	0.08		0.33	1.12	0.77	
	N=244	LR chi(20)=55.36		Pseudo-Rsq=0.168	N=186	LR chi(18)=33.48		Pseudo-Rsq=0.14

Model includes indicator variables for each four year period excluding 1994-2000. dProbability is the change in probability when changing each variable by one unit
and holding all other at their means.
* Non-indicator variables are changed from one standard deviation below the mean to one above.

Table 1.Turnout of Eligible Voters and Passage Rates for Ballot Measures in California, 1970-2000

Type	1970-2000			Pre- 1984			Post 1984		
	N	Mean Turnout	Passage	N	Mean Turnout	Passage	N	Mean Turnout	Passage
Education Measures	54	39.50	62.96	29	43.92	58.62	25	34.37	68.00
All Other Measures	376	39.37	62.23	182	42.78	65.38	194	36.17	59.27
Education Bonds	23	40.18	82.60	9	46.46	66.66	14	36.14	92.85
Education Non-Bonds	31	39.00	48.38	20	42.78	55.00	11	32.12	36.36
All Other Bonds	65	39.59	72.30	28	44.08	85.71	37	36.20	62.16
All Other Non-Bonds	311	39.32	60.12	154	42.55	61.68	157	36.16	58.59

Source: California's Secretary of State, Statement of Vote, 1970-2000.
Note: Ballot measures include initiatives proposed by citizens or state legislatures. Measures need strict majority votes to pass (50+%).

Table 2. Turnout from Eligible Voters and Passage Rates of Ballot Measures in Education, California 1970-2000

Type	1970-2000			Pre- 1984			Post 1984		
	N	Mean Turnout	Mean Passage	N	Mean Turnout	Mean Passage	N	Mean Turnout	Mean Passage
Education Finance	7	39.62	42.85	5	40.47	40.00	2	37.51	50.00
Education Bonds	23	40.18	82.60	9	46.46	66.66	14	36.14	92.85
Education Facilities	5	37.06	60.00	2	39.79	50.00	3	35.24	66.66
Education Techniques	3	30.35	33.33	0	-	-	3	30.35	33.33
Education Regulations	17	40.96	52.94	14	43.92	64.28	3	27.17	0.00

Source: California's Secretary of State, Statement of Vote, 1970-2000.
Note: Ballot measures include initiatives proposed by citizens or state legislatures. Measures need strict majority votes to pass (50+%).

Table 3. Group Logit Model for Voter Rolloff for Ballot Measures in California 1970-2000 Elections

	General Elections				Primary Elections			
Turnout	Coefficent	SE	P-value	dRolloff	Coefficent	SE	P-value	dRolloff
Measure Types								
Education Pre- 1984	0.19	0.08	0.02	0.02	0.35	0.11	0.00	0.03
Education Post-1984	0.35	0.12	0.00	0.03	0.43	0.11	0.00	0.04
Crime	0.26	0.10	0.01	0.03	0.27	0.08	0.00	0.03
Bond	0.22	0.06	0.00	0.02	0.10	0.07	0.16	0.01
Tax	0.15	0.06	0.02	0.02	0.20	0.07	0.00	0.02
Moral Issues	0.77	0.18	0.00	0.06	0.35	0.14	0.01	0.03
Health	0.29	0.07	0.00	0.03	0.36	0.09	0.00	0.03
Rights	0.35	0.12	0.00	0.03	0.55	0.31	0.07	0.05
Transport & Environment	0.25	0.07	0.00	0.02	0.39	0.07	0.00	0.04
Business	-0.07	0.09	0.46	-0.01	0.32	0.13	0.01	0.03
Electoral and Economic								
Legislature	-0.44	0.05	0.00	-0.04	-0.23	0.06	0.00	-0.02
Presidential Election	0.07	0.05	0.13	0.01	0.09	0.05	0.05	0.01
Number Initiatives *	0.01	0.01	0.18	0.01	0.01	0.01	0.35	0.01
Number Education Init.*	-0.05	0.03	0.06	-0.02	-0.04	0.05	0.45	0.00
Unemployment*	0.03	0.02	0.24	0.01	0.07	0.02	0.00	0.02
Constant	1.70	0.22	0.00		1.56	0.23	0.00	
	N=244	F(20,223)=13.95		R-sq=0.55	N=186	F(20,166)=12.11		R-sq=0.59

Group Logit model estimated using weighted least squares (Green 1993, p. 653). Rollof is measured as the number of voters voting on initiative divided by the number of voters who turned out for the elction. The model includes indicator variables for each four year period excluding 1994-2000. "dTurnout" is the change in turnout when changing each variable by one unit and holding all other at their means.

* Non-indicator variables are changed from one standard deviation below the mean to one above.

Table 4. Logit Model for Passage of Ballot Measures in California's 1970-2000 Elections

	General Elections				Primary Elections			
Passage	Coefficent	SE	P-value	dProbability	Coefficent	SE	P-value	dProbability
Measure Types								
Education Pre- 1984	-0.717	0.62	0.25	-0.17	-0.861	0.89	0.34	-0.04
Education Post-1984	0.115	0.99	0.91	0.01	0.285	0.79	0.72	0.01
Crime	0.196	0.77	0.80	0.04	1.914	0.87	0.03	0.08
Bond	0.363	0.48	0.45	0.07	1.031	0.58	0.08	0.05
Tax	-0.701	0.52	0.18	-0.17	0.753	0.55	0.17	0.03
Moral Issues	-0.170	0.97	0.86	-0.06	*	*	*	
Health	-0.592	0.55	0.28	-0.14	-0.021	0.71	0.98	0.00
Rights	2.111	1.20	0.08	0.29	*	*	*	
Transport & Environment	-0.479	0.53	0.37	-0.11	-0.077	0.59	0.90	0.05
Business	-0.742	0.70	0.29	-0.18	-1.797	1.21	0.14	0.00
Electoral and Economic								
Legislature	1.578	0.40	0.00	0.37	1.064	0.46	0.02	0.00
Presidential Election	1.022	0.36	0.00	0.23	0.033	0.40	0.93	-0.02
Number Initiatives *	-0.124	0.05	0.01	-0.33	0.053	0.07	0.44	-0.09
Number Education Init.*	0.714	0.21	0.00	0.45	-0.492	0.45	0.28	0.05
Unemployment *	-0.189	0.17	0.26	-0.09	-0.256	0.18	0.15	0.00
Constant	2.117	1.62	0.19		0.906	1.81	0.62	
	N=244	LR chi(20)=61.58		Pseudo-Rsq=0.187	N=179	LR chi(18)=47.17		Pseudo-Rsq=0.207

Model includes indicator variables for each four year period excluding 1994-2000. Moral issues and Rights not included in estimation since their failure perfectly predicts success. dProbability is the change in probability when changing each variable by one unit and holding all other at their means.

* Non-indicator variables are changed from one standard deviation below the mean to one above.

Table 5. County Level Models of Turnout and Passage for Initiatives in California 1998

	Turnout: Group Logit			Passage: Logit		
	Coefficent	SE	P-value	Coefficent	SE	P-value
Initiative Type						
Education Initiative	0.033	0.03	0.33	-0.170	0.14	0.21
Bond	-0.023	0.01	0.09	0.586	0.06	0.00
Electoral & County Characterisitcs						
Legislature	-0.052	0.01	0.00	0.459	0.03	0.00
General Election	0.499	0.01	0.00	-0.344	0.03	0.00
High Percent Pro-Davis	-0.025	0.01	0.01	0.043	0.04	0.27
High Percent 18-50 years	0.052	0.01	0.00	0.049	0.06	0.41
High Income	0.046	0.01	0.00	-0.044	0.05	0.38
High Percent White	0.327	0.02	0.00	-0.070	0.06	0.27
High Percent Hispanic	-0.124	0.01	0.00	0.088	0.05	0.06
High Percent Above 65 years	0.055	0.02	0.00	0.047	0.06	0.46
Unemployment Rate 98	0.015	0.00	0.00	-0.012	0.01	0.13
Mean Years Schooling 98	0.121	0.01	0.00	0.058	0.05	0.28
Interactions						
Education *High Percent Pro-Davis	0.008	0.02	0.70	-0.047	0.08	0.57
Education *High Percent 18-50 years	0.010	0.03	0.74	-0.059	0.12	0.62
Education *High Income	0.001	0.02	0.97	-0.069	0.08	0.37
Education *High Percent White	0.013	0.03	0.69	-0.009	0.13	0.95
Education *High Percent Hispanic	-0.001	0.02	0.96	-0.005	0.09	0.96
Constant	-2.703	0.19	0.00	-0.610	0.74	0.41
	N=1218	R2=0.86	F(17, 1200)=449.21	N=1218	R2=0.36	F(17, 1200)=39.23

Note: Observations are cross-level county by initiative: California has 58 counties and there were 21 initiatives in 1998.

Table 6. County Level Group Logit Models of Passage for Propositions 227, 223, 8 and 1A , California 1998

	Propostion 227 Bilingual Education		Propostion 8 Class Size Reduction		Propostion 223 School Adm. Budget		Propostion 1A School Bond	
Passage	Coefficent	P-value	Coefficent	P-value	Coefficent	P-value	Coefficent	P-value
High Percent Pro-Davis	-0.406	0.00	-0.036	0.29	-0.052	0.18	0.250	0.00
High Percent 18-50 years	-0.004	0.97	0.020	0.68	0.041	0.46	0.032	0.69
High Income	-0.112	0.21	-0.008	0.85	-0.077	0.10	-0.074	0.29
High Percent White	0.028	0.83	-0.174	0.01	-0.086	0.23	-0.069	0.52
High Percent Hispanic	0.196	0.01	0.032	0.39	0.039	0.35	-0.031	0.63
High Percent Above 65 years	-0.245	0.03	0.036	0.51	-0.068	0.27	0.134	0.17
Unemployment Rate 98	-0.014	0.33	0.003	0.70	-0.026	0.00	0.001	0.94
Mean Years Schooling 98	-0.342	0.01	-0.094	0.14	-0.095	0.19	0.369	0.00
Percent Above 50th NPR	0.028	0.00	0.006	0.14	0.002	0.62	-0.018	0.01
Spending per Pupil	0.000	0.75	0.000	0.21	0.000	0.22	0.000	0.79
Constant	4.289	0.01	0.702	0.35	1.399	0.10	-3.932	0.00
	N=58		N=58		N=58		N=58	
	F(10, 47)=13.38		F(10,47)=5.41		F(10,47)=2.9		F(10,47)= 9.8	
	R-squared=0.74		R-squared=0.534		R-squared=0.38		R-squared=0.67	

Table 7. Mutlinomial Logit Model for Salience of Proposition 227 in Turnout by Respondents to LA Times Exit poll 1998

Proposition 227 Salient for Turnout Compared to Turnout for Governor	Coefficient	SE	P-value	dProbability
White	0.12	0.30	0.68	0.01
Hispanic	0.49	0.33	0.14	0.05
Black	-0.83	0.45	0.07	-0.04
Asian	0.67	0.41	0.11	0.06
Conservative	-0.07	0.17	0.70	-0.02
Republican	0.20	0.17	0.23	0.00
Middlle Income	-0.22	0.17	0.19	-0.01
Low Income	0.06	0.18	0.74	0.01
Union Member	0.19	0.07	0.01	0.01
Teacher Union Member	0.95	0.28	0.00	0.08
Retired	-0.21	0.21	0.32	-0.02
Young	0.86	0.20	0.00	0.07
Married	0.14	0.20	0.49	0.02
Graduate School	-0.32	0.24	0.17	-0.03
College	0.25	0.19	0.19	0.01
Percent Above 50th NPR Read	-0.02	0.01	0.12	-0.01
Constant	-2.10	0.57	0.00	
	N=3260	LR chi2(19)=104.21		Pseudo-R2=0.025

Note: The category of comparison (from 8) is the choice of governor as a reason to tunrout in 1998 election.
dProbability is the change in the probability Proposition 227 is mentioned as a reason for turnout compared to governor's race when changing each variable by one unit and holding all others at their mean.
The continuous variable, Percent Above 50th NPR Read, is changed from one standard deviation below the mean to one above.

Table 8. Logit for Support of Proposition 227 by Respondents of LA Times Exit Poll 1998

Support P227	Coefficient	SE	P-value	dProbability
Background Factors				
White	0.09	0.15	0.54	0.02
Hispanic	-1.06	0.20	0.00	-0.25
Black	-0.15	0.20	0.46	-0.03
Asian	-0.22	0.24	0.35	-0.06
Conservative	0.79	0.09	0.00	0.19
Republican	0.71	0.09	0.00	0.17
Middle Income	0.07	0.09	0.42	0.02
Low Income	-0.36	0.11	0.00	-0.09
Union Member	0.06	0.04	0.07	0.02
Teacher Union Member	-0.59	0.16	0.00	-0.15
Retired	0.10	0.11	0.35	0.02
Young	-0.06	0.13	0.66	-0.01
Married	0.09	0.11	0.40	0.02
Graduate School	-0.09	0.12	0.46	-0.02
College	0.15	0.11	0.17	0.04
Percent Above 50th NPR Read	0.01	0.01	0.38	0.02
Constant	-0.80	0.30	0.01	
	N=3260	LR ch2(25)=478.04		Pseudo-R2=0.11

Note: dProbability is the change in the probability an educational measure is mentioned as a reason for turnout when changing each variable by one unit and holding all others at their mean.
The continuous variable, Percent Above 50th NPR Read, is changed from one standard deviation below the mean to one above.

Chapter 4 Compliance with an Educational Initiative: What Matters?

Summary

Proposition 227, passed by California voters in 1998, aimed to dismantle bilingual programs for English learners in the state's public schools. In this chapter, I analyze the impact of various political, institutional and demographic factors on the compliance of California school districts with Proposition 227. From a political perspective, I find that local voter support for the measure had no significant impact on compliance while school officials' preferences had a small impact on compliance. From an institutional point of view, size, location and bureaucratic ease to implement the new regulations had a strong impact on compliance. Finally, from a demographic perspective, race and socioeconomic factors did not have a strong effect, after controlling for the percentage of bilingual students in the district. The analysis provides evidence that institutional factors, possibly linked to school districts' bureaucracies, were the strongest predictors of compliance with Proposition 227.

4.1 Introduction

For several decades now scholars have been studying educational reforms promoted to improve American schools by different levels of government: they studied how these reforms got implemented and why, ultimately, they often failed (Chrispeels 1997; Datnow 2000; Henig, Hula, Orr and Predescleaux 1999; Hess 1999; NCEE 1983; Ravitch 2000). These empirical studies stressed different explanations about what made government and agency-developed school reforms work, ranging from school politics, to demographics, and to bureaucratic incentives. However, in the last years, government-driven reforms have frequently been outdone by citizen-driven reforms carried out through the initiative process. Educational initiatives, which are voted by citizens, are subject to many of the obstacles government reforms face.

They are also subject to some new constraints such as intense publicity, politization and voter awareness. Focusing on an educational initiative in California, in this chapter I study systematically how the different empirical factors found to influence the implementation of government-driven educational reforms impact citizen-driven educational initiatives. Moreover, I address the new factor, local voter support, that comes into play.

The educational initiative I study is Proposition 227 which aimed to dismantle bilingual programs for English learners in the state's public schools and replace them with English-based programs.[1] Proposition 227 is an ideal case to study the implementation of educational initiatives since it had a clear goal, it had to be implemented in many and different school districts, and its impact is now measurable. Furthermore, Proposition 227 was a highly politicized initiative with ample voter support (61 percent). In spite of its vast support, this new standard was implemented differently throughout the state, with some districts fully dismantling bilingual programs while other districts kept all bilingual programs. However, the overall percentage of limited-English-proficient (LEP) students enrolled in bilingual programs in California declined from 29 percent in 1998 to 11 percent in 1999 (Rossell 2000). This is a quite dramatic decline for a long-standing program with considerable support from agencies in the California Department of Education.

Previous research on educational reforms has extensively addressed why reforms fail. Although these analyses are primarily concerned with explaining failing school performance, they have implications for the implementation of school reforms. Three distinct explanations emerge from the literature that focuses on externally developed school reform: school and community micropolitics (Brouillette 1996; Henig, Hula, Orr and Predescleaux 1999; Tyack and Cuban 1995), demographics and economics (Anyon 1997), and school districts' organization and incentives (Chubb and Moe 1990; Hess 1999). In this chapter I test simultaneously how these different factors explain the implementation level of an educational initiative while also testing how a new factor, local voters support for the reform, can impact compliance.

Comparing the percentage of LEP students enrolled in bilingual classes in California's *school districts*, before and after the reform, I find that, from a political perspective, local

[1] A bilingual program is one in which a student with limited English skills is taught in his or her first language for several years, and then is gradually transitioned into regular, all-English classrooms.

voter support for the initiative did not have a significant impact on compliance. School officials' preferences for the reform, as elicited from the school district's efforts to enact the new regulations, and the level of Hispanic and bilingual educators, had a small impact on compliance. Similarly, demographics had a small impact on compliance. What did seem to matter consistently were variables related to the organization of school districts. Their size, location, and their bureaucracies' ease to implement the new regulation, all had a strong impact on compliance. Larger, more urban districts were less likely to comply. Similarly districts whose bureaucracies had difficulty implementing the new regulations were less likely to comply. All in all, school districts seemed to respond according to their own institutional incentives and organization (bureaucracy and school preferences) rather than to demographics or external politics (voters, public visibility).

In the following section I develop hypotheses from the literature on school reform and compliance. Then I introduce the data and measures used in the analysis, including district-level data from the California Department of Education and Secretary of State. Finally, I test the effects of political, demographic and institutional variables on compliance, with implications of the results presented in the concluding section.

4.2 Compliance and Proposition 227

Education Reform Literature

What factors help explain the level of compliance to external reforms in school districts? Most analyses of school reforms are framed quite generally, and specific models are often left unspecified (Hess 1999). However, the research can be broadly summarized as belonging to three types of explanations: political, demographic and institutional. The line of research that emphasizes micropolitics in the schools is concerned with conflict among different interest groups in and around schools (Datnow 2000). According to this literature, any reform will be mediated by the interactions and interests of administrators, teachers and community activists (Brouillette 1996; Henig, Hula, Orr and Predescleaux 1999; Meier and Stewart 1991). The second line of research focuses on explanations of race and economics, or the demography of poverty, in urban school districts (Anyon 1997). The demographic

characteristics of the school district will shape the path of a reform since efforts, resources or preferences may not be in line with those required by the new standard. Moreover, racial tensions may further shape or constraint policies according to which racial group has representative power in the district (Meier and Stewart 1991). Finally, the last interpretation stresses institutional and organizational aspects of school districts that can influence (and hinder) school reform. Chubb and Moe (1990) argue that the large bureaucracies in public schools hinder autonomy and promote rigidity. Hess (1999) argues that, as organized, school districts promote a "policy churn" in which reforms are constantly proposed and hardly ever enacted, in an attempt to legitimize administrator, and agency performance.

Understanding how citizen educational initiatives get implemented is an area that has not been studied systematically but can obviously profit from insights from the literature on government-initiated school reforms. In the case of educational initiatives, the new standard becomes a new law which the district must implement, as in any other government-driven reform. However, citizen-developed initiatives are often highly politicized, publicized endeavors that may mobilize parents, local community activists and even school officials. These extra factors, one may conjecture, make it more difficult for the implementor to shirk.

Proposition 227

Proposition 227 was passed by California voters in June 1998 and was implemented since the school year of 1998-1999. The initiative's main mandate requires that: "All children in California public schools shall be taught English by being taught in English. In particular, this shall require that all children be placed in English language classrooms. Children who are English learners shall be educated through sheltered English immersion during a temporary transition period not normally to exceed one year" (California Education Code, Article 2, Section 305). The exception made to Proposition 227 is that parents can request waivers for children who: a) know already English, b) are ten or older, c) have special needs determined by school staff, and d) have been placed in an English classroom for at least 30 days. Waivers can be initiated both by parents or the school district (with the consent of the parents). The final approval of waivers falls under the jurisdiction of the district's superintendent (California Education Code, Article 3, Section 311). The burden of proof if a waiver is denied falls on the district and not on the parents. Finally, Proposition 227 also allows for

parents to sue educators (including elected officials) who "willfully and repeatedly" do not comply with the law.

In short, Proposition 227's objective was to dismantle bilingual programs, however, some discretion was allowed: if 20 or more students at a given grade level receive waivers the school district must offer them a bilingual class or allow them to transfer. Given this discretion, we might conjecture that the level of bilingual program dismantlement varied by school district, depending both on the characteristics of the student body (i.e. the demand from parents for waivers) and the district officials preferences (i.e. the supply of granted waivers).

Two recent studies have looked at the case of California's implementation of Proposition 227 and are related to the present work. Rossell (2000) looks at state-level overall trends of enrollment in bilingual classes up to Proposition 227 and after, while also using data from interviews of 50 classrooms in several of California's large school districts. Rossell finds that although there are significant declines in bilingual enrollment in the schools observed, many former bilingual students are still being taught a portion of their instruction time (30 percent) in their native tongue. In terms of waivers, in the schools studied these were often prompted from the districts: "Visiting the school to sign a parental waiver is not an idea that typically originates with the parent (p.51)." Gandara et al. (2000), analyze 22 schools in 16 school districts conducting quantitative and interview analysis to address district compliance and impact on classroom instruction. They argue two important reasons for the level of compliance to Proposition 227: 1) the history of the bilingual program and the number of bilingual staff in the district, and 2) the leadership at the top of the district (superintendent) or principals.

Measures of Compliance and Hypotheses

The goal in this chapter is to test alternative explanations regarding compliance in educational reforms. How do we measure compliance with Proposition 227? The ideal measure would be to analyze the waivers requested and waivers denied. That is, ideally we would estimate a model that separately predicts demand and supply given various district specific factors. Unfortunately, this measure is not publicly available and neither was it collected by the California Department of Education. The measure I will use instead is the change in the number of bilingual students before and after the reform, relative to the LEP popula-

tion. This measure has an apparent drawback, since we cannot estimate demand for reform separately from willingness to supply reform. However, Proposition 227's regulations place the burden of proof on districts if they deny a waiver. Also, the recent studies suggest that the demand for waivers was often shaped by the districts' prescriptions (or lack of). Parents were, in many cases, willing to go along with the recommendations of teachers and school authorities.

Interpreting the literature on external school reforms and the recent studies on Proposition 227 that emphasize the role of the districts leads me to posit the following hypotheses with regards to district compliance with Proposition 227.

School Micropolitics. Political/educational preferences of the school leadership and teachers shape the level of compliance with a reform. Given evidence on how race mattered in voting on Proposition 227 (Alvarez 1999), I conjecture districts with higher representation of Hispanic officials were less inclined to implement Proposition 227. Given the fact that Proposition 227 aimed to dismantle bilingual education in general, I conjecture districts with higher percentages of bilingual teachers were less inclined to implement Proposition 227.

Demographics. School district composition shapes reform through the representation of different groups at the school official level, via parental involvement and community activism, and by the varied response of the student population. Given theories of power conflict among groups (Giles and Evans 1986; Meier and Stewart 1991), I conjecture districts with more Hispanic students were less inclined to comply with Proposition 227, while districts with more blacks students were more likely to comply with the initiative. Further, I conjecture districts with higher levels of welfare recipients were less likely to comply due to fewer resources from the districts and the parents.

Institutional. Larger districts tend to have larger bureaucracies which can constrain reforms. Districts located in urban areas are subject to more visibility from state-level press and state-level interest groups including supporters of the measure, teacher unions, regulators and researchers. Badly performing districts have stronger incentives to attempt new reforms. I conjecture then that large and urban districts were more likely to comply with Proposition 227. Similarly districts doing poorly were more likely to comply with the initiative.

Local Politics. Higher local voter support impacts school districts decisions through

community and parental activism and through local news. I hypothesize districts with higher percentages in favor of Proposition 227 were more likely to comply with the initiative.

4.3 Overview of California's Compliance

I begin the analysis with an overview of how the various factors addressed in the literature relate to the measure of district compliance: the change in the percentage of LEP students in bilingual classes in a district due to Proposition 227. The school district level of analysis reflects the fact that key decisions regarding Proposition 227, such as whether to inform parents throughout the district or the final approval of a waiver, were made at the top district level. In general, schools looked up to the superintendent for directions in implementing Proposition 227. Ultimately, an exhaustive analysis would lower the unit of analysis to the school level to account for school level variation, in particular, when the top level officials did not offer any clear prescriptions.

In this section I present summaries of mean levels of district compliance (that is, mean changes in the percent of LEPs in bilingual classes) from data publicly provided by the California Department of Education, given various political, demographic and institutional variables.[2] From the sample of 860 school districts in California with English learners, close to 360 districts had bilingual students in 1998. It is those districts that are included in the present analysis.[3] I begin by looking at the impact of political factors. Table 1 presents the changes in the percentage of LEPs in bilingual classes, for 1998-1999 and 1999-2000, given local voter support for Proposition 227, the percentage of Hispanic principals in a district, and the decision of the school district to notify parents about their option to request waivers.[4]

[2]A general summary of all variables, including standard deviations, is included in Appendix A.

[3]To be more precise, California has over 1,000 school districts, ranging in size from several hundred to several hundred thousand students. Close to 900 school districts have LEP students while over 400 had bilingual students in 1998. For roughly 860 school districts there is data available on all the variables of interest from the California Department of Education. Of the 860, close to 360 school districts had bilingual students in 1998 and they constitute the basis of the present analysis.

[4]The compliance measure I am using is the 98-99 change in a district of the percent of LEPs in bilingual classes. An alternative measure is the ratio of bilingual students in 1999 to those in 1998. I chose the first measure since it better relates to what many policy makers seem to be targeting which is not the eradication of bilingual programs but the minimization of them to just those who really needed it among the LEP population.

[Table 1 about here].

From the tabular analysis we observe that only the percent of Hispanic principals has any correspondence with compliance. Districts with higher percentage of Hispanic principals, in particular, above 50 percent, had smaller changes in the percentages of bilingual students (close to 12%) than districts with less than 50% of Hispanic principals, or no principals (26%). Recall that for the whole state of California the percentage of LEPs in bilingual classes was reduced by over 18%. District voter support does not seem to correlate strongly with compliance. Districts supporting Proposition 227 had mean compliance changes (18%) that were no different at the 95% level from those that did not support the initiative (17.5%) in a t-test of equality of means. District efforts to comply with the regulation by informing parents about waivers also had no impact on compliance (mean changes were not statistically different at the 95% level).

Next I look at the effect of demographic variables. As seen in Table 2 demographic variables do not seem to have a particularly strong impact on compliance. Going from districts with percent Hispanic students above 50% to those below 50% corresponds to mean changes in the percent of LEP bilinguals from 22% to 17%. This difference is statistically significant at the 95% level in a difference of means test, but it is small in magnitude. The impact of enrollment in CalWORKs, California's welfare program, is negligible.

[Tables 2 about here].

Finally, I look at the effects of district size and mean 1998 reading scores (see Table 3). From this analysis we see a distinct pattern in which larger districts (50,000+) complied less (11% change) while smaller districts (< 500) had higher compliance (36%). These differences are large and statistically significant in differences of means tests. With regards to student performance, districts with lower mean reading scores had a positive and statistically significant impact on compliance, but not as strong as that of district size.

[Table 3 about here].

Interestingly all the reductions seemed to take place in the first year after the reform while changes for 1999-2000 are quite minimal, averaging around 1.4%. This is consistent with an interpretation in which districts did not aim to completely dismantle bilingual programs, but simply incurred the least changes possible.

The preliminary analysis suggests that institutional factors, such as size, and political factors, such as principal's ethnicity, had a strong impact on compliance. Racial demographics and student performance seemed to have a smaller effect. But many of these factors are interrelated and a multivariate analysis, which I introduce next, is needed.

4.4 Why Comply?

To test simultaneously the different explanations on compliance I do a multivariate OLS analysis in which the dependent variable is the 1999-1998 difference in the percent of LEP students in bilingual classes. I estimate two OLS models where the second model has two more independent variables than the first one. In general, the independent variables can be grouped into four categories: institutional, demographic and political. The institutional variables are related to district performance and visibility and include: *Mean National Percentile Ranking in Reading 1998, Elementary School District, Large District (50,000+), Large-Mid Size District (10,000-50,000), Mid Size District (10,000-2,000), Small-Mid Size District (500-2,000), City District (0-500), Mid-City District, Fringe City District, Large Town District,* and *Small Town District.* The demographic variables include percent LEP students in bilingual classes in 1998 plus *High Percent Hispanic Students (85%), High Percent Black Students (15%)* and *High Percent Calworks (25%).* The political variables or those related to groups' preferences: *Percent Yes Proposition 227, Hispanic Superintendent, Percent Principal Hispanic,* and *Percent Bilingual Teacher.* The omitted variables are Rural Districts and Small Districts (< 500).

Model B includes the same independent variables as in Model A plus the variables *Notification to Parents of Waivers* and *Difficult to Notify Parents.* The first variables is an indicator variable that codes 1 if the district had a notification process. The second variable, also an indicator, codes 1 if the district reports it had difficulties implementing the waiver process. The variables were obtained from a survey conducted by the California Department of Education of school districts in an attempt to understand district difficulties after Proposition 227. Only 67% percent of districts replied to this survey and the number of districts in the analysis drops from 359 to 243.

[Table 4 about here].

Focusing first on Model A, the fit of the model, 0.17, implying that the percent of LEP students in bilingual classes in 1999 were not simply determined by the percentages in 1998, and other factors played a role.

Looking first at the institutional variables, we see that districts with lower mean reading scores, experienced comparable reductions to those with better mean reading scores, all else equal. A 10 point decrease in reading scores corresponded to a 0.5% reduction in the percentage of bilingual LEPs, a very small amount, not significant at the 90% level. This implies districts experiencing more academic difficulties were not necessarily more likely to comply. Elementary school districts had larger reductions (by 7.4% and significant at the 95% level), as would be expected, given the disproportionate number of bilingual students in earlier grades. However, the strongest institutional effects are coming from the size and location variables. The differences in the compliance of large-medium districts over small districts (the omitted category), with larger districts complying less, are over 10 percentage points. Interestingly the very large districts (9 districts with over 50,000 students) complied comparably to small districts (175 districts with less than 500). That is, size of a school district displays some non-linearities with the very large, and very small districts complying more, and comparably, while medium ranged districts (500-50,000) complied less. Districts located in large cities were much less likely to comply than those in suburban areas. These results are consistent with an interpretation in which large, urban districts, with their large bureaucracies experienced more inertia to change than small districts. The extremely large districts, despite their large bureaucracies, faced more visibility than medium sized districts and had higher levels of compliance.

The political variables had modest effects on compliance. Voters support had no statistically significant impact (at the 90% level) on compliance. Hispanic representation in the title of principal had a modest effect: a 10% increase in Hispanic principals corresponds to a 1% increase in the percentage of bilingual students after the reform. Similarly, the effect for bilingual staff is small. Interestingly, the race of superintendents or school board (not included in Table 4) did not seem to have a significant role in predicting compliance.

With regards to the demographic variables, indicating high levels of Hispanics, Blacks or

welfare recipients, are not statistically significant at the 95% level. If the model is estimated with the dependent variable being the percent of LEPs in bilingual classes in 1999 (i.e. not the changes in enrollment but the enrollment in 1999) with the lagged 1998 percentage as an independent variable, then the latter is significant. That is, districts with higher levels of bilingual LEPs, all else equal, had higher reductions in enrollment in bilingual classes.

Model B adds two more independent variables: Notification to Parents of Waivers and Difficult to Notify. I find that having notified parents of the waiver process does not have an impact while difficulty to implement the notification has a very strong impact on compliance. Deciding to notify may be viewed as a direct reflection of the top school official's preferences on Proposition 227, and this variable did not seem to matter. Difficulty to implement the notification by the bureaucracy (the survey was sent to the bilingual offices in each district) may be the result of mixed messages from the top officials and bureaucratic inertia. Furthermore, a probit model predicting notification to parents by a district (see Appendix B) including all the independent variables from Model A has only three variables statistically significant at the 95% level and they are all variables related to the size of a district.[5]

All in all, these results suggest that institutional factors (size, location, bureaucratic ease) were key in explaining compliance to Proposition 227. School leadership by principals also played a role, but a less important one, while demographic and local voter support had a very small impact. Figure 1 below summarizes the effects of selected variables.

(Figure 1 about here).

4.5 Conclusions

The present analysis tests systematically the impact of various factors found to matter in the literature on compliance. In the case of implementing an educational initiative, I find that voter support and demographic variables play a small role while institutional factors and school authorities preferences have a strong impact on district compliance. In particular

[5]The coefficients on the size and location variables are quite different than those estimated in Model A. Those for size are in particular larger, by close to 10 percentile points. This may be partly explained by the fact that the set of districts that responded to the survey by the CDE includes larger districts, with more Hispanics. If Model A is re-estimated on those selected districts then similar effects are obtained.

organizational factors such as size and location of a school district explain a considerable amount of the variation. The fact that small districts were more likely to comply can be consistent with smaller districts being subject to stricter leadership and less bureaucracy. Larger districts, complied less, suggesting larger bureaucracies may have experienced more inertia. The finding that very large districts were as likely as small districts to comply suggests visibility, now at the state-level, may have played a role. All in all, the results suggest that, among all explanations posited in the literature on education reform, school districts responded mostly to institutional factors.

An immediate caveat to these results is the level of analysis. District level analysis may be masking school level differences, in particular demographic or political differences. Future research should uncover whether school demographic variations have an impact. Furthermore, districts that seemingly are complying according to their reduced number of bilingual students may still be using Spanish in the classrooms. Rossell's (2000) study suggests there is some evidence that native language is still being used but it also suggests that when bilingual numbers go down in a district, *some* reduction in the use of LEP's primary language has occurred.

The issue of compliance becomes relevant when enforcement cannot be ensured or when the mandate itself already provides discretion. In the case of Proposition 227, this initiative already provided for a loophole by allowing parents to request waivers. The present study suggests that education reforms will be diluted if loopholes are allowed that provide school-level discretion. School districts will respond given their organizational and institutional incentives and their school authorities' preferences. Although, loopholes are often placed in initiatives precisely to capture voter support, as seen in chapter 1, ultimately these play a tenuous role at the time of implementation.

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T1. Changes in the Percent of LEP Students in Bilingual Classes by Political Factors in a School District

	1998-1999		1999-2000	
Percent Yes P227	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
Districts For P227	18.5	(336, 20.1)	1.3	(334. 7.7)
Districts Against P227	22.6	(62, 22.5)	1.4	(62, 5.8)
Percent Hispanic Principals in District	1998-1999		1999-2000	
	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
No Hispanic Principals	25.7	(118, 26.9)	1.5	(116, 9.9)
% Hispanic Principals < 50	19.6	(372, 20.9)	1.1	(370, 7.1)
% Hispanic Principals >50	11.7	(27, 14.6)	4.2	(27, 10.9)
Notification to Parents of Waivers	1998-1999		1999-2000	
	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
Notified	18.3	(250, 18.3)	1.6	(250, 8.1)
Did Not Notify	17.5	(43, 23.7)	1.4	(43, 6.3)

Source: California Department of Education website (www.cde.ca.gov), California's Secretary of State Supplement to Vote 1998, and California's Public School Directory.

Note: Mean % change measures the average change in the percent of LEP students enrolled in bilingual classes before and after Prop 227 among districts which had bilingual students before Prop 227. The average changes by notification correspsonds to those district which responded to CDE's survey on implementation.

T2. Changes in the Percent of LEP Students in Bilingual Classes by Demographic Factors in a School District

	1998-1999		1999-2000	
Percent Hispanic Students in a District	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
Percent Hispanic > = 50%	22.04	(166, 18.7)	1.38	(166, 6.37)
Percent Hispanic < 50%	17.03	(232, 17.0)	1.31	(230, 8.2)
Percent Students with Calworks in a District	1998-1999		1999-2000	
	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
Percent on Calworks > = 25%	18.8	(54, 21.6)	0.49	(53, 3.2)
Percent on Calworks < 25%	19.2	(344, 20.6)	1.5	(343, 7.9)

Source: California Department of Education website (www.cde.ca.gov) and California's Secretary of State Supplement to Vote 1998.

Note: Mean % change measures the average change in the percent of LEP students enrolled in bilingual classes before and after Prop 227 among districts which had bilingual students before Prop 227.

T3. Changes *in the Percent* of LEP Students in Bilingual Classes by Institutional Factors in a District

	1998-1999		1999-2000	
District Size	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
0-500	35.8	(27, 28.4)	2.1	(26, 9.9)
500-2000	25.5	(66, 27.5)	1.4	(65, 8.6)
2000-10,000	17.5	(187, 17.8)	1.5	(187, 7.9)
10,000-50,000	14.5	(109, 15.4)	0.9	(109, 5.1)
>50,000	11.3	(9, 16.9)	0.2	(9, 4.6)
District Mean 1998 Reading Scores	1998-1999		1999-2000	
	Mean % Change	N, St. Dev	Mean % Change	N, St. Dev
NPR Read >55	15.5	(76, 23.5)	1.3	(74, 7.0)
NPR Read 40-55	16.9	(104, 20.1)	2.2	(104, 9.2)
NPR 30-40	21	(93, 20.6)	0.6	(93, 5.9)
NPR <30	21.8	(125, 19.1)	1.1	(125, 7.1)

Source: California Department of Education website (www.cde.ca.gov) and California's Secretary of State Supplement to Vote 1998.

Note: Mean % change measures the average change in the percent of LEP students enrolled in bilingual classes before and after Prop 227 among districts which had bilingual students before Prop 227.

T.4. OLS Models Predicting the Percent of LEP Students in Bilingual Classes in 1999

	Model A			Model B		
Dependent Variables	Coefficient	SE	P-value	Coefficient	SE	P-value
Institutional						
Mean NPR Read 1998	0.13	0.08	0.09	0.07	0.09	0.43
Elementary School District	-3.28	1.91	0.09	-2.23	2.27	0.33
Large District	13.92	7.51	0.07	23.07	10.05	0.02
Large-Mid District	15.91	4.29	0.00	23.16	7.51	0.00
Mid District	16.95	4.04	0.00	23.49	7.13	0.00
Small -Mid District	10.78	3.97	0.01	14.58	7.20	0.04
City	-0.05	5.34	0.99	-5.48	7.31	0.45
Mid City	-6.55	4.06	0.11	-11.51	6.18	0.06
Fringe City	-9.61	3.85	0.01	-14.97	6.00	0.01
Fringe Mid City	-8.06	4.03	0.05	-12.39	6.00	0.04
Large Town	-12.88	8.40	0.13	-16.36	10.12	0.11
Small Town	-9.77	4.66	0.04	-11.81	6.83	0.09
Demographic						
Percent Bilingual Students 1998	0.38	0.04	0.00	0.33	0.06	0.00
High Percent Hispanic (+85%)	-1.78	3.15	0.57	1.98	3.87	0.61
High Percent Black (+15%)	0.27	3.01	0.93	0.54	3.44	0.88
High Percent CalWorks (+25%)	-0.51	2.54	0.84	-4.30	2.92	0.14
Political						
Percent Yes P227	-0.02	0.08	0.80	-0.04	0.09	0.69
Hispanic Superintendent	0.18	2.32	0.94	0.15	2.55	0.95
Percent Principal Hispanic	0.12	0.04	0.01	0.09	0.06	0.15
Percent Bilingual Teacher	0.12	0.06	0.06	0.11	0.08	0.14
Political and Institutional						
Notified Parents of Waivers				1.13	2.91	0.70
Difficult to Notify Parents				7.79	2.12	0.00
Constant	-13.77	7.69	0.07	-13.55	10.20	0.19
	N=359	R-sq=0.35		N=243	R-sq=0.39	

Source: California Department of Education website (www.cde.ca.gov), California's Secretary of State and Calofornia's Public Schools Directory.

Note: Small District and Rural District are ommitted variables. Model A includes districts that had bilingual students in 1998. Model B includes districts with bilingual students in 1998 and responded to CDE's survey on Prop 227.

4.6 Appendix A

Appendix A. Mean of Selected School Level Variables, California 1999

Variable	Observation	Mean	Std. Dev.	Min	Max
Percent Bilingual Students 1998	865	14.28	21.51	0	100
Percent Bilingual Students 1999	865	5.70	13.11	0	100
Percent Bilingual Students 2000	850	5.13	12.39	0	100
Enrollment 1998	930	4322.15	18764.59	5	530030
Percent LEP Students	898	16.93	16.67	0.48	87.98
Percent Hispanic Students	1059	30.90	26.03	0	99.54
Percent White Students	1059	55.44	27.85	0	100
Percent Black Students	1059	4.05	7.04	0	71.54
Urban School District	1315	0.40	0.49	0	1
City School District	1315	0.04	0.19	0	1
Mid City School District	1315	0.12	0.32	0	1
Fringe City School District	1315	0.29	0.45	0	1
Fringe Mid City School District	1315	0.14	0.35	0	1
Town School District	1315	0.02	0.13	0	1
Small Town School District	1315	0.07	0.26	0	1
Rural School District	1315	0.14	0.34	0	1
Small School District	1315	0.26	0.44	0	1
Small Mid School District	1315	0.19	0.39	0	1
Mid School District	1315	0.25	0.43	0	1
Large Mid School District	1315	0.11	0.31	0	1
Large District	1315	0.20	0.40	0	1
Notify Parents Waivers	561	0.68	0.47	0	1
Percent Yes Proposition 227	864	62.35	10.46	12.47	84.25
Hispanic Superintendant	849	0.08	0.27	0	1
Percent Principal Hispanic	398	20.40	22.20	0	100
Mean NPR Read 1998	802	43.55	16.75	6	88

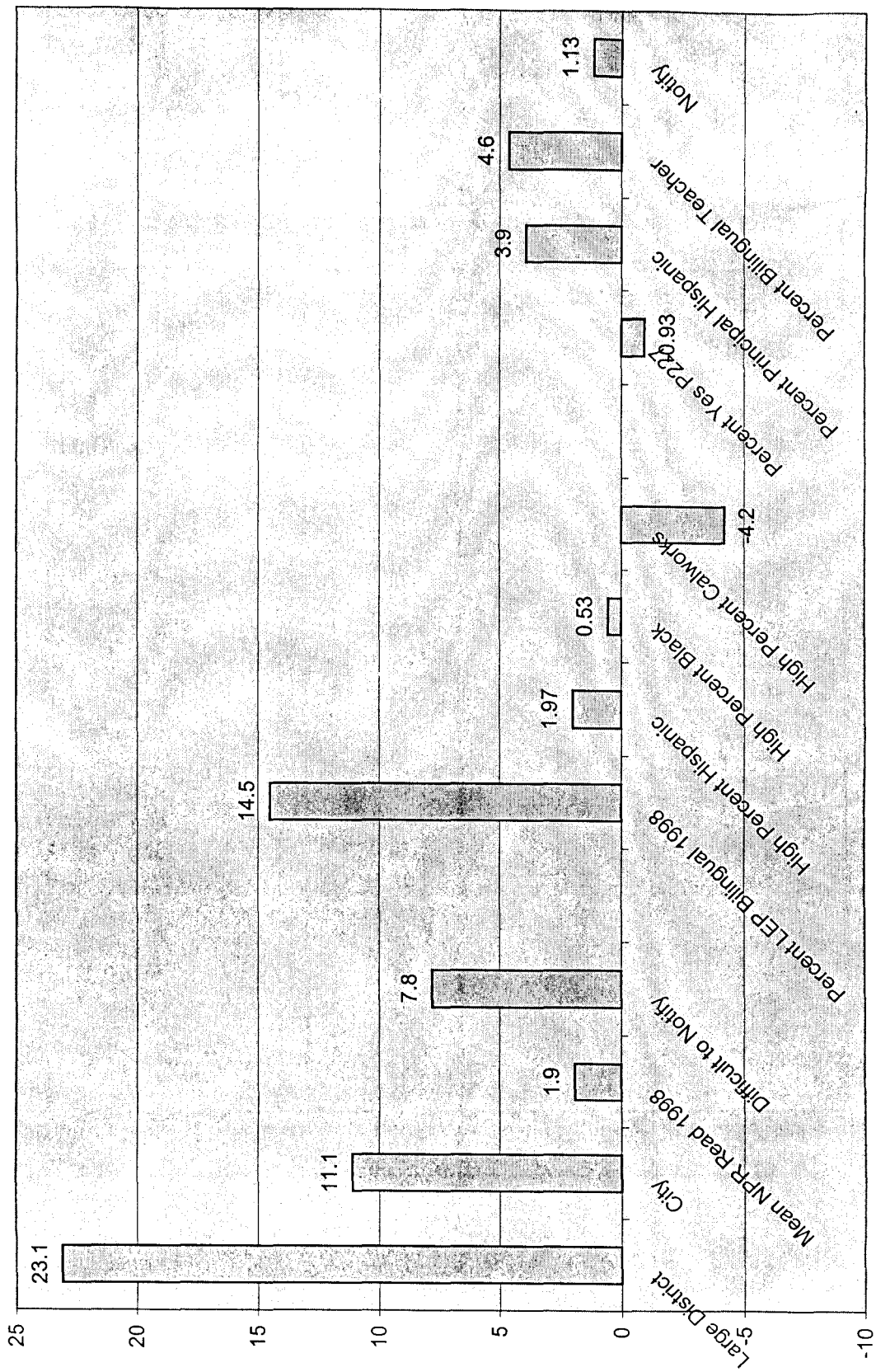
4.7 Appendix B

Appendix B. Probit Model Predicting Notification to Parents of Waivers in 1998

Dependent Variables	Coefficient	SE	P-value
Mean NPR Read 1998	0.00	0.01	0.84
Elementary School District	-0.03	0.26	0.90
Large District			
Large-Mid District	1.64	0.70	0.02
Mid District	1.23	0.65	0.06
Small -Mid District	2.10	0.72	0.00
City	0.17	0.92	0.85
Mid City	-0.27	0.76	0.72
Fringe City	-0.63	0.73	0.39
Fringe Mid City	-0.35	0.73	0.63
Large Town			
Small Town	-0.80	0.80	0.32
Percent Bilingual Students 1998	0.00	0.01	0.41
High Percent Hispanic (+85%)	-0.42	0.43	0.32
High Percent Black (+15%)	0.01	0.46	0.98
High Percent CalWorks (+25%)	-0.13	0.35	0.71
Percent Yes P227	-0.02	0.01	0.11
Hispanic Superintendent	0.36	0.35	0.31
Percent Principal Hispanic	0.00	0.01	0.85
Percent Bilingual Teacher	0.00	0.01	0.97
Constant	1.07	1.02	0.30
	N=261	LR(chi)=22.78	

Source: California Department of Education website (www.cde.ca.gov), California's Secretary of State and California's Public Schools Directory.

Effect of Selected Variables on the Percent of LEP Students in Bilingual Classes in 1999



Chapter 5 "Sink or Swim:" What Happened to California's Bilingual Students after Proposition 227?

Summary

Proposition 227, passed by California voters in 1998, aimed to dismantle bilingual programs in public schools and to replace them with English-only programs. Bilingual education, a long-standing program in California, involved mostly Hispanic students of limited English skills who were taught at first in their native language, and then were gradually transitioned into English-only classes. Using individual-level data from a southern California school district, I find that in 1998, before Proposition 227, limited-English-proficient (LEP) students enrolled in bilingual classes had lower scores in reading than LEP students who were not enrolled in bilingual classes, and who were, in general, more proficient in English. In math, bilingual students had test scores as good as non-bilingual LEPs'. But in 1999, after Proposition 227, the same set of students had scores in reading and math that were no worse than those of non-bilingual LEPs. Proposition 227, which interrupted bilingual programs and emphasized English instruction, did not set bilingual LEP students back relative to non-bilingual LEPs and may have even benefited them.

5.1 Introduction

Proposition 227 passed in California's June 1998 primary election with 61 percent of voters supporting the measure. The main goal of this initiative was to dismantle bilingual programs in public schools and replace them with programs emphasizing early English acquisition. Bilingual education had been a long-standing program in California in which limited-English-proficient (LEP) students were taught to read and write in their native language, and gradually transitioned to regular English instruction over a period of years. After Proposition 227, a child could be kept in a bilingual education program only if his or her parents requested a waiver and if school authorities approved that waiver. While this new

standard was implemented differently throughout the state, the overall percentage of LEP students enrolled in bilingual programs declined from 29 percent in 1998 to 11 percent in 1999 (Rossell 2000). This shift of educational regimes, from one encouraging instruction in a student's primary language to one emphasizing early English instruction, affected mostly Hispanic students of limited English skills. Given the growth of immigration in the United States, it is important to understand the impact of such reforms.

In this chapter, I examine the academic performance of LEP students who were enrolled in bilingual programs (bilingual LEPs) in 1998, but not in 1999, and thus whose academic instruction was affected directly by Proposition 227. Did these former bilingual students' academic performance benefit or suffer from the reform? Individual-level data from one southern California school district show that the academic performance of former bilingual LEPs was not hurt by Proposition 227 relative to non-bilingual LEPs, that is, LEPs not enrolled in bilingual classes in 1998, and generally more proficient in English. My analysis shows that, before the reform, and controlling for background characteristics, bilingual LEPs had standardized scores 2.4 points less in reading and 0.5 more in math (on a scale from 1 to 99) than non-bilingual LEP students. After Proposition 227, when former bilingual students were placed in English-only classrooms with special support, their scores were never worse than those of non-bilingual LEPs in reading and were still 0.5 higher in math. In summary, former bilingual LEPs caught up with non-bilingual LEPs.

Methodologically, I use a multivariate specification with a selection process to take into consideration the fact that students with weak English skills, such as bilingual LEPs, are often exempted from taking tests in English. This common, yet often ignored, problem in educational program assessments can provide inconsistent and biased estimates.[1] Furthermore, to check the generalizability of the individual-level, single-district results, I examine county-level data. The aggregate analysis provides further evidence that Proposition 227 is not hurting LEP students' academic performance.

These findings have important implications. From a policy perspective, they provide evidence consistent with a conclusion that bilingual education is not a superior program

[1]See Bohte and Meier (2000) for an account of schools' incentives to exempt students from testing and Rossell (1999) for problems regarding program comparisons when there is test exemption.

of instruction for LEPs. The efficacy of bilingual instruction has been, surprisingly, a long-standing controversy for researchers and practitioners (Greene 1998; Rossell and Baker 1996). However, the present analysis is a short-term analysis, and long-term, multi-district assessments (including districts that kept bilingual classes) are needed. More broadly, the positive effects of the reform suggest that dismantling or shortening bilingual programs may introduce more equality in educational outcomes. The impact of the reform after one year is small, but positive, helping reduce the test-score gap between LEPs and non-LEPs and also, perhaps more importantly, between Hispanics and whites. Reducing the especially large Hispanic-white test gap is of concern given the linkages between English proficiency, educational attainment and labor market success (Kossoudji 1988; Lopez and Mora 1998).

From a political perspective, my results are unexpected given recent interpretations of state policies and race. According to theories of ethnic group and racial competition, states with large minority and large white non-ethnic populations, such as California, are more likely to adopt policies that are detrimental to minorities' interests (Giles and Evans 1986; Hero and Tolbert 1996).[2] While many viewed Proposition 227 as targeting Hispanics negatively, my findings suggest that Proposition 227 has not been detrimental to them so far. Regarding education policy specifically, Meier and Stewart (1992) stress its political aspects and contend that increases in Hispanic representation and political clout will produce education policy that will benefit Hispanics. Proposition 227 seems to have benefited Hispanics despite the fact that it was promoted by a non-Hispanic, conservative citizen group.

Policymakers, educators, and politicians in many states are watching California's experience with Proposition 227 closely. Positive educational outcomes from an innovation can encourage policy entrepreneurs to disseminate it across the states (Mintrom and Vergari 1998; Walker 1981). In fact, Arizona's voters passed a measure identical to Proposition 227 in November 2000, greatly aided by policy advocates from California.

[2]Consider the examples in California of Proposition 187 that denied social services to illegal immigrants and Proposition 209 that ended affirmative action programs.

5.2 The Passage of Proposition 227

Proposition 227, sponsored by English for the Children, a conservative citizen organization, passed in every California county except San Francisco and Alameda. The level of voter approval surprised observers, given that many teacher unions and Hispanic organizations had mobilized strongly against Proposition 227 (Cornelius and Martinez 1999). However, voter approval does not imply an informed consensus on the merits of bilingual instruction. In an exit poll analysis of voters, Alvarez (1999) shows that racial and ideological identifications were the driving factors for the passage of Proposition 227, independent of opinions on the efficacy of bilingual instruction.

Bilingual education is a racially and ideologically charged issue for voters, and it is also controversial for researchers.[3] Scholars are not in consensus on the effects of bilingual programs. This lack of consensus stems from ideological biases, problematic methodology, and simple intellectual disagreement. Reviewing 72 methodologically acceptable studies from a pool of 300 studies (including unpublished studies), Rossell and Baker (1996) find no evidence that bilingual education is better for LEP students than English-as-a-second-Language (ESL) programs or structured-English-immersion programs (SEI). Only in a minority of studies was bilingual instruction found to be better than regular all-English classroom instruction.

On the other hand, some researchers have concluded that bilingual programs can be at least as effective as English-only ones, and sometimes even more effective (Collier 1992; Collier and Thomas 1989; Garcia 1991; Greene 1998; Krashen 1996, 1999; Ramirez 1992; Willig 1985). For example, Ramirez and his associates (1992), who tracked students over four years in various programs of instruction for LEP students, found that bilingual programs of short duration were better than immersion programs, but only in the early years. Importantly though, the Ramirez study did not account for the fact that proportionally fewer bilingual students were tested (29 percent) than those tested in other programs (42 percent). Since only the better performing bilingual students get tested for the bilingual programs in this study, his results could be biased toward showing better educational effects

[3]For a history of bilingual education, see Crawford 1995. For program description, see Faltis and Hudelson 1998.

for these programs (Rossell 1999).

Before Proposition 227, there was no broad agreement among voters, teachers or academics about the potential effects of the initiative. After the public release of 1999 aggregate school-level data that showed small increases in test scores, the reactions were mixed. Those who advocated bilingual instruction cautioned against ignoring across-the-board increases when looking at LEPs' improvements (Hakuta 1999). Others compared school districts that complied with Proposition 227's mandate thoroughly and those that maintained bilingual programs and concluded that the initiative had worked in improving scores (Clark 1999) but had a minimal impact on the redesignation rates of LEPs (Lopez 2000). The following sections of this article focus on using individual-level data to control for background characteristics and the test-exemption bias to help determine the real impact of Proposition 227.

5.3 Dismantling Bilingual Programs and Student Performance

The main question is what impact Proposition 227 had on the academic performances of former bilingual LEPs compared to non-bilingual LEPs. To answer this question, I examine test scores before and after the reform. Before the reform, students enrolled in bilingual classes in 1998 should have lower test scores than non-bilingual LEPs since bilingual students had less exposure to English and all tests were conducted in English. If full fluency takes more than five years, as some studies suggest (Collier and Thomas 1989; National Research Council 1998), and tests in English do not accurately reflect English learner's knowledge, then bilingual LEPs' scores should be lower than non-bilingual LEPs. Mean 1998 state-level reading and math test scores of bilingual LEPs compared to all LEPs provide evidence of bilingual students lagging non-bilingual LEPs prior to Proposition 227 (California Department of Education, 2001).

What effects could a reform like Proposition 227 have on students' performance after only one year? The impact of Proposition 227 could be negative on bilingual students if:

1) interrupting bilingual instruction and suddenly immersing students in English classrooms is disruptive (Ramirez 1992; Fillmore 1998), 2) interrupting any program of instruction, regardless of its merits, is educationally disruptive, or 3) bilingual instruction is a superior program (Krashen 1996; Ramirez 1992; Willig 1985). The impact of Proposition 227 could be positive in the first year if: 1) bilingual instruction is not a superior form of instruction compared to English-only instruction such as ESL, SEI or regular English instruction (Rossell and Baker 1996), 2) bilingual instruction is superior to English-only programs, but when carried out poorly interrupting it is beneficial, or 3) bilingual instruction is superior, but only in the long-run, after proficiency has been achieved, thus rendering any initial benefits of the reform short-lived (Hakuta, 2000; Krashen 1996, 1999).

Thus, with all these logical possibilities for the impact of Proposition 227, assessing its effects in the short-term does not provide a clear-cut test on the efficacy of bilingual instruction since, strictly speaking, other explanations not hinging on efficacy may be driving the results. However, if the bilingual program studied had been well implemented, and the impact of the reform is positive after one year, this will be suggestive evidence that bilingual instruction is not beneficial for LEPs. An assessment of the reform after several years will provide more definitive answers.

Ideally, we would also compare the performance of former bilingual LEPs with continuing bilingual LEPs, in addition to continuing non-bilingual LEPs. This comparison would hold constant their 1998 bilingual background while varying their 1999 status. However, in the southern California district under study, this is not possible since the district essentially dismantled its bilingual program. Only 200 bilingual students continued in bilingual instruction and they were all exempted from test taking in 1999. Therefore, I only compare former bilingual students and non-bilingual students.[4]

[4]Since continuing bilingual students are not included in this study, I will refer to former bilingual LEP students as bilingual LEPs when the context is clear. Similarly, I will refer to continuing non-bilingual LEPs as non-bilingual LEPs.

5.4 Data and Methods

5.4.1 The District

Pasadena Unified School District (PUSD) is in Los Angeles county. In 1998-99 it had a total population of approximately 22,000 students, of whom 18,300 were eligible to take California's yearly mandatory academic tests. As seen in Table 1, the percentage of LEPs in Pasadena (26.3 percent) is very close to the overall state figure of 24.6 percent. Pasadena's academic performance in reading, on the other hand, lagged California's in every grade. With its large Hispanic and LEP student body, PUSD is representative of California's urban school districts and a good candidate for a study of the effects of Proposition 227. However, the fact that it has a more disadvantaged and diverse student body, as seen by the variables percent Hispanic, percent black, percent in the California Work Opportunity and Responsibility to Kids (CalWORKs) program, formerly Aid for Families with Dependent Children (AFDC), and percent free lunch, may make it more difficult for any reform to succeed.

[Table 1 about here].

In 1998, there were approximately 5,400 LEP students in the PUSD, with 2,900 of these, or 16 percent of the student population, were enrolled in bilingual classes, primarily in grades K-4.[5] Bilingual instruction in PUSD was a deliberate program. The average stay in bilingual classes for LEPs was four years while close to 20 percent of the teachers had bilingual accreditations. By comparison, Los Angeles county had only 15 percent of its teachers accredited in bilingual education despite having a higher percentage of LEPs (33 percent) than did PUSD (28 percent). But by 1999, after the passage of Proposition 227, PUSD had largely dismantled its bilingual programs. The majority of the bilingual students were placed in structured-English-immersion classes (SEI) where English was taught at the students' level, or in classrooms with some English support. Approximately 200 waivers, all from the most heavily Hispanic school, were requested by parents to keep their children in bilingual classes. The district went from roughly two-thirds of its 30 schools offering bilingual programs in 1998 to just one school in 1999.

[5]Over 97 percent of students in bilingual education had Spanish as their primary language.

5.4.2 The Data

To test the impact of Proposition 227, I use a multivariate linear specification with a Heckman selection process. Details of this model are in the next section and in Appendix A. The dependent variable measuring the performance of students is test score, and the explanatory variables reflect students' background and school information.[6] The test scores are from 1998 and 1999 Stanford 9 tests (on a scale from 1 to 99) that all California students in grades 2-11 are required by law to take. I will focus the present analysis on total reading and math, which are tested at all grade levels.[7]

The set of students in the main analysis includes: 1) students who were exempted from test-taking in 1998, but not in 1999 and were in the district both years, and 2) students who took the tests both years and were in the district both years. That is, the students excluded are those who left in 1999, were new in 1999, or were exempted from test-taking in both years. In PUSD, this latter excluded group consisted in great part of the 200 or so students who continued in bilingual classes after the reform and all attended the same school.

The independent variables incorporated in the analysis can be grouped into three categories: individual, group, and school variables. The individual variables describe a student's English proficiency classification: LEP and bilingual LEP. A LEP student is a child from a non-English speaking family who scores low in an English assessment test. A bilingual LEP student is a LEP student enrolled in bilingual classes in 1998.[8] LEP students tend to score significantly lower than non-LEPs in reading and math, and I expect to see this gap in the Pasadena district (National Research Council, 1998).

The group variables are race (Hispanic, black, white, other), socioeconomic level (high SES, mid-SES, low SES), family receipt of welfare (AFDC/CalWORKs), free lunch program (free lunch), and legal guardianship at home (both parents, mother, father, fos-

[6]The data (proprietary to PUSD) was provided by the Testing, Research and Evaluation Center at PUSD.

[7]The test scores are normed curve equivalent (NCE) scores. They are obtained by first scaling the scores according to the difficulty of the questions. Next, these scaled scores are translated into a national percentile rank (NPR), which is the percentage of the national norming sample that scored equal to or less than the student. Finally, the NPR is re-expressed as a value from (1 to 99) in a normal curve with mean 50. The benefit from using NCE scores is that comparisons can be made across subjects and grades.

[8]Standardized evaluations of LEP students are problematic in that not only do districts have different criteria but, given a certain criteria, even native English-speaking students may not pass them (Rossell 2000).

ter/institution). Socioeconomic levels are derived from the real estate value of a student's residence address. AFDC/CalWORKs is welfare for families with children and the free/reduced lunch program is a need-based federally-funded program. Legal guardianship can be held by both parents, the mother, the father or other (foster, institution, step-parents, etc.). In general, lower SES and welfare variables are expected to be associated with lower scores (Hanushek 1986; Murnane 1975), while relatively more stable households composed of both parents are expected to have a small positive effect on scores (McLanahan and Sandefur 1994). In regard to race, ample research has documented the gap in education test scores between African-American and Hispanic students with respect to white students (Jencks and Phillips 1998).

The school variables are class size, percent full credentials, magnet school and percent teacher Hispanic. Class size is the average class size of a school, and percent full credentials is the percent of credentials held by school staff that are full (as opposed to emergency or interim) credentials. Magnet school is an indicator for the three magnet schools in the district. The evidence on class size has been mixed, with some scholars finding no effect (Hanushek 1999) and others finding a positive effect (Pate-Bain et al. 1992). I expect higher percentages of full credentials to be associated with higher scores (Darling-Hammond 2000; Fetler 1999). The percentage of teachers of Hispanic origin may have an impact on the probability of being exempted from test-taking, a problem discussed next.

5.4.3 Methods

To assess the independent impact of Proposition 227, we need to control for students' background characteristics since the assignment into a bilingual class was not random.[9] Bilingual LEPs were not only less proficient in English than non-bilingual LEPs, but they also tended to belong to more disadvantaged families. In addition, out of a total of the 14,000 students enrolled in the district in both years, more than 1,000 were exempted from taking the tests, and close to 1,000 other students simply skipped the reading and math tests.[10] If the exemp-

[9]The assignment of LEP students into bilingual classes was the result of the district's assessment through tests and subsequent recommendations from the Bilingual Center at PUSD to the parents.

[10]In the data set the students who were exempted or missed are indistinguishable.

tions and misses were correlated with students' test scores, the underlying selection processes must be taken into account, otherwise the estimates will be biased and inconsistent (Greene 1993, 709).

I use Heckman's (1979) selection model to account for the selection process. In this model, two equations are estimated. The first equation, the one of interest, explains test scores. Without a selection process, this equation could be estimated by standard ordinary least squares (OLS) techniques. The second equation, the selection equation, uses a discrete binary model to explain whether a score is observed. In Heckman's model, the coefficients and parameters in both equations are estimated simultaneously through maximizing the likelihood of observing the data (Greene 1993, 706-711; Heckman 1979; Maddala 1996, 258-267). An important parameter that is estimated is the correlation, ρ, between the errors (the non-deterministic components) in the two equations. If the correlation is statistically different from zero, this implies the two processes, scores and test-taking, are interdependent and the selection model is appropriate (see Appendix A for more details on the model). For example, a positive ρ being positive implies that students more likely to take the tests are also more likely to have higher scores.

5.5 Before and After Proposition 227

I begin the analysis by looking at the average scores before and after Proposition 227, without controlling for background information. Table 2 presents the average reading and math test scores for 1998 and 1999, according to a student's English program classification. From 1998 to 1999, bilingual LEP students increased their average scores by 4.4 points in reading and 4.0 points in math. Students in the early grades (not disaggregated in Table 2) accounted for most of these increases. Non-bilingual LEPs, on the other hand, experienced smaller increases of 1.5 points and 2.5 in reading and math, respectively. Bilingual LEPs' 1999 scores in reading and math were statistically indistinguishable (at the 95 percent level) from those of non-bilingual LEPs in a difference of means test. Non-LEP students have much higher average scores than either bilingual or non-bilingual LEPs, but their average gains are much smaller: 0.7 points in reading and 1.2 in math. This preliminary breakdown suggests that

bilingual LEP students may have caught up to non-bilingual LEP students' performance after Proposition 227. However, these numbers do not include statistical controls for background, nor do they account for the fact that many bilingual students did not take the tests in 1998. The next section addresses these issues.

[Table 2 about here].

5.5.1 The Baseline in 1998

I use the Heckman specification to compare the 1998 scores of bilingual LEPs and non-bilingual LEPs, taking into account background characteristics and test-exemption biases. Table 3 presents the complete selection model results for 1998 reading and math scores in PUSD. Almost all of the coefficients in the scores and selection equations are statistically different from zero at the 95 percent level.[11] The parameter, ρ, is 0.87 and 0.79 for reading and math, respectively. These values are large and statistically significant at the 95% level, justifying the use of the selection model. The positive ρ implies that the better achieving students were being tested. Furthermore, the coefficients from the test-taking equation imply that being a bilingual LEP, LEP, Hispanic, black or belonging to a school with a large percentage of Hispanic teachers significantly decreases a student's chances of taking the tests.

[Table 3 about here].

Consider the coefficients of the background and school variables appearing only in the scores equation. These can be interpreted directly as in an OLS model. In general, all of these coefficients are in the expected direction. For example, all else being equal, students with low SES backgrounds have lower scores in reading (-3.25) and math (-3.38) than students from high SES backgrounds. Having both parents in the family, on the other hand, is associated with higher scores in reading (2.46) and math (3.15) compared to students living with foster parents or in an institution.

With regard to school variables, which policymakers may influence more directly than students' SES characteristics, I find that the percentage of full credentials has a positive

[11] If only the scores equation for reading is estimated with OLS, the R2 is 0.35 and a probit estimate of the test-taking equation has a pseudo-R2 of 0.22. These suggest a reasonable fit of the models to the data.

and statistically significant effect on reading and math scores. Increasing the percentage of full credentials in a school from 65 percent, close to the district's average, to 100 percent increases the predicted scores in reading and math by 7 points. This is a large effect when we consider, for example, that the performance increases ascribed to the recently touted reductions in class size are only about 3 points (Los Angeles Times, 1999). The impact of the class size variable is small, but surprisingly it is positive, possibly due to the fact that schools with more students in their classrooms are more likely to exempt students from taking tests.[12]

Next, consider the impact of the LEP and bilingual LEP variables on 1998 test scores. These variables appear in both the score and test-taking equations. Their total marginal effect equals their effect in the scores equation plus their effect in the selection equation, with a correction weighted by the correlation estimate, $\widehat{\rho}$ (Appendix B). Table 4 summarizes these total impacts. The net effect is that a LEP student enrolled in bilingual instruction in 1998 scored 2.4 points less in reading than a non-bilingual LEP, and 0.5 points more in math. These effects are statistically significant at the 95 percent level and confirm our initial expectations. Bilingual students enrolled in 1998 had statistically lower scores than non-bilingual LEPs in subjects that stress English skills.

[Table 4 about here].

This lag in reading between bilingual LEPs and non-bilingual LEPs in 1998 is meaningful in educational terms. Its size is comparable to the effect of California's class size reform. In terms of the implications of this lag, the fact that bilingual LEPs did worse in reading than non-bilingual LEP students while they did virtually the same in math suggests the lack of exposure to English may have impacted bilingual students' scores.

Among all the predictors, the LEP variable has the largest effect. As might be expected, LEP students on average have much lower scores than non-LEP students. When we combine the effects of the LEP variable from both the scores and the selection equations, a representative LEP student (Hispanic and non-bilingual) scores 13.1 points less than a non-LEP student in reading and 9.7 less in math. These gaps are statistically significant and substantively large. Furthermore, race has an impact on scores even after language and background

[12]The correlation between having a reading test score in 1998 and class size is 0.24, for example.

controls. All else equal, Hispanic students score close to 6.3 and 7.3 points less in reading and math, respectively, than white students. For black students, the gap with respect to white students is even larger: 9.8 points in reading and 11.9 points in math. My analysis does not include other controls, such as parent's education and at-home behavior, which might reduce the gaps among these racial groups. On the other hand, these large gaps are consistent with many findings in the literature.[13]

5.6 Good News after Proposition 227?

The primary goal of this chapter is to assess the impact of Proposition 227 on LEP students. Many bilingual students had their educational program interrupted by the proposition, especially students entering second or third grade in 1999 given that the average stay in bilingual programs was four years. In 1999, most bilingual LEP students were placed in structured-English-immersion classrooms. What happened to these former bilingual LEPs after Proposition 227? I find that in the first year after the Proposition 227 former bilingual LEP students caught up with non-bilingual LEPs, especially in reading.

[Table 5 about here].

Table 5 presents the estimates from a Heckman selection model where students' 1999 scores in reading and math are explained by the same independent variables included in the 1998 estimation. The correlation estimate, ρ, is positive and statistically significant for reading but negative (though small) and significant for math. The latter may reflect the fact that students missing math tests are more likely to be those who skipped tests rather than exempted students. Except for the variable indicating enrollment in bilingual classes in 1998, we would not expect the independent variables to have different effects in 1998 and 1999, and indeed, the coefficients are of the same magnitude and direction in both years. The exception is the coefficient for class size which is positive in 1998 and negative in 1999. However, in both years, the impact is substantively minimal (only about 1.5 points for a decrease of about ten students).

[13]See Jencks and Phillips (1998) for a thorough account of the test-score gap between black and white, and the National Center for Education Statistics Report 767 (1995) with regard to the gap between Hispanic and white students.

Table 6 summarizes the total effects of the variables of interest, paralleling Table 4. After the reform, bilingual LEPs had scores in reading only 0.37 points less than non-bilingual LEPs, a difference that was not statistically significant. That is, bilingual LEPs' scores in reading were statistically indistinguishable from non-bilingual LEPs. Likewise for math, the total effect of 0.49 points from having been enrolled in bilingual classes is not statistically different from zero. Bilingual LEPs appear to have caught up with non-bilingual LEPs in a single year. The fact that the scores of non-bilingual LEPs and non-LEPs also went up implies that the gap between bilingual LEPs and non-bilingual LEPs is not due merely to the top performing students doing worse. Rather, it seems the lowest performing students improved. Therefore, we can confirm the hypothesis that Proposition 227 seems to have had a positive effect after one year. The gap in scores between bilingual LEP students and non-bilingual LEP students decreased in 1999.

(Table 6 about here).

Another way to assess the impact of the reform is to look at the gains experienced by individual students. A preliminary inspection shows that in reading bilingual students experienced greater gains (4.1 points) than non-bilingual students (1.8 points), and non-LEPs (1.0 points). The differences between each of the groups' means are statistically significant. Analyzing the gains with a Heckman model (See Appendix C.1 and C.2) shows that bilingual LEPs increased their reading scores an average of 1.1 more than non-bilingual LEPs', while in math there was no difference in the gains between bilingual and non-bilingual LEPs. So, who experienced these gains? Further inspection with a multivariate analysis (see Appendix C.3) shows that most of the gains experienced by bilingual LEPs (and, in fact, for all students in general) occurred in the early grades. Former bilingual LEPs in third grade in 1999, who experienced two years of bilingual instruction, had gains in reading, after proper controls, of close to 4 points. This may leave open the possibility that short periods of bilingual instruction (no longer than two years) may not be detrimental to English learners (Bali 2001).

The immediate policy implication of these findings is that immersing bilingual students in English-based classrooms did not set them back relative to non-bilingual LEP students, at least in the short run. The implication for theories of language acquisition is that abruptly

interrupting bilingual classes is not detrimental to students (Ramirez 1992; Wong Fillmore 1998). With regards to bilingual education's efficacy, a positive effect is consistent with bilingual programs not being effective compared to English-only ones (Rossell and Baker 1996). However, these effects may be short-lived and district-dependent, and further research across districts, and over time are needed to provide final answers. Perhaps more importantly, LEPs and Hispanic students still have much lower scores than non-LEPs and whites, even after Proposition 227. Other policy reforms, such as more emphasis on teacher training and credentialing should also be considered as ways to reduce this gap.

5.7 Robustness and Model Specification

In this section I test the robustness of my findings to plausible changes in the model used, the students studied, and the data analyzed.

Selection Model versus OLS. If a standard ordinary least squares model is used to predict 1998 test scores, rather that the selection model estimated in Table 3, bilingual LEPs score 1.8 points less in reading and 0.73 points more in math than non-bilingual LEPs (p-values are 0.005 and 0.287, respectively). These numbers imply a smaller gap between the two groups than those obtained earlier with the selection model. That is, not accounting for the possibility that the weaker bilingual students were being exempted and therefore using an incorrect model specification, underestimates the gap in reading test scores between bilingual and non-bilingual LEPs and subsequently underestimates the effect of Proposition 227.

Stable Population of Students Bias. My analysis includes only students who were in the district in both 1998 and 1999, before and after Proposition 227. The rationale was that this would hold the general district-wide impact constant. Bilingual students arriving in Pasadena in 1999 may have had very different experiences in their bilingual instruction, complicating the comparisons with non-bilingual LEPs. However, this research design choice may induce bias. The direction of this bias is not clear, since while anecdotal accounts often suggest low income students are highly mobile, my data suggests otherwise. Students who left PUSD in 1998 had statistically the same likelihood of being LEP and of being at the same mean SES level as those who stayed. Moreover, the percentage of white students who

left was slightly higher (significant at the 95 percent level) than those who stayed. Most importantly, however, repeating the analysis done in this article, without a restriction on enrollment for two consecutive years yields the same qualitative results. In 1999, bilingual LEPs scored indistinguishably from non-bilingual LEPs in reading and math tests.

Boundary constraints. The data present some heteroskedasticity due to boundary effects. That is, larger errors occur in the estimation when predicting tests scores close to the boundaries 1 and 99. All estimations were done without including robust standard errors to minimize the chances of incorrectly concluding a variable had significant effects. To check that boundary effects are not skewing these results I reanalyze the data with a probit analysis coding one for test scores above 25 and 0 otherwise (25 is close to the mean score for LEPs in general). I find that bilingual LEP students were 6 percent more likely to score below the threshold in 1998 than non-bilingual LEPs (p-value ¡ 0.05) while in 1999 they were 1 percent more likely to score above the threshold than non-bilingual LEPs but this effect is not significant (p-value = 0.34). Therefore, the analysis with a discrete dependent variable obtains the same qualitative results as the analysis with a continuous one.

5.8 County Level Results

So far, I have analyzed only data from PUSD, a district that I consider representative of California's urban districts. To assess the generalizability of my results, I checked whether they would hold at a more general level of analysis. I analyzed count level data for California in 1998 and 1999, including all tests-takers in both years. Using an OLS model, the dependent variable was the test score change experienced by each county as measured by the difference in the percentage of students scoring above the 50th National Percentile Ranking (NPR) in 1999 versus 1998.[14] The independent variables for the analysis are the percentages for demographic and school related factors already discussed in the individual level analysis: bilingual LEP 1998, Hispanic, black, white, AFDC, free lunch, LEP and the percentage of full credentials. I also included the predicted residuals from a test-taking equation (again,

[14]For example, Los Angeles county had 35 percent of students scoring above the 50th NPR in 1999 while in 1998 they had only 32 percent. Thus, Los Angeles county experienced a gain of 3 percentage points.

as in the individual level case) to account for test taking biases.[15] The results are presented in Table 7. The standard caveats for any aggregate analysis of educational data hold in this case; there can be multicollinearity among variables, there is the possibility of committing ecological fallacies, and hierarchical models may be more appropriate (Gill 2000; Draper 1995). I view this aggregate analysis merely as a check of the generalizability of the previously observed results.

[Table 7 about here].

The R^2 of the OLS model is 0.46 for reading and 0.5 for math. The only coefficients that are (close) to significant at the 90 percent level are percent percent black, percent full credentials and the predicted test-taking residuals. The estimated coefficients on percent Hispanic and percent Bilingual LEP are not significant at the 90 percent level for reading and math. The coefficient on the predicted test-taking residual is positive and significant suggesting that counties with larger proportions of test-takers had higher gains above the national median. These results are consistent with Proposition 227 not hurting the educational performance of Hispanic students, although a more definitive test would compare gains from other years, for example 1997 to 1998, to those experienced from 1998 to 1999. But since legally mandated, systematic testing only began in 1998, this comparison cannot be made.

5.9 Discussion

Bilingual education has been a controversial, yet popular, program of instruction for English learners. The increasing size of the immigrant population, especially that of Hispanic origin, and the persistent gap in educational outcomes between Hispanic and white students, requires that the effectiveness of bilingual programs be evaluated, and perhaps that improved ways of educating English learners be developed. Through political circumstances, California's experience with Proposition 227 allowed for a natural experiment of the effects of bilingual education. The results after one year of the reform have shed some light on the

[15]The predicted residuals were obtained by regressing the percent of students who took the tests in each county over county-level demographics and the percent of Hispanic teachers.

controversy. Dismantling bilingual programs seems to have provided a small improvement towards equalizing educational outcomes between Hispanic and white students.

Before Proposition 227, bilingual LEP students from the one southern California school district studied here had lower scores in reading than non-bilingual LEP students. One year later, these former bilingual students had reading scores that were indistinguishable from those of their non-bilingual LEP peers, students who in principle already had a better command of English. Since non-bilingual LEP students had better scores before Proposition 227, I conclude that interrupting bilingual students' length of stay in bilingual programs did not set them back relative to non-bilingual LEP students, at least in the short run. Long-term effect analysis, four of five years down the road, will provide more definitive answers.

It is important to note that the present analysis has found only that interrupting bilingual instruction does not set bilingual students back. It provides evidence suggestive that bilingual instruction, as conducted in PUSD with an average stay of four years, is not a superior program of instruction compared to English-based programs. However, a successful program for English learners may still include "small doses" of bilingual instruction, especially in the early grades (Rossell and Baker 1996). Moreover, after Proposition 227 LEP students still vastly under-performed on reading and math tests compared to students fluent in English. Other policy factors apart from programs for English learning, such as teacher credentialing and training, may also affect student performance and should be addressed vigorously.

From a political perspective, the passage and positive impact of Proposition 227 will likely lead to similar measures in other states. For example, Arizona passed a similar measure in the 2000 general election. Interestingly, the diffusion of this policy does not just mean the dismantling of bilingual programs but also the setting of a uniform standard within a state that adopts it. Standardization and accountability together with school choice have become the common responses of state governments and initiative groups to the recent educational concerns of voters (Mintrom and Vergari 1998; Ravitch 2000).

The success of Proposition 227 in enhancing student performance points out a paradox of politics and policy. This initiative, proposed by a conservative citizen group, was viewed by many as having anti-immigrant, anti-Hispanic undertones, especially coming as it did after several initiatives in California that targeted public services for minorities and immigrants

directly. Despite its alleged anti-immigrant connotations, the reform was not detrimental and may have even benefited those it targeted. The policy success of this controversial measure may further encourage comprehensive educational reforms to be carried out through the initiative process rather than through the legislatures or state-level departments, expanding role of the initiative process in education.

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5.10 Appendix A: Heckman's Selection Model and Marginal Effects

Following Greene's notation (1993, 707-709) Heckman's selection model can be summarized as follows. Consider two equations, one for the selection model and the other for test scores. The variable, z, indicates whether a student took a test or not and takes on the values 1 or 0 while, y is test scores. The independent variables w, and, x, are individual and school characteristics.

$z_i = g\ w_i + u_i$ Selection (test-taking) equation

$y_i = \beta\ x_i + e_i$ Scores equation

Assume (u_i, e_i) is distributed bivariate normally $[0, 0, 1, \sigma_e, \rho]$. For an observed y_i we have

$E [y_i \mid y_i \text{ is observed}] = E [\ y_i \mid z_i > 0\ ]$

$= \beta\ x_i + E [e_i \mid u_i > - \gamma\ w_i]$

$= \beta\ x_i + \rho\ \sigma_e\ m(\alpha_u\ )$

where,

$\alpha_u = - \gamma\ w_i\ /\ \sigma_u$

$m_i\ (\alpha_u\ ) = \phi(\alpha)\ /\ \Phi(\alpha)$ = Inverse Mills Ratio

$\phi(.)$ is the density of a normal distribution and $\Phi(.)$ is the normal's cumulative density. The term, $\rho\ \sigma_e$, is often referred to as lambda (λ) in the econometric literature and is so denoted in Tables 3 and 6. The marginal effect for an indicator variable is then as follows

$E [\ y_i \mid z_i > 0\ ,\ x_i = 1] - E [\ y_i \mid z_i > 0\ ,\ x_i = 0] = \beta + \rho\ \sigma_e\ m(x_i = 1) - \rho\ \sigma_e\ m(x_i = 0)$

5.11 Appendix B: Total Marginal Effects for Reading Scores in Heckman Selection Model

To calculate the total marginal effects, we first obtain $m(x_i = 1) - m(x_i = 0)$, holding all other variables at their mean or modal values, as appropriate. Given that most individual-level explanatory variables in this article are indicator variables, I use modal values. The

calculation of the marginal effect for the variables of interest when explaining reading scores in PUSD in 1998 is for Table 4:

Total Effect = Scores' Equation Effect + Selection Effect

$= \beta + \rho\ \sigma_e\ .\ [m(x_i = 1) - m(x_i = 0)]$

Total Effect Bilingual LEP 1998 = -9.2 + 15.8 [0.65 -0.22] = -2.4 (1)

Total Effect LEP 1998 = -14.7 + 15.8 [0.22 - 0.12] = -13.1 (2)

Total Effect Hispanic = -7.28 + 15.8 [0.12 - 0.065] = -6.3 (3)

Total Effect Black = -11.06 + 15.8 [0.14 - 0.065] = -9.8 (4)

In (1), the difference in the Mill's ratios was obtained with regards to a Hispanic LEP student who went from non-bilingual to bilingual while all other variables in the selection equation were set at their modes. For (2), the effect is calculated for a Hispanic student not enrolled in bilingual classes, while for (3), the effect was calculated for a LEP student, not bilingual. The calculation for the predicted effects on math scores in 1998 (Table 4) and reading and math scores in 1999 (Table 6) follow the same logic.

Table 1. Pasadena Unified School District Compared to California, 1999

	PUSD	California
Total Students	18,300	5,844,110
Percent Hispanic	47.6	41.3
Percent Black	31.5	8.7
Percent White	16.6	37.8
Percent Other	4.3	12.2
Percent LEP	26.3	24.6
Percent AFDC	23	18.3
Percent Free Lunch	67	47.7
National Percentile Ranking Reading 2nd G [a]	40	43
National Percentile Ranking Reading 11th G [a]	29	36

Source: California's Department of Education Website, http:// www.cde.ca.gov and PUSD.

[a] National Percentile Ranking from Stanford 9 Tests in a scale from 1 to 99.

Table 2. Average 1998 and 1999 Stanford 9 Test Scores in Reading and Math for PUSD Students, by English Proficiency and Program Enrollment

	Bilingual LEP in 1998	Non-Bilingual LEP in 1998	Non-LEP in 1998
Reading 1998	27.6 (1192, 14.62)	31 (1765, 14.8)	46 (8870, 19.48)
Reading 1999	32 (2205, 15.11)	32.5 (1906, 14.9)	46.7 (9205, 19.44)
Gains Reading	4.15 (1148, 11.08)	1.8 (1691, 11.5)	1.02 (8503, 11.5)
Math 1998	37.8 (1225,18.35)	38.3 (1833, 16.8)	48.9 (9032, 20.8)
Math1999	41.8 (2269, 18.7)	40.8 (1933, 16.9)	50.2 (9349, 20.9)
Gains Math	2.56 (1208, 14.3)	2.53 (1780, 13.5)	1.48 (8773, 13.9)

Source: Test scores and student classification were made available by PUSD's Testing Department.
Note: Average scores are for test-takers in the district in 1998 and 1999. The number of students and the standard deviation of the test scores are included in parentheses.

Table 3. Heckman Selection Model Predicting 1998 Reading and Math Test Scores in PUSD

	Reading			Math		
	Coefficient	Standard Error	P-value	Coefficient	Standard Error	P-value
Scores Model						
Bilingual LEP 1998	-9.22	0.70	0.00	-7.32	0.78	0.00
LEP 1998	-14.73	0.52	0.00	-10.36	0.55	0.00
Hispanic	-7.29	0.52	0.00	-8.09	0.55	0.00
Black	-11.06	0.52	0.00	-12.87	0.55	0.00
Other (Non-white)	1.41	0.80	0.08	4.21	0.87	0.00
Male	-2.35	0.29	0.00	0.13	0.32	0.69
Low SES	-3.25	0.67	0.00	-3.38	0.74	0.00
Mid SES	-0.97	0.65	0.14	-1.11	0.72	0.12
AFDC	-3.30	0.39	0.00	-3.47	0.43	0.00
Free Lunch	-5.54	0.39	0.00	-4.55	0.42	0.00
Both Parents	2.46	0.52	0.00	3.15	0.57	0.00
Mother	0.70	0.54	0.20	0.24	0.60	0.69
Father	0.01	1.03	0.99	2.00	1.13	0.08
Percent Full Credentials	0.20	0.02	0.00	0.22	0.02	0.00
Class Size	0.22	0.06	0.00	0.16	0.07	0.02
Magnet School	4.67	0.48	0.00	2.37	0.51	0.00
Constant	25.67	2.73	0.00	29.01	2.97	0.00
Selection Model						
Bilingual LEP 1998	-0.95	0.05	0.00	-1.25	0.05	0.00
LEP 1998	-0.36	0.04	0.00	-0.19	0.05	0.00
Hispanic	-0.36	0.05	0.00	-0.37	0.05	0.00
Black	-0.44	0.05	0.00	-0.42	0.05	0.00
Percent Teacher Hispanic	-0.01	0.00	0.00	-0.01	0.00	0.00
Magnet	0.26	0.05	0.00	0.12	0.05	0.03
Constant	1.76	0.07	0.00	1.81	0.07	0.00
Rho	0.87	0.01		0.79	0.02	
Lambda	15.86	0.34		15.34	0.49	
N	15979			15717		

Source: Student variables were provided by PUSD's Testing Department and school variables were obtained from the California Department of Education's website.

Note: Dummy variables for each grade (excluding 11th grade) were included in both the scores and selection equations, and all levels were significant. Scores from the Stanford 9 tests are on a scale from 1 to 99.

Table 4. English Proficiency and Race Effects from Heckman Selection Model for Reading and Math Test Scores of PUSD Students, 1998

	Reading		Math	
	Coefficient	P-value	Coefficient	P-value
Bilingual LEP 1998	-2.4	< 0.05	0.5	< 0.05
LEP 1998	-13.1	< 0.05	-9.7	< 0.05
Hispanic	-6.3	< 0.05	-7.3	< 0.05
Black	-9.8	< 0.05	-11.9	< 0.05

Source: See source note for Table 3.

Note: The excluded variables are non-LEP and white. That is, bilingual LEPs score in reading 2.4 points less less than non-bilingual LEPs, and LEPS (bilingual and non-bilingual) score 13.1 points less than non-LEPs. Hispanics and blacks score 6.3 and 9.8 points less than whites.

Table 5. Heckman Selection Model Predicting 1999 Reading and Math Test Scores

	Reading			Math		
	Coefficient	Standard Error	P-value	Coefficient	Standard Error	P-value
Scores Model						
Bilingual LEP 1998	-0.84	0.57	0.14	0.42	0.59	0.48
LEP 1998	-13.28	0.48	0.00	-9.42	0.51	0.00
Hispanic	-5.94	0.49	0.00	-6.79	0.52	0.00
Black	-10.40	0.49	0.00	-11.88	0.52	0.00
Other (Non-White)	2.96	0.77	0.00	6.47	0.85	0.00
Male	-2.25	0.27	0.00	0.14	0.31	0.64
Low SES	-3.06	0.64	0.00	-2.62	0.72	0.00
Mid SES	-0.51	0.62	0.41	-0.99	0.71	0.16
AFDC	-3.30	0.37	0.00	-3.83	0.41	0.00
Free Lunch	-5.88	0.37	0.00	-4.75	0.42	0.00
Both Parents	3.03	0.49	0.00	4.26	0.56	0.00
Mother	0.95	0.51	0.06	1.04	0.58	0.08
Father	0.96	0.98	0.33	1.69	1.12	0.13
Percent Full Credentials	0.16	0.02	0.00	0.21	0.02	0.00
Class Size	-0.16	0.06	0.01	-0.13	0.07	0.05
Magnet School	5.57	0.45	0.00	0.98	0.48	0.04
Constant	41.77	2.55	0.00	41.40	2.81	0.00
Selection Model						
Bilingual LEP 1998	-0.14	0.07	0.03	0.13	0.10	0.19
LEP 1998	-0.14	0.06	0.01	-0.07	0.07	0.37
Hispanic	-0.35	0.06	0.00	-0.07	0.07	0.30
Black	-0.35	0.06	0.00	-0.10	0.07	0.15
Percent Teacher Hispanic	0.00	0.00	0.93	-0.01	0.00	0.00
Magnet	0.47	0.07	0.00	0.87	0.13	0.00
Constant	1.74	0.07	0.00	1.54	0.09	0.00
Rho	0.89	0.01		-0.38	0.09	
Sigma	17.29	0.12		18.09	0.13	
Lambda	15.42	0.30		-6.79	1.58	
N	14,508			14274		

Source: Student variables were provided by PUSD's Testing Department and school variables were obtained from California Department of Education's website, http:// www.cde.ca.gov and PUSD.
Note: Dummy variables for each grade (excluding 11th grade) were included in both the scores and selection equations, and all levels were significant. Scores from the Stanford 9 tests are on a scale from 1 to 99.

Table 6. English Proficiency and Race Effects from Heckman Selection Model for Reading and Math Test Scores of PUSD Students, 1999

	Reading		Math	
	Coefficient	P-value	Coefficient	P-value
Bilingual LEP 1998	-0.37	>0.2	0.49	>0.43
LEP 1998	-12.8	<0.05	-9.4	>0.5
Hispanic	-5.4	<0.05	-6.8	>0.5
Black	-9.8	<0.05	-11.8	>0.5

Source: See source note for Table 5.

Note: The excluded variables are non-LEP and white. That is, bilingual LEPs score in reading 0.37 points less less than non-bilingual LEPs, and LEPS (bilingual and non-bilingual) score 12.8 points less than non-LEPs. Hispanics and blacks score 5.4 and 9.8 points less than whites.

Table 7. OLS Model Predicting County-Level Gains in Percent of Students Scoring Above the 50th NPR in Reading and Math Test Scores in California, 1998-1999

	Reading			Math		
	Coefficient	SE	P-value	Coefficient	SE	P-value
Percent Bilingual 1998	-0.01	0.01	0.16	-0.01	0.01	0.55
Percent Hispanic	0.01	0.02	0.73	0.01	0.02	0.79
Percent Black	0.07	0.03	0.01	0.07	0.04	0.06
Percent White	0.01	0.01	0.52	0.04	0.02	0.03
Percent Free Lunch	0.02	0.02	0.46	0.05	0.03	0.09
Percent AFDC	0.00	0.03	0.95	-0.03	0.04	0.43
Percent Full Credential	0.04	0.03	0.12	0.00	0.03	0.92
Predicted Residual Selection	0.22	0.07	0.00	0.46	0.08	0.00
Constant	-3.72	2.71	0.18	-0.09	3.37	0.98
N		58			58	
R^2		0.46			0.5	

Source: The California Department of Education's website://http: www.cde.ca.gov.

Note: OLS regression is weighted by the number of students enrolled in each district. Percentile rankings are from Stanford 9 tests.

AppendixA. Heckman Selection Model Predicting 1999-1998 Gains in Reading and Math Test Scores in PUSD

	Reading			Math		
	Coefficient	Standard Error	P-value	Coefficient	Standard Error	P-value
Scores Model						
Bilingual LEP 1998	1.46	0.64	0.02	-0.41	0.68	0.55
LEP 1998	0.75	0.34	0.03	0.72	0.40	0.07
Hispanic	0.25	0.34	0.47	0.16	0.41	0.70
Black	-0.22	0.34	0.53	-0.07	0.41	0.87
Other (Non-white)	1.26	0.54	0.02	2.09	0.65	0.00
Male	0.01	0.21	0.97	-0.13	0.25	0.60
Low SES	0.37	0.47	0.44	0.57	0.57	0.32
Mid SES	0.40	0.46	0.38	-0.27	0.56	0.63
AFDC	-0.23	0.29	0.42	-0.47	0.34	0.17
Free Lunch	-0.12	0.27	0.65	-0.10	0.33	0.77
Both Parents	0.10	0.37	0.79	0.65	0.45	0.15
Mother	0.10	0.39	0.79	0.54	0.47	0.25
Father	0.54	0.74	0.47	-0.75	0.89	0.40
Percent Full Credentials	-0.05	0.02	0.00	-0.03	0.02	0.09
Class Size	-0.34	0.05	0.00	-0.20	0.05	0.00
Magnet School	0.79	0.33	0.02	-0.01	0.38	0.98
Constant	17.09	1.94	0.00	9.67	2.31	0.00
Selection Model						
Bilingual LEP 1998	-0.98	0.05	0.00	-1.22	0.05	0.00
LEP 1998	-0.14	0.04	0.00	-0.06	0.05	0.24
Hispanic	-0.30	0.04	0.00	-0.25	0.05	0.00
Black	-0.31	0.04	0.00	-0.25	0.05	0.00
Percent Teacher Hispanic	-0.01	0.00	0.00	-0.01	0.00	0.00
Magnet	0.44	0.05	0.00	0.37	0.06	0.00
Constant	1.31	0.06	0.00	1.41	0.07	0.00
Rho	-0.07	0.09		-0.08	0.06	
Lambda	-0.79	1.00		-1.13	0.86	
	N=13892	Wald ch2(25)='		N=13892	Wald ch2(25)=510	

Source: Student variables were provided by PUSD's Testing Department and school variables were obtained from the California Department of Education's website.

Note: Dummy variables for each grade (excluding 11th grade) were included in both the scores and selection equations, and all levels were significant. Scores from the Stanford 9 tests are on a scale from 1 to 99.

AppendixB. English Proficiency and Race Effects from Heckman Selection Model for Gains in 1999-1998 Reading and Math Test Scores of PUSD Students

	Reading		Math	
	Coefficient	P-value	Coefficient	P-value
Bilingual LEP 1998	1.1	<0.05	-1.01	>0.05
LEP 1998	0.69	<0.05	0.68	>0.05
Hispanic	0.2	>0.5	0.12	>0.5
Black	0.18	>0.2	-0.16	>0.5

Source: See source note for Table 5.

Note: The excluded variables are non-LEP and white. That is, bilingual LEPs gains in reading was 1.1 p larger than non-bilingual LEPs, and LEPS (bilingual and non-bilingual) gains was 0.7 points less than non-LEPs.

Appendix C. 1998 Bilingual Enrollment Effect from Heckman Selection Model for PUSD Gains in 1999-1998 Reading and Math Test Scores, by Grade

	Reading		Math	
1999 Grade	Coefficient	P-value	Coefficient	P-value
Bilingual LEP 2nd Grade	2.50	>0.2	3.89	>0.1
Bilingual LEP 3rd Grade	4.04	<0.005	3.84	<0.05
Bilingual LEP 4th Grade	1.80	>0.1	-0.05	>0.5
Bilingual LEP 5th Grade	-0.30	<0.5	-2.78	<0.05
Bilingual LEP 6th Grade	0.46	>0.5	-3.13	<0.05
Bilingual LEP 7th Grade	0.97	>0.5	-0.87	>0.5
Bilingual LEP 8th Grade	2.16	>0.2	1.35	>0.5

Source: See source note for Table 5.

Note: The excluded variables are non-LEP and white. That is, bilingual LEPs gains in reading was 1.1 p larger than non-bilingual LEPs, and LEPS (bilingual and non-bilingual) gains was 0.7 points less than non-LEPs.

Chapter 6 Conclusions

What first prompted the present study was the passage of Proposition 227 in 1998, aimed at ending bilingual education in California. From a policy perspective, the initiative provided a unique opportunity to assess the efficacy of the controversial program of bilingual instruction. From a political point of view, the initiative incited examination given that it was promoted by an openly conservative group while those mostly affected by the measure were mostly Hispanic students in California's public schools. But, what further triggered this research was the observation that this educational measure, aiming to dismantling bilingual instruction, provided for discretion at the school district level. Why was discretion allowed? How did school districts implement the new mandate given discretion? Whose preferences, in the end, were represented in this educational reform?

The underlying theme in this dissertation has been representation. Whose preferences are being represented when we look at policy reform through the initiative process? Chapter 2 begins by addressing this question from a formal perspective, looking at how the presence of multiple districts with their possibly diverse preferences impacts the types of propositions we observe. One of the key insights from the analysis is that voter heterogeneity of preferences or local bureaucracies having better information can induce discretion in the proposals. That is, the initiative group will propose an interval of policies rather than a single policy when districts' preferences and informational advantages encourage the group to do so.

Normatively, discretion at the proposing stage can be a desirable aspect of the initiative process. Many states, among them California, require strict majorities, or 50% of the votes, for passage of a state-wide initiative. Clearly, close to 50% of the voters can be made much worse by a successful initiative. However, under certain circumstances non-majority voters can be made better off when discretion is offered compared to when a single policy is offered. Consider, for example, two districts with strict opposite views on an issue and the initiative group with an ideal policy in the middle. With discretion the initiative group offers an interval from the status quo of the majority district to its own ideal policy. If a single policy

is offered it will be just the majority district's status quo. In general, the minority district is better off when discretion is offered. Of course, in this setup the best alternative for both the majority and minority districts is to allow them full discretion.

This brings us to the issue of the proper place for decision-making. The initiative process is a state-level institution circumventing the state-legislative path and superseding local regulations. State-level policy making can be preferable to local-level policy-making when the policies in a district affect those of other districts. That is, externalities are present across districts. In the policy area of education, one can make a case that externalities are present. The physical and virtual interaction of citizens throughout the state seem to hint at the advantages of having similar standards of education. However, the same standards may be reached via different methods, and initiatives in education can deal with methodologies. Proposition 227 is an example of an educational initiative that, with the goal of promoting "English for the Children," in fact dealt with the methodology of providing English for the children. Normatively, deciding at the state-level on educational methodologies may give us some pause.

Compared to other policy areas that are voted upon, educational initiatives disproportionally affect minorities since minority students are more likely to attend public schools. On the other hand, non-minority citizens are more likely to vote. In chapter 3, I explore how voters vote on educational initiatives in California. In general, I find that voting on educational initiatives is very similar to voting on other measures or voting on candidate elections, as might be expected. Ideology and race play a strong role on how people vote on educational measures. The fact that race matters as it does may give some hesitancy since, again, compared to other policy areas, educational initiatives significantly affect some racial groups more than others. Also, the fact that local school conditions did not seem to play a strong role on voter choice may not be desirable.

After voter approval the final impact of the new educational policy gets determined by those who implement it. In chapter 4, I found that school districts implemented Proposition 227 mostly along institutional and bureaucratic lines. Local politics and school conditions did not seem to matter, surprisingly considering how publicized and politically contentious this measure was. School districts seemed to have responded mostly to its own institutional

constraints rather than to external factors.

What was the impact of Proposition 227? In chapter 5, I find that, looking at one southern California school district, the effects were positive though small. Dismantling bilingual programs seems to be a policy move in the right direction though, incremental, considering the expectations. It is one of those paradoxes of policy and politics that a measure advocated by a conservative group, and unavoidably interpreted by many as having anti-minority undertones, would eventually benefit those minorities.

The use of the initiative process for the reform of educational policies has mixed consequences. At least in theory, discretion will often be given since voters seem to interpret educational reforms often from an ideological and racial perspective which in turn will often imply, especially in racially diverse states, heterogeneous preferences. Moreover, in education research many important questions regarding the best ways of educating students from disadvantaged background remain wide open. Proposers should be encouraged then to offer some discretion to local institutions when they share a common goal. The arguably more puzzling aspects of reforming educational policies via the initiative process are that school district bureaucracies do not seem to be responding to local voter's preferences and voters do not seem to be responding to local school conditions.